Ihsan Barin

Thermochemical Data of Pure Substances

Distribution:
VCH, P.O. Box 101161, D-69451 Weinheim (Federal Republic of Germany)
Switzerland: VCH, P.O. Box, CH-4020 Basel (Switzerland)
United Kingdom and Ireland: VCH (UK) Ltd., 8 Wellington Court, Cambridge CB1 1HZ (England)
USA and Canada: VCH, 220 East 23rd Street, New York, NY 10010-4606 (USA)
Japan: VCH, Eikow Building, 10–9 Hongo 1-chome, Bunkyo-ku, Tokyo 113 (Japan)

ISBN 3-527-28745-0

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Thermochemical Data of Pure Substances

Third Edition

in collaboration with
Gregor Platzki

Ag – Kr

La - Zr

VCH

Weinheim
New York
Basel
Cambridge
Tokyo

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Hamborner Straße 20
D-47137 Duisburg

Thyssen Still Otto Anlagentechnik GmbH
Christstr. 9
D-44789 Bochum

First Edition 1989
Second Edition 1993
Third Edition 1995

Published jointly by
VCH Verlagsgesellschaft mbH, Weinheim (Federal Republic of Germany)
VCH Publishers, Inc., New York, NY (USA)

Editorial Directors: Karin Sora, James Gardiner
Production Manager: Dipl.-Ing. (FH) Hans Jörg Maier

Library of Congress Card No. applied for.

British Library Cataloguing-in-Publication Data: A catalogue record for this book is available from the British Library.

Die Deutsche Bibliothek – CIP-Einheitsaufnahme
Barin, Ihsan:
Thermochemical data of pure substances / Ihsan Barin. In collab. with Gregor Platzki. – Weinheim ; New York ; Basel ; Cambridge ; Tokyo : VCH.
ISBN 3-527-28745-0 (3. Aufl.) Gb.
ISBN 3-527-28531-8 (Weinheim ...)
ISBN 1-56081-717-8 (New York ...)
ISBN 3-527-27812-5 (Weinheim ..., 1. Aufl.)
ISBN 0-89573-866-X (New York ..., 1. Aufl.)
NE: HST

Vol. 1. Ag–Kr.–3. ed.–1995

Composition: Tables: Kühn & Weyh, Software GmbH, D-79111 Freiburg. Text: K+V Fotosatz GmbH, D-64743 Beerfelden.
Printing: Wiesbadener Graphische Betriebe GmbH, D-65199 Wiesbaden.
Bookbinding: IVB Industrie- und Verlagsbuchbinderei Heppenheim GmbH, D-64646 Heppenheim.
Printed in the Federal Republic of Germany.

Foreword to the First Edition

Metallurgical, materials, ceramic and chemical engineers worldwide will welcome this new compilation of thermochemical data by Professor Barin. Here they will find the most comprehensive tables yet available for the thermodynamic properties of pure substances as a function of temperature at 100° intervals. Almost twenty-four hundred substances are included – the elements, and compounds of two, three, and four elements. The vast majority of substances are inorganic, but Dr. Barin has included a generous selection of the more common hydrocarbons, carbohydrates, and a few chlorinated hydrocarbons. The format of the tables conforms to that of the JANAF tables, and SI units are employed.

To better appreciate the value of Dr. Barin's work, I have compared it below with other compilations that I regularly use.

JANAF tables. These tables are critically evaluated, each table is accompanied by a text that describes the data considered and reasons for the choice between conflicting values. The effort is directed at substances of importance to the sponsors of the project (U.S. Air Force and Department of Energy). As a result the stress is on substances of importance to fuel combustion, jet and rocket propulsion, and air pollution. Many elements and compounds of importance to metallurgy and related fields have not yet been included. For example, there are no tables for the elements and compounds of Ag, As, Au, Bi, Cd, Ce, In, Ir, La, Pd, Pt, Se, Sn, Te, Y, and U; moreover, many compounds essential to metallurgical calculations, such as Cu_2S, NiO, $NiSO_4$, $PbSO_4$, ZnO and ZnS have yet to be included.

U.S. Bureau of Mines Bull. 672, 674, and 677. Bulletins 672 and 674 cover the elements, binary oxides and binary halides in a very complete fashion. Bulletin 677, summarizes the values from Bulletins 672 and 674, and adds a modest selection of tables for arsenides, antimonides, borides, carbides, carbonates, hydrides, nitrides, phosphides, selenides, silicates, silicides, sulfates, sulfides and tellurides. The coverage of these added compound types, however, is far from complete; for example, there are no tables for $PbSO_4$, $SnSO_4$, GaS and Li_2S. The only ternary compounds included are the carbonates, sulfates and silicates, and no quaternary compounds are listed except for a limited number of hydrated compounds. Only brief references are given to the data sources, without attempt to explain the choice between conflicting values.

The Barin tables are far more complete in coverage than any of the sources described above. All of the natural elements and their compounds are included. In addition to the substance types listed in USBM Bull 677, the Barin tables include a large number of ternary oxides – aluminates, arsenates, borates, chromates, molybdates, nitrates, oxy-halides, phosphates, titanates, tungstates, selenates, vanadates, zirconates, etc. – as well as cyanides, hydroxides, complex silicates and inter-metallic compounds. The only substances not included by Barin, for which tables can be found elsewhere, are the ionized-gas species and a limited number of gas species important only at very high temperatures, which are listed in the JANAF tables. For each table Dr. Barin gives references for each of the major thermochemical values employed (enthalpy of formation and entropy at 298 K, and heat capacity). Like the USBM Bulletins, no attempt is made to discuss the choice between conflicting data sources.

Regarding quality of the values listed, Dr. Barin has wisely relied heavily on critically evaluated data (CODATA and JANAF) in cases where such values are available. For other substances he has drawn on a wide variety of sources, including the USBM Bulletins, other compilations, the periodical literature, and his own estimation of some thermochemical data. As new measurements are made, and as new critical evaluations become available, many of the Barin tables will require revision, but this is a characteristic of any attempt to compile thermochemical data. Anyone making thermochemical calculations who insists on the best possible data, will use a compilation, such as that of Barin or JANAF, as a starting place, but he will then check the recent periodical literature for new measurements that may have rendered the compiled values obsolete. This in no way detracts from the value of the compilation by Dr. Barin, which offers a starting place that is far more comprehensive than others, particularly for those concerned with metallurgical and similar systems.

The accomplishment of Dr. Barin in producing this volume is more remarkable in that it is largely an individual effort. The writer appreciates, from his own modest efforts to accumulate thermochemical data, the magnitude of the effort represented by this work.

Herbert H. Kellogg
Columbia University
New York, N.Y., 10027

February, 1989

Preface to the Third Edition

It has become necessary to produce a third edition after a relatively short time. There have been no significant changes in the existing preliminary text. In part IV and in the subsequent sections the inclusion of natural materials, such as minerals, ores, coal, and waste, in the thermodynamic calculations has been explained in detail. In the tables some errors have been corrected and new substances listed. Here, substantial support was given by the following experts: W. Härtel (Freiburg, Germany), H. Kleykamp (Karlsruhe, Germany), K. Supiyama (Kamihama Tsu, Japan), H. Nielson (Copenhagen, Denmark), F. J. J. van Loo, R. H. Eijkelberg (Eindhoven, Netherlands) among others. The number of tables has risen to 2518, including more than 230 organic substances. The whole book contains 3297 data sets for the thermodynamic description of substances and substance phases.

I would particularly like to thank my co-workers at the ZEUS Institute, especially Mr. F.-R. Zenz, Mr. M. Westphal, and Mrs. D. Dokupil for their valuable support.

The new edition has been greatly supported by VCH Verlagesgesellschaft, in particular by Dr. Ebel, Mrs. K. Sora and Mr. Maier.

Aachen/Duisburg, 1994/95 Ihsan Barin

Preface to the Second Edition

The first edition of this book has found wide-spread acceptance and been received with a great deal of interest. The constructive advice and criticism of colleagues from various countries have been of valuable help in preparing the second edition.

The preliminary text, an introduction to chemical thermodynamics, has been corrected, revised, and expanded to provide a sound basis for the calculation of the tabulated functions and their scientific/technical application.

The enthalpy H and Gibbs energy G have been more accurately defined and several errors in the tables have been corrected.

The work has been supported by VCH Verlagsgesellschaft, in particular by Dr. Ebel, Dr. G. Schulz, Mr. Maier, and Ms. Hillenbrand, Dipl.-Ing. F. Sauert, Bergisch-Gladbach, deserves special thanks for performing the calculations. I would also like to thank my co-workers at the ZEUS Institute. My family has given me immense support throughout the entire project.

Finally, I would like to gratefully acknowledge Thyssen Engineering GmbH, Essen, Gesellschaft Deutscher Metallhütten und Bergleute (GDMB), Clausthal, and Stifterverband Metalle, Düsseldorf, for their financial support.

Duisburg, 1993 Ihsan Barin

Preface to the First Edition

Thermodynamic calculations are often used for the analysis and description of the changes of state associated with the transfer of matter and energy. These calculations are an indispensable part of today's technical and scientific investigations in various fields such as chemistry, metallurgy, chemical engineering, energy technology, and environmental technology. The recent improvement in computer capabilities has enhanced the application of thermochemical calculations in the developemnt of new processes as well as for the improvement of existing techniques.

The reliability of the results of thermochemical calculations depends, in the first instance, on the accuracy of the thermochemical data used. On the other hand, the practical relevancy of the results is determined by the comprehensiveness of inclusion of the various species which are often quite numerous in real systems.

In this sense the present work may contribute to the application of thermochemical calculations to a wide variety of substances. The values of the thermochemical functions of 2372 pure substances [including 91 elements and the electron e^- (gas)] are tabulated at temperature intervals of 100 K. The substances include about 100 organic compounds. The data of gaseous species are tabulated separately.

Complete sets of basic data needed for the calculation of thermochemical functions are available only for a relatively small number of substances. Very often the data have to be completed by analysing values from different sources as well as by appropriate estimations before they can be used for calculations and they may well then be less accurate. Such estimates have been made especially for S (298.15) and C_p (T).

The layout of the tables and the functions quoted correspond to conventions which are also used in standard works such as the JANAF Tables and the Tables of the U.S. Bureau of Mines. The following thermochemical functions are tabulated: heat capacity C_p, entropy S, Gibbs energy function $-Gef = -[G-H(298.15)]/T$, enthalpy H, enthalpy increment $H-H(298.15)$, Gibbs energy $G=H-TS$, and the formation quantities $\Delta H_f, \Delta G_f$ and $\log K_f$. The formation reactions refer to the reference states of the elements, which are given in a separate table.

A preliminary text serves to introduce the subject of thermodynamics and includes a short description of the fundamental relations of chemical thermodynamics. The calculation of thermochemical functions is elucidated on the basis of these relations. This is followed by a description of the contents and structure of the tables. A relatively large amount of space is devoted to the examples in order to demonstrate the use of tables to those who are not well acquainted with thermodynamic calculations.

The data listed in the tables in Part VII also form the database for EQUITHERM, a software system authored by I. Barin, G. Eriksson, F. Sauert, M. Zeitler, B. Wittig, and W. Schmidt, which is available from the publishers of the book. EQUITHERM can be used to carry out thermodynamic calculations on multi-component, multi-phase systems made up of any of the substances listed in this work. Thus, the publishers are in the unique position of being able to offer both a printed compilation of thermodynamic data for pure substances and a software package for the calculation of equilibria in multi-species systems.

Cologne/Aachen, 1988 Ihsan Barin

Acknowledgment

The present work is the result of an individual effort without any support from public authorities. The facilities of KHD Humboldt Wedag AG, Cologne, were used in the compilation of the tables. The support of the management of the company and staff of the research and development center is gratefully acknowledged. The input of data was carried out over a long period by Ms. Wang Shu Sheng outside the working hours. Dipl. Ing. F. Sauert and Dr. E. Schultze-Rhonhof provided computer methods and aided in the examination of the consistency of selected data.

Kind encouragement was provided during the course of the work by Dr. N. A. Gokcen, US Bureau of Mines, Albany, Oregon, and Dr. N. Themelis, Columbia University, New York, N.Y., and by many other colleagues and friends.

VCH Verlagsgesellschaft, Weinheim, has supported the work in all its phases.

Dr. F. and Mrs. J. A. Hampson, Saarbrücken, are acknowledged for the translation of the introductory text.

I particularly wish to thank my family for their patience, help, and understanding while I was preparing this book.

Aachen, 1988 Ihsan Barin

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Ag[g]	SILVER (GAS)	2
Ag3AsO4	SILVER ARSENATE	3
AgBr	SILVER BROMIDE	3
AgBr[g]	SILVER BROMIDE (GAS)	4
AgBrO3	SILVER BROMATE	4
AgCN	SILVER CYANIDE	5
Ag2CO3	SILVER CARBONATE	5
AgCl	SILVER CHLORIDE	6
AgCl[g]	SILVER CHLORIDE (GAS)	7
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AgF	SILVER FLUORIDE	8
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AgI[g]	SILVER IODIDE (GAS)	11
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Al2Si2O7*2H2O[D]	DICKITE	62
Al2Si2O7*2H2O[H]	HALLOYSITE	62
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AsI3[g]	ARSENIC IODIDE (GAS)	84	B2O3	BORON OXIDE	122
AsO[g]	ARSENIC MONOXIDE (GAS)	84	B2O3[g]	BORON OXIDE (IDEAL GAS)	123
As2O3	ARSENIC OXIDE (CLAUDETITE)	85	B2O3[GL]	BORON OXIDE (GLASS)	124
As2O3[A]	ARSENIC OXIDE (ARSENOLITE)	85	BOCl[g]	BORON CHLORIDE OXIDE (GAS)	125
As2O5	DIARSENIC PENTAOXIDE	86	BP	BORON MONOPHOSPHIDE	125
As4O6[g]	TETRAARSENIC HEXAOXIDE (GAS)	86	BS[g]	BORON MONOSULFIDE (GAS)	126
AsS[g]	ARSENIC MONOSULFIDE (GAS)	87	B2S3	DIBORON TRISULFIDE	126
As2S2	DIARSENIC DISULFIDE	87	Ba	BARIUM	127
As2S3	ARSENIC SULFIDE	88	Ba[g]	BARIUM (GAS)	128
As4S4	TETRAARSENIC TETRASULFIDE	88	Ba3(AsO4)2	BARIUM ARSENATE	129
As4S4[g]	TETRAARSENIC TETRASULFIDE (GAS)	89	BaBr2	BARIUM BROMIDE	130
As4S4[R]	TETRAARSENIC TETRASULFIDE (REALGAR)	89	BaBr2[g]	BARIUM BROMIDE (GAS)	131
AsSe[g]	ARSENIC MONOSELENIDE (GAS)	90	BaC2	BARIUM DICARBIDE	132
As2Se3	ARSENIC SELENIDE	90	BaCO3	BARIUM CARBONATE	133
AsTe[g]	ARSENIC MONOTELLURIDE (GAS)	91	BaCl[g]	BARIUM MONOCHLORIDE (GAS)	134
As2Te3	ARSENIC TELLURIDE	91	BaCl2	BARIUM CHLORIDE	135
Au	GOLD	92	BaCl2[g]	BARIUM CHLORIDE (GAS)	136
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AuCd	GOLD CADMIUM	95	BaF2[g]	BARIUM FLUORIDE (GAS)	140
AuCl	GOLD MONOCHLORIDE	95	BaH[g]	BARIUM MONOHYDRIDE (GAS)	141
AuCl3	GOLD TRICHLORIDE	96	BaH2	BARIUM HYDRIDE	142
AuCu	GOLD COPPER	96	BaI[g]	BARIUM MONOIODIDE (GAS)	143
AuCu3	GOLD 3-COPPER	97	BaI2	BARIUM IODIDE	144
AuF3	GOLD TRIFLUORIDE	97	BaI2[g]	BARIUM IODIDE (GAS)	145
AuI	GOLD MONOIODIDE	98	BaMoO4	BARIUM MOLYBDATE	146
Au2O3	DIGOLD TRIOXIDE	98	Ba3N2	TRIBARIUM DINITRIDE	146
Au(OH)3	GOLD TRIHYDROXIDE (PRECIPITATED)	99	Ba(NO3)2	BARIUM NITRATE	147
Au2P3	DIGOLD TRIPHOSPHIDE	99	BaO	BARIUM OXIDE	148
AuS[g]	GOLD MONOSULFIDE (GAS)	100	BaO2	BARIUM PEROXIDE	149
AuSb2	GOLD 2-ANTIMONY	100	BaAl2O4	BARIUM DIALUMINIUM TETRAOXIDE	149
AuSe	GOLD MONOSELENIDE (ALPHA)	101	Ba3Al2O6	TRIBARIUM DIALUMINIUM HEXAOXIDE	150
AuSe[B]	GOLD MONOSELENIDE (BETA)	101	Ba(OH)2	BARIUM HYDROXIDE	151
AuSn	GOLD TIN	102	Ba(OH)2[g]	BARIUM HYDROXIDE (GAS)	152
AuSn2	GOLD 2-TIN	102	BaHfO3	BARIUM HAFNIUM TRIOXIDE	152
AuSn4	GOLD 4-TIN	103	BaSiO3	BARIUM METASILICATE	153
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BBr2[g]	BORON DIBROMIDE (GAS)	108	BaUO4	BARIUM URANATE	158
BBr3	BORON TRIBROMIDE	108	BaZrO3	BARIUM ZIRCONIUM TRIOXIDE	159
BBr3[g]	BORON TRIBROMIDE (GAS)	109	BaS	BARIUM SULFIDE	160
B4C	TETRABORON MONOCARBIDE	110	BaSO4	BARIUM SULFATE	161
BCl[g]	BORON MONOCHLORIDE (GAS)	111	Ba2Sn	2-BARIUM TIN	161

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BaWO4	BARIUM TUNGSTATE	162	Bi2(SO4)3	BISMUTH SULFATE	203
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BeBr2[g]	BERYLLIUM BROMIDE (GAS)	166	Br[g]	BROMINE (GAS)	207
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BeCl2	BERYLLIUM CHLORIDE	169	C	CARBON (GRAPHITE)	209
BeCl2[g]	BERYLLIUM CHLORIDE (GAS)	170	C[g]	CARBON (GAS)	210
Be2Cl4[g]	DIBERYLLIUM TETRACHLORIDE (GAS)	171	C[D]	CARBON (DIAMOND)	211
BeF[g]	BERYLLIUM MONOFLUORIDE (GAS)	172	C2[g]	CARBON (GAS)	212
BeF2	BERYLLIUM FLUORIDE	173	C3[g]	CARBON (GAS)	213
BeF2[g]	BERYLLIUM FLUORIDE (GAS)	174	CBr[g]	BROMOMETHYLIDYNE (GAS)	214
BeH[g]	BERYLLIUM MONOHYDRIDE (GAS)	175	CBr2[g]	CARBON DIBROMIDE (GAS)	215
BeI[g]	BERYLLIUM MONOIODIDE (GAS)	176	CBr3[g]	CARBON TRIBROMIDE (GAS)	216
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BeI2[g]	BERYLLIUM IODIDE (GAS)	177	CBrI3[g]	BROMOTRIIODOMETHANE (GAS)	218
Be3N2	ALPHA BERYLLIUM NITRIDE	178	CBr2I2[g]	DIBROMODIIODOMETHANE (GAS)	219
BeO	BERYLLIUM OXIDE	179	CBr3I[g]	TRIBROMOIODOMETHANE (GAS)	220
BeAl2O4	BERYLLIUM DIALUMINIUM TETRAOXIDE	180	CCN[g]	CARBON CARBIDE-NITRIDE (GAS)	221
BeAl6O10	BERYLLIUM HEXAALUMINIUM DECAOXIDE	181	CCl[g]	CHLOROMETHYLIDYNE (GAS)	222
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BeOH[g]	BERYLLIUM MONOHYDROXIDE (GAS)	183	CCl3[g]	TRICHLOROMETHYL (GAS)	224
Be(OH)2	BERYLLIUM HYDROXIDE (ALPHA)	183	CCl4	TETRACHLOROMETHANE	224
Be(OH)2[B]	BERYLLIUM HYDROXIDE (BETA)	184	CCl4[g]	TETRACHLOROMETHANE (GAS)	225
Be(OH)2[g]	BERYLLIUM HYDROXIDE (GAS)	184	C2Cl[g]	DICARBON CHLORIDE (GAS)	226
Be2SiO4	BERYLLIUM SILICATE (PHENACITE)	185	C2Cl2[g]	DICHLOROACETYLENE (GAS)	227
BeS	BERYLLIUM SULFIDE	186	C2Cl3[g]	DICARBON TRICHLORIDE (GAS)	228
BeS[g]	BERYLLIUM SULFIDE (GAS)	187	C2Cl4[g]	TETRACHLOROETHENE (GAS)	229
BeSO4	BERYLLIUM SULFATE	188	C2Cl5[g]	PENTACHLOROETHYL (GAS)	230
BeSO4*2H2O	BERYLLIUM SULFATE DIHYDRATE	188	C2Cl6[g]	HEXACHLOROETHANE (GAS)	231
BeSO4*4H2O	BERYLLIUM SULFATE TETRAHYDRATE	189	CClBr3[g]	CHLOROTRIBROMOMETHANE (GAS)	232
BeWO4	BERYLLIUM TUNGSTATE	189	CCl2Br2[g]	DICHLORODIBROMOMETHANE (GAS)	233
Bi	BISMUTH	190	CCl3Br[g]	TRICHLOROBROMOMETHANE (GAS)	234
Bi[g]	BISMUTH (GAS)	191	CClBrI2[g]	CHLOROBROMODIIODOMETHANE (GAS)	235
Bi2[g]	BISMUTH (GAS)	192	CClBr2I[g]	CHLORODIBROMOIODOMETHANE (GAS)	236
BiAsO4	BISMUTH ARSENATE	192	CCl2BrI[g]	DICHLOROBROMOIODOMETHANE (GAS)	237
BiBr[g]	BISMUTH MONOBROMIDE (GAS)	193	CClI3[g]	CHLOROTRIIODOMETHANE (GAS)	238
BiBr3	BISMUTH BROMIDE	194	CCl2I2[g]	DICHLORODIIODOMETHANE (GAS)	239
BiBr3[g]	BISMUTH BROMIDE (GAS)	194	CCl3I[g]	TRICHLOROIODOMETHANE (GAS)	240
BiCl[g]	BISMUTH MONOCHLORIDE (GAS)	195	CF[g]	FLUOROMETHYLIDYNE (GAS)	241
BiCl3	BISMUTH CHLORIDE	195	CF2[g]	DIFLUOROMETHYLENE (GAS)	242
BiCl3[g]	BISMUTH CHLORIDE (GAS)	196	CF3[g]	TRIFLUOROMETHYL (GAS)	243
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BiF3[g]	BISMUTH FLUORIDE (GAS)	197	C2F2[g]	DIFLUOROACETYLENE (GAS)	246
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BiI[g]	BISMUTH MONOIODIDE (GAS)	198	C2F4[g]	TETRAFLUOROETHENE (GAS)	248
BiI3	BISMUTH IODIDE	199	C2F5[g]	PENTAFLUOROETHYL (GAS)	249
BiI3[g]	BISMUTH IODIDE (GAS)	199	C2F6[g]	HEXAFLUOROETHANE (GAS)	250
BiK3	BISMUTH 3-POTASSIUM	200	CFBr3[g]	FLUOROTRIBROMOMETHANE (GAS)	251
BiMn	BISMUTH MANGANESE	200	CF2Br2[g]	DIFLUORODIBROMOMETHANE (GAS)	252
BiNi	BISMUTH NICKEL	201	CF3Br[g]	TRIFLUOROBROMOMETHANE (GAS)	253
Bi2O3	BISMUTH OXIDE	202	CFBrI2[g]	FLUOROBROMODIIODOMETHANE (GAS)	254
BiOCl	BISMUTH CHLORIDE OXIDE	202	CFBr2I[g]	FLUORODIBROMOIODOMETHANE (GAS)	255

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CFCl[g]	FLUOROCHLOROMETHYLENE (GAS)	257
CFCl2[g]	FLUORODICHLOROMETHYL (GAS)	258
CFCl3[g]	FLUOROTRICHLOROMETHANE (GAS)	259
CF2Cl[g]	DIFLUOROCHLOROMETHYL (GAS)	260
CF2Cl2[g]	DIFLUORODICHLOROMETHANE (GAS)	261
CF3Cl[g]	TRIFLUOROCHLOROMETHANE (GAS)	262
C2FCl[g]	FLUOROCHLOROACETYLENE (GAS)	263
C2FCl3[g]	FLUOROTRICHLOROETHYLENE (GAS)	264
C2F2Cl2[g]	DIFLUORODICHLOROETHYLENE (GAS)	265
C2F2Cl2[1,1][g]	1,1-DIFLUORODICHLOROETHYLENE (GAS)	266
C2F2Cl2[cis][g]	CIS-DIFLUORODICHLOROETHYLENE (GAS)	267
C2F2Cl2[trans][g]	TRANS-DIFLUORODICHLOROETHYLENE (GAS)	268
C2F3Cl[g]	TRIFLUOROCHLOROETHYLENE (GAS)	269
CFClBr2[g]	FLUOROCHLORODIBROMOMETHANE (GAS)	270
CFCl2Br[g]	FLUORODICHLOROBROMOMETHANE (GAS)	271
CF2ClBr[g]	DIFLUOROCHLOROBROMOMETHANE (GAS)	272
CFClBrI[g]	FLUOROCHLOROBROMOIODOMETHANE (GAS)	273
CFCII2[g]	FLUOROCHLORODIIODOMETHANE (GAS)	274
CFCl2I[g]	FLUORODICHLOROIODOMETHANE (GAS)	275
CF2ClI[g]	DIFLUOROCHLOROIODOMETHANE (GAS)	276
CFI3[g]	FLUOROTRIIODOMETHANE (GAS)	277
CF2I2[g]	DIFLUORODIIODOMETHANE (GAS)	278
CF3I[g]	TRIFLUOROIODOMETHANE (GAS)	279
CH[g]	METHYLIDYNE (GAS)	280
CH2[g]	METHYLENE (GAS)	281
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C2H6[g]	ETHANE (GAS)	289
C3H4[g]	PROPADIENE (GAS)	290
C3H4[PY][g]	PROPYNE (GAS)	290
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C3H6[P][g]	PROPENE (GAS)	291
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CH2BrI[g]	BROMOIODOMETHANE (GAS)	318
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CHCl3[g]	TRICHLOROMETHANE (GAS)	321
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CH2Cl2[g]	DICHLOROMETHANE (GAS)	323
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C2H3Cl[g]	CHLOROETHENE (GAS)	330
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CHClBrI[g]	CHLOROBROMOIODOMETHANE (GAS)	334
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CH2F[g]	FLUOROMETHYL (GAS)	343
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C2H3F[g]	FLUOROETHYLENE (GAS)	352
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CH2FBr[g]	FLUOROBROMOMETHANE (GAS)	355
CHFBrI[g]	FLUOROBROMOIODOMETHANE (GAS)	356
CHFCl[g]	FLUOROCHLOROMETHYL (GAS)	357
CHFCl2[g]	FLUORODICHLOROMETHANE (GAS)	358
CHF2Cl[g]	DIFLUOROCHLOROMETHANE (GAS)	359
CH2FCl[g]	FLUOROCHLOROMETHANE (GAS)	360
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C2HF2Cl[g]	DIFLUOROCHLOROETHYLENE (GAS)	365
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CdGa2O4	CADMIUM DIGALLIUM TETRAOXIDE	500
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CdSe	CADMIUM SELENIDE	504
CdSeO3	CADMIUM SELENITE	505
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Ce2C3	DICERIUM TRICARBIDE	512
CeCl3	CERIUM CHLORIDE	512
CeCl3[g]	CERIUM CHLORIDE (GAS)	513
CeF3	CERIUM FLUORIDE	514
CeF3[g]	CERIUM FLUORIDE (GAS)	515
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CeI3	CERIUM IODIDE	516
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CeN	CERIUM NITRIDE	518
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CeCrO3	CERIUM CHROMIUM TRIOXIDE	520	CrBr3	CHROMIUM TRIBROMIDE	559
CeS	CERIUM MONOSULFIDE	521	CrBr4[g]	CHROMIUM TETRABROMIDE (GAS)	560
Ce2S3	CERIUM SULFIDE	522	Cr3C2	3-CHROMIUM 2-CARBIDE	560
Ce3S4	TRICERIUM TETRASULFIDE	522	Cr7C3	7-CHROMIUM 3-CARBIDE	561
Ce2(SO4)3	CERIUM SULFATE	523	Cr23C6	23-CHROMIUM 6-CARBIDE	562
CeTe[g]	CERIUM MONOTELLURIDE (GAS)	523	Cr(CO)6	CHROMIUM HEXACARBONYL	562
Cl[g]	CHLORINE (GAS)	524	CrCl2	CHROMIUM DICHLORIDE	563
Cl2[g]	CHLORINE (GAS)	525	CrCl3	CHROMIUM TRICHLORIDE	563
ClCN[g]	CARBON NITRIDE CHLORIDE (GAS)	526	CrCl4[g]	CHROMIUM TETRACHLORIDE (GAS)	564
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ClF3[g]	CHLORINE TRIFLUORIDE (GAS)	528	CrF3	CHROMIUM TRIFLUORIDE	565
ClO[g]	CHLORINE MONOXIDE (GAS)	529	CrF4	CHROMIUM TETRAFLUORIDE	565
Cl2O[g]	DICHLORINE MONOXIDE (GAS)	530	CrI2	CHROMIUM DIIODIDE	566
Co	COBALT	531	CrI3	CHROMIUM TRIIODIDE	566
Co[g]	COBALT (GAS)	532	CrN	CHROMIUM NITRIDE	567
Co3(AsO4)2	COBALT ARSENATE	533	Cr2N	DICHROMIUM NITRIDE	567
CoB	COBALT MONOBORIDE	533	Cr2Nb	2-CHROMIUM NIOBIUM	568
Co2B	DICOBALT BORIDE	534	CrO[g]	CHROMIUM MONOXIDE (GAS)	569
CoBr2	COBALT DIBROMIDE	534	CrO2	CHROMIUM DIOXIDE	570
CoCO3	COBALT CARBONATE	535	CrO2[g]	CHROMIUM DIOXIDE (GAS)	570
CoCl[g]	COBALT MONOCHLORIDE (GAS)	535	CrO3	CHROMIUM TRIOXIDE	571
CoCl2	COBALT DICHLORIDE	536	CrO3[g]	CHROMIUM TRIOXIDE (GAS)	572
CoCl2[g]	COBALT DICHLORIDE (GAS)	537	Cr2O3	DICHROMIUM TRIOXIDE	573
CoCl3[g]	COBALT TRICHLORIDE (GAS)	538	CrO2Cl2[g]	CHROMIUM DICHLORIDE DIOXIDE (GAS)	574
Co2Cl4[g]	DICOBALT TETRACHLORIDE (GAS)	539	Cr2FeO4	DICHROMIUM IRON TETRAOXIDE	575
CoF2	COBALT DIFLUORIDE	540	Cr2MgO4	DICHROMIUM MAGNESIUM TETRAOXIDE	576
CoF2[g]	COBALT DIFLUORIDE (GAS)	541	Cr2NiO4	DICHROMIUM NICKEL TETRAOXIDE	577
CoF3	COBALT TRIFLUORIDE	541	CrNaO2	CHROMIUM SODIUM DIOXIDE	577
CoI2	COBALT DIIODIDE	542	CrS	CHROMIUM MONOSULFIDE	578
Co3N	TRICOBALT NITRIDE	542	CrS1.17	CHROMIUM 1.17-SULFIDE	579
CoO	COBALT MONOXIDE	543	Cr2(SO4)3	CHROMIUM SULFATE	579
Co3O4	TRICOBALT TETRAOXIDE	544	CrSi	CHROMIUM SILICON	580
CoCr2O4	COBALT DICHROMIUM TETRAOXIDE	544	CrSi2	CHROMIUM 2-SILICON	580
CoFe2O4	COBALT DIIRON TETRAOXIDE	545	Cr3Si	3-CHROMIUM SILICON	581
Co(OH)2	COBALT HYDROXIDE (PRECIPITATED)	545	Cr5Si3	5-CHROMIUM 3-SILICON	582
Co2SiO4	DICOBALT SILICATE	546	Cr2Ta	2-CHROMIUM TANTALUM	583
CoTiO3	COBALT TITANIUM TRIOXIDE	547	Cs	CESIUM	583
Co2TiO4	DICOBALT TITANIUM TETRAOXIDE	548	Cs[g]	CESIUM (GAS)	584
CoP	COBALT MONOPHOSPHIDE	548	Cs2[g]	CESIUM (GAS)	585
CoP3	COBALT TRIPHOSPHIDE	549	Cs3AsO4	CESIUM ARSENATE	585
Co2P	DICOBALT PHOSPHIDE	549	CsBr	CESIUM BROMIDE	586
CoS0.89	COBALT 0.89-SULFIDE	550	CsBr[g]	CESIUM BROMIDE (GAS)	587
CoS2	COBALT DISULFIDE	550	Cs2CO3	CESIUM CARBONATE	587
Co3S4	TRICOBALT TETRASULFIDE	551	CsCl	CESIUM CHLORIDE	588
CoSO4	COBALT SULFATE	551	CsCl[g]	CESIUM CHLORIDE (GAS)	589
CoSb0.98	COBALT 0.98-ANTIMONY	552	Cs2Cl2[g]	DICESIUM DICHLORIDE (GAS)	590
CoSb2	COBALT 2-ANTIMONY	552	CsF	CESIUM FLUORIDE	591
CoSb3	COBALT 3-ANTIMONY	553	CsF[g]	CESIUM FLUORIDE (GAS)	592
CoSeO3	COBALT SELENITE	553	Cs2F2[g]	DICESIUM DIFLUORIDE (GAS)	593
CoSn	COBALT TIN	554	CsI	CESIUM IODIDE	594
CoWO4	COBALT TUNGSTATE	554	CsI[g]	CESIUM IODIDE (GAS)	595
Cr	CHROMIUM	555	CsO[g]	CESIUM MONOXIDE (GAS)	596
Cr[g]	CHROMIUM (GAS)	556	CsO2	CESIUM DIOXIDE	596
Cr3(AsO4)2	TRICHROMIUM ARSENATE	557	Cs2O	CESIUM OXIDE	597
CrAsO4	CHROMIUM ARSENATE	557	Cs2O[g]	CESIUM OXIDE (GAS)	597
CrB	CHROMIUM MONOBORIDE	558	Cs2O3	DICESIUM TRIOXIDE	598
CrB2	CHROMIUM DIBORIDE	558	CsOH	CESIUM HYDROXIDE	598

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Cs2(OH)2[g]	DICESIUM DIHYDROXIDE (GAS)	600	DS[g]	HYDROGEN MONOSULFIDE-D1 (GAS)	642
Cs2SO4	CESIUM SULFATE	601	D2S[g]	HYDROGEN SULFIDE-D2 (GAS)	643
Cu	COPPER	602	Dy	DYSPROSIUM	644
Cu[g]	COPPER (GAS)	603	Dy[g]	DYSPROSIUM (GAS)	645
Cu3As	TRICOPPER ARSENIDE	604	DyBr3[g]	DYSPROSIUM BROMIDE (GAS)	646
Cu3AsO4	TRICOPPER ARSENATE	604	DyCl3	DYSPROSIUM CHLORIDE	646
Cu3(AsO4)2	TRICOPPER DIARSENATE	605	DyCl3[g]	DYSPROSIUM CHLORIDE (GAS)	647
CuBr	COPPER MONOBROMIDE	606	DyCl3*6H2O	DYSPROSIUM CHLORIDE HEXAHYDRATE	647
CuBr[g]	COPPER MONOBROMIDE (GAS)	607	DyF3	DYSPROSIUM FLUORIDE	648
CuBr2	COPPER DIBROMIDE	607	DyF3[g]	DYSPROSIUM FLUORIDE (GAS)	649
Cu3Br3[g]	TRICOPPER TRIBROMIDE (GAS)	608	DyI3[g]	DYSPROSIUM IODIDE (GAS)	650
CuCN	COPPER CYANIDE	608	Dy2O3	DYSPROSIUM OXIDE	651
CuCl	COPPER MONOCHLORIDE	609	Er	ERBIUM	652
CuCl[g]	COPPER MONOCHLORIDE (GAS)	610	Er[g]	ERBIUM (GAS)	653
CuCl2	COPPER DICHLORIDE	610	ErBr3[g]	ERBIUM BROMIDE (GAS)	654
Cu3Cl3[g]	TRICOPPER TRICHLORIDE (GAS)	611	ErCl3	ERBIUM CHLORIDE	655
CuF	COPPER MONOFLUORIDE	611	ErCl3[g]	ERBIUM CHLORIDE (GAS)	656
CuF[g]	COPPER MONOFLUORIDE (GAS)	612	ErCl3*6H2O	ERBIUM CHLORIDE HEXAHYDRATE	656
CuF2	COPPER DIFLUORIDE	613	ErF3	ERBIUM FLUORIDE	657
CuF2[g]	COPPER DIFLUORIDE (GAS)	614	ErF3[g]	ERBIUM FLUORIDE (GAS)	658
CuFeS2	COPPER IRON DISULFIDE	615	ErI3[g]	ERBIUM IODIDE (GAS)	659
Cu5FeS4	PENTACOPPER IRON TETRASULFIDE	616	Er2O3	ERBIUM OXIDE (CUBIC)	660
CuI	COPPER MONOIODIDE	617	Eu	EUROPIUM	661
CuI[g]	COPPER MONOIODIDE (GAS)	618	Eu[g]	EUROPIUM (GAS)	662
Cu3I3[g]	TRICOPPER TRIIODIDE (GAS)	618	EuBr2	EUROPIUM DIBROMIDE	663
CuMg2	1-COPPER 2-MAGNESIUM	619	EuBr2[g]	EUROPIUM DIBROMIDE (GAS)	663
Cu2Mg	2-COPPER 1-MAGNESIUM	619	EuBr3	EUROPIUM BROMIDE	664
CuMoO4	COPPER MOLYBDATE	620	EuCl3	EUROPIUM CHLORIDE	664
CuO	COPPER MONOXIDE	620	EuCl3*6H2O	EUROPIUM CHLORIDE HEXAHYDRATE	665
CuO[g]	COPPER MONOXIDE (GAS)	621	EuCl3[g]	EUROPIUM CHLORIDE (GAS)	665
Cu2O	DICOPPER OXIDE	622	EuF3	EUROPIUM FLUORIDE	666
CuFeO2	COPPER IRON DIOXIDE	623	EuF3[g]	EUROPIUM FLUORIDE (GAS)	667
CuFe2O4	COPPER DIIRON TETRAOXIDE	624	Eu2O3	EUROPIUM OXIDE (CUBIC)	667
Cu(OH)2	COPPER HYDROXIDE	624	Eu2O3[M]	EUROPIUM OXIDE (MONOCLINIC)	668
Cu2OSO4	DICOPPER OXIDE SULFATE	625	EuS	EUROPIUM MONOSULFIDE	669
CuP2	COPPER DIPHOSPHIDE	625	EuS[g]	EUROPIUM MONOSULFIDE (GAS)	670
Cu3P	TRICOPPER PHOSPHIDE	626	F[g]	FLUORINE (GAS)	671
CuS	COPPER SULFIDE	626	F2[g]	FLUORINE (GAS)	672
CuS[g]	COPPER SULFIDE (GAS)	627	FCN[g]	CARBON NITRIDE-FLUORIDE (GAS)	673
Cu2S	DICOPPER SULFIDE	628	FClCO[g]	CARBON OXIDE-FLUORIDE-CHLORIDE (GAS)	674
CuSO4	COPPER SULFATE	629	Fe	IRON	675
Cu2SO4	DICOPPER SULFATE	629	Fe[g]	IRON (GAS)	676
CuSO4*H2O	COPPER SULFATE MONOHYDRATE	630	Fe3(AsO4)2	TRIIRON DIARSENATE	677
CuSO4*3H2O	COPPER SULFATE TRIHYDRATE	630	FeAsO4	IRON ARSENATE	677
CuSO4*5H2O	COPPER SULFATE PENTAHYDRATE	631	FeB	IRON MONOBORIDE	678
Cu2Sb	2-COPPER ANTIMONY	631	Fe2B	DIIRON BORIDE	679
CuSe	COPPER SELENIDE	632	FeBr2	IRON DIBROMIDE	680
Cu2Se[B]	DICOPPER SELENIDE	632	FeBr2[g]	IRON DIBROMIDE (GAS)	681
CuSeO3	COPPER SELENITE	633	FeBr3	IRON TRIBROMIDE	681
CuTe	COPPER TELLURIDE	633	Fe2Br4[g]	DIIRON TETRABROMIDE (GAS)	682
Cu2Te	DICOPPER TELLURIDE	634	Fe3C	TRIIRON CARBIDE	683
D[g]	DEUTERIUM (GAS)	635	FeCO3	IRON CARBONATE	683
D2[g]	DEUTERIUM (GAS)	636	Fe(CO)5	IRON PENTACARBONYL	684
DCl[g]	HYDROGEN CHLORIDE-D1 (GAS)	637	Fe(CO)5[g]	IRON PENTACARBONYL (GAS)	684
DF[g]	HYDROGEN FLUORIDE-D1 (GAS)	638	FeCl[g]	IRON MONOCHLORIDE (GAS)	685
DH[g]	HYDROGEN-D1 (GAS)	639	FeCl2	IRON DICHLORIDE	686
D2O	WATER-D2	640	FeCl2[g]	IRON DICHLORIDE (GAS)	687

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FeCl3	IRON TRICHLORIDE	687	GaCl[g]	GALLIUM MONOCHLORIDE (GAS)	731
FeCl3[g]	IRON TRICHLORIDE (GAS)	688	GaCl2[g]	GALLIUM DICHLORIDE (GAS)	732
Fe2Cl4[g]	DIIRON TETRACHLORIDE (GAS)	689	GaCl3	GALLIUM CHLORIDE	732
Fe2Cl6[g]	DIIRON HEXACHLORIDE (GAS)	690	GaCl3[g]	GALLIUM CHLORIDE (GAS)	733
FeF2	IRON DIFLUORIDE	691	Ga2Cl6[g]	DIGALLIUM HEXACHLORIDE (GAS)	734
FeF2[g]	IRON DIFLUORIDE (GAS)	692	GaF[g]	GALLIUM MONOFLUORIDE (GAS)	735
FeF3	IRON TRIFLUORIDE	692	GaF2[g]	GALLIUM DIFLUORIDE (GAS)	736
FeF3[g]	IRON TRIFLUORIDE (GAS)	693	GaF3	GALLIUM FLUORIDE	737
FeI2	IRON DIIODIDE	694	GaF3[g]	GALLIUM FLUORIDE (GAS)	738
FeI2[g]	IRON DIIODIDE (GAS)	695	GaI3	GALLIUM IODIDE	738
Fe2I4[g]	DIIRON TETRAIODIDE (GAS)	696	GaN	GALLIUM NITRIDE	739
Fe3Mo2	3-IRON 2-MOLYBDENUM	697	GaO[g]	GALLIUM MONOXIDE (GAS)	740
FeMoO4	IRON MOLYBDATE	697	Ga2O[g]	DIGALLIUM OXIDE (GAS)	741
Fe4N	TETRAIRON NITRIDE	698	Ga2O3	GALLIUM OXIDE	742
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FeO	IRON MONOXIDE	700	GaS	GALLIUM MONOSULFIDE	743
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LiAlSi2O6	ALPHA-SPODUMENE	976	MgTi2O5	MAGNESIUM DITITANIUM PENTOXIDE	1023
LiAlSi2O6[B]	BETA-SPODUMENE	977	Mg2TiO4	DIMAGNESIUM TITANIUM TETRAOXIDE	1024
Li2B4O7	DILITHIUM TETRABORATE	978	Mg3(PO4)2	MAGNESIUM ORTHOPHOSPHATE	1025
Li2B6O10	DILITHIUM HEXABORATE	979	Mg2Pb	2-MAGNESIUM LEAD	1025
LiFeO2	LITHIUM IRON DIOXIDE	979	MgS	MAGNESIUM SULFIDE	1026
LiOH	LITHIUM HYDROXIDE	980	MgS[g]	MAGNESIUM SULFIDE (GAS)	1027
LiOH[g]	LITHIUM HYDROXIDE (GAS)	981	MgSO4	MAGNESIUM SULFATE	1028
Li2(OH)2[g]	DILITHIUM DIHYDROXIDE (GAS)	982	MgSe	MAGNESIUM SELENIDE	1028
Li2SiO3	LITHIUM METASILICATE	983	MgSeO3	MAGNESIUM SELENITE	1029
Li2Si2O5	LITHIUM DISILICATE	984	Mg2Si	2-MAGNESIUM SILICON	1029
Li4SiO4	LITHIUM ORTHOSILICATE	985	MgTe	MAGNESIUM TELLURIDE	1030
Li2TiO3	DILITHIUM TITANIUM TRIOXIDE	986	Mg2Th	2-MAGNESIUM THORIUM	1030
Li2ZrO3	DILITHIUM ZIRCONIUM TRIOXIDE	987	Mg(VO3)2	MAGNESIUM METAVANADATE	1031

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Mg2V2O7	MAGNESIUM PYROVANADATE	1031	MoO2	MOLYBDENUM DIOXIDE	1070
MgWO4	MAGNESIUM TUNGSTATE	1032	MoO2[g]	MOLYBDENUM DIOXIDE (GAS)	1071
Mn	MANGANESE	1033	MoO3	MOLYBDENUM TRIOXIDE	1072
Mn[g]	MANGANESE (GAS)	1034	MoO3[g]	MOLYBDENUM TRIOXIDE (GAS)	1073
MnAs	MANGANESE ARSENIDE	1035	MoO2Cl2	MOLYBDENUM DICHLORIDE DIOXIDE	1074
Mn3(AsO4)2	MANGANESE ARSENATE	1035	MoO2Cl2[g]	MOLYBDENUM DICHLORIDE DIOX. (GAS)	1074
MnB	MANGANESE MONOBORIDE	1036	MoS2	MOLYBDENUM DISULFIDE	1075
MnB2	MANGANESE DIBORIDE	1036	MoS3	MOLYBDENUM TRISULFIDE	1075
MnBr2	MANGANESE DIBROMIDE	1037	Mo2S3	MOLYBDENUM SESQUISULFIDE	1076
MnBr2[g]	MANGANESE DIBROMIDE (GAS)	1038	MoSi2	MOLYBDENUM 2-SILICON	1077
Mn3C	TRIMANGANESE CARBIDE	1038	Mo3Si	3-MOLYBDENUM SILICON	1078
Mn7C3	HEPTAMANGANESE TRICARBIDE	1039	Mo5Si3	5-MOLYBDENUM 3-SILICON	1079
Mn15C4	15-MANGANESE 4-CARBIDE	1039	N[g]	NITROGEN (GAS)	1080
MnCO3	MANGANESE CARBONATE	1040	N2[g]	NITROGEN (GAS)	1081
MnCl2	MANGANESE DICHLORIDE	1040	NCO[g]	NCO RADICAL (GAS)	1082
MnCl2[g]	MANGANESE DICHLORIDE (GAS)	1041	ND[g]	IMIDOGEN-D1 (GAS)	1083
MnF2	MANGANESE DIFLUORIDE	1042	ND2[g]	AMIDOGEN-D2 (GAS)	1084
MnF2[g]	MANGANESE DIFLUORIDE (GAS)	1042	ND3[g]	AMMONIA-D3 (GAS)	1085
MnF3	MANGANESE TRIFLUORIDE	1043	NH[g]	IMIDOGEN (GAS)	1086
MnI2	MANGANESE DIIODIDE	1043	NH2[g]	AMIDOGEN (GAS)	1087
MnMoO4	MANGANESE MOLYBDATE	1044	NH3[g]	AMMONIA (GAS)	1088
Mn4N	TETRAMANGANESE MONONITRIDE	1044	N2H4[g]	HYDRAZINE (GAS)	1089
Mn5N2	PENTAMANGANESE DINITRIDE	1045	NH4Cl	AMMONIUM CHLORIDE	1089
MnO	MANGANESE OXIDE	1046	NH4ClO4	AMMONIUM PERCHLORATE	1090
MnO2	MANGANESE DIOXIDE	1047	NH4I	AMMONIUM IODIDE	1090
Mn2O3	DIMANGANESE TRIOXIDE	1047	(NH4)2SO4	AMMONIUM SULFATE	1091
Mn3O4	TRIMANGANESE TETRAOXIDE	1048	NO[g]	NITRIC OXIDE (GAS)	1092
MnAl2O4	MANGANESE DIALUMINIUM TETRAOXIDE	1049	NO2[g]	NITROGEN DIOXIDE (GAS)	1093
MnSiO3	RHODONITE	1050	NO3[g]	NITROGEN TRIOXIDE (GAS)	1094
Mn2SiO4	TEPHROITE	1051	N2O[g]	DINITROGEN OXIDE (GAS)	1095
MnTiO3	MANGANESE TITANIUM TRIOXIDE	1052	N2O3[g]	DINITROGEN TRIOXIDE (GAS)	1096
Mn2TiO4	DIMANGANESE TITANIUM TETRAOXIDE	1052	N2O4	DINITROGEN TETRAOXIDE	1096
MnP	MANGANESE MONOPHOSPHIDE	1053	N2O4[g]	DINITROGEN TETRAOXIDE (GAS)	1097
MnP3	MANGANESE TRIPHOSPHIDE	1053	N2O5[g]	DINITROGEN PENTAOXIDE (GAS)	1098
Mn2P	DIMANGANESE PHOSPHIDE	1054	NOBr[g]	NITROSYL BROMIDE (GAS)	1099
MnS	MANGANESE MONOSULFIDE (GREEN)	1055	NOCl[g]	NITROSYL CHLORIDE (GAS)	1100
MnS2	MANGANESE DISULFIDE	1055	NO2Cl[g]	NITRYL CHLORIDE (GAS)	1101
MnSO4	MANGANESE SULFATE	1056	NOF[g]	NITROSYL FLUORIDE (GAS)	1102
MnSb	MANGANESE ANTIMONY	1056	Na	SODIUM	1102
Mn2Sb	2-MANGANESE ANTIMONY	1057	Na[g]	SODIUM (GAS)	1103
MnSe	MANGANESE SELENIDE	1057	Na2[g]	SODIUM (GAS)	1104
MnSi	MANGANESE SILICON	1058	NaAlCl4	SODIUM TETRACHLOROALUMINATE	1104
MnSi1.7	MANGANESE 1.7-SILICON	1059	Na3AlCl6	TRISODIUM HEXACHLOROALUMINATE	1105
Mn3Si	3-MANGANESE SILICON	1059	Na3AlF6	CRYOLITE	1106
Mn5Si3	5-MANGANESE 3-SILICON	1060	Na3As	TRISODIUM ARSENIDE	1107
MnSn2	MANGANESE 2-TIN	1060	Na3AsO4	SODIUM ARSENATE	1107
MnTe	MANGANESE TELLURIDE	1061	NaBO2	SODIUM METABORATE	1108
MnTe2	MANGANESE DITELLURIDE	1061	NaBO2[g]	SODIUM METABORATE (GAS)	1109
MnWO4	MANGANESE TUNGSTATE	1062	NaB3O5	SODIUM TRIBORATE	1110
Mo	MOLYBDENUM	1063	Na2B4O7	DISODIUM TETRABORATE	1110
Mo[g]	MOLYBDENUM (GAS)	1065	NaBr	SODIUM BROMIDE	1111
MoAsO4	MOLYBDENUM ARSENATE	1066	NaBr[g]	SODIUM BROMIDE (GAS)	1112
MoC	MOLYBDENUM MONOCARBIDE (GAMMA)	1066	Na2Br2[g]	DISODIUM DIBROMIDE (GAS)	1113
Mo2C	DIMOLYBDENUM CARBIDE	1067	NaCN	SODIUM CYANIDE	1114
Mo(CO)6	MOLYBDENUM HEXACARBONYL	1067	NaCN[g]	SODIUM CYANIDE (GAS)	1115
Mo(CO)6[g]	MOLYBDENUM HEXACARBONYL (GAS)	1068	Na2(CN)2[g]	DISODIUM DICYANIDE (GAS)	1116
Mo2N	DIMOLYBDENUM NITRIDE	1068	Na2CO3	SODIUM CARBONATE	1117
MoO[g]	MOLYBDENUM MONOXIDE (GAS)	1069	NaCl	SODIUM CHLORIDE	1118

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NaCl[g]	SODIUM CHLORIDE (GAS)	1119	Nb2C	DINIOBIUM CARBIDE	1164
Na2Cl2[g]	DISODIUM DICHLORIDE (GAS)	1120	NbCl2	NIOBIUM DICHLORIDE	1164
NaClO4	SODIUM PERCHLORATE	1120	NbCl2.33	NIOBIUM 2.33-CHLORIDE	1165
Na2CrO4	SODIUM CHROMATE	1121	NbCl2.67	NIOBIUM 2.67-CHLORIDE	1165
NaF	SODIUM FLUORIDE	1122	NbCl3	NIOBIUM TRICHLORIDE	1166
NaF[g]	SODIUM FLUORIDE (GAS)	1123	NbCl3.13	NIOBIUM 3.13-CHLORIDE	1166
Na2F2[g]	DISODIUM DIFLUORIDE (GAS)	1124	NbCl4	NIOBIUM TETRACHLORIDE	1167
NaH	SODIUM HYDRIDE	1124	NbCl4[g]	NIOBIUM TETRACHLORIDE (GAS)	1167
NaH[g]	SODIUM HYDRIDE (GAS)	1125	NbCl5	NIOBIUM PENTACHLORIDE	1168
NaHCO3	SODIUM HYDROGEN CARBONATE	1125	NbCl5[g]	NIOBIUM PENTACHLORIDE (GAS)	1168
NaI	SODIUM IODIDE	1126	NbF5	NIOBIUM PENTAFLUORIDE	1169
Na2MoO4	SODIUM MOLYBDATE	1127	NbF5[g]	NIOBIUM PENTAFLUORIDE (GAS)	1169
NaNO2	SODIUM NITRITE	1128	NbFe2	NIOBIUM 2-IRON	1170
NaNO3	SODIUM NITRATE	1128	NbI5	NIOBIUM PENTAIODIDE	1170
NaO[g]	SODIUM MONOXIDE (GAS)	1129	NbN	NIOBIUM NITRIDE	1171
NaO2	SODIUM SUPEROXIDE	1129	Nb2N	DINIOBIUM NITRIDE	1172
Na2O	SODIUM OXIDE	1130	NbO	NIOBIUM MONOXIDE	1173
Na2O2	DISODIUM PEROXIDE	1131	NbO2	NIOBIUM DIOXIDE	1174
NaAlO2	SODIUM ALUMINATE	1132	Nb2O5	DINIOBIUM PENTAOXIDE	1175
NaAlSiO4	NEPHELINE	1133	NbOCl2	NIOBIUM DICHLORIDE OXIDE	1176
NaAlSi2O6	JADEITE	1134	NbOCl3	NIOBIUM TRICHLORIDE OXIDE	1176
NaAlSi2O6[D]	DEHYDRATED ANALCITE	1134	NbOCl3[g]	NIOBIUM TRICHLORIDE OXIDE (GAS)	1177
NaAlSi3O8	ALBITE	1135	NbO2Cl	NIOBIUM CHLORIDE DIOXIDE	1177
NaAlSi3O8[A]	ANALBITE	1135	NbSi2	NIOBIUM 2-SILICON	1178
NaAlSi2O6*H2O	ANALCITE	1136	Nb5Si3	5-NIOBIUM 3-SILICON	1179
NaOH	SODIUM HYDROXIDE	1136	Nd	NEODYMIUM	1180
NaOH[g]	SODIUM HYDROXIDE (GAS)	1137	Nd[g]	NEODYMIUM (GAS)	1181
Na2(OH)2[g]	DISODIUM DIHYDROXIDE (GAS)	1138	NdBr3	NEODYMIUM BROMIDE	1182
Na2SiO3	SODIUM METASILICATE	1139	NdBr3[g]	NEODYMIUM BROMIDE (GAS)	1183
Na2Si2O5	SODIUM DISILICATE	1140	NdCl3	NEODYMIUM CHLORIDE	1184
Na4SiO4	SODIUM ORTHOSILICATE	1141	NdCl3[g]	NEODYMIUM CHLORIDE (GAS)	1185
Na6Si2O7	HEXASODIUM DISILICON HEPTAOXIDE	1141	NdF3	NEODYMIUM FLUORIDE	1186
Na2TiO3	DISODIUM TITANIUM TRIOXIDE	1142	NdF3[g]	NEODYMIUM FLUORIDE (GAS)	1187
Na2Ti2O5	DISODIUM DITITANIUM PENTAOXIDE	1143	NdH2	NEODYMIUM DIHYDRIDE	1187
Na2Ti3O7	DISODIUM TRITITANIUM HEPTAOXIDE	1144	NdI3	NEODYMIUM IODIDE	1188
Na3PO4	SODIUM PHOSPHATE	1144	NdI3[g]	NEODYMIUM IODIDE (GAS)	1189
Na2S	SODIUM SULFIDE	1145	Nd2O3	NEODYMIUM OXIDE	1190
Na2S2	DISODIUM DISULFIDE	1146	NdOCl	NEODYMIUM CHLORIDE OXIDE	1190
Na2S3	DISODIUM TRISULFIDE	1146	Nd2Zr2O7	NEODYMIUM ZIRCONIUM HEPTAOXIDE	1191
Na2S4	DISODIUM TETRASULFIDE	1147	NdS	NEODYMIUM MONOSULFIDE	1191
Na2SO3	SODIUM SULFITE	1148	Nd2S3	NEODYMIUM SULFIDE	1192
Na2SO4	SODIUM SULFATE	1149	Nd2(SO4)3	NEODYMIUM SULFATE	1192
Na2SO4[III]	SODIUM SULFATE (III)	1150	NdSe	NEODYMIUM MONOSELENIDE	1193
NaTe	SODIUM TELLURIDE	1150	Nd2Se3	NEODYMIUM SELENIDE	1194
NaTe3	SODIUM TRITELLURIDE	1151	NdTe	NEODYMIUM MONOTELLURIDE	1195
Na2Te	SODIUM TELLURIDE	1152	Nd2Te3	NEODYMIUM TELLURIDE	1196
NaVO3	SODIUM METAVANADATE	1153	Ne[g]	NEON (MONOATOMIC GAS)	1197
Na3VO4	SODIUM ORTHOVANADATE	1154	Ni	NICKEL	1198
Na4V2O7	SODIUM PYROVANADATE	1154	Ni[g]	NICKEL (GAS)	1199
Na2WO4	SODIUM TUNGSTATE	1155	NiAs	NICKEL ARSENIDE	1200
Nb	NIOBIUM	1156	Ni5As2	5-NICKEL 2-ARSENIDE	1200
Nb[g]	NIOBIUM (GAS)	1158	Ni11As8	11-NICKEL 8-ARSENIDE	1201
NbB2	NIOBIUM DIBORIDE	1159	Ni3(AsO4)2	NICKEL ARSENATE	1201
NbBr5	NIOBIUM PENTABROMIDE	1160	NiB	NICKEL MONOBORIDE	1202
NbBr5[g]	NIOBIUM PENTABROMIDE (GAS)	1160	Ni4B3	TETRANICKEL TRIBORIDE	1202
NbC0.702	NIOBIUM 0.702-CARBIDE	1161	NiBr[g]	NICKEL MONOBROMIDE (GAS)	1203
NbC0.825	NIOBIUM 0.825-CARBIDE	1162	NiBr2	NICKEL BROMIDE	1203
NbC	NIOBIUM CARBIDE	1163	NiBr2[g]	NICKEL BROMIDE (GAS)	1204

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Ni3C	TRINICKEL CARBIDE	1204	OsO2	OSMIUM DIOXIDE	1247
NiCO3	NICKEL CARBONATE	1205	OsO4	OSMIUM TETRAOXIDE (YELLOW)	1248
Ni(CO)4[g]	NICKEL TETRACARBONYL (GAS)	1205	OsO4[g]	OSMIUM TETRAOXIDE (GAS)	1248
NiCl[g]	NICKEL MONOCHLORIDE (GAS)	1206	OsP2	OSMIUM DIPHOSPHIDE	1249
NiCl2	NICKEL CHLORIDE	1207	OsS2	OSMIUM DISULFIDE	1249
NiCl2[g]	NICKEL CHLORIDE (GAS)	1208	OsSe2	OSMIUM DISELENIDE	1250
NiF[g]	NICKEL MONOFLUORIDE (GAS)	1209	P	PHOSPHORUS (WHITE)	1250
NiF2	NICKEL FLUORIDE	1210	P[g]	PHOSPHORUS (GAS)	1251
NiF2[g]	NICKELFLUORIDE (GAS)	1211	P[R]	PHOSPHORUS (RED)	1251
NiI[g]	NICKEL MONOIODIDE (GAS)	1212	P2[g]	PHOSPHORUS (GAS)	1252
NiI2	NICKEL IODIDE	1212	P4[g]	PHOSPHORUS (GAS)	1253
NiO	NICKEL OXIDE	1213	PBr3[g]	PHOSPHORUS TRIBROMIDE (GAS)	1254
NiO[g]	NICKEL OXIDE (GAS)	1214	PCl3[g]	PHOSPHORUS TRICHLORIDE (GAS)	1255
NiAl2O4	NICKEL DIALUMINIUM TETRAOXIDE	1215	PCl5[g]	PHOSPHORUS PENTACHLORIDE (GAS)	1256
Ni2SiO4	DINICKEL ORTHOSILICATE	1216	PF3[g]	PHOSPHORUS TRIFLUORIDE (GAS)	1257
NiTiO3	NICKEL TITANIUM TRIOXIDE	1217	PF5[g]	PHOSPHORUS PENTAFLUORIDE (GAS)	1258
Ni2P	DINICKEL PHOSPHIDE	1217	PH3[g]	PHOSPHINE (GAS)	1259
Ni3P	TRINICKEL PHOSPHIDE	1218	PI3[g]	PHOSPHORUS TRIIODIDE (GAS)	1259
Ni5P2	PENTANICKEL DIPHOSPHIDE	1218	PN[g]	PHOSPHORUS MONONITRIDE (GAS)	1260
NiS0.84	NICKEL 0.84-SULFIDE	1219	PO[g]	PHOSPHORUS MONOXIDE (GAS)	1261
NiS	NICKEL SULFIDE	1220	PO2[g]	PHOSPHORUS DIOXIDE (GAS)	1262
NiS2	NICKEL DISULFIDE	1221	P2O5	DIPHOSPHORUS PENTAOXIDE (LIQUID)	1263
Ni3S2	TRINICKEL DISULFIDE	1222	P4O6[g]	TETRAPHOSPHORUS HEXAOXIDE (GAS)	1264
Ni3S4	TRINICKEL TETRASULFIDE	1222	P4O10	TETRAPHOSPHORUS DECAOXIDE	1264
NiSO4	NICKEL SULFATE	1223	P4O10[g]	TETRAPHOSPHORUS DECAOXIDE (GAS)	1265
NiSb	NICKEL ANTIMONY	1223	POBr3[g]	PHOSPHORUS TRIBROMIDE OXIDE (GAS)	1266
NiSe1.05	NICKEL 1.05-SELENIDE	1224	POCl3	PHOSPHORUS TRICHLORIDE OXIDE	1266
NiSe1.143	NICKEL 1.143-SELENIDE	1224	POCl3[g]	PHOSPHORUS TRICHLORIDE OXIDE (GAS)	1267
NiSe1.25	NICKEL 1.25-SELENIDE	1225	PS[g]	PHOSPHORUS MONOSULFIDE (GAS)	1268
NiSe2	NICKEL DISELENIDE	1225	P4S3	TETRAPHOSPHORUS TRISULFIDE	1268
NiSeO3	NICKEL SELENITE	1226	P4S5	TETRAPHOSPHORUS PENTASULFIDE	1269
NiSi	NICKEL SILICON	1226	P4S6	TETRAPHOSPHORUS HEXASULFIDE	1269
Ni7Si13	7-NICKEL 13-SILICON	1227	P4S7	TETRAPHOSPHORUS HEPTASULFIDE	1270
Ni3Sn	3-NICKEL TIN	1227	P4S10	TETRAPHOSPHORUS DECASULFIDE	1270
Ni3Sn2	3-NICKEL 2-TIN	1228	Pa	PROTACTINIUM	1271
NiTe1.1	NICKEL 1.1-TELLURIDE	1228	Pa[g]	PROTACTINIUM (GAS)	1272
NiTi	NICKEL TITANIUM	1229	Pb	LEAD	1273
NiTi2	NICKEL 2-TITANIUM	1229	Pb[g]	LEAD (GAS)	1274
Ni3Ti	3-NICKEL TITANIUM	1230	Pb2[g]	LEAD (GAS)	1275
NiWO4	NICKEL TUNGSTATE	1230	Pb3(AsO4)2	LEAD ARSENATE	1275
Np	NEPTUNIUM	1231	PbBr[g]	LEAD MONOBROMIDE (GAS)	1276
Np[g]	NEPTUNIUM (GAS)	1233	PbBr2	LEAD DIBROMIDE	1277
NpCl3	NEPTUNIUM TRICHLORIDE	1234	PbBr2[g]	LEAD DIBROMIDE (GAS)	1278
NpCl4	NEPTUNIUM TETRACHLORIDE	1234	PbBr4[g]	LEAD TETRABROMIDE (GAS)	1279
NpF3	NEPTUNIUM TRIFLUORIDE	1235	PbCO3	LEAD CARBONATE	1279
NpF6	NEPTUNIUM HEXAFLUORIDE	1235	PbCl[g]	LEAD MONOCHLORIDE (GAS)	1280
NpF6[g]	NEPTUNIUM HEXAFLUORIDE (GAS)	1236	PbCl2	LEAD DICHLORIDE	1281
NpO2	NEPTUNIUM DIOXIDE	1236	PbCl2[g]	LEAD DICHLORIDE (GAS)	1282
NpOCl2	NEPTUNIUM DICHLORIDE OXIDE	1237	PbCl4[g]	LEAD TETRACHLORIDE (GAS)	1283
NpO3*H2O	NEPTUNIUM TRIOXIDE HYDRATE	1237	PbF[g]	LEAD MONOFLUORIDE (GAS)	1284
O[g]	OXYGEN (GAS)	1238	PbF2	LEAD DIFLUORIDE	1285
O2[g]	OXYGEN (GAS)	1239	PbF2[g]	LEAD DIFLUORIDE (GAS)	1286
O3[g]	OZONE (GAS)	1240	PbF4[g]	LEAD TETRAFLUORIDE (GAS)	1287
OD[g]	HYDROXYL-D1 (GAS)	1241	PbH[g]	LEAD MONOHYDRIDE (GAS)	1288
OF2[g]	OXYGEN DIFLUORIDE (GAS)	1242	PbI[g]	LEAD MONOIODIDE (GAS)	1289
OH[g]	HYDROXYL (GAS)	1243	PbI2	LEAD DIIODIDE	1290
Os	OSMIUM	1244	PbI2[g]	LEAD DIIODIDE (GAS)	1291
Os[g]	OSMIUM (GAS)	1246	PbI4[g]	LEAD TETRAIODIDE (GAS)	1292

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Pb2I4[g]	DILEAD TETRAIODIDE (GAS)	1292	PtBr3	PLATINUM TRIBROMIDE	1332
PbMoO4	LEAD MOLYBDATE	1293	PtBr4	PLATINUM TETRABROMIDE	1333
PbO	LEAD OXIDE (YELLOW, MASSICOT)	1294	PtCl2	PLATINUM DICHLORIDE	1333
PbO[g]	LEAD OXIDE (GAS)	1295	PtCl3	PLATINUM TRICHLORIDE	1334
PbO[R]	LEAD OXIDE (RED)	1295	PtCl4	PLATINUM TETRACHLORIDE	1334
PbO2	LEAD DIOXIDE	1296	PtI4	PLATINUM TETRAIODIDE	1335
Pb3O4	TRILEAD TETRAOXIDE	1296	PtO2[g]	PLATINUM DIOXIDE (GAS)	1335
PbB2O4	LEAD DIBORATE	1297	PtS	PLATINUM MONOSULFIDE	1336
PbB4O7	LEAD TETRABORATE	1297	PtS2	PLATINUM DISULFIDE	1336
PbO*PbCO3	DILEAD OXIDE CARBONATE	1298	Pt5Se4	PENTAPLATINUM TETRASELENIDE	1337
PbO*PbSO4	DILEAD OXIDE SULFATE	1298	Pu	PLUTONIUM	1338
2PbO*PbSO4	TRILEAD DIOXIDE SULFATE	1299	Pu[g]	PLUTONIUM (GAS)	1340
3PbO*PbSO4	TETRALEAD TRIOXIDE SULFATE	1299	PuBr3	PLUTONIUM TRIBROMIDE	1341
4PbO*PbSO4	PENTALEAD TETRAOXIDE SULFATE	1300	PuC0.88	PLUTONIUM 0.88-CARBIDE	1342
PbSiO3	LEAD METASILICATE	1300	PuC2	PLUTONIUM DICARBIDE	1343
Pb2SiO4	DILEAD ORTHOSILICATE	1301	Pu2C3	DIPLUTONIUM TRICARBIDE	1344
Pb4SiO6	TETRALEAD SILICATE	1302	PuCl3	PLUTONIUM TRICHLORIDE	1345
PbTiO3	LEAD TITANIUM TRIOXIDE	1303	PuF3	PLUTONIUM TRIFLUORIDE	1346
PbS	LEAD SULFIDE	1304	PuF4	PLUTONIUM TETRAFLUORIDE	1347
PbS[g]	LEAD SULFIDE (GAS)	1305	PuF6	PLUTONIUM HEXAFLUORIDE	1347
PbSO4	LEAD SULFATE	1306	PuF6[g]	PLUTONIUM HEXAFLUORIDE (GAS)	1348
PbSe	LEAD SELENIDE	1307	PuH2	PLUTONIUM DIHYDRIDE	1348
PbSe[g]	LEAD SELENIDE (GAS)	1308	PuH3	PLUTONIUM TRIHYDRIDE	1349
PbSeO3	LEAD SELENITE	1308	PuI3	PLUTONIUM TRIIODIDE	1349
PbSeO4	LEAD SELENATE	1309	PuN	PLUTONIUM NITRIDE	1350
PbTe	LEAD TELLURIDE	1309	PuO	PLUTONIUM OXIDE	1351
PbTe[g]	LEAD TELLURIDE (GAS)	1310	PuO2	PLUTONIUM DIOXIDE	1352
PbWO4	LEAD TUNGSTATE	1310	Pu2O3	DIPLUTONIUM TRIOXIDE (ALPHA)	1353
Pd	PALLADIUM	1311	Pu2O3[B]	DIPLUTONIUM TRIOXIDE (BETA)	1354
Pd[g]	PALLADIUM (GAS)	1312	PuOBr	PLUTONIUM BROMIDE OXIDE	1354
PdCl2	PALLADIUM CHLORIDE	1313	PuOCl	PLUTONIUM CHLORIDE OXIDE	1355
PdF2	PALLADIUM FLUORIDE	1313	PuOF	PLUTONIUM FLUORIDE OXIDE	1355
PdI2	PALLADIUM IODIDE	1314	PuOI	PLUTONIUM IODIDE OXIDE	1356
PdO	PALLADIUM OXIDE	1314	PuS	PLUTONIUM MONOSULFIDE	1357
PdS	PALLADIUM SULFIDE	1315	Pu2S3	DIPLUTONIUM TRISULFIDE	1358
PdS2	PALLADIUM DISULFIDE	1315	Pu(SO4)2	PLUTONIUM DISULFATE	1358
Pd4S	TETRAPALLADIUM SULFIDE	1316	Rb	RUBIDIUM	1359
PdTe	PALLADIUM TELLURIDE	1316	Rb[g]	RUBIDIUM (GAS)	1360
Pr	PRASEODYMIUM	1317	Rb2[g]	RUBIDIUM (GAS)	1361
Pr[g]	PRASEODYMIUM (GAS)	1318	Rb3AsO4	RUBIDIUM ARSENATE	1362
PrBr3	PRASEODYMIUM BROMIDE	1319	RbBr	RUBIDIUM BROMIDE	1362
PrBr3[g]	PRASEODYMIUM BROMIDE (GAS)	1320	RbBr[g]	RUBIDIUM BROMIDE (GAS)	1363
PrCl3	PRASEODYMIUM CHLORIDE	1321	Rb2CO3	RUBIDIUM CARBONATE	1364
PrCl3[g]	PRASEODYMIUM CHLORIDE (GAS)	1322	RbCl	RUBIDIUM CHLORIDE	1365
PrF3	PRASEODYMIUM FLUORIDE	1323	RbCl[g]	RUBIDIUM CHLORIDE (GAS)	1366
PrF3[g]	PRASEODYMIUM FLUORIDE (GAS)	1324	Rb2Cl2[g]	DIRUBIDIUM DICHLORIDE (GAS)	1367
PrH2	PRASEODYMIUM DIHYDRIDE	1324	RbF	RUBIDIUM FLUORIDE	1368
PrI3	PRASEODYMIUM IODIDE	1325	RbF[g]	RUBIDIUM FLUORIDE (GAS)	1369
PrI3[g]	PRASEODYMIUM IODIDE (GAS)	1326	Rb2F2[g]	DIRUBIDIUM DIFLUORIDE (GAS)	1370
PrO1.833	PRASEODYMIUM 1.833-OXIDE	1326	RbI	RUBIDIUM IODIDE	1371
PrO2	PRASEODYMIUM DIOXIDE	1327	RbI[g]	RUBIDIUM IODIDE (GAS)	1372
Pr2O3	PRASEODYMIUM OXIDE	1327	RbO2	RUBIDIUM PEROXIDE	1373
Pr7O12	7-PRASEODYMIUM 12-OXIDE	1328	Rb2O	RUBIDIUM OXIDE	1374
PrS	PRASEODYMIUM MONOSULFIDE	1328	Rb2SiO3	RUBIDIUM METASILICATE	1375
Pr3S4	TRIPRASEODYMIUM TETRASULFIDE	1329	Rb2Si2O5	RUBIDIUM DISILICATE	1376
Pt	PLATINUM	1330	Rb2Si4O9	RUBIDIUM TETRASILICATE	1377
Pt[g]	PLATINUM (GAS)	1331	Rb2SO4	RUBIDIUM SULFATE	1378
PtBr2	PLATINUM DIBROMIDE	1332	Re	RHENIUM	1379

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Re[g]	RHENIUM (GAS)	1381	SSF2[g]	SULFINOTHIOYL DIFLUORIDE (GAS)	1423
Re3As7	TRIRHENIUM HEPTAARSENIDE	1382	S2F10[g]	DISULFUR DECAFLUORIDE (GAS)	1424
ReAsO4	RHENIUM ARSENATE	1383	SN[g]	SULFUR MONONITRIDE (GAS)	1425
ReBr3	RHENIUM TRIBROMIDE	1383	SO[g]	SULFUR MONOXIDE (GAS)	1426
ReCl3	RHENIUM TRICHLORIDE	1384	SO2[g]	SULFUR DIOXIDE (GAS)	1427
ReO2	RHENIUM DIOXIDE	1384	SO3[g]	SULFUR TRIOXIDE (GAS)	1428
ReO3	RHENIUM TRIOXIDE	1385	S2O[g]	DISULFUR OXIDE (GAS)	1429
Re2O7	DIRHENIUM HEPTAOXIDE	1385	SOCl2[g]	SULFINYL DICHLORIDE (GAS)	1430
ReS2	RHENIUM DISULFIDE	1386	SO2Cl2[g]	SULFONYL DICHLORIDE (GAS)	1430
Re2S7	DIRHENIUM HEPTASULFIDE	1386	SOF2[g]	SULFINYL DIFLUORIDE (GAS)	1431
ReSi	RHENIUM SILICON	1387	SO2F2[g]	SULFONYL DIFLUORIDE (GAS)	1432
ReSi2	RHENIUM 2-SILICON	1387	Sb	ANTIMONY	1433
Re5Si3	5-RHENIUM 3-SILICON	1388	Sb[g]	ANTIMONY (GAS)	1434
Re2Te5	DIRHENIUM PENTATELLURIDE	1388	Sb2[g]	ANTIMONY (GAS)	1435
Re2Y	2-RHENIUM YTTRIUM	1389	Sb4[g]	ANTIMONY (GAS)	1436
Rh	RHODIUM	1390	SbBr3	ANTIMONY TRIBROMIDE	1436
Rh[g]	RHODIUM (GAS)	1391	SbBr3[g]	ANTIMONY TRIBROMIDE (GAS)	1437
RhCl2[g]	RHODIUM DICHLORIDE (GAS)	1392	SbCl[g]	ANTIMONY MONOCHLORIDE (GAS)	1437
RhCl3	RHODIUM TRICHLORIDE	1392	SbCl3	ANTIMONY TRICHLORIDE	1438
RhCl3[g]	RHODIUM TRICHLORIDE (GAS)	1393	SbCl3[g]	ANTIMONY TRICHLORIDE (GAS)	1438
RhO2[g]	RHODIUM DIOXIDE (GAS)	1393	SbCl5[g]	ANTIMONY PENTACHLORIDE (GAS)	1439
Rh2O3	DIRHODIUM TRIOXIDE	1394	SbF[g]	ANTIMONY MONOFLUORIDE (GAS)	1439
Rh3U	3-RHODIUM URANIUM	1394	SbF3	ANTIMONY TRIFLUORIDE	1440
Rn[g]	RADON (MONOATOMIC GAS)	1395	SbF3[g]	ANTIMONY TRIFLUORIDE (GAS)	1440
Ru	RUTHENIUM	1396	SbH3[g]	ANTIMONY TRIHYDRIDE (GAS)	1441
Ru[g]	RUTHENIUM (GAS)	1397	SbI3	ANTIMONY TRIIODIDE	1441
RuCl3	RUTHENIUM TRICHLORIDE	1398	SbI3[g]	ANTIMONY TRIIODIDE (GAS)	1442
RuCl3[g]	RUTHENIUM TRICHLORIDE (GAS)	1398	SbO[g]	ANTIMONY OXIDE (GAS)	1442
RuCl4[g]	RUTHENIUM TETRACHLORIDE (GAS)	1399	Sb2O3	DIANTIMONY TRIOXIDE (CUBIC)	1443
RuF5	RUTHENIUM PENTAFLUORIDE	1399	Sb2O3[O]	DIANTIMONY TRIOXIDE (ORTHORHOMBIC)	1444
RuO2	RUTHENIUM DIOXIDE	1400	Sb2O4	DIANTIMONY TETRAOXIDE	1444
RuO3[g]	RUTHENIUM TRIOXIDE (GAS)	1400	Sb2O5	DIANTIMONY PENTAOXIDE	1445
RuO4[g]	RUTHENIUM TETROXIDE (GAS)	1401	Sb4O6[g]	TETRAANTIMONY HEXAOXIDE (GAS)	1445
RuS2	RUTHENIUM DISULFIDE	1401	SbOCl	ANTIMONY CHLORIDE OXIDE	1446
RuSe2	RUTHENIUM DISELENIDE	1402	SbS[g]	ANTIMONY SULFIDE (GAS)	1446
Ru3U	3-RUTHENIUM URANIUM	1402	Sb2S3	DIANTIMONY TRISULFIDE (BLACK)	1447
S	SULFUR (RHOMBIC,MONOCLINIC)	1403	Sb2S3[g]	DIANTIMONY TRISULFIDE (GAS)	1447
S[g]	SULFUR (GAS)	1404	Sb2S4[g]	DIANTIMONY TETRASULFIDE (GAS)	1448
S2[g]	SULFUR (GAS)	1405	Sb3S2[g]	TRIANTIMONY DISULFIDE (GAS)	1449
S3[g]	SULFUR (GAS)	1406	Sb2(SO4)3	DIANTIMONY TRISULFATE	1450
S4[g]	SULFUR (GAS)	1407	Sb4S3[g]	TETRAANTIMONY TRISULFIDE (GAS)	1450
S5[g]	SULFUR (GAS)	1408	SbSe[g]	ANTIMONY SELENIDE (GAS)	1451
S6[g]	SULFUR (GAS)	1409	Sb2Se3	DIANTIMONY TRISELENIDE	1451
S7[g]	SULFUR (GAS)	1410	Sb2Te3	DIANTIMONY TRITELLURIDE	1452
S8[g]	SULFUR (GAS)	1411	SbZn	ANTIMONY ZINC	1452
SBr2[g]	SULFUR DIBROMIDE (GAS)	1412	Sc	SCANDIUM	1453
S2Br2[g]	DISULFUR DIBROMIDE (GAS)	1413	Sc[g]	SCANDIUM (GAS)	1454
SCl[g]	SULFUR MONOCHLORIDE (GAS)	1414	ScAsO4	SCANDIUM ARSENATE	1455
SCl2[g]	SULFUR DICHLORIDE (GAS)	1415	ScBr3	SCANDIUM BROMIDE	1455
S2Cl[g]	DISULFUR CHLORIDE RADICAL (GAS)	1416	ScCl3	SCANDIUM CHLORIDE	1456
S2Cl2	DISULFUR DICHLORIDE	1416	ScF3	SCANDIUM FLUORIDE	1457
S2Cl2[g]	DISULFUR DICHLORIDE (GAS)	1417	ScF3[g]	SCANDIUM FLUORIDE (GAS)	1458
SF[g]	SULFUR MONOFLUORIDE (GAS)	1417	ScN	SCANDIUM NITRIDE	1459
SF2[g]	SULFUR DIFLUORIDE (GAS)	1418	Sc2O3	SCANDIUM OXIDE	1460
SF3[g]	SULFUR TRIFLUORIDE (GAS)	1419	Se	SELENIUM	1461
SF4[g]	SULFUR TETRAFLUORIDE (GAS)	1420	Se[g]	SELENIUM (GAS)	1461
SF5[g]	SULFUR PENTAFLUORIDE (GAS)	1421	Se2[g]	SELENIUM (GAS)	1462
SF6[g]	SULFUR HEXAFLUORIDE (GAS)	1422	Se3[g]	SELENIUM (GAS)	1463

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Se4[g]	SELENIUM (GAS)	1464	Si2Th	2-SILICON THORIUM	1514
Se5[g]	SELENIUM (GAS)	1465	Si2Th3	2-SILICON 3-THORIUM	1515
Se6[g]	SELENIUM (GAS)	1466	Si5Th3	5-SILICON 3-THORIUM	1516
Se7[g]	SELENIUM (GAS)	1467	SiTi	SILICON TITANIUM	1517
Se8[g]	SELENIUM (GAS)	1468	Si2Ti	2-SILICON TITANIUM	1518
SeBr2[g]	SELENIUM DIBROMIDE (GAS)	1469	Si3Ti5	3-SILICON 5-TITANIUM	1519
Se2Br2[g]	DISELENIUM DIBROMIDE (GAS)	1470	SiU	SILICON URANIUM	1520
SeCl2[g]	SELENIUM DICHLORIDE (GAS)	1471	SiU3	SILICON 3-URANIUM	1520
SeCl4	SELENIUM TETRACHLORIDE	1471	Si2U	2-SILICON URANIUM	1521
Se2Cl2	DISELENIUM DICHLORIDE	1472	Si2U3	2-SILICON 3-URANIUM	1522
Se2Cl2[g]	DISELENIUM DICHLORIDE (GAS)	1472	Si3U	3-SILICON URANIUM	1523
SeF[g]	SELENIUM FLUORIDE (GAS)	1473	Si5U3	5-SILICON 3-URANIUM	1524
SeF2[g]	SELENIUM DIFLUORIDE (GAS)	1474	SiV3	SILICON 3-VANADIUM	1524
SeF4[g]	SELENIUM TETRAFLUORIDE (GAS)	1475	Si2V	2-SILICON VANADIUM	1525
SeF5[g]	SELENIUM PENTAFLUORIDE (GAS)	1476	Si3V5	3-SILICON 5-VANADIUM	1526
SeF6[g]	SELENIUM HEXAFLUORIDE (GAS)	1477	Si2W	2-SILICON TUNGSTEN	1527
SeO[g]	SELENIUM OXIDE (GAS)	1478	Si3W5	3-SILICON 5-TUNGSTEN	1528
SeO2	SELENIUM DIOXIDE	1478	SiZr	SILICON ZIRCONIUM	1529
SeO2[g]	SELENIUM DIOXIDE (GAS)	1479	SiZr2	SILICON 2-ZIRCONIUM	1529
Si	SILICON	1480	Si2Zr	2-SILICON ZIRCONIUM	1530
Si[g]	SILICON (GAS)	1481	Si3Zr5	3-SILICON 5-ZIRCONIUM	1530
Si2[g]	SILICON (GAS)	1482	Sm	SAMARIUM	1531
Si3[g]	SILICON (GAS)	1483	Sm[g]	SAMARIUM (GAS)	1532
SiBr[g]	SILICON MONOBROMIDE (GAS)	1484	SmC2	SAMARIUM DICARBIDE	1533
SiBr2[g]	SILICON DIBROMIDE (GAS)	1485	SmCl2	SAMARIUM DICHLORIDE	1533
SiBr3[g]	SILICON TRIBROMIDE (GAS)	1486	SmCl3	SAMARIUM TRICHLORIDE	1534
SiBr4	SILICON TETRABROMIDE	1486	Sm2O3	DISAMARIUM TRIOXIDE (CUBIC)	1534
SiBr4[g]	SILICON TETRABROMIDE (GAS)	1487	Sm2O3[M]	DISAMARIUM TRIOXIDE (MONOCLINIC)	1535
SiC	SILICON CARBIDE (CUBIC)	1488	SmOF	SAMARIUM FLUORIDE OXIDE	1536
SiCl[g]	SILICON CHLORIDE (GAS)	1489	Sm2Zr2O7	DISAMARIUM DIZIRCONIUM HEPTAOXIDE	1537
SiCl2[g]	SILICON DICHLORIDE (GAS)	1490	Sn	TIN (WHITE)	1538
SiCl3[g]	SILICON TRICHLORIDE (GAS)	1491	Sn[g]	TIN (GAS)	1539
SiCl4[g]	SILICON TETRACHLORIDE (GAS)	1492	Sn3(AsO4)2	TRITIN ARSENATE	1540
SiF[g]	SILICON FLUORIDE (GAS)	1493	SnBr2	TIN DIBROMIDE	1540
SiF2[g]	SILICON DIFLUORIDE (GAS)	1494	SnBr4	TIN TETRABROMIDE	1541
SiF3[g]	SILICON TRIFLUORIDE (GAS)	1495	SnBr4[g]	TIN TETRABROMIDE (GAS)	1541
SiF4[g]	SILICON TETRAFLUORIDE (GAS)	1496	SnCl[g]	TIN MONOCHLORIDE (GAS)	1542
SiH[g]	SILICON HYDRIDE (GAS)	1497	SnCl2	TIN DICHLORIDE	1542
SiH4[g]	SILANE (GAS)	1498	SnCl2[g]	TIN DICHLORIDE (GAS)	1543
Si2H6[g]	DISILANE (GAS)	1498	SnCl4	TIN TETRACHLORIDE	1543
SiI[g]	SILICON IODIDE (GAS)	1499	SnCl4[g]	TIN TETRACHLORIDE (GAS)	1544
SiI2[g]	SILICON DIIODIDE (GAS)	1500	SnF[g]	TIN MONOFLUORIDE (GAS)	1544
SiI3[g]	SILICON TRIIODIDE (GAS)	1501	SnF2	TIN DIFLUORIDE	1545
SiI4	SILICON TETRAIODIDE	1501	SnF2[g]	TIN DIFLUORIDE (GAS)	1545
SiI4[g]	SILICON TETRAIODIDE (GAS)	1502	SnH4[g]	TIN TETRAHYDRIDE (GAS)	1546
Si3N4	TRISILICON TETRANITRIDE (ALPHA)	1503	SnI2	TIN DIIODIDE	1546
SiO[g]	SILICON OXIDE (GAS)	1504	SnI2[g]	TIN DIIODIDE (GAS)	1547
SiO2	SILICON DIOXIDE	1505	SnI4	TIN TETRAIODIDE	1547
SiO2[CR]	SILICON DIOXIDE (CRISTOBALITE)	1506	SnI4[g]	TIN TETRAIODIDE (GAS)	1548
SiOF2[g]	SILICON DIFLUORIDE OXIDE (GAS)	1506	Sn2I4[g]	DITIN TETRAIODIDE (GAS)	1548
SiP	SILICON PHOSPHIDE	1507	SnO	TIN MONOXIDE	1549
SiS[g]	SILICON SULFIDE (GAS)	1507	SnO[g]	TIN MONOXIDE (GAS)	1549
SiS2	SILICON DISULFIDE	1508	SnO2	TIN DIOXIDE	1550
SiSe[g]	SILICON SELENIDE (GAS)	1509	SnS	TIN MONOSULFIDE	1551
SiTa2	SILICON 2-TANTALUM	1510	SnS[g]	TIN MONOSULFIDE (GAS)	1552
Si2Ta	2-SILICON TANTALUM	1511	SnS2	TIN DISULFIDE	1552
Si3Ta5	3-SILICON 5-TANTALUM	1512	Sn2S3	DITIN TRISULFIDE	1553
SiTh	SILICON THORIUM	1513	Sn3S4	TRITIN TETRASULFIDE	1553

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Sn(SO4)2	TIN DISULFATE	1554	TaI5[g]	TANTALUM PENTAIODIDE (GAS)	1601
SnSe	TIN MONOSELENIDE	1555	TaN	TANTALUM MONONITRIDE	1602
SnSe[g]	TIN MONOSELENIDE (GAS)	1555	Ta2N	DITANTALUM NITRIDE	1603
SnSe2	TIN DISELENIDE	1556	TaO[g]	TANTALUM MONOXIDE (GAS)	1604
SnTe	TIN MONOTELLURIDE	1556	TaO2[g]	TANTALUM DIOXIDE (GAS)	1605
SnTe[g]	TIN MONOTELLURIDE (GAS)	1557	Ta2O5	DITANTALUM PENTOXIDE	1606
Sr	STRONTIUM	1558	TaOCl3	TANTALUM TRICHLORIDE OXIDE	1607
Sr[g]	STRONTIUM (GAS)	1559	TaOCl3[g]	TANTALUM TRICHLORIDE OXIDE (GAS)	1607
Sr3(AsO4)2	STRONTIUM ARSENATE	1560	TaO2Cl	TANTALUM CHLORIDE DIOXIDE	1608
SrBr[g]	STRONTIUM MONOBROMIDE (GAS)	1561	TaS[g]	TANTALUM MONOSULFIDE (GAS)	1608
SrBr2	STRONTIUM BROMIDE	1562	TaS2	TANTALUM DISULFIDE	1609
SrBr2[g]	STRONTIUM BROMIDE (GAS)	1563	Tb	TERBIUM	1610
SrC2	STRONTIUM DICARBIDE	1564	Tb[g]	TERBIUM (GAS)	1611
SrCO3	STRONTIUM CARBONATE	1564	TbBr3[g]	TERBIUM TRIBROMIDE (GAS)	1612
SrCl[g]	STRONTIUM MONOCHLORIDE (GAS)	1565	TbCl3	TERBIUM TRICHLORIDE	1613
SrCl2	STRONTIUM CHLORIDE	1566	TbCl3[g]	TERBIUM TRICHLORIDE (GAS)	1614
SrCl2[g]	STRONTIUM CHLORIDE (GAS)	1567	TbO1.72	TERBIUM 1.72-OXIDE	1614
SrF2	STRONTIUM FLUORIDE	1568	TbO1.81	TERBIUM 1.81-OXIDE	1615
SrH2	STRONTIUM HYDRIDE	1569	TbO2	TERBIUM DIOXIDE	1615
SrI2	STRONTIUM IODIDE	1570	Tb2O3	DITERBIUM TRIOXIDE	1616
SrI2[g]	STRONTIUM IODIDE (GAS)	1571	TbS[g]	TERBIUM SULFIDE (GAS)	1617
SrMoO4	STRONTIUM MOLYBDATE	1572	TbSe[g]	TERBIUM SELENIDE (GAS)	1618
Sr3N2	TRISTRONTIUM DINITRIDE	1572	TbTe[g]	TERBIUM TELLURIDE (GAS)	1619
SrO	STRONTIUM OXIDE	1573	Tc	TECHNETIUM	1620
SrO2	STRONTIUM PEROXIDE	1574	Tc[g]	TECHNETIUM (GAS)	1622
SrAl2O4	STRONTIUM DIALUMINIUM TETRAOXIDE	1574	TcO2	TECHNETIUM DIOXIDE	1623
SrOH[g]	STRONTIUM MONOHYDROXIDE (GAS)	1575	TcO3	TECHNETIUM TRIOXIDE	1623
Sr(OH)2	STRONTIUM HYDROXIDE	1576	Tc2O7	DITECHNETIUM HEPTAOXIDE	1624
Sr(OH)2[g]	STRONTIUM HYDROXIDE (GAS)	1577	Tc2O7[g]	DITECHNETIUM HEPTAOXIDE (GAS)	1624
SrSiO3	STRONTIUM METASILICATE	1578	Te	TELLURIUM	1625
Sr2SiO4	STRONTIUM ORTHOSILICATE	1578	Te[g]	TELLURIUM (GAS)	1626
SrTiO3	STRONTIUM TITANIUM TRIOXIDE	1579	Te2[g]	TELLURIUM (GAS)	1627
Sr2TiO4	DISTRONTIUM TITANIUM TETRAOXIDE	1580	TeBr4	TELLURIUM TETRABROMIDE	1627
Sr4Ti3O10	TETRASTRONTIUM TRITITANIUM DECAOXIDE	1581	TeCl2[g]	TELLURIUM DICHLORIDE (GAS)	1628
SrZrO3	STRONTIUM ZIRCONIUM TRIOXIDE	1582	TeCl4	TELLURIUM TETRACHLORIDE	1628
SrS	STRONTIUM SULFIDE	1583	TeCl4[g]	TELLURIUM TETRACHLORIDE (GAS)	1629
SrS[g]	STRONTIUM SULFIDE (GAS)	1584	TeF[g]	TELLURIUM MONOFLUORIDE (GAS)	1630
SrSO4	STRONTIUM SULFATE	1585	TeF2[g]	TELLURIUM DIFLUORIDE (GAS)	1631
SrWO4	STRONTIUM TUNGSTATE	1586	TeF4[g]	TELLURIUM TETRAFLUORIDE (GAS)	1632
Ta	TANTALUM	1587	TeF5[g]	TELLURIUM PENTAFLUORIDE (GAS)	1633
Ta[g]	TANTALUM (GAS)	1589	TeF6[g]	TELLURIUM HEXAFLUORIDE (GAS)	1634
TaB2	TANTALUM DIBORIDE	1591	TeO[g]	TELLURIUM MONOXIDE (GAS)	1635
TaBr5	TANTALUM PENTABROMIDE	1592	TeO2	TELLURIUM DIOXIDE	1636
TaBr5[g]	TANTALUM PENTABROMIDE (GAS)	1592	TeO2[g]	TELLURIUM DIOXIDE (GAS)	1637
TaC	TANTALUM MONOCARBIDE	1593	Te2O2[g]	DITELLURIUM DIOXIDE (GAS)	1638
Ta2C	DITANTALUM CARBIDE	1594	Th	THORIUM	1639
TaCl[g]	TANTALUM MONOCHLORIDE (GAS)	1595	Th[g]	THORIUM (GAS)	1641
TaCl2[g]	TANTALUM DICHLORIDE (GAS)	1595	ThBr4	THORIUM TETRABROMIDE	1642
TaCl2.5	TANTALUM 2.5-CHLORIDE	1596	ThBr4[g]	THORIUM TETRABROMIDE (GAS)	1643
TaCl3	TANTALUM TRICHLORIDE	1596	ThC1.94	THORIUM 1.94-CARBIDE	1644
TaCl3[g]	TANTALUM TRICHLORIDE (GAS)	1597	ThCl4	THORIUM TETRACHLORIDE	1645
TaCl4	TANTALUM TETRACHLORIDE	1597	ThCl4[g]	THORIUM TETRACHLORIDE (GAS)	1646
TaCl4[g]	TANTALUM TETRACHLORIDE (GAS)	1598	ThF2[g]	THORIUM DIFLUORIDE (GAS)	1647
TaCl5	TANTALUM PENTACHLORIDE	1598	ThF3[g]	THORIUM TRIFLUORIDE (GAS)	1648
TaCl5[g]	TANTALUM PENTACHLORIDE (GAS)	1599	ThF4	THORIUM TETRAFLUORIDE	1649
TaF5	TANTALUM PENTAFLUORIDE	1599	ThF4[g]	THORIUM TETRAFLUORIDE (GAS)	1650
TaF5[g]	TANTALUM PENTAFLUORIDE (GAS)	1600	ThH2	THORIUM DIHYDRIDE	1650

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ThI4	THORIUM TETRAIODIDE	1651	Ti2O3	DITITANIUM TRIOXIDE	1694
ThI4[g]	THORIUM TETRAIODIDE (GAS)	1652	Ti3O5	TRITITANIUM PENTOXIDE	1695
ThN	THORIUM MONONITRIDE	1653	Ti4O7	TETRATITANIUM HEPTAOXIDE	1696
Th3N4	TRITHORIUM TETRANITRIDE	1654	TiOCl[g]	TITANIUM CHLORIDE OXIDE (GAS)	1697
Th2N2O	DITHORIUM DINITRIDE MONOXIDE	1655	TiOCl2[g]	TITANIUM DICHLORIDE OXIDE (GAS)	1698
ThO[g]	THORIUM MONOXIDE (GAS)	1656	TiOF[g]	TITANIUM FLUORIDE OXIDE (GAS)	1699
ThO2	THORIUM DIOXIDE	1657	TiOF2[g]	TITANIUM DIFLUORIDE OXIDE (GAS)	1700
ThO2[g]	THORIUM DIOXIDE (GAS)	1658	TiS	TITANIUM MONOSULFIDE	1701
ThOBr2	THORIUM DIBROMIDE OXIDE	1659	TiS[g]	TITANIUM MONOSULFIDE (GAS)	1702
ThOCl2	THORIUM DICHLORIDE OXIDE	1659	TiS2	TITANIUM DISULFIDE	1703
ThOF2	THORIUM DIFLUORIDE OXIDE	1660	Tl	THALLIUM	1704
ThOI2	THORIUM DIIODIDE OXIDE	1660	Tl[g]	THALLIUM (GAS)	1705
ThP	THORIUM MONOPHOSPHIDE	1661	TlAsO4	THALLIUM ARSENATE	1705
Th3P4	TRITHORIUM TETRAPHOSPHIDE	1662	TlBr	THALLIUM BROMIDE	1706
ThRe2	THORIUM 2-RHENIUM	1663	TlCl	THALLIUM CHLORIDE	1706
ThS	THORIUM MONOSULFIDE	1663	TlCl[g]	THALLIUM CHLORIDE (GAS)	1707
ThS2	THORIUM DISULFIDE	1664	TlCl3	THALLIUM TRICHLORIDE	1707
Th2S3	DITHORIUM TRISULFIDE	1665	Tl2Cl2[g]	DITHALLIUM DICHLORIDE (GAS)	1708
Th(SO4)2	THORIUM DISULFATE	1665	TlF	THALLIUM FLUORIDE	1708
Ti	TITANIUM	1666	TlF[g]	THALLIUM FLUORIDE (GAS)	1709
Ti[g]	TITANIUM (GAS)	1667	Tl2F2[g]	DITHALLIUM DIFLUORIDE (GAS)	1710
Ti3(AsO4)2	TRITITANIUM DIARSENATE	1668	TlI	THALLIUM IODIDE	1711
TiB	TITANIUM MONOBORIDE	1668	TlI[g]	THALLIUM IODIDE (GAS)	1712
TiB2	TITANIUM DIBORIDE	1669	Tl2O	THALLIUM OXIDE	1712
TiBr[g]	TITANIUM MONOBROMIDE (GAS)	1670	Tl2O[g]	THALLIUM OXIDE (GAS)	1713
TiBr2	TITANIUM DIBROMIDE	1670	Tl2O3	DITHALLIUM TRIOXIDE	1713
TiBr2[g]	TITANIUM DIBROMIDE (GAS)	1671	Tl2S	THALLIUM SULFIDE	1714
TiBr3	TITANIUM TRIBROMIDE	1671	Tl2SO4	THALLIUM SULFATE	1715
TiBr3[g]	TITANIUM TRIBROMIDE (GAS)	1672	TlSe	THALLIUM SELENIDE	1716
TiBr4	TITANIUM TETRABROMIDE	1672	Tl2Se	THALLIUM SELENIDE	1716
TiBr4[g]	TITANIUM TETRABROMIDE (GAS)	1673	Tl2Te	THALLIUM TELLURIDE	1717
TiC	TITANIUM MONOCARBIDE	1674	Tm	THULIUM	1717
TiCl[g]	TITANIUM MONOCHLORIDE (GAS)	1675	Tm[g]	THULIUM (GAS)	1718
TiCl2	TITANIUM DICHLORIDE	1676	TmBr3[g]	THULIUM TRIBROMIDE (GAS)	1719
TiCl2[g]	TITANIUM DICHLORIDE (GAS)	1677	TmCl3	THULIUM TRICHLORIDE	1719
TiCl3	TITANIUM TRICHLORIDE	1677	TmCl3[g]	THULIUM TRICHLORIDE (GAS)	1720
TiCl3[g]	TITANIUM TRICHLORIDE (GAS)	1678	TmF3	THULIUM TRIFLUORIDE	1721
TiCl4	TITANIUM TETRACHLORIDE	1678	TmF3[g]	THULIUM TRIFLUORIDE (GAS)	1722
TiCl4[g]	TITANIUM TETRACHLORIDE (GAS)	1679	TmI3[g]	THULIUM TRIIODIDE (GAS)	1723
TiF[g]	TITANIUM MONOFLUORIDE (GAS)	1680	Tm2O3	DITHULIUM TRIOXIDE	1724
TiF2[g]	TITANIUM DIFLUORIDE (GAS)	1681	U	URANIUM	1725
TiF3	TITANIUM TRIFLUORIDE	1681	U[g]	URANIUM (GAS)	1727
TiF3[g]	TITANIUM TRIFLUORIDE (GAS)	1682	UB2	URANIUM DIBORIDE	1728
TiF4	TITANIUM TETRAFLUORIDE	1682	UB4	URANIUM TETRABORIDE	1728
TiF4[g]	TITANIUM TETRAFLUORIDE (GAS)	1683	UB12	URANIUM DODECABORIDE	1729
TiH2	TITANIUM DIHYDRIDE	1684	UBr3	URANIUM TRIBROMIDE	1729
TiI[g]	TITANIUM MONOIODIDE (GAS)	1685	UBr4	URANIUM TETRABROMIDE	1730
TiI2	TITANIUM DIIODIDE	1685	UBr4[g]	URANIUM TETRABROMIDE (GAS)	1730
TiI2[g]	TITANIUM DIIODIDE (GAS)	1686	UBr5	URANIUM PENTABROMIDE	1731
TiI3	TITANIUM TRIIODIDE	1686	UC	URANIUM MONOCARBIDE	1731
TiI3[g]	TITANIUM TRIIODIDE (GAS)	1687	UC1.94	URANIUM 1.94-CARBIDE	1732
TiI4	TITANIUM TETRAIODIDE	1687	U2C3	DIURANIUM TRICARBIDE	1733
TiI4[g]	TITANIUM TETRAIODIDE (GAS)	1688	UCl3	URANIUM TRICHLORIDE	1734
TiN	TITANIUM MONONITRIDE	1689	UCl4	URANIUM TETRACHLORIDE	1735
TiO	TITANIUM MONOXIDE	1690	UCl4[g]	URANIUM TETRACHLORIDE (GAS)	1736
TiO[g]	TITANIUM MONOXIDE (GAS)	1691	UCl5	URANIUM PENTACHLORIDE	1736
TiO2	TITANIUM DIOXIDE (RUTILE)	1692	UCl5[g]	URANIUM PENTACHLORIDE (GAS)	1737
TiO2[A]	TITANIUM DIOXIDE (ANATASE)	1693	UCl6	URANIUM HEXACHLORIDE	1737

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UCl6[g]	URANIUM HEXACHLORIDE (GAS)	1738	VI3	VANADIUM TRIIODIDE	1772
UF3	URANIUM TRIFLUORIDE	1738	VN0.465	VANADIUM 0.465-NITRIDE	1773
UF4	URANIUM TETRAFLUORIDE	1739	VN	VANADIUM NITRIDE	1774
UF4[g]	URANIUM TETRAFLUORIDE (GAS)	1739	VO	VANADIUM OXIDE	1775
UF4.25	URANIUM 4.25-FLUORIDE	1740	VO[g]	VANADIUM OXIDE (GAS)	1776
UF4.5	URANIUM 4.5-FLUORIDE	1740	VO2[g]	VANADIUM DIOXIDE (GAS)	1777
UF5	URANIUM PENTAFLUORIDE	1741	V2O3	DIVANADIUM TRIOXIDE	1778
UF5[g]	URANIUM PENTAFLUORIDE (GAS)	1741	V2O4	DIVANADIUM TETRAOXIDE	1779
UF6	URANIUM HEXAFLUORIDE	1742	V2O5	DIVANADIUM PENTAOXIDE	1780
UF6[g]	URANIUM HEXAFLUORIDE (GAS)	1742	VOCl3	VANADIUM TRICHLORIDE OXIDE	1780
UH3[B]	URANIUM TRIHYDRIDE (BETA)	1743	VOCl3[g]	VANADIUM TRICHLORIDE OXIDE (GAS)	1781
UI3	URANIUM TRIIODIDE	1743	W	TUNGSTEN	1782
UI4	URANIUM TETRAIODIDE	1744	W[g]	TUNGSTEN (GAS)	1784
UI4[g]	URANIUM TETRAIODIDE (GAS)	1744	WBr[g]	TUNGSTEN BROMIDE (GAS)	1785
UN	URANIUM NITRIDE	1745	WBr5	TUNGSTEN PENTABROMIDE	1786
UO2	URANIUM DIOXIDE	1746	WBr5[g]	TUNGSTEN PENTABROMIDE (GAS)	1786
UO3	URANIUM TRIOXIDE (ORTHORHOMBIC)	1747	WBr6	TUNGSTEN HEXABROMIDE	1787
U3O8	TRIURAN. OCTAOXIDE (ORTHORHOMBIC)	1747	WBr6[g]	TUNGSTEN HEXABROMIDE (GAS)	1787
U4O9	TETRAURANIUM NONAOXIDE	1748	WC	TUNGSTEN CARBIDE	1788
UOBr2	URANIUM DIBROMIDE OXIDE	1748	W2C	DITUNGSTEN CARBIDE	1789
UOBr3	URANIUM TRIBROMIDE OXIDE	1749	W(CO)6	TUNGSTEN HEXACARBONYL	1789
UO2Br2	URANIUM DIBROMIDE DIOXIDE	1749	W(CO)6[g]	TUNGSTEN HEXACARBONYL (GAS)	1790
UOCl	URANIUM CHLORIDE OXIDE	1750	WCl[g]	TUNGSTEN CHLORIDE (GAS)	1791
UOCl2	URANIUM DICHLORIDE OXIDE	1750	WCl2	TUNGSTEN DICHLORIDE	1792
UOCl3	URANIUM TRICHLORIDE OXIDE	1751	WCl2[g]	TUNGSTEN DICHLORIDE (GAS)	1792
UO2Cl2	URANIUM DICHLORIDE DIOXIDE	1751	WCl4	TUNGSTEN TETRACHLORIDE	1793
UO2F2	URANIUM DIFLUORIDE DIOXIDE	1752	WCl4[g]	TUNGSTEN TETRACHLORIDE (GAS)	1793
UO3*H2O	URANIUM TRIOXIDE MONOHYDRATE	1752	WCl5	TUNGSTEN PENTACHLORIDE	1794
UO3*2H2O	URANIUM TRIOXIDE DIHYDRATE	1753	WCl5[g]	TUNGSTEN PENTACHLORIDE (GAS)	1794
UO2(NO3)2	URANIUM DINITRATE DIOXIDE	1753	WCl6	TUNGSTEN HEXACHLORIDE	1795
UO2SO4	URANIUM SULFATE DIOXIDE	1754	WCl6[g]	TUNGSTEN HEXACHLORIDE (GAS)	1796
US	URANIUM SULFIDE	1754	W2Cl10[g]	DITUNGSTEN DECACHLORIDE (GAS)	1797
US[g]	URANIUM SULFIDE (GAS)	1755	WF[g]	TUNGSTEN FLUORIDE (GAS)	1798
US2	URANIUM DISULFIDE	1756	WF6[g]	TUNGSTEN HEXAFLUORIDE (GAS)	1799
U2S3	DIURANIUM TRISULFIDE	1757	WO[g]	TUNGSTEN OXIDE (GAS)	1800
U(SO4)2	URANIUM DISULFATE	1757	WO2	TUNGSTEN DIOXIDE	1801
USe	URANIUM SELENIDE	1758	WO2[g]	TUNGSTEN DIOXIDE (GAS)	1802
V	VANADIUM	1759	WO2.72	TUNGSTEN 2.72-OXIDE	1803
V[g]	VANADIUM (GAS)	1760	WO2.90	TUNGSTEN 2.90-OXIDE	1804
VB	VANADIUM BORIDE	1761	WO2.96	TUNGSTEN 2.96-OXIDE	1805
VB2	VANADIUM DIBORIDE	1762	WO3	TUNGSTEN TRIOXIDE	1806
V3B2	TRIVANADIUM DIBORIDE	1763	WO3[g]	TUNGSTEN TRIOXIDE (GAS)	1807
V3B4	TRIVANADIUM TETRABORIDE	1764	W2O6[g]	DITUNGSTEN HEXAOXIDE (GAS)	1808
VBr2	VANADIUM DIBROMIDE	1764	W3O8[g]	TRITUNGSTEN OCTAOXIDE	1809
VBr3	VANADIUM TRIBROMIDE	1765	W3O9[g]	TRITUNGSTEN NONAOXIDE (GAS)	1810
VBr4[g]	VANADIUM TETRABROMIDE (GAS)	1765	W4O12[g]	TETRATUNGSTEN DODECAOXIDE (GAS)	1811
VC0.88	VANADIUM 0.88-CARBIDE	1766	WOCl4	TUNGSTEN TETRACHLORIDE OXIDE	1811
V2C	DIVANADIUM CARBIDE	1767	WOCl4[g]	TUNGSTEN TETRACHLORIDE OXIDE (GAS)	1812
VCl2	VANADIUM DICHLORIDE	1767	WO2Cl2	TUNGSTEN DICHLORIDE DIOXIDE	1812
VCl2[g]	VANADIUM DICHLORIDE (GAS)	1768	WO2Cl2[g]	TUNGSTEN DICHLORIDE DIOXIDE (GAS)	1813
VCl3	VANADIUM TRICHLORIDE	1768	WOF4	TUNGSTEN TETRAFLUORIDE OXIDE	1813
VCl4	VANADIUM TETRACHLORIDE	1769	WOF4[g]	TUNGSTEN TETRAFLUORIDE OXIDE (GAS)	1814
VCl4[g]	VANADIUM TETRACHLORIDE (GAS)	1769	WO2I2[g]	TUNGSTEN DIIODIDE DIOXIDE (GAS)	1814
VF3	VANADIUM TRIFLUORIDE	1770	WS2	TUNGSTEN DISULFIDE	1815
VF4	VANADIUM TETRAFLUORIDE	1770	Xe[g]	XENON (GAS)	1815
VF5[g]	VANADIUM PENTAFLUORIDE (GAS)	1771	Y	YTTRIUM	1816
VI2	VANADIUM DIIODIDE	1771	Y[g]	YTTRIUM (GAS)	1817
VI2[g]	VANADIUM DIIODIDE (GAS)	1772	YAsO4	YTTRIUM ARSENATE	1818

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YCl3	YTTRIUM TRICHLORIDE	1818	ZnTe	ZINC TELLURIDE	1849
YF3	YTTRIUM TRIFLUORIDE	1819	ZnTe[g]	ZINC TELLURIDE (GAS)	1849
YI3	YTTRIUM TRIIODIDE	1820	ZnWO4	ZINC TUNGSTATE	1850
YN	YTTRIUM NITRIDE	1820	Zr	ZIRCONIUM	1851
Y2O3	DIYTTRIUM TRIOXIDE	1821	Zr[g]	ZIRCONIUM (GAS)	1853
Y2Zr2O7	DIYTTRIUM DIZIRCONIUM HEPTAOXIDE	1822	ZrB2	ZIRCONIUM DIBORIDE	1854
Yb	YTTERBIUM	1823	ZrBr[g]	ZIRCONIUM MONOBROMIDE (GAS)	1855
Yb[g]	YTTERBIUM (GAS)	1824	ZrBr2	ZIRCONIUM DIBROMIDE	1856
YbCl2	YTTERBIUM DICHLORIDE	1824	ZrBr2[g]	ZIRCONIUM DIBROMIDE (GAS)	1857
YbCl3	YTTERBIUM TRICHLORIDE	1825	ZrBr3	ZIRCONIUM TRIBROMIDE	1857
YbCl3[g]	YTTERBIUM TRICHLORIDE (GAS)	1825	ZrBr3[g]	ZIRCONIUM TRIBROMIDE (GAS)	1858
Yb2O3	DIYTTERBIUM TRIOXIDE	1826	ZrBr4	ZIRCONIUM TETRABROMIDE	1858
Zn	ZINC	1827	ZrBr4[g]	ZIRCONIUM TETRABROMIDE (GAS)	1859
Zn[g]	ZINC (GAS)	1828	ZrC	ZIRCONIUM CARBIDE	1860
Zn3As2	ZINC ARSENIDE	1829	ZrCl[g]	ZIRCONIUM MONOCHLORIDE (GAS)	1861
Zn3(AsO4)2	ZINC ARSENATE	1830	ZrCl2	ZIRCONIUM DICHLORIDE	1862
ZnBr2	ZINC BROMIDE	1830	ZrCl2[g]	ZIRCONIUM DICHLORIDE (GAS)	1863
ZnBr2[g]	ZINC BROMIDE (GAS)	1831	ZrCl3	ZIRCONIUM TRICHLORIDE	1863
ZnCO3	ZINC CARBONATE	1831	ZrCl3[g]	ZIRCONIUM TRICHLORIDE (GAS)	1864
ZnCl2	ZINC CHLORIDE	1832	ZrCl4	ZIRCONIUM TETRACHLORIDE	1864
ZnCl2[g]	ZINC CHLORIDE (GAS)	1832	ZrCl4[g]	ZIRCONIUM TETRACHLORIDE (GAS)	1865
ZnF2	ZINC FLUORIDE	1833	ZrF[g]	ZIRCONIUM MONOFLUORIDE (GAS)	1866
ZnF2[g]	ZINC FLUORIDE (GAS)	1834	ZrF2	ZIRCONIUM DIFLUORIDE	1867
ZnI2	ZINC IODIDE	1834	ZrF2[g]	ZIRCONIUM DIFLUORIDE (GAS)	1868
ZnI2[g]	ZINC IODIDE (GAS)	1835	ZrF3	ZIRCONIUM TRIFLUORIDE	1868
Zn3N2	ZINC NITRIDE	1835	ZrF3[g]	ZIRCONIUM TRIFLUORIDE (GAS)	1869
ZnO	ZINC OXIDE	1836	ZrF4	ZIRCONIUM TETRAFLUORIDE	1870
Zn3O(SO4)2	TRIZINC DISULFATE OXIDE	1837	ZrF4[g]	ZIRCONIUM TETRAFLUORIDE (GAS)	1871
ZnSiO3	ZINC METASILICATE	1837	ZrH[g]	ZIRCONIUM HYDRIDE (GAS)	1872
Zn2SiO4	ZINC ORTHOSILICATE (WILLEMITE)	1838	ZrI[g]	ZIRCONIUM MONOIODIDE (GAS)	1873
Zn2TiO4	DIZINC TITANIUM TETRAOXIDE	1839	ZrI2	ZIRCONIUM DIIODIDE	1874
ZnP2	ZINC DIPHOSPHIDE	1840	ZrI2[g]	ZIRCONIUM DIIODIDE (GAS)	1875
Zn3P2	TRIZINC DIPHOSPHIDE	1841	ZrI3	ZIRCONIUM TRIIODIDE	1875
Zn3(PO4)2	ZINC PHOSPHATE	1842	ZrI3[g]	ZIRCONIUM TRIIODIDE (GAS)	1876
ZnS	ZINC SULFIDE (WURTZITE)	1843	ZrI4	ZIRCONIUM TETRAIODIDE	1876
ZnS[g]	ZINC SULFIDE (GAS)	1844	ZrI4[g]	ZIRCONIUM TETRAIODIDE (GAS)	1877
ZnS[S]	ZINC SULFIDE (SPHALERITE)	1844	ZrN	ZIRCONIUM NITRIDE	1878
ZnSO4	ZINC SULFATE	1845	ZrO[g]	ZIRCONIUM MONOXIDE (GAS)	1879
ZnSO4*H2O	ZINC SULFATE MONOHYDRATE	1845	ZrO2	ZIRCONIUM DIOXIDE	1880
ZnSO4*2H2O	ZINC SULFATE DIHYDRATE	1846	ZrO2[g]	ZIRCONIUM DIOXIDE (GAS)	1881
ZnSO4*6H2O	ZINC SULFATE HEXAHYDRATE	1846	ZrSiO4	ZIRCONIUM ORTHOSILICATE	1882
ZnSO4*7H2O	ZINC SULFATE HEPTAHYDRATE	1847	ZrS[g]	ZIRCONIUM MONOSULFIDE (GAS)	1883
ZnSe	ZINC SELENIDE	1847	ZrS2	ZIRCONIUM DISULFIDE	1884
ZnSe[g]	ZINC SELENIDE (GAS)	1848	e-[g]	ELECTRON (GAS)	1885
ZnSeO3	ZINC SELENITE	1848			

List of chemical symbols of substances according to the alphabetical order of elements (modified Hill indexing system)

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Ag1	1	Al1H3	38	Al2H4O9Si2[D]	62	As1F3	81
Ag1[g]	2	Al1H3O3	55	Al2H4O9Si2[H]	62	As1F3[g]	81
Ag1Br1	3	Al1H6K1O11S2	884	Al2H6O6	57	As1F5[g]	82
Ag1Br1[g]	4	Al1H24K1O20S2	885	Al2I6[g]	40	As1Fe1O4	677
Ag1Br1O3	4	Al1I3	39	Al2La1	41	As1Ga1	730
Ag1Cl1	6	Al1I3[g]	39	Al2Mg1O4	1015	As1Ga1O4	730
Ag1Cl1[g]	7	Al1K1O4Si1	909	Al2Mn1O4	1049	As1H3[g]	83
Ag1Cl1O3	7	Al1K1O6Si2	909	Al2Ni1O4	1215	As1I3	83
Ag1F1	8	Al1K1O8S2	884	Al2O1[g]	46	As1I3[g]	84
Ag1F1[g]	9	Al1K1O8Si3	910	Al2O2[g]	47	As1In1	848
Ag1I1	10	Al1K1O8Si3[A]	910	Al2O3	48	As1In1O4	848
Ag1I1[g]	11	Al1K1O8Si3[S]	911	Al2O3[C]	49	As1K3O4	885
Ag1N1O3	11	Al1Li1	41	Al2O3[D]	50	As1La1O4	927
Ag1P2	12	Al1Li1O2	975	Al2O3[K]	51	As1Li3O4	948
Ag1P3	13	Al1Li1O4Si1	976	Al2O4Sr1	1574	As1Mn1	1035
Ag2Cr1O4	8	Al1Li1O6Si2	976	Al2O5Si1	58	As1Mo1O4	1066
Ag2O1	12	Al1Li1O6Si2[B]	977	Al2O5Si1[A]	59	As1Na3	1107
Ag2O4S1	14	Al1N1	42	Al2O5Si1[S]	60	As1Na3O4	1107
Ag2O4W1	16	Al1Na1O2	1132	Al2O5Ti1	63	As1Ni1	1200
Ag2S1	13	Al1Na1O4Si1	1133	Al2O12S3	67	As1O1[g]	84
Ag2Se1	15	Al1Na1O6Si2	1134	Al2S3	67	As1O4Rb3	1362
Ag2Te1	16	Al1Na1O6Si2[D]	1134	Al2Se2[g]	69	As1O4Re1	1383
Ag3As1O4	3	Al1Na1O8Si3	1135	Al2Se3	69	As1O4Sc1	1455
Al1	17	Al1Na1O8Si3[A]	1135	Al2Te3	70	As1O4Tl1	1705
Al1[g]	18	Al1Ni1	42	Al2U1	72	As1O4Y1	1818
Al1As1	19	Al1Ni3	43	Al3H2K1O12Si3	912	As1S1[g]	87
Al1As1O4	19	Al1O1[g]	44	Al3Ni1	43	As1Se1[g]	90
Al1B2	20	Al1O2[g]	45	Al3Ni2	44	As1Te1[g]	91
Al1B12	21	Al1O4P1	65	Al3Th1	71	As2[g]	78
Al1Br1[g]	22	Al1P1	64	Al3Ti1	72	As2Ba3O8	129
Al1Br3	23	Al1S1[g]	66	Al3U1	73	As2Be3O8	165
Al1Br3[g]	24	Al1Sb1	68	Al4B2O9	52	As2Ca3O8	418
Al1Ce1O3	520	Al1Te1[g]	70	Al4Ca1	27	As2Cd3	494
Al1Cl1[g]	29	Al1Ti1	71	Al4Ca1O7	443	As2Cd3O8	494
Al1Cl1O1	53	Al2Ba1O4	149	Al4Ce1	28	As2Co3O8	533
Al1Cl1O1[g]	53	Al2Ba3O6	150	Al4Mg2O18Si5	57	As2Cr3O8	557
Al1Cl2[g]	30	Al2Be1O4	180	Al4U1	73	As2Cu3O8	605
Al1Cl3	30	Al2Br6[g]	25	Al5Co2	33	As2Fe3O8	677
Al1Cl3[g]	31	Al2Ca1	27	Al6Be1O10	181	As2Hg3O8	820
Al1Cl3H12O6	32	Al2Ca1H4O10Si2	449	Al6O13Si2	61	As2Mg3O8	994
Al1Cl4K1	882	Al2Ca1O4	442	Al14Ca12O33	445	As2Mn3O8	1035
Al1Cl4Na1	1104	Al2Ca1O6Si1	446	Al18B4O33	52	As2Ni3O8	1201
Al1Cl6K3	883	Al2Ca1O8Si2	447	Am1	74	As2Ni5	1200
Al1Cl6Na3	1105	Al2Ca2O5	444	Am1[g]	75	As2O3	85
Al1Co1	33	Al2Ca2O7Si1	448	Ar1[g]	76	As2O3[A]	85
Al1F1[g]	34	Al2Ca3H12O12	446	As1	77	As2O5	86
Al1F1O1[g]	54	Al2Ca3O12Si3	448	As1[g]	77	As2O8Pb3	1275
Al1F2[g]	35	Al2Ca3O6	445	As1Au3O4	94	As2O8Sn3	1540
Al1F2O1[g]	55	Al2Cd1O4	499	As1Bi1O4	192	As2O8Sr3	1560
Al1F3	36	Al2Ce1	28	As1Br3[g]	79	As2O8Ti3	1668
Al1F3[g]	37	Al2Cl6[g]	32	As1Cl3	80	As2O8Zn3	1830
Al1F4Li1[g]	946	Al2F6[g]	38	As1Cl3[g]	80	As2S2	87
Al1F6K3	883	Al2Fe1O4	704	As1Cr1O4	557	As2S3	88
Al1F6Li3	947	Al2H2O4	56	As1Cs3O4	585	As2Se3	90
Al1F6Na3	1106	Al2H2O4[B]	56	As1Cu3	604	As2Te3	91
Al1H2Na1O7Si2	1136	Al2H4O9Si2	61	As1Cu3O4	604	As2Zn3	1829

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As3[g]	78	B1K1O2	886	Ba1Cr1O4	137	Be1O4W1	189
As4[g]	79	B1K1O2[g]	887	Ba1F1[g]	138	Be1S1	186
As4O6[g]	86	B1Li1O2	948	Ba1F2	139	Be1S1[g]	187
As4S4	88	B1Li1O2[g]	949	Ba1F2[g]	140	Be2Cl4[g]	171
As4S4[g]	89	B1Mn1	1036	Ba1H1[g]	141	Be2O4Si1	185
As4S4[R]	89	B1N1	121	Ba1H2	142	Be3N2	178
As5Ni11	1201	B1Na1O2	1108	Ba1H2O2	151	Bi1	190
As7Re3	1382	B1Na1O2[g]	1109	Ba1H2O2[g]	152	Bi1[g]	191
Au1	92	B1Ni1	1202	Ba1Hf1O3	152	Bi1Br1[g]	193
Au1[g]	93	B1P1	125	Ba1I1[g]	143	Bi1Br3	194
Au1Br1	94	B1S1[g]	126	Ba1I2	144	Bi1Br3[g]	194
Au1Cd1	95	B1Ti1	1668	Ba1I2[g]	145	Bi1Cl1[g]	195
Au1Cl1	95	B1V1	1761	Ba1Mo1O4	146	Bi1Cl1O1	202
Au1Cl3	96	B2Be3O6	182	Ba1N2O6	147	Bi1Cl3	195
Au1Cu1	96	B2Ca1O4	449	Ba1O1	148	Bi1Cl3[g]	196
Au1Cu3	97	B2Ca2O5	451	Ba1O2	149	Bi1F1[g]	196
Au1F3	97	B2Ca3O6	452	Ba1O3Si1	153	Bi1F3	197
Au1H3O3	99	B2Cr1	558	Ba1O3Ti1	157	Bi1F3[g]	197
Au1I1	98	B2H6[g]	117	Ba1O3Zr1	159	Bi1I1	198
Au1S1[g]	100	B2Hf1	810	Ba1O4S1	161	Bi1I1[g]	198
Au1Sb2	100	B2Mg1	995	Ba1O4U1	158	Bi1I3	199
Au1Se1	101	B2Mn1	1036	Ba1O4W1	162	Bi1I3[g]	199
Au1Se1[B]	101	B2Nb1	1159	Ba1O5Si2	154	Bi1K3	200
Au1Sn1	102	B2O3	122	Ba1S1	160	Bi1Mn1	200
Au1Sn2	102	B2O3[g]	123	Ba1Te1	162	Bi1Ni1	201
Au1Sn4	103	B2O3[GL]	124	Ba2O4Si1	155	Bi1U1	205
Au1Te2	103	B2O4Pb1	1297	Ba2O4Ti1	158	Bi2[g]	192
Au2O3	98	B2S3	126	Ba2O8Si3	156	Bi2O12S3	203
Au2P3	99	B2Ta1	1591	Ba2Sn1	161	Bi2O3	202
B1	104	B2Ti1	1669	Ba3N2	146	Bi2S3	203
B1[g]	105	B2U1	1728	Be1	163	Bi2Se3	204
B1[GL]	106	B2V1	1762	Be1[g]	164	Bi2Te3	204
B1Br1[g]	107	B2V3	1763	Be1Br1[g]	165	Bi2U1	205
B1Br2[g]	108	B2Zr1	1854	Be1Br2	166	Bi4U3	206
B1Br3	108	B3Na1O5	1110	Be1Br2[g]	166	Br1[g]	207
B1Br3[g]	109	B3Ni4	1202	Be1Cl1[g]	168	Br1Ca1[g]	419
B1Cl1[g]	111	B4Ca1O7	450	Be1Cl2	169	Br1Cs1	586
B1Cl1O1[g]	125	B4K2O7	913	Be1Cl2[g]	170	Br1Cs1[g]	587
B1Cl2[g]	112	B4Li2O7	978	Be1F1[g]	172	Br1Cu1	606
B1Cl3[g]	113	B4Mg1	995	Be1F2	173	Br1Cu1[g]	607
B1Co1	533	B4Na2O7	1110	Be1F2[g]	174	Br1H1[g]	785
B1Co2	534	B4O7Pb1	1297	Be1F3Li1	949	Br1Hg1[g]	821
B1Cr1	558	B4U1	1728	Be1F3Li1[g]	950	Br1In1	849
B1F1[g]	114	B4V3	1764	Be1F4Li2	951	Br1In1[g]	849
B1F2[g]	115	B6Ce1	509	Be1H1[g]	175	Br1K1	888
B1F3[g]	116	B6K2O10	913	Be1H1O1[g]	183	Br1K1[g]	889
B1Fe1	678	B6Li2O10	979	Be1H2O2	183	Br1Li1	952
B1Fe2	679	B8K2O13	914	Be1H2O2[B]	184	Br1Li1[g]	953
B1H1[g]	117	B12U1	1729	Be1H2O2[g]	184	Br1Mg1[g]	996
B1H1O2	783	Ba1	127	Be1H4O6S1	188	Br1N1O1[g]	1099
B1H1O2[g]	783	Ba1[g]	128	Be1H8O8S1	189	Br1Na1	1111
B1H3O3	784	Ba1Br2	130	Be1I1[g]	176	Br1Na1[g]	1112
B1H3O3[g]	784	Ba1Br2[g]	131	Be1I2	176	Br1Ni1[g]	1203
B1I1[g]	118	Ba1Cl1[g]	134	Be1I2[g]	177	Br1O1Pu1	1354
B1I2[g]	119	Ba1Cl2	135	Be1O1	179	Br1Pb1[g]	1276
B1I3[g]	120	Ba1Cl2[g]	136	Be1O4S1	188	Br1Rb1	1362

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Br1Rb1[g]	1363	Br3Dy1[g]	646	Br4Zr1[g]	1859	C1Cl1I3[g]	238
Br1Si1[g]	1484	Br3Er1[g]	654	Br5Nb1	1160	C1Cl1N1[g]	526
Br1Sr1[g]	1561	Br3Eu1	664	Br5Nb1[g]	1160	C1Cl1O1[g]	407
Br1Ti1[g]	1670	Br3Fe1	681	Br5Ta1	1592	C1Cl2[g]	223
Br1Tl1	1706	Br3Ga1	731	Br5Ta1[g]	1592	C1Cl2F1[g]	258
Br1W1[g]	1785	Br3Gd1	750	Br5U1	1731	C1Cl2F1I1[g]	275
Br1Zr1[g]	1855	Br3Gd1[g]	751	Br5W1	1786	C1Cl2F2[g]	261
Br2	207	Br3Ho1	838	Br5W1[g]	1786	C1Cl2I2[g]	239
Br2[g]	208	Br3Ho1[g]	839	Br6W1	1787	C1Cl2O1[g]	408
Br2Ca1	420	Br3In1	850	Br6W1[g]	1787	C1Cl3[g]	224
Br2Ca1[g]	421	Br3Ir1	875	C0.702Nb1	1161	C1Cl3F1[g]	259
Br2Cd1	495	Br3La1	927	C0.825Nb1	1162	C1Cl3I1[g]	240
Br2Co1	534	Br3La1[g]	928	C0.88Pu1	1342	C1Cl4	224
Br2Cr1	559	Br3Nd1	1182	C0.88V1	1766	C1Cl4[g]	225
Br2Cu1	607	Br3Nd1[g]	1183	C1	209	C1Co1O3	535
Br2Eu1	663	Br3O1P1[g]	1266	C1[g]	210	C1Cs2O3	587
Br2Eu1[g]	663	Br3O1U1	1749	C1[D]	211	C1Cu1N1	608
Br2Fe1	680	Br3P1[g]	1254	C1Ag1N1	5	C1F1[g]	241
Br2Fe1[g]	681	Br3Pr1	1319	C1Ag2O3	5	C1F1I3[g]	277
Br2Hg1	821	Br3Pr1[g]	1320	C1B4	110	C1F1N1[g]	673
Br2Hg1[g]	822	Br3Pt1	1332	C1Ba1O3	133	C1F1O1[g]	409
Br2Hg2	822	Br3Pu1	1341	C1Be2	167	C1F2[g]	242
Br2K2[g]	890	Br3Re1	1383	C1Br1[g]	214	C1F2I2[g]	278
Br2Li2[g]	954	Br3Sb1	1436	C1Br1Cl1F1I1[g]	273	C1F2O1[g]	410
Br2Mg1	997	Br3Sb1[g]	1437	C1Br1Cl1F2[g]	272	C1F3[g]	243
Br2Mg1[g]	998	Br3Sc1	1455	C1Br1Cl1I2[g]	235	C1F3I1[g]	279
Br2Mn1	1037	Br3Si1[g]	1486	C1Br1Cl2F1[g]	271	C1F4[g]	244
Br2Mn1[g]	1038	Br3Tb1[g]	1612	C1Br1Cl2I1[g]	237	C1Fe1O3	683
Br2Na2[g]	1113	Br3Ti1	1671	C1Br1Cl3[g]	234	C1Fe3	683
Br2Ni1	1203	Br3Ti1[g]	1672	C1Br1F1I2[g]	254	C1H1[g]	280
Br2Ni1[g]	1204	Br3Tm1[g]	1719	C1Br1F2I1[g]	256	C1H1Br1Cl1F1[g]	373
Br2O1Th1	1659	Br3U1	1729	C1Br1F3[g]	253	C1H1Br1Cl1I1[g]	334
Br2O1U1	1748	Br3V1	1765	C1Br1I3[g]	218	C1H1Br1Cl2[g]	332
Br2O2U1	1749	Br3Zr1	1857	C1Br2[g]	215	C1H1Br1F1I1[g]	356
Br2Pb1	1277	Br3Zr1[g]	1858	C1Br2Cl1F1[g]	270	C1H1Br1F2[g]	354
Br2Pb1[g]	1278	Br4Cr1[g]	560	C1Br2Cl1I1[g]	236	C1H1Br1I2[g]	316
Br2Pt1	1332	Br4Fe2[g]	682	C1Br2Cl2[g]	233	C1H1Br2Cl1[g]	331
Br2S1[g]	1412	Br4Ge1[g]	762	C1Br2F1I1[g]	255	C1H1Br2F1[g]	353
Br2S2[g]	1413	Br4Hf1	810	C1Br2F2[g]	252	C1H1Br2I1[g]	317
Br2Se1[g]	1469	Br4Hf1[g]	811	C1Br2I2[g]	219	C1H1Br3[g]	313
Br2Se2[g]	1470	Br4Mg2[g]	999	C1Br3[g]	216	C1H1Cl1[g]	319, 322
Br2Si1[g]	1485	Br4Pb1[g]	1279	C1Br3Cl1[g]	232	C1H1Cl1F1[g]	357
Br2Sn1	1540	Br4Pt1	1333	C1Br3F1[g]	251	C1H1Cl1F1I1[g]	374
Br2Sr1	1562	Br4Si1	1486	C1Br3I1[g]	220	C1H1Cl1F2[g]	359
Br2Sr1[g]	1563	Br4Si1[g]	1487	C1Br4[g]	217	C1H1Cl1I2[g]	335
Br2Ti1	1670	Br4Sn1	1541	C1Ca1N2	423	C1H1Cl1O1[g]	789
Br2Ti1[g]	1671	Br4Sn1[g]	1541	C1Ca1O3	423	C1H1Cl2[g]	320
Br2V1	1764	Br4Te1	1627	C1Ca1O3[A]	424	C1H1Cl2F1[g]	358
Br2Zn1	1830	Br4Th1	1642	C1Cd1O3	495	C1H1Cl2I1[g]	336
Br2Zn1[g]	1831	Br4Th1[g]	1643	C1Cl1[g]	222	C1H1Cl3[g]	321
Br2Zr1	1856	Br4Ti1	1672	C1Cl1F1[g]	257	C1H1F1[g]	340
Br2Zr1[g]	1857	Br4Ti1[g]	1673	C1Cl1F1I2[g]	274	C1H1F1I2[g]	375
Br3Ce1	510	Br4U1	1730	C1Cl1F1O1[g]	674	C1H1F1O1[g]	791
Br3Ce1[g]	511	Br4U1[g]	1730	C1Cl1F2[g]	260	C1H1F2[g]	341
Br3Cr1	559	Br4V1[g]	1765	C1Cl1F2I1[g]	276	C1H1F2I1[g]	376
Br3Cu3[g]	608	Br4Zr1	1858	C1Cl1F3[g]	262	C1H1F3[g]	342

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C1H1N1[g]	787, 793	C1O2[g]	404	C2H1F1[g]	346	C4H8[I][g]	293
C1H1N1O1[g]	794	C1O3Pb1	1279	C2H1F3[g]	347	C4H10[g]	294
C1H1Na1O3	1125	C1O3Rb2	1364	C2H1N1[g]	786	C4Mn15	1039
C1H1O1[g]	381	C1O3Sr1	1564	C2H2[g]	285	C4Ni1O4[g]	1205
C1H1O2[g]	411	C1O3Zn1	1831	C2H2Cl1F1[g]	369	C5Fe1O5	684
C1H2[g]	281	C1O4Pb2	1298	C2H2Cl1F1[1,1][g]	370	C5Fe1O5[g]	684
C1H2Br1Cl1[g]	333	C1P1[g]	413	C2H2Cl1F1[cis][g]	371	C5H8[g]	294
C1H2Br1F1[g]	355	C1S1[g]	414	C2H2Cl1F1[trans][g]	372	C5H8[P][g]	295
C1H2Br1I1[g]	318	C1S2[g]	415	C2H2Cl2[g]	326	C5H10[g]	295
C1H2Br2[g]	314	C1Si1	1488	C2H2Cl2[1,1][g]	327	C5H12[g]	296
C1H2Cl1F1[g]	360	C1Ta1	1593	C2H2Cl2[cis][g]	328	C6Cr1O6	562
C1H2Cl1I1[g]	337	C1Ta2	1594	C2H2Cl2[trans][g]	329	C6Cr23	562
C1H2Cl2[g]	323	C1Ti1	1674	C2H2F2[g]	348	C6H6	296
C1H2F1[g]	343	C1U1	1731	C2H2F2[1,1][g]	349	C6H6[g]	297
C1H2F1I1[g]	377	C1V2	1767	C2H2F2[cis][g]	350	C6H6O1	390
C1H2F2[g]	344	C1W1	1788	C2H2F2[trans][g]	351	C6H6O1[g]	391
C1H2I2[g]	379	C1W2	1789	C2H2O1[g]	386	C6H10	297
C1H2O1[g]	382	C1Zr1	1860	C2H3[g]	286	C6H10[g]	298
C1H2O2	382	C1.94Th1	1644	C2H3Cl1[g]	330	C6H12	298
C1H2O2[g]	383	C1.94U1	1732	C2H3F1[g]	352	C6H12[g]	299
C1H2S3	393	C2[g]	212	C2H4[g]	287	C6H12[M]	299
C1H3[g]	282	C2Ba1	132	C2H4O1[g]	387	C6H12[M][g]	300
C1H3Br1[g]	315	C2Ca1	422	C2H4O2	387	C6H14	300
C1H3Cl1[g]	323	C2Ca1Mg1O6	424	C2H4O2[g]	388	C6H14[g]	301
C1H3F1[g]	345	C2Ce1	511	C2H5[g]	288	C6Mo1O6	1067
C1H3I1[g]	380	C2Cl1[g]	226	C2H5Cl1[g]	330	C6Mo1O6[g]	1068
C1H3O1[g]	384, 392	C2Cl1F1[g]	263	C2H6[g]	289	C6O6W1	1789
C1H4[g]	283	C2Cl1F3[g]	269	C2H6O1	388	C6O6W1[g]	1790
C1H4O1	385	C2Cl2[g]	227	C2H6O1[g]	389	C7H8	301
C1H4O1[g]	386	C2Cl2F2[g]	265	C2K2N2[g]	893	C7H8[g]	302
C1Hf1	812	C2Cl2F2[1,1][g]	266	C2Mg1	1000	C7H14	302
C1I1[g]	394	C2Cl2F2[cis][g]	267	C2N1[g]	221, 401	C7H14[g]	303
C1I2[g]	395	C2Cl2F2[trans][g]	268	C2N2[g]	400	C7H14[M]	303
C1I3[g]	396	C2Cl3[g]	228	C2N2Na2[g]	1116	C7H14[M][g]	304
C1I4[g]	397	C2Cl3F1[g]	264	C2O1[g]	405	C7H16	304
C1K1N1	891	C2Cl4[g]	229	C2Pu1	1343	C7H16[g]	305
C1K1N1[g]	892	C2Cl5[g]	230	C2Sm1	1533	C8H10	305
C1K2O3	894	C2Cl6[g]	231	C2Sr1	1564	C8H10[E]	306
C1Li2O3	955	C2Cr3	560	C3[g]	213	C8H10[E][g]	307
C1Mg1O3	1001	C2F1[g]	245	C3Al4	26	C8H10[g]	306
C1Mn1O3	1040	C2F2[g]	246	C3Ce2	512	C8H14[g]	307
C1Mn3	1038	C2F3[g]	247	C3Cr7	561	C8H16	308
C1Mo1	1066	C2F4[g]	248	C3H4[g]	290	C8H16[g]	308
C1Mo2	1067	C2F5[g]	249	C3H4[PY][g]	290	C8H18	309
C1N1[g]	398	C2F6[g]	250	C3H6[g]	291	C8H18[g]	309
C1N1Na1	1114	C2H1[g]	284	C3H6[P][g]	291	C9H16[g]	310
C1N1Na1[g]	1115	C2H1Cl1[g]	324	C3H6O1	389	C9H20	310
C1N1O1[g]	1082	C2H1Cl1F2[g]	365	C3H6O1[g]	390	C9H20[g]	311
C1N2[g]	399, 402	C2H1Cl1F2[1,1][g]	366	C3H8[g]	292	C10H22	311
C1Na2O3	1117	C2H1Cl1F2[cis][g]	367	C3Mg2	1001	C10H22[g]	312
C1Nb1	1163	C2H1Cl1F2[trans][g]	368	C3Mn7	1039	C12H4Cl4O2[g]	338, 339
C1Nb2	1164	C2H1Cl2F1[g]	361	C3O2[g]	406	Ca1	416
C1Ni1O3	1205	C2H1Cl2F1[1,1][g]	362	C3Pu2	1344	Ca1[g]	417
C1Ni3	1204	C2H1Cl2F1[cis][g]	363	C3U2	1733	Ca1Cl1[g]	425
C1O1[g]	403	C2H1Cl2F1[trans][g]	364	C4H6[g]	292	Ca1Cl2	426

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Ca1Cl2[g]	427	Ca2Mg1O7Si2	459	Ce1N1	518	Cl1S2[g]	1416
Ca1Cl2O1	452	Ca2O4Si1	463	Ce1O2	519	Cl1Sb1[g]	1437
Ca1F1[g]	428	Ca2O4Si1[B]	464	Ce1S1	521	Cl1Si1[g]	1489
Ca1F2	429	Ca2O7P2	477	Ce1Te1[g]	523	Cl1Sn1[g]	1542
Ca1F2[g]	430	Ca2O7V2	490	Ce2O3	519	Cl1Sr1[g]	1565
Ca1Fe2O4	453	Ca2Pb1	479	Ce2O12S3	523	Cl1Ta1[g]	1595
Ca1H1[g]	431	Ca2Si1	487	Ce2S3	522	Cl1Ti1[g]	1675
Ca1H1O1[g]	454	Ca2Sn1	488	Ce3S4	522	Cl1Tl1	1706
Ca1H1O3.5S1	484	Ca3H6O10Si2	467	Cl1[g]	524	Cl1Tl1[g]	1707
Ca1H1O4.5S1	484	Ca3Mg1O8Si2	460	Cl1Co1[g]	535	Cl1W1[g]	1791
Ca1H1O4P1	433	Ca3N2	437	Cl1Cs1	588	Cl1Zr1[g]	1861
Ca1H2	432	Ca3O5Si1	464	Cl1Cs1[g]	589	Cl2[g]	525
Ca1H2O2	455	Ca3O6W1	491	Cl1Cu1	609	Cl2Co1	536
Ca1H4N2O8	438	Ca3O7Si2	465	Cl1Cu1[g]	610	Cl2Co1[g]	537
Ca1H4O6S1	485	Ca3O7Ti2	471	Cl1D1[g]	637	Cl2Cr1	563
Ca1H4O7Si2	465	Ca3O8P2	478	Cl1F1[g]	527	Cl2Cr1O2[g]	574
Ca1H5O6P1	433	Ca3O8V2	490	Cl1F3[g]	528	Cl2Cs2[g]	590
Ca1H6N2O9	439	Ca3P2	476	Cl1Fe1[g]	685	Cl2Cu1	610
Ca1H8N2O10	439	Ca3Sb2	485	Cl1Fe1O1	704	Cl2Fe1	686
Ca1Hf1O3	455	Ca4H3O11.5Si3	467	Cl1Ga1[g]	731	Cl2Fe1[g]	687
Ca1I1[g]	434	Ca4O10Ti3	472	Cl1Gd1O1	759	Cl2Ga1[g]	732
Ca1I2	435	Ca5H11O22.5Si6	468	Cl1Ge1[g]	762	Cl2Ge1[g]	763
Ca1I2[g]	436	Ca5H21O27.5Si6	469	Cl1H1[g]	788	Cl2Hf1[g]	813
Ca1Mg1O2	456	Ca5H6O20Si6	468	Cl1H1Mg1O1	1017	Cl2Hg1	823
Ca1Mg1O4Si1	457	Ca6H2O19Si6	469	Cl1H4N1	1089	Cl2Hg1[g]	824
Ca1Mg1O6Si2	458	Cd1	493	Cl1H4N1O4	1090	Cl2Hg2	824
Ca1Mg2	436	Cd1[g]	493	Cl1Hg1[g]	823	Cl2In1	851
Ca1Mo1O4	437	Cd1Cl2	496	Cl1In1	850	Cl2In1[g]	852
Ca1N2O6	438	Cd1F2	497	Cl1In1[g]	851	Cl2K2[g]	897
Ca1O1	440	Cd1Ga2O4	500	Cl1K1	895	Cl2Li2[g]	958
Ca1O1[g]	441	Cd1H2O2	500	Cl1K1[g]	896	Cl2Mg1	1003
Ca1O2	442	Cd1I2	498	Cl1K1O4	897	Cl2Mg1[g]	1004
Ca1O3S1	482	Cd1O1	498	Cl1La1O1	936	Cl2Mn1	1040
Ca1O3Si1	461	Cd1O1[g]	499	Cl1Li1	956	Cl2Mn1[g]	1041
Ca1O3Si1[B]	462	Cd1O3Se1	505	Cl1Li1[g]	957	Cl2Mo1O2	1074
Ca1O3Ti1	470	Cd1O3Si1	501	Cl1Li1O1[g]	959	Cl2Mo1O2[g]	1074
Ca1O3Zr1	475	Cd1O3Ti1	501	Cl1Li1O4	960	Cl2Na2[g]	1120
Ca1O4S1	483	Cd1O4S1	503	Cl1Mg1[g]	1002	Cl2Nb1	1164
Ca1O4U1	474	Cd1O4W1	506	Cl1N1O1[g]	1100	Cl2Nb1O1	1176
Ca1O4W1	491	Cd1S1	502	Cl1N1O2[g]	1101	Cl2Ni1	1207
Ca1O5Si1Ti1	473	Cd1S1[g]	502	Cl1Na1	1118	Cl2Ni1[g]	1208
Ca1O6V2	489	Cd1Sb1	504	Cl1Na1[g]	1119	Cl2Np1O1	1237
Ca1Pb1	479	Cd1Se1	504	Cl1Na1O4	1120	Cl2O1[g]	530
Ca1S1	480	Cd1Te1	505	Cl1Nb1O2	1177	Cl2O1S1[g]	1430
Ca1S1[g]	481	Cd1U1	506	Cl1Nd1O1	1190	Cl2O1Th1	1659
Ca1Se1	486	Ce1	507	Cl1Ni1[g]	1206	Cl2O1Ti1[g]	1698
Ca1Si1	486	Ce1[g]	508	Cl1O1[g]	529	Cl2O1U1	1750
Ca1Si2	487	Ce1Cl3	512	Cl1O1Pu1	1355	Cl2O2S1[g]	1430
Ca1Sn1	488	Ce1Cl3[g]	513	Cl1O1Sb1	1446	Cl2O2U1	1751
Ca1Te1	489	Ce1Cr1O3	520	Cl1O1Ti1[g]	1697	Cl2O2W1	1812
Ca1Zn1	492	Ce1F3	514	Cl1O1U1	1750	Cl2O2W1[g]	1813
Ca1Zn2	492	Ce1F3[g]	515	Cl1O2Ta1	1608	Cl2Pb1	1281
Ca2Fe2O5	453	Ce1H2	515	Cl1Pb1[g]	1280	Cl2Pb1[g]	1282
Ca2H2.32O5.16Si1	466	Ce1I3	516	Cl1Rb1	1365	Cl2Pd1	1313
Ca2H2Mg5O24Si8	460	Ce1I3[g]	517	Cl1Rb1[g]	1366	Cl2Pt1	1333
Ca2H5O10.5Si3	466	Ce1Mg1	517	Cl1S1[g]	1414	Cl2Rb2[g]	1367

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Cl2Rh1[g]	1392	Cl3La1	929	Cl4O1W1	1811	Co1O4W1	554
Cl2S1[g]	1415	Cl3La1[g]	930	Cl4O1W1[g]	1812	Co1P1	548
Cl2S2	1416	Cl3Nb1	1166	Cl4Pb1[g]	1283	Co1P3	549
Cl2S2[g]	1417	Cl3Nb1O1	1176	Cl4Pt1	1334	Co1S0.89	550
Cl2Se1[g]	1471	Cl3Nb1O1[g]	1177	Cl4Ru1[g]	1399	Co1S2	550
Cl2Se2	1472	Cl3Nd1	1184	Cl4Se1	1471	Co1Sb0.98	552
Cl2Se2[g]	1472	Cl3Nd1[g]	1185	Cl4Si1[g]	1492	Co1Sb2	552
Cl2Si1[g]	1490	Cl3Np1	1234	Cl4Sn1	1543	Co1Sb3	553
Cl2Sm1	1533	Cl3O1P1	1266	Cl4Sn1[g]	1544	Co1Sn1	554
Cl2Sn1	1542	Cl3O1P1[g]	1267	Cl4Ta1	1597	Co2O4Si1	546
Cl2Sn1[g]	1543	Cl3O1Ta1	1607	Cl4Ta1[g]	1598	Co2O4Ti1	548
Cl2Sr1	1566	Cl3O1Ta1[g]	1607	Cl4Te1	1628	Co2P1	549
Cl2Sr1[g]	1567	Cl3O1U1	1751	Cl4Te1[g]	1629	Co3N1	542
Cl2Ta1[g]	1595	Cl3O1V1	1780	Cl4Th1	1645	Co3O4	544
Cl2Te1[g]	1628	Cl3O1V1[g]	1781	Cl4Th1[g]	1646	Co3S4	551
Cl2Ti1	1676	Cl3P1[g]	1255	Cl4Ti1	1678	Cr1	555
Cl2Ti1[g]	1677	Cl3Pr1	1321	Cl4Ti1[g]	1679	Cr1[g]	556
Cl2Tl2[g]	1708	Cl3Pr1[g]	1322	Cl4U1	1735	Cr1F2	564
Cl2V1	1767	Cl3Pt1	1334	Cl4U1[g]	1736	Cr1F3	565
Cl2V1[g]	1768	Cl3Pu1	1345	Cl4V1	1769	Cr1F4	565
Cl2W1	1792	Cl3Re1	1384	Cl4V1[g]	1769	Cr1I2	566
Cl2W1[g]	1792	Cl3Rh1	1392	Cl4W1	1793	Cr1I3	566
Cl2Yb1	1824	Cl3Rh1[g]	1393	Cl4W1[g]	1793	Cr1K2O4	898
Cl2Zn1	1832	Cl3Ru1	1398	Cl4Zr1	1864	Cr1N1	567
Cl2Zn1[g]	1832	Cl3Ru1[g]	1398	Cl4Zr1[g]	1865	Cr1Na1O2	577
Cl2Zr1	1862	Cl3Sb1	1438	Cl5Nb1	1168	Cr1Na2O4	1121
Cl2Zr1[g]	1863	Cl3Sb1[g]	1438	Cl5Nb1[g]	1168	Cr1O1[g]	569
Cl2.33Nb1	1165	Cl3Sc1	1456	Cl5P1[g]	1256	Cr1O2	570
Cl2.5Ta1	1596	Cl3Si1[g]	1491	Cl5Sb1[g]	1439	Cr1O2[g]	570
Cl2.67Nb1	1165	Cl3Sm1	1534	Cl5Ta1	1598	Cr1O3	571
Cl3Co1[g]	538	Cl3Ta1	1596	Cl5Ta1[g]	1599	Cr1O3[g]	572
Cl3Cr1	563	Cl3Ta1[g]	1597	Cl5U1	1736	Cr1S1	578
Cl3Cu3[g]	611	Cl3Tb1	1613	Cl5U1[g]	1737	Cr1S1.17	579
Cl3Dy1	646	Cl3Tb1[g]	1614	Cl5W1	1794	Cr1Si1	580
Cl3Dy1[g]	647	Cl3Ti1	1677	Cl5W1[g]	1794	Cr1Si2	580
Cl3Dy1H12O6	647	Cl3Ti1[g]	1678	Cl6Fe2[g]	690	Cr2Fe1O4	575
Cl3Er1	655	Cl3Tl1	1707	Cl6Ga2[g]	734	Cr2Mg1O4	576
Cl3Er1[g]	656	Cl3Tm1	1719	Cl6In2[g]	854	Cr2N1	567
Cl3Er1H12O6	656	Cl3Tm1[g]	1720	Cl6U1	1737	Cr2Nb1	568
Cl3Eu1	664	Cl3U1	1734	Cl6U1[g]	1738	Cr2Ni1O4	577
Cl3Eu1[g]	665	Cl3V1	1768	Cl6W1	1795	Cr2O3	573
Cl3Eu1H12O6	665	Cl3Y1	1818	Cl6W1[g]	1796	Cr2O12S3	579
Cl3Fe1	687	Cl3Yb1	1825	Cl10W2[g]	1797	Cr2Ta1	583
Cl3Fe1[g]	688	Cl3Yb1[g]	1825	Co1	531	Cr3Si1	581
Cl3Ga1	732	Cl3Zr1	1863	Co1[g]	532	Cr5Si3	582
Cl3Ga1[g]	733	Cl3Zr1[g]	1864	Co1Cr2O4	544	Cs1	583
Cl3Gd1	752	Cl3.13Nb1	1166	Co1F2	540	Cs1[g]	584
Cl3Gd1[g]	753	Cl4Co2[g]	539	Co1F2[g]	541	Cs1F1	591
Cl3Ge1[g]	764	Cl4Cr1[g]	564	Co1F3	541	Cs1F1[g]	592
Cl3H12Ho1O6	841	Cl4Fe2[g]	689	Co1Fe2O4	545	Cs1H1O1	598
Cl3Hf1[g]	814	Cl4Ge1[g]	765	Co1H2O2	545	Cs1H1O1[g]	599
Cl3Ho1	840	Cl4Hf1	814	Co1I2	542	Cs1I1	594
Cl3Ho1[g]	841	Cl4Hf1[g]	815	Co1O1	543	Cs1I1[g]	595
Cl3In1	852	Cl4Nb1	1167	Co1O3Se1	553	Cs1O1[g]	596
Cl3In1[g]	853	Cl4Nb1[g]	1167	Co1O3Ti1	547	Cs1O2	596
Cl3Ir1	875	Cl4Np1	1234	Co1O4S1	551	Cs2[g]	585

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Cs2F2[g]	593	Dy1	644	F2Ga1[g]	736	F3Nd1	1186
Cs2H2O2[g]	600	Dy1[g]	645	F2Ge1[g]	767	F3Nd1[g]	1187
Cs2O1	597	Dy1F3	648	F2Hg1	825	F3Np1	1235
Cs2O1[g]	597	Dy1F3[g]	649	F2Hg1[g]	826	F3P1[g]	1257
Cs2O3	598	Dy1I3[g]	650	F2Hg2	826	F3Pr1	1323
Cs2O4S1	601	Dy2O3	651	F2In1[g]	856	F3Pr1[g]	1324
Cu1	602	Er1	652	F2K2[g]	901	F3Pu1	1346
Cu1[g]	603	Er1[g]	653	F2Li2[g]	963	F3S1[g]	1419
Cu1F1	611	Er1F3	657	F2Mg1	1006	F3Sb1	1440
Cu1F1[g]	612	Er1F3[g]	658	F2Mg1[g]	1007	F3Sb1[g]	1440
Cu1F2	613	Er1I3[g]	659	F2Mn1	1042	F3Sc1	1457
Cu1F2[g]	614	Er2O3	660	F2Mn1[g]	1042	F3Sc1[g]	1458
Cu1Fe1O2	623	Eu1	661	F2Na2[g]	1124	F3Si1[g]	1495
Cu1Fe1S2	615	Eu1[g]	662	F2Ni1	1210	F3Th1[g]	1648
Cu1Fe2O4	624	Eu1F3	666	F2Ni1[g]	1211	F3Ti1	1681
Cu1H2O2	624	Eu1F3[g]	667	F2O1[g]	1242	F3Ti1[g]	1682
Cu1H2O5S1	630	Eu1S1	669	F2O1S1[g]	1431	F3Tm1	1721
Cu1H6O7S1	630	Eu1S1[g]	670	F2O1Si1[g]	1506	F3Tm1[g]	1722
Cu1H10O9S1	631	Eu2O3	667	F2O1Th1	1660	F3U1	1738
Cu1I1	617	Eu2O3[M]	668	F2O1Ti1[g]	1700	F3V1	1770
Cu1I1[g]	618	F1[g]	671	F2O2S1[g]	1432	F3Y1	1819
Cu1Mg2	619	F1Ga1[g]	735	F2O2U1	1752	F3Zr1	1868
Cu1Mo1O4	620	F1Ge1[g]	766	F2Pb1	1285	F3Zr1[g]	1869
Cu1O1	620	F1H1[g]	790	F2Pb1[g]	1286	F4Ge1[g]	769
Cu1O1[g]	621	F1Hg1[g]	825	F2Pd1	1313	F4Hf1	815
Cu1O3Se1	633	F1In1[g]	855	F2Rb2[g]	1370	F4Hf1[g]	816
Cu1O4S1	629	F1K1	899	F2S1[g]	1418	F4Mg2[g]	1008
Cu1P2	625	F1K1[g]	900	F2S2[g]	1423	F4O1W1	1813
Cu1S1	626	F1Li1	961	F2Se1[g]	1474	F4O1W1[g]	1814
Cu1S1[g]	627	F1Li1[g]	962	F2Si1[g]	1494	F4Pb1[g]	1287
Cu1Se1	632	F1Li1O1[g]	965	F2Sn1	1545	F4Pu1	1347
Cu1Te1	633	F1Mg1[g]	1005	F2Sn1[g]	1545	F4S1[g]	1420
Cu2Mg1	619	F1N1O1[g]	1102	F2Sr1	1568	F4Se1[g]	1475
Cu2O1	622	F1Na1	1122	F2Te1[g]	1631	F4Si1[g]	1496
Cu2O4S1	629	F1Na1[g]	1123	F2Th1[g]	1647	F4Te1[g]	1632
Cu2O5S1	625	F1Ni1[g]	1209	F2Ti1[g]	1681	F4Th1	1649
Cu2S1	628	F1O1Pu1	1355	F2Tl2[g]	1710	F4Th1[g]	1650
Cu2Sb1	631	F1O1Sm1	1536	F2Zn1	1833	F4Ti1	1682
Cu2Se1[B]	632	F1O1Ti1[g]	1699	F2Zn1[g]	1834	F4Ti1[g]	1683
Cu2Te1	634	F1Pb1[g]	1284	F2Zr1	1867	F4U1	1739
Cu3I3[g]	618	F1Rb1	1368	F2Zr1[g]	1868	F4U1[g]	1739
Cu3P1	626	F1Rb1[g]	1369	F3Fe1	692	F4V1	1770
Cu5Fe1S4	616	F1S1[g]	1417	F3Fe1[g]	693	F4Zr1	1870
D1[g]	635	F1Sb1[g]	1439	F3Ga1	737	F4Zr1[g]	1871
D1F1[g]	638	F1Se1[g]	1473	F3Ga1[g]	738	F4.25U1	1740
D1H1[g]	639	F1Si1[g]	1493	F3Gd1	754	F4.5U1	1740
D1H1O1[g]	798	F1Sn1[g]	1544	F3Gd1[g]	755	F5Nb1	1169
D1N1[g]	1083	F1Te1[g]	1630	F3Ge1[g]	768	F5Nb1[g]	1169
D1O1[g]	1241	F1Ti1[g]	1680	F3Ho1	842	F5P1[g]	1258
D1S1[g]	642	F1Tl1	1708	F3Ho1[g]	843	F5Ru1	1399
D2[g]	636	F1Tl1[g]	1709	F3In1	857	F5S1[g]	1421
D2N1[g]	1084	F1W1[g]	1798	F3In1[g]	858	F5Se1[g]	1476
D2O1	640	F1Zr1[g]	1866	F3La1	931	F5Ta1	1599
D2O1[g]	641	F2[g]	672	F3La1[g]	932	F5Ta1[g]	1600
D2S1[g]	643	F2Fe1	691	F3Li3[g]	964	F5Te1[g]	1633
D3N1[g]	1085	F2Fe1[g]	692	F3Mn1	1043	F5U1	1741

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F5U1[g]	1741	Fe2Ta1	723	H1K2O4P1	903	H3Sb1[g]	1441
F5V1[g]	1771	Fe2U1	726	H1Li1	966	H3U1[B]	1743
F6Ir1[g]	876	Fe3Mo2	697	H1Li1[g]	967	H4I1N1	1090
F6Np1	1235	Fe3O4	703	H1Li1O1	980	H4Mg3O9Si2	1020
F6Np1[g]	1236	Fe4N1	698	H1Li1O1[g]	981	H4N2[g]	1089
F6Pu1	1347	Ga1	728	H1Mg1O1[g]	1016	H4O5U1	1753
F6Pu1[g]	1348	Ga1[g]	729	H1N1[g]	1086	H4O6S1Zn1	1846
F6S1[g]	1422	Ga1I3	738	H1N1O3[g]	795	H4Si1[g]	1498
F6Se1[g]	1477	Ga1N1	739	H1Na1	1124	H4Sn1[g]	1546
F6Te1[g]	1634	Ga1O1[g]	740	H1Na1[g]	1125	H6Si2[g]	1498
F6U1	1742	Ga1P1	743	H1Na1O1	1136	H8N2O4S1	1091
F6U1[g]	1742	Ga1S1	743	H1Na1O1[g]	1137	H12O10S1Zn1	1846
F6W1[g]	1799	Ga1Sb1	745	H1O1[g]	1243	H14O11S1Zn1	1847
F10S2[g]	1424	Ga1Se1	745	H1O1Sr1[g]	1575	He1[g]	806
Fe0.877S1	717	Ga1Te1	747	H1Pb1[g]	1288	Hf1	807
Fe0.947O1	699	Ga2O1[g]	741	H1S1[g]	800	Hf1[g]	809
Fe1	675	Ga2O12Se3	746	H1Si1[g]	1497	Hf1I4	816
Fe1[g]	676	Ga2O3	742	H1Zr1[g]	1872	Hf1I4[g]	817
Fe1H2O2	705	Ga2S1[g]	744	H2[g]	782	Hf1N1	817
Fe1H3O3	705	Ga2S3	744	H2K1O4P1	903	Hf1O2	818
Fe1H4O6P1	711	Ga2Se3	746	H2K2O2[g]	917	Hf1O3Sr1	819
Fe1I2	694	Ga2Te3	747	H2La1	932	Hg1	819
Fe1I2[g]	695	Gd1	748	H2Li2O2[g]	982	Hg1[g]	820
Fe1Li1O2	979	Gd1[g]	749	H2Mg1	1008	Hg1I1[g]	828
Fe1Mo1O4	697	Gd1I3	756	H2Mg1O2	1017	Hg1I2	828
Fe1Na1O2	708	Gd1I3[g]	757	H2Mg3O12Si4	1020	Hg1I2[g]	829
Fe1O1	700	Gd2O3	758	H2Mg7O24Si8	1021	Hg1O1	830
Fe1O1[g]	701	Gd2O3[M]	759	H2N1[g]	1087	Hg1O1[g]	830
Fe1O3Si1	712	Ge1	760	H2Na2O2[g]	1138	Hg1O3Se1	834
Fe1O3Ti1	714	Ge1[g]	761	H2Nd1	1187	Hg1O4S1	832
Fe1O4P1	710	Ge1H4[g]	770	H2Np1O4	1237	Hg1S1	831
Fe1O4S1	720	Ge1I4[g]	770	H2O1	795	Hg1S1[g]	831
Fe1O4V2	716	Ge1Mg2	771	H2O1[g]	796	Hg1Se1	833
Fe1O4W1	727	Ge1Ni2	771	H2O2	797	Hg1Se1[g]	833
Fe1O6V2	726	Ge1O1[g]	772	H2O2[g]	797	Hg1Te1	834
Fe1S1	718	Ge1O2	773	H2O2Sr1	1576	Hg1Te1[g]	835
Fe1S1[g]	719	Ge1P1	774	H2O2Sr1[g]	1577	Hg2I2	829
Fe1S2	720	Ge1S1	774	H2O4S1	802	Hg2O4S1	832
Fe1Se0.96	721	Ge1S1[g]	775	H2O4S1[g]	802	Ho1	836
Fe1Si1	722	Ge1S2	776	H2O4U1	1752	Ho1[g]	837
Fe1Si2	722	Ge1Se1	776	H2O4W1	804	Ho2O3	843
Fe1Si2.33	723	Ge1Se1[g]	777	H2O4W1[g]	805	I1[g]	844
Fe1Te0.9	724	Ge1Se2	777	H2O5S1Zn1	1845	I1In1	858
Fe1Te2	724	Ge1Te1	778	H2Pr1	1324	I1In1[g]	859
Fe1Ti1	725	Ge1U1	778	H2Pu1	1348	I1Ir1	876
Fe2H2O4	706	Ge2U1	779	H2S1[g]	801	I1K1	904
Fe2I4[g]	696	Ge3U1	779	H2S2[g]	801	I1K1[g]	905
Fe2Mg1O4	706	Ge3U5	780	H2Se1[g]	803	I1Li1	968
Fe2Mn1O4	707	Ge5U3	780	H2Sr1	1569	I1Li1[g]	969
Fe2Nb1	1170	H1[g]	781	H2Te1[g]	804	I1Mg1[g]	1009
Fe2Ni1O4	709	H1Hg1[g]	827	H2Th1	1650	I1Na1	1126
Fe2O3	702	H1I1[g]	792	H2Ti1	1684	I1Ni1[g]	1212
Fe2O4Si1	713	H1K1	901	H3N1[g]	1088	I1O1Pu1	1356
Fe2O4Ti1	715	H1K1[g]	902	H3O4P1	799	I1Pb1[g]	1289
Fe2O4Zn1	716	H1K1O1	915	H3P1[g]	1259	I1Rb1	1371
Fe2O12S3	721	H1K1O1[g]	916	H3Pu1	1349	I1Rb1[g]	1372

Formula	Page	Formula	Page	Formula	Page	Formula	Page
I1Si1[g]	1499	I4Pt1	1335	K3O4P1	920	Mg2Th1	1030
I1Ti1[g]	1685	I4Si1	1501	Kr1[g]	924	Mg3N2	1012
I1Tl1	1711	I4Si1[g]	1502	La1	925	Mg3O8P2	1025
I1Tl1[g]	1712	I4Sn1	1547	La1[g]	926	Mn1	1033
I1Zr1[g]	1873	I4Sn1[g]	1548	La1Mg1	934	Mn1[g]	1034
I2	845	I4Sn2[g]	1548	La1N1	935	Mn1Mo1O4	1044
I2[g]	845	I4Th1	1651	La1S1	937	Mn1O1	1046
I2In1[g]	860	I4Th1[g]	1652	La1Se1	939	Mn1O2	1047
I2Ir1	877	I4Ti1	1687	La1Se1[g]	940	Mn1O3Si1	1050
I2K2[g]	906	I4Ti1[g]	1688	La2O3	936	Mn1O3Ti1	1052
I2Li2[g]	970	I4U1	1744	La2S3	938	Mn1O4S1	1056
I2Mg1	1010	I4U1[g]	1744	La2Se3	941	Mn1O4W1	1062
I2Mg1[g]	1011	I4Zr1	1876	La2Te3	942	Mn1P1	1053
I2Mn1	1043	I4Zr1[g]	1877	Li1	943	Mn1P3	1053
I2Ni1	1212	I5Nb1	1170	Li1[g]	944	Mn1S1	1055
I2O1Th1	1660	I5Ta1	1600	Li1O1[g]	971	Mn1S2	1055
I2O2W1[g]	1814	I5Ta1[g]	1601	Li2[g]	945	Mn1Sb1	1056
I2Pb1	1290	In1	846	Li2O1	972	Mn1Se1	1057
I2Pb1[g]	1291	In1[g]	847	Li2O1[g]	973	Mn1Si1	1058
I2Pd1	1314	In1N1	861	Li2O2	973	Mn1Si1.7	1059
I2Si1[g]	1500	In1P1	864	Li2O2[g]	974	Mn1Sn2	1060
I2Sn1	1546	In1S1	865	Li2O3Si1	983	Mn1Te1	1061
I2Sn1[g]	1547	In1S1[g]	866	Li2O3Ti1	986	Mn1Te2	1061
I2Sr1	1570	In1Sb1	868	Li2O3Zr1	987	Mn2O3	1047
I2Sr1[g]	1571	In1Se1	869	Li2O4S1	988	Mn2O4Si1	1051
I2Ti1	1685	In1Se1[g]	870	Li2O5Si2	984	Mn2O4Ti1	1052
I2Ti1[g]	1686	In1Te1	871	Li2S1	987	Mn2P1	1054
I2V1	1771	In2O1[g]	862	Li2Se1	988	Mn2Sb1	1057
I2V1[g]	1772	In2O3	863	Li2Te1	989	Mn3O4	1048
I2Zn1	1834	In2O12S3	868	Li3N1	970	Mn3Si1	1059
I2Zn1[g]	1835	In2S3	867	Li4O4Si1	985	Mn4N1	1044
I2Zr1	1874	In2Se3	870	Lu1	990	Mn5N2	1045
I2Zr1[g]	1875	In2Te1	871	Lu1[g]	991	Mn5Si3	1060
I3In1	860	In2Te3	872	Lu2O3	992	Mo1	1063
I3In1[g]	861	In5S6	867	Mg1	993	Mo1[g]	1065
I3La1	933	Ir1	873	Mg1[g]	994	Mo1Na2O4	1127
I3La1[g]	934	Ir1[g]	874	Mg1Mo1O4	1011	Mo1O1[g]	1069
I3Nd1	1188	Ir1O2	877	Mg1N2O6	1012	Mo1O2	1070
I3Nd1[g]	1189	Ir1O2[g]	878	Mg1Ni2	1013	Mo1O2[g]	1071
I3P1[g]	1259	Ir1O3[g]	879	Mg1O1	1014	Mo1O3	1072
I3Pr1	1325	Ir1S2	879	Mg1O3Se1	1029	Mo1O3[g]	1073
I3Pr1[g]	1326	Ir2S3	880	Mg1O3Si1	1018	Mo1O4Pb1	1293
I3Pu1	1349	K1	880	Mg1O3Ti1	1022	Mo1O4Sr1	1572
I3Sb1	1441	K1[g]	881	Mg1O4S1	1028	Mo1S2	1075
I3Sb1[g]	1442	K1N1O3	906	Mg1O4W1	1032	Mo1S3	1075
I3Si1[g]	1501	K1O1[g]	907	Mg1O5Ti2	1023	Mo1Si2	1077
I3Ti1	1686	K1O2	907	Mg1O6V2	1031	Mo2N1	1068
I3Ti1[g]	1687	K2[g]	882	Mg1S1	1026	Mo2S3	1076
I3Tm1[g]	1723	K2O1	908	Mg1S1[g]	1027	Mo3Si1	1078
I3U1	1743	K2O2	908	Mg1Se1	1028	Mo5Si3	1079
I3V1	1772	K2O3S1	922	Mg1Te1	1030	N0.465V1	1773
I3Y1	1820	K2O3Si1	918	Mg2O4Si1	1019	N1[g]	1080
I3Zr1	1875	K2O4S1	923	Mg2O4Ti1	1024	N1Na1O2	1128
I3Zr1[g]	1876	K2O5Si2	919	Mg2O7V2	1031	N1Na1O3	1128
I4Pb1[g]	1292	K2O9Si4	920	Mg2Pb1	1025	N1Nb1	1171
I4Pb2[g]	1292	K2S1	921	Mg2Si1	1029	N1Nb2	1172

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N1O1[g]	1092	Nb1	1156	O1Pb1[R]	1295	O2V1[g]	1777
N1O2[g]	1093	Nb1[g]	1158	O1Pd1	1314	O2W1	1801
N1O3[g]	1094	Nb1O1	1173	O1Pu1	1351	O2W1[g]	1802
N1P1[g]	1260	Nb1O2	1174	O1Rb2	1374	O2Zr1	1880
N1Pu1	1350	Nb1Si2	1178	O1S1[g]	1426	O2Zr1[g]	1881
N1S1[g]	1425	Nb2O5	1175	O1S2[g]	1429	O2.72W1	1803
N1Sc1	1459	Nb5Si3	1179	O1Sb1[g]	1442	O2.90W1	1804
N1Ta1	1602	Nd1	1180	O1Se1[g]	1478	O2.96W1	1805
N1Ta2	1603	Nd1[g]	1181	O1Si1[g]	1504	O3[g]	1240
N1Th1	1653	Nd1S1	1191	O1Sn1	1549	O3Pb1Se1	1308
N1Ti1	1689	Nd1Se1	1193	O1Sn1[g]	1549	O3Pb1Si1	1300
N1U1	1745	Nd1Te1	1195	O1Sr1	1573	O3Pb1Ti1	1303
N1V1	1774	Nd2O3	1190	O1Ta1[g]	1604	O3Pr2	1327
N1Y1	1820	Nd2O7Zr2	1191	O1Te1[g]	1635	O3Pu2	1353
N1Zr1	1878	Nd2O12S3	1192	O1Th1[g]	1656	O3Pu2[B]	1354
N2[g]	1081	Nd2S3	1192	O1Ti1	1690	O3Rb2Si1	1375
N2O1[g]	1095	Nd2Se3	1194	O1Ti1[g]	1691	O3Re1	1385
N2O1Th2	1655	Nd2Te3	1196	O1Tl2	1712	O3Rh2	1394
N2O3[g]	1096	Ne1[g]	1197	O1Tl2[g]	1713	O3Ru1[g]	1400
N2O4	1096	Ni1	1198	O1V1	1775	O3S1[g]	1428
N2O4[g]	1097	Ni1[g]	1199	O1V1[g]	1776	O3Sb2	1443
N2O5[g]	1098	Ni1O1	1213	O1W1[g]	1800	O3Sb2[O]	1444
N2O8U1	1753	Ni1O1[g]	1214	O1Zn1	1836	O3Sc2	1460
N2Sr3	1572	Ni1O3Se1	1226	O1Zr1[g]	1879	O3Se1Zn1	1848
N2Zn3	1835	Ni1O3Ti1	1217	O1.72Tb1	1614	O3Si1Sr1	1578
N4Si3	1503	Ni1O4S1	1223	O1.81Tb1	1615	O3Si1Zn1	1837
N4Th3	1654	Ni1O4W1	1230	O1.833Pr1	1326	O3Sm2	1534
Na1	1102	Ni1S0.84	1219	O2[g]	1239	O3Sm2[M]	1535
Na1[g]	1103	Ni1S1	1220	O2Os1	1247	O3Sr1Ti1	1579
Na1O1[g]	1129	Ni1S2	1221	O2P1[g]	1262	O3Sr1Zr1	1582
Na1O2	1129	Ni1Sb1	1223	O2Pb1	1296	O3Tb2	1616
Na1O3V1	1153	Ni1Se1.05	1224	O2Pr1	1327	O3Tc1	1623
Na1Te1	1150	Ni1Se1.14	1224	O2Pt1[g]	1335	O3Ti2	1694
Na1Te3	1151	Ni1Se1.25	1225	O2Pu1	1352	O3Tl2	1713
Na2[g]	1104	Ni1Se2	1225	O2Rb1	1373	O3Tm2	1724
Na2O1	1130	Ni1Si1	1226	O2Re1	1384	O3U1	1747
Na2O2	1131	Ni1Te1.1	1228	O2Rh1[g]	1393	O3V2	1778
Na2O3S1	1148	Ni1Ti1	1229	O2Ru1	1400	O3W1	1806
Na2O3Si1	1139	Ni1Ti2	1229	O2S1[g]	1427	O3W1[g]	1807
Na2O3Ti1	1142	Ni2O4Si1	1216	O2Se1	1478	O3Y2	1821
Na2O4S1	1149	Ni2P1	1217	O2Se1[g]	1479	O3Yb2	1826
Na2O4S1[III]	1150	Ni3P1	1218	O2Si1	1505	O4Os1	1248
Na2O4W1	1155	Ni3S2	1222	O2Si1[CR]	1506	O4Os1[g]	1248
Na2O5Si2	1140	Ni3S4	1222	O2Sn1	1550	O4Pb1S1	1306
Na2O5Ti2	1143	Ni3Sn1	1227	O2Sr1	1574	O4Pb1Se1	1309
Na2O7Ti3	1144	Ni3Sn2	1228	O2Ta1[g]	1605	O4Pb1W1	1310
Na2S1	1145	Ni3Ti1	1230	O2Tb1	1615	O4Pb2Si1	1301
Na2S2	1146	Ni5P2	1218	O2Tc1	1623	O4Pb3	1296
Na2S3	1146	Ni7Si13	1227	O2Te1	1636	O4Rb2S1	1378
Na2S4	1147	Np1	1231	O2Te1[g]	1637	O4Ru1[g]	1401
Na2Te1	1152	Np1[g]	1233	O2Te2[g]	1638	O4S1Sn1	1554
Na3O4P1	1144	Np1O2	1236	O2Th1	1657	O4S1Sr1	1585
Na3O4V1	1154	O1[g]	1238	O2Th1[g]	1658	O4S1Tl2	1715
Na4O4Si1	1141	O1P1[g]	1261	O2Ti1	1692	O4S1Zn1	1845
Na4O7V2	1154	O1Pb1	1294	O2Ti1[A]	1693	O4Sb2	1444
Na6O7Si2	1141	O1Pb1[g]	1295	O2U1	1746	O4Si1Sr2	1578

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O4Si1Zn2	1838	P2[g]	1252	Rn1[g]	1395	Sb2Te3	1452
O4Si1Zr1	1882	P2Zn1	1840	Ru1	1396	Sb4[g]	1436
O4Sr1W1	1586	P2Zn3	1841	Ru1[g]	1397	Sc1	1453
O4Sr2Ti1	1580	P4[g]	1253	Ru1S2	1401	Sc1[g]	1454
O4Ti1Zn2	1839	P4S3	1268	Ru1Se2	1402	Se1	1461
O4V2	1779	P4S5	1269	Ru3U1	1402	Se1[g]	1461
O4W1Zn1	1850	P4S6	1269	S1	1403	Se1Si1[g]	1509
O5P2	1263	P4S7	1270	S1[g]	1404	Se1Sn1	1555
O5Pb2S1	1298	P4S10	1270	S1Si1[g]	1507	Se1Sn1[g]	1555
O5Rb2Si2	1376	P4Th3	1662	S1Sn1	1551	Se1Tb1[g]	1618
O5Sb2	1445	Pa1	1271	S1Sn1[g]	1552	Se1Tl1	1716
O5Ta2	1606	Pa1[g]	1272	S1Sr1	1583	Se1Tl2	1716
O5Ti3	1695	Pb1	1273	S1Sr1[g]	1584	Se1U1	1758
O5V2	1780	Pb1[g]	1274	S1Ta1[g]	1608	Se1Zn1	1847
O6P4[g]	1264	Pb1S1	1304	S1Tb1[g]	1617	Se1Zn1[g]	1848
O6Pb3S1	1299	Pb1S1[g]	1305	S1Th1	1663	Se2[g]	1462
O6Pb4Si1	1302	Pb1Se1	1307	S1Ti1	1701	Se2Sn1	1556
O6S1U1	1754	Pb1Se1[g]	1308	S1Ti1[g]	1702	Se3[g]	1463
O6Sb4[g]	1445	Pb1Te1	1309	S1Tl2	1714	Se4[g]	1464
O6W2[g]	1808	Pb1Te1[g]	1310	S1U1	1754	Se5[g]	1465
O7Pb4S1	1299	Pb2[g]	1275	S1U1[g]	1755	Se6[g]	1466
O7Re2	1385	Pd1	1311	S1Zn1	1843	Se7[g]	1467
O7Sm2Zr2	1537	Pd1[g]	1312	S1Zn1[g]	1844	Se8[g]	1468
O7Tc2	1624	Pd1S1	1315	S1Zn1[S]	1844	Si1	1480
O7Tc2[g]	1624	Pd1S2	1315	S1Zr1[g]	1883	Si1[g]	1481
O7Ti4	1696	Pd1Te1	1316	S2[g]	1405	Si1Ta2	1510
O7Y2Zr2	1822	Pd4S1	1316	S2Sb3[g]	1449	Si1Th1	1513
O8P2Zn3	1842	Pr1	1317	S2Si1	1508	Si1Ti1	1517
O8Pb5S1	1300	Pr1[g]	1318	S2Sn1	1552	Si1U1	1520
O8Pu1S2	1358	Pr1S1	1328	S2Ta1	1609	Si1U3	1520
O8S2Sn1	1554	Pr3S4	1329	S2Th1	1664	Si1V3	1524
O8S2Th1	1665	Pt1	1330	S2Ti1	1703	Si1Zr1	1529
O8S2U1	1757	Pt1[g]	1331	S2U1	1756	Si1Zr2	1529
O8U3	1747	Pt1S1	1336	S2W1	1815	Si2[g]	1482
O8W3[g]	1809	Pt1S2	1336	S2Zr1	1884	Si2Ta1	1511
O9Rb2Si4	1377	Pt5Se4	1337	S3[g]	1406	Si2Th1	1514
O9S2Zn3	1837	Pu1	1338	S3Sb1[g]	1446	Si2Th3	1515
O9U4	1748	Pu1[g]	1340	S3Sb2	1447	Si2Ti1	1518
O9W3[g]	1810	Pu1S1	1357	S3Sb2[g]	1447	Si2U1	1521
O10P4	1264	Pu2S3	1358	S3Sb4[g]	1450	Si2U3	1522
O10P4[g]	1265	Rb1	1359	S3Sn2	1553	Si2V1	1525
O10Sr4Ti3	1581	Rb1[g]	1360	S3Th2	1665	Si2W1	1527
O12Pr7	1328	Rb2[g]	1361	S3U2	1757	Si2Zr1	1530
O12S3Sb2	1450	Re1	1379	S4[g]	1407	Si3[g]	1483
O12W4[g]	1811	Re1[g]	1381	S4Sb2[g]	1448	Si3Ta5	1512
Os1	1244	Re1S2	1386	S4Sn3	1553	Si3Ti5	1519
Os1[g]	1246	Re1Si1	1387	S5[g]	1408	Si3U1	1523
Os1P2	1249	Re1Si2	1387	S6[g]	1409	Si3V5	1526
Os1S2	1249	Re2S7	1386	S7[g]	1410	Si3W5	1528
Os1Se2	1250	Re2Te5	1388	S8[g]	1411	Si3Zr5	1530
P1	1250	Re2Th1	1663	Sb1	1433	Si5Th3	1516
P1[g]	1251	Re2Y1	1389	Sb1[g]	1434	Si5U3	1524
P1[R]	1251	Re5Si3	1388	Sb1Se1[g]	1451	Sm1	1531
P1S1[g]	1268	Rh1	1390	Sb1Zn1	1452	Sm1[g]	1532
P1Si1	1507	Rh1[g]	1391	Sb2[g]	1435	Sn1	1538
P1Th1	1661	Rh3U1	1394	Sb2Se3	1451	Sn1[g]	1539

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Sn1Te1	1556	Te1	1625	Tl1[g]	1705	Y1[g]	1817
Sn1Te1[g]	1557	Te1[g]	1626	Tm1	1717	Yb1	1823
Sr1	1558	Te1Tl2	1717	Tm1[g]	1718	Yb1[g]	1824
Sr1[g]	1559	Te1Zn1	1849	U1	1725	Zn1	1827
Ta1	1587	Te1Zn1[g]	1849	U1[g]	1727	Zn1[g]	1828
Ta1[g]	1589	Te2[g]	1627	V1	1759	Zr1	1851
Tb1	1610	Th1	1639	V1[g]	1760	Zr1[g]	1853
Tb1[g]	1611	Th1[g]	1641	W1	1782	e-1[g]	1885
Tb1Te1[g]	1619	Ti1	1666	W1[g]	1784		
Tc1	1620	Ti1[g]	1667	Xe1[g]	1815		
Tc1[g]	1621	Tl1	1704	Y1	1816		

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Part I
Basic Principles

1 Thermodynamic functions and relations

General remarks

The main object of this work is the presentation of thermochemcial properties of a relatively large number of pure substances in a uniform system. The information given in form of tables may serve to extend the application of chemical thermodynamics in science and technology dealing with materials and energy conversion.

The significant use of thermochemical data for analyzing and solving practical problems requires the understanding of the fundamental principles and relations of thermodynamics.

The theory of thermodynamics has been known since the end of the 19th century. This and the substantial contributions provided in the 20th century have established thermodynamics as a self-contained system of knowledge. The verified methods of thermodynamics are efficient and serve as elementary tools of today's engineers and scientists.

As is the case in the applied sciences, chemical thermodynamics work with a number of empirical definitions, conventions, standardizations and simplifications some of which may be chosen arbitrarily in accordance with basic principles. This is one of the main reasons why users of thermochemical data who are not specialized in thermodynamics unknowingly make mistakes.

This work starts with a summary of the fundamental principles of thermodynamics and relations derived from them. It provides a basis for the exact description of tabulated thermochemical data and their practical applications.

The relationships included in this brief treatise are only intended to provide the elementary tools for thermochemical calculations in a uniform system. For further information and explanation a large number of textbooks and standard works are available, which treat thermodynamics in detail. Some such textbooks are listed at the end of Chapter 1.

1.1 The basic concepts

1.1.1 Thermodynamic system

The macroscopic part of the universe being considered for thermodynamic purposes is known as *the system* (e.g. a chemical reactor containing substances). The part of the universe outside the system is termed *the surroundings.*

A *homogeneous system* (phase) is one with the same physical properties and constant composition in every part of it. A *heterogeneous system* is made up of several phases.

An *open system* can exchange mass and heat with its surroundings; an open system can also perform work and have work done on it.

A *closed system* cannot exchange mass with its surroundings. Heat exchange and work performance are possible.

An *isolated system* can exchange neither mass nor heat and it is impossible for the system to perform work or have work done on it.

A *thermally isolated system* is a special case of the closed system, where no transfer of mass or heat can take place but the performance of work is allowed. A process taking place in a thermally isolated system is referred to as an *adiabatic process.*

1.1.2 State functions

In thermodynamics the properties in the current state of a system are represented by state functions which are themselves described using appropriate *variables of state.* The following state functions are employed in chemical thermodynamics:

p pressure
T temperature
V volume
U internal energy
H enthalpy $= U+pV$
S entropy
A Helmholtz energy (free energy) $= U-TS$
G Gibbs energy (free enthalpy) $= H-TS$

V, U, H, S, A, and G are *extensive properties*, i.e., they depend on the amount of material present in the system. p and T as well as all molar quantities are *intensive properties.*

The state functions are properties of the present state of the system and do not depend on the path by which that state was reached. The differential of a state function is an exact differential; its integral between the initial and the final state is independent of the path taken.

1.1.3 Changes in state

The change in state of a system by modification of its variables of state is called a *process.*

A *reversible change* means an idealized, quasi-static process performed by infinitesimal modifications of a

variable whereby the system passes through a consecutive series of states in equilibrium with its surroundings. In a reversible cycle the system returns to its initial state and the surroundings remain unchanged.

In the case of an *irreversible process* the system does not pass through equilibrium states and afterwards changes remain in the surroundings. The *natural changes* (real changes) are irreversible.

In the *equilibrium state* no macroscopic changes in the system can be observed.

1.1.4 The Zeroth Law of thermodynamics

Thermal equilibrium

The thermal state of a substance is qualitatively described by the attributes "cold" and "warm" resulting from our sense of perception.

It is a common experience that when a cold substance (e.g., a gold coin) is brought into contact with a warm one (e.g. hot water) in an isolated vessel, the cold substance becomes warmer and the warm one cooler. This process accompanied by measurable volume changes finally comes to a standstill representing the *thermal equilibrium* where no changes in state can be observed.

The Zeroth Law of thermodynamics

Two systems in thermal equilibrium with a reference system are also in thermal equilibrium with each other.

All systems of any composition in mutual thermal equilibrium with each other have the same state property called *temperature*. Temperature is a state function.

Temperature

The equality of temperature is the necessary condition for thermal equilibrium between two systems.

The temperature of a system A can be determined empirically by measuring the changes in volume, pressure or other properties of a reference system (*thermometer*) being in thermal equilibrium with A.

The Celsius scale of temperature is based on the following stipulation:

melting point of ice $\Theta_{mp} = 0\,°C$

boiling point of water $\Theta_{bp} = 100\,°C$

in each case under 1.01325 bar (= 1 atm) presssure.

The Kelvin scale of temperature is a consequence of the perfect gas laws leading to the construction of the **constant-volume gas thermometer.** The fixed point of Kelvin temperature (absolute temperature) is defined with reference to the triple point of water (where ice water and water vapour coexist).

International convention

Temperature of the triple point of water

$$\Theta_{trp} = 273.16\,K\ .$$

The **thermodynamic temperature** T which is introduced by the Second Law (see Section 1.4.2) without any reference to special substances coincides with the empirical Kelvin temperature. The single fixed point of T is 273.16 K = temperature of the triple point of water.

Freezing point of water under 1 atm **(ice point)**:

$$T = 273.15\,K\ .$$

Boiling point of water under 1 atm:

$$T = 373.15\,K\ .$$

Celsius temperature:

$$t_c / [°C] = T/[K] - 273.15\ .$$

1.1.5 Equations of state

The following equations of state apply to a homogeneous system (comprising a single phase)

$$V = V(p, T, n)\ ,$$

$$p = p(V, T, n)$$

where V is the volume, p the pressure, T the temperature and n the amount of substance in moles. For each given set of values for T, p and n, V has a corresponding value.

V and p are state functions. For a homogeneous substance of fixed n

$$dV = (\partial V/\partial p)_T\, dp + (\partial V/\partial T)_p\, dT$$

and, hence

$$(\partial V/\partial T)_p = -(\partial V/\partial p)_T\,(\partial p/\partial T)_V\ .$$

Appropriate substitutions in this equation give

$$\alpha = \kappa \gamma_t\, p$$

with the following definitions:

$$\alpha = \frac{1}{V}(\partial V/\partial T)_p \quad [K^{-1}]$$

(expansion coefficient)

$$\kappa = -\frac{1}{V}(\partial V/\partial p)_T \quad [Pa^{-1}]$$

(isothermal compressibility)

$$\gamma_t = \frac{1}{p}(\partial p/\partial T)_V \quad [K^{-1}]$$

(tension coefficient).

Ideal gas equation of state

$$pV = nRT .$$

For $n = 1$ mol

$$\alpha = \gamma_t = 1/T , \quad \kappa = 1/p .$$

Gas constant

$$R = 8.31441 \quad J\,K^{-1}\,mol^{-1}$$

Boyle-Mariotte's law

$pV =$ constant at constant n, T .

Gay-Lussac's law

$V \sim T$ at constant n, p

$p \sim T$ at constant n, V .

Avogadro's principle

$V \sim n$ at constant p, T .

Equal volumes of gases at the same p and T contain the same number of molecules.

Molar volume

$$V_m = RT/p$$

$$V_m = 22.414 \quad l\,mol^{-1}$$

at $T = 273.15$ and $p = 1.013$ bar:

Standard Temperature and Pressure = **STP** .

Dalton's law

The total pressure exerted by a mixture of ideal gases is the sum of partial pressures which are exerted when the mixture volume is occupied by the mixture components alone.

Total pressure:

$$p_t = \sum_i p_i = \frac{RT}{V}\sum_i n_i .$$

Partial pressure:

$$p_i = \frac{RT}{V} n_i .$$

Mol

The basic SI unit for amount of substances is the **mole** (mol):

$$n = N/N_A$$

where N is the number of entities (molecules, atoms, ions) contained in a given homogeneous substance and

$$N_A = 6.022\times10^{23} \quad [mol^{-1}]$$

the **Avogadro's constant.**

Convention: 1 mol is the amount of a substance which contains the same number of entities as there are C atoms in 12 g of ^{12}C.

Mol fraction

$$x_i = n_i / \sum_i n_i$$

$$p_i = x_i p_t$$

Real gas equations of state

$$p = RT/(V_m - b) - a/V_m^2$$

(van der Waals equation)

$$p = (RT/V_m)\,[1 + B(T)/V_m + C(T)/V_m^2 + \ldots]$$

(virial equation) .

$V_m = V/n$ is the molar volume, a and b are the van der Waals constants and B, C etc. are the virial coefficients.

1.2 The First Law of thermodynamics

Every thermodynamic system is characterized by a state property which is called energy E.

The energy of a system increases with the heat transferred to the system and decreases with the work done by the system on the surroundings.

The energy of an isolated system is constant.

1.2.1 Work

The mechanical work required to move an object an infinitesimal distance dl against an opposing force F is defined by

$$đW = -F\,dl .$$

đW is an inexact differential, its integral depends on the path taken.

An example of mechanical work related to a closed system is the expansion or compression of a gas by quasistatic movement of a piston in a cylinder containing the gas. The infinitesimal-volume work is then given by

$$đW = -p\,dV$$

where p is the pressure exerted on the system **(external pressure)**.

This relation implies

$đW < 0$ = work is done by the system

$đW > 0$ = work is done on the system by the surroundings.

The performance of quasistatic work on closed systems is involved not only in deformation processes (change in volume, length and surface) but also in changes of electrical and magnetic properties (charge transfer, polarisation).

In a **real process** the work done on a system exceeds that in a quasistatic process, provided the change in state is the same. In the real process part of the work is employed for spontaneous phenomena such as friction, reactions resulting from charge transfer etc. occurring inside the system. In the case of internal state changes the total work done on a system is given by

$$W_t = W + W_{add}$$

where W is the real quasistatic work and W_{add} the additional work such as friction work, electrical work etc. The electrical work performed on a system by charge transfer is given by

$$đW_e = \phi\,dq$$

where ϕ is the electrical potential and q the charge.

1.2.2 Energy and heat

As proven empirically, the work done on a *thermally isolated system* is independent of the type of work and of the route by which this is carried out.

In the case under consideration (*adiabatic process*) the transition of the system from state 1 to state 2 is represented by the change of a state function called **energy** E:

$$W_{ad} = E_2 - E_1 = \Delta E$$

where W_{ad} is the (adiabatic) work carried out and ΔE the change in energy of the system.

In an adiabatic process the work done on or by the system corresponds to the change in the energy of the system. The value of ΔE is independent of the path. E is a state function.

$W_{ad} > 0$ work is done on the system , $\Delta E > 0$

$W_{ad} < 0$ work is done by the system , $\Delta E < 0$.

As proven empirically, furthermore, the energy of a *closed system* can be changed not only by work performance but also by another interaction with the surroundings which is the exchange of **heat** Q:

$$Q + W = \Delta E$$

$Q > 0$: heat is transferred from the surroundings to the system,

$Q < 0$: heat is transferred from the system to the surroundings.

For an infinitesimal change in state of a *closed system*:

$$dE = đQ + đW$$

where $đW$ and $đQ$ are inexact differentials, in contrast to dE, and ought strictly to have been characterized as such in the way they are written.

For an *isolated system* where heat transfer and work performance do not take place

$dE = 0$ i.e. ,

E = constant .

The energy of an isolated system is constant.

1.2.3 Internal energy

The total energy of a closed system is made up of its kinetic energy E_{kin}, its potential energy E_{pot} and its internal energy U:

$$E = E_{kin} + E_{pot} + U\ .$$

The law of conservation of energy for an *isolated system* is expressed by

$$E_{kin} + E_{pot} + U = \text{constant}$$

and in case of internal state changes

$$U = \text{constant.}$$

U is a state function that depends on the internal state variables of the system considered.

Change in internal energy for different systems:

$\Delta U = W$ thermally isolated system

$\Delta U = 0$ isolated system

$\Delta U = Q + W$ closed system

$\Delta U = Q$ closed system , V = constant.

For an infinitesimal change in state of a closed system without additional work the following relations apply:

$$dU = đQ + đW$$

$$= đQ - p\,dV$$

$$= đQ \text{ at } V = \text{constant} .$$

Here again, $đQ$ is an inexact differential.

The internal energy U of a closed homogeneous system of constant composition is described by

$$U = U(V, T) ,$$

$$dU = (\partial U/\partial V)_T\,dV + (\partial U/\partial T)_V\,dT .$$

The internal energy is a state property that depends on the current state of the system. The numerical value of the internal energy of a system can only be given in relation to a standard state which can be chosen arbitrarily considering practical aspects of calculations.

1.2.4 Enthalpy

The enthalpy of a system at constant pressure is defined by

$$H = U + pV .$$

After differentiation and substitution of

$$dU = đQ - p\,dV$$

this gives, for internal state changes in a closed system without performance of additional work

$$dH = đQ + V\,dp$$

$$dH = đQ \quad \text{at } p = \text{constant} .$$

Changes in internal state:

$$\Delta H = 0$$

for an isobaric adiabatic process,

$$\Delta H = V \Delta p$$

for an isolated system,

$$\Delta H = Q$$

for a closed system at p = constant.

In the case of isobaric processes (p = constant) in closed systems the heat exchanged with the surroundings is equal to the change in enthalpy of the system. For this reason the enthalpy is an important state function in thermochemistry.

The application of the energy law to stationary flow processes often involves setting up enthalpy balance relations.

Like U, H is a state function and for a closed homogeneous system of constant composition is described by the internal state variables p and T:

$$H = H(p, T) ,$$

$$dH = (\partial H/\partial p)_T\,dp + (\partial H/\partial T)_p\,dT .$$

The enthalpy of a system is only determined with respect to a standard state.

1.2.5 Heat capacities

For a closed homogeneous system of constant composition the heat capacity at constant volume (C_V) and constant pressure (C_p) are defined as follows:

$$C_V = (\partial U/\partial T)_V = |đQ/dT|_V ,$$

$$C_p = (\partial H/\partial T)_p = |đQ/dT|_p .$$

The total differentials of U and H can then be expressed by

$$dU = C_V\,dT + (\partial U/\partial V)_T\,dV ,$$

$$dU = C_p\,dT + (\partial H/\partial p)_T\,dp .$$

$C_p - C_V$

The heat Q transferred to a gas confined by a vessel (piston) results in a higher temperature in the system at constant V than in the case of constant p.

The difference $C_p - C_V$ in the case of an ideal gas corresponds to the work performed for expansion of the system on heating at constant pressure.

From the equations given above it follows that

$$C_p - C_V = (\partial H/\partial T)_p - (\partial U/\partial T)_V .$$

Insertion of $H = U + pV$ gives

$$C_p - C_V = (\partial U/\partial T)_p - (\partial U/\partial T)_V + (\partial(pV)/\partial T)_p .$$

Calculations using the relations for partial derivatives yield

$$(\partial U/\partial T)_p - (\partial U/\partial T)_V = (\partial U/\partial V)_T (\partial V/\partial T)_p \ ,$$

$$(\partial (pV)/\partial T)_p = p(\partial V/\partial T)_p \ .$$

Insertion of these equations into the last equation for $C_p - C_V$ gives

$$C_p - C_V = [(\partial U/\partial V)_T + p](\partial V/\partial T)_p \ .$$

Transformations using Maxwell relations (see Section 1.6.4) and relations for partial derivatives lead to

$$(\partial U/\partial V)_T = T(\partial p/\partial T)_V - p \ .$$

Inserting this expression into the last equation with use of partial derivatives gives

$$C_p - C_V = TV\alpha^2/\kappa$$

where α denotes the expansion coefficient and κ the isothermal compressibility as defined in Section 1.1.5.

For **ideal gases,**

$$\alpha = 1/T$$

$$\kappa = 1/p$$

$$C_p - C_V = R \ .$$

For **condensed phases** the difference between C_p and C_V is determined by the constants α and κ and, thus varies from substance to substance.

Example: AgCl (solid)

$$C_p = 52.886 \text{ J K}^{-1} \text{ mol}^{-1} \quad \text{at} \quad T = 298.15 \text{ K}$$

(see Tables).

The following values for α, κ and ϱ (density) are reported in "D'ans. Lax" (E. Lax: Taschenbuch für Chemiker and Physiker Vol. 1, Springer-Verlag, Berlin, 1967):

$$\alpha = 10.3 \times 10^{-5} \text{ K}^{-1}$$

$$\kappa \approx 2.4 \times 10^{-6} \text{ bar}^{-1} = 2.4 \times 10^{-11} \text{ Pa}^{-1}$$

$$M = 143.321 \text{ g/mol} \ , \quad \varrho = 5.56 \text{ g/cm}^3$$

$$V = 143.321/5.56 = 25.777 \text{ cm}^3 \text{ mol}^{-1}$$
$$= 25.777 \times 10^{-6} \text{ m}^3 \text{ mol}^{-1}$$

so that

$$C_p - C_V = 3.4 \text{ J K}^{-1} \text{ mol}^{-1} \ .$$

This difference amounts to 6.4% of C_p.

1.2.6 Changes in U and H of closed systems

The internal energy U and the enthalpy H of a closed homogeneous system of constant composition are described by the internal state variables p, V and T which are related to each other via the equation of state.

In the following the variations of U and H with T, V and p are summarized.

$U(T)_V$, $H(T)_p$:

$$(\partial U/\partial T)_V = C_V$$

$$(\partial H/\partial T)_p = C_p \ .$$

$U(V)_T$, $H(p)_T$:

Transformations on the total differentials of $U(T, V)$ and $H(T,p)$ using relations between partial derivatives as well as Maxwell relations yield:

$$(\partial U/\partial V)_T = \pi_T \quad \text{(internal pressure)}$$
$$= -p + T\alpha/\kappa$$

$$(\partial H/\partial p)_T = V(1 - T\alpha)$$

where α is the expansion coefficient and κ the isothermal compressibility.

For **ideal gases,**

$$\pi_T = 0 \quad \text{(definition of the ideal gas)}$$

$$(\partial U/\partial V)_T = 0$$

$$(\partial H/\partial p)_T = 0 \ .$$

$U(T)_p$, $H(T)_V$:

$$(\partial U/\partial T) = C_V + \alpha \pi_T V$$

$$(\partial H/\partial T)_V = C_p (1 - \alpha \mu_{JT}/\kappa)$$

where

$$\mu_{JT} = (\partial T/\partial p)_H \ \textbf{(Joule-Thomson coefficient).}$$

For **ideal gases,**

$$\mu_{JT} = 0$$

$$(\partial U/\partial T)_p = C_V$$

$$(\partial H/\partial T)_V = C_p$$

$U(T,V)$, $H(T,p)$:

$$dU = C_V\,dT + [-p + T\alpha/\kappa]\,dV$$

$$dH = C_p\,dT + [V(1-T\alpha)]\,dp \ .$$

For **ideal gases,**

$$dU = C_V\,dT$$

$$dH = C_p\,dT \ .$$

The terms $[-p+T\alpha/\kappa$ and $V(1-T\alpha)]$ have to be taken into account in the case of **condensed phases.** In many cases the quantity $[V(1-T\alpha)]$ is negligibly small with respect to the enthalpy changes occurring with temperature and, in particular, with respect to enthalpies of reactions or phase transitions.

Example:
Iron at $T = 298.15$ K;
$\alpha = 11.7\times10^{-6}\ K^{-1}$ and
$V = M_{Fe}/\varrho_{Fe} = 7.1\ cm^3\cdot mol^{-1} = 7.1\times10^{-6}\ m^3\,mol^{-1}$
(α and $\varrho_{Fe} = 7.87\ g\cdot cm^{-3}$ from Landoldt-Börnstein, 4331/p. 132).

If the pressure is increased by 100 bar = 10^7 Pa then

$$[V(1-T\alpha)]\,\Delta p$$
$$= [7.1\times10^{-6}(1-298.15\times11.7\times10^{-6})]\ 10^7$$
$$= 70.8\ J\ mol^{-1} \ .$$

The enthalpy change involved in increasing the temperature from 298.15 K to 300 K (i.e. by 1.85 K) amounts to 46 J mol^{-1}.

In general the **enthalpy changes occurring in condensed phases** at moderate pressures can be adequately described by the relation

$$dH = C_p\,dT \ .$$

For reactions among solid substances

$$dU \approx dH \ .$$

1.3 Joule-Thomson effect

The Joule-Thomson effect is the cooling of a real gas by an adiabatic expansion (without additional work).

The experiment conceived by Joule and Thomson (Kelvin) demonstrated that on adiabatic expansion, without performing additional work, the enthalpy of a gas (ideal or real) remains constant. From this it follows that the internal energy U of an ideal gas is independent of the volume and is, thus, determined by the temperature alone.

For an isenthalpic process in a closed homogeneous system of constant composition

$$dH = (\partial H/\partial p)_T\,dp + (\partial H/\partial T)_p\,dT = 0 \ .$$

$$\mu_{JT} = (\partial T/\partial p)_H = -(\partial H/\partial p)_T/C_p \ .$$

μ_{JT} is the Joule-Thomson coefficient. From this it follows that

$$(\partial H/\partial p)_T = -\mu_{JT}\,C_p$$

$$(\partial H/\partial T)_V = (1-\alpha\,\mu_{JT}/\kappa)\,C_p \ .$$

For an **ideal gas,**

$$\mu_{JT} = 0$$

$$H(T,p_1) = H(T,p_2) \ .$$

For a **real gas,**

$$\mu_{JT} = [2a/RT - b]/C_p$$

where a and b are the van der Waals constants.

The value of μ_{JT} has the following consequences in the T–p diagram:

$\mu_{JT} > 0$ region of cooling, the gas is cooled as it expands (e.g. N_2, O_2 at 298.15 K)

$\mu_{JT} < 0$ area of warming, the gas becomes heated on expansion (e.g. He, H_2 at 298.15 K)

$\mu_{JT} = 0$ boundary curve at $T = T_I$.

T_I is the inversion temperature. For a van der Waals gas

$$T_I = 2a/Rb = 2\,T_B$$

where T_B is the Boyle temperature.

For CO_2 at $T = 298.15$ K and $p = 1$ bar

$$\mu_{JT} = 1.1\ K\ bar^{-1} \ .$$

This means that the temperature of CO_2 decreases by 1.1 K as a result of a pressure decrease of 1 bar.

In thermochemistry, gases are frequently regarded as ideal gases. That is, no account is taken of the change in enthalpy with pressure. It is possible to check the validity of this simplification for a given gas on the basis of the relation

$$(\partial H/\partial p)_T = -\mu_{JT}\,C_p \ .$$

1.4 The Second Law of thermodynamics

1.4.1 Entropy

The First Law leads to the definition of the internal energy (U) and of the heat Q.

The Second Law introduces simultaneously the entropy (S) and the thermodynamic temperature (T) as state variables and, furthermore, determines the direction of natural processes.

With reference to Sommerfeld, Becker and Haase (see Section 1.13) the implications of the Second Law can be summarized as follows:

- Every thermodynamic system possesses an extensive property called entropy (S) that depends on internal state variables only. The change in entropy of a closed homogeneous system is determined by bringing the system from an arbitrary initial state to a final state, whereby the system passes through a series of quasistatic changes consisting of consecutive isothermal and adiabatic steps. At each isothermal step the quantity of heat $đQ$ is exchanged between the system and its surroundings. Division of $đQ$ by the absolute temperature T (which remains to be defined), and summation of the quotients $đQ/T$ over all the steps, yields the change in entropy of the system for the change of state in question.

  From the reversible cyclic process carried out in a closed homogeneous system by combination of infinite number of consecutive **carnot cycles** it follows that:

$$\oint \frac{đQ_{rev}}{T} = 0$$

  and hence

$$\frac{đQ_{rev}}{T} = dS \ .$$

  Entropy is a state function.

- The increase in the entropy of a closed system for any change of state can be divided into two parts:

$$\Delta S = \Delta S_e + \Delta S_i \ .$$

  The first term corresponds to the entropy change occuring in the system as a result of heat exchange with its surroundings. In case of an open system ΔS_e also implies the exchange of mass. The second term represents the entropy changes resulting from the process taking place within the system.

- The entropy of a thermally isolated system can only increase in a natural (irreversible) change of state

  Irreversible adiabatic process:

$$\Delta S > 0$$

$$\Delta S_e = 0$$

$$\Delta S_i > 0$$

  Reversible adiabatic process:

$$\Delta S = 0$$

$$\Delta S_e = 0$$

$$\Delta S_i = 0 \ .$$

  The change in entropy of the closed system at constant temperature is described by the following general relation:

$$\frac{\Delta S}{T} \geq \int \frac{đQ}{T}$$

  where $đQ$ represents the infinitesimal heat quantity transferred to the system from the surroundings at the temperature T.

Maximum work

The **Carnot cycle** is a reversible process that is carried out using an ideal gas as working fluid. It involves consecutive isothermal and adiabatic steps. At the end of the cycle, the system has the same state (defined by V and p) and internal energy as at the start, $\Delta U = 0$.

The process begins with the isothermal expansion of the gas confined in a piston whereby the quantity of heat Q_h is transferred to the system from a hot source. The second step is adiabatic expansion which leads to the cooling of the system. The third step is isothermal compression whereby Q_c is transferred from the system to a cold source. The final step is adiabatic compression with heating up to the gas.

For this cycle the following relation follows from the First Law:

$$Q_h - Q_c - W = 0 \ ,$$

$$W = Q_h - Q_c \ ,$$

where W is the expansion work performed by the system.

The **Carnot efficiency** is defined by

$$\eta = \frac{\text{work performed}}{\text{heat supplied}}$$

$$= \frac{W}{Q_h} = 1 - \frac{Q_c}{Q_h} \ .$$

In the first instance, the temperatures of the hot source and cold sink are represented by the empirical temperatures θ_h and θ_c. It is found that

$$\frac{Q_h}{Q_c} = \frac{f(\theta_h)}{f(\theta_c)}$$

and, furthermore,

$$T = f(\theta)$$

where T is the **thermodynamic temperature.**

The Carnot efficiency of a heat engine can then be given by

$$\eta = 1 - T_c / T_h$$

where T_h is the temperature of the heat source and T_c the temperature of the environment in K (Kelvin).

As follows from the above equation, the maximum Carnot efficiency can theoretically be obtained in the following limiting cases

$$\eta \rightarrow 1 \quad \text{as} \quad T_c \rightarrow 0 \quad \text{or} \quad T_h \rightarrow \infty \ .$$

1.4.2 Entropy changes, thermodynamic temperature

The entropy change in a closed system in thermal equilibrium with its surroundings (isothermal process) is described by

$$S_2 - S_1 = \Delta S \geq \int_1^2 đQ / T$$

or in the simplified form

$$dS_{sys} \geq đQ_{sys} / T_{sys} \quad \textbf{(Clausius inequality)} \ .$$

Where $đQ$ represents the infinitesimal quantity of heat transferred to the system and T the temperature of the system during the isothermal process.

Entropy changes:

$\Delta S \geq Q / T$ isothermal process

$\Delta S = Q_{rev} / T$ isothermal, reversible process.

If there is no additional work besides expansion work in the isothermal process the following relations apply:

at constant V, T: $dQ = dU$,

$$dS - dU/T \geq 0 \ ,$$

$$T\,dS \geq dU \ ;$$

at constant p, T: $dQ = dH$,

$$dS - dH/T \geq 0 \ ,$$

$$T\,dS \geq dH \ .$$

For a reversible change in state of a closed system of constant composition, whereby the only work performed is expansion work, the combination of relations of First and Second Law

$$dU = đQ + dW = đQ - p\,dV$$

$$dS = đQ / T$$

produces the **fundamental equation**

$$dU = T\,dS - p\,dV \ .$$

After transformation,

$$dS = (dU + p\,dV) / T$$

$$dS = (dH - V\,dp) / T$$

thus leading to the following relations

$$(dS)_{U,V} \geq 0 \ , \quad (dU)_{S,V} \leq 0 \ ,$$

$$(dS)_{H,p} \geq 0 \ , \quad (dH)_{S,p} \leq 0 \ ,$$

where the equality applies to reversible and the inequality to irreversible processes respectively.

As follows from the fundamental equation

$$U = U(S, V) \ ,$$

$$dU = (\partial U/\partial S)_V\,dS + (\partial U/\partial V)_S\,dV \ .$$

Comparison of this equation with the fundamental equation leads to a formal definition of the **thermodynamic temperature** T:

$$(\partial U/\partial S)_V = T \ .$$

Comment on relations between entropy and temperature*)

The intensive porperty: Temperature is supplemented by a complementary extensive property, entropy. In the case of energy in form of heat it gives the number of degrees of freedom among which the average energy of motion (of the material particles involved), characterized by the temperature, is distributed. Entropy and temperature are complementary state variables.

1.4.3 Temperature dependence of entropy

The entropy of a closed homogeneous system of constant composition is described by

*) Manfred Eigen, Von der Entropie zur Information – die physikalische Chemie der belebten Materie, Ber. Bunsenges. Phys. Chem. 98 (1994) 1351–1364.

$$S = S(T, V) \ ,$$

$$S = S(T, \mathrm{p})$$

so

$$\mathrm{d}S = (\partial S/\partial T)_V \, \mathrm{d}T + (\partial S/\partial V)_T \, \mathrm{d}V$$
$$= (\mathrm{d}U + p \, \mathrm{d}V)/T \ ,$$

$$\mathrm{d}S = (\partial S/\partial T)_p \, \mathrm{d}T + (\partial S/\partial p)_T \, \mathrm{d}p$$
$$= (\mathrm{d}H - V \, \mathrm{d}p)/T \ .$$

Together with the equations from Section 1.2.6

$$\mathrm{d}U = C_V \, \mathrm{d}T + [-p + T\alpha/\kappa] \, \mathrm{d}V \quad \text{and}$$

$$\mathrm{d}H = C_p \, \mathrm{d}T + [V(1 - T\alpha)] \, \mathrm{d}p$$

they yield

$$\mathrm{d}S = (C_V/T) \, \mathrm{d}T + (\alpha/\kappa) \, \mathrm{d}V \ ,$$

$$\mathrm{d}S = (C_p/T) \, \mathrm{d}T - V\alpha \, \mathrm{d}p \ .$$

For **ideal gases** these equations become

$$\mathrm{d}S = (C_V/T) \, \mathrm{d}T + R \, \mathrm{d}V/V$$

$$\mathrm{d}S = (C_p/T) \, \mathrm{d}T - R \, \mathrm{d}p/p \ .$$

The entropy of an ideal gas increases on expansion at constant temperature. If the pressure of an ideal gas is reduced in this way from 1 atm to 1 bar then the entropy of the gas is increased by 0.109442 $\mathrm{J\,K^{-1}\,mol^{-1}}$.

For **pure condensed phases** the change in entropy as a result of pressure changes is often negligible in comparison with the entropy changes resulting from changes in temperature and from chemical reactions or phase transitions. So here the following equation applies:

$$\mathrm{d}S = (C_p/T) \, \mathrm{d}T$$

if the pressure change is not too high.

For iron at 298.15 K (see example in Section 1.2.6) the entropy change resulting from the change in $\alpha V \, \mathrm{d}p$ on raising the pressure from 1 to 101 bar is given by

$$V\alpha\Delta p = 7.1\times10^{-6}\times11.7\times10^{-6}\times10^{7}$$
$$= 8.3\times10^{-4}\ \mathrm{J\,K^{-1}\,mol^{-1}} \ .$$

1.5 The Third Law of thermodynamics (Nernst Heat Theorem)

It is impossible to cool a substance to the absolute zero by means of a process that passes through a finite number of steps.

Nernst: All state changes such as reactions and transformations between solid phases in internal equilibrium take place in the vicinity of the absolute zero ($T = 0\,\mathrm{K}$) without a change in entropy,

$$\Delta S \to 0 \quad \text{as} \quad T \to 0 \ .$$

According to this all perfect solids must have the same entropy at absolute zero, which does not necessarily have to be zero. $S(T = 0) = 0$ is an agreement.

Planck's formulation: The entropy of pure phases in internal equilibrium approaches a constant value (independent of pressure, phase state and crystal structure) as the temperature approaches zero.

Standardization: The entropy of pure phases in internal equilibrium is zero at $T = 0\,\mathrm{K}$.

Lewis and Randall: If the entropy of each element in some crystalline state be taken as zero at $T = 0\,\mathrm{K}$, every substance has a finite positive entropy; but at $T = 0\,\mathrm{K}$ the entropy may become zero, and does so become in the case of perfect crystalline substances.

From this general formulation it follows explicitly that the entropies of different modifications of the elements and compounds which are in internal equilibrium (in the perfect crystalline state) are assigned the value zero at $T = 0\,\mathrm{K}$. Thus when

$$S(T = 0) = 0$$

then, in general,

$$S(T) = \int_0^T (C_p/T) \, \mathrm{d}T \quad \text{at constant } p \ .$$

The entropy values based on the condition

$$S(T = 0) = 0$$

are known as "Third Law entropies" or **"absolute entropies".**

Comments on residual entropy *)

For most pure crystalline substances it is possible to determine the entropy on the basis of the Third Law ($S(T = 0) = 0$) from calorimetric data alone, i.e. $C_p(T)$ and heats of transitions.

In the case of many gases (H_2, O_2, N_2...) the entropy is not determined from calorimetric data but calculated from the equations of statistical mechanics.

*) Carl Wagner, private communication, 1974.

The Boltzmann equation for the relation between entropy and thermodynamic probability is the basis for this:

$$\Delta S(\mathrm{I} \rightarrow \mathrm{II}) = \int_{\mathrm{I}}^{\mathrm{II}} đQ_{\mathrm{rev}} / T = k \ln [\Omega(\mathrm{II}) / \Omega(\mathrm{I})] \ .$$

Where k is Boltzmann constant and Ω the weight of configuration (thermodynamic probability). Ω is defined as the number of microstates forming a macrostate. With

$$S(\mathrm{II}) - S(\mathrm{I}) = k \ln \Omega(\mathrm{II}) - k \ln \Omega(\mathrm{I})$$

it is possible to set the following condition:

$$S = 0 \quad \text{if} \quad \Omega = 1$$

and hence

$$S = k \ln \Omega \ .$$

This procedure would be rational but it is not normally employed. The following convention is used instead:

$$S = k \ln \Omega \ (\text{conventional}) = k \ln \Omega_{\mathrm{C}} \ .$$

Ω_{C} does not take into account those microstates resulting from differing orientations and the exchange of isotopes of atomic nuclei. The numbers of such microstates do not change in chemical reactions. It is, therfore, justifiable to ignore them in thermochemical calculations.

In the case of **ideal gases** it is possible to calculate Ω_{C} for particular values of p and T from spectroscopic data using the formulae of statistical mechanics.

The calculation of Ω_{C} is more difficult for **crystals**, here the entropy is calculated from

$$S(T) = k \ln \Omega_{\mathrm{C}}(T = 0) + \int_{0}^{T} (C_{\mathrm{p}} / T) \, \mathrm{d}T \ .$$

For **perfect crystals**:

$$\Omega_{\mathrm{C}}(T = 0) = 1 \ , \quad \text{i.e.} \quad S(T = 0) = 0 \ .$$

In some solids a degree of disorder remains at absolute zero. Certain pure solids, such as amorphous phases (glasses) and crystalline mixtures, possess a residual entropy. Because of differing molecular orientations (CO) and variations in interatomic bonding (H_2O), it holds that $S(T = 0) > 0$.

Further conclusions from the Third Law:

$$C_{\mathrm{V}} \ , \quad C_{\mathrm{p}} \ , \quad \alpha \quad \text{and} \quad \gamma \rightarrow 0 \quad \text{as} \quad T \rightarrow 0 \ ,$$

1.6 Fundamental relations of thermodynamics

1.6.1 Helmholtz energy, Gibbs energy

Definitions:

Helmholtz energy $A = U - TS$

Gibbs energy $G = H - TS$.

On changes of state in a closed system of constant composition after substitution of the relations (from Section 1.4.2)

$$\mathrm{d}U - T\,\mathrm{d}S \leq 0$$

$$\mathrm{d}H - T\,\mathrm{d}S \leq 0$$

the following relations are obtained:

$$(\mathrm{d}A)_{\mathrm{T,V}} \leq 0$$

$$(\mathrm{d}G)_{\mathrm{T,p}} \leq 0 \ .$$

It follows from this that A and G in closed systems must decrease in a natural process and reach a minimum at equilibrium.

For reversible changes of state at constant temperature

$$\mathrm{d}A = dU - T\,\mathrm{d}S \quad \text{at} \quad T = \text{constant}$$

$$\mathrm{d}G = \mathrm{d}H - T\,\mathrm{d}S \quad \text{at} \quad T = \text{constant} \ .$$

In the case of a closed system only performing work by change of volume

$$\mathrm{d}A = -p\,\mathrm{d}V - S\,\mathrm{d}T$$

$$\mathrm{d}G = V\,\mathrm{d}p - S\,\mathrm{d}T \ .$$

The functions A and G combine together the statements of the First and Second Laws and are of fundamental importance.

The changes of A and G in closed systems correspond to the **maximum work** performed by or on the system. $\mathrm{d}A$ is identical to the work carried out during an isothermal reversible change. $\mathrm{d}G$ is identical to the non-expansion work carried out under isothermal, isobaric, reversible conditions. In other words $-\mathrm{d}G$ corresponds to the maximum non-expansion work (e.g. electrical work) that can be generated by a closed system at constant p and T.

The main function of interest in chemical thermodynamics is $G(p, T)$ since p and T can be specified in most technical processes.

Most chemical processes take place in reactors operating under constant pressure.

It should be noted that the definition

$$G = H - TS$$

applies to the Gibbs energy of a homogeneous system at uniform temperature.

If a system consists of different phases (φ) existing at different temperatures (T_φ) the enthalpy H, entropy S and Gibbs energy G of the total system are given by

$$H = \sum_\varphi H_\varphi$$

$$S = \sum_\varphi S_\varphi$$

$$G = H - \sum_\varphi (TS)_\varphi \ .$$

If the temperature is uniform throughout the whole system, i.e. if $T = T_\varphi$, then

$$G = H - TS \ .$$

1.6.2 Temperature and pressure dependence of Gibbs energy

For a closed homogeneous system of constant composition G is described by

$$\mathrm{d}G = (\partial G/\partial p)_\mathrm{T}\,\mathrm{d}p + (\partial G/\partial T)_\mathrm{p}\,\mathrm{d}T \ .$$

With

$$\mathrm{d}G = V\,\mathrm{d}P - S\,\mathrm{d}T \ ,$$

it follows for the temperature and pressure dependence of G that

$$(\partial G/\partial T)_\mathrm{p} = -S$$
$$= (G-H)/T$$

$$(\partial (G/T)/\partial T)_\mathrm{p} = -H/T^2$$

(Gibbs-Helmholtz equation)

$$(\partial G/\partial p)_\mathrm{T} = V$$

The temperature dependences of H and S have been described in Sections 1.2.6 and 1.4.3; $G(T)$ is given by

$$G(T) = H(T) - TS(T) \ .$$

From the pressure dependence of G it follows that:

in the case of an **ideal gas** consisting of n moles

$$\mathrm{d}G = nRT\,\mathrm{d}p/p \quad \text{at constant } T$$

and in the case of **pure condensed phases**

$$\mathrm{d}G = V\,\mathrm{d}p \qquad \text{at constant } T \ .$$

The change in the Gibbs energy of pure condensed phases as a result of changes in pressure is often negligible in comparison with that resulting from changes in temperature and from chemical reactions.

In the case of iron at 298.15 K the change in Gibbs energy on increasing the pressure from 1 to 101 bar is

$$\Delta G = V\Delta p = 7.1\times10^{-6}\times10^{7} = 71\ \mathrm{J\ mol^{-1}} \ .$$

This is much less than the change in G resulting from a temperature increase of 5 K.

Hence, in many cases involving condensed phases, it can be taken that

$$(\partial G/\partial p)_\mathrm{T} = 0 \ .$$

However, this does not apply to geophysical processes where account has to be taken of the very high pressures involved. The equation $\mathrm{d}G = V\,\mathrm{d}p$ must be integrated in such cases.

The Gibbs energy of pure substances is reported for a standard state, i.e. at 1 bar; by definition such values (G^0 values) are not dependent on pressure.

1.6.3 Natural changes and equilibrium state in a closed system

According to the Second Law and the Clausius inequality in particular (see Section 1.4.2) it follows for a closed system of constant composition, which can exchange heat with its surroundings at constant temperature, that

$$\mathrm{d}S - \mathrm{d}Q/T \geq 0 \quad (T = T_\mathrm{sys})$$

$$\mathrm{d}S - \mathrm{d}U/T \geq 0 \quad \text{at constant } V,\ T$$

$$\mathrm{d}S - \mathrm{d}H/T \geq 0 \quad \text{at constant } p,\ T \ .$$

If the only work allowed is that occurring on volume change then

$$T\,\mathrm{d}S \geq \mathrm{d}U \quad \text{at constant } V$$

$$T\,\mathrm{d}S \geq \mathrm{d}H \quad \text{at constant } p$$

$$(\mathrm{d}S)_{\mathrm{U,V}} \geq 0 \qquad (\mathrm{d}S)_{\mathrm{H,p}} \geq 0$$

$$(\mathrm{d}U)_{\mathrm{S,V}} \leq 0 \qquad (\mathrm{d}H)_{\mathrm{S,p}} \leq 0$$

$$(\mathrm{d}A)_{\mathrm{T,V}} \leq 0 \qquad (\mathrm{d}G)_{\mathrm{T,p}} \leq 0 \ .$$

These relations express the **direction of natural changes** of closed systems in terms of inequalities.

The **equilibrium state** is characterized by the corresponding equality.

On derivation of general equilibrium criteria the concept of *virtual variation* of state functions of an isolated system is applied. Here, virtual shifts from the equilibrium to the neighboring non-equilibrium states are imagined (which represent impossible changes).

The analysis of such variations leads finally to

$$\delta S_{U,V} = 0 \ ,$$

$$\delta G_{T,p} = 0 \ .$$

In the state of equilibrium the entropy of the system reaches a maximum

$$S(U, V) \rightarrow \text{maximum}$$

and the Gibbs energy a minimum

$$G(T,p) \rightarrow \text{minimum} \ .$$

1.6.4 Characteristic functions

Summarizing the characteristic (extensive energetic) functions of state and their differentials for a closed homogeneous system of constant composition involving only expansion work, yields the following list:

$U(S, V)$	$dU = dQ_{rev} - p\,dV$
	$dU = T\,dS - p\,dV$
$H(S,p)$	$dH = T\,dS + V\,dp$
$A(T, V)$	$dA = -S\,dT - p\,dV$
$G(T,p)$	$dG = -S\,dT + V\,dp$.

The following **Maxwell equations** are derived from these

$$(\partial T/\partial V)_S = -(\partial p/\partial S)_V$$

$$(\partial T/\partial p)_S = (\partial V/\partial S)_p$$

$$(\partial p/\partial T)_V = (\partial S/\partial V)_T$$

$$(\partial V/\partial T)_p = -(\partial S/\partial p)_T \ .$$

These relations allow the representation of the change of some properties as functions of readily determinable quantities. Use is made of this in deriving the temperature dependence of U and H (see Section 1.2.6). $(\partial U/\partial V)_T$ is found to be $[-p + T(\partial p/\partial T)_V]$ with the aid of Maxwell's 3rd equation.

1.7 Closed system with reactions

1.7.1 Reaction equation and conventions

In a closed system the reactions that take place can be represented by

$$\nu_{R1} R_1 + \nu_{R2} R_2 + \ldots \rightarrow \nu_{P1} P_1 + \nu_{P2} P_2 + \ldots$$

where ν_i is the stoichiometric coefficient of i and R_i and P_i denote the reactants and products respectively.

According to the convention

$\nu_i < 0$ for reactants

$\nu_i > 0$ for products

$\Sigma \nu_i$ being the change in number of moles on reaction.

In the case of closed homogeneous system the following relations apply to changes in amount of reaction component

$$n_i / n_j = \nu_i / \nu_j$$

$$dn_i / \nu_i = dn_j / \nu_j = d\xi$$

whereby ξ is the extent (progress variable) of a chemical reaction. $d\xi = 1$ mol corresponds to a complete reaction where ν_i mol of i have reacted. ξ is a state variable of the closed homogeneous system.

In the case of a closed system where the reaction components κ_1, κ_2... may be contained in different phases φ_1, φ_2... the following relation applies

$$\frac{1}{\nu_{\kappa_i}} \sum_j dn_{\kappa_i(\varphi_j)} = d\xi \ .$$

Here ν_{κ_i} is the stoichiometric coefficient of the component κ_i and $n_{\kappa_i(\varphi_j)}$ the mole number of κ_i in the phase φ_j.

The amount of "inert" components (e.g. noble gases) that do not take part on reaction remains the same,

$$\sum_j dn_{\kappa_i(\varphi_j)} = 0 \ .$$

The relation

$$(\partial H/\partial \xi)_{T,p} = |\,đQ/d\xi\,|_{T,p}$$

corresponds to the heat exchanged with the surroundings for a complete reaction at constant temperature and constant pressure. In a phase change it is known as the "enthalpy of transition" and in a chemical reaction as the "enthalpy of reaction".

Futhermore, the Gibbs energy of reaction is defined by

$$(\partial G/\partial \xi)_{T,p} = \Delta G_r \ .$$

With

$$\partial / \partial \xi = \Delta$$

the following definition applies to the change in the quantity Z during a reaction

$$\Delta Z = \Sigma \nu_i Z_i$$

1.7.2 Reaction quantities

$\Delta n_r = \Sigma \nu_i$ change in total moles during reaction

$\Delta V_r = \Sigma \nu_i V_i$ reaction volume

$\Delta C_{Vr} = \Sigma \nu_i C_{Vi}$ reaction heat capacity at const. V

$\Delta C_{pr} = \Sigma \nu_i C_{pi}$ reaction heat capacity at const. p

$\Delta U_r = \Sigma \nu_i U_i$ energy of reaction

$\Delta H_r = \Sigma \nu_i H_i$ enthalpy of reaction

$\Delta H_r < 0$ exothermic reaction

$\Delta H_r > 0$ endothermic reaction

$\Delta S_r = \Sigma \nu_i S_i$ entropy of reaction

$\Delta A_r = \Sigma \nu_i A_i$ Helmholtz energy of reaction

$\Delta G_r = \Sigma \nu_i G_i$ Gibbs energy of reaction

Relations between ΔU_r and ΔH_r

With $H = U + pV$ then

$$\Delta H_r = \Delta U_r + p \Delta V_r \ .$$

For reactions between **ideal gases** where

$$p \Delta V = \Delta n R T \quad \text{and} \quad \Delta n = \Sigma \nu_i$$

then

$$\Delta H_r = \Delta U_r + \Delta V_r R T \ .$$

In the case of reactions between **pure condensed phases,**

$$\Delta V_r \approx 0$$

$$\Delta H_r \approx \Delta U_r \ .$$

When gaseous and condensed phases are both involved in a reaction, if the ideal gas equation is employed and the volume changes in the condensed phases are neglected, then

$$\Delta H_r = \Delta U_r + R T \Delta n_{gas} \ .$$

This equation is important for the **calorimetric determination of enthalpy changes,** since calorimeters are generally equipped with rigid walls and measurement therefore leads initially to changes in internal energy. Correction with the above equation then allows ΔH to be calculated from the ΔU that is actually determined.

Relations for ΔG_r

From $G = H - TS$ it follows that for reactions

$$\Delta G_r(T) = \Delta H_r(T) - T \Delta S_r(T) \ .$$

For reactions between substances which do not undergo phase transitions over a particular temperature range, ΔC_{pr} is usually small, so that the following approximation applies in such cases

$$\Delta G_r(T) \approx \Delta H_r(T_0) - T \Delta S_r(T_0)$$

(Ulich's approximation) .

As reported before (Section 1.6.1), the maximum non-p, V work that a reaction system can perform at constant p and T is given by $-\Delta G_r$.

1.7.3 Enthalpy and entropy of transition, Clausius-Clapeyron equation

Enthalpy of transition

For an isothermal isobaric change in state of a closed pure substance

$$\Delta H_t = (\partial H / \partial \xi)_{p,Tt} = |dQ / d\xi|_{p,Tt} \ .$$

T_t is the transition temperature. As defined before, ΔH_t is the enthalpy difference between the final and initial states (phases).

Entropy of transition

With

$$\Delta S = Q / T = \Delta H / T \quad \text{at constant } p, T$$

it follows that

$$\Delta S_t = (\partial S / \partial \xi)_{p,T} = \Delta H_t / T_t \ .$$

Gibbs energy of transition

$$\Delta G_t = \Delta H_t - T_t \Delta S_t = 0$$

corresponding to the equilibrium state at

$$T = T_t \ .$$

Clausius-Clapeyron equation

Transformation with

$$(\partial \Delta G_t / \partial p)_{T_t} = -\Delta S_t$$

leads to the Clausius-Clapeyron equation for the first-order transition

$$(dT/dp) = (\Delta V_t / \Delta S_t) = (\Delta V_t / \Delta H_t)\, T_t \ .$$

First order transition:

$$\Delta H_t = \Delta S_t\, T_t \neq 0 \ ,$$

$$dC_p / dT \rightarrow \pm \infty \ .$$

Second order transition:

$$\Delta H_t = 0 \ , \quad \Delta S_t = 0 \ ;$$

C_p is discontinuous.

Lambda transition:

$$\Delta H_t = 0 \ , \quad \Delta S_t = 0 \ ;$$

course of $C_p(T)$ in λ form (see Fig. 21).

1.8 Chemical potential

1.8.1 Open systems

The closed system can exchange heat and work performance with its surroundings. The open system can, in addition, exchange matter with its surroundings. The Gibbs energy of the open homogeneous system is described by

$$G = G(T, p, n_1, n_2 \ldots)$$

where $n_1, n_2 \ldots$ are the numbers of moles of the chemical components of the system.
The total differential of G yields

$$dG = (\partial G/\partial p)_{T, n_i} dp + (\partial G/\partial T)_{p, n_i} dT + \Sigma (\partial G/\partial n_i)_{p, T, n_{j \neq i}} dn_i \ .$$

The first two differential coefficients express the change in Gibbs energy with T and p at constant composition as reported in Sections 1.6.2 and 1.6.4. After inserting these relations the change in G is described by

$$dG = V\, dp - S\, dT + \Sigma (\partial G/\partial n_i)_{p, T, n_{j \neq i}} dn_i \ .$$

The last term of this equation summarizes the changes in Gibbs energy resulting from the change of composition of the open homogeneous system at constant T, p.

1.8.2 Definition of the chemical potential, Gibbs fundamental equation

The chemical potential for an open homogeneous system is defined by

$$\mu_i = (\partial G/\partial n_i)_{p, T, n_{j \neq i}} \ .$$

Thus the chemical potential corresponds to the change in Gibbs energy of a homogeneous multicomponent system on the introduction of an infinitesimal amount of a component into the mixture at constant p, T and constant amounts of the other components.

For a **pure substance** (consisting of a pure single phase) μ_i represents the **molar Gibbs energy** of the substance i and is denoted as μ_i^0.

Substitution of μ_i into the total differential of G produces the **Gibbs fundamental equation**

$$dG = V\, dp - S\, dT + \Sigma \mu_i\, dn_i \ .$$

1.8.3 Standard state for chemical potential, definition of activity

The chemical potential is divided into a standard and a relative potential according to the following definition:

$$\mu_i = \mu_i^0 + R\, T\, \ln a_i \ .$$

μ_i^0 is the standard chemical potential. This is the value of μ at a given temperature T and standard pressure p^0. a_i is the activity of i and is defined by

$$a_i = p_i / p_i^0 \ .$$

The standard state is so chosen that

$$\mu_i = \mu_i^0 \quad \text{at} \quad a_i = 1 \ .$$

In general:

$$p^0 = 1 \text{ bar} \quad \text{for gases}$$

$$a = 1 \quad \text{for pure condensed phases.}$$

Note:

For the equilibrium between a homogeneous condensed mixture and a gas phase, in the equation

$a_i = p_i / p_i^0$, p_i is the vapor pressure of the component at the same temperature in the pure state.

1.9 Chemical equilibrium

1.9.1 Gibbs fundamental equation for closed systems

As a consequence of the conservation of the mass of the elements, the following holds for a closed system with several components in which a chemical reaction is taking place:

$$dn_i = \nu_i \, d\xi$$

and when $d\xi = 1$ mol,
then $dn_i = \nu_i$.

The Gibbs fundamental equation, therefore, takes the following form for the closed system

$$dG = V\,dp - S\,dT + \Sigma \nu_i \mu_i \ .$$

1.9.2 Conditions for chemical equilibrium

The Gibbs energy of the reaction system reaches a minimum for the equilibrium at costant p and T, i.e.

$$\Delta G_r = (\partial G / \partial \xi)_{p,T} = 0 \ .$$

The slope of the Gibbs energy with respect to ξ represents the Gibbs energy of reaction. It is zero as the reaction system approaches the equilibrium composition at constant p and T. This relation is used as the calculation basis for determining equilibria, especially for complex systems consisting of a large number of components and phases.

In accordance with the above relation the equilibrium state is, furthermore, characterized by

$$dG_{T,P} = 0$$

$$\Sigma \nu_i \mu_i = 0 \ .$$

This equilibrium equation is also a general formulation of the **law of mass action**. It follows from this that at equilibrium the chemical potential of a particular component is the same in all phases of the system.

1.9.3 Equilibrium constant

The equilibrium relation

$$\Sigma \nu_i \mu_i = 0$$

and the separation of the chemical potential into a standard and a relative potential as shown

$$\mu_i = \mu_i^0 + R\,T \ln a_i$$

yields the following relations and definitions:

$$\Sigma \nu_i \mu_i = \Sigma \nu_i \mu_i^0 + \Sigma \nu_i R\,T \ln a_i = 0 \ ,$$

$$\Delta G_r^0 = \Sigma \nu_i \mu_i^0 \ ,$$

(standard Gibbs energy of reaction)

$$K = \Pi (a_i)^{\nu i} \ ,$$

(equilibrium constant)

$$\Delta G_r^0 = -R\,T \ln K \ .$$

The activity product of reaction components at specified concentrations which may exist, for example, at the beginning of a reaction

$$K' = \Pi (a_i')^{\nu i}$$

is called the **reaction quotient**. The same standard state is applied to a_i' as to a_i. At equilibrium

$$K' = K = \exp(-\Delta G_r^0 / R\,T) \ .$$

Temperature dependence of K

With $\Delta G_r^0 = \Delta H_r^0 - T\,\Delta S_r^0$ follows:

$$\partial (\Delta G_r^0 / T) / \partial T = -\Delta H_r^0 / T^2 \ ,$$

(Gibbs-Helmholtz equation)

$$d(\ln K)/dT \quad = \Delta H_r^0 / R\,T^2 \ ,$$

$$d(\ln K)/d(1/T) = -\Delta H_r^0 / R \ .$$

(van't Hoff isochore)

These relations, particularly the later, are used to determine the enthalpy of reaction from the values of K obtained at various temperatures.

Limiting cases:

At low temperatures the influence of reaction entropy is small:

$$\Delta G_r^0 \approx H_r^0 \ .$$

At high temperatures the influence of reaction entropy dominates:

$$\Delta G_r^0 \approx -T\,\Delta S_r^0 \ .$$

Pressure dependence of K

The standard Gibbs energy of reaction is defined with respect to a standard pressure (1 bar). Therefore, K is

dependent only on temperature and is independent of pressure

$$\partial K/\partial p = 0 \ .$$

In a reaction system a change in the pressure alters the system according to **the principle of Le Châtelier**, however the equilibrium constant remains the same.

1.10 Mixtures

1.10.1 Gibbs-Duhem equation

For a mixture, G is a homogeneous function of first degree in n_i,

$$G(p, T, \lambda n_i) = \lambda G(p, T, n_i) \ .$$

Euler's theorem for homogeneous equations yields

$$G = \Sigma \mu_i n_i$$

whereby

$$\mu_i = (\partial G/\partial n_i)_{p, T, n_{j \neq i}} \ .$$

This then yields

$$dG = \Sigma n_i \, d\mu_i + \Sigma \mu_i \, dn_i \ .$$

Comparison with

$$dG = V \, dp - S \, dT + \Sigma \mu_i \, dn_i$$

yields

$$V \, dp - S \, dT + \Sigma n_i \, d\mu_i = 0$$

(Gibbs-Duhem equation).

$$\Sigma n_i \, d\mu_i = 0 \quad \text{for constant } p, \ T$$

after division by Σn_i

$$\Sigma x_i \, d\mu_i = 0 \quad \text{for constant } p, \ T \ .$$

1.10.2 Standard states for activities and activity coefficients

The activity a of component i in a mixture is defined by

$$\mu_i = \mu_i^0 + R \, T \ln a_i$$

with

$$a_i = \gamma_i x_i = p_i / p_i^0$$

where μ_i^0 is the chemical potential of component i when this is in its standard state (i.e. for $a_i = 1$), γ_i is the defined activity coefficient and x_i is the mole fraction of i in the mixture as defined in Section 1.1.5. p_i and p_i^0 are the vapor pressures of i in the mixture and in the standard state respectively.

Depending on the problem the following **standard states for activity** are used:

- pure substance

$$\mu_i = \mu_i^0 + R \, T \ln a_i$$

$$a_i = \gamma_i x_i$$

$$\gamma_i \rightarrow 1 \quad \text{as} \quad x_i \rightarrow 1 \ .$$

For **ideal solutions**

$$a_i = x_i$$

$$\gamma_i = 1 \ .$$

Raoult's Law:

$$p_i = x_i \, p_i^0 \ .$$

- hypothetical pure solute with properties as at infinite dilution (obeying Henry's Law)

$$\mu_i = \mu_i' + R \, T \ln a_i'$$

$$a_i' = \gamma_i' x_i$$

$$\gamma_i' \rightarrow 1 \quad \text{as} \quad x_i \rightarrow 0 \ .$$

Ideal dilute solutions

$$\gamma = \gamma_H \quad \text{at} \quad x_i \rightarrow 0$$

$$a_i(H) = \gamma_H x_i \ .$$

Henry's Law:

$$p_i = K_H x_i$$

where K_H is a constant.

The molality m or percentage by weight (%) can be used instead of the mole fraction x.

$$\mu_i = \mu_i'' + R \, T \ln a_i''$$

$$a_i'' = \gamma_i'' (m/m_0) \ ; \quad m_0 = 1 \text{ mol/kg}$$

$$\gamma'' \rightarrow 1 \quad \text{as} \quad m \rightarrow 0 \ .$$

$$\mu_i = \mu_i''' + R \, T \ln a_i'''$$

$$a_i''' = \gamma_i''' \ (\%\ \text{i})$$

$$\gamma_i''' \rightarrow 1 \quad \text{as} \quad \%\ \text{i} \rightarrow 0 \ .$$

1.11 Gibbs phase rule

The phase rule answers the question as to the maximum number of phases which can co-exist in equilibrium in a system with a prescribed number of components. The variance (degrees of freedom) of the system is given by

$f = c+2-p$

f = number of degrees of freedom (variance)

c = number of independent components

p = number of phases

According to Gibbs the term "phase" means a state of matter that is uniform throughout, not only in chemical composition but also in the physical state.

The number of independent components c is the minimum number of independent species necessary to define the composition of all the phases present in the system. Correspondingly c is determined by the number of elements contained in the system and by their chemical interactions. However, under certain conditions these interactions cannot be properly effective. Thus, for example, the elements of a compound which are completely dissociated at high temperatures behave like inert species.

Examples:

- pure substance

  $f = 1+2-1 = 2$,

  (bivariant system)

  i.e. 2 independently chosen variables of state, for example, p and T (bivariant system).

- pure substance in 2-phase equilibrium: solid–liquid or liquid–gas

  $f = 1-2-2 = 1$, e.g. $p = f(T)$.

  (monovariant system)

- pure substance in 3 phases: solid–liquid–gas,

  $f = 1-2-3 = 0$,

  (invariant system)

  the triple point in the $p-T$ diagram at which e.g. ice, liquid water and water vapour coexist.

- 3-phase equilibrium

  $Fe_3O_4 - FeO - Fe$

  $4\,FeO = Fe_3O_4 + Fe$

  $p = 3$: Fe_3O_4, FeO, Fe

  $c = 2$: Fe, FeO or Fe, Fe_3O_4 or FeO, Fe_3O_4

  $f = 2+2-3 = 1$: T or p

  (pressure on the system) .

- NH_4Cl dissociation

  NH_4Cl (solid) = NH_3 (gas) + HCl (gas)

  $p = 2$: solid (NH_4Cl), gas

  $c = 1$: both phases are defined by NH_4Cl

  $f = 1+2-2 = 1$ e.g. T or p_{HCl} .

- ZnS dissociation

  ZnS (solid) = Zn (gas) + $1/2\,S_2$ (gas)

  $p = 2$: ZnS (solid), gas

  $c = 1$: ZnS

  $f = 1+2-2 = 1$: T or p_{Zn} .

- $ZnCO_3$ decomposition

  $ZnCO_3$ (solid) = ZnO (solid) + CO_2 (gas)

  $p = 3$: $ZnCO_3$ (solid), ZnO (solid), gas

  $c = 2$: $ZnCO_3$, CO_2 or ZnO, CO_2

  $f = 2+2-3 = 1$: T or p_{CO} .

- Equilibrium system

  ZnO (solid), Zn (gas), CO (gas), CO_2 (gas)

  ZnO (solid) + CO = Zn + CO_2

  $p = 2$: ZnO (solid), gas

  $c = 3$: ZnO, CO, Zn or CO, CO_2, Zn

  $f = 3+2-2 = 3$: e.g. p_{CO}, p_{CO_2}, p_{Zn} or T, p_{CO}, p_{CO_2} .

1.12 Electrochemical reactions

1.12.1 Electrochemical work

The infinitesimal electrical work dW_{el} performed on the transfer of the charge dq into a phase at the Galvani potential ϕ is described by (Section 1.2.1)

$$đW_{el} = \phi \, dq \ .$$

On transfer of dN_e electrons with the charge $-e$

$$dq = -e \, dN_e \ ,$$

and in the case of dn_e mol electrons

$$dq = -N_A e \, dn_e$$

where N_A is Avogadro's constant. With

$$N_A e = F \ \textbf{(Faraday constant)}$$

the following equations apply:

$$dq = -F \, dn_e$$

$$đW_{el} = -F\phi \, dn_e \ .$$

In the case of transfer of dn_i moles of an ion i with the charge number z_i

$$đW_{el} = -z_i F\phi \, dn_i \ .$$

As described in Sections 1.6.1 and 1.7.1 the *maximum electrical work* done on or by a closed system of constant composition is given by

$$đW_{el} = dG_{p,T} = \Delta G_r \, d\xi$$

where $d\xi$ is the infinitesimal extent of reaction accompanying transfer of a charged species (at zero current).
After inserting

$$dn_i = \nu_i \, d\xi$$

into the last two equations for dW_{el}, the following relation is obtained

$$\Delta G_r = -\nu_i z_i F\phi$$

and after relating to 1 mol i by dividing by ν_i

$$\Delta G_r(\text{mol}) = -z_i F\phi \ .$$

This is the maximum electrical work performed by transfer of 1 mole of i.

1.12.2 Electrochemical potential

The change in Gibbs energy of an open system on transfer of a charged or uncharged species i into the phase at the galvani potential ϕ is defined as follows

$$(\partial G / \partial n_i)_{p,T,n_{j \neq i}} = \eta_i$$

where η_i is the **electrochemical potential.**
η is represented by

$$\eta_i = \mu_i + z_i F\phi \ .$$

Where μ_i is the chemical potential as defined in Section 1.8.2. This equation applies to both charged and neutral species.

For neutral species

$$z_i = 0$$

$$\eta_i = \mu_i \ .$$

The work done by transfer of a charged component i from phase α into phase β is given by

$$\Delta\eta = \Delta\mu_i + z_i F \Delta\phi$$

where

$$\Delta\phi = \phi_\beta - \phi_\alpha \ .$$

1.12.3 Electrochemical equilibrium

At the equilibrium state, the electrochemical potentials of the transferable charged species are the same in both phases

$$\eta_i(\alpha) = \eta_i(\beta) \ .$$

Hence, it follows that

$$\Delta\mu_i = -z_i F \Delta\phi$$

Galvani potential difference

With

$$\mu_i = \mu_i^0 + RT \ln a_i \quad \text{and}$$
$$\Delta\mu_i = \mu_i(\beta) - \mu_i(\alpha)$$

it follows from the equilibrium equation that

$$\Delta\phi = \phi_\beta - \phi_\alpha$$
$$= -\Delta\mu_i^0 / (z_i F) - (RT / z_i F) \ln [a_i(\beta) / a_i(\alpha)] \ .$$

$\Delta\phi$ is the difference between the electric potentials of two phases and is known as the **Galvani potential difference.** It is not possible to determine its value and, in the case of aqueous ionic solutions, it is measured with respect to the standard hydrogen electrode with $\Delta\phi = 0$.

In the case of ions at unit activity the Galvani potential difference is given by

$$\Delta\phi^0 = -\Delta\mu_i^0 / (z_i F)$$

(standard potential difference)

emf

The combination of electrode compartments into an electrochemical cell makes it possible to measure the series of the Galvani potential differences as the **electromotive force (emf)** of the cell.

Cell reactions

Electrochemical cells are classified into different types depending on the construction and substances employed. For example, a simple electrochemical cell is a galvanic cell consisting of two electrodes dipping into an electrolyte.

The maximum electrical work which a cell can supply is given by

$$\Delta G = -zF\,\mathrm{E}\ .$$

Here ΔG is the Gibbs energy of the cell reaction, z the number of charges transferred per formula unit, F Faraday's constant and E the electromotive force (emf) of the cell.

Convention:

$\mathrm{E} > 0$ when $\Delta G < 0$

(spontaneous process) .

In equilibrium

$$\Delta G^0 = -zF\,\mathrm{E}^0 = -RT\ln K$$

where ΔG^0 is the standard Gibbs energy and E^0 the **standard emf** of the cell reaction.

ΔG^0 is defined for standard pressure (1 bar), therefore, E^0 depends only on temperature.

With

$$\Delta G = \Delta G^0 + RT\ln\Pi(a_i)^{\nu_i}\ ,$$

$$\mathrm{E} = \mathrm{E}^0 - RT/(zF)\ln\Pi(a_i)^{\nu_i}$$

(Nernst equation)

where E is the cell potential at zero current for all concentrations of activities of the species reacting at constant p and T. Here a_i is the activity and ν_i the stoichiometric coefficient of the species i at a specified concentration. $\Pi(a_i)^{\nu_i}$ is the reaction coefficient K' introduced in Section 1.9.3.

At equilibrium the product $\Pi(a_i)^{\nu_i}$ is identical to the equilibrium constant K of the cell reaction and with

$$\mathrm{E}^0 = (RT/zF)\ln K$$

$$\mathrm{E} = 0\ .$$

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2 Calculation of thermochemical functions

2.1 Units and conventions (see Sections 10.1–10.3)

Units

As recommended by international organizations such as IUPAC (International Union of Pure and Applied Chemistry) and CODATA (The Committee on Data for Science and Technology) the thermodynamic quantities are to be given in the "System of International Units" (SI units).

Temperature	K
Pressure	Pa, MPa or bar
Molar volume	$l\,mol^{-1}$ or $dm^3\,mol^{-1}$
Energy (H, G, U, A)	$J\,mol^{-1}$ or $kJ\,mol^{-1}$
Heat capacity (C_V, C_p)	$J\,K^{-1}\,mol^{-1}$
Entropy (S)	$J\,K^{-1}\,mol^{-1}$

Conventions

The **standard state** of a substance is its pure form in internal equilibrium under a pressure of 1 bar and at a given temperature.

The standard states of elements are denoted as **reference phases.** (See Section 4.5 and Chapter 10).

Standard state pressure = 1 bar
Reference temperature = 298.15 K.

2.2 Calculation of the thermochemical functions of pure substances

The calculations described below apply to the thermochemical functions of pure substances in their standard states. The superscript (^{0}) is used only to indicate standard states where special clarity in differentiation is required.

2.2.1 $C_p(T)$, heat capacity

The temperature function of the heat capacity ($C_p(T)$) belongs to the category of basic thermochemical data. These must be known to describe quantitatively the thermochemical properties of a substance in the form of temperature functions.

The values of the temperature functions of enthalpy H, entropy S and Gibb's energy G at standard state pressure are determined by integration using $C_p(T)$.

The heat capacities of condensed phases are usually determined by calorimetric measurements, and of gases by calculation methods of statistical mechanics using molecular constants.

In this work the temperature functions of the heat capacities have been:

- taken from standard works or calculated from known C_p values by polynomial approximation
- estimated on the basis of empirical rules using individual values given for a specified temperature which is usually the reference temperature (298.15 K). For a few substances $C_p(T)$ is estimated using data of "similar" substances, when all property data except the heat capacity are known.

The molar heat capacities of pure substances can be described with sufficient accuracy over a relatively wide range of temperature by means of the following polynomial.

$$C_p(T) = a + bT + cT^2 + dT^3 + eT^{-2} + fT^{-3} \quad .$$

For many **gases** it is not necessary to employ all the terms of the polynomial, particularly if the temperature range is not very wide. C_p is usually constant in the case of **liquids.** For **crystalline phases** the temperature dependence of C_p is not adequately described by a rigorous mathematical approximation. This is particularly true in the vicinity of λ-transition points. In such cases it is necessary to achieve the required accuracy of approximation by limiting the temperature range sharply. Figure 2.1 illustrates two examples of the change of C_p as a function of temperature.

Note

In this book the values of C_p are given at the temperature of 298.15 K, at intervals of 100 K starting at 300 K, and also at the transition temperatures. The polynomial coefficients of $C_p(T)$ have not been given.

The polynomial coefficients of $C_p(T)$ are obtained from numerical evaluations to the best possible approximation, and in many cases have no physical meaning. For certain substance phases several polynomials with up to 6 coefficients are necessary, which would require the use of up to 10 characters to present as figures. **All basic thermochemical values including alpha-numerical information are stored in databases. For personal use only, they can be requested from the publisher or the author.** These data are also included in the thermodynamic software system equiTherm*), which is a very useful supplement to this book.

*) I. Barin, W. Schmidt, G. Eriksson, J. W. Schilling et al.: Database and software package for chemical equilibrium calculations on personal computers; VCH-Verlagsgesellschaft, Weinheim; VCH Scientific Software, Münster 1993; revised edition 1995.

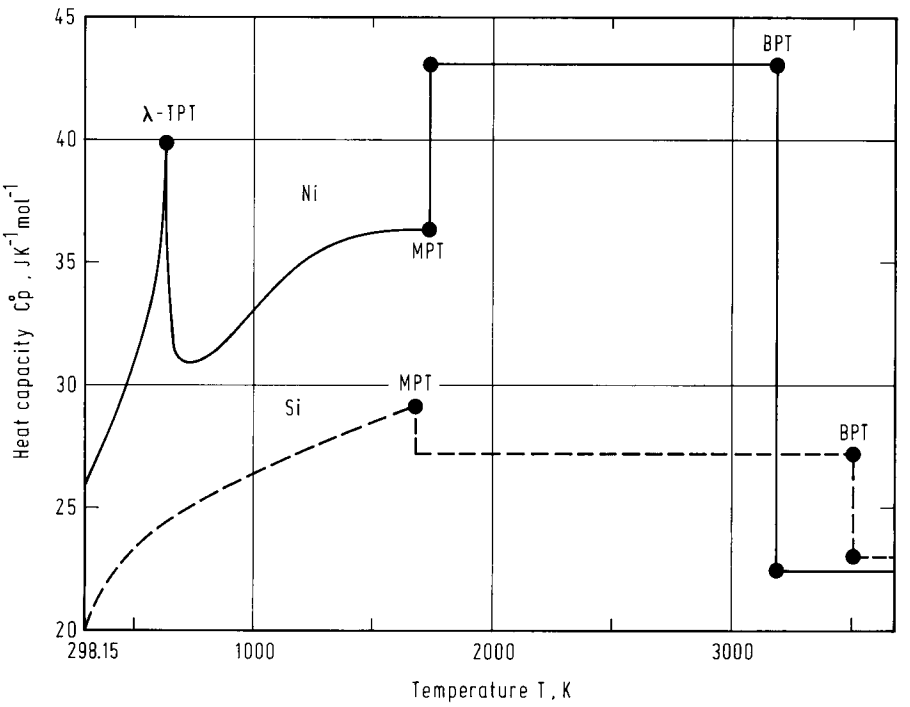


Fig. 2.1: Heat capacities of Ni and Si at 1 bar as functions of temperature. λ-TPT = lambda transition point, MPT = melting point, BPT = boiling point.

2.2.2 $H(T)$, enthalpy

The enthalpy of a pure substance is completely described by the independent internal state variables T and p. The state function $H(T)$ at constant p is determined apart from an additive constant which remains undeterminate and can be chosen arbitrarily. In other words, the absolute value of the enthalpy of any system can not be determined. It is, e.g., possible to measure the change in enthalpy of substances using a calorimeter, where

$$\Delta H = Q \quad \text{at } p = \text{constant} \ .$$

Therefore, enthalpy has sometimes been called the "heat content" and the enthalpy increment

$$H(T) - H(298.15)$$

"sensible heat".

Starting from Hess' Law the concept of the formation reaction is employed for the numerical determination of enthalpy changes. In general the reaction for the formation of a pure substance B from its element is

$$\nu_1 \varepsilon_1 + \nu_2 \varepsilon_2 + \ldots = \mathrm{B}$$

where ε_i are the elements in the compound B and ν_1 are the stoichiometric coefficients.

The standard enthalpy of the formation (previously known as the heat of formation) of B at $p = 1$ bar is defined by

$$\Delta H^0_{\mathrm{f,B}}(T) = H^0_{\mathrm{B}}(T) - \Sigma \nu_{\varepsilon_i} H^0_{\varepsilon_i}(T) \ .$$

$H^0_{\varepsilon_i}(T)$ is the standard enthalpy of the element i in its reference phase at a specified temperature T and a pressure of 1 bar.

In this work the following convention is employed: the standard enthalpies of elements in their reference phases at $p = 1$ bar and $T = 298.15$ K are set to Zero,

$$H^0_{\varepsilon_i} = 0 \quad \text{at } p = 1 \text{ bar and } T = 298.15 \text{ K} \ .$$

This is an extension of the commonly used convention:

The standard enthalpies of formation of elements in their reference phases are zero at all temperatures.

For the "null" reaction

$$\varepsilon_i = \varepsilon_i$$

$$\Delta H^0_{\mathrm{f},\varepsilon_i}(T) = H^0_{\varepsilon_i}(T) - H^0_{\varepsilon_i}(T) = 0 \ .$$

The convention employed here is a standardization enabling the efficient description of enthalpy changes in technical processes.

The following **comment on the convention** adopted in this work was made **by C. Wagner***):

"In my lectures I have explicitly emphasized that only energy differences and enthalpy differences can be

*) Carl Wagner, private communication, Letter to the author dated 7th December 1977, Göttingen.

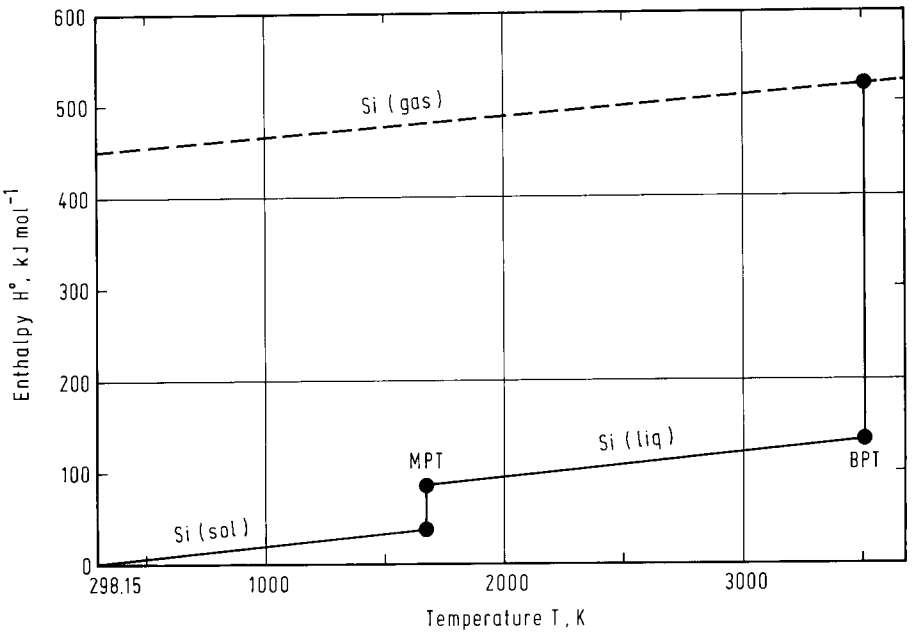


Fig. 2.2: Enthalpy of solide, liquid and gaseous silicon as a function of temperature at 1 bar.

measured – similar to the situation in geodesy where only altitudes can be measured. In accordance with this, the values for $H^0(T) - H^0(298.15\ \mathrm{K})$ are cited in many works. In my lectures I have, however, also stated that the convention of average sea level altitude = 0 (altitude per se) has been introduced in geodesy too.

An analogous approach can be taken in thermodynamics, but various conventions exist. The convention you have chosen (the enthalpies of the elements in their most stable state at 1 bar and 298.15 K are zero) seems reasonable to me. However caution must be exercised when data from your tables are compared with those from other sources".

The reference phase of the elements at 298.15 K and other temperatures are listed in Chapter 10. The reference phase of an element is, in general, its most stable form at the temperature under consideration.

There is one conventionally accepted exception in the tables given in Chapter 10:

"white phosphorus" is taken to be the reference phase of phosphorus at 298.15 K and 1 bar because this allotrope is more common (reproducible) than the most stable form which is "red phosphorus". In the compilation of Pankratz, Stuve and Gökcen (see Chapter 11, Reference Pa3), S_2 (ideal gas) is taken as the standard state of reference instead of S (rhombic) which is the most stable form at 298.15 K and 1 bar. **In use of enthalpy data from different sources attention must given to the standard states of reference.**

The convention employed in this work leads to the following relation for the formation reaction given above

$$H_B^0(298.15) = \Delta H_{f,B}^0(298.15)\ .$$

This and the equations from Sections 1.2.5, 1.2.6 and 1.7.3 yield the following equation for the calculation of the enthalpy of a pure substance with reference to the standard state (the superscript ° is omitted).

$$H(T) = H(298.15) + \int_{298.15}^{T_{t1}} C_{p1}(T)\mathrm{d}T + \Delta H_{t1} + \int_{T_{t1}}^{T_{t2}} C_{p2}(T)\mathrm{d}T + \Delta H_{t2} + \ldots$$

With this the enthalpy increment $[H(T)-H(298.15)]$ can also be calculated. Here $H(298.15)$ is the enthalpy of formation of the pure substance at 1 bar and 298.15 K, $C_p(T)$ the temperature function of the heat capacity in the integration range involved, ΔH_{ti} the enthalpy of phase transition i at $T = T_{ti}$.

Figure 2.2 illustrates the change of enthalpy of silicon with temperature. In the case of a first order transition there is a discontinuity in the course of enthalpy. At this point C_p is infinite (see Section 1.7.3).

The enthalpy function $H(T)$ employed in this work is particularly suitable for the calculation of enthalpy changes in technical processes. More calculation is involved if $[H(T)-H(298.15)](T)$ in combination with $\Delta H_f(T)$ is employed for the same purpose. The latter enthalpy values are listed alone in many other tabular compilations.

The functions $C_V(T)$ and $U(T)$ can be calculated with the aid of the relations given in Sections 1.2.5, 1.2.6 and 1.7.3. The properties of substances required for this, such as α and κ, must be reported separately.

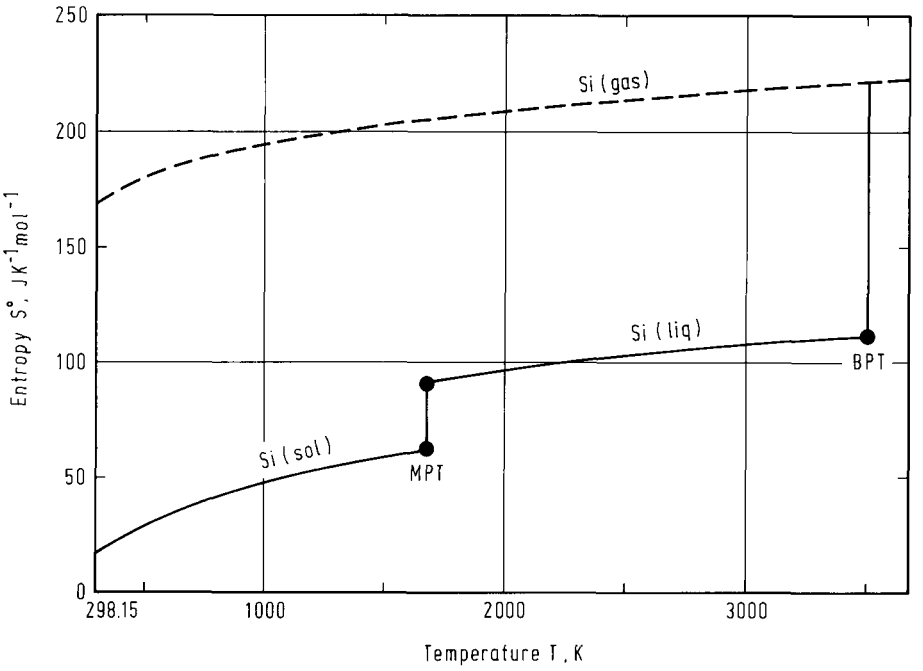


Fig. 2.3: Entropy of solid, liquid and gaseous silicon as a function of temperature at 1 bar.

Standard works (e.g. JANAF Thermochemical Tables) should be referred to for the values of $H(T)$ and $C_p(T)$ below room temperature and particularly in the region of absolute zero.

2.2.3 $S(T)$, entropy

The equations given in Sections 1.4.3, 1.5 and 1.7.3 yield the following relation for the calculation of the entropy function

$$S(T) = S(298.15) + \int_{298.15}^{T_{t1}} \frac{C_{p1}(T)}{T}\,dT + \frac{\Delta H_{t1}}{T_{t1}} + \ldots$$

$S(298.15)$ is the standard entropy of the pure substance at 298.15 K. The change of the entropy of silicon with temperature is illustrated in Fig. 2.3. As can be seen, the increase in entropy on evaporation is appreciably greater than it is on melting. This is because $k \ln \Omega$ (see Section 1.5) is appreciably greater for gases than for condensed phases.

The definition of standard entropy at 298.15 K ($S(298.15)$) follows from the considerations discussed in Section 1.5 (Third Law):

In general

$$S(298.15) = S(T=0) + \int_{0}^{298.15} dH/T$$

at $p = 1$ bar.

Phase changes (melting, evaporation) must be taken into account when this integration is carried out. For perfect crystals

$$S = 0 \quad \text{i.e. } \Omega_C = 1 \quad \text{at } T = 0 \ .$$

The integration can be carried out in the temperature range $0 \leq T \leq T_{bp}$ (boiling point) using calorimetric data. At temperatures above the boiling point, the formulas of statistical mechanics apply.

2.2.4 $G(T)$, Gibbs energy

As defined in Sections 1.6.1 and 1.6.2 the Gibbs energy $G(T)$ of a pure substance at 1 bar is calculated according to

$$G(T) = H(T) - TS(T)$$

where $H(T)$ is the standard enthalpy and $S(T)$ the standard entropy of the substance under consideration.

As follows from the above equation, **the value of the function $G(T)$ involves the convention employed for $H(T)$.** Thus the Gibbs energy of an element E in its reference phase at 298.15 K and 1 bar is given by

$$G_\varepsilon(298.15) = -TS_\varepsilon(298.15) \ .$$

Within a particular phase the course of $G(T)$ is approximately linear. The slope of $G(T)$ at the transition points is discontinuous.

Figure 2.4 shows the temperature dependence of the Gibbs energy of silicon.

$$\Delta G_t = 0 \quad \text{at} \quad T = T_t \ .$$

The function $G(T)$ defined here is particularly suited to the representation of the thermodynamic

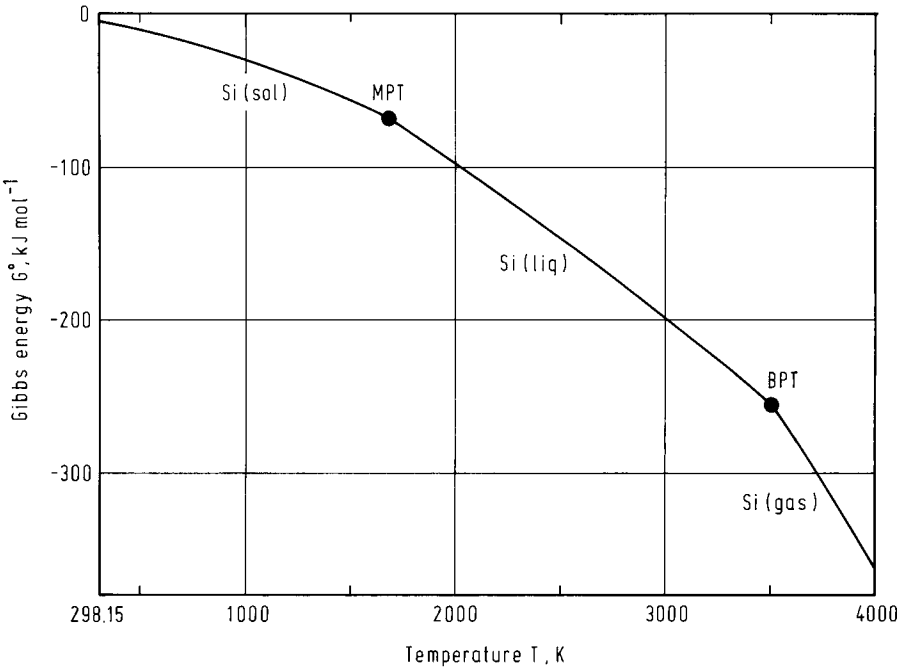


Fig. 2.4: Gibbs energy of silicon as a function of temperature at 1 bar.

properties of substances as all basic thermodynamic data can be expressed in terms of this function. In order to save storage space and shorten computing time, substance-related data are often stored in data bases as coefficients of the function $G(T)$.

2.2.5 *Gef*(T), Gibbs energy function (free enthalpy function)

Definition:

$$-Gef(T) = -[G(T)-H(298.15)]/T \ .$$

In accordance with this definition the value of the Gibbs energy function of any pure substance at 298.15 K and 1 bar is identical with $S(298.15)$:

$$-Gef(298.15) = S(298.15) \ .$$

It also follows from the definition that the following equation can be employed for the calculation of the equilibrium constant of a reaction:

$$-R \ln K = \Sigma \nu_i \, Gef_i - \Sigma \nu_i \, H_i(298.15)/T \ .$$

ν_i is positive for products and negative for reactants.

The negative of *Gef* of silicon is plotted as a function of temperature in Fig. 2.5a and 2.5b.

As can be seen from this, *Gef* changes relatively slowly with changing temperature. In addition *Gef*(T) can be represented relatively well by linear functions both for the temperature range within a phase and for the whole temperature range covering several phase transitions. For this reason *Gef*(T) is very often employed for the evaluation of thermochemical data by the "Third Law method".

If $S^0(298.15)$ and $C_p(T)$ for a substance are known, it is possible to determine the value of $\Delta H_f(298.15)$ relatively easily from the experimentally determined $G(T)$ values by the use of *Gef*(T).

For a chemical reaction:

$$-\Delta Gef_r(T) = -\Delta G_r(T)/T + \Delta H_r(298.15)/T \ .$$

If the Gibbs energy or the equilibrium constant of a reaction is determined experimentally at a temperature >298.15 K (e.g. by emf measurements), then every measurement yields a value of $\Delta H_r(298.15)$. However, a condition for this is that $S(T)$ and $[H(T)-H(298.15)]$ are known. This precondition means that the increment of the Gibbs energy, i.e. $G(T)-G(298.15)$ must be known. This reveals that the function $G(T)$ is sufficient for analysis by the "Third Law method". Nevertheless, the changes in $G(T)$ and $\Delta G(T)$ are greater than is the case for *Gef*(T) and $\Delta Gef(T)$, so that these latter are often preferred for a "Third Law" analysis.

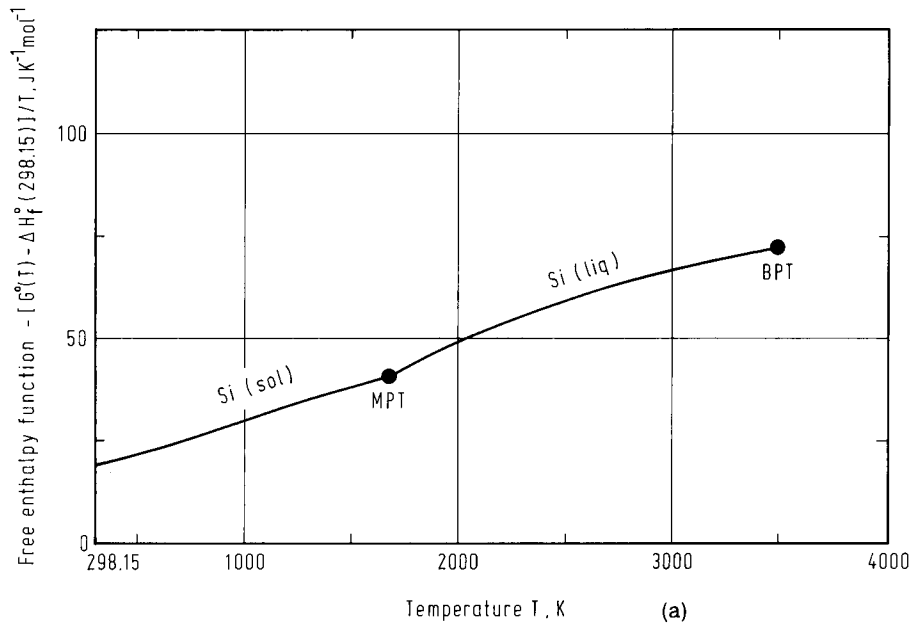
2.2.6 $\Delta H_f(T)$, $\Delta G_f(T)$, $\log K_f(T)$ Molar quantities of formation reaction

The following equations apply to the formation of a compound B from its elements E_i in their reference phases at 1 bar and at a given temperature

$$\Delta H_{f,B}(T) = H_B(T) - \Sigma \, |\nu_{\varepsilon_i}| \, H_{\varepsilon_i}(T)$$

$$\Delta G_{f,B}(T) = G_B(T) - \Sigma \, |\nu_{\varepsilon_i}| \, G_{\varepsilon_i}(T)$$

$$\log K_{f,B}(T) = -\Delta G_{f,B}(T)/(R \, T \ln 10)$$



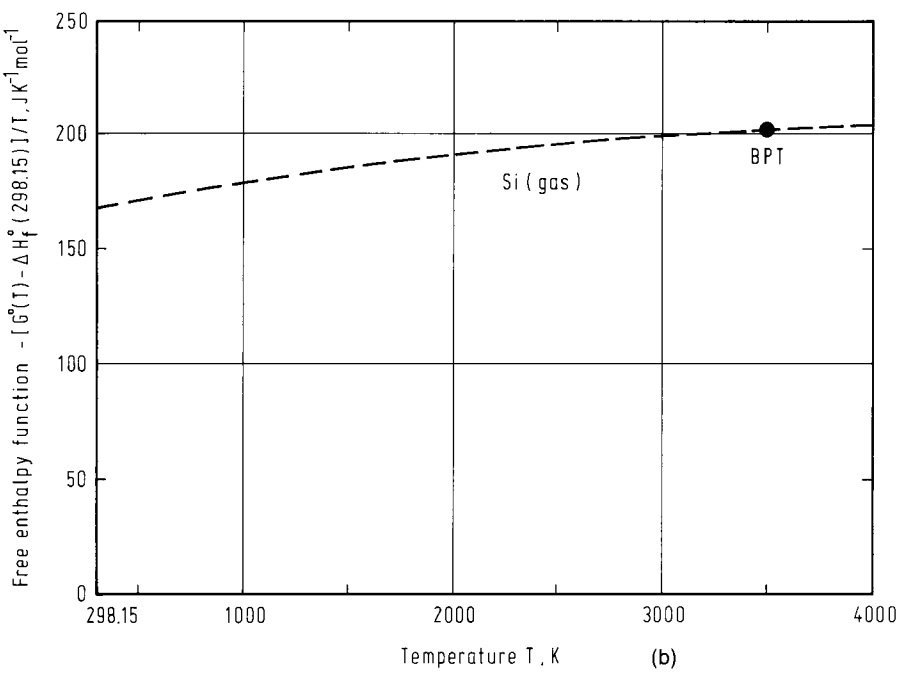


Fig. 2.5: Gibbs energy function (free enthalpy function) of silicon for the solid and liquid phases (a) and the gaseous phase (b) as a function of temperature at 1 bar.

$\Delta H_{f,B}$	enthalpy of reaction for the formation of B from the elements ε_i
H_B	enthalpy of B
H_{ε_i}	enthalpy of the element ε_i
$\Delta G_{f,B}$	Gibbs energy of the reaction for the formation of B from the elements ε_i
G_B	Gibbs energy of B
G_{ε_i}	Gibbs energy of the element ε_i
$\log K_{f,B}$	Logarithm of the equilibrium constant of the reaction for the formation of B from the elements.

The formation reactions are formulated on the basis of the standard state pressure of 1 bar and with respect to the reference phases of the elements at the given temperature. Accordingly, for the **elements in their reference phases**, if follows that

$$\Delta H_{f,\varepsilon} = 0$$

$$\Delta G_{f,\varepsilon} = 0$$

$$\log K_{f,\varepsilon} = 0 \ .$$

The quantities of formation ΔH_f, ΔG_f and $\log K_f$ allow an immediate assessment of the stability of the substance.

In the case of substances, which are produced from elements in the same phase and without phase change, ΔH_f only changes slightly. If the state of aggregation of the elements changes (melting, evaporation) this makes itself evident in the value of ΔH_f. For instance, large changes occur in ΔH of the compounds Na_2O, NaO (gas) as a result of the melting and vaporization of Na. Such changes also appear in ΔG_f for NaO (gas), while ΔG_f Na_2O (solid, liquid) increases uniformly with temperature. Because ΔG_f $(Na_2O) < 0$ the absolute value decreases with increasing temperature, when the activities of Na and O_2 are maintained constant.

Note

The numerical values of molar quantities of formation, as is the case for H and G, change by changing the reference phases of elements involved in the reaction of formation. This should be born in mind during calculations using data from different sources.

In the present tables the molar quantities of formation of sulfur compounds (sulfides, sulfates, etc.) are calculated with regard to the following reference states for sulfur:

$$S(sol_1) \rightarrow S(sol_2) \rightarrow S(liq) \rightarrow S_2(gas)$$

(see Table in Chapter 10) .

Nevertheless, there are thermochemical tables where S_2(gas) is considered as reference state at all temperatures, beginning with $T = 298.15$ K.

2.3 Equilibrium calculations

2.3.1 $K(T)$, equilibrium constant

The equilibrium constants of reactions can be calculated from the tabulated $\log K_f$ values by simple summation.

For the general reaction

$$\nu_{R1} R_1 + \nu_{R2} R_2 + \ldots = \nu_{P1} P_1 + \nu_{P2} P_2 + \ldots$$

where R_i represents the reactants and P_i the products.

With

$$K = \Pi (a_i)^{\nu_i}$$

K can be calculated from

$$\log K = \Sigma \nu_i \log K_{f,i} .$$

As explained in Section 1.9, $\log K$ and $\log K_{f,i}$ are only functions of temperature.

Examples for calculation of $\log K$:

$$ZnS + \frac{3}{2} O_2 = ZnO + SO_2$$

$$\log K = \log K_f(ZnO) + \log K_f(SO_2) - \log K_f(ZnS) - \frac{3}{2} \log K_f(O_2) .$$

The $\log K_f$ values of the elements are zero by definition when the elements are in their reference phases.

In reactions where a substance is formed from the elements (in their reference phases) the equilibrium constant can be determined directly from the $\log K_f$ values of that substance:

$$\frac{1}{2} O_2 + C = CO \qquad \text{(a)}$$

$$\log K_a = \log K_f(CO)$$

$$\frac{1}{2} H_2 = H \qquad \text{(b)}$$

$$\log K_b = \log K_f(H)$$

$$NO = \frac{1}{2} N_2 + \frac{1}{2} O_2 \qquad \text{(c)}$$

$$\log K_c = -\log K_f(NO) .$$

2.3.2 $p^0(T)$, vapor pressure

The vapor pressures of condensed substances can be calculated from the values of $\log K_f$ on the basis of the equilibrium reaction for evaporation.

Example:

$$NaCl\,(liq) = NaCl\,(gas)$$

$$\log p^0\,(NaCl) = \log K_f\,(NaCl\ (gas)) - \log K_f\,(NaCl\ (liq)) .$$

In the case of elements, the values of $\log K_f$ for vapor phases are identical with $\log p$, where p is the vapor pressure related to 1 bar.

Example:

$$Ag\ (sol, liq) = Ag\ (gas)$$

$$\log p^0\ (Ag) = \log K_f\ (Ag\ (gas)) , \quad \text{at } T \leq T_{bp}$$

where T_{bp} is the boiling point. When $T > T_{bp}$ the $\log K_f$ values for condensed phases have to be taken into account.

2.3.3 $E^0(T)$, standard emf

Aqueous solutions

The Gibbs energy of reaction between ions in solution is calculated by summation of the Gibbs energy of

formation of the ions concerned. Here it is set by convention in the half cell

$$H_2(Pt)|H^+_{aq}\ , \quad \text{at } p_{H_2} = 1 \text{ bar}\ , \quad T = 298.15$$

(reference half cell) that

$$1/2\ H_2 = H^+_{aq} + e^-\ ,$$
$$\Delta G^0_f(H^+_{aq}) = 0\ .$$

The standard Gibbs energy of formation of the proton in water is zero.

The standard Gibbs energies of ions in aqueous solution are reported on the basis of this convention (e.g. in the NBS Tables of Chemical Thermodynamic Properties, Termicheskie Konstanty Veshestv) (see References, Section 3.4).

$E^0(T)$, standard emf of a cell

According to the equilibrium equation (Section 1.12)

$$\Delta G^0_r = -z F E^0 = -R\,T \ln K_r$$

or

$$E^0 = -\Delta G^0_r/(z F) = (R\,T/z F) \ln K$$

and

$$\Delta G^0_r = \Sigma\, \nu_i\, \Delta G_{fi}\ , \quad \log K = \Sigma\, \nu_i \log K_{fi}$$

it is possible to calculate $E^0(T)$ from the values of ΔG_f or of $\log K_f$.

Example:

Decomposition of $MgCl_2$:

$Mg^{2+} + 2e_L = Mg$	electrode reaction L
$2Cl^- = Cl_2 + 2e_R$	electrode reaction R
$MgCl_2 = Mg + Cl_2$	cell reaction

where $MgCl_2$ and Mg are in liquid and Cl_2 in gaseous state. Then

$$E^0 = -\Delta G^0_f(MgCl_2)/(2F)$$
$$E = E^0 - R\,T/(2F) \ln [a_{Mg} p_{Cl_2}/a_{MgCl_2}]\ .$$

When $a_{Mg} = 1$ (pure liquid) and $p_{Cl_2} = 1$ bar (ideal gas) E can be calculated if T and the current activity of $MgCl_2$ in the molten salt are known.

2.4 Entropy production and "exergy"

Entropy balances are employed for the analysis and optimization of energy utilization in technical processes. To do this the total technical facility is divided up into individual balance volumes (component units) which are connected to each other by mass and energy exchange.

The calculation of entropy fluxes for each unit leads to quantitative evaluation of the potential "working performance" of a system. For this purpose in technical thermodynamics a variable known as exergy*) is introduced.

The exergy ε of a system is a measure (defined with respect to the surroundings) of the ability of the system to perform technical work. Exergy is maintained for reversible processes and is lost in irreversible processes.

Exergy calculations essentially imply the quantitative determination of enthalpy and entropy changes. If the numerical values of enthalpy and entropy are not available, exergy cannot be determined.

The determination of the entropy production in the individual process steps as a consequence of irreversible heat and material exchanges is important for testing the quality of the use of energy in a process.

2.4.1 Entropy production

As stated in Section 1.4.1, the entropy change in a closed system is described by the following equation:

$$\Delta S = \Delta S_e + \Delta S_i$$

in which ΔS_e is the change in entropy of the system as a result of heat exchange with its surroundings and $\Delta S_i \geq 0$ is the change in entropy resulting from changes within the system.

A simple example of entropy production is the heat exchange between two bodies at different temperatures. For an isolated total system g, consisting of the two component systems a and b, which represent two large heat reservoirs at the constant tempertures T_a and T_b, where $T_a > T_b$, the following equations hold for the transfer of a relatively small quantity of heat Q from a to b:

$$\Delta S_g = \Delta S_{g,e} + \Delta S_{g,i}$$
$$= \Delta S_a + \Delta S_b$$
$$\Delta S_a = -Q/T_a\ , \quad T_a = \text{constant}$$
$$\Delta S_b = Q/T_b\ , \quad T_b = \text{constant}$$
$$\Delta S_{g,e} = 0\ , \quad \text{isolated system g}$$
$$\Delta S_{g,i} = Q(T_a - T_b)/T_a T_b\ .$$

*) For such a purpose the introduction of a new function with the incomprehensible name exergy is not an absolute necessity. (The introduction of the artificial word "entropy" by R. Clausius is justified. For more information on entropy see M. Eigen, Ber. Bunsenges., Phys. Chem. 98 (1994) 1351–1364).

$\Delta S_{g,i} > 0$ is the amount of entropy produced in the isolated system g as a consequence of the irreversible heat transfer from component system a to component system b within the total system.

To determine the time dependence of the entropy production, the state variable entropy is differentiated with respect to time:

$$\dot{\tau} = \mathrm{d}(\Delta S_i)/\mathrm{d}t$$

To calculate $\dot{\tau}$ equations must be drawn up which describe the entropy production in the process considered. Entropy production as a dynamic process is the subject of irreversible thermodynamics, about which many good textbooks are available. For example, a readily understandable introduction has been written by A. Höpfner in P. W. Atkins, Physikalische Chemie, p. 831, VCH Verlagsgesellschaft, Weinheim 1987.

2.4.2 Exergy

Exergy of heat

The exergy ε_Q of the heat Q that is available at temperature T when the temperature of the surroundings is T_0, e.g. 298.15 K, is given by

$$\varepsilon_Q = Q(T-T_0)/T = \Delta S(T-T_0) = W \ .$$

Where ΔS is the entropy change in the system and W the work. ε_Q corresponds to the maximum work that can be performed by transfer of heat Q in passing from temperature T to T_0.

Exergy of technical work

$$\varepsilon_W = W \ .$$

The exergy of work is identical with the work. In the case of reversible processes ε_W can always be recovered as work. This also applies to the exergy of electrical energy.

Exergy of a system of substances

The exergy of a system made up of one or more substances at pressure p and temperature T is defined by

$$\varepsilon_{sys} = (H-H_0)_{sys} - T_0(S-S_0)_{sys} \ .$$

Here H and S are the enthalpy and entropy of the system at p and T, H_0 and S_0 the enthalpy and entropy of the system at p_0 and T_0 in the surroundings (e.g. $p_0 = 1$ bar, $T_0 = 298.15$ K).

Consider helium at $p = 1$ bar and $T = 1300$ K as a system with the surroundings characterized by $p_0 = 1$ bar and $T_0 = 298.15$ K, then the exergy calculated according to the above equation is the work that would be done by cooling the helium from 1300 K to 298.15 K in a reversible manner (e.g. by means of a series of Carnot cycles).

Exergy of open systems

In the case of a stationary state in a flow reactor in which the reactants enter in differing states and the products exit at pressure p and temperature T the change in exergy is given by

$$\Delta\varepsilon_r = \Delta H_r - T_0 \Delta S_r \ .$$

Here ΔH_r is the enthalpy change in the balance volume under consideration and is calculated from

$$\Delta H = \Sigma H \text{ (products)} - \Sigma H \text{ (reactants)} \ .$$

So ΔH_r and ΔS_r represent the enthalpy and entropy of a non-isothermal total reaction.

It is possible to calculate exergies (for a particular surrounding temperature T_0) from the H and S values listed in the tables by simple calculations. Here the composition of the products can correspond to the equilibrium state at p and T.

2.4.3 Exergy losses by irreversibilities

If an open system in a stationary state is considered, e.g. a chemical reactor which is exchanging heat and matter with the surroundings at T_0, then, at constant p, according to the First and Second Laws of thermodynamics the following balances pertain:

$$\Delta H_r - Q + W = 0$$

$$\Delta S_r - Q/T_0 - S_{irr} = 0 \ .$$

Here:

- ΔH_r enthalpy of the total reaction (enthalpy of the products − enthalpy of the reactants)
- Q heat transferred from the reactor to the surroundings at T_0 (heat losses by cooling)
- W mechanical or electrical work performed in operating the reactor
- ΔS_r entropy of the total reaction (entropy of the products − entropy of the reactants)
- Q/T_0 entropy leaving the system during reversible heat exchange at T_0
- S_{irr} entropy production in the reactor resulting from irreversible processes (e.g. reactions).

In the case of a reactor operating isothermally and isobarically where $W = 0$, it follows from the balance equation above that

$$S_{irr} = \Delta S_r - \Delta H_r/T_0$$

and, hence,

$$\varepsilon_r = T_0 S_{irr} \ .$$

ε_r is the exergy loss (availability) in the balance volume under consideration and is directly proportional to the entropy production. Hence irreversible processes lead to a loss of potential work which would be done by the system.

If the reactor exchanges heat with a flowing fluid (gas or liquid), then the mean heat exchange temperature T_m is given by

$$T_m = \Delta H_{fl} / \Delta S_{fl} \ .$$

ΔH_{fl} and ΔS_{fl} are the enthalpy and entropy changes in the fluid stream resulting from the heat exchange with the reactor.

The indirect heating of a reactor with hot gas is an example. In this case the exergy of the heat is

$$\varepsilon_Q = Q\,(T_m - T_0)/T_m \ .$$

The complete entropy and exergy balance would include the heat exchange with the fluid medium in the balance compartment.

2.4.4 References for exergy relations

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2.5 Enthalpy and entropy of natural materials

Natural materials

Raw materials, such as ores, coal, crude petroleum, as well as waste materials, such as household waste and sewage sludge, are considered here as natural materials. They contain a large number of components and phases, in which the elements are distributed in the form of various compounds. Such substances are specified in practice by the following characteristics:

- elemental composition: proportions of the elements, in particular that proportions of volatile fuel components (C, H, N, O, S), and quantity and composition of the ash remaining after incineration,
- calorific value,
- thermal transformations: phase transformations, reactions, decomposition etc.,
- physical properties: density, degree of agglomeration, particle size etc.

There is a large diversity of natural materials with regard to the type of chemical species, which can only be partially determined in practice. Therefore, thermodynamic calculations for determining the changes in state, i.e. mass and energy transformations, in such complex mixtures are only possible if certain assumptions are made. Examples of calculations which are relevant to practical situations are given in Section 7.7.

The small quantities of samples used for the determination of properties of natural materials by chemical analysis and calorimetric measurement must represent a large quantity (1000 kg or more) of a highly heterogeneous material, consisting of components with very different physical and chemical properties. The careful preparation of representative samples is a prerequisite for the reliability of the results of analyses and measurements.

Enthalpy

The basis for the assignment of an "enthalpy of formation" to a natural material consists of the chemical composition, the structure information, and the calorific value. To determine the calorific value the prepared sample is completely oxidized (burned) in a calorimeter in an excess of oxygen. The heat liberated in this exothermic process is determined as the calorific value $Q_p > 0$. In the case of endothermic processes, such as calcination, Q_p would be negative.

If the species and quantities of the components of the natural material before and after the calorimetric measurement are known sufficiently well, the calorific value Q_p allows to determine an apparently standard enthalpy of formation at T = 298.15 K and p = 1 bar to be assigned to the natural material. Chemical analysis usually determines the fuel components (C, H, N, O, S) as elements, the ash components as oxides, and the heavy metals as elements.

In the case of household waste, the ash analysis gives the proportions by weight of the following species: Al_2O_3, CaO, Fe_2O_3, K_2O, MgO, Na_2O, P_2O_5, Cl^- (chlorides), SO_4^{2-} (sulfates), CO_3^{2-} (carbonates) etc.

For the heavy metals, the concentration of the elemental form is given: Hg, Pb, Cu, Zn, Cd, Cr (total), Cr^{6+} etc. The values are obtained from the analysis of the aqueous solution after dissolving the natural material or the ash in aqua regia.

With these data, as is usual in industry, the actual compounds of the elements present in the natural material cannot be specified.

For these reasons the calculation of the apparent enthalpy of the natural material on the basis of the elemental analysis and the calorific value requires particular assumptions to be made. These assumptions primarily concern the type of compound from

which the ashes are formed, as the proportion by weight of heavy metals is usually very low (minor components) and therefore has little influence on the enthalpy calculation.

The reactions taking place during the calorimetric measurement are shown in the following scheme.

Reaction				Enthalpy ΔH_r
C	+ O_2		→ CO_2	ΔH(C)
H	+ 1/4 O_2		→ 1/2 H_2O	ΔH(H)
N	+ O_2		→ NO_2	ΔH(N)
S	+ O_2		→ SO_2	ΔH(S)
NO_2	+ 1/4 O_2	+ 1/2 H_2O	→ $[HNO_3]_{aq}$	ΔH(NO_2)
SO_2	+ 1/2 O_2	+ H_2O	→ $[H_2SO_4]_{aq}$	ΔH(SO_2)
Fe	+ 3/2 O_2		→ 1/2 Fe_2O_3	ΔH(Fe)
$\Sigma \nu_{re} \varepsilon_r$	+ $\Sigma \nu_{ro} O_2$		→ $\Sigma \nu_{rb} B_r$	$\Sigma \Delta H_r$
$-\Sigma H_r(\varepsilon)$	− $\Sigma H_r(O_2)$		+ ΣH_r(B) =	$\Sigma \Delta H_r$
			Calorific value: Q_p =	$-\Sigma \Delta H_r$

In these simplified equations $\Sigma \Delta H_r$ is the total enthalpy of reaction, ΔH_r the enthalpy of reaction according to reaction r, H_r(B) the enthalpy of compound B (oxide), $H_r(\varepsilon)$ the enthalpy of the element or the component ε in the natural material, and $H_r(O_2)$ the enthalpy of oxygen.

Accordingly for T = 298.15 K and p = 1 bar it holds that

$$\Delta H_f^0(O_2) = 0 \text{ and } \Sigma H_r(O_2) = 0 \ .$$

Thus

$$-\Sigma H_r(B) + \Sigma H_r(\varepsilon) = Q_p \ .$$

$\Sigma H_r(\varepsilon)$ is the enthalpy of the natural material and can then only be calculated if the enthalpies of all the components of the natural material are known. However, this is not the case for technically important materials. It is determined approximately from the calorific value and the analysis.

If the contributions from ash-forming reactions to the total reaction enthalpy are relatively low, only the combustion of volatile fuel components can be considered for the enthalpy balance calculations. This is the case when the ash components are contained in the same form in the initial material. Furthermore, if the enthalpies (bond energies) of the fuel elements (C, H, N, O, S...) in the natural material represent relatively small quantities (in comparison to reaction enthalpies), the calorific value of a natural fuel can even be determined by a stoichiometric calculation involving the enthalpies of formation of the fuel element oxides (CO_2, H_2O, NO_2, SO_2 etc.). If the following holds:

$$|\Sigma H(\varepsilon)| \text{ (fuel elements)} \ll |\Sigma \Delta H_r| \ ,$$

then

$$Q_p = -\Sigma \Delta H_r \cong -\Sigma H_f^0(i) \text{ (fuel element oxides)}$$

in which $H_f^0(i)$ is the standard enthalpy of formation of the oxide i from the elements in their stable states under standard conditions. This approximation is frequently used in practical combustion techniques, sometimes employing additional empirical correction factors.

Entropy

As explained in Sections 1.4 and 1.5 the entropy of a substance at 298.15 K and 1 bar can be calculated from the following equation based on low temperature investigations:

$$S(298.15) = S(T = 0) + \int_0^{298.15} dH/T \ .$$

The integration requires that all order structures and the enthalpies of all transformations in the complex natural material are known at low temperatures down to the vicinity of absolute zero, i.e. are determined by means of experimental investigations and theoretical calculations. This is frequently an extensive work, even with a single pure substance. For these reasons the entropies of natural materials cannot at present be given quantitatively. However, entropy balances for different process variants can be compared numerically with each other, if the same natural material is always used as the input. An example is shown in Section 7.7.

Part II
Compilation and Presentation of Thermochemical Data

3 Compilation of thermochemical data

3.1 Basic thermochemical data

The calculation of the thermochemical functions of a pure substance over a given temperature range demands a particular set of basic thermodynamic data. These basic data are unequivocally defined in terms of standard states and reference phases and temperatures. They comprise the following quantities:

$\Delta H_f^0(298.15)$ Standard enthalpy of formation from the elements in their reference phases at $T = 298.15$ K ($p = 1$ bar).
The standard enthalpy of formation is zero for elements in reference phases. Convention employed in this work: the enthalpy of elements in their reference phases at 298.15 K and 1 bar is zero.

$S^0(298.15)$ Standard entropy of the substance at $T = 298.15$ K ($p = 1$ bar).

$C_p^0(T)$ Temperature dependence of the standard heat capacity of the substance concerned over the temperature range under consideration (at $p = 1$ bar). In general at least one $C_p(T)$ function is required for each phase of every substance.

T_t^0 Transition temperature at 1 bar.

ΔH_t^0 Standard enthalpy of transition at the transition temperature.

3.2 Existing compilations

The first compilations of thermochemical data were made about 100 years ago. Today there is a range of comprehensive tables of thermochemical data for pure substances [1–12] (see Section 3.4).

The primary data sources are individual publications reporting the results of experimental investigations and supplementary theoretical calculations. The bases for these are calorimetric determinations of enthalpies of reaction, phase transformation and heat capacities, vapor pressure determinations, emf measurements, equilibrium determinations etc.

The majority of specialist publications report one or more properties of a substance or of a limited range of substances. It is rare that the complete sets of data necessary and sufficient for the calculation of thermochemical functions over a given temperature range are reported.

Complete sets of data are produced by compilation and critical evaluation of the available data. The data included in a set must firstly be reliable and precise, i.e. correct, and, on the other hand, they must be consistent, i.e. the conclusions derived from the various pieces of information in the set must be consistent. For instance if a source A yields a temperature variation of the enthalpy of a liquid and source B the vapor pressure curve, then, if they are consistent both pieces of information must lead to the same results with respect to the boiling point and the enthalpy of evaporation.

Often only a few pieces of information are missing from a complete data set. Thus, for example, the standard entropy and heat capacity of crystalline substances (particularly of intermetallic compounds and oxides with several cations) can be determined with sufficient accuracy by estimation [8].

Methods of estimation of thermodynamic data of organic substances are discussed in [5] and especially in [11].

The consistency criterion is not only employed within a data set for a particular substance, but also between the data of various substances; the thermochemical data of a substance can be determined on the basis of several reactions [1]. Because of the large amount of both available and periodically appearing material the establishment of self-consistent data for all substances that have been the subject of thermochemical investigation is a considerable and demanding task. This task was and still is undertaken by experts in large institutes.

3.3 Thermochemical tables

The data collection named have been revised and enlarged during the last 20 years; new collections have also appeared.

The compilations of NBS [1], ANU [2] and JANAF [4] have been produced on the basis of the selfconsistency criterion. In most sets of tables the consistency is realized within a single substance data set only. Such data are also eligible and can be correct, however. The accuracy of thermochemical measurements is often not sufficient for the consistency testing that can now be carried out by computer processing.

Many substance data have been determined repeatedly in the past. In many cases the deviations may be regarded as small from the standpoint of experimental thermochemistry. CODATA [13] have set up key values by choosing from all the available data, and these can be employed as standard values, par-

ticularly for thermochemically well-investigated substances.

As far as content is concerned, it is possible to distinguish between two types of tabular compilation:

a) Tables of thermodynamic properties of substances in standard states at 298.15 K [1–3, 5, 8, 11, 12]: Compilations of NBS [1] and ANU [2] also include ΔH_f^0 to 0 K and $[H^0(298.15)-H^0(0)]$ together with the basic data for aqueous solutions of the species. Compilations [2, 3, 8, 11, 12] also contain data for phase transitions. The compilations listed under a) often do not provide the complete basic data for a substance.
b) Tables of thermochemical functions at various temperatures in steps of 100 K [3–7, 9, 10]: The data sets are complete in these compilations. In JANAF Tables [4] the values of all functions are also reported for 0 K and, furthermore, the temperature range is extended up to 6000 K in the tables of various gaseous species.

3.4 References for Sections 3.2 and 3.3

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Part III
Tables in the Present Work

4 Preparation of the tables

4.1 General remarks

These tables have been compiled with the aim of including the substance states as completely as possible in thermochemical calculations. To this purpose efforts have been made to present tables in a uniform manner for as large a number of substances as possible after consideration of all available data and estimates. The intention is to provide engineers and scientists in industry, research and the universities with the capability of performing calculations on a multiplicity of substance systems.

Processing of natural raw materials and technical intermediates involves substance systems with diverse elements and phases. When appropriate methods are employed, the practical relevance of a thermochemical calculation depends not only on the accuracy of the data but also on the comprehensive inclusion of all conceivable and possible substance variants in the system under consideration.

The data presented in these tables also form the database for the thermochemical software package EQUITHERM (see Section 7.6). This system is equipped with control and calculation programs which can be employed for carrying out thermochemical calculations on personal computers. The SOLGASMIX program, for the calculation of equilibrium states and energy balances in substance systems with several elements and phases, makes up a significant part of EQUITHERM.

4.2 Data sources, accuracy

In addition to the large data collections, a range of individual publications were also employed as data sources in the compilation of these tables. A relatively large number of data (ca. 900) were determined by estimation. In general, the data in established standard works were preferred. The sources employed for the particular properties are given in the appropriate tables.

Substance data from various sources have been included in an effort to make as many substances as possible accessible to at least approximate calculations. In the case of individual substances and groups of substances the aim has been to use the data from one source. It was not possible to meet strict consistency criteria when combining data from various sources to form a data set for a substance. The inaccuracies resulting from this lie in most cases within thermochemically acceptable limits.

In some sources, the enthalpies of formation or the Gibbs energies of oxide compounds with several cations (silicates, aluminates etc.) are reported in terms of the reactions of formation from the constituent oxides. In such cases the data have been corrected with respect to the corresponding basic data of the constituent oxides presented in this work.

In the computer-aided calculation of phase diagrams (e.g. in silicate systems) considerable uncertainties in melting points (10 K and more) result from variations in enthalpy of formation of 1 kJ mol^{-1}. It must be remembered in this connection that the enthalpies of formation of some Al and Cr silicates can only be reported to an accuracy of ± 10 kJ mol^{-1}.

4.3 Units

Units of tabulated functions

Quantity	Symbol	Unit
Temperature	T	K
Heat capacity	C_p	J K^{-1} mol^{-1}
Entropy	S	J K^{-1} mol^{-1}
Gibbs energy function	Gef	J K^{-1} mol^{-1}
Enthalpy	H	kJ mol^{-1}
Enthalpy increment	$H-H(298.15)$	kJ mol^{-1}
Gibbs energy	G	kJ mol^{-1}
Enthalpy of formation	ΔH_f	kJ mol^{-1}
Gibbs energy of formation	ΔG_f	kJ mol^{-1}
Equilibrium constant of formation reaction	$\log K_f$	–

Units of various constants

Quantity	Symbol	Unit
Gas constant	R	J K^{-1} mol^{-1}
Thermochemical calorie	1 cal	4.184 J

Tables for fundamental constants, conversion factors for energy units and entropy gases are presented in Chapter 8.

4.4 Standard states

Standard ambient temperature and pressure (SATP):

$T = 298.15\ \mathrm{K}$

$p = 1\ \mathrm{bar} = 10^5\ \mathrm{Pa}$.

The **standard state of a substance** is its pure form in a defined state of aggregation at a pressure of 1 bar and a specified temperature. It is denoted by the index ^{0}, e.g. H^0, S^0, ΔH^0. The conventional reference temperature for the specification of energy functions (enthalpy) is 298.15 K = 25 ^{0}C (room temperature).

Standard state phases of pure substances

Phase of standard state	Abbreviation
Ideal gas	(gas) or (g)
Liquid	(liq) or (l)
Crystalline solid	(sol) or (cr)
Amorphous solid	(am)
Vitreous or glass solid	(glass)

4.5 Reference phases for the elements at 298.15 K and 1 bar

Reference phase	Elements
Ideal gas	Ar, Cl_2, F_2, H_2, He, Kr, N_2, Ne, O_2, Rn, Xe, e^- (electron)
Liquid	Br_2, Hg
Crystalline solid	all other elements

The reference phases for the elements covered in the present tables are specified in the table in Chapter 10. There, the temperature limits of the reference phases are also given.

5 Construction of the tables

5.1 Arrangement of substances in the tables

The tables are arranged in alphabetical order according to the usual chemical formulae of the substances.

Primary classification: All substances are arranged in alphabetical order of the first element in the chemical formula.

Secondary classification: Substances having the same first element in their formulae are arranged in alphabetical order of the second element. The secondary classification is not strictly adhered to because account is taken of particular bonding relationships.

A table is provided first for the reference phase of each substance at 298.15 K. In the case of compounds this state is that state of the substance which at 298.15 K is stable with respect to its other states (modifications).

The order in which the tables are arranged is:

1) Reference phase
2) Gaseous phase
3) Metastable phases

The data for all gaseous substances are tabulated separately for the case of an ideal gas, i.e. the gas phase is not included in the multiphase tables.

Examples:

Order of substances		
Ag	$CaZrO_3$	Pu_2O_3
⋮	Ca_3P_2	⋮
Ag_2WO_4	⋮	PuOBr
Al	CaPb	PuOCl
⋮	⋮	PuOF
CaO	GaAs	PuOl
CaO (g)	$Ga(AsO_4)_2$	⋮
CaO_2	$GaBr_3$	ZrO_2 (g)
⋮	⋮	$ZrSiO_4$
$Ca_2F_2O_5$	Ga_2O_3	ZrS
CaOH (g)	⋮	ZrS_2
$Ca(OH)_2$	Pu_2C	e^-
⋮	⋮	

Several tables for one substance
Ag (sol, liq)
Ag (gas)
SiO_2 (low quartz, high quartz, high cristabolite, liq)
SiO_2 [CR] (low cristabolite)
ZnS (wurtzite, liq)
ZnS (gas)
ZnS [S] (sphalerite)

All substances contained in the tables are listed with formula and name in the **chemical formula index** in alphabetical order. In order to simplify the search for substances in the tables, the formulae of the substances are also listed in a **modified Hill index**. In this index the formulae are listed according to the alphabetical order of the elements (see Chapter 12).

5.2 Order of the phases in the tables

The order of the phases in a table follows the order of stability of the condensed phases. Insofar as data are available for them, all condensed phases of a substance are included in a table.

Examples for the order of phases:	
Fe	Iron
SOL-A	(α, crystalline solid)
SOL-C	(γ, crystalline solid)
SOL-D	(δ, crystalline solid)
LIQ	(liquid)
Fe (g)	Iron (gas)
GAS	(Ideal gas)
Si	Silicon
SOL	(crystalline solid)
LIQ	(liquid)
Si (g)	Silicon (gas)
GAS	(ideal gas)

The abbreviations for phase description are defined in the **list of symbols** in Chapter 9.

6 Contents and structure of the tables

6.1 Formula, name and relative molar mass

Each substance is identified by the usual form of its chemical formula and by its most commonly employed chemical name. In some cases, with intermetallic compounds in particular, the name corresponds to a list of the chemical elements in the formula. The molar masses ($g\,mol^{-1}$) are calculated from the relative atomic masses of the elements taking $A_r = 12$ for ^{12}C and are reported at the beginning or end of the first line.

6.2 Tabulated functions

All values relate to standard states. The quantities of formation relate to the reactions for the formation of the substance from its elements in their reference phases.

The order of the columns in the tables was chosen by consideration of the dimensions and corresponds to the internationally accepted form.

Tabulated functions

T	Temperature
C_p	$C_p^0(T)$, heat capacity
S	$S^0(T)$, entropy
$-(G-H298)/T$	$-[G^0(T)-\Delta H_f^0(298.15)]/T$, Gibbs energy function, $-Gef$ (Free enthalpy function)
H	$H^0(T)$, enthalpy
$H-H298$	$H^0(T)-\Delta H_f^0(298.15)$, enthalpy increment
G	$G^0(T)$, Gibbs energy (Free enthalpy)
ΔH_f	$\Delta H_f^0(T)$, enthalpy of formation reaction
ΔG_f	$\Delta G_f^0(T)$, Gibbs energy of formation reaction
$\log K_f$	$\log K_f^0$, logarithm of the equilibrium constant of formation reaction

6.3 Sequence of temperatures

Each table starts with data for 298.15 K. At this temperature

$$S = S^0(298.15)$$

$$H = \Delta H_f = \Delta H_f^0(298.15)\ .$$

The temperatures are then raised in steps of 100 K beginning with 300 K.

6.4 Phase transitions

In the case of a phase transition between two condensed phases the values of the functions at the transition temperature are quoted for each phase. The enthalpy of transition and the entropy of transition calculated from it are reported in a separate line under H and S in the appropriate dimensions.

6.5 The final temperature in the tables

The tables for solid and liquid substances end either with a phase transition point or with an upper calculation limit, below which data were available. The final temperature is always a calculation limit in the case of gaseous substances. With condensed substances there are the following special cases for the final temperature T_e:

a) T_e = BPT: boiling point, where the vapor pressure of the substance, which evaporates congruently, is 1 bar.

b) T_e = NBPT: natural (normal) boiling point, at which the vapor pressure is 1.01325 bar = 1 atm. This case especially applies to substances which evaporate with the formation of various gas-phase species, e.g. associates.

c) T_e = SPT: sublimation point, at which the sum of the partial pressures of the gaseous species Σp_i (gas) amounts to 1 bar.

d) T_e = NSPT: normal sublimation point, where Σp_i (gas) = 1 atm.

e) T_e = DPT: decomposition point, at which the substance is transformed to other substances, e.g. SOL-A into SOL-B and a liquid mixture (peritectic reaction in binary systems). However, dissociation processes with the formation of gaseous substances are also included. At T = DPT, Σp_i (gas) = 1 bar.

f) T_e = NDPT: normal decomposition point, Σp_i (gas) = 1 = atm.

g) T_e = MPT: melting point.

h) T_e = transtion point.

i) $T_e = T$, an arbitrary temperature, which represents

an upper calculation limit. The phase transition data (e.g. of evaporation) of some substances are not known with sufficient accuracy. In such cases the calculations are terminated shortly below of above the transition temperature.

Apart from the last case (i) the final temperature is specified, in most cases, at the end of the table.

6.6 Additional information, remarks

The particular features of the substances in the sense of their differentiation and characterization, and explanations of substance-specific properties are given in the form of short remarks at the end of the tables, together with the substance phase to which they refer.

Elements and compounds in the same aggregate state are differentiated by conventional signs, such as solid-α, solid-γ etc. These differentiations are specified in certain cases by giving the crystal structure, such as bcc (body-centered cubic), fcc (face-centered cubic) etc.

Many substances undergo changes in their chemical composition during transformations such as melting and evaporation. Congruent transformations of several compounds at elevated temperatures are only possible if the chemical potentials of constituent elements can be maintained at certain level. Gas molecules such as S_2, SO_2, SO_3, NH_3, NH_4OH can only exist at elevated temperatures when high partial pressures of the constituent elements (S, S_2, N_2, H_2, Cl_2) are established and effective in the system.

On heating Fe_2O_3 a melt corresponding to the molar ratio Fe:O = 2:3 can only be maintained under a high partial pressure of O_2. As can readily be seen from phase diagrams for binary systems, some compounds undergo transformations into other liquid or solid phases. In such cases, an indicative note, such as dissociation, decomposition etc. is given, if it appears necessary and is known. This also applies to temperature values for normal boiling point (NBT) and normal decomposition point (NDPT) at which the total pressure of the gaseous species is 1.01325 bar (1 atm).

6.7 References for the sources of data

The references covering the basis data, additional information and comments are given separately for each phase at the foot of the table.

Where

$H = \Delta H_f^0(298.15)$ or

ΔH_t^0 (enthalpy of transition)

$S = S^0(298.15)$

$C_p = C_p(T)$

Remarks = additional information and remarks.

Example to explain the presentation of references:

	H/S
H and *S* from source A	A
H from A, *S* from B	A/B
ΔH_t from B	B
H from A, *S* estimated	A/e
H and *S* from A but altered	A, e
H and *S* obtained from A and supplemented by estimates	A, e

The references for additional information are at the beginning of the line concerned (under "Remarks").

The abbreviations used for references are listed in Chapter 11.

6.8 Abbreviations and symbols

The abbreviations employed in the tables are listed in Chapter 9.

Part IV
Examples of the Use of the Tables

7 Examples of thermodynamic calculations

7.1 Enthalpy changes

7.1.1 Enthalpy of air

1 m^3 of air 1 atm and 298.15 K (1.1846 kg of air) is heated to 800 K at a constant pressure of 1 atm. Calculate the quantity of heat needed.

Assumptions:

Air is assumed to be an ideal mixture of 79% N_2 by volume and 21% O_2 by volume. No chemical reactions take place (the formation of NO compounds can be neglected at temperatures below 1000 K).

Ideal gas equation: $p\,V = n\,R\,T$.

Gas constant:

$$R = 83.1441\ cm^3\ bar\ K^{-1}\ mol^{-1}$$
$$= 82.0568\ cm^3\ atm\ K^{-1}\ mol^{-1}$$
$$1\ atm = 1.01325\ bar\ .$$

The enthalpy of ideal gases is independent of the pressure. Hence the values of the enthalpies for N_2 and O_2 at 1 bar also apply to 1 atm. The enthalpy changes between 298.15 K and 800 K result from the heat transferred at 1 bar.

Solution:

According to the ideal gas equation and the conditions assumed above 1 m^3 of air at 1 atm and 298.15 K contains 32.291 mol N_2 and 8.584 mol O_2.

The following values are to be found in the tables for N_2 and O_2:

Substance	T [K]	$H-H298$ [kJ mol^{-1}]
N_2	800	15.046
O_2	800	15.836

Multiplications of the enthalpy changes by the molar quantities, followed by addition, yields the heat requirement

$$Q = 621.18\ kJ\ .$$

Note:

N_2 and O_2 are both diatomic gases. Hence their C_p values and enthalpy changes differ little from one another.

7.1.2 Heating and melting a metal

Question:

What is the quantity of energy required to heat 1 kg aluminium from 298.15 K to 1000 K at a pressure of 1 bar? Aluminium is liquid at 1000 K.

Assumptions:

The temperature of aluminium is increased by transfer of heat from an electrical or gas heater (furnace).

The heat entering the mass of aluminium at constant pressure is equal to the enthalpy change of aluminium.

Solution:

The table for aluminium yields:

Atomic mass = 26.982 g mol^{-1}

1 kg aluminium contains 37.062 mol Al.

$$[H-H298] = 30.950\ kJ\ mol^{-1} \quad \text{at} \quad T = 1000\ K\ .$$

So

$$Q = 37.062 \times 30.950 = 1147.069\ kJ\ .$$

Note:

If the melting process takes place within 5 minutes in an electric furnace, then the power output of the furnace must be

$$1147.069/(5 \times 60) = 3.8\ kW\ .$$

However, on application of this calculation in practice, account must be taken of the fact that only part of the electrical energy supplied to the electric furnace will be "transferred" to the aluminium. An appreciable part of the energy output is transmitted to the surroundings as heat. In addition the duration of the heating process depends on the heat transfer rate, which depends on the construction of the furnace and on the geometrical and physical properties of the body being heated. Hence, the energy requirements and power outputs calculated are minimum values and serve as a reference point.

7.1.3 Final temperature in an adiabatic process

a) Reactants at room temperature

The following reaction is to take place in a vessel insulated against heat exchange and continuously maintained at a pressure of 1 bar

$$CH_4 + 2O_2 + 7.524N_2 + CaCO_3 \rightarrow$$
$$2CO_2 + 2H_2O + 7.524N_2 + CaO \ .$$

At the beginning the reactants are at 298.15 K.

Question:

What is the final temperature in the vessel?

Explanation:

Initial state: 1 mol CH_4, 2 mol O_2, 7.524 mol N_2 (ideal gases), 1 mol $CaCO_3$, Pressure = 1 bar, Temperature = 298.15 K

Final state: 2 mol CO_2, 2 mol H_2O, 7.524 mol N_2 (ideal gases), 1 mol CaO, Pressure = 1 bar, Temperature = T_f

The molar quantities of oxygen and nitrogen have been chosen to correspond to the composition of the air.

Basis:

The enthalpy of the isolated system at constant pressure is constant. This means that the question to be answered is: At what temperature is the sum of the enthalpies of the products the same as the sum of the enthalpies of the reactants?

Solution:

Classical graphical methods will be employed to simplify the explanation.

The enthalpy values of the substances involved in the reaction are listed in the table given below.

Figure 7.1 is a plot of the sums of the enthalpies of the reactants and products as functions of temperature. As can be seen the enthalpies of the products increase almost linearly over the chosen temperature range. Linear interpolation yields a final temperature T_f of 1599 K.

b) Adiabatic processes in systems with preheated reactants

T_f for the example in Section 7.1.3a will be recalculated for the case that the air supply is preheated to 900 K, i.e. 7.524 mol N_2 and 2 mol O_2 are initially at 900 K.

$H(900) = 18.222\ \text{kJ mol}^{-1}$ for N_2 and
$H(900) = 19.241\ \text{kJ mol}^{-1}$ for O_2

so

$$\Sigma \nu_i H_i \text{ (reactants)} = -1281.794 + 175.584$$
$$= -1106.210\ \text{kJ} \ .$$

Linear interpolation between the sums of the enthalpies of the products at 1600 K and 2000 K reveals that $T_f = 1922$ K. This means that preheating the air

Substance	n mol	H[kJ mol^{-1}]				
		298.15 K	1400 K	1500 K	1600 K	2000 K
CH_4	1	−74.873				
O_2	2	0				
N_2	7.524	0				
$CaCO_3$	1	−1206.921				
$\Sigma n_i H_i$ (reactants)		−1281.794				
CO_2	2		−337.606	−331.796	−325.932	−302.062
H_2O	2		−198.334	−193.676	−188.919	−169.037
N_2	7.524		+34.936	+38.405	+41.904	+56.137
CaO	1		−577.926	−572.321	−566.671	−543.628
$\Sigma n_i H_i$ (products)			−1386.938	−1334.306	−1281.087	−1063.451

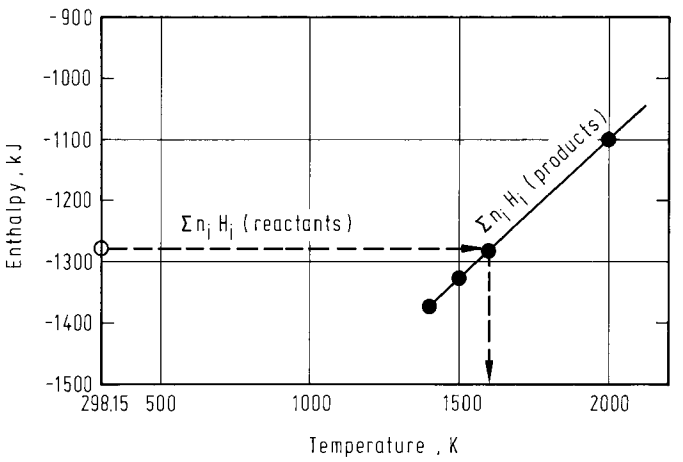

Fig. 7.1: Determination of the final temperature in an adiabatic process by plotting the enthalpies of reactants and products over the temperature range.

Reaction: $CH_4 + 2O_2 + 2\frac{79}{21}N_2 + CaCO_3 \rightarrow 2CO_2 + 2H_2O + 2\frac{79}{21}N_2 + CaO$.

supplied from 298.15 K to 900 K raises the temperature of the products from 1599 to 1922 K.

This preheating can be achieved by indirect heat exchange between hot product gases. This is practised in the manufacture of **cement clinker**. The clinker is cooled in process air, which is thus preheated for the precalcination step. The next calculation example treats a simplified case of this type.

7.1.4 Enthalpy balance for heat exchange

Heating air by cooling a hot material:

Question:

How much air (in terms of its volume at 273.15 K and 1 bar) can be heated from 298.15 to 600 K when the heat is provided by the cooling of 1 t CaO from 1600 to 600 K at 1 bar?

Calculation:

The process mentioned above can be described by the following table:

Reactants	CaO	N_2	O_2
n [mol]	x	0.79y	0.21 y
T [K]	1600	298.15	298.15
H [kJ mol^{-1}]	−566.671	0	0
Products:	**CaO**	**N_2**	**O_2**
n [mol]	x	0.79 y	0.21 y
T [K]	600	600	600
H [kJ mol^{-1}]	−620.773	8.894	9.224

Since $H(298.15)$ is zero for N_2 and O_2 the following relation applies:

$$x\,[H(CaO, 600) - H(CaO, 1600)] + y\,[0.79H(N_2, 600) + 0.21H(O_2, 600)] = 0$$

With $M_r(CaO) = 56.077$ g mol^{-1} it follows that for 1000 kg Mg CaO, $x = 17.833 \times 10^3$ mol.

On substituting for x and the values of the enthalpy, the following equation is obtained for the enthalpy change in kJ:

$$-964801 + y\,(7.026 + 1.937) = 0$$
$$y = 107643 \text{ mol "air"} .$$

With $V = 22.711 \times 10^{-3}$ m^3/mol at 1 bar and 273.15 K the amount of air heated is 2444.7 m^3 related to 1 bar and 273.15 K.

7.1.5 Enthalpy change in a system with reactions

Hydrogen is to be heated to 4000 K. At this temperature H_2 is completely dissociated according to the following reaction:

$$H_2 \rightarrow 2H .$$

Question:

Which quantity of energy is necessary to heat H_2 from 298.15 to 4000 K?

The proportion of H^+ ions at 4000 K is negligibly small.

Solution:

Substance	H_2	H
T [K]	298.15	4000
H [kJ mol^{-1}]	0	294.946

$$\Delta H = 2 \times 294.946 - 0 = 589.892 \text{ kJ/mol } H_2 .$$

Note:

Only 76.947 kJ are required to heat 1 mol argon from 298.15 to 4000 K (see Table for argon). The heat capacity and, hence, the enthalpy increment of a monatomic gas is less than it is for a diatomic gas. The diatomic gas can take up more energy on being heated. For this reason H_2 is often employed in plasma technology to increase the energy of the plasma gas beam.

The recombination of H to H_2 is an exothermic process in which the energy of dissociation is "liberated". This energy also contributes to an increase in the temperature of the plasma beam.

The enthalpies of ionization of H and Ar

$$H \rightarrow H^+ + e^-$$

$$Ar \rightarrow Ar^+ + e^-$$

are about the same so that the larger energy uptake of hydrogen is also maintained on coupling with the ionization energy.

7.2 Exergy and entropy balance calculations

Calculation of the exergy change occurring on cooling an exhaust gas from 1000 to 400 K at 1 bar pressure.

Exhaust gas composition (% by volume): 17% CO_2, 8% H_2O, 69% N_2, 6% O_2

Amount of exhaust gas: 1 m^3 at 1 bar and 273.15 K

Initial state 1 bar, 1000 K = T_1
Final state 1 bar, 400 K = T_2.

Additional information

Mole fraction: $x_i = n_i / \Sigma n_i$

$\Sigma n_i = p\,V / R\,T$

$V = 1\ m^3$ related to 1 bar and 273.15 K

$R = 0.0831441\ m^3\ bar^{-1}\ mol^{-1}$.

Change in exergy

$\Delta\varepsilon = \Sigma n_i (\Delta H - T_0\,\Delta S)$

$\Delta H = \Sigma x_i\,[H_i(T_2) - H_i(T_1)] = \Sigma x_i\,\Delta H_i$

$\Delta S = \Sigma x_i\,[S_{fi}(T_2) - S_i(T_1)] = \Sigma x_i\,\Delta S_i$

$T_0 = 298.15$ K, $T_1 = 1000$ K, $T_2 = 400$ K .

The calculation process using the table given below is summarized as follows:

H [kJ mol^{-1}], S [J K^{-1} mol^{-1}] .

$\Sigma x_i\,\Delta H_i = -20.741$ kJ mol^{-1}

$\Sigma x_i\,\Delta S_i = 31.287$ J K^{-1} mol^{-1}

$\Sigma n_i = 44.032$ mol

$\Delta\varepsilon = 44.032[-20.741\times10^{-3} - 298.15\times(-31.287)]$

$= -502.5$ kJ.

This value represents the maximum work which could be done by performing the process in a reversible manner. On account of the irreversibility the work done in a real process is less.

Note:

In the calculation the values of the standard entropies of the gases (at a pressue of 1 bar) were employed since the molar quantities and, hence, the partial pressures of the gaseous components remain constant on cooling.

Gas	CO_2	H_2O	N_2	O_2	Σ
vol%	17	8	69	6	100
x	0.17	0.08	0.69	0.06	1
$H(T_1)$	−360.105	−215.827	21.463	22.703	
$H(T_2)$	−389.501	−238.375	2.971	3.025	
ΔH	−29.396	−22.548	−18.492	−19.678	
$x\Delta H$	−4.997	−1.804	−12.759	−1.181	−20.741
$S(T_1)$	269.280	252.86	228.171	243.578	
$S(T_2)$	225.291	198.910	200.181	213.871	
ΔS	−43.989	−33.950			
$x\Delta S$	−7.478	−2.716	−19.311	−1.782	−31.287

7.3 Equilibrium calculations

7.3.1 Calculation of equilibrium constants of chemical reactions

a) Equilibrium constant of the reaction

$$C + H_2O = CO + H_2 \quad (a)$$

at 1000, 1100 and 1200 K.

Equilibrium constant

$$K_a = P_{CO} P_{H_2} / (a_C P_{H_2O})$$

If $a_C = 1$ (in the presence of solid carbon) then

$$K_a = P_{CO} P_{H_2} / P_{H_2O} \ .$$

The following equation is employed for the calculation of K_a:

$$\log K_a = \Sigma \nu_i \log K_f(i) \ .$$

The calculation is followed through in the next table (a).

The value of K is greater than 1 and increases with increasing temperature. The standard Gibbs energy of the reaction is negative in the temperature range from 1000 to 1200 K. The products CO and H_2 are accordingly the dominant equilibrium components in the gas phase.

b) Calculation of the equilibrium constant of the reaction

$$CO + H_2O = CO_2 + H_2 \quad (b)$$
(water gas equilibrium)

at 1000, 1100 and 1200 K

$$K_b = P_{CO_2} P_{H_2} / (P_{CO} P_{H_2O})$$

$$\log K_b = \Sigma \nu_i \log K_f(i) \ .$$

For data and results, see table (b)

Linear interpolation of $\log K_a = f(1/T)$ yields $K_a = 1$ at ca. $T = 1091$ K. Below this temperature the right-hand side of the equilibrium (products; CO_2, H_2) dominates and above this temperature the left-hand side (reactants; CO, H_2O) is dominant.

If the system is in equilibrium at, say, 1000 K and the temperature is then raised to 1200 K then CO_2 and H_2 are consumed with the production of CO and H_2 until the system reaches the new equilibrium state.

a)

Substances	C	H_2O	CO	H_2
ν	−1	−1	+1	+1

T [K]	$\log K_f$				$\log K_a$	K_a
	C	H_2O	CO	H_2		
1000	0	10.062	10.461	0	0.399	2.506
1100	0	8.888	9.927	0	1.039	10.940
1200	0	7.899	9.480	0	1.581	38.107

b)

Substances	C	H_2O	CO_2	H_2
ν	−1	−1	+1	+1

T [K]	$\log K_f$				$\log K_b$	K_b
	C	H_2O	CO_2	H_2		
1000	10.461	10.066	20.675	0	0.148	1.406
1100	9.927	8.888	18.801	0	−0.014	0.968
1200	9.480	7.904	17.238	0	−0.146	0.715

7.3.2 Vapor pressure calculations

The vapor pressures of substances are most simply calculated with the aid of the $\log K_f$ values in the tables on the basis of the two-phase equilibria solid-gas and liquid-gas.

For the evaporation of a substance A at temperature T:

$$A\,(sol, liq) = A\,(gas)$$

$$\log K = \log K_f\,(A\,(gas)) - \log K_f\,(A\,(sol, liq))$$
$$= \log [p\,(A\,(gas))/a(A\,(sol, liq))] \ .$$

p is the vapor pressure and a the activity of A in the condensed phase.

In general, for the evaporation of pure substances

$$\log K = \Sigma \nu_i \log K_f(i)$$
$$= \log p^0(i) \ .$$

When elements in their reference phases evaporate congruently

$$\log p^0(i) = \log K_f(i, gas) \qquad T \leq T_{bp} \ .$$

The vapor pressure reaches 1 bar at the boiling point:

$$p^0 = 1 \text{ bar} \qquad \text{at } T = T_{bp} \ .$$

Several gaseous species are produced when substances such as S, Te, PbO, etc. evaporate (e.g. S evaporates with the formation of S_1, S_2, ... S_8).

Many substances dissociate into other compounds on evaporation. In such cases the vapor pressure or dissociation pressure can be calculated using the equation

$$\log K = \Sigma \nu_i \log K_f(i) \ .$$

Example:

a) Vapor pressure of metals and compounds

$Al\,(liq) = Al\,(gas)$, $T = 1500$ K

$Pb\,(liq) = Pb\,(gas)$, $T = 1500$ K

$Pb\,(liq) = 1/2\ Pb_2\,(gas)$, $T = 1500$ K

$CCl_4\,(liq) = CCl_4\,(gas)$, $T = 300$ K

b) Dissociation pressure of ZnS at 1800 K

$$ZnS\,(sol) = Zn\,(gas) + 1/2\ S_2\,(gas) \qquad (b)$$

$$K_b = p_{Zn}(p_{S_2})^{1/2}, \quad p_{Zn} = 2\,p_{S_2}$$

Substance	T [K]	$\log K_f$	p^0 [bar]
Al (liq)	1500	0	
Al (gas)	1500	−4.878	1.32×10^{-5}
Pb (liq)	1500	0	
Pb (gas)	1500	−1.604	2.49×10^{-2}
Pb_2 (gas)	1500	−4.977	1.05×10^{-5}
CCl_4 (liq)	300	10.814	
CCl_4 (gas)	300	10.080	0.185
ZnS (w, sol)	1800	−1.009	($K_b = 0.098$)
Zn (gas)	1800	0	$p_{Zn} = 0.268$
S_2 (gas)	1800	0	$p_{S_2} = 0.134$

7.3.3 Equilibrium concentration of NO in hot air

A series of compounds is known in the N−O system, e.g. N_2O, NO, NO_2, N_2O_4, N_2O_5... N_xO_y. NO is produced by the reaction of N_2 and O_2 (thermal NO) at high temperatures. It is metastable in the atmosphere and can be transformed into NO_2 and other toxic compounds.

Example:

Calculation of the equilibrium concentration of NO in air at 1 bar pressure at the temperatures 1000, 1500 and 2000 K taking into account the species N_2, O_2 and NO.

Elucidation:

System: N−O

Components: N_2, O_2, NO (ideal gases)

Conditions: air, 79% N_2 and 21% O_2 by volume,

$p_{N_2}/p_{O_2} = 79/21$,

$p_{N_2} + p_{O_2} = 1$ bar ,

$T = 1000, 1500, 2000$ K .

Reaction:

$$1/2\ N_2 + 1/2\ O_2 = NO$$

$$K = p_{NO}/(p_{N_2}\,p_{O_2})^{1/2}$$

$$\log K = \log K_f(NO) - 1/2 \log K_f(N_2) - 1/2 \log K_f(O_2)$$
$$= \log K_f(NO) - 0 - 0 \ .$$

$$\log p_{NO} = \log K + 1/2 \log (p_{N_2} \times p_{O_2})$$
$$= \log K + 1/2 \log (0.79 \times 0.21) \ .$$

vpm (vol. per million) of NO $= p_{NO} \times 10^6$.

Data and results of calculation

T [K]	$\log K_f(NO)$	$\log p_{NO}$	NO content [vpm]
1000	−4.062	−4.452	35.32
1500	−2.487	−2.877	1327.39
2000	−1.699	−2.089	8147.04

As can be seen, at temperatures above 1000 K the NO content increases rapidly. In order to prevent the formation of thermal NO in combustion processes it is necessary to

- employ low combustion temperatures, e.g. $T \leq 1200$ K
- employ as little excess air as possible for combustion so that the partial pressures of N_2 and O_2 in the combustion chamber are kept low (see equation for $\log p_{NO}$).

7.3.4 Equilibrium concentration of NO in exhaust gases

Gas composition:

17% CO_2, 8% H_2O, 69% N_2, 6% O_2 (by volume).

Pressure = 1 bar

Temperatures: 1200 and 1500 K.

Assumptions:

The gas mixture is regarded as an ideal gas. The equilibrium concentrations of NO are calculated from the following equations:

$$1/2\ N_2 + 1/2\ O_2 = NO$$

$$K = p_{NO} / (p_{N_2} \times p_{O_2})^{1/2}$$

$$\log p_{NO} = \log K + 1/2 \log (p_{N_2} \times p_{O_2})$$
$$= \log K_f(NO) + 1/2 \log (0.69 \times 0.06) \ .$$

Calculation:

T [K]	$\log K_f(NO)$	NO content vpm
1200	−3.275	108.02
1500	−2.487	662.98

Note:

The equilibrium concentration of NO increases by more than a factor of 6 on raising the temperature by 300 K.

The gas composition chosen for the calculation corresponds approximately to that emitted by coal-fired power stations. The temperature of the exhaust gases as they leave the combustion chamber is about 1200 K for fluidized bed combustion and 1500 K for grate combustion. The composition of the exhaust gases from technical plants changes by a few percent on cooling. The NO content of untreated exhaust gases from coal combustion plants is about 500 to 600 ppm in the case of fluidized bed combustion and 700 to 1000 ppm after grate combustion. The exhaust gases from lignite combustion contain less NO. The nitrogen compounds contained in the fuel are of importance for NO formation in combustion processes. In addition, the same temperature is not maintained throughout the combustion chamber. The occurrence of local temperature peaks will increase the NO production considerably. This is the reason why calculated equilibrium concentrations are often lower than those actually measured in the exhaust gases from industrial combustion plants.

7.4 Equilibrium in simplified systems with several phases and components

7.4.1 Equilibrium in the C−CO−CO_2 system

Element system: C−O

Phases	Components
solid	C (graphite)
gas	CO, CO_2 (ideal gases)

This system has 2 independent variables according to the Gibbs phase rule:

$$f = 2+2-2 = 2 \ ,$$

e.g p_{CO}, T or p_{CO}, p_{CO_2} etc.

Exercise:

Calculation of the proportion of CO in the CO−CO_2 equilibrium mixture as a function of temperature.

Reaction:

$$C + CO_2 = 2\ CO \quad \textbf{(Boudouard equilibrium)}$$

$$K = p_{CO}^2 / p_{CO_2}$$

$$\log K = 2 \log K_f(CO) - \log K_f(CO_2)$$
$$- [\log K_f(C) = 0] \ .$$

Solution:

$$p_t = p_{CO} + p_{CO_2}$$

$$p_t = p_{CO} + p_{CO}^2 / K$$

$$p_{CO}^2 + K p_{CO} - K p_t = 0$$

$p_t = 1$ bar, vol% CO $= 100 \times p_{CO}$

$$\text{vol\% CO} = 100 \times K/2\ [(1+4/K)^{1/2} - 1] \ .$$

The calculation with $\log K_f$ values is summarized in the following table.

In Fig. 7.2 p_{CO} is plotted as a function of T. The curve for the two-phase equilibrium where C_{sol} and the gas phase coexist is known in metallurgy as the Boudouard curve.

At low temperatures the gas phase consists primarily of CO_2 and at higher temperatures mainly of CO. Consequently CO is not stable at room temperature and a pressure of 1 bar and should decompose with the formation of C and CO_2. However, CO exists at room temperature as a metastable gas. The decomposition of CO occurs at temperatures above 800 K, especially in the presence of catalytic substances such as metallic iron.

In accordance with Le Châtelier's principle, the CO content of the gas phase is reduced when the total pressure is increased at constant temperature, i.e. the Boudouard curve is displaced to the right. The displacement can be calculated with the aid of the equations given.

T [K]	$\log K_f(CO_2)$	$\log K_f(CO)$	$\log K$	K	vol% CO
400	51.535	19.112	−13.311	4.37×10^{-14}	2.20×10^{-5}
600	34.400	14.320	−5.760	1.74×10^{-6}	0.013
700	29.501	12.948	−3.605	2.483×10^{-4}	1.56
800	25.825	11.916	−1.993	1.016×10^{-2}	9.59
900	22.965	11.109	−0.747	0.179	34.30
1000	20.675	10.461	0.247	1.766	71.25
1100	18.801	9.927	1.053	11.298	92.44
1200	17.238	9.480	1.722	52.723	98.17
1400	14.780	8.772	2.764	580.764	99.83

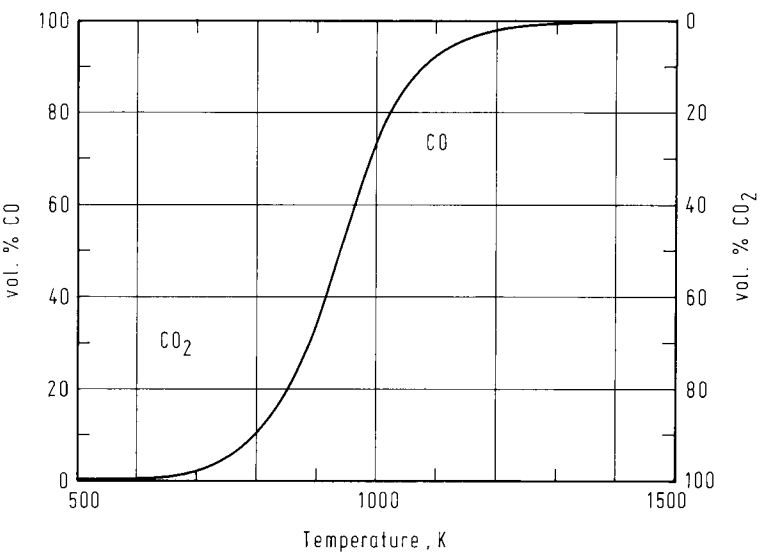

Fig. 7.2: Concentration of CO and CO_2 in the CO–CO_2 mixture in equilibrium with solid carbon (graphite) as a function of temperature at 1 bar.

7.4.2 Predominance area diagram for the system Zn–O–C

System: Zn–O–C.

Components: ZnO (sol), Zn (liq, gas), CO (gas), CO_2 (gas).

Exercise:

Calculation of the equilibrium

$$ZnO + CO = Zn + CO_2$$

$$K = p_{CO_2} a_{Zn} / (p_{CO} a_{ZnO})$$

and representation of the regions of stability of ZnO and Zn by plotting $\log (p_{CO}/p_{CO_2})$ against $1000/T$ over the temperature range from 800 to 1800 K.

The basic equations are

$$\log K = \Sigma \nu_i K_f(i) = \log [p_{CO_2} a_{Zn} / (p_{CO} a_{ZnO})]$$

$$\log p_{CO}/p_{CO_2} = -\log K + \log a_{Zn}$$

$a_{ZnO} = 1$ for ZnO (sol)

$a_{Zn} = 1$ for Zn (pure liquid)

$a_{Zn} = p_{Zn}$ for Zn (gas) .

T [K]	$\log K_f$				$\log K$	$\log (p_{CO}/p_{CO_2})$ for $a_{Zn} = 1$
	ZnO	CO	Zn	CO_2		
800	17.612	11.916	0	25.825	−3.703	3.703
1000	12.962	10.461	0	20.675	−2.748	2.748
1200	9.777	9.480	0	17.238	−2.019	2.019
1500	5.703	8.487	0	13.796	−0.394	0.394
1800	3.017	7.812	0	11.499	+0.670	−0.670

The calculation is summarized in the following table.

Figure 7.3 illustrates a plot of $\log p_{CO}/p_{CO_2}$ against $1000/T$. The equilibrium lines have mainly been approximated by straight lines. The solid line with a bend at the boiling point of zinc is the coexistence line where Zn and ZnO exist in equilibrium together. Zinc is stable above this line and ZnO below it. Thus, the diagram indicates the regions of stability of Zn and ZnO under a gas phase comprising Zn, CO and CO_2.

The coexistence line ZnO/Zn (gas) applies to $p_{Zn} = 1$ bar. Its position changes with $+\log p_{Zn}$ according to the equation

$$\log (p_{CO}/p_{CO_2}) = -\log K + \log p_{Zn} \ .$$

This line is displaced 1 scale unit downwards when $p_{Zn} = 0.1$ bar.

Figure 7.3 also shows the position of the equilibrium calculated in the previous example (Boudouard equilibrium)

$$CO_2 + C = 2CO$$

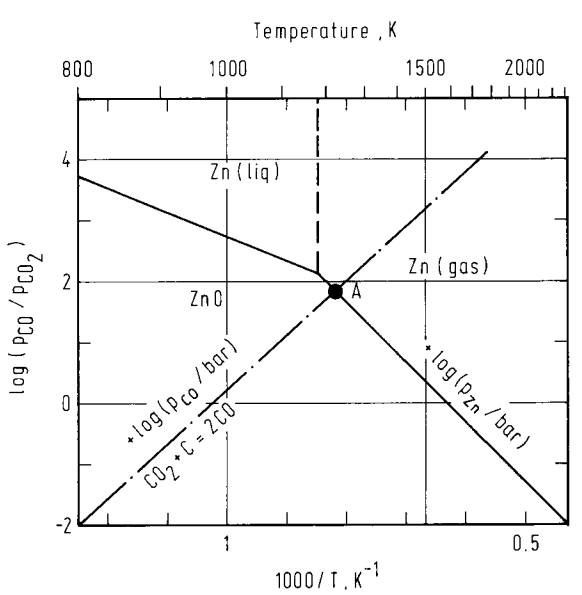

Fig. 7.3: Predominance area diagram for the system Zn−O−C. The line for the Boudouard equilibrium crosses the coexistence line for ZnO/Zn (gas) at the point A at unit pressures of CO and Zn (gas). When $T \geq T_A$ then ZnO can be reduced to Zn using solid carbon.

at $p = 1$ bar. This line is also displaced parallel downwards when p_{CO} is reduced.

The point of intersection A is of importance for the reduction of ZnO in the presence of solid carbon.

When $p_{Zn} + p_{CO} + p_{CO_2} = 1$ bar, i.e. $p_{Zn} < 1$ bar and $p_{CO} < 1$ bar, then it follows from the position of intersection A that the reduction of ZnO in the presence of solid carbon always leads to the formation of gaseous and not liquid zinc. If the gas produced, consisting of Zn, CO and CO_2 (less than Zn and CO), is cooled, then because of the position of the Boudouard line, reoxidation should take place to ZnO. However, the CO decomposition taking place during this process is inhibited kinetically, so that cooling the Zn−CO mixture yields liquid zinc.

7.4.3 Predominance area diagram for the system Zn−O−S

Exercise:

Calculation of the predominance area diagram for the system Zn−O−S in the $\log p = f(p_{CO_2})$ diagram at 1600 and 1900 K.

The following elements and compounds will be considered in the description of the equilibrium between the species. Zn (gas), ZnO (sol), ZnS (sol), O_2 (gas), S_2 (gas).

The equilibrium between S_2, O_2 and SO_2 also requires calculation at 1600 and 1900 K in order to explain the technical relevance of the equilibrium calculation.

Reactions between zinc species

$$Zn + 1/2\, O_2 = ZnO \qquad (1)$$
$$K_1 = (p_{O_2})^{-1/2} (p_{Zn})^{-1}$$

$$Zn + 1/2\, S_2 = ZnS \qquad (2)$$
$$K_2 = (p_{S_2})^{-1/2} (p_{Zn})^{-1}$$

$$ZnO + 1/2\, S_2 = ZnS + 1/2\, O_2 \qquad (3)$$
$$K_3 = (p_{O_2})^{1/2} (p_{S_2})^{-1/2} \ .$$

Calculation of the equilibrium constants

$$\log K_1 = \log K_f(\mathrm{ZnO})$$
$$\log K_2 = \log K_f(\mathrm{ZnS})$$
$$\log K_3 = \log K_f(\mathrm{ZnS}) - \log K_f(\mathrm{ZnO}) = -\log K_1 + \log K_2 \ .$$

Calculation of $\log p_{O_2}$ and $\log p_{S_2}$

$$\log (p_{O_2})_1 = -2 \log K_1 - 2 \log (p_{Zn})_1$$
$$\log (p_{S_2})_2 = -2 \log K_2 - 2 \log (p_{Zn})_2$$
$$\log (p_{O_2})_3 = 2 \log K_3 + \log (p_{S_2})_3 \ .$$

Calculation results

T [K]	$\log K_1$	$\log K_2$	$\log K_3$
1600	4.692	2.340	−2.352
1900	2.316	0.453	−1.863

T [K]	$\log (p_{O_2})_1$ p_{Zn} = 1 bar	$\log (p_{S_2})_2$ p_{Zn} = 1 bar	$\log (p_{O_2})_3$ p_{S_2} = 1 bar
1600	−9.384	−4.680	−4.704
1900	−4.632	−0.906	−3.762

Equilibrium in the system S−O with the species S_2, O_2 and SO_2:

$$1/2\ S_2 + O_2 = SO_2 \qquad (4)$$

$$K_4 = p_{SO_2} (p_{O_2})^{-1} (p_{S_2})^{-1/2}$$
$$\log K_4 = \log K_f(SO_2)$$
$$\log (p_{O_2})_4 = -\log K_4 - 1/2 \log p_{S_2} + \log p_{SO_2} \ .$$

T [K]	$\log K_4$	$\log (p_{O_2})_4 + \log p_{S_2}$ at p_{SO_2} = 1 bar
1600	7.995	−7.995
1900	6.136	−6.136

Figure 7.4 shows the coexistence lines of systems Zn/ZnS, Zn/ZnO and ZnS/ZnO. The solid lines apply to T = 1600 K and the broken lines to T = 1900 K. At each temperature there is a point at which the three coexistence lines meet. This point where all three zinc-containing species coexist is known as a triple point. In contrast to the triple point in the phase diagram of H_2O, the triple point in the $p = f(T)$ diagram of the system Zn−O−S is not invariant. Its position changes with p_{Zn}.

It can be concluded from the position of the equilibrium line for SO_2 that ZnO is produced when ZnS is roasted in O_2 at 1600 K. The SO_2 content of the exhaust gases in technical processes is from 5 to 80% by volume. ZnO is the stable zinc compound under these circumstances. In contrast the SO_2 line at 1900 K lies in the stability area of gaseous zinc. So roasting at 1900 K can yield zinc vapor as well as SO_2.

When zinc-containing copper concentrates are smelted in high temperature reactors (flash smelting, cyclone smelting) the temperatures rise appreciably

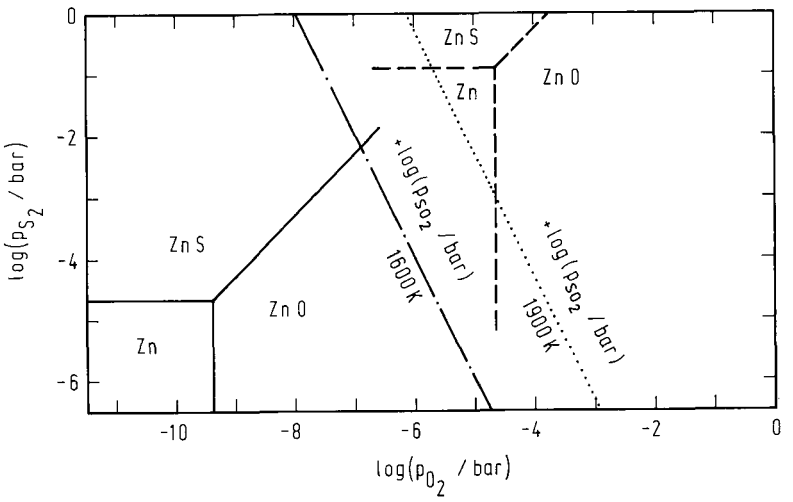

Fig. 7.4: Stability areas of the components in the system Zn−O−S at 1600 K and 1900 K with p_{Zn} = 1 bar. The equilibrium line for the reaction $\frac{1}{2}S_2 + O_2 = SO_2$ is plotted for p_{SO_2} = 1 bar.

over 2000 K. Zinc is, thus, transferred into the gaseous phase. In the case of cyclone smelting it is possible to separate most of the zinc by vaporization thereby simplifying the metallurgical steps that follow.

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7.5 Electrochemical energy conversion, high temperature fuel cell

High temperature cells with solid electrolytes of zirconium dioxide have been investigated for the electrolysis of H_2O vapor and as fuel cells for the generation of electric power. Examples include the combustion of synthesis gas ($CO-H_2$ mixtures) in cells at temperatures of 1300 K.

The following equation must be considered in a discussion of the thermodynamic aspects of fuel cells

$$H_2 + 1/2\,O_2 = H_2O\ (gas)\ .$$

The following can be read from the table for H_2O (gas):

T [K]	ΔH_f kJ mol^{-1}	ΔG_f kJ mol^{-1}
298.15	−241.826	−228.620
1300	−249.475	−175.934

The formation reaction is strongly exothermic at both temperatures. The maximum work that must be done to the system to cause electrolysis is very much less at 1300 K than at 298.15 K. The work that the system can do, on the other hand, is less at the higher temperature.

The maximum efficiency of the fuel cell $\varepsilon_{max} = \Delta G_r / \Delta H_r$ is 94.5% at 298.15 K and 70.5% at 1300 K. Practical efficiencies are in the region of 45 to 60%.

However, these chemical thermodynamic considerations are important but not decisive for the technical exploitation of high temperature fuel cells. One practical important factor is the decrease in the electrokinetically determined overvoltage so that smaller losses occur in comparison with low temperature operation and, thus, higher efficiencies are obtained. Another difficulty is the direct utilization of the fuels which are produced at high temperatures (steam from condensers, H_2 and CO from coal gasification) and, hence, avoidance of the losses inevitable in irreversible heat-exchange processes.

Calculation of the cell voltage

A high temperature solid electrolyte fuel cell (SOFC) will be considered now. Modern SOFC technology employs calcia-stabilized zirconia as the support tube and yttria-stabilized zirconia as the solid electrolyte. In addition, special oxide ceramic materials are employed as electrodes and interconnection materials. These materials and the solid electrolyte are deposited as thin layers on the support tube by electrochemical vapor deposition.

The emf of the cell when burning H_2 with O_2 can be calculated from

$$H_2 + 1/2\,O_2 = H_2O(r)$$

$$K_r = p_{H_2O}\,(p_{H_2})^{-1}\,(p_{O_2})^{-1/2}$$

$$E_O = -\Delta G_r/(zF) = RT/(zF)\ln K_r\ .$$

For

$$T = 1300\ K \text{ with}$$

$$\Delta G_r = \Delta G_f(H_2O) = -175.934\ kJ\ mol^{-1}$$

and

$$F = 96484.6\ C\ mol^{-1} = 96484.6\ J\ V^{-1}\ mol^{-1}$$

$$E_O = 0.912\ V\ .$$

In comparison, the cell voltage is displaced to 1.229 V at 298.15 K with

$$\Delta G_r = -237.141\ kJ\ mol^{-1} \quad \text{for } H_2O\ (liquid)\ .$$

If air is employed as oxidant, the partial pressure of oxygen at the oxidation electrode (anode) can be taken as 0.21 bar. The partial pressure of H_2 at the fuel electrode (cathode) falls as a result of H_2O formation. Under equilibrium conditions the O_2 partial pressure at the cathode is given by

$$p_{O_2} = [(p_{H_2O}/p_{H_2})/K_r]^2\ .$$

This, together with

$$\log K = \log K_f(H_2O) = 7.069 \text{ at } T = 1300\ K$$

yields

$$p_{O_2} = 7.278\times10^{-15}\ bar \text{ for } p_{H_2O}/p_{H_2} = 1$$

or

$$p_{O_2} = 10^{-17}\ bar \text{ for } p_{H_2O}/p_{H_2} = 0.03707\ .$$

The latter corresponds to the state where $p_{H_2}+p_{H_2O} = 1$ bar with 3.57% H_2O by volume in the H_2-H_2O mixture in the cathode space. The ratio of the O_2 partial pressures p_{O_2} (anode)/p_{O_2} (cathode) is, thus, of the order of 10^{13} to 10^{16}. If the latter value is substituted into the Nernst equation then for the open cell circuit

$$E = (RT/2F)\times[\ln(10^{16})^{1/2}]$$
$$= 0.056\times 18.421$$
$$= 1.032\ \text{V}\ .$$

The cell potential is less when current is flowing. A cell voltage of ca. 0.5 V has been measured at a current density of 400 mA/cm^2.

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7.6 The calculation of equilibria in multiphase, multicomponent systems

The calculation of the equilibria in systems with several elements and phases requires the employment of suitable computer methods.

Consider, for instance, the system C–H–O. Even if the equilibrium components are limited to CH_4, CO, CO_2, H_2 and H_2O, when the total pressure p, the temperature and two stoichiometric parameters ($\Sigma n_H/\Sigma n_C$, $\Sigma n_O/\Sigma n_C$) are known, the following equations apply:

$$p = p_{CH_4} + p_{CO} + P_{CO_2} + p_{H_2} + p_{H_2O} \qquad (1)$$

$$CO + H_2O = CO_2 + H_2 \quad \text{(a)}$$

$$K_a = p_{CO_2}\,p_{H_2}/(p_{CO}\,p_{H_2O}) \qquad (2)$$

$$CH_4 + H_2O = CO + 3H_2 \quad \text{(b)}$$

$$K_b = p_{CO}\,p_{H_2}^3/(p_{CH_4}\,p_{H_2O}) \qquad (3)$$

$$\Sigma n_H/\Sigma n_C = (4p_{CH_4} + 2p_{H_2} + 2p_{H_2O})/(p_{CH_4} + p_{CO} + p_{CO_2}) \qquad (4)$$

$$\Sigma n_O/\Sigma n_C = (p_{CO} + 2p_{CO_2} + p_{H_2O})/(p_{CH_4} + p_{CO} + p_{CO_2})\ . \qquad (5)$$

The solution of these nonlinear system of equations by established methods of numerical mathematics with the aid of a computer program yields the partial pressures of the gaseous components. If the system is enlarged to include components such as C_{sol} (solid carbon), N_2 etc. then it is necessary to set up and solve a new system of equations. The amount of calculation involved increases as the number of components increases [1].

However, computer programs are available nowadays which are capable of calculating equilibrium states for given element combinations and equilibrium parameters [2–5].

The database and computing system equiTherm [5, 6] contains the computing program SOLGASMIX [4] coupled with the data set published in these Tables. equiTherm allows the calculation of equilibria using personal computers *for* systems of up to 15 elements and 20 phases (up to a total of 120 species).

The computer program SOLGASMIX [4] calculates the equilibria according to the principle of Gibbs energy minimisation at a constant pressure and temperature.

The total Gibbs energy of a system is given by

$$G = \Sigma n_i \mu_i$$

where n_i represents the number of moles of substance and μ_i their chemical potentials. The following relations apply:

for gas mixtures:

$$\mu = \mu_i^0 + RT\ln p + RT\ln x_i$$

for condensed phases

$$\mu_i = \mu_i^0 + RT\ln\gamma_i + RT\ln x_i$$

for stoichiometrically composed pure solid substance

$$\mu_i = \mu_i^0\ .$$

When p and T are given it is still necessary to take account of further restrictions depending on the masses of the elements, which are, in general, formulated as follows:

$$\Sigma n_{\varepsilon ij}\, n_i = b_j\ .$$

Where $n_{\varepsilon ij}$ is the number of moles of the element j in one mole of the species i, n_i is the number of moles

of species i and b_j is the total number of moles of element j in the system.

The introduction of the Lagrangian multiplier λ with the associated conditions yields the equations:

for gases

$$\mu_i^0 + RT \ln p + RT \ln x_i - \Sigma n_{\varepsilon ij} \lambda_j = 0$$

for mixtures in condensed phase

$$\mu_i^0 + RT \ln \gamma_i + RT \ln x_i - \Sigma n_{\varepsilon ij} \lambda_j = 0$$

for stoichiometric phases in the condensed state

$$\mu_i^0 - \Sigma n_{\varepsilon ij} \lambda_j = 0 \ .$$

These relations lead, on expansion in a Taylor series around an estimated equilibrium composition, to a set of linear equations. The number of unknowns is reduced to the number of elements and phases assumed to be present in the equilibrium. The solution approximates to the Gibbs energy surface on application of an iteration algorithm. Further explanation is given in references [4] and [6].

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7.7 Thermodynamic calculation of technical processes with reactions of natural materials

7.7.1 Incineration of waste materials in a fluidized bed furnace

Sewage sludges from community facilities as well as from industrial plants are very often disposed of by incineration in fluidized bed furnaces [1]. The incineration is a combustion process at a relatively low temperature. The preheated air is blown through a distributor into the fluidized bed. Sand is frequently used as the fluidized bed material. The dehydrated sewage sludge (water content ≤ 75 wt%) is introduced to the fluidized bed from above. Through intensive heat and mass exchange in the fluidized bed the incineration of the organic sewage sludge components takes place almost completely at temperatures of $\leq 900\,°C$. At higher temperatures melt phases can be formed, which can lead to agglomerations in the fluidized bed (lump formation).

The fluidized bed incineration has a number of advantages compared with high-temperature incineration: lower energy requirement for the process, lower emission of harmful substances (such as NO), lower entropy production, use of simpler and cheaper plant materials, simplification of reactor design and process execution etc.. However, the fluidized bed technique requires fluidizable particle sizes and can only be used if the desired chemical reactions are possible without the formation of extended melt phases.

Calculations on the simulation of the incineration of moist sewage sludge (H_2O content = 43.75 wt%) and the high-temperature incineration of dried sewage sludge (H_2O content = 2.83 wt%) are compared below.

The composition of the dried sewage sludge with a net calorific value of 9 MJ/kg is shown in Table 7.1.

The material and energy balance of the incineration process is summarized in Table 7.2. Because of the relatively low incineration temperature at 850 °C the energy requirement for the incineration process is correspondingly low. Thus the degree of drying can be low, i.e. the water content of the sewage sludge can be high.

The calculation is carried out for a sludge with a water content of 43.75 wt%. The composition of the sewage sludge given in Table 7.1 changes with the increased proportion of water and the calorific value is then only 4.181 MJ/kg. The process enthalpy must be sufficiently large for the total heat loss from the furnace to be compensated at an average process temperature of 850 °C.

Table 7.1: Composition of the dried sewage sludge. Net calorific value = 9 MJ/kg

Components	Mass%	Components	Mass%
C	20.13	Al_2O_3	5.92
H	2.95	CaO	12.37
N	1.71	Fe_2O_3	2.76
O.	17.75	KCl	0.38
S	1.75	K_2O	0.42
Cl	0.00	Na_2O	3.51
F	0.00	P_4O_{10}	5.36
H_2O	2.83	Pb	0.04
		SiO_2	21.89
		ZnO	0.23

Table 7.2: Material and energy balance of the incineration process

	Temp. [°C]	Quantity
Input materials		
Sewage sludge (H_2O: = 43.75 Mass%)	25.00	1000 kg
Combustion air	240.00	1970 m^3
Products		
Gas	850.00	2681 m^3
Ash	850.00	323 kg
Enthalpy of input	−1.2193E+10 J	
Enthalpy of products	−1.2412E+10 J	
Process enthalpy	−2.1951E+08 J	
Process entropy	+6.8608E+06−X J/K	

Table 7.3 shows the composition of the products. It can be seen that potassium and sodium are present in the waste gas in the form of different compounds. The main components of the ashes are considered to be pure oxides. Phosphorus is in the form of sodium phosphate. The total interaction between the oxides (silicate formation etc.) has not been included in the considerations.

The SO_2 content of the waste gas given in Table 7.3 does not correspond to the equilibrium state. When a equilibrium is set up in the presence of CaO, SO_2 is almost completely bound through $CaSO_4$ formation (flue gas desulfurization). However, $CaSO_4$ formation proceeds more slowely through the kinetic inhibition of the previous reaction steps (chemisorption of SO_2 on CaO with subsequent oxidation to SO_3) and through the coating of CaO by a dense $CaSO_4$ layer. Therefore the practical reaction conditions are reflected in the calculations by assuming that only part of the CaO brought in with the sewage sludge is effective for the reactions.

Table 7.3: Composition of the incineration products

Gas		**Ash**	
Components	Vol.%	Components	Mass%
CO	0.000	Al_2O_3	12.860
CO_2	8.103	$CaSO_4$	13.705
H_2O	27.905	Fe_2O_3	5.989
KCl	0.025	Na_3PO_4	13.439
KOH	0.043	P_4O_{10}	5.832
N_2	57.945	SiO_2	47.563
NO	0.005	ZnO	0.612
O_2	5.933	Residual	0.000
SO_2	0.036		
SO_3	0.004		
PbO	0.001		
Residual	0.000		

7.7.2 Sewage sludge incineration at 1600 °C

In Fig. 7.5 two plant flow sheets for the thermal disposal of sewage sludge are shown. Plant (a) uses a fluidized bed incinerator. Before entering the furnace the sewage sludge still has a water content of 43.75 wt%. The calculations for plant (a) were given in the previous section (7.7.1).

In the case of plant (b) a high-temperature reactor (e.g. smelting cyclone) is used [2]. The sewage sludge has an initial water content of ≥75 wt% and must be dried to one of 2.83 wt%, before entering the furnace.

Because of the high process temperature the reactions in the reactor (cyclone) proceed rapidly. Accordingly, the specific throughput, i.e. the quantity of sewage sludge incinerated per unit time and reactor volume, of this type of reactor is larger than that of an incinerator operating at 850 °C. The high process temperature leads to formation of an oxide melt (slag) from the ash components of the sewage sludge. The reactor wall must therefore be protected by suitable refractory lining and cooling (e.g. with water).

The energy flow from the reactor as a result of cooling increases the total energy requirement and the cooling process indicates high entropy production in the surroundings of the system. On cooling, the heat is transferred from a system at 1600 °C to one at a lower temperature (H_2O at e.g. 50 °C), which is a process showing high irreversibility.

The composition of the sewage sludge introduced to the smelting reactor is shown in Table 7.1.

Table 7.4 shows the summarized material and energy balance. Compared with Table 7.2, the large quantity of waste gas and the use of high-value pure materials, such as CH_4 and O_2, are noteworthy. The enthalpies of the input and output materials are

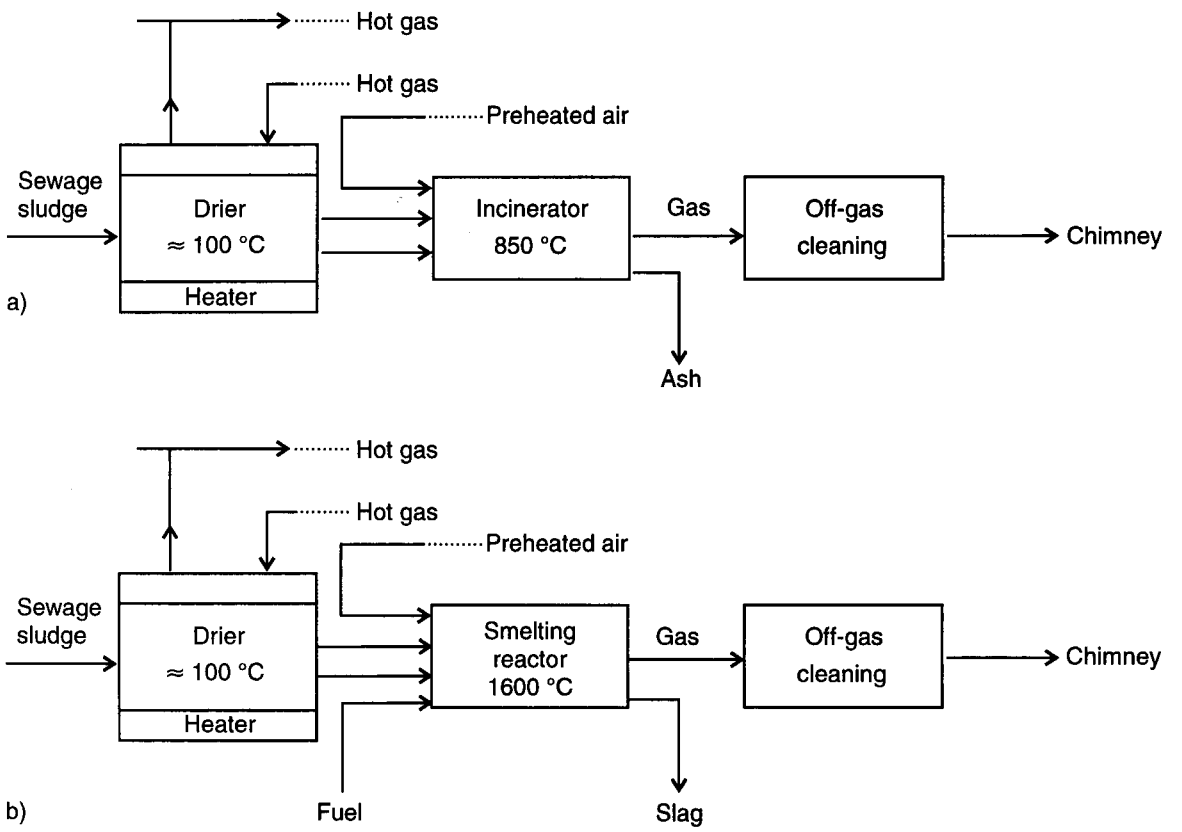

Fig. 7.5: The simplified flow-sheet of two plants for thermal disposal of sewage sludges using a fludizied-bed incinerator (a) and a high-temperature furnace for smeltings combustion (b). Hot gas for the drier operation and the preheated air as well are produced by heat exchange in the off-gas system.

higher on the energy scale. Also the quantity of process enthalpy is almost one power of ten higher than in process (a).

In this comparison the energy for the drying process, which is necessary to reduce the water content to 2.83 wt%, must also be taken into consideration. Compared with the process described under 7.7.1, this means that from 1398 kg of sewage sludge with 43.75 wt% water, ca. 398 kg water must be removed by evaporation (using the energy of the hot off-gas from the furnace) to achieve the composition shown in Table 7.1.

Table 7.4: Material and energy balance for the smelting combustion of dried sewage sludge

	Temperature	Quantity
Input		
Sewage sludge	25 °C	1 000 kg
Combustion air	240 °C	2933 m^3
Transport air	25 °C	200 m^3
O_2	25 °C	100 m^3
CH_4	25 °C	50 m^3
Products		
Off-gas	1600 °C	3657 m^3
Slag	1600 °C	438 kg
Enthalpy of input	−8.0279E+09 J	
Enthalpy of products	−8.5505E+09 J	
Process enthalpy	−5.2265E+08 J	
Process entropy	9.2834E+06−X J/K	

If the drying process according to

$$H_2O\ (liq., 298.15\ K) \longrightarrow H_2O\ (gas, 400\ K)$$

is considered, for 398 kg water the process enthalpy is 1.051×10^9 J and the process entropy 2.586×10^6 J/K. This means that the process values given in Table 7.4 for the enthalpy and entropy change by incorporation of these quantities.

The compositions of the products of the high temperature process are given in Table 7.5. As expected, the hot gas leaving the reactor contains high amount of NO. Alkali metals are present both in elemental form and as halides and oxides. The SO_2 content is high, as no binding of sulfur (as CaS or $CaSO_4$) is possible in the slag because of the high oxygen potential and/ or high temperature. As sewage sludge has a high phosphate content (a constituent of organism), in the high-temperature incineration the phosphorus is mainly transferred to the gas phase in the form of PO_2. If sufficient quantities of alkali and alkaline

Table 7.5: Composition of the produced gas and slag

Gas		**Slag**	
Components	Vol.%	Components	Mass%
CO	0.020	Al_2O_3	13.517
CO_2	11.613	CaO	28.253
H_2O	13.023	FeO	5.169
K	0.003	Fe_3O_4	0.530
Na	0.058	K_2O, Na_2O	1.299
KCl	0.005	P_2O_5	0.891
NaCl	0.027	PbO	0.008
KOH	0.079	SiO_2	49.994
NaOH	0.493		
N_2	67.449	ZnO	0.335
NO	0.282	Residual	0.004
O_2	6.146		
SO_2	0.334		
PO_2	0.429		
Zn	0.006		
Residual	0.033		

earth oxides are present in the slag, part of the phosphorus can be bound as phosphate.

The slag is regarded as resistant to elution. Because of this and because of its glassy nature and high density the slag is more highly valued than the ash from the incineration process. The latter has to be disposed off if it cannot be fractionated by suitable measures in the off-gas cleaning process.

According to Tables 7.1 and 7.4 the process entropy is

6.8608 E + 06. – X J/K for the incineration and
9.2834 E + 06. – X J/K for the high temperature smelting process.

For the same sewage sludge with the same initial water content the increase in entropy in the high-temperature smelting process is larger than in the incineration process.

The cooling of the smelting furnace, the granulation of the slag in the water bath, the differences in quality between the solid and liquid phases, and the differences in waste gas scrubbing must be determined in detail for a technically relevant energy and entropy balance. Such balances provide the basis for the technical and economic assessment of processes. The comparative entropy balance also offers, if it is complete, an ecological guidance on the basis of the second law of thermodynamics.

7.7.3 Combustion of coal in the slag tap boiler

In this type of combustion facility pulverized coal is burned with air in a reactor in the form, for example, of a horizontal cyclone. In this reactor high temperatures of ca. 1600 °C are achieved and the ash components of the coal are melted to form slag. The liquid slag collects on the reactor wall as a result of the fluid-flow characteristics in the reactor. It flows out of the reactor through the tap hole and is then granulated in a water bath. The waste gas is cooled in boilers, whereby high-pressure steam is produced, which is used to drive steam turbines for power generation.

Because of the high temperatures in the furnace the gas phase produced also contains components (metals, halogens etc.), which condense in the boiler system on cooling and can lead to the formation of deposits on the heat exchanger pipes. The solid particles (fly ash) carried in the waste gas can also form part of these deposits, which is an interference factor for the operation of the power station and must be removed during shut-down periods.

The process involving the high-temperature combustion of coal at 1600 °C and subsequent cooling of the waste gas to 700 °C is calculated on the basis of

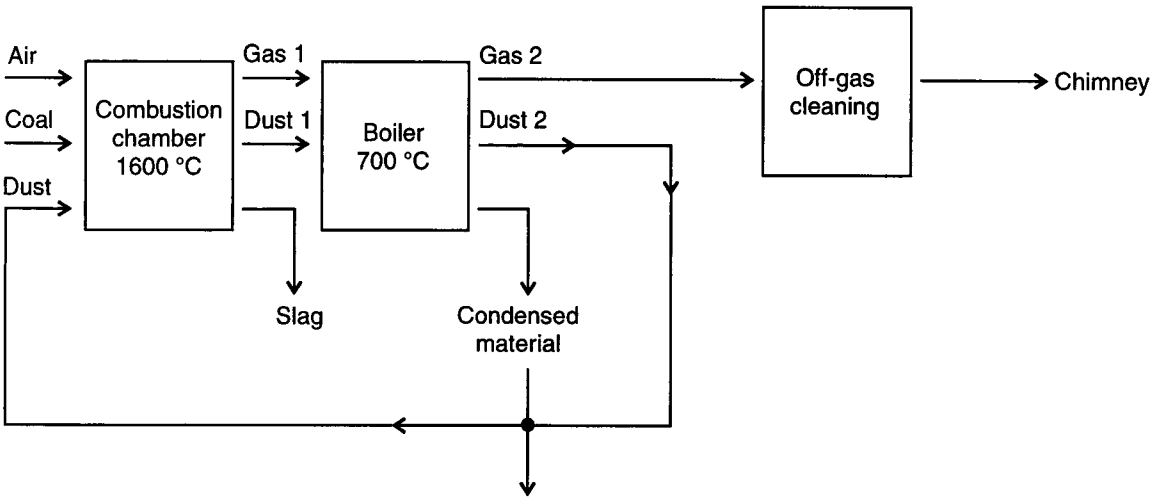

Fig. 7.6: Thermodynamic calculation model of the high-temperature part of a coal combustion plant for power generation. Flowsheet simulation of a process consisting in two steps.

simplifying assumptions. The model for the simulation of this process is shown schematically in Fig. 7.6.

The composition of the input coal is shown in Table 7.6. The combustion process should take place at 1600 °C leading to a gas product with an O_2 content of about 3 vol% on dry basis (gas without H_2O).

In the smelting chamber the coal does not react completely. This applies in particular to the solid carbon and the ash-forming components, while the so-called volatile fuel components (H, N, O, S) are completely oxidized. To simulate this fact, the degrees of conversion of the input materials or their components are restricted. For simplification it is first assumed that the unreacted portion of the coal leaves the reactor at the process temperature.

The dust removed in the flue gas scrubbing system is recycled to the combustion furnace together with the coal. A recycling system is thus achieved, in which the flow of material is only approximately quasi-stationary after several cycles. As a result of dust recycling, the gas phase becomes enriched with volatile components (alkali compounds) which condense on cooling the flue gas, and a proportion of them return to the combustion furnace together with the dust, where they vaporize again. The composition of the dust fed to the combustion chamber together with the coal is given in Table 7.6.

The material balance of the process is summarized in Table 7.7. The quantities and composition of the

Table 7.6: Composition of the coal and dust introduced into the combustion chamber. H_2O content is based on wet state. All other concentrations based on dry state
Net calorific value = 29.142 MJ/kg

Component	Mass%		Component	Mass%	
	Coal	**Dust**		**Coal**	**Dust**
H_2O, WB	7.60		Al_2O_3	2.38	7.38
			CaO	0.29	0.87
C	82.47	40.03	Fe_2O_3	0.96	2.90
H	3.68		K_2O	0.37	12.34
O	2.71		MgO	0.21	0.64
N	1.49		Na_2O	0.07	3.27
S	0.87		P_2O_5	0.05	2.48
Cl	0.11	0.01	SO_3	0.19	17.18
			SiO_2	4.17	12.68
Ash	8.77		TiO_2	0.09	0.00
			ZnO	0.01	0.23

Table 7.7: Material balance for the combustion process at p = 1.013 bar

Input materials			Products		
Coal	25 °C	15 350 kg/h	Gas	1600 °C	142 717 m^3/h
Dust	25 °C	854 kg/h	Slag	1600 °C	1 102 kg/h
Air	400 °C	137 808 m^3/h	Dust	1600 °C	572 kg/h

Table 7.8: Composition of the gas and slag produced by the combustion of coal with recycle dust at 1600 °C

Gas phase

Component	Vol.%	Component	Vol.%
CO	0.03850	NO	0.20307
CO_2	15.22846	Na	0.00176
H_2	0.00350	NaCl	0.00145
HCl	0.00034	NaO	0.00005
H_2O	5.78172	NaOH	0.00823
K	0.00132	O_2	2.84317
KCl	0.00402	PO_2	0.00393
KO	0.00004	SO_2	0.08035
KOH	0.02147	SO_3	0.00011
N_2	75.77812	Zn	0.00037

Slag

Component	Mass%	Component	Mass%
Al_2O_3	29.912	K_2O	2.019
CaO	3.514	MgO	2.568
Fe	0.002	Na_2O	0.147
FeO	8.630	SiO_2	51.147
Fe_3O_4	2.049	ZnO	0.013

Table 7.9: Composition of the condensed material and gas phase formed by cooling the combustion gas (Table 7.7) from 1600 to 700 °C. Gas quantities are given for 1 bar and 273.15 K
Combustion gas 142 717 m^3/h (1600 °C)
Condensed materials 195 kg/h (700 °C)
Residual gas 142 615 m^3/h (700 °C)

Gas phase	Vol.%	**Condensed material**	Mass%
CO	0.038528	KCl	0.015
CO_2	15.239398	K_3PO_4	15.547
Cl_2	0.000001	K_2SO_4	57.370
HCl	0.006811	NaCl	0.006
H_2O	5.801004	Na_3PO_4	2.699
KCl	0.000002	Na_2SO_4	23.214
N_2	75.842777	ZnO	0.813
NO	0.183835	$ZnSO_4$	0.336
NaCl	0.000001		
O_2	2.830643		
SO_2	0.039206		
SO_3	0.017793		

dust fed to the combustion chamber are empirical data and are specific to the process carried out in a particular industrial plant. The compositions of the gas phase produced and the slag are given in Table 7.9. Because of the high process temperature of 1600 °C, alkali metals, chlorine, and phosphorus are mainly transferred to the gas phase.

On cooling the gas phase some gas components condense and thus lead to the formation of deposits in the boiler. Table 7.9 shows the composition of the condensed phases and the residual waste gas. The change in concentration of the main gas components is low on rapid cooling from 1600 to 700 °C. The condensed phases mainly consist of compounds of K and Na with Cl, P, and S. The low-melting sulfates, phosphates, and chlorides form first a liquid layer where solid dust particles can be deposited by sticking. The composition of the input fuel (coal, and waste material) besides the temperature and O_2 partial pressure in the combustion chamber, determine the quantity and composition of the condensate. The calculations show that the compositions of the codensate and the fly ash change significantly during the first five cycles. In subsequent cycles the changes become smaller and the process achieves a quasi-stationary state.

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Part V
Information on the Tables

8 Fundamental constants and conversion factors

8.1 Fundamental constants

Symbol	Value	Unit	Quantity
e	1.602189×10^{-19}	C	Elementary charge
F	9.648456×10^{4}	$C\ mol^{-1}$	Faraday constant
h	6.662176×10^{-34}	J s	Planck constant
k	1.380662×10^{-23}	$J\ K^{-1}$	Boltzmann constant
N_A	6.022×10^{23}	mol^{-1}	Avogadro number
R	8.31441	$J\ K^{-1}\ mol^{-1}$	Molar gas constant
R	83.1441	$cm^3\ bar^{-1}\ mol^{-1}$	Molar gas constant
0 °C	273.15	K	Ice point
1 cal	4.184	J	Thermochemical calorie
1 bar	10^5	Pa	Pressure
1 atm	1.01325	bar	
	0.101325	MPa	

8.2 Conversion factors for energy units (from *NBS Tables*)

	$\frac{J}{mol}$	$\frac{cal}{mol}$	$\frac{cm^3\ atm}{mol}$	$\frac{cm^3\ bar}{mol}$	$\frac{kWh}{mol}$	$\frac{Btu}{lb\text{-}mol}$	$\frac{eV}{molecule}$
$1\ \frac{J}{mol}$	1	0.2390057	9.86923	10	2.7778×10^{-7}	0.4299	1.03635×10^{-5}
$1\ \frac{cal}{mol}$ thermochemical	4.184	1	41.2929	41.84	1.1622×10^{-6}	1.7988	4.33645×10^{-5}
$1\ \frac{cm^3\ atm}{mol}$	0.101325	2.42173×10^{-2}	1	1.01325	2.8146×10^{-8}	0.04356	4.33645×10^{-5}
$1\ \frac{cm^3\ bar}{mol}$	0.1	2.3901×10^{-2}	0.986923	1	2.7778×10^{-8}	0.04299	1.03641×10^{-6}
$1\ \frac{kWh}{mol}$	3.6×10^{-6}	860421	3.55×10^{7}	3.6×10^{7}	1	1.5477×10^{-6}	37.3107
$1\ \frac{Btu}{lb\text{-}mol}$ (I.T.)	2.326	0.5559	22.9558	23.26	6.461×10^{-7}	1	2.41069×10^{-5}
$1\ \frac{eV}{molecule}$	$\frac{96484.6}{(=F)}$	23060.4	952253	9.6487×10^{5}	2.6802×10^{-2}	41482.0	1

8.3 Conversions for entropies of gases (from *JANAF Tables*)

	S^0 1 bar $J\,K^{-1}\,mol^{-1}$	S' 1 atm $cal\,K^{-1}\,mol^{-1}$	S'' 1 atm $J\,K^{-1}\,mol^{-1}$
S^0 1 bar $J\,K^{-1}\,mol^{-1}$	S^0	$4.184(S'+0.026157)$	$S''+0.109442$
S'' 1 atm $J\,K^{-1}\,mol^{-1}$	$S^0-0.109442$	$4.184\times S'$	S''
S''' 1 bar $cal\,K^{-1}\,mol^{-1}$	$S^0/4.184$	$S'+0.026157$	$\dfrac{S''+0.109442}{4.184}$
S' 1 atm $cal\,K^{-1}\,mol^{-1}$	$\dfrac{S^0-0.109442}{4.184}$	S'	$S''/4.184$

8.4 Relative atomic masses of the elements based on $A_r = 12$ bar for ^{12}C

Symbol	Atomic number	Relative atomic mass	Symbol	Atomic number	Relative atomic mass
Ac	89	227.0278	N	7	14.00674
Ag	47	107.8682	Na	11	22.989768
Al	13	26.981539	Nb	41	92.90638
Am	95	243.0614	Nd	60	144.24
Ar	18	39.948	Ne	10	20.1797
As	33	74.92159	Ni	28	58.69
Au	79	196.96654	Np	93	237.0482
B	5	10.811	O	8	15.9994
Ba	56	137.327	Os	76	190.2
Be	4	9.012182	P	15	30.973762
Bi	83	208.98037	Pa	91	231.0359
Br	35	79.904	Pb	82	207.2
C	6	12.011	Pd	46	106.42
Ca	20	40.078	Pm	61	145.9151
Cd	48	112.411	Pr	59	140.90765
Ce	58	140.115	Pt	78	195.08
Cl	17	35.4527	Pu	94	244.0642
Co	27	58.93320	Ra	88	226.0254
Cr	24	51.9961	Rb	37	85.4678
Cs	55	132.90543	Re	75	186.207
Cu	29	63.546	Rh	45	102.90550
D	1	2.014102	Rn	86	222.0176
Dy	66	162.50	Ru	44	101.07
e^-		0.00054858	S	16	32.066
Er	68	167.26	Sb	51	121.75
Eu	63	151.965	Sc	21	44.955910
F	9	18.9984032	Se	34	78.96
Fe	26	55.847	Si	14	28.0855
Ga	31	69.723	Sm	62	150.36
Gd	64	157.25	Sn	50	118.710
Ge	32	72.61	Sr	38	87.62
H	1	1.00794	Ta	73	180.9479
He	2	4.002602	Tb	65	158.92534
Hf	72	178.49	Tc	43	98.9063
Hg	80	200.59	Te	52	127.60
Ho	67	164.93032	Th	90	232.0381
In	49	114.82	Ti	22	47.88
Ir	77	192.22	Tl	81	204.3833
J	53	126.90447	Tm	69	168.93421
K	19	39.0983	U	92	238.0289
Kr	36	83.80	V	23	50.9415
La	57	138.9055	W	74	183.85
Li	3	6.941	Xe	54	131.29
Lu	71	174.967	Y	39	88.90585
Mg	12	24.3050	Yb	70	173.04
Mn	25	54.93805	Zn	30	65.39
Mo	42	95.94	Zr	40	91.224

Part VI
Symbols, Abbreviations and References

9 Symbols and abbreviations used in the tables

AM	Amorphous
BPT	Boiling point in K, p(gas) = 1 bar
bcc	body-centered cubic crystal structure
bct	body-centered tetragonal crystal structure
C_p	C_p^0, Heat capactiy at 1 bar
DPT	Decomposition point in K at p = 1 bar
ΔG_f	ΔG_f^0, Gibbs energy of formation from the elements in their reference phases
ΔH_f	ΔH_f^0, Enthalpy of formation from the elements in their reference phases
fcc	face-centered cubic crystal structure
G	G^0, Gibbs energy
$-(G-H298)/T$	$-[G^0(T)-\Delta H_f^0(298.15)]/T =$ $-Gef$, Gibbs energy function (free enthalpy function)
GAS	Ideal gas
H	H^0, Enthalpy
hcp	hexagonal close packed crystal structure
L	Transition enthalpy in kJ/mol given as Remark at the bottom of the tables
LIQ	Liquid
$\log K_f$	$\log K_f^0$, Logarithm of the equilibrium constant of formation from the elements in their reference phases
MPT	Melting point in K at 1 bar
NBT	Normal boiling point in K, p(gas) = 1 atm
NDPT	Normal decomposition point in K, p = 1 atm
NSPT	Normal sublimation point in K, p(gas) = 1 atm
S	S^0, Entropy
SOL	Solid crystalline
SOL-A	Solid crystalline-α
SOL-B	Solid crystalline-β
SOL-C	Solid crystalline-γ
SOL-D	Solid crystalline-δ
SOL-1	Solid crystalline-I
SOL-2	Solid crystalline-II
SPT	Sublimation point in K at p(gas) = 1 bar
TPT	Transition point in K at 1 bar
298	298.15

Thermochemical Data of Pure Substances
Ihsan Barin

10 Reference phases of elements at 1 bar

Phase 1 is the reference phase at $T = 298.15$ K.
T_1, T_2, ... = transition temperature in K. Non-specificed gases are monatomic

Symbol	Phase 1	T_1	Phase 2	T_2	Phase 3	T_3	Phase 4	T_4	Phase 5	T_5	Phase 6
Ag	SOL	1233.95	LIQ	2433	GAS						
Al	SOL	933.45	LIQ	2790.812	GAS						
Am	SOL-A	923.	SOL-B	1350.	SOL-C	1449	LIQ				
Ar	GAS										
As	SOL-A	1407	GAS (As_2)								
Au	SOL	1337.58	LIQ	3127.	GAS						
B	SOL-B	4139.449	GAS								
Ba	SOL	1002.	LIQ	2167.	GAS						
Be	SOL	1560.	LIQ	2741.437	GAS						
Bi	SOL	544	LIQ	1934.	GAS						
Br_2	LIQ (BR_2)	332.503	GAS (Br_2)								
C	SOL										
Ca	SOL-A	720	SOL-B	1112	LIQ	1755	GAS				
Cd	SOL	594	LIQ	1039	GAS						
Ce	SOL-C	999	SOL-D	1071	LIQ	3695	GAS				
Cl_2	GAS (Cl_2)										
Co	SOL-A	700	SOL-B	1768	LIQ	3198	GAS				
Cr	SOL	2130	LIQ	2942.	GAS						
Cs	SOL	301.55	LIQ	947.967	GAS						
Cu	SOL	1358	LIQ	2843.261	GAS						
Dy	SOL-A	1657	SOL-B	1682	LIQ	2831	GAS				
e^-	GAS										
Er	SOL	1795	LIQ	3132	GAS						
Eu	SOL	1090	LIQ	1798	GAS						
F_2	GAS (F_2)										
Fe	SOL-A	1042	SOL-B	1184	SOL-C	1665	SOL-D	1809	LIQ	3132	GAS
Ga	SOL	302.80	LIQ	2475	GAS						
Gd	SOL-A	1533	SOL-B	1585	LIQ	3535	GAS				
Ge	SOL	1210.4	LIQ	3104	GAS						
H_2	GAS (H_2)										
He	GAS										
Hf	SOL-A	2013	SOL-B	2500	LIQ	4871	GAS				
Hg	LIQ	629.3	GAS								

Ho	SOL-A	1701	SOL-B	1743	LIQ	2964	GAS				
In	SOL	429.76	LIQ	2343	GAS						
Ir	SOL	2716	LIQ	4697	GAS						
I_2	SOL	386.75	LIQ	457.666	GAS (I_2)						
K	SOL	336.35	LIQ	1039.54	GAS						
Kr	GAS										
La	SOL-A	550	SOL-B	1134	SOL-C	1193	LIQ	3726	GAS		
Li	SOL	453.69	LIQ	1620.12	GAS						
Lu	SOL	1936.	LIQ	3664.	GAS						
Mg	SOL	922	LIQ	1361	GAS						
Mn	SOL-A	980	SOL-B	1360	SOL-C	1410	SOL-D	1517	LIQ	2332	GAS
Mo	SOL	2897	LIQ	4978	GAS						
N_2	GAS (N_2)										
Na	SOL	370.98	LIQ	1170.52	GAS						
Nb	SOL	2740	LIQ	5013	GAS						
Nd	SOL-A	1128	SOL-B	1289	LIQ	3337	GAS				
Ne	GAS										
Ni	SOL	1726	LIQ	3184	GAS						
Np	SOL-A	553	SOL-B	849	SOL-C	912	LIQ	4352.44	GAS		
O_2	GAS (O_2)										
Os	SOL	3300	LIQ	5281	GAS						

Symbol	Phase 1	T_1	Phase 2	T_2	Phase 3	T_3	Phase 4	T_4	Phase 5	T_5	Phase 6
P	L-A white	317.30	LIQ	1180.008	GAS (P_2)						
Pa	SOL-A	1443	SOL-B	1845	LIQ	2500	GAS				
Pb	SOL	600.6	LIQ	2019.022	GAS						
Pd	SOL	1825	LIQ	3234	GAS						
Pr	SOL-A	1068	SOL-B	1204	LIQ	3780	GAS				
Pt	SOL	2045	LIQ	4096	GAS						
Pu	SOL-A	395	SOL-B	480	SOL-C	588 753	SOL-D SOL-E	730 913	SOL-D1 LIQ	753 3498	 GAS
Rb	SOL	312.65	LIQ	970.385	GAS						
Re	SOL	3453	LIQ	5864	GAS						
Rh	SOL	2233	LIQ	3967.	GAS						
Rn	GAS										
Ru	SOL	2523	LIQ	4419	GAS						
S	SOL-Rh. orthorh.	368.30	SOL-Mo monocl.	388.36	LIQ	882.117	GAS (S_2)				
Sb	SOL	904	LIQ	1891	GAS (Sb_2)						
Sc	SOL-A	1608	SOL-B	1812	LIQ	3101	GAS				
Se	SOL-G grey	493	LIQ	958	GAS (Se_2)						
Si	SOL	1685	LIQ	3504.616	GAS						
Sm	SOL-A	1190	SOL-B	1345	LIQ	2061	GAS				
Sn	SOL-B white	505.06	LIQ	2873	GAS						
Sr	SOL-A	820.	SOL-C	1050	LIQ	1685.492	GAS				
Ta	SOL	3287	LIQ	5726	GAS						
Tb	SOL-A	1560	SOL-B	1630	LIQ	3492	GAS				
Tc	SOL	2473	LIQ	4904.638	GAS						
Te	SOL	722.65	LIQ	1327	GAS (Te_2)						

Th	SOL-A	1636	SOL-B	2028	LIQ	5056	GAS		
Ti	SOL-A	1166	SOL-B	1939	LIQ	3630.956	GAS		
Tl	SOL-A	507	SOL-B	577	LIQ	1744	GAS		
TM	SOL	1818	LIQ	2217	GAS				
U	SOL-A	941	SOL-B	1048	SOL-C	1405	LIQ	4402	GAS
V	SOL	2175	LIQ	3679	GAS				
W	SOL	3680	LIQ	5931	GAS				
Xe	GAS								
Y	SOL-A	1752	SOL-B	1799	LIQ	3607	GAS		
Yb	SOL-A	1033	SOL-B	1097	LIQ	1465	GAS		
Zn	SOL	692.655	LIQ	1179	GAS				
Zr	SOL-A	1135	SOL-B	2125	LIQ	4702.633	GAS		

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Part VII
The Tables

12 Tables of thermochemical data of pure substances

107.868 SILVER **Ag**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	25.407	42.677	42.677	0.000	0.000	−12.724	0.000	0.000	0.000
	300.00	25.410	42.834	42.677	0.047	0.047	−12.803	0.000	0.000	0.000
	400.00	25.784	50.189	43.678	2.604	2.604	−17.471	0.000	0.000	0.000
	500.00	26.332	55.999	45.580	5.209	5.209	−22.790	0.000	0.000	0.000
	600.00	26.948	60.854	47.732	7.873	7.873	−28.639	0.000	0.000	0.000
	700.00	27.597	65.056	49.913	10.600	10.600	−34.939	0.000	0.000	0.000
	800.00	28.263	68.785	52.044	13.393	13.393	−41.635	0.000	0.000	0.000
	900.00	29.020	72.157	54.094	16.256	16.256	−48.684	0.000	0.000	0.000
	1000.00	29.857	75.258	56.057	19.200	19.200	−56.057	0.000	0.000	0.000
	1100.00	30.636	78.140	57.935	22.225	22.225	−63.729	0.000	0.000	0.000
	1200.00	31.572	80.843	59.733	25.332	25.332	−71.679	0.000	0.000	0.000
	1233.95	32.030	81.730	60.326	26.412	26.412	−74.439	0.000	0.000	0.000
			9.155		11.297					
LIQ	1233.95	33.472	90.885	60.326	37.709	37.709	−74.439	0.000	0.000	0.000
	1300.00	33.472	92.630	61.923	39.920	39.920	−80.500	0.000	0.000	0.000
	1400.00	33.472	95.111	64.206	43.267	43.267	−89.889	0.000	0.000	0.000
	1500.00	33.472	97.420	66.344	46.614	46.614	−99.516	0.000	0.000	0.000
	1600.00	33.472	99.580	68.355	49.961	49.961	−109.368	0.000	0.000	0.000
	1700.00	33.472	101.610	70.252	53.308	53.308	−119.428	0.000	0.000	0.000
	1800.00	33.472	103.523	72.048	56.656	56.656	−129.686	0.000	0.000	0.000
	1900.00	33.472	105.333	73.752	60.003	60.003	−140.129	0.000	0.000	0.000
	2000.00	33.472	107.050	75.375	63.350	63.350	−150.749	0.000	0.000	0.000
	2100.00	33.472	108.683	76.922	66.697	66.697	−161.536	0.000	0.000	0.000
	2200.00	33.472	110.240	78.401	70.044	70.044	−172.483	0.000	0.000	0.000
	2300.00	33.472	111.728	79.818	73.392	73.392	−183.582	0.000	0.000	0.000
	2400.00	33.472	113.152	81.178	76.739	76.739	−194.827	0.000	0.000	0.000
	2433.00	33.472	113.609	81.615	77.843	77.843	−198.568	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL	Hu1	Hu1	Hu1	MPT= 1233.95 (IPTS REF. POINT)
LIQ	Hu1	Hu1	Hu1	BPT= 2433., L= 250.62 kJ

Ag[g] SILVER (GAS) 107.868

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.786	172.992	172.992	284.094	0.000	232.516	284.094	245.240	−42.965
	300.00	20.786	173.121	172.993	284.132	0.038	232.196	284.085	244.999	−42.658
	400.00	20.786	179.101	173.808	286.211	2.117	214.571	283.607	232.042	−30.302
	500.00	20.786	183.739	175.348	288.290	4.196	196.420	283.080	219.210	−22.901
	600.00	20.786	187.529	177.072	290.368	6.274	177.851	282.495	206.490	−17.977
	700.00	20.786	190.733	178.800	292.447	8.353	158.934	281.847	193.873	−14.467
	800.00	20.786	193.509	180.469	294.526	10.432	139.719	281.133	181.354	−11.841
	900.00	20.786	195.957	182.057	296.604	12.510	120.243	280.348	168.928	−9.804
	1000.00	20.786	198.147	183.558	298.683	14.589	100.536	279.482	156.593	−8.180
	1100.00	20.786	200.128	184.976	300.761	16.667	80.621	278.536	144.349	−6.855
	1200.00	20.786	201.937	186.315	302.840	18.746	60.516	277.508	132.195	−5.754
	1300.00	20.786	203.600	187.581	304.919	20.825	40.238	264.999	120.738	−4.851
	1400.00	20.786	205.141	188.781	306.997	22.903	19.800	263.730	109.689	−4.093
	1500.00	20.786	206.575	189.920	309.076	24.982	−0.786	262.462	98.730	−3.438
	1600.00	20.786	207.916	191.004	311.154	27.060	−21.512	261.193	87.856	−2.868
	1700.00	20.786	209.176	192.036	313.233	29.139	−42.367	259.925	77.061	−2.368
	1800.00	20.786	210.365	193.021	315.312	31.218	−63.345	258.656	66.341	−1.925
	1900.00	20.786	211.488	193.964	317.390	33.296	−84.438	257.388	55.692	−1.531
	2000.00	20.786	212.555	194.867	319.469	35.375	−105.640	256.119	45.109	−1.178
	2100.00	20.786	213.569	195.734	321.547	37.453	−126.947	254.850	34.589	−0.860
	2200.00	20.786	214.536	196.567	323.626	39.532	−148.353	253.582	24.131	−0.573
	2300.00	20.786	215.460	197.368	325.705	41.611	−169.853	252.313	13.729	−0.312
	2400.00	20.786	216.344	198.141	327.783	43.689	−191.443	251.045	3.383	−0.074
	2500.00	20.786	217.193	198.886	329.862	45.768	−213.120	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

462.524

SILVER ARSENATE **Ag3AsO4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	173.862	275.830	275.830	−634.294	0.000	−716.533	−634.294	−545.386	95.549
	300.00	174.023	276.906	275.834	−633.972	0.322	−717.044	−634.268	−544.834	94.864
	400.00	181.637	328.055	282.756	−616.174	18.120	−747.396	−632.591	−515.264	67.287
	500.00	188.125	369.296	296.069	−597.681	36.613	−782.329	−630.597	−486.158	50.789
	600.00	194.171	404.134	311.250	−578.564	55.730	−821.044	−628.412	−457.473	39.827
	700.00	200.007	434.505	326.733	−558.853	75.441	−863.007	−626.070	−429.166	32.025
	800.00	205.732	461.587	341.927	−538.566	95.728	−907.836	−623.567	−401.205	26.196
	900.00	211.392	486.146	356.607	−517.709	116.585	−955.241	−620.894	−373.569	21.681
	1000.00	217.012	508.710	370.704	−496.289	138.005	−1004.998	−618.039	−346.239	18.086
	1100.00	222.605	529.655	384.213	−474.308	159.986	−1056.929	−614.989	−319.206	15.158
	1108.00	223.052	531.270	385.269	−472.525	161.769	−1061.173	−614.737	−317.055	14.947

References

Phase	H / S	C_p
SOL	G1	G1

187.772

SILVER BROMIDE **AgBr**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	54.599	107.110	107.110	−100.575	0.000	−132.510	−100.575	−97.095	17.011
	300.00	54.640	107.448	107.111	−100.474	0.101	−132.708	−100.591	−97.074	16.902
	400.00	57.444	123.448	109.275	−94.906	5.669	−144.285	−114.821	−92.906	12.132
	500.00	61.670	136.730	113.472	−88.946	11.629	−157.311	−113.313	−87.594	9.151
	600.00	73.971	148.751	118.351	−82.335	18.240	−171.586	−111.224	−82.629	7.193
	700.00	127.192	163.339	123.667	−72.805	27.770	−187.142	−106.289	−78.182	5.834
			12.134		8.494					
LIQ	700.00	60.501	175.473	123.667	−64.311	36.264	−187.142	−97.795	−78.182	5.834
	800.00	59.999	183.519	130.658	−58.286	42.289	−205.101	−96.437	−75.474	4.928
	900.00	59.496	190.557	136.930	−52.311	48.264	−223.812	−95.204	−72.929	4.233
	1000.00	58.994	196.800	142.611	−46.387	54.188	−243.186	−94.106	−70.514	3.683
	1100.00	58.492	202.399	147.796	−40.512	60.063	−263.151	−93.143	−68.203	3.239
	1200.00	57.990	207.467	152.561	−34.688	65.887	−283.648	−92.316	−65.973	2.872
	1300.00	57.488	212.089	156.965	−28.914	71.661	−304.629	−103.022	−63.199	2.539
	1400.00	56.986	216.331	161.056	−23.190	77.385	−326.053	−102.541	−60.154	2.244
	1500.00	56.484	220.245	164.873	−17.517	83.058	−347.885	−102.113	−57.142	1.990
	1600.00	55.982	223.874	168.449	−11.894	88.681	−370.093	−101.739	−54.156	1.768
	1633.91	55.812	225.047	169.611	−9.998	90.577	−377.704	−101.623	−53.149	1.699

References

Phase	H / S	C_p	Remarks
SOL	Pa2	Pa2	
LIQ	Pa2	Pa2	e/Tk1 BPT= 1634., L = 157.15 / NBPT= 1778.

AgBr[g] SILVER BROMIDE (GAS) 187.772

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	36.623	256.981	256.981	96.490	0.000	19.871	96.490	55.286	−9.686
	300.00	36.642	257.208	256.982	96.558	0.068	19.395	96.441	55.030	−9.582
	400.00	37.334	267.858	258.429	100.262	3.772	−6.882	80.346	44.498	−5.811
	500.00	37.654	276.227	261.182	104.013	7.523	−34.101	79.646	35.616	−3.721
	600.00	37.828	283.109	264.280	107.788	11.298	−62.078	78.898	26.879	−2.340
	700.00	37.933	288.949	267.398	111.576	15.086	−90.688	78.092	18.272	−1.363
	800.00	38.001	294.019	270.415	115.373	18.883	−119.842	77.222	9.785	−0.639
	900.00	38.047	298.497	273.292	119.175	22.685	−149.472	76.282	1.411	−0.082
	1000.00	38.081	302.508	276.016	122.982	26.492	−179.526	75.262	−6.854	0.358
	1100.00	38.105	306.139	278.592	126.791	30.301	−209.961	74.160	−15.013	0.713
	1200.00	38.124	309.455	281.028	130.603	34.113	−240.743	72.975	−23.068	1.004
	1300.00	38.139	312.507	283.334	134.416	37.926	−271.844	60.308	−30.413	1.222
	1400.00	38.150	315.334	285.520	138.230	41.740	−303.237	58.880	−37.338	1.393
	1500.00	38.160	317.966	287.596	142.046	45.556	−334.904	57.449	−44.161	1.538
	1600.00	38.167	320.430	289.572	145.862	49.372	−366.825	56.017	−50.889	1.661
	1700.00	38.174	322.744	291.456	149.679	53.189	−398.985	54.583	−57.526	1.768
	1800.00	38.179	324.926	293.255	153.497	57.007	−431.369	53.147	−64.080	1.860
	1900.00	38.183	326.990	294.977	157.315	60.825	−463.966	51.709	−70.553	1.940
	2000.00	38.187	328.949	296.627	161.134	64.644	−496.764	50.269	−76.951	2.010

References

Phase	H / S	C_p
GAS	Tk1	Tk1,e

AgBrO3 SILVER BROMATE 235.770

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	104.368	151.879	151.879	−10.460	0.000	−55.743	−10.460	71.419	−12.512
	300.00	104.600	152.526	151.881	−10.267	0.193	−56.024	−10.465	71.927	−12.524
	400.00	117.152	184.336	156.134	0.821	11.281	−72.914	−23.633	102.250	−13.353

References

Phase	H / S	C_p
SOL	Nb1	e

133.886 SILVER CYANIDE **AgCN**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[——— J / (K mol) ———]			[——— kJ / mol ———]					[−]
SOL	298.15	66.487	107.190	107.190	145.996	0.000	114.037	145.996	157.037	−27.512
	300.00	66.526	107.601	107.191	146.119	0.123	113.839	146.029	157.105	−27.354
	400.00	68.618	127.026	109.826	152.876	6.880	102.066	147.733	160.536	−20.964
	500.00	70.710	142.562	114.869	159.843	13.847	88.561	149.294	163.554	−17.086

References

Phase	H / S	C_p
SOL	Nb1	Nb1,e

275.746 SILVER CARBONATE **Ag2CO3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[——— J / (K mol) ———]			[——— kJ / mol ———]					[−]
SOL	298.15	111.617	167.402	167.402	−505.800	0.000	−555.711	−505.800	−436.804	76.526
	300.00	111.817	168.093	167.404	−505.593	0.207	−556.021	−505.785	−436.376	75.980
	400.00	122.633	201.742	171.919	−493.871	11.929	−574.568	−504.671	−413.392	53.983
	500.00	133.449	230.269	180.802	−481.067	24.733	−596.201	−502.996	−390.755	40.822

References

Phase	H / S	C_p
SOL	Nb1	Ku1

AgCl SILVER CHLORIDE 143.321

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)		] [		kJ / mol			] [−]
SOL	298.15	52.886	96.199	96.199	−127.068	0.000	−155.750	−127.068	−109.764	19.230
	300.00	52.970	96.526	96.200	−126.970	0.098	−155.928	−127.048	−109.657	19.093
	400.00	55.438	112.148	98.313	−121.534	5.534	−166.393	−125.904	−104.029	13.585
	500.00	58.116	124.786	102.381	−115.866	11.202	−178.259	−124.626	−98.705	10.312
	600.00	61.672	135.687	107.042	−109.881	17.187	−191.293	−123.122	−93.657	8.154
	700.00	71.463	145.873	111.863	−103.261	23.807	−205.372	−121.067	−88.896	6.634
	730.00	84.351	149.123	113.326	−100.936	26.132	−209.796	−120.128	−87.536	6.264
			16.879		12.322					
LIQ	730.00	61.216	166.002	113.326	−88.614	38.454	−209.796	−120.128	−87.536	6.264
	800.00	60.486	171.574	118.183	−84.355	42.713	−221.614	−106.807	−85.639	5.592
	900.00	59.557	178.644	124.517	−78.354	48.714	−239.133	−105.532	−83.072	4.821
	1000.00	58.695	184.874	130.247	−72.442	54.626	−257.315	−104.435	−80.637	4.212
	1100.00	57.859	190.428	135.470	−66.614	60.454	−276.085	−103.509	−78.303	3.718
	1200.00	57.029	195.427	140.262	−60.870	66.198	−295.382	−102.753	−76.047	3.310
	1300.00	56.195	199.959	144.682	−55.208	71.860	−315.155	−113.566	−73.238	2.943
	1400.00	55.352	204.093	148.781	−49.631	77.437	−335.361	−113.226	−70.149	2.617
	1500.00	54.502	207.883	152.596	−44.138	82.930	−355.962	−112.975	−67.082	2.336
	1600.00	53.647	211.373	156.162	−38.731	88.337	−376.927	−112.813	−64.028	2.090
	1700.00	52.791	214.600	159.506	−33.409	93.659	−398.228	−112.739	−60.982	1.874
	1800.00	51.941	217.593	162.651	−28.172	98.896	−419.840	−112.755	−57.937	1.681

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	Pa2		
LIQ	Pa2	Pa2	Tk1	BPT= 1821., L= 183.7 kJ

143.321 SILVER CHLORIDE (GAS) **AgCl[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	35.642	246.129	246.129	92.550	0.000	19.167	92.550	65.152	−11.414
	300.00	35.662	246.349	246.129	92.616	0.066	18.711	92.538	64.982	−11.314
	400.00	36.351	256.717	247.538	96.222	3.672	−6.465	91.852	55.899	−7.300
	500.00	36.670	264.867	250.218	99.874	7.324	−32.559	91.115	46.995	−4.910
	600.00	36.844	271.569	253.235	103.551	11.001	−59.391	90.310	38.245	−3.330
	700.00	36.948	277.257	256.270	107.241	14.691	−86.839	89.434	29.636	−2.211
	800.00	37.016	282.196	259.209	110.939	18.389	−114.817	88.487	21.158	−1.381
	900.00	37.062	286.558	262.010	114.643	22.093	−143.259	87.465	12.802	−0.743
	1000.00	37.096	290.465	264.664	118.351	25.801	−172.114	86.358	4.565	−0.238
	1100.00	37.120	294.002	267.173	122.062	29.512	−201.340	85.167	−3.558	0.169
	1200.00	37.139	297.233	269.545	125.775	33.225	−230.904	83.892	−11.568	0.504
	1300.00	37.154	300.206	271.791	129.490	36.940	−260.778	71.133	−18.861	0.758
	1400.00	37.165	302.960	273.920	133.206	40.656	−290.938	69.611	−25.726	0.960
	1500.00	37.175	305.524	275.942	136.923	44.373	−321.364	68.086	−32.483	1.131
	1600.00	37.182	307.924	277.867	140.641	48.091	−352.037	66.559	−39.138	1.278
	1700.00	37.189	310.178	279.702	144.359	51.809	−382.943	65.029	−45.697	1.404
	1800.00	37.194	312.304	281.455	148.078	55.528	−414.069	63.495	−52.166	1.514
	1900.00	37.198	314.315	283.132	151.798	59.248	−445.400	61.959	−58.550	1.610
	2000.00	37.202	316.223	284.739	155.518	62.968	−476.928	60.419	−64.852	1.694
	2100.00	37.205	318.038	286.282	159.238	66.688	−508.642	58.876	−71.078	1.768
	2200.00	37.208	319.769	287.765	162.959	70.409	−540.533	57.330	−77.230	1.834

References

Phase	H / S	C_p
GAS	Tk1,e	e

191.319 SILVER CHLORATE **AgClO3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	100.184	141.838	141.838	−30.292	0.000	−72.581	−30.292	65.151	−11.414
	300.00	100.416	142.458	141.840	−30.106	0.186	−72.844	−30.266	65.743	−11.447
	400.00	112.968	173.065	145.928	−19.437	10.855	−88.663	−28.345	97.486	−12.730
	500.00	125.520	199.621	154.063	−7.513	22.779	−107.324	−25.399	128.623	−13.437

References

Phase	H / S	C_p
SOL	Nb1	e

Ag2CrO4 SILVER CHROMATE 331.730

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	142.148	217.568	217.568	−731.782	0.000	−796.650	−731.782	−641.824	112.445
	300.00	142.395	218.448	217.571	−731.519	0.263	−797.053	−731.765	−641.266	111.654
	400.00	153.422	261.012	223.300	−716.697	15.085	−821.102	−730.429	−611.282	79.825
	500.00	162.122	296.207	234.460	−700.909	30.873	−849.012	−728.571	−581.702	60.770

References

Phase	H / S	C_p
SOL	Nb1	Nb1,e

AgF SILVER FLUORIDE 126.867

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	51.921	83.680	83.680	−204.602	0.000	−229.551	−204.602	−186.595	32.691
	300.00	51.961	84.001	83.681	−204.506	0.096	−229.706	−204.582	−186.484	32.470
	400.00	54.107	99.244	85.745	−199.202	5.400	−238.900	−203.443	−180.620	23.587
	500.00	56.254	111.548	89.713	−193.684	10.918	−249.458	−202.211	−175.055	18.288
	600.00	58.400	121.994	94.243	−187.952	16.650	−261.148	−200.879	−169.747	14.778
	700.00	60.547	131.157	98.875	−182.004	22.598	−273.815	−199.433	−164.671	12.288
	708.00	60.718	131.847	99.244	−181.519	23.083	−274.867	−199.313	−164.275	12.120

References

Phase	H / S	C_p	Remarks	
SOL	Nb1/Tk1	e	Tk1	MPT= 708.

126.867 SILVER FLUORIDE (GAS) **AgF**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	33.964	235.752	235.752	7.113	0.000	−63.177	7.113	−20.221	3.543
	300.00	33.983	235.962	235.753	7.176	0.063	−63.613	7.100	−20.390	3.550
	400.00	34.675	245.848	237.096	10.614	3.501	−87.725	6.374	−29.446	3.845
	500.00	34.995	253.624	239.652	14.099	6.986	−112.713	5.572	−38.310	4.002
	600.00	35.169	260.021	242.529	17.608	10.495	−138.405	4.681	−47.004	4.092
	700.00	35.274	265.451	245.426	21.130	14.017	−164.685	3.701	−55.542	4.145
	800.00	35.342	270.165	248.230	24.661	17.548	−191.471	2.637	−63.933	4.174
	900.00	35.388	274.331	250.903	28.198	21.085	−218.700	1.486	−72.186	4.190
	1000.00	35.422	278.061	253.436	31.739	24.626	−246.323	0.242	−80.306	4.195
	1100.00	35.446	281.439	255.830	35.282	28.169	−274.300	−1.092	−88.297	4.193
	1200.00	35.465	284.524	258.095	38.828	31.715	−302.601	−2.518	−96.163	4.186
	1300.00	35.480	287.363	260.238	42.375	35.262	−331.197	−15.431	−103.298	4.151
	1400.00	35.491	289.993	262.271	45.924	38.811	−360.066	−17.111	−109.994	4.104
	1500.00	35.501	292.442	264.202	49.473	42.360	−389.189	−18.797	−116.570	4.059
	1600.00	35.508	294.733	266.039	53.024	45.911	−418.549	−20.489	−123.033	4.017
	1700.00	35.515	296.886	267.791	56.575	49.462	−448.131	−22.186	−129.390	3.976
	1800.00	35.520	298.916	269.464	60.127	53.014	−477.923	−23.887	−135.647	3.936
	1900.00	35.525	300.837	271.065	63.679	56.566	−507.911	−25.594	−141.809	3.899
	2000.00	35.528	302.659	272.600	67.232	60.119	−538.087	−27.305	−147.882	3.862

References

Phase	H / S	C_p
GAS	Tk1	e

AgI SILVER IODIDE 234.773

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL-A	298.15	56.817	115.499	115.499	-61.840	0.000	-96.276	-61.840	-66.238	11.605
	300.00	56.897	115.851	115.500	-61.735	0.105	-96.490	-61.832	-66.265	11.538
	400.00	62.331	132.774	117.776	-55.841	5.999	-108.950	-69.315	-67.536	8.819
	421.00	65.523	136.038	118.606	-54.501	7.339	-111.773	-69.364	-67.442	8.368
			14.608		6.150					
SOL-B	421.00	58.500	150.647	118.606	-48.351	13.489	-111.773	-63.214	-67.442	8.368
	500.00	57.153	160.576	124.478	-43.791	18.049	-124.079	-83.967	-66.277	6.924
	600.00	56.856	170.956	131.386	-38.098	23.742	-140.672	-82.813	-62.849	5.471
	700.00	56.994	179.727	137.681	-32.408	29.432	-158.217	-81.732	-59.608	4.448
	800.00	58.115	187.390	143.425	-26.668	35.172	-176.580	-80.671	-56.519	3.690
	831.00	58.994	189.615	145.107	-24.854	36.986	-182.424	-80.322	-55.590	3.494
			11.329		9.414					
LIQ	831.00	58.576	200.943	145.107	-15.440	46.400	-182.424	-70.908	-55.590	3.494
	900.00	58.576	205.615	149.569	-11.398	50.442	-196.452	-70.155	-54.348	3.154
	1000.00	58.576	211.787	155.488	-5.541	56.299	-217.328	-69.135	-52.648	2.750
	1100.00	58.576	217.370	160.864	0.317	62.157	-238.790	-68.199	-51.045	2.424
	1200.00	58.576	222.467	165.788	6.174	68.014	-260.786	-67.349	-49.524	2.156
	1300.00	58.576	227.155	170.331	12.032	73.872	-283.270	-77.983	-47.462	1.907
	1400.00	58.576	231.496	174.546	17.890	79.730	-306.205	-77.379	-45.137	1.684
	1500.00	58.576	235.538	178.479	23.747	85.587	-329.559	-76.779	-42.855	1.492
	1600.00	58.576	239.318	182.165	29.605	91.445	-353.304	-76.182	-40.613	1.326
	1700.00	58.576	242.869	185.632	35.462	97.302	-377.415	-75.587	-38.408	1.180

References

Phase	H / S	C_p	Remarks	
SOL-A	Nb1	Pa2		
SOL-B	Pa2	Pa2		
LIQ	Pa2	Pa2	Tk1	BPT= 1771., L= 143.9 kJ

234.773

SILVER IODIDE (GAS) **AgI[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	39.747	255.497	255.497	125.235	0.000	49.059	125.235	79.097	−13.857
	300.00	39.766	255.743	255.497	125.309	0.074	48.586	125.211	78.810	−13.722
	400.00	40.456	267.291	257.067	129.325	4.090	22.408	115.850	63.822	−8.334
	500.00	40.775	276.357	260.051	133.388	8.153	−4.791	93.212	53.012	−5.538
	600.00	40.948	283.808	263.408	137.475	12.240	−32.810	92.760	45.013	−3.919
	700.00	41.053	290.128	266.785	141.575	16.340	−61.515	92.252	37.095	−2.768
	800.00	41.120	295.615	270.054	145.684	20.449	−90.808	91.682	29.253	−1.910
	900.00	41.167	300.461	273.168	149.799	24.564	−120.616	91.042	21.487	−1.247
	1000.00	41.200	304.800	276.118	153.917	28.682	−150.883	90.323	13.797	−0.721
	1100.00	41.225	308.728	278.907	158.038	32.803	−181.563	89.522	6.182	−0.294
	1200.00	41.244	312.316	281.544	162.162	36.927	−212.617	88.638	−1.356	0.059
	1300.00	41.258	315.618	284.040	166.287	41.052	−244.016	76.272	−8.209	0.330
	1400.00	41.270	318.676	286.406	170.413	45.178	−275.733	75.144	−14.665	0.547
	1500.00	41.279	321.524	288.653	174.541	49.306	−307.745	74.015	−21.040	0.733
	1600.00	41.287	324.188	290.792	178.669	53.434	−340.032	72.883	−27.340	0.893
	1700.00	41.293	326.691	292.830	182.798	57.563	−372.577	71.748	−33.570	1.031
	1800.00	41.298	329.052	294.778	186.928	61.693	−405.365	70.612	−39.732	1.153
	1900.00	41.303	331.285	296.641	191.058	65.823	−438.383	69.473	−45.831	1.260
	2000.00	41.307	333.403	298.427	195.188	69.953	−471.618	68.331	−51.870	1.355

References

Phase	H / S	C_p
GAS	e	e

169.873

SILVER NITRATE **AgNO3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	93.050	140.628	140.628	−124.390	0.000	−166.318	−124.390	−33.283	5.831
	300.00	93.399	141.205	140.630	−124.218	0.172	−166.579	−124.373	−32.718	5.697
	400.00	112.311	170.664	144.519	−113.932	10.458	−182.198	−122.560	−2.392	0.312
	433.00	118.552	179.812	146.862	−110.123	14.267	−187.981	−121.586	7.484	−0.903
			5.797		2.510					
SOL−B	433.00	118.288	185.609	146.862	−107.613	16.777	−187.981	−119.076	7.484	−0.903
	483.00	127.744	199.042	151.572	−101.462	22.928	−197.599	−117.265	22.002	−2.379
			24.255		11.715					
LIQ	483.00	128.030	223.297	151.572	−89.747	34.643	−197.599	−105.550	22.002	−2.379
	500.00	128.030	227.726	154.087	−87.570	36.820	−201.433	−104.862	26.479	−2.766
	600.00	128.030	251.068	168.364	−74.767	49.623	−225.408	−100.954	52.377	−4.560

References

Phase	H / S	C_p
SOL−A	Nb1	La1
SOL−B	La1	La1
LIQ	La1	La1

Ag2O SILVER OXIDE 231.736

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	65.860	121.298	121.298	−31.049	0.000	−67.214	−31.049	−11.184	1.959
	300.00	65.994	121.706	121.300	−30.927	0.122	−67.439	−31.048	−11.060	1.926
	400.00	72.107	141.570	123.967	−24.007	7.042	−80.636	−30.729	−4.432	0.579
	500.00	77.128	158.212	129.195	−16.540	14.509	−95.646	−30.002	2.065	−0.216

References

Phase	H / S	C_p
SOL	Nb1	Ku1,e

AgP2 SILVER DIPHOSPHIDE 169.816

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	72.550	87.864	87.864	−43.321	0.000	−69.518	−43.321	−32.304	5.659
	300.00	72.592	88.313	87.865	−43.187	0.134	−69.681	−43.322	−32.235	5.613
	400.00	74.894	109.512	90.740	−35.812	7.509	−79.617	−45.008	−28.147	3.676
	500.00	77.195	126.471	96.245	−28.208	15.113	−91.443	−45.274	−23.897	2.497
	600.00	79.496	140.749	102.503	−20.373	22.948	−104.823	−45.368	−19.611	1.707
	700.00	81.797	153.176	108.873	−12.309	31.012	−119.532	−45.296	−15.321	1.143
	800.00	84.098	164.248	115.115	−4.014	39.307	−135.413	−45.059	−11.053	0.722
	900.00	86.400	174.287	121.140	4.511	47.832	−152.347	−44.663	−6.825	0.396

References

Phase	H / S	C_p
SOL	Nb1/Ku1	e

200.789

SILVER TRIPHOSPHIDE

AgP3

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	103.914	105.437	105.437	−69.500	0.000	−100.936	−69.500	−51.477	9.019
	300.00	103.972	106.080	105.439	−69.308	0.192	−101.132	−69.487	−51.365	8.943
	400.00	107.110	136.421	109.554	−58.754	10.746	−113.322	−71.245	−44.852	5.857
	500.00	110.248	160.659	117.430	−47.886	21.614	−128.215	−70.879	−38.291	4.000
	600.00	113.386	181.037	126.376	−36.704	32.796	−145.326	−70.259	−31.827	2.771
	700.00	116.524	198.751	135.477	−25.208	44.292	−164.334	−69.388	−25.487	1.902
	800.00	119.662	214.515	144.389	−13.399	56.101	−185.011	−68.270	−19.289	1.259
	900.00	122.800	228.791	152.986	−1.276	68.224	−207.188	−66.908	−13.246	0.769

References

Phase	H / S	C_p
SOL	Nb1/Ku1	e

247.802

SILVER SULFIDE

Ag2S

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	76.233	144.009	144.009	−32.593	0.000	−75.529	−32.593	−40.524	7.100
	300.00	76.362	144.481	144.011	−32.452	0.141	−75.796	−32.588	−40.573	7.064
	400.00	81.521	167.227	147.077	−24.533	8.060	−91.424	−34.365	−43.204	5.642
	450.00	83.304	176.935	149.864	−20.411	12.182	−100.032	−34.673	−44.300	5.142
			8.860		3.987					
SOL−B	450.00	82.843	185.795	149.864	−16.424	16.169	−100.032	−30.686	−44.300	5.142
	500.00	82.843	194.523	153.901	−12.282	20.311	−109.543	−31.226	−45.782	4.783
	600.00	82.843	209.627	161.968	−3.997	28.596	−129.774	−31.845	−48.629	4.234
	700.00	82.843	222.398	169.712	4.287	36.880	−151.392	−32.325	−51.389	3.835
	800.00	82.843	233.460	177.005	12.571	45.164	−174.197	−32.986	−54.071	3.530
	860.00	82.843	239.451	181.155	17.542	50.135	−188.386	−33.550	−55.632	3.379
			0.871		0.749					
SOL−C	860.00	82.843	240.322	181.155	18.291	50.884	−188.386	−32.801	−55.632	3.379
	900.00	82.843	244.088	183.869	21.604	54.197	−198.075	−85.886	−55.538	3.223
	1000.00	82.843	252.817	190.335	29.889	62.482	−222.928	−85.325	−52.198	2.727
	1100.00	82.843	260.713	196.380	38.173	70.766	−248.611	−84.932	−48.905	2.322
	1110.00	82.843	261.462	196.963	39.002	71.595	−251.222	−84.902	−48.578	2.286
			7.011		7.782					
LIQ	1110.00	92.885	268.473	196.963	46.784	79.377	−251.222	−77.120	−48.578	2.286
	1200.00	92.885	275.715	202.601	55.143	87.736	−275.714	−76.025	−46.308	2.016
	1300.00	92.885	283.149	208.515	64.432	97.025	−303.662	−97.765	−42.660	1.714
	1400.00	92.885	290.033	214.095	73.720	106.313	−332.326	−97.030	−38.449	1.435

References

Phase	H / S	C_p
SOL−A	Nb1	Pa3
SOL−B	Pa3	Pa3
SOL−C	Pa3	Pa3
LIQ	Pa3	Pa3

Ag2SO4 SILVER SULFATE 311.800

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[	J / (K mol)	]	[		kJ / mol		]	
SOL−A	298.15	131.455	200.414	200.414	−715.882	0.000	−775.635	−715.882	−618.300	108.324
	300.00	131.670	201.227	200.416	−715.639	0.243	−776.007	−715.883	−617.695	107.550
	400.00	143.344	240.705	205.720	−701.888	13.994	−798.170	−717.771	−584.905	76.381
	500.00	155.017	273.946	216.121	−686.970	28.912	−823.943	−718.083	−551.657	57.631
	600.00	166.691	303.240	228.245	−670.884	44.998	−852.829	−717.220	−518.431	45.133
	700.00	178.364	329.813	240.884	−653.632	62.250	−884.501	−715.240	−485.443	36.224
			26.659		18.661					
SOL−B	700.00	178.364	356.471	240.884	−634.971	80.911	−884.501	−696.579	−485.443	36.224
	800.00	190.037	381.050	256.886	−616.551	99.331	−921.391	−693.779	−455.463	29.739
	900.00	201.711	404.107	271.976	−596.963	118.919	−960.660	−742.935	−424.729	24.651
	933.00	205.563	411.440	276.779	−590.243	125.639	−974.117	−741.018	−413.096	23.127
			19.194		17.908					
LIQ	933.00	205.016	430.634	276.779	−572.335	143.547	−974.117	−723.110	−413.096	23.127
	1000.00	205.016	444.852	287.569	−558.599	157.283	−1003.451	−719.218	−390.971	20.422
	1100.00	205.016	464.392	302.770	−538.098	177.784	−1048.929	−713.627	−358.419	17.020
	1200.00	205.016	482.231	316.992	−517.596	198.286	−1096.273	−708.286	−326.365	14.206

References

Phase	H / S	C_p
SOL−A	Nb1	Ku1
SOL−B	Tk1	Ku1
LIQ	Tk1	La1

294.696 SILVER SELENIDE **Ag2Se**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL−A	298.15	81.760	150.712	150.712	−37.999	0.000	−82.934	−37.999	−44.886	7.864
	300.00	81.881	151.218	150.713	−37.848	0.151	−83.213	−37.989	−44.929	7.823
	400.00	88.400	175.666	154.003	−29.334	8.665	−99.600	−37.257	−47.344	6.182
	406.00	88.791	176.985	154.333	−28.802	9.197	−100.658	−37.203	−47.495	6.111
			22.569		9.163					
SOL−B	406.00	85.354	199.554	154.333	−19.639	18.360	−100.658	−28.040	−47.495	6.111
	500.00	85.354	217.330	164.563	−11.616	26.383	−120.281	−33.560	−51.963	5.429
	600.00	85.354	232.892	174.694	−3.080	34.919	−142.815	−33.866	−55.617	4.842
	698.00	85.354	245.805	183.794	5.284	43.283	−166.287	−34.290	−59.138	4.426
			0.000		0.000					
SOL−C	698.00	85.354	245.805	183.794	5.284	43.283	−166.287	−34.290	−59.138	4.426
	700.00	85.354	246.049	183.972	5.455	43.454	−166.779	−34.299	−59.209	4.418
	800.00	85.354	257.446	192.460	13.990	51.989	−191.967	−34.864	−62.731	4.096
	900.00	85.354	267.499	200.250	22.526	60.525	−218.224	−35.570	−66.173	3.841
	1000.00	85.354	276.492	207.432	31.061	69.060	−245.431	−36.438	−69.528	3.632
	1100.00	85.354	284.627	214.086	39.596	77.595	−273.494	−90.778	−67.835	3.221
	1170.00	85.354	289.893	218.466	45.571	83.570	−293.604	−90.582	−66.381	2.964

References

Phase	H / S	C_p	Remarks
SOL−A	Nb1	Ku1,e	
SOL−B	Tk1	Ku1,e	
SOL−C	u		

Ag2Te — SILVER TELLURIDE — 343.336

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	84.985	153.553	153.553	−35.982	0.000	−81.764	−35.982	−41.558	7.281
	300.00	85.150	154.079	153.554	−35.825	0.157	−82.048	−35.966	−41.593	7.242
	400.00	94.770	179.865	157.006	−26.838	9.144	−98.784	−34.780	−43.629	5.697
	421.00	96.904	184.768	158.269	−24.826	11.156	−102.613	−34.445	−44.102	5.472
			15.672		6.598					
SOL−B	421.00	85.997	200.440	158.269	−18.228	17.754	−102.613	−27.847	−44.102	5.472
	500.00	85.429	215.182	166.131	−11.456	24.526	−119.048	−27.514	−47.185	4.929
	600.00	84.015	230.618	175.637	−2.993	32.989	−141.364	−27.506	−51.129	4.451
	700.00	84.015	243.569	184.440	5.408	41.390	−165.090	−27.906	−55.040	4.107
	800.00	84.015	254.787	192.548	13.810	49.792	−190.020	−46.281	−56.989	3.721

References

Phase	H / S	C_p	Remarks	
SOL−A	Mi1	Mi1		
SOL−B	Mi1	Mi1	Mi1	MPT= 1232.

Ag2WO4 — SILVER TUNGSTATE — 463.584

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	148.392	205.016	205.016	−925.501	0.000	−986.627	−925.501	−829.112	145.257
	300.00	148.578	205.934	205.019	−925.226	0.275	−987.007	−925.474	−828.514	144.257
	400.00	157.532	249.946	210.959	−909.906	15.595	−1009.885	−923.676	−796.447	104.005
	500.00	165.394	285.954	222.462	−893.755	31.746	−1036.732	−921.367	−764.898	79.908

References

Phase	H / S	C_p
SOL	Nb1/e	H1,e

26.982 ALUMINIUM **Al**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	24.296	28.275	28.275	0.000	0.000	−8.430	0.000	0.000	0.000
	300.00	24.324	28.425	28.275	0.045	0.045	−8.483	0.000	0.000	0.000
	400.00	25.780	35.627	29.247	2.552	2.552	−11.699	0.000	0.000	0.000
	500.00	27.002	41.515	31.129	5.193	5.193	−15.565	0.000	0.000	0.000
	600.00	28.093	46.535	33.289	7.948	7.948	−19.973	0.000	0.000	0.000
	700.00	29.283	50.952	35.502	10.815	10.815	−24.852	0.000	0.000	0.000
	800.00	30.843	54.958	37.687	13.817	13.817	−30.150	0.000	0.000	0.000
	900.00	33.057	58.711	39.816	17.005	17.005	−35.835	0.000	0.000	0.000
	933.45	33.994	59.934	40.515	18.126	18.126	−37.819	0.000	0.000	0.000
			11.475		10.711					
LIQ	933.45	31.748	71.408	40.515	28.837	28.837	−37.819	0.000	0.000	0.000
	1000.00	31.748	73.595	42.645	30.950	30.950	−42.645	0.000	0.000	0.000
	1100.00	31.748	76.621	45.598	34.125	34.125	−50.158	0.000	0.000	0.000
	1200.00	31.748	79.383	48.300	37.299	37.299	−57.960	0.000	0.000	0.000
	1300.00	31.748	81.924	50.790	40.474	40.474	−66.027	0.000	0.000	0.000
	1400.00	31.748	84.277	53.099	43.649	43.649	−74.339	0.000	0.000	0.000
	1500.00	31.748	86.468	55.252	46.824	46.824	−82.877	0.000	0.000	0.000
	1600.00	31.748	88.517	57.267	49.999	49.999	−91.628	0.000	0.000	0.000
	1700.00	31.748	90.441	59.163	53.174	53.174	−100.577	0.000	0.000	0.000
	1800.00	31.748	92.256	60.951	56.348	56.348	−109.712	0.000	0.000	0.000
	1900.00	31.748	93.973	62.645	59.523	59.523	−119.025	0.000	0.000	0.000
	2000.00	31.748	95.601	64.252	62.698	62.698	−128.504	0.000	0.000	0.000
	2100.00	31.748	97.150	65.782	65.873	65.873	−138.142	0.000	0.000	0.000
	2200.00	31.748	98.627	67.242	69.048	69.048	−147.932	0.000	0.000	0.000
	2300.00	31.748	100.038	68.637	72.222	72.222	−157.865	0.000	0.000	0.000
	2400.00	31.748	101.389	69.974	75.397	75.397	−167.937	0.000	0.000	0.000
	2500.00	31.748	102.685	71.257	78.572	78.572	−178.141	0.000	0.000	0.000
	2600.00	31.748	103.931	72.489	81.747	81.747	−188.473	0.000	0.000	0.000
	2700.00	31.748	105.129	73.676	84.922	84.922	−198.926	0.000	0.000	0.000
	2790.81	31.748	106.179	74.717	87.805	87.805	−208.521	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL	Ja2	Ja1		
LIQ	Ja2	Ja1	Ja2	BPT= 2790.812, L= 294.001 kJ

Al[g] ALUMINIUM (GAS) 26.982

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	21.388	164.553	164.553	329.700	0.000	280.639	329.700	289.069	−50.644
	300.00	21.381	164.685	164.553	329.740	0.040	280.334	329.695	288.817	−50.287
	400.00	21.119	170.795	165.388	331.863	2.163	263.545	329.311	275.244	−35.943
	500.00	20.998	175.493	166.957	333.968	4.268	246.221	328.775	261.786	−27.349
	600.00	20.932	179.315	168.708	336.064	6.364	228.475	328.116	248.448	−21.629
	700.00	20.892	182.539	170.460	338.155	8.455	210.378	327.341	235.230	−17.553
	800.00	20.867	185.327	172.148	340.243	10.543	191.982	326.426	222.132	−14.504
	900.00	20.849	187.783	173.751	342.329	12.629	173.324	325.324	209.159	−12.139
	1000.00	20.836	189.979	175.266	344.413	14.713	154.434	313.463	197.079	−10.294
	1100.00	20.827	191.965	176.695	346.496	16.796	135.335	312.371	185.493	−8.808
	1200.00	20.820	193.776	178.044	348.578	18.878	116.047	311.279	174.007	−7.574
	1300.00	20.814	195.443	179.320	350.660	20.960	96.585	310.186	162.612	−6.534
	1400.00	20.810	196.985	180.527	352.741	23.041	76.962	309.092	151.301	−5.645
	1500.00	20.806	198.421	181.673	354.822	25.122	57.191	307.998	140.069	−4.878
	1600.00	20.804	199.763	182.762	356.903	27.203	37.281	306.904	128.909	−4.208
	1700.00	20.801	201.025	183.799	358.983	29.283	17.241	305.809	117.818	−3.620
	1800.00	20.799	202.213	184.790	361.063	31.363	−2.921	304.715	106.791	−3.099
	1900.00	20.797	203.338	185.737	363.143	33.443	−23.199	303.620	95.825	−2.634
	2000.00	20.796	204.405	186.643	365.222	35.522	−43.587	302.524	84.917	−2.218
	2100.00	20.795	205.419	187.514	367.302	37.602	−64.079	301.429	74.064	−1.842
	2200.00	20.794	206.387	188.350	369.381	39.681	−84.669	300.334	63.262	−1.502
	2300.00	20.793	207.311	189.154	371.461	41.761	−105.354	299.238	52.511	−1.193
	2400.00	20.792	208.196	189.929	373.540	43.840	−126.130	298.143	41.807	−0.910
	2500.00	20.791	209.045	190.677	375.619	45.919	−146.992	297.047	31.149	−0.651
	2600.00	20.790	209.860	191.399	377.698	47.998	−167.938	295.951	20.535	−0.413
	2700.00	20.790	210.645	192.098	379.777	50.077	−188.963	294.855	9.963	−0.193
	2800.00	20.789	211.401	192.774	381.856	52.156	−210.066	0.000	0.000	0.000
	2900.00	20.789	212.130	193.429	383.935	54.235	−231.243	0.000	0.000	0.000
	3000.00	20.788	212.835	194.064	386.014	56.314	−252.491	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Ja2	Ja1

101.903

ALUMINIUM ARSENIDE

AlAs

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	45.803	60.250	60.250	−116.315	0.000	−134.278	−116.315	−115.202	20.183
	300.00	45.815	60.533	60.250	−116.230	0.085	−134.390	−116.321	−115.195	20.057
	400.00	46.442	73.799	62.055	−111.617	4.698	−141.137	−116.721	−114.764	14.987
	500.00	47.070	84.230	65.483	−106.942	9.373	−149.057	−117.253	−114.216	11.932
	600.00	47.698	92.867	69.348	−102.203	14.112	−157.924	−117.892	−113.550	9.885
	700.00	48.325	100.267	73.249	−97.402	18.913	−167.589	−118.636	−112.769	8.415
	800.00	48.953	106.761	77.040	−92.538	23.777	−177.947	−119.506	−111.873	7.305
	900.00	49.580	112.563	80.670	−87.612	28.703	−188.918	−120.550	−110.859	6.434
	1000.00	50.208	117.819	84.126	−82.622	33.693	−200.441	−132.316	−108.959	5.691
	1100.00	50.836	122.634	87.411	−77.570	38.745	−212.467	−133.275	−106.577	5.061
	1200.00	51.463	127.084	90.534	−72.455	43.860	−224.956	−134.286	−104.106	4.532
	1300.00	52.091	131.228	93.507	−67.277	49.038	−237.874	−135.521	−101.543	4.080
	1400.00	52.718	135.111	96.341	−62.037	54.278	−251.193	−137.233	−98.869	3.689
	1500.00	53.346	138.770	99.049	−56.734	59.581	−264.889	−236.221	−89.621	3.121

References

Phase	H / S	C_p	Remarks
SOL	Tk1	e	Tk1 MPT= 2013.

165.901

ALUMINIUM ARSENATE

AlAsO4

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	118.341	145.603	145.603	−1431.054	0.000	−1474.466	−1431.054	−1333.060	233.547
	300.00	118.677	146.336	145.605	−1430.835	0.219	−1474.736	−1431.034	−1332.452	232.001
	400.00	131.754	182.463	150.442	−1418.246	12.808	−1491.231	−1429.401	−1299.812	169.738
	500.00	139.762	212.778	159.961	−1404.646	26.408	−1511.034	−1427.126	−1267.670	132.433
	600.00	145.775	238.810	170.984	−1390.358	40.696	−1533.644	−1424.535	−1236.018	107.605
	700.00	150.846	261.671	182.339	−1375.521	55.533	−1558.691	−1421.752	−1204.816	89.904
	800.00	155.415	282.116	193.555	−1360.205	70.849	−1585.898	−1418.844	−1174.023	76.656
	874.00	158.600	296.005	201.648	−1348.586	82.468	−1607.295	−1416.645	−1151.475	68.818

References

Phase	H / S	C_p
SOL	G1	G1

AlB2 ALUMINIUM DIBORIDE 48.604

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	43.644	34.727	34.727	−150.996	0.000	−161.350	−150.996	−149.443	26.182
	300.00	43.892	34.998	34.728	−150.915	0.081	−161.414	−151.002	−149.434	26.019
	400.00	53.613	49.097	36.585	−145.991	5.005	−165.630	−151.314	−148.865	19.440
	500.00	59.651	61.749	40.377	−140.310	10.686	−171.184	−151.735	−148.207	15.483
	600.00	64.241	73.045	44.897	−134.108	16.888	−177.934	−152.249	−147.454	12.837
	700.00	68.146	83.247	49.659	−127.484	23.512	−185.757	−152.803	−146.611	10.940
	800.00	71.686	92.580	54.448	−120.490	30.506	−194.555	−153.377	−145.688	9.512
	900.00	75.015	101.218	59.171	−113.154	37.842	−204.250	−153.993	−144.690	8.398
	1000.00	78.212	109.288	63.783	−105.492	45.504	−214.779	−165.201	−142.862	7.462
	1100.00	81.322	116.888	68.269	−97.515	53.481	−226.092	−165.459	−140.614	6.677
	1200.00	84.374	124.096	72.623	−89.229	61.767	−238.144	−165.526	−138.351	6.022
	1300.00	87.385	130.968	76.849	−80.641	70.355	−250.900	−165.395	−136.091	5.468

References

Phase	H / S	C_p	Remarks	
SOL	Nb1/e	e	Tk1	DPT= 1673. (LIQ + AlB12)

156.714 ALUMINIUM DODECABORIDE **AlB12**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	149.579	118.826	118.826	−266.102	0.000	−301.530	−266.102	−272.241	47.696
	300.00	150.973	119.755	118.828	−265.824	0.278	−301.751	−266.121	−272.279	47.408
	400.00	203.970	171.300	125.497	−247.780	18.322	−316.301	−266.961	−274.207	35.808
	500.00	234.681	220.353	139.631	−225.741	40.361	−335.918	−268.330	−275.874	28.820
	600.00	256.619	265.166	156.877	−201.129	64.973	−360.228	−270.240	−277.210	24.133
	700.00	274.415	306.097	175.313	−174.553	91.549	−388.821	−272.392	−278.203	20.760
	800.00	290.004	343.776	194.047	−146.318	119.784	−421.339	−274.556	−278.885	18.209
	900.00	304.309	378.769	212.650	−116.595	149.507	−457.487	−276.606	−279.302	16.210
	1000.00	317.817	411.536	230.917	−85.483	180.619	−497.019	−288.989	−278.741	14.560
	1100.00	330.804	442.440	248.755	−53.049	213.053	−539.732	−290.089	−277.659	13.185
	1200.00	343.437	471.767	266.127	−19.334	246.768	−585.455	−290.616	−276.501	12.036
	1300.00	355.819	499.747	283.030	15.630	281.732	−634.041	−290.524	−275.324	11.063
	1400.00	368.021	526.564	299.474	51.824	317.926	−685.365	−289.779	−274.179	10.230
	1500.00	380.089	552.367	315.478	89.230	355.332	−739.320	−288.357	−273.110	9.511
	1600.00	392.054	577.279	331.067	127.838	393.940	−795.809	−286.238	−272.158	8.885
	1700.00	403.941	601.405	346.263	167.638	433.740	−854.749	−283.406	−271.361	8.338
	1800.00	415.766	624.828	361.091	208.624	474.726	−916.066	−279.849	−270.752	7.857
	1900.00	427.542	647.623	375.575	250.790	516.892	−979.694	−275.558	−270.360	7.433
	2000.00	439.278	669.852	389.735	294.131	560.233	−1045.572	−270.523	−270.214	7.057
	2100.00	450.983	691.567	403.593	338.644	604.746	−1113.647	−264.738	−270.337	6.724
	2200.00	462.660	712.817	417.167	384.327	650.429	−1183.870	−258.197	−270.754	6.429
	2300.00	474.317	733.640	430.476	431.176	697.278	−1256.196	−250.892	−271.486	6.166
	2400.00	485.954	754.073	443.535	479.190	745.292	−1330.585	−845.934	−259.725	5.653
	2423.00	488.629	758.720	446.504	490.397	756.499	−1347.982	−844.219	−254.116	5.478

References

Phase	H / S	C_p	Remarks	
SOL	Nb1/e	e	Tk1	MPT= 2423.

AlBr[g] ALUMINIUM MONOBROMIDE (GAS) 106.886

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	35.598	239.620	239.620	15.900	0.000	−55.543	15.900	−24.422	4.279
	300.00	35.621	239.840	239.621	15.966	0.066	−55.986	15.851	−24.672	4.296
	400.00	36.473	250.221	241.030	19.576	3.676	−80.512	−0.287	−34.905	4.558
	500.00	36.899	258.410	243.716	23.247	7.347	−105.958	−1.103	−43.467	4.541
	600.00	37.157	265.162	246.744	26.951	11.051	−132.146	−2.013	−51.856	4.514
	700.00	37.336	270.904	249.796	30.676	14.776	−158.957	−3.023	−60.085	4.484
	800.00	37.472	275.898	252.753	34.416	18.516	−186.302	−4.158	−68.160	4.450
	900.00	37.584	280.319	255.575	38.169	22.269	−214.117	−5.472	−76.084	4.416
	1000.00	37.681	284.284	258.251	41.933	26.033	−242.351	−17.537	−83.091	4.340
	1100.00	37.768	287.879	260.784	45.705	29.805	−270.962	−18.825	−89.585	4.254
	1200.00	37.848	291.169	263.181	49.486	33.586	−299.917	−20.109	−95.960	4.177
	1300.00	37.923	294.201	265.452	53.275	37.375	−329.187	−21.388	−102.230	4.108
	1400.00	37.995	297.014	267.607	57.071	41.171	−358.750	−22.663	−108.400	4.044
	1500.00	38.065	299.638	269.656	60.874	44.974	−388.584	−23.933	−114.480	3.987
	1600.00	38.132	302.097	271.607	64.683	48.783	−418.672	−25.199	−120.475	3.933
	1700.00	38.198	304.411	273.470	68.500	52.600	−448.998	−26.461	−126.391	3.884
	1800.00	38.263	306.596	275.250	72.323	56.423	−479.550	−27.720	−132.233	3.837
	1900.00	38.326	308.666	276.955	76.152	60.252	−510.314	−28.974	−138.005	3.794
	2000.00	38.389	310.634	278.590	79.988	64.088	−541.279	−30.225	−143.711	3.753
	2100.00	38.452	312.508	280.161	83.830	67.930	−572.437	−31.471	−149.355	3.715
	2200.00	38.513	314.299	281.672	87.678	71.778	−603.778	−32.714	−154.939	3.679
	2300.00	38.575	316.012	283.128	91.533	75.633	−635.294	−33.954	−160.467	3.644
	2400.00	38.636	317.655	284.533	95.393	79.493	−666.978	−35.189	−165.941	3.612
	2500.00	38.697	319.233	285.889	99.260	83.360	−698.823	−36.421	−171.364	3.580
	2600.00	38.757	320.752	287.201	103.133	87.233	−730.823	−37.650	−176.738	3.551
	2700.00	38.818	322.216	288.471	107.012	91.112	−762.972	−38.874	−182.064	3.522
	2800.00	38.878	323.629	289.702	110.896	94.996	−795.265	−333.855	−186.776	3.484
	2900.00	38.938	324.994	290.895	114.787	98.887	−827.696	−333.976	−181.521	3.270
	3000.00	38.998	326.315	292.054	118.684	102.784	−860.262	−334.094	−176.262	3.069

References

Phase	H / S	C_p
GAS	Ja2	Ja1

266.694 ALUMINIUM BROMIDE **AlBr3**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol			] [-]
SOL	298.15	100.508	180.220	180.220	-511.280	0.000	-565.013	-511.280	-488.510	85.585
	300.00	100.822	180.843	180.222	-511.094	0.186	-565.347	-511.349	-488.369	85.033
	370.60	112.794	203.371	182.521	-503.553	7.727	-578.922	-555.669	-477.750	67.337
			30.356		11.250					
LIQ	370.60	124.972	233.727	182.521	-492.303	18.977	-578.922	-544.419	-477.750	67.337
	400.00	124.972	243.268	186.640	-488.629	22.651	-585.936	-543.114	-472.512	61.704
	500.00	124.972	271.154	200.858	-476.132	35.148	-611.709	-538.796	-455.365	47.572
	526.30	124.972	277.561	204.532	-472.845	38.435	-618.925	-537.687	-451.005	44.762

References

Phase	H / S	C_p	Remarks	
SOL	Ja2	Ja1	Ja1	MPT= 370.6
LIQ	Ja2	Ja1	Ja1	BPT= 526.3 GAS (Al2Br6), L= 23.87 kJ

AlBr3[g] ALUMINIUM BROMIDE (GAS) 266.694

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	77.274	349.440	349.440	−410.450	0.000	−514.636	−410.450	−438.133	76.759
	300.00	77.336	349.918	349.441	−410.307	0.143	−515.282	−410.562	−438.305	76.316
	400.00	79.656	372.525	352.508	−402.443	8.007	−551.453	−456.928	−438.029	57.201
	500.00	80.833	390.440	358.365	−394.413	16.037	−589.633	−457.077	−433.289	45.265
	600.00	81.507	405.242	364.980	−386.293	24.157	−629.438	−457.289	−428.512	37.305
	700.00	81.927	417.840	371.654	−378.120	32.330	−670.608	−457.586	−423.694	31.616
	800.00	82.205	428.799	378.127	−369.912	40.538	−712.952	−458.002	−418.826	27.347
	900.00	82.399	438.494	384.306	−361.681	48.769	−756.326	−458.596	−413.895	24.022
	1000.00	82.539	447.183	390.167	−353.434	57.016	−800.617	−469.942	−408.129	21.318
	1100.00	82.644	455.055	395.714	−345.175	65.275	−845.735	−470.517	−401.919	19.086
	1200.00	82.723	462.249	400.963	−336.906	73.544	−891.606	−471.092	−395.658	17.223
	1300.00	82.785	468.873	405.935	−328.631	81.819	−938.166	−471.670	−389.348	15.644
	1400.00	82.834	475.010	410.653	−320.350	90.100	−985.364	−472.251	−382.994	14.290
	1500.00	82.874	480.727	415.136	−312.064	98.386	−1033.154	−472.836	−376.598	13.114
	1600.00	82.906	486.076	419.404	−303.775	106.675	−1081.497	−473.425	−370.163	12.085
	1700.00	82.932	491.103	423.476	−295.483	114.967	−1130.359	−474.020	−363.691	11.175
	1800.00	82.954	495.844	427.366	−287.189	123.261	−1179.708	−474.620	−357.184	10.365
	1900.00	82.972	500.330	431.089	−278.892	131.558	−1229.519	−475.225	−350.643	9.640
	2000.00	82.987	504.586	434.658	−270.594	139.856	−1279.767	−475.837	−344.070	8.986
	2100.00	83.000	508.635	438.085	−262.295	148.155	−1330.429	−476.454	−337.467	8.394
	2200.00	83.011	512.497	441.381	−253.995	156.455	−1381.487	−477.078	−330.834	7.855
	2300.00	83.021	516.187	444.553	−245.693	164.757	−1432.923	−477.708	−324.172	7.362
	2400.00	83.028	519.720	447.612	−237.390	173.060	−1484.720	−478.344	−317.483	6.910
	2500.00	83.035	523.110	450.565	−229.087	181.363	−1536.862	−478.987	−310.768	6.493
	2600.00	83.041	526.367	453.418	−220.783	189.667	−1589.337	−479.637	−304.026	6.108
	2700.00	83.046	529.501	456.178	−212.479	197.971	−1642.131	−480.293	−297.259	5.751
	2800.00	83.050	532.521	458.851	−204.174	206.276	−1695.233	−774.715	−289.899	5.408
	2900.00	83.054	535.436	461.442	−195.869	214.581	−1748.632	−774.289	−272.592	4.910
	3000.00	83.057	538.251	463.956	−187.564	222.886	−1802.317	−773.869	−255.299	4.445

References

Phase	H / S	C_p
GAS	Ja2	Ja1

533.387 DIALUMINIUM HEXABROMIDE (GAS) **Al2Br6[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	168.304	547.200	547.200	−937.200	0.000	−1100.348	−937.200	−947.343	165.971
	300.00	168.455	548.242	547.203	−936.888	0.312	−1101.361	−937.398	−947.406	164.958
	400.00	174.155	597.583	553.892	−919.724	17.476	−1158.757	−1028.693	−931.909	121.695
	500.00	177.086	636.792	566.686	−902.147	35.053	−1220.543	−1027.475	−907.855	94.843
	600.00	178.775	669.240	581.152	−884.347	52.853	−1285.891	−1026.340	−884.039	76.962
	700.00	179.833	696.884	595.759	−866.413	70.787	−1354.232	−1025.345	−860.404	64.204
	800.00	180.537	720.946	609.936	−848.392	88.808	−1425.149	−1024.572	−836.897	54.644
	900.00	181.027	742.240	623.476	−830.312	106.888	−1498.329	−1024.141	−813.467	47.212
	1000.00	181.382	761.333	636.324	−812.191	125.009	−1573.524	−1045.207	−788.547	41.189
	1100.00	181.647	778.633	648.487	−794.039	143.161	−1650.536	−1044.723	−762.904	36.227
	1200.00	181.849	794.448	660.001	−775.864	161.336	−1729.201	−1044.236	−737.306	32.094
	1300.00	182.006	809.010	670.910	−757.671	179.529	−1809.384	−1043.749	−711.748	28.598
	1400.00	182.131	822.503	681.262	−739.464	197.736	−1890.967	−1043.266	−686.228	25.603
	1500.00	182.231	835.072	691.102	−721.245	215.955	−1973.853	−1042.789	−660.742	23.009
	1600.00	182.312	846.836	700.472	−703.018	234.182	−2057.955	−1042.319	−635.287	20.740
	1700.00	182.379	857.890	709.410	−684.783	252.417	−2143.197	−1041.857	−609.862	18.739
	1800.00	182.434	868.316	717.951	−666.543	270.657	−2229.512	−1041.405	−584.463	16.961
	1900.00	182.480	878.181	726.127	−648.297	288.903	−2316.842	−1040.963	−559.090	15.370
	2000.00	182.519	887.542	733.966	−630.047	307.153	−2405.132	−1040.531	−533.739	13.940

References

Phase	H / S	C_p
GAS	Ja2	Ja1

Al4C3 TETRAALUMINIUM TRICARBIDE 143.959

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	116.075	88.952	88.952	−208.798	0.000	−235.319	−208.798	−196.464	34.420
	300.00	116.709	89.672	88.954	−208.583	0.215	−235.484	−208.810	−196.387	34.194
	400.00	139.969	126.852	93.865	−195.603	13.195	−246.344	−208.969	−192.202	25.099
	500.00	152.278	159.525	103.806	−180.938	27.860	−260.701	−208.861	−188.024	19.643
	600.00	160.277	188.038	115.520	−165.287	43.511	−278.110	−208.970	−183.852	16.006
	700.00	166.241	213.211	127.714	−148.950	59.848	−298.197	−209.435	−179.634	13.404
	800.00	171.120	235.737	139.833	−132.075	76.723	−320.665	−210.340	−175.321	11.447
	900.00	175.368	256.142	151.640	−114.746	94.052	−345.274	−211.863	−170.860	9.916
	1000.00	179.224	274.821	163.038	−97.014	111.784	−371.836	−256.269	−163.156	8.522
	1100.00	182.825	292.074	173.994	−78.910	129.888	−400.191	−257.431	−153.787	7.303
	1200.00	186.251	308.129	184.510	−60.455	148.343	−430.210	−258.412	−144.320	6.282
	1300.00	189.555	323.169	194.604	−41.664	167.134	−461.783	−259.195	−134.780	5.416
	1400.00	192.769	337.334	204.298	−22.547	186.251	−494.815	−259.765	−125.187	4.671
	1500.00	195.918	350.742	213.618	−3.112	205.686	−529.225	−260.107	−115.560	4.024
	1600.00	199.016	363.485	222.590	16.635	225.433	−564.941	−260.211	−105.919	3.458
	1700.00	202.076	375.642	231.238	36.690	245.488	−601.902	−260.068	−96.279	2.958
	1800.00	205.106	387.279	239.586	57.049	265.847	−640.052	−259.669	−86.655	2.515

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	A1	A1	MPT= 2500.

94.041 **2–ALUMINIUM CALCIUM** **Al2Ca**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	72.599	85.354	85.354	−219.660	0.000	−245.108	−219.660	−215.898	37.824
	300.00	72.769	85.803	85.355	−219.526	0.134	−245.266	−219.662	−215.875	37.587
	400.00	79.015	107.705	88.299	−211.897	7.763	−254.980	−219.622	−214.612	28.025
	500.00	82.333	125.725	94.037	−203.816	15.844	−266.678	−219.516	−213.373	22.291
	600.00	84.498	140.938	100.619	−195.468	24.192	−280.031	−219.536	−212.145	18.469
	700.00	86.120	154.091	107.339	−186.934	32.726	−294.798	−219.802	−210.896	15.737
	800.00	87.451	165.680	113.922	−178.254	41.406	−310.798	−221.168	−209.495	13.679
	900.00	88.614	176.048	120.259	−169.450	50.210	−327.893	−222.211	−207.981	12.071
	1000.00	89.671	185.440	126.315	−160.535	59.125	−345.975	−245.070	−204.794	10.697
	1100.00	90.661	194.033	132.086	−151.518	68.142	−364.954	−246.699	−200.690	9.530
	1200.00	91.604	201.963	137.583	−142.404	77.256	−384.759	−255.591	−195.808	8.523
	1300.00	92.514	209.331	142.822	−133.198	86.462	−405.328	−255.663	−190.822	7.667
	1352.00	92.978	212.969	145.450	−128.375	91.285	−416.309	−255.665	−188.229	7.272
			38.993		52.718					
LIQ	1352.00	94.140	251.961	145.450	−75.657	144.003	−416.309	−202.947	−188.229	7.272
	1400.00	94.140	255.246	149.159	−71.138	148.522	−428.482	−202.882	−187.707	7.003
	1500.00	94.140	261.740	156.450	−61.724	157.936	−454.335	−202.746	−186.628	6.499
	1600.00	94.140	267.816	163.223	−52.310	167.350	−480.816	−202.611	−185.558	6.058
	1700.00	94.140	273.523	169.545	−42.896	176.764	−507.886	−202.475	−184.496	5.669
	1800.00	94.140	278.904	175.472	−33.482	186.178	−535.510	−355.644	−179.479	5.208

References

Phase	H / S	C_p
SOL	Hu1/Ku1	e
LIQ	Hu1	e

148.004 **4–ALUMINIUM CALCIUM** **Al4Ca**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	121.287	138.072	138.072	−215.476	0.000	−256.642	−215.476	−210.572	36.891
	300.00	121.503	138.823	138.074	−215.251	0.225	−256.898	−215.478	−210.541	36.658
	400.00	130.258	175.089	142.960	−202.624	12.852	−272.660	−215.452	−208.894	27.279
	500.00	136.064	204.811	152.447	−189.294	26.182	−291.699	−215.379	−207.264	21.653
	600.00	140.708	230.040	163.329	−175.449	40.027	−313.473	−215.412	−205.641	17.903
	700.00	144.804	252.043	174.463	−161.170	54.306	−337.600	−215.667	−203.996	15.222
	800.00	148.608	271.630	185.407	−146.498	68.978	−363.802	−217.045	−202.199	13.202
	900.00	152.242	289.344	195.987	−131.454	84.022	−391.864	−218.226	−200.282	11.624
	973.00	154.826	301.317	203.445	−120.246	95.230	−413.428	−262.163	−196.964	10.574

References

Phase	H / S	C_p	Remarks	
SOL	Hu1/Ku1	e	Hu1	DPT= 973. (peritec.)

Al2Ce — 2–ALUMINIUM CERIUM — 194.078

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	74.680	108.240	108.240	−163.176	0.000	−195.448	−163.176	−157.880	27.660
	300.00	74.849	108.703	108.242	−163.038	0.138	−195.648	−163.177	−157.847	27.484
	400.00	81.016	131.195	111.266	−155.204	7.972	−207.683	−163.121	−156.073	20.381
	500.00	84.178	149.645	117.154	−146.930	16.246	−221.753	−163.033	−154.323	16.122
	600.00	86.157	165.179	123.898	−138.407	24.769	−237.515	−163.065	−152.581	13.283
	700.00	87.579	178.572	130.774	−129.717	33.459	−254.718	−163.308	−150.818	11.254
	800.00	88.702	190.343	137.499	−120.901	42.275	−273.175	−163.859	−149.001	9.729
	900.00	89.653	200.846	143.965	−111.982	51.194	−292.744	−164.844	−147.090	8.537
	1000.00	90.496	210.337	150.135	−102.974	60.202	−313.311	−190.408	−143.521	7.497
	1100.00	91.269	218.998	156.007	−93.886	69.290	−334.784	−196.893	−138.635	6.583
	1200.00	91.994	226.971	161.593	−84.722	78.454	−357.088	−197.849	−133.296	5.802
	1300.00	92.685	234.362	166.910	−75.488	87.688	−380.159	−198.734	−127.880	5.138
	1400.00	93.352	241.255	171.977	−66.186	96.990	−403.943	−199.551	−122.399	4.567

References

Phase	H / S	C_p	Remarks
SOL	W1/Nb1	e	Hu1 MPT= 1753.

Al4Ce — 4–ALUMINIUM CERIUM — 248.041

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	123.147	161.921	161.921	−163.009	0.000	−211.286	−163.009	−156.857	27.481
	300.00	123.363	162.683	161.923	−162.781	0.228	−211.586	−163.011	−156.819	27.305
	400.00	132.010	199.472	166.880	−149.972	13.037	−229.761	−162.992	−154.754	20.209
	500.00	137.654	229.568	176.499	−136.475	26.534	−251.259	−162.962	−152.700	15.952
	600.00	142.114	255.071	187.523	−122.480	40.529	−275.523	−163.033	−150.642	13.115
	700.00	146.016	277.276	198.792	−108.070	54.939	−302.163	−163.290	−148.561	11.086
	800.00	149.621	297.012	209.858	−93.286	69.723	−330.896	−163.877	−146.421	9.560
	900.00	153.053	314.834	220.548	−78.152	84.857	−361.502	−165.023	−144.178	8.368
	928.00	153.992	319.537	223.464	−73.853	89.156	−370.384	−165.486	−143.522	8.078

References

Phase	H / S	C_p	Remarks
SOL	Nb1/Ku1	e	Hu1 TPT= 523. / MPT= 928.

62.434 ALUMINIUM MONOCHLORIDE (GAS) **AlCl[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	34.652	227.957	227.957	−51.460	0.000	−119.425	−51.460	−77.734	13.619
	300.00	34.683	228.171	227.958	−51.396	0.064	−119.847	−51.472	−77.897	13.563
	400.00	35.809	238.324	229.334	−47.864	3.596	−143.194	−52.181	−86.601	11.309
	500.00	36.397	246.383	231.966	−44.251	7.209	−167.443	−52.994	−95.114	9.937
	600.00	36.775	253.055	234.941	−40.592	10.868	−192.424	−53.907	−103.454	9.006
	700.00	37.052	258.745	237.945	−36.900	14.560	−218.021	−54.921	−111.634	8.330
	800.00	37.276	263.708	240.862	−33.183	18.277	−244.149	−56.059	−119.659	7.813
	900.00	37.424	268.107	243.649	−29.448	22.012	−270.744	−57.374	−127.533	7.402
	1000.00	37.543	272.057	246.296	−25.699	25.761	−297.756	−69.441	−134.490	7.025
	1100.00	37.642	275.640	248.803	−21.940	29.520	−325.143	−70.734	−140.932	6.692
	1200.00	37.729	278.919	251.178	−18.171	33.289	−352.874	−72.022	−147.257	6.410
	1300.00	37.807	281.942	253.430	−14.394	37.066	−380.919	−73.306	−153.474	6.167
	1400.00	37.878	284.746	255.568	−10.610	40.850	−409.255	−74.587	−159.593	5.954
	1500.00	37.945	287.362	257.601	−6.819	44.641	−437.862	−75.865	−165.620	5.767
	1600.00	38.008	289.813	259.539	−3.021	48.439	−466.722	−77.140	−171.562	5.601
	1700.00	38.068	292.119	261.388	0.783	52.243	−495.819	−78.413	−177.424	5.452
	1800.00	38.126	294.297	263.156	4.592	56.052	−525.141	−79.683	−183.212	5.317
	1900.00	38.182	296.359	264.850	8.408	59.868	−554.675	−80.952	−188.929	5.194
	2000.00	38.236	298.319	266.475	12.229	63.689	−584.410	−82.218	−194.579	5.082

References

Phase	H / S	C_p
GAS	Ja2	Ja1

AlCl2[g] ALUMINIUM DICHLORIDE (GAS) 97.887

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	51.635	289.420	289.420	-280.300	0.000	-366.591	-280.300	-291.638	51.094
	300.00	51.696	289.740	289.421	-280.204	0.096	-367.126	-280.312	-291.708	50.791
	400.00	54.115	304.980	291.482	-274.901	5.399	-396.893	-280.983	-295.407	38.576
	500.00	55.432	317.211	295.446	-269.417	10.883	-428.023	-281.711	-298.931	31.229
	600.00	56.213	327.392	299.945	-263.832	16.468	-460.267	-282.516	-302.300	26.318
	700.00	56.711	336.097	304.503	-258.184	22.116	-493.452	-283.411	-305.528	22.799
	800.00	57.046	343.693	308.937	-252.495	27.805	-527.450	-284.430	-308.620	20.151
	900.00	57.281	350.427	313.180	-246.778	33.522	-562.162	-285.627	-311.574	18.083
	1000.00	57.453	356.471	317.212	-241.041	39.259	-597.512	-297.576	-313.625	16.382
	1100.00	57.581	361.953	321.034	-235.289	45.011	-633.438	-298.752	-315.173	14.966
	1200.00	57.679	366.968	324.656	-229.526	50.774	-669.887	-299.928	-316.614	13.782
	1300.00	57.756	371.588	328.091	-223.754	56.546	-706.818	-301.104	-317.957	12.776
	1400.00	57.817	375.870	331.353	-217.975	62.325	-744.194	-302.281	-319.209	11.910
	1500.00	57.866	379.861	334.455	-212.191	68.109	-781.983	-303.460	-320.377	11.157
	1600.00	57.906	383.597	337.411	-206.402	73.898	-820.158	-304.643	-321.466	10.495
	1700.00	57.938	387.109	340.232	-200.610	79.690	-858.695	-305.828	-322.481	9.909
	1800.00	57.965	390.421	342.929	-194.815	85.485	-897.573	-307.018	-323.426	9.386
	1900.00	57.988	393.556	345.512	-189.017	91.283	-936.773	-308.213	-324.305	8.916
	2000.00	58.007	396.530	347.989	-183.217	97.083	-976.278	-309.413	-325.121	8.491

References

Phase	H / S	C_p
GAS	Ja2	Ja1

AlCl3 ALUMINIUM CHLORIDE 133.340

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	91.132	109.290	109.290	-705.630	0.000	-738.215	-705.630	-630.001	110.374
	300.00	91.295	109.854	109.292	-705.461	0.169	-738.418	-705.600	-629.532	109.611
	400.00	100.081	137.321	112.978	-695.892	9.738	-750.821	-703.739	-604.442	78.932
	465.70	105.854	152.969	117.533	-689.127	16.503	-760.365	-702.202	-588.248	65.980
			75.907		35.350					
LIQ	465.70	125.520	228.877	117.533	-653.777	51.853	-760.365	-666.852	-588.248	65.980
	500.00	125.520	237.797	125.481	-649.472	56.158	-768.371	-665.316	-582.514	60.855
	600.00	125.520	260.682	146.165	-636.920	68.710	-793.329	-660.972	-566.365	49.306
	700.00	125.520	280.031	163.942	-624.368	81.262	-820.390	-656.802	-550.929	41.111
	800.00	125.520	296.792	179.524	-611.816	93.814	-849.250	-652.810	-536.080	35.002
	900.00	125.520	311.576	193.392	-599.264	106.366	-879.682	-649.035	-521.718	30.280
	1000.00	125.520	324.801	205.883	-586.712	118.918	-911.513	-656.040	-507.004	26.483

References

Phase	H / S	C_p	Remarks	
SOL	Ja2	Ja1	Ja1	SPT= 454.1 GAS(Al2Cl6), L= 115.73 kJ
LIQ	Ja2	Ja1		

133.340 ALUMINIUM CHLORIDE (GAS) **AlCl3[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	71.863	314.490	314.490	−584.590	0.000	−678.355	−584.590	−570.142	99.886
	300.00	71.964	314.935	314.491	−584.457	0.133	−678.937	−584.596	−570.052	99.255
	400.00	76.014	336.251	317.370	−577.038	7.552	−711.538	−584.884	−565.159	73.802
	500.00	78.275	353.479	322.925	−569.313	15.277	−746.052	−585.157	−560.196	58.523
	600.00	79.633	367.880	329.250	−561.412	23.178	−782.140	−585.464	−555.176	48.332
	700.00	80.504	380.226	335.672	−553.402	31.188	−819.560	−585.836	−550.100	41.049
	800.00	81.092	391.016	341.930	−545.321	39.269	−858.134	−586.314	−544.964	35.582
	900.00	81.508	400.593	347.926	−537.190	47.400	−897.723	−586.960	−539.758	31.327
	1000.00	81.811	409.197	353.630	−529.023	55.567	−938.220	−598.350	−533.711	27.878
	1100.00	82.038	417.006	359.042	−520.830	63.760	−979.536	−598.963	−527.218	25.035
	1200.00	82.212	424.152	364.174	−512.617	71.973	−1021.599	−599.570	−520.669	22.664
	1300.00	82.349	430.738	369.044	−504.389	80.201	−1064.348	−600.176	−514.069	20.656
	1400.00	82.457	436.845	373.672	−496.148	88.442	−1107.730	−600.782	−507.422	18.932
	1500.00	82.544	442.537	378.075	−487.898	96.692	−1151.703	−601.390	−500.733	17.437
	1600.00	82.615	447.866	382.272	−479.640	104.950	−1196.226	−602.001	−494.002	16.128
	1700.00	82.673	452.876	386.280	−471.375	113.215	−1241.265	−602.616	−487.234	14.971
	1800.00	82.722	457.603	390.112	−463.106	121.484	−1286.792	−603.236	−480.429	13.942
	1900.00	82.762	462.077	393.783	−454.831	129.759	−1332.778	−603.863	−473.589	13.020
	2000.00	82.796	466.323	397.305	−446.553	138.037	−1379.199	−604.497	−466.716	12.189

References

Phase	H / S	C_p
GAS	Ja2	Ja1

Al2Cl6[g] DIALUMINIUM HEXACHLORIDE (GAS) 266.679

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	157.867	475.000	475.000	-1295.740	0.000	-1437.361	-1295.740	-1220.934	213.903
	300.00	158.107	475.977	475.003	-1295.448	0.292	-1438.241	-1295.726	-1220.470	212.503
	400.00	167.460	522.892	481.336	-1279.118	16.622	-1488.274	-1294.811	-1195.516	156.118
	500.00	172.484	560.852	493.565	-1262.097	33.643	-1542.523	-1293.785	-1170.811	122.314
	600.00	175.444	592.583	507.497	-1244.688	51.052	-1600.238	-1292.792	-1146.310	99.795
	700.00	177.321	619.779	521.641	-1227.044	68.696	-1660.889	-1291.911	-1121.968	83.722
	800.00	178.582	643.544	535.425	-1209.245	86.495	-1724.080	-1291.232	-1097.740	71.675
	900.00	179.467	664.632	548.632	-1191.340	104.400	-1789.509	-1290.881	-1073.579	62.309
	1000.00	180.110	683.576	561.195	-1173.359	122.381	-1856.935	-1312.014	-1047.918	54.738
	1100.00	180.591	700.766	573.114	-1155.323	140.417	-1926.165	-1311.588	-1021.529	48.508
	1200.00	180.959	716.496	584.416	-1137.245	158.495	-1997.040	-1311.152	-995.179	43.319
	1300.00	181.247	730.992	595.141	-1119.134	176.606	-2069.424	-1310.709	-968.866	38.930
	1400.00	181.475	744.433	605.331	-1100.997	194.743	-2143.203	-1310.266	-942.587	35.168
	1500.00	181.658	756.960	615.026	-1082.840	212.900	-2218.280	-1309.825	-916.340	31.910
	1600.00	181.807	768.688	624.268	-1064.667	231.073	-2294.568	-1309.389	-890.122	29.059
	1700.00	181.929	779.714	633.091	-1046.480	249.260	-2371.994	-1308.961	-863.931	26.545
	1800.00	182.031	790.116	641.528	-1028.282	267.458	-2450.490	-1308.543	-837.764	24.311
	1900.00	182.115	799.960	649.610	-1010.074	285.666	-2529.999	-1308.138	-811.621	22.313
	2000.00	182.186	809.303	657.363	-991.859	303.881	-2610.466	-1307.747	-785.499	20.515

References

Phase	H / S	C_p
GAS	Ja2	Ja1

AlCl3*6H2O ALUMINIUM CHLORIDE HEXAHYDRATE 241.431

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	296.228	317.997	317.997	-2691.601	0.000	-2786.412	-2691.601	-2260.931	396.106
	300.00	296.368	319.829	318.002	-2691.053	0.548	-2787.002	-2691.675	-2258.258	393.198
	400.00	303.917	406.123	329.717	-2661.039	30.562	-2823.488	-2695.717	-2113.177	275.953

References

Phase	H / S	C_p
SOL	Nb1	Tk1,e

85.915 ALUMINIUM COBALT **AlCo**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	46.419	54.392	54.392	−110.458	0.000	−126.675	−110.458	−109.288	19.147
	300.00	46.442	54.679	54.393	−110.372	0.086	−126.776	−110.463	−109.281	19.027
	400.00	47.698	68.212	56.230	−105.665	4.793	−132.950	−110.827	−108.837	14.213
	500.00	48.953	78.990	59.739	−100.833	9.625	−140.328	−111.374	−108.280	11.312
	600.00	50.208	88.026	63.720	−95.875	14.583	−148.690	−112.065	−107.598	9.367
	700.00	51.463	95.860	67.764	−90.791	19.667	−157.893	−112.884	−106.791	7.969
	800.00	52.718	102.814	71.719	−85.582	24.876	−167.833	−114.270	−105.795	6.908
	900.00	53.974	109.096	75.528	−80.247	30.211	−178.433	−115.472	−104.667	6.075
	1000.00	55.229	114.847	79.176	−74.787	35.671	−189.634	−127.532	−102.629	5.361
	1100.00	56.484	120.170	82.664	−69.202	41.256	−201.389	−128.949	−100.071	4.752
	1200.00	57.739	125.139	85.999	−63.490	46.968	−213.657	−130.560	−97.377	4.239
	1300.00	58.994	129.810	89.191	−57.654	52.804	−226.406	−132.482	−94.536	3.799
	1400.00	60.250	134.228	92.252	−51.692	58.766	−239.610	−134.844	−91.531	3.415
	1500.00	61.505	138.427	95.191	−45.604	64.854	−253.245	−136.111	−88.390	3.078

References

Phase	H / S	C_p	Remarks	
SOL	W1/e	e	Hu1	MPT= 1918.

252.774 5−ALUMINIUM 2−COBALT **Al5Co2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	164.741	193.719	193.719	−292.880	0.000	−350.637	−292.880	−290.573	50.907
	300.00	164.850	194.739	193.722	−292.575	0.305	−350.997	−292.892	−290.559	50.591
	400.00	170.707	242.965	200.258	−275.797	17.083	−372.983	−293.776	−289.661	37.826
	500.00	176.565	281.687	212.794	−258.434	34.446	−399.277	−295.094	−288.487	30.138
	600.00	182.422	314.396	227.070	−240.484	52.396	−429.122	−296.708	−287.019	24.987
	700.00	188.280	342.956	241.627	−221.949	70.931	−462.019	−298.579	−285.260	21.286
	800.00	194.138	368.480	255.915	−202.828	90.052	−497.612	−301.654	−283.086	18.484
	900.00	199.995	391.684	269.731	−183.122	109.758	−535.638	−304.586	−280.599	16.286
	1000.00	205.853	413.059	283.008	−162.829	130.051	−575.888	−361.169	−273.942	14.309
	1100.00	211.710	432.954	295.746	−141.951	150.929	−618.200	−363.820	−265.091	12.588
	1200.00	217.568	451.626	307.965	−120.487	172.393	−662.438	−366.525	−255.997	11.143
	1300.00	223.426	469.272	319.701	−98.438	194.442	−708.491	−369.517	−246.668	9.911
	1400.00	229.283	486.044	330.988	−75.802	217.078	−756.264	−373.055	−237.088	8.846
	1443.00	231.802	493.018	335.713	−65.889	226.991	−777.314	−373.672	−232.902	8.431

References

Phase	H / S	C_p	Remarks	
SOL	W1/e	e	Hu1	DPT= 1443. (LIQ + AlCo)

AlF[g] ALUMINIUM MONOFLUORIDE (GAS) 45.980

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	31.934	215.160	215.160	−265.684	0.000	−329.834	−265.684	−291.172	51.012
	300.00	31.966	215.358	215.161	−265.625	0.059	−330.232	−265.699	−291.330	50.725
	400.00	33.591	224.785	216.435	−262.344	3.340	−352.258	−266.531	−299.750	39.143
	500.00	34.740	232.413	218.892	−258.923	6.761	−375.130	−267.433	−307.952	32.172
	600.00	35.509	238.820	221.694	−255.408	10.276	−398.700	−268.410	−315.965	27.507
	700.00	36.040	244.335	224.543	−251.829	13.855	−422.864	−269.473	−323.809	24.163
	800.00	36.422	249.174	227.326	−248.205	17.479	−447.545	−270.654	−331.492	21.644
	900.00	36.710	253.481	229.997	−244.548	21.136	−472.681	−272.009	−339.018	19.676
	1000.00	36.933	257.361	232.543	−240.866	24.818	−498.227	−284.111	−345.623	18.053
	1100.00	37.113	260.890	234.962	−237.163	28.521	−524.142	−285.437	−351.710	16.701
	1200.00	37.261	264.126	237.259	−233.444	32.240	−550.395	−286.757	−357.676	15.569
	1300.00	37.387	267.113	239.442	−229.711	35.973	−576.959	−288.072	−363.533	14.607
	1400.00	37.496	269.888	241.519	−225.967	39.717	−603.811	−289.384	−369.288	13.778
	1500.00	37.592	272.478	243.498	−222.213	43.471	−630.930	−290.693	−374.950	13.057
	1600.00	37.678	274.907	245.386	−218.449	47.235	−658.301	−291.999	−380.524	12.423
	1700.00	37.756	277.194	247.190	−214.677	51.007	−685.907	−293.303	−386.017	11.861
	1800.00	37.829	279.354	248.918	−210.898	54.786	−713.736	−294.605	−391.433	11.359
	1900.00	37.896	281.401	250.574	−207.112	58.572	−741.774	−295.905	−396.777	10.908
	2000.00	37.959	283.347	252.164	−203.319	62.365	−770.012	−297.203	−402.053	10.501

References

Phase	H / S	C_p
GAS	Ja2	Ja1

64.978 ALUMINIUM DIFLUORIDE (GAS) **AlF2[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	45.859	264.100	264.100	−695.000	0.000	−773.741	−695.000	−704.848	123.486
	300.00	45.935	264.384	264.101	−694.915	0.085	−774.230	−695.018	−704.909	122.736
	400.00	49.552	278.122	265.949	−690.131	4.869	−801.380	−695.954	−708.063	92.464
	500.00	51.973	289.459	269.551	−685.046	9.954	−829.775	−696.873	−710.984	74.276
	600.00	53.556	299.084	273.691	−679.764	15.236	−859.215	−697.819	−713.719	62.135
	700.00	54.631	307.426	277.928	−674.352	20.648	−889.550	−698.824	−716.290	53.450
	800.00	55.395	314.773	282.084	−668.848	26.152	−920.667	−699.929	−718.711	46.927
	900.00	55.940	321.331	286.087	−663.280	31.720	−952.478	−701.197	−720.985	41.845
	1000.00	56.342	327.247	289.912	−657.665	37.335	−984.912	−713.207	−722.348	37.732
	1100.00	56.648	332.632	293.554	−652.015	42.985	−1017.910	−714.438	−723.203	34.342
	1200.00	56.885	337.571	297.019	−646.338	48.662	−1051.423	−715.664	−723.945	31.513
	1300.00	57.072	342.132	300.316	−640.639	54.361	−1085.411	−716.887	−724.586	29.114
	1400.00	57.223	346.367	303.456	−634.924	60.076	−1119.839	−718.110	−725.132	27.055
	1500.00	57.346	350.320	306.450	−629.196	65.804	−1154.675	−719.333	−725.591	25.267
	1600.00	57.448	354.024	309.309	−623.456	71.544	−1189.894	−720.557	−725.969	23.700
	1700.00	57.533	357.510	312.043	−617.707	77.293	−1225.473	−721.785	−726.269	22.316
	1800.00	57.604	360.800	314.661	−611.950	83.050	−1261.390	−723.015	−726.498	21.082
	1900.00	57.665	363.916	317.172	−606.186	88.814	−1297.627	−724.249	−726.657	19.977
	2000.00	57.717	366.875	319.584	−600.417	94.583	−1334.168	−725.487	−726.752	18.981

References

Phase	H / S	C_p
GAS	Ja2	Ja1

AlF3 ALUMINIUM FLUORIDE 83.977

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[	J / (K mol)	]	[		kJ / mol	]		
SOL−A	298.15	75.105	66.480	66.480	−1510.400	0.000	−1530.221	−1510.400	−1431.096	250.722
	300.00	75.398	66.945	66.481	−1510.261	0.139	−1530.344	−1510.393	−1430.604	249.090
	400.00	86.289	90.316	69.594	−1502.111	8.289	−1538.238	−1509.570	−1404.112	183.358
	500.00	92.279	110.267	75.785	−1493.159	17.241	−1548.293	−1508.304	−1377.889	143.947
	600.00	97.294	127.470	82.997	−1483.716	26.684	−1560.198	−1506.825	−1351.940	117.697
	700.00	105.357	143.046	90.476	−1473.601	36.799	−1573.733	−1504.902	−1326.270	98.967
	728.00	107.943	147.228	92.579	−1470.615	39.785	−1577.797	−1504.249	−1319.137	94.649
			0.774		0.563					
SOL−B	728.00	97.574	148.002	92.579	−1470.052	40.348	−1577.797	−1503.686	−1319.137	94.649
	800.00	98.516	157.249	97.989	−1462.992	47.408	−1588.791	−1502.705	−1300.933	84.942
	900.00	99.715	168.922	105.233	−1453.080	57.320	−1605.110	−1501.452	−1275.788	74.045
	1000.00	100.831	179.487	112.139	−1443.052	67.348	−1622.539	−1510.890	−1250.016	65.294
	1100.00	101.893	189.147	118.707	−1432.915	77.485	−1640.977	−1509.488	−1223.996	58.123
	1200.00	102.917	198.057	124.953	−1422.675	87.725	−1660.343	−1508.014	−1198.107	52.152
	1300.00	103.915	206.334	130.898	−1412.333	98.067	−1680.568	−1506.467	−1172.343	47.105
	1400.00	104.894	214.071	136.566	−1401.892	108.508	−1701.592	−1504.845	−1146.702	42.784
	1500.00	105.859	221.341	141.977	−1391.354	119.046	−1723.366	−1503.148	−1121.179	39.043
	1548.00	106.319	224.683	144.490	−1386.262	124.138	−1734.071	−1502.306	−1108.969	37.420

References

Phase	H / S	C_p	Remarks	
SOL−A	Ja2,Co1	Ja1		
SOL−B	Ja2	Ja1	Ja1	BPT= 1548., L= 273.6 kJ, GAS(AlF3 + Al2F6)

83.977 ALUMINIUM FLUORIDE (GAS) **AlF3[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	62.546	276.690	276.690	−1209.320	0.000	−1291.815	−1209.320	−1192.690	208.954
	300.00	62.664	277.077	276.691	−1209.204	0.116	−1292.327	−1209.336	−1192.587	207.648
	400.00	68.557	295.949	279.224	−1202.630	6.690	−1321.010	−1210.089	−1186.884	154.991
	500.00	72.628	311.716	284.189	−1195.556	13.764	−1351.415	−1210.701	−1181.011	123.379
	600.00	75.294	325.210	289.929	−1188.151	21.169	−1383.277	−1211.260	−1175.020	102.295
	700.00	77.090	336.960	295.827	−1180.526	28.794	−1416.399	−1211.828	−1168.935	87.227
	800.00	78.346	347.341	301.630	−1172.751	36.569	−1450.624	−1212.463	−1162.765	75.921
	900.00	79.255	356.624	307.234	−1164.869	44.451	−1485.830	−1213.241	−1156.508	67.122
	1000.00	79.932	365.011	312.599	−1156.908	52.412	−1521.919	−1224.746	−1149.396	60.038
	1100.00	80.450	372.655	317.716	−1148.888	60.432	−1558.808	−1225.460	−1141.827	54.221
	1200.00	80.855	379.673	322.591	−1140.821	68.499	−1596.429	−1226.161	−1134.193	49.370
	1300.00	81.178	386.158	327.234	−1132.719	76.601	−1634.725	−1226.853	−1126.501	45.263
	1400.00	81.439	392.184	331.661	−1124.588	84.732	−1673.645	−1227.541	−1118.755	41.741
	1500.00	81.654	397.810	335.885	−1116.433	92.887	−1713.148	−1228.226	−1110.961	38.687
	1600.00	81.833	403.086	339.922	−1108.258	101.062	−1753.196	−1228.911	−1103.121	36.013
	1700.00	81.984	408.052	343.785	−1100.067	109.253	−1793.755	−1229.598	−1095.238	33.653
	1800.00	82.113	412.741	347.487	−1091.862	117.458	−1834.797	−1230.286	−1087.315	31.553
	1900.00	82.223	417.184	351.040	−1083.645	125.675	−1876.295	−1230.978	−1079.353	29.673
	2000.00	82.319	421.404	354.453	−1075.418	133.902	−1918.226	−1231.675	−1071.355	27.981

References

Phase	H / S	C_p
GAS	Ja2	Ja1

Al2F6[g] DIALUMINIUM HEXAFLUORIDE (GAS) 167.953

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	133.761	387.120	387.120	-2633.620	0.000	-2749.040	-2633.620	-2550.789	446.888
	300.00	134.089	387.948	387.123	-2633.372	0.248	-2749.757	-2633.636	-2550.275	444.042
	400.00	149.198	428.730	392.580	-2619.160	14.460	-2790.652	-2634.078	-2522.402	329.392
	500.00	158.956	463.154	403.344	-2603.715	29.905	-2835.292	-2634.004	-2494.484	260.597
	600.00	165.190	492.727	415.836	-2587.485	46.135	-2883.121	-2633.704	-2466.606	214.737
	700.00	169.334	518.523	428.703	-2570.746	62.874	-2933.712	-2633.349	-2438.785	181.984
	800.00	172.205	541.332	441.383	-2553.661	79.959	-2986.727	-2633.086	-2411.010	157.423
	900.00	174.269	561.741	453.643	-2536.332	97.288	-3041.898	-2633.076	-2383.255	138.321
	1000.00	175.799	580.185	465.389	-2518.825	114.795	-3099.009	-2654.500	-2353.964	122.958
	1100.00	176.964	596.997	476.601	-2501.184	132.436	-3157.881	-2654.329	-2323.919	110.354
	1200.00	177.869	612.436	487.286	-2483.440	150.180	-3218.363	-2654.119	-2293.891	99.850
	1300.00	178.588	626.702	497.469	-2465.616	168.004	-3280.329	-2653.885	-2263.881	90.964
	1400.00	179.166	639.959	507.179	-2447.728	185.892	-3343.670	-2653.634	-2233.890	83.347
	1500.00	179.640	652.337	516.448	-2429.786	203.834	-3408.292	-2653.373	-2203.917	76.747
	1600.00	180.032	663.943	525.307	-2411.802	221.818	-3474.112	-2653.108	-2173.962	70.973
	1700.00	180.360	674.868	533.787	-2393.782	239.838	-3541.058	-2652.843	-2144.024	65.878
	1800.00	180.638	685.185	541.914	-2375.732	257.888	-3609.065	-2652.580	-2114.101	61.350
	1900.00	180.875	694.958	549.714	-2357.656	275.964	-3678.077	-2652.322	-2084.192	57.298
	2000.00	181.079	704.241	557.210	-2339.558	294.062	-3748.040	-2652.071	-2054.297	53.653

References

Phase	H / S	C_p
GAS	Ja2	Ja1

AlH3 ALUMINIUM HYDRIDE (HEXAGONAL) 30.005

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	40.314	30.041	30.041	-11.401	0.000	-20.358	-11.401	46.516	-8.149
	300.00	40.455	30.291	30.042	-11.326	0.075	-20.414	-11.451	46.875	-8.162
	400.00	48.101	42.976	31.720	-6.898	4.503	-24.089	-13.889	66.701	-8.710

References

Phase	H / S	C_p
SOL	Pa3	Pa3

407.695 ALUMINIUM IODIDE **AlI3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	98.893	190.100	190.100	−302.900	0.000	−359.578	−302.900	−299.207	52.420
	300.00	99.069	190.712	190.102	−302.717	0.183	−359.931	−302.913	−299.184	52.092
	400.00	108.550	220.511	194.101	−292.336	10.564	−380.540	−327.497	−297.013	38.786
	464.15	114.632	237.098	198.915	−285.177	17.723	−395.227	−392.297	−291.057	32.755
			34.256		15.900					
LIQ	464.15	121.336	271.354	198.915	−269.277	33.623	−395.227	−376.397	−291.057	32.755
	500.00	121.336	280.382	204.437	−264.928	37.972	−405.118	−375.020	−284.518	29.723
	600.00	121.336	302.504	218.994	−252.794	50.106	−434.296	−371.268	−266.772	23.225
	700.00	121.336	321.208	232.294	−240.660	62.240	−465.506	−367.645	−249.644	18.629

References

Phase	H / S	C_p	Remarks
SOL	Ja2	Ja1	
LIQ	Ja2	Ja1	Ja1 NBPT= 658.(approx.), GAS (Al2I6 + AlI3)

407.695 ALUMINIUM IODIDE (GAS) **AlI3[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	76.422	373.620	373.620	−193.300	0.000	−304.695	−193.300	−244.323	42.804
	300.00	76.501	374.093	373.621	−193.159	0.141	−305.386	−193.355	−244.639	42.596
	400.00	79.288	396.540	376.663	−185.349	7.951	−343.965	−220.510	−260.438	34.010
	500.00	80.588	414.388	382.485	−177.348	15.952	−384.542	−287.441	−263.942	27.574
	600.00	81.304	429.150	389.068	−169.251	24.049	−426.741	−287.725	−259.216	22.567
	700.00	81.743	441.718	395.714	−161.097	32.203	−470.299	−288.082	−254.438	18.986
	800.00	82.035	452.654	402.162	−152.907	40.393	−515.030	−288.552	−249.601	16.297
	900.00	82.242	462.329	408.320	−144.693	48.607	−560.788	−289.197	−244.696	14.202
	1000.00	82.396	471.002	414.162	−136.460	56.840	−607.462	−300.591	−238.949	12.481
	1100.00	82.514	478.861	419.692	−128.215	65.085	−654.962	−301.212	−232.754	11.053
	1200.00	82.610	486.045	424.927	−119.958	73.342	−703.212	−301.832	−226.504	9.859
	1300.00	82.688	492.660	429.886	−111.693	81.607	−752.152	−302.453	−220.201	8.848
	1400.00	82.755	498.791	434.591	−103.421	89.879	−801.728	−303.077	−213.850	7.979
	1500.00	82.812	504.502	439.064	−95.143	98.157	−851.896	−303.703	−207.455	7.224
	1600.00	82.863	509.848	443.323	−86.859	106.441	−902.616	−304.334	−201.018	6.563
	1700.00	82.908	514.873	447.385	−78.570	114.730	−953.855	−304.968	−194.542	5.978
	1800.00	82.950	519.613	451.267	−70.277	123.023	−1005.581	−305.607	−188.028	5.456
	1900.00	82.988	524.099	454.984	−61.980	131.320	−1057.769	−306.251	−181.478	4.989
	2000.00	83.023	528.357	458.547	−53.680	139.620	−1110.394	−306.900	−174.894	4.568

References

Phase	H / S	C_p
GAS	Ja2	Ja1

Al2I6[g] DIALUMINIUM HEXAIODIDE (GAS) 815.390

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	171.003	597.380	597.380	−489.530	0.000	−667.639	−489.530	−546.895	95.814
	300.00	171.145	598.438	597.383	−489.214	0.316	−668.745	−489.606	−547.251	95.285
	400.00	176.138	648.460	604.169	−471.814	17.716	−731.198	−542.136	−564.142	73.669
	500.00	178.463	688.042	617.124	−454.071	35.459	−798.092	−674.256	−556.891	58.178
	600.00	179.738	720.703	631.745	−436.155	53.375	−868.577	−673.104	−533.528	46.448
	700.00	180.518	748.473	646.486	−418.140	71.390	−942.070	−672.110	−510.347	38.083
	800.00	181.033	772.613	660.776	−400.061	89.469	−1018.151	−671.351	−487.293	31.817
	900.00	181.394	793.958	674.411	−381.938	107.592	−1096.500	−670.946	−464.315	26.948
	1000.00	181.660	813.084	687.339	−363.785	125.745	−1176.869	−692.046	−439.841	22.975
	1100.00	181.864	830.408	699.570	−345.608	143.922	−1259.057	−691.603	−414.642	19.690
	1200.00	182.025	846.239	711.142	−327.414	162.116	−1342.901	−691.161	−389.484	16.954
	1300.00	182.156	860.814	722.102	−309.204	180.326	−1428.263	−690.725	−364.361	14.640
	1400.00	182.266	874.318	732.498	−290.983	198.547	−1515.028	−690.295	−339.273	12.658
	1500.00	182.360	886.896	742.377	−272.752	216.778	−1603.096	−689.873	−314.214	10.942
	1600.00	182.441	898.668	751.781	−254.511	235.019	−1692.380	−689.461	−289.184	9.441
	1700.00	182.513	909.731	760.750	−236.264	253.266	−1782.806	−689.059	−264.179	8.117
	1800.00	182.577	920.165	769.320	−218.009	271.521	−1874.305	−688.669	−239.197	6.941
	1900.00	182.636	930.038	777.521	−199.748	289.782	−1966.820	−688.289	−214.237	5.890
	2000.00	182.690	939.407	785.383	−181.482	308.048	−2060.296	−687.922	−189.297	4.944

References

Phase	H / S	C_p
GAS	Ja2	Ja1

192.869

2–ALUMINIUM LANTHANUM

Al2La

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f [–]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	73.721	98.742	98.742	–150.624	0.000	–180.064	–150.624	–146.238	25.620
	300.00	73.747	99.199	98.744	–150.488	0.136	–180.247	–150.628	–146.211	25.458
	400.00	75.170	120.609	101.653	–143.042	7.582	–191.285	–150.921	–144.699	18.896
	500.00	76.592	137.536	107.195	–135.454	15.170	–204.221	–151.364	–143.095	14.949
	600.00	78.015	151.626	113.458	–127.723	22.901	–218.699	–152.265	–141.359	12.306
	700.00	79.437	163.759	119.797	–119.851	30.773	–234.482	–152.962	–139.489	10.409
	800.00	80.860	174.459	125.974	–111.836	38.788	–251.403	–153.914	–137.503	8.978
	900.00	82.283	184.065	131.903	–103.679	46.945	–269.337	–155.231	–135.377	7.857
	1000.00	83.705	192.808	137.563	–95.379	55.245	–288.187	–178.059	–131.565	6.872
	1100.00	85.128	200.853	142.956	–86.938	63.686	–307.875	–179.346	–126.853	6.024
	1200.00	86.550	208.321	148.095	–78.354	72.270	–328.338	–190.185	–121.798	5.302
	1300.00	87.973	215.304	153.000	–69.628	80.996	–349.523	–191.239	–116.055	4.663
	1400.00	89.395	221.876	157.687	–60.759	89.865	–371.386	–192.151	–110.237	4.113
	1500.00	90.818	228.092	162.175	–51.749	98.875	–393.887	–192.921	–104.358	3.634
	1600.00	92.240	233.999	166.481	–42.596	108.028	–416.994	–193.549	–98.433	3.213
	1678.00	93.350	238.416	169.723	–35.358	115.266	–435.419	–193.940	–93.786	2.919

References

Phase	H / S	C_p	Remarks	
SOL	Ku1	Nb1,e	Hu1	MPT= 1678.

33.923

ALUMINIUM LITHIUM

AlLi

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f [–]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	48.922	46.861	46.861	–48.953	0.000	–62.925	–48.953	–45.824	8.028
	300.00	48.953	47.164	46.862	–48.862	0.091	–63.012	–48.953	–45.805	7.975
	400.00	50.626	61.476	48.802	–43.884	5.069	–68.474	–49.095	–44.741	5.843
	500.00	52.300	72.952	52.521	–38.737	10.216	–75.213	–52.525	–43.303	4.524
	600.00	53.974	82.636	56.753	–33.424	15.529	–83.005	–52.944	–41.417	3.606
	700.00	55.647	91.081	61.066	–27.942	21.011	–91.699	–53.256	–39.470	2.945
	800.00	57.321	98.621	65.298	–22.294	26.659	–101.191	–53.512	–37.483	2.447
	900.00	58.994	105.469	69.386	–16.478	32.475	–111.401	–53.776	–35.464	2.058
	993.00	60.551	111.346	73.044	–10.919	38.034	–121.486	–64.625	–32.879	1.730

References

Phase	H / S	C_p	Remarks	
SOL	Ku1	e	Ku1	MPT= 993.

AlN — ALUMINIUM NITRIDE — 40.988

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		J / (K mol)			kJ / mol					
SOL	298.15	30.140	20.150	20.150	−317.984	0.000	−323.992	−317.984	−286.997	50.281
	300.00	30.291	20.337	20.151	−317.928	0.056	−324.029	−318.000	−286.805	49.937
	400.00	36.402	29.967	21.422	−314.566	3.418	−326.553	−318.603	−276.303	36.082
	500.00	40.448	38.547	24.006	−310.714	7.270	−329.987	−318.862	−265.693	27.757
	600.00	43.683	46.215	27.080	−306.503	11.481	−334.232	−318.897	−255.053	22.204
	700.00	45.719	53.113	30.315	−302.025	15.959	−339.205	−318.808	−244.418	18.239
	800.00	47.083	59.313	33.559	−297.381	20.603	−344.831	−318.721	−233.798	15.265
	900.00	48.054	64.917	36.737	−292.622	25.362	−351.047	−318.738	−223.183	12.953
	1000.00	48.783	70.020	39.814	−287.778	30.206	−357.798	−329.459	−211.799	11.063
	1100.00	49.131	74.687	42.775	−282.881	35.103	−365.037	−329.386	−200.036	9.499
	1200.00	49.400	78.974	45.616	−277.954	40.030	−372.723	−329.308	−188.281	8.196
	1300.00	49.617	82.937	48.336	−273.003	44.981	−380.821	−329.229	−176.532	7.093
	1400.00	49.798	86.621	50.941	−268.032	49.952	−389.301	−329.149	−164.789	6.148
	1500.00	49.952	90.062	53.435	−263.044	54.940	−398.137	−329.071	−153.052	5.330
	1600.00	50.084	93.290	55.826	−258.042	59.942	−407.306	−328.993	−141.319	4.614
	1700.00	50.201	96.330	58.120	−253.028	64.956	−416.788	−328.916	−129.592	3.982
	1800.00	50.305	99.202	60.324	−248.003	69.981	−426.566	−328.840	−117.869	3.420
	1900.00	50.398	101.924	62.442	−242.968	75.016	−436.624	−328.765	−106.151	2.918
	2000.00	50.484	104.512	64.481	−237.923	80.061	−446.947	−328.690	−94.436	2.466

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	DPT= 2790.

AlNi — ALUMINIUM NICKEL — 85.672

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		J / (K mol)			kJ / mol					
SOL	298.15	45.957	54.099	54.099	−118.407	0.000	−134.537	−118.407	−117.200	20.533
	300.00	45.982	54.383	54.100	−118.322	0.085	−134.637	−118.415	−117.192	20.405
	400.00	47.363	67.801	55.920	−113.655	4.752	−140.775	−118.987	−116.705	15.240
	500.00	48.744	78.518	59.403	−108.849	9.558	−148.108	−119.779	−116.048	12.123
	600.00	50.124	87.527	63.359	−103.906	14.501	−156.422	−120.862	−115.206	10.030
	700.00	51.505	95.357	67.382	−98.825	19.582	−165.575	−121.965	−114.166	8.519
	800.00	52.886	102.325	71.322	−93.605	24.802	−175.465	−122.840	−112.993	7.378
	900.00	54.266	108.634	75.123	−88.247	30.160	−186.018	−123.822	−111.705	6.483
	1000.00	55.647	114.423	78.767	−82.752	35.655	−197.174	−135.518	−109.540	5.722
	1100.00	57.028	119.791	82.256	−77.118	41.289	−208.888	−136.404	−106.899	5.076
	1200.00	58.409	124.812	85.595	−71.346	47.061	−221.121	−137.248	−104.179	4.535
	1300.00	59.789	129.542	88.795	−65.436	52.971	−233.841	−138.045	−101.390	4.074

References

Phase	H / S	C_p	Remarks	
SOL	Ku1	Hu1	Tk1	MPT= 1911.

203.052 ALUMINIUM 3–NICKEL **AlNi3**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	98.097	113.805	113.805	–153.134	0.000	–187.065	–153.134	–151.914	26.615
	300.00	98.157	114.412	113.807	–152.952	0.182	–187.276	–153.142	–151.906	26.449
	400.00	101.378	143.091	117.695	–142.976	10.158	–200.212	–153.869	–151.400	19.771
	500.00	104.600	166.059	125.145	–132.677	20.457	–215.706	–155.080	–150.654	15.739
	600.00	107.822	185.415	133.617	–122.056	31.078	–233.304	–157.029	–149.602	13.024
	700.00	111.043	202.277	142.246	–111.112	42.022	–252.707	–158.904	–148.185	11.058
	800.00	114.265	217.315	150.707	–99.847	53.287	–273.699	–159.918	–146.583	9.571
	900.00	117.487	230.960	158.877	–88.259	64.875	–296.123	–160.972	–144.855	8.407
	1000.00	120.708	243.505	166.721	–76.350	76.784	–319.855	–172.750	–142.241	7.430
	1100.00	123.930	255.161	174.237	–64.118	89.016	–344.795	–173.726	–139.142	6.607
	1200.00	127.152	266.082	181.440	–51.564	101.570	–370.862	–174.670	–135.956	5.918
	1300.00	130.373	276.387	188.351	–38.687	114.447	–397.991	–175.566	–132.693	5.332
	1400.00	133.595	286.167	194.992	–25.489	127.645	–426.122	–176.341	–129.365	4.827
	1500.00	136.817	295.494	201.383	–11.968	141.166	–455.209	–176.853	–125.990	4.387
	1600.00	140.038	304.426	207.546	1.874	155.008	–485.208	–177.043	–122.591	4.002
	1668.00	142.229	310.300	211.616	11.471	164.605	–506.110	–176.987	–120.277	3.767

References

Phase	H / S	C_p	Remarks	
SOL	Ku1	Ku1,e	Hu1	DPT= 1668. (peritec.)

139.635 3–ALUMINIUM NICKEL **Al3Ni**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	94.577	110.667	110.667	–150.624	0.000	–183.619	–150.624	–149.422	26.178
	300.00	94.642	111.252	110.669	–150.449	0.175	–183.825	–150.632	–149.414	26.015
	400.00	98.157	138.960	114.423	–140.809	9.815	–196.393	–151.245	–148.925	19.448
	500.00	101.671	161.241	121.628	–130.818	19.806	–211.438	–152.132	–148.248	15.487
	600.00	105.186	180.088	129.840	–120.475	30.149	–228.528	–153.326	–147.365	12.829
	700.00	108.700	196.567	138.219	–109.780	40.844	–247.377	–154.550	–146.265	10.914
	800.00	112.215	211.311	146.449	–98.735	51.889	–267.784	–155.602	–145.012	9.468
	900.00	115.729	224.731	154.413	–87.338	63.286	–289.595	–156.922	–143.613	8.335
	1000.00	119.244	237.106	162.071	–75.589	75.035	–312.695	–190.255	–139.770	7.301
	1100.00	122.759	248.636	169.422	–63.489	87.135	–336.988	–191.024	–134.682	6.396
	1127.00	123.707	251.624	171.356	–60.161	90.463	–343.742	–191.188	–133.298	6.178

References

Phase	H / S	C_p	Remarks	
SOL	Ku1	e	Hu1	DPT= 1127. (peritec.)

Al3Ni2 — 3–ALUMINIUM 2–NICKEL — 198.325

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[–]
SOL	298.15	116.294	136.398	136.398	–282.420	0.000	–323.087	–282.420	–279.983	49.052
	300.00	116.357	137.118	136.401	–282.205	0.215	–323.340	–282.436	–279.968	48.747
	400.00	119.788	171.062	141.006	–270.398	12.022	–338.822	–283.614	–278.984	36.432
	500.00	123.219	198.160	149.815	–258.247	24.173	–357.327	–285.299	–277.641	29.005
	600.00	126.650	220.929	159.818	–245.754	36.666	–378.311	–287.613	–275.905	24.020
	700.00	130.081	240.710	169.991	–232.917	49.503	–401.414	–290.012	–273.746	20.427
	800.00	133.511	258.303	179.951	–219.738	62.682	–426.380	–292.023	–271.287	17.713
	900.00	136.942	274.227	189.555	–206.215	76.205	–453.019	–294.368	–268.559	15.587
	1000.00	140.373	288.833	198.762	–192.349	90.071	–481.182	–328.832	–263.268	13.752
	1100.00	143.804	302.373	207.573	–178.140	104.280	–510.750	–330.837	–256.613	12.186
	1200.00	147.235	315.032	216.006	–163.588	118.832	–541.627	–332.691	–249.782	10.873
	1300.00	150.666	326.953	224.086	–148.693	133.727	–573.732	–334.386	–242.803	9.756
	1400.00	154.097	338.244	231.841	–133.455	148.965	–606.997	–335.871	–235.701	8.794
	1406.00	154.303	338.903	232.296	–132.530	149.890	–609.028	–335.952	–235.272	8.741

References

Phase	H / S	C_p	Remarks
SOL	Hu1/e	e	Hu1 DPT= 1406. (peritec.)

AlO[g] — ALUMINIUM MONOXIDE (GAS) — 42.981

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[–]
GAS	298.15	30.885	218.385	218.385	68.618	0.000	3.507	68.618	42.519	–7.449
	300.00	30.909	218.576	218.385	68.675	0.057	3.102	68.603	42.357	–7.375
	400.00	32.483	227.681	219.616	71.844	3.226	–19.228	67.780	33.732	–4.405
	500.00	33.762	235.075	221.991	75.160	6.542	–42.377	66.925	25.318	–2.645
	600.00	34.679	241.316	224.705	78.584	9.966	–66.205	66.015	17.081	–1.487
	700.00	35.388	246.717	227.472	82.089	13.471	–90.613	65.025	9.003	–0.672
	800.00	36.002	251.483	230.182	85.659	17.041	–115.527	63.924	1.073	–0.070
	900.00	36.591	255.757	232.790	89.288	20.670	–140.893	62.663	–6.710	0.389
	1000.00	37.199	259.643	235.284	92.978	24.360	–166.666	50.676	–13.583	0.710
	1100.00	37.900	263.222	237.663	96.732	28.114	–192.811	49.502	–19.952	0.947
	1200.00	38.667	266.552	239.933	100.560	31.942	–219.302	48.380	–26.216	1.141
	1300.00	39.502	269.679	242.102	104.468	35.850	–246.115	47.322	–32.389	1.301
	1400.00	40.379	272.639	244.179	108.462	39.844	–273.232	46.334	–38.483	1.436
	1500.00	41.272	275.455	246.171	112.544	43.926	–300.638	45.421	–44.509	1.550
	1600.00	42.151	278.147	248.086	116.716	48.098	–328.319	44.584	–50.477	1.648
	1700.00	42.994	280.728	249.930	120.973	52.355	–356.264	43.821	–56.394	1.733
	1800.00	43.780	283.208	251.711	125.313	56.695	–384.461	43.128	–62.269	1.807
	1900.00	44.494	285.594	253.432	129.727	61.109	–412.902	42.497	–68.107	1.872
	2000.00	45.120	287.893	255.098	134.209	65.591	–441.577	41.923	–73.913	1.930

References

Phase	H / S	C_p
GAS	Ja1	Ja1

58.980 ALUMINIUM DIOXIDE (GAS) **AlO2[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)		] [		kJ / mol		]	[−]
GAS	298.15	48.891	245.292	245.292	−187.862	0.000	−260.996	−187.862	−191.401	33.533
	300.00	48.981	245.595	245.293	−187.771	0.091	−261.450	−187.871	−191.423	33.330
	400.00	53.120	260.290	247.268	−182.653	5.209	−286.769	−188.230	−192.547	25.144
	500.00	55.794	272.453	251.124	−177.197	10.665	−313.424	−188.474	−193.597	20.225
	600.00	57.503	282.788	255.562	−171.526	16.336	−341.199	−188.718	−194.600	16.941
	700.00	58.640	291.743	260.106	−165.716	22.146	−369.936	−189.029	−195.557	14.593
	800.00	59.427	299.628	264.563	−159.810	28.052	−399.512	−189.462	−196.461	12.828
	900.00	59.994	306.662	268.857	−153.837	34.025	−429.833	−190.083	−197.301	11.451
	1000.00	60.414	313.006	272.960	−147.816	40.046	−460.822	−201.469	−197.302	10.306
	1100.00	60.734	318.779	276.867	−141.758	46.104	−492.415	−202.095	−196.855	9.348
	1200.00	60.983	324.075	280.583	−135.672	52.190	−524.562	−202.732	−196.350	8.547
	1300.00	61.180	328.964	284.119	−129.563	58.299	−557.217	−203.381	−195.792	7.867
	1400.00	61.340	333.504	287.486	−123.437	64.425	−590.343	−204.043	−195.184	7.282
	1500.00	61.470	337.741	290.697	−117.296	70.566	−623.908	−204.718	−194.528	6.774
	1600.00	61.579	341.712	293.763	−111.143	76.719	−657.882	−205.408	−193.826	6.328
	1700.00	61.669	345.448	296.694	−104.981	82.881	−692.242	−206.112	−193.080	5.933
	1800.00	61.746	348.975	299.502	−98.810	89.052	−726.965	−206.832	−192.293	5.580
	1900.00	61.812	352.315	302.194	−92.632	95.230	−762.031	−207.568	−191.465	5.264
	2000.00	61.869	355.487	304.780	−86.448	101.414	−797.422	−208.322	−190.598	4.978

References

Phase	H / S	C_p
GAS	Ja1	Ja1

Al2O[g] DIALUMINIUM OXIDE (GAS) 69.962

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	52.361	257.007	257.007	−130.541	0.000	−207.168	−130.541	−159.725	27.983
	300.00	52.415	257.331	257.008	−130.444	0.097	−207.643	−130.561	−159.906	27.842
	400.00	55.162	272.801	259.099	−125.060	5.481	−234.180	−131.676	−169.521	22.137
	500.00	57.103	285.333	263.132	−119.440	11.101	−262.107	−132.868	−178.846	18.684
	600.00	58.393	295.866	267.733	−113.661	16.880	−291.181	−134.178	−187.921	16.360
	700.00	59.275	304.938	272.415	−107.775	22.766	−321.232	−135.653	−196.765	14.683
	800.00	59.901	312.896	276.988	−101.814	28.727	−352.131	−137.365	−205.381	13.410
	900.00	60.360	319.979	281.379	−95.800	34.741	−383.782	−139.431	−213.764	12.407
	1000.00	60.707	326.358	285.563	−89.746	40.795	−416.104	−162.997	−220.376	11.511
	1100.00	60.975	332.157	289.539	−83.662	46.879	−449.034	−165.017	−226.016	10.733
	1200.00	61.186	337.472	293.315	−77.553	52.988	−482.519	−167.032	−231.473	10.076
	1300.00	61.356	342.376	296.903	−71.426	59.115	−516.515	−169.046	−236.761	9.513
	1400.00	61.492	346.928	300.315	−65.283	65.258	−550.983	−171.060	−241.895	9.025
	1500.00	61.603	351.175	303.566	−59.128	71.413	−585.890	−173.075	−246.884	8.597
	1600.00	61.694	355.154	306.667	−52.963	77.578	−621.209	−175.093	−251.739	8.218
	1700.00	61.768	358.896	309.631	−46.790	83.751	−656.913	−177.116	−256.467	7.880
	1800.00	61.828	362.428	312.467	−40.610	89.931	−692.981	−179.143	−261.076	7.576
	1900.00	61.875	365.773	315.185	−34.425	96.116	−729.392	−181.178	−265.573	7.301
	2000.00	61.912	368.947	317.794	−28.235	102.306	−766.130	−183.219	−269.962	7.051

References

Phase	H / S	C_p
GAS	Ja1	Ja1

85.962 DIALUMINIUM DIOXIDE (GAS) **Al2O2[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	63.812	276.421	276.421	−435.136	0.000	−517.551	−435.136	−439.526	77.003
	300.00	63.955	276.816	276.422	−435.018	0.118	−518.063	−435.162	−439.553	76.533
	400.00	70.213	296.140	279.014	−428.285	6.851	−546.742	−436.414	−440.821	57.565
	500.00	74.065	312.257	284.097	−421.056	14.080	−577.184	−437.526	−441.793	46.154
	600.00	76.479	325.990	289.963	−413.520	21.616	−609.114	−438.659	−442.541	38.527
	700.00	78.066	337.906	295.980	−405.787	29.349	−642.322	−439.915	−443.091	33.064
	800.00	79.158	348.406	301.890	−397.923	37.213	−676.648	−441.392	−443.447	28.954
	900.00	79.938	357.777	307.588	−389.966	45.170	−711.966	−443.217	−443.599	25.746
	1000.00	80.514	366.231	313.037	−381.942	53.194	−748.173	−466.545	−442.008	23.088
	1100.00	80.950	373.926	318.228	−373.868	61.268	−785.186	−468.329	−439.468	20.869
	1200.00	81.288	380.985	323.167	−365.755	69.381	−822.937	−470.115	−436.765	19.012
	1300.00	81.555	387.502	327.869	−357.613	77.523	−861.365	−471.905	−433.913	17.435
	1400.00	81.769	393.554	332.347	−349.446	85.690	−900.422	−473.702	−430.924	16.078
	1500.00	81.943	399.202	336.618	−341.260	93.876	−940.063	−475.507	−427.805	14.897
	1600.00	82.086	404.495	340.696	−333.059	102.077	−980.250	−477.322	−424.566	13.861
	1700.00	82.205	409.475	344.597	−324.844	110.292	−1020.951	−479.149	−421.213	12.942
	1800.00	82.305	414.176	348.333	−316.618	118.518	−1062.136	−480.989	−417.752	12.123
	1900.00	82.390	418.629	351.917	−308.383	126.753	−1103.778	−482.843	−414.188	11.387
	2000.00	82.463	422.857	355.359	−300.141	134.995	−1145.854	−484.712	−410.526	10.722

References

Phase	H / S	C_p
GAS	Ja1	Ja1

Al2O3 ALUMINIUM OXIDE (ALPHA,CORUNDUM) 101.961

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	79.038	50.936	50.936	−1675.692	0.000	−1690.879	−1675.692	−1582.271	277.207
	300.00	79.434	51.426	50.938	−1675.545	0.147	−1690.973	−1675.717	−1581.692	275.397
	400.00	96.117	76.770	54.279	−1666.696	8.996	−1697.404	−1676.337	−1550.221	202.438
	500.00	106.142	99.385	61.086	−1656.543	19.149	−1706.235	−1676.054	−1518.712	158.659
	600.00	112.552	119.343	69.167	−1645.586	30.106	−1717.192	−1675.347	−1487.306	129.481
	700.00	116.956	137.043	77.623	−1634.098	41.594	−1730.028	−1674.475	−1456.034	108.651
	800.00	120.179	152.881	86.058	−1622.234	53.458	−1744.539	−1673.620	−1424.887	93.036
	900.00	122.667	167.185	94.291	−1610.087	65.605	−1760.553	−1672.958	−1393.839	80.896
	1000.00	124.753	180.220	102.241	−1597.714	77.978	−1777.933	−1693.668	−1361.331	71.109
	1100.00	126.614	192.199	109.882	−1585.144	90.548	−1796.562	−1692.711	−1328.142	63.068
	1200.00	128.267	203.288	117.210	−1572.398	103.294	−1816.343	−1691.638	−1295.046	56.372
	1300.00	129.743	213.614	124.233	−1559.496	116.196	−1837.194	−1690.461	−1262.044	50.710
	1400.00	131.069	223.278	130.966	−1546.454	129.238	−1859.044	−1689.189	−1229.136	45.860
	1500.00	132.273	232.363	137.426	−1533.286	142.406	−1881.831	−1687.832	−1196.322	41.660
	1600.00	133.375	240.935	143.630	−1520.003	155.689	−1905.500	−1686.399	−1163.601	37.988
	1700.00	134.262	249.048	149.594	−1506.621	169.071	−1930.003	−1684.904	−1130.972	34.751
	1800.00	135.091	256.746	155.335	−1493.153	182.539	−1955.296	−1683.360	−1098.432	31.876
	1900.00	135.874	264.071	160.867	−1479.604	196.088	−1981.339	−1681.770	−1065.979	29.306
	2000.00	136.619	271.060	166.203	−1465.979	209.713	−2008.099	−1680.139	−1033.611	26.995
	2100.00	137.334	277.743	171.357	−1452.281	223.411	−2035.541	−1678.469	−1001.325	24.907
	2200.00	138.024	284.148	176.339	−1438.513	237.179	−2063.638	−1676.763	−969.120	23.010
	2300.00	138.693	290.298	181.161	−1424.677	251.015	−2092.362	−1675.022	−936.993	21.280
	2327.00	138.871	291.917	182.437	−1420.930	254.762	−2100.222	−1674.546	−928.332	20.838
			47.737		111.085					
LIQ	2327.00	192.464	339.655	182.437	−1309.845	365.847	−2100.222	−1563.461	−928.332	20.838
	2400.00	192.464	345.600	187.310	−1295.795	379.897	−2125.235	−1558.269	−908.489	19.773
	2500.00	192.464	353.457	193.799	−1276.549	399.143	−2160.191	−1551.184	−881.560	18.419
	2600.00	192.464	361.005	200.086	−1257.302	418.390	−2195.916	−1544.132	−854.914	17.175
	2700.00	192.464	368.269	206.182	−1238.056	437.636	−2232.382	−1537.111	−828.539	16.029
	2800.00	192.464	375.268	212.096	−1218.810	456.882	−2269.561	−2117.640	−801.286	14.948
	2900.00	192.464	382.022	217.840	−1199.563	476.129	−2307.428	−2108.488	−754.435	13.589
	3000.00	192.464	388.547	223.422	−1180.317	495.375	−2345.958	−2099.365	−707.899	12.326

References

Phase	H / S	C_p
SOL−A	Ja1,Co1	Ja1
LIQ	Ja1	Ja1

101.961 ALUMINIUM OXIDE (GAMMA) **Al2O3**[C]

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL-C	298.15	82.706	52.300	52.300	-1656.864	0.000	-1672.457	-1656.864	-1563.850	273.980
	300.00	83.140	52.813	52.302	-1656.711	0.153	-1672.554	-1656.882	-1563.273	272.190
	400.00	100.762	79.389	55.805	-1647.430	9.434	-1679.186	-1657.072	-1532.004	200.059
	500.00	111.046	103.071	62.940	-1636.798	20.066	-1688.334	-1656.310	-1500.812	156.789
	600.00	117.668	123.942	71.404	-1625.341	31.523	-1699.706	-1655.102	-1469.820	127.959
	700.00	122.310	142.448	80.257	-1613.330	43.534	-1713.044	-1653.707	-1439.049	107.383
	800.00	125.789	159.018	89.084	-1600.917	55.947	-1728.132	-1652.304	-1408.480	91.964
	900.00	128.536	173.998	97.700	-1588.196	68.668	-1744.794	-1651.068	-1378.079	79.982
	1000.00	130.795	187.661	106.023	-1575.226	81.638	-1762.887	-1671.180	-1346.285	70.323
	1100.00	132.710	200.219	114.023	-1562.049	94.815	-1782.290	-1669.616	-1313.870	62.390
	1200.00	134.373	211.839	121.697	-1548.693	108.171	-1802.900	-1667.933	-1281.603	55.787
	1300.00	135.845	222.654	129.051	-1535.180	121.684	-1824.631	-1666.145	-1249.480	50.205
	1400.00	137.166	232.770	136.102	-1521.529	135.335	-1847.407	-1664.263	-1217.499	45.425
	1500.00	138.365	242.275	142.867	-1507.751	149.113	-1871.164	-1662.297	-1185.656	41.288
	1600.00	139.464	251.241	149.363	-1493.859	163.005	-1895.844	-1660.255	-1153.946	37.672
	1700.00	140.479	259.727	155.607	-1479.861	177.003	-1921.397	-1658.145	-1122.366	34.486
	1800.00	141.421	267.783	161.617	-1465.766	191.098	-1947.775	-1655.973	-1090.912	31.657
	1900.00	142.301	275.453	167.409	-1451.579	205.285	-1974.940	-1653.745	-1059.580	29.130
	2000.00	143.127	282.774	172.995	-1437.307	219.557	-2002.854	-1651.467	-1028.367	26.858
	2100.00	143.906	289.776	178.391	-1422.955	233.909	-2031.484	-1649.143	-997.269	24.806
	2200.00	144.642	296.487	183.607	-1408.528	248.336	-2060.800	-1646.777	-966.282	22.942
	2290.00	145.273	302.299	188.158	-1395.481	261.383	-2087.747	-1644.615	-938.487	21.407

References

Phase	H / S	C_p	Remarks	
SOL-C	Ja1	Ja1	Ja1	MPT= 2290.

Al2O3[D] ALUMINUIM OXIDE (DELTA) 101.961

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−D	298.15	81.362	50.626	50.626	−1666.487	0.000	−1681.581	−1666.487	−1572.974	275.579
	300.00	81.790	51.131	50.628	−1666.336	0.151	−1681.675	−1666.508	−1572.394	273.778
	400.00	99.128	77.276	54.075	−1657.206	9.281	−1688.117	−1666.848	−1540.934	201.225
	500.00	109.244	100.574	61.094	−1646.747	19.740	−1697.034	−1666.259	−1509.511	157.698
	600.00	115.757	121.106	69.420	−1635.476	31.011	−1708.139	−1665.237	−1478.253	128.693
	700.00	120.323	139.312	78.129	−1623.660	42.827	−1721.178	−1664.036	−1447.183	107.990
	800.00	123.746	155.612	86.814	−1611.449	55.038	−1735.938	−1662.835	−1416.287	92.474
	900.00	126.449	170.349	95.290	−1598.934	67.553	−1752.248	−1661.805	−1385.533	80.414
	1000.00	128.671	183.790	103.478	−1586.175	80.312	−1769.965	−1682.129	−1353.362	70.692
	1100.00	130.556	196.144	111.348	−1573.211	93.276	−1788.970	−1680.778	−1320.550	62.708
	1200.00	132.192	207.576	118.897	−1560.072	106.415	−1809.163	−1679.312	−1287.866	56.059
	1300.00	133.640	218.215	126.132	−1546.779	119.708	−1830.459	−1677.743	−1255.308	50.439
	1400.00	134.939	228.167	133.069	−1533.349	133.138	−1852.783	−1676.083	−1222.875	45.626
	1500.00	136.118	237.518	139.723	−1519.795	146.692	−1876.072	−1674.341	−1190.563	41.459
	1600.00	137.199	246.338	146.114	−1506.128	160.359	−1900.269	−1672.524	−1158.370	37.817
	1700.00	138.197	254.686	152.257	−1492.358	174.129	−1925.324	−1670.641	−1126.293	34.607
	1800.00	139.124	262.611	158.169	−1478.491	187.996	−1951.192	−1668.698	−1094.328	31.757
	1900.00	139.989	270.157	163.867	−1464.535	201.952	−1977.833	−1666.701	−1062.473	29.209
	2000.00	140.802	277.358	169.362	−1450.495	215.992	−2005.212	−1664.655	−1030.724	26.920
	2100.00	141.567	284.247	174.670	−1436.377	230.110	−2033.295	−1662.564	−999.079	24.851
	2200.00	142.291	290.849	179.802	−1422.183	244.304	−2062.052	−1660.433	−967.534	22.972
	2300.00	142.979	297.190	184.769	−1407.920	258.567	−2091.456	−1658.264	−936.087	21.259
	2308.00	143.032	297.686	185.160	−1406.775	259.712	−2093.835	−1658.089	−933.576	21.129

References

Phase	H / S	C_p	Remarks	
SOL−D	Ja1	Ja1	Ja1	MPT= 2308.

101.961 ALUMINIUM–OXIDE (KAPPA) **Al2O3**[K]

Phase	T	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[–]
SOL–K	298.15	80.730	53.555	53.555	–1666.487	0.000	–1682.454	–1666.487	–1573.847	275.731
	300.00	81.155	54.056	53.557	–1666.337	0.150	–1682.554	–1666.509	–1573.272	273.931
	400.00	98.357	79.998	56.977	–1657.279	9.208	–1689.278	–1666.920	–1542.095	201.377
	500.00	108.396	103.115	63.941	–1646.900	19.587	–1698.458	–1666.412	–1510.935	157.846
	600.00	114.860	123.487	72.203	–1635.716	30.771	–1709.809	–1665.478	–1479.923	128.839
	700.00	119.390	141.552	80.845	–1623.992	42.495	–1723.078	–1664.369	–1449.084	108.132
	800.00	122.786	157.726	89.462	–1611.876	54.611	–1738.056	–1663.262	–1418.405	92.612
	900.00	125.468	172.348	97.872	–1599.458	67.029	–1754.572	–1662.330	–1387.857	80.549
	1000.00	127.672	185.685	105.996	–1586.798	79.689	–1772.483	–1682.752	–1355.881	70.824
	1100.00	129.541	197.943	113.805	–1573.935	92.552	–1791.673	–1681.503	–1323.253	62.836
	1200.00	131.165	209.286	121.295	–1560.898	105.589	–1812.041	–1680.139	–1290.744	56.185
	1300.00	132.601	219.843	128.474	–1547.708	118.779	–1833.504	–1678.673	–1258.353	50.561
	1400.00	133.890	229.717	135.357	–1534.383	132.104	–1855.987	–1677.117	–1226.079	45.746
	1500.00	135.061	238.995	141.960	–1520.934	145.553	–1879.427	–1675.480	–1193.919	41.576
	1600.00	136.134	247.747	148.301	–1507.374	159.113	–1903.769	–1673.770	–1161.870	37.931
	1700.00	137.124	256.030	154.397	–1493.710	172.777	–1928.961	–1671.994	–1129.930	34.719
	1800.00	138.044	263.894	160.263	–1479.951	186.536	–1954.961	–1670.158	–1098.097	31.866
	1900.00	138.903	271.381	165.916	–1466.104	200.383	–1981.727	–1668.269	–1066.367	29.316
	2000.00	139.709	278.526	171.369	–1452.173	214.314	–2009.225	–1666.332	–1034.738	27.025
	2100.00	140.469	285.361	176.636	–1438.163	228.324	–2037.422	–1664.351	–1003.206	24.953
	2200.00	141.187	291.913	181.728	–1424.080	242.407	–2066.288	–1662.329	–971.771	23.073
	2300.00	141.869	298.204	186.656	–1409.927	256.560	–2095.796	–1660.272	–940.428	21.358
	2312.00	141.949	298.942	187.237	–1408.224	258.263	–2099.379	–1660.023	–936.672	21.162

References

Phase	H / S	C_p	Remarks	
SOL–K	Ja1	Ja1	Ja1	MPT= 2312.

Al4B2O9 — 4–ALUMINIUM 2–BORON 9–OXIDE — 273.543

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f [–]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	222.643	155.645	155.645	–4691.519	0.000	–4737.924	–4691.519	–4425.487	775.327
	300.00	223.828	157.026	155.649	–4691.106	0.413	–4738.214	–4691.573	–4423.836	770.258
	400.00	269.261	228.352	165.066	–4666.205	25.314	–4757.545	–4692.798	–4334.330	566.005
	500.00	296.123	291.520	184.175	–4637.846	53.673	–4783.606	–4692.230	–4244.755	443.447
	600.00	315.674	347.310	206.807	–4607.217	84.302	–4815.603	–4690.799	–4155.384	361.758
	700.00	331.773	397.211	230.505	–4574.825	116.694	–4852.872	–4688.830	–4066.298	303.431
	800.00	346.032	442.459	254.214	–4540.923	150.596	–4894.890	–4686.519	–3977.519	259.705
	900.00	359.222	483.986	277.468	–4505.653	185.866	–4941.240	–4684.092	–3889.040	225.714
	1000.00	371.748	522.486	300.068	–4469.101	222.418	–4991.587	–4723.822	–3797.797	198.377
	1100.00	383.840	558.488	321.941	–4431.318	260.201	–5045.655	–4719.590	–3705.392	175.954
	1200.00	395.637	592.394	343.080	–4392.342	299.177	–5103.215	–4714.462	–3613.412	157.288
	1300.00	407.225	624.520	363.504	–4352.198	339.321	–5164.074	–4708.423	–3521.896	141.512
	1308.00	408.145	627.021	365.108	–4348.936	342.583	–5169.080	–4707.900	–3514.596	140.354

References

Phase	H / S	C_p	Remarks
SOL	Ku1	Ku1,e	T3 DPT= 1308. (peritec.)

Al18B4O33 — 18–ALUMINIUM 4–BORON 33–OXIDE — 1056.892

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f [–]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	823.166	653.959	653.959	–17729.282	0.000	–17924.260	–17729.282	–16756.348	2935.643
	300.00	828.093	659.066	653.975	–17727.755	1.527	–17925.474	–17729.545	–16750.310	2916.488
	400.00	1017.216	926.167	689.109	–17634.459	94.823	–18004.926	–17735.853	–16422.583	2144.569
	500.00	1127.529	1165.874	760.973	–17526.832	202.450	–18109.769	–17733.157	–16094.454	1681.376
	600.00	1204.680	1378.612	846.528	–17410.031	319.251	–18237.199	–17726.002	–15767.331	1372.668
	700.00	1264.309	1568.964	936.377	–17286.471	442.811	–18384.746	–17716.366	–15441.623	1152.268
	800.00	1312.949	1741.065	1026.378	–17157.533	571.749	–18550.384	–17705.657	–15117.386	987.064
	900.00	1353.721	1898.129	1114.640	–17024.142	705.140	–18732.458	–17695.374	–14794.483	858.649
	1000.00	1388.270	2042.596	1200.309	–16886.995	842.287	–18929.591	–17876.208	–14458.998	755.261
	1100.00	1417.528	2176.324	1283.034	–16746.664	982.618	–19140.620	–17861.046	–14117.995	670.408
	1200.00	1442.056	2300.749	1362.720	–16603.647	1125.635	–19364.546	–17844.088	–13778.454	599.761
	1300.00	1462.208	2416.999	1439.396	–16458.398	1270.884	–19600.497	–17825.672	–13440.389	540.041
	1400.00	1478.216	2525.971	1513.158	–16311.343	1417.939	–19847.703	–17806.142	–13103.786	488.908
	1500.00	1490.239	2628.390	1584.128	–16162.888	1566.394	–20105.473	–17785.847	–12768.608	444.642
	1600.00	1498.385	2724.849	1652.438	–16013.425	1715.857	–20373.183	–17765.143	–12434.800	405.955

References

Phase	H / S	C_p
SOL	Ku1	Ku1,e

78.434 ALUMINIUM CHLORIDE OXIDE **AlOCl**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	56.902	54.392	54.392	−793.286	0.000	−809.503	−793.286	−737.229	129.160
	300.00	57.111	54.745	54.393	−793.181	0.105	−809.604	−793.284	−736.882	128.302
	400.00	64.308	72.277	56.735	−787.069	6.217	−815.980	−792.899	−718.126	93.778
	500.00	69.203	87.179	61.371	−780.382	12.904	−823.972	−792.167	−699.512	73.078
	600.00	72.634	100.120	66.775	−773.279	20.007	−833.351	−791.216	−681.068	59.292
	700.00	75.186	111.511	72.368	−765.886	27.400	−843.944	−790.156	−662.792	49.458

References

Phase	H / S	C_p
SOL	Ja1	Ja1

78.434 ALUMINIUM CHLORIDE OXIDE (GAS) **AlOCl[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	50.074	248.936	248.936	−348.109	0.000	−422.329	−348.109	−350.056	61.328
	300.00	50.163	249.246	248.937	−348.016	0.093	−422.790	−348.120	−350.068	60.952
	400.00	54.101	264.259	250.957	−342.788	5.321	−448.492	−348.618	−350.638	45.789
	500.00	56.540	276.615	254.890	−337.246	10.863	−475.554	−349.032	−351.094	36.679
	600.00	58.074	287.070	259.405	−331.510	16.599	−503.752	−349.448	−351.468	30.598
	700.00	59.085	296.103	264.017	−325.649	22.460	−532.921	−349.919	−351.769	26.249
	800.00	59.783	304.041	268.534	−319.703	28.406	−562.936	−350.497	−351.996	22.983
	900.00	60.283	311.112	272.879	−313.699	34.410	−593.700	−351.246	−352.140	20.438
	1000.00	60.653	317.484	277.026	−307.651	40.458	−625.135	−362.745	−351.431	18.357
	1100.00	60.934	323.279	280.971	−301.571	46.538	−657.178	−363.471	−350.265	16.633
	1200.00	61.153	328.590	284.721	−295.466	52.643	−689.775	−364.198	−349.032	15.193
	1300.00	61.326	333.492	288.287	−289.342	58.767	−722.882	−364.926	−347.739	13.972
	1400.00	61.465	338.042	291.680	−283.202	64.907	−756.461	−365.658	−346.389	12.924
	1500.00	61.579	342.287	294.914	−277.050	71.059	−790.480	−366.396	−344.987	12.014
	1600.00	61.673	346.264	298.001	−270.887	77.222	−824.910	−367.139	−343.536	11.215
	1700.00	61.751	350.006	300.951	−264.716	83.393	−859.725	−367.890	−342.038	10.510
	1800.00	61.817	353.537	303.775	−258.537	89.572	−894.904	−368.650	−340.495	9.881
	1900.00	61.872	356.881	306.483	−252.353	95.756	−930.426	−369.419	−338.910	9.317
	2000.00	61.919	360.056	309.083	−246.163	101.946	−966.275	−370.198	−337.284	8.809
	2100.00	61.959	363.078	311.583	−239.969	108.140	−1002.433	−370.988	−335.619	8.348
	2200.00	61.994	365.961	313.989	−233.772	114.337	−1038.886	−371.789	−333.916	7.928
	2300.00	62.023	368.717	316.309	−227.571	120.538	−1075.620	−372.602	−332.177	7.544
	2400.00	62.048	371.358	318.548	−221.367	126.742	−1112.625	−373.428	−330.401	7.191
	2500.00	62.069	373.891	320.712	−215.161	132.948	−1149.888	−374.267	−328.591	6.866

References

Phase	H / S	C_p
GAS	Ja1	Ja1

AlOF[g] ALUMINIUM FLUORIDE OXIDE (GAS) 61.979

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	46.814	237.300	237.300	−581.576	0.000	−652.327	−581.576	−583.083	102.154
	300.00	46.909	237.590	237.301	−581.489	0.087	−652.766	−581.590	−583.092	101.525
	400.00	51.462	251.744	239.200	−576.558	5.018	−677.256	−582.259	−583.487	76.196
	500.00	54.504	263.579	242.925	−571.249	10.327	−703.039	−582.801	−583.730	60.982
	600.00	56.483	273.704	247.232	−565.693	15.883	−729.915	−583.316	−583.867	50.830
	700.00	57.818	282.518	251.657	−559.973	21.603	−757.736	−583.866	−583.916	43.572
	800.00	58.756	290.303	256.010	−554.142	27.434	−786.384	−584.508	−583.881	38.124
	900.00	59.438	297.265	260.214	−548.231	33.345	−815.769	−585.312	−583.757	33.880
	1000.00	59.950	303.555	264.239	−542.260	39.316	−845.815	−596.857	−582.773	30.441
	1100.00	60.344	309.288	268.078	−536.245	45.331	−876.461	−597.624	−581.328	27.605
	1200.00	60.653	314.552	271.734	−530.194	51.382	−907.657	−598.387	−579.812	25.239
	1300.00	60.899	319.417	275.217	−524.116	57.460	−939.359	−599.149	−578.234	23.234
	1400.00	61.097	323.938	278.538	−518.016	63.560	−971.529	−599.912	−576.596	21.513
	1500.00	61.258	328.159	281.707	−511.898	69.678	−1004.136	−600.678	−574.904	20.020
	1600.00	61.390	332.117	284.735	−505.765	75.811	−1037.152	−601.448	−573.161	18.712
	1700.00	61.498	335.842	287.633	−499.621	81.955	−1070.552	−602.225	−571.369	17.556
	1800.00	61.585	339.359	290.410	−493.466	88.110	−1104.313	−603.010	−569.531	16.527
	1900.00	61.656	342.691	293.074	−487.304	94.272	−1138.417	−603.804	−567.650	15.606
	2000.00	61.713	345.855	295.635	−481.136	100.440	−1172.846	−604.608	−565.726	14.775

References

Phase	H / S	C_p
GAS	Ja1	Ja1

80.978 ALUMINIUM DIFLUORIDE OXIDE (GAS) **AlOF2[g]**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	63.393	292.697	292.697	-1108.760	0.000	-1196.027	-1108.760	-1096.552	192.111
	300.00	63.515	293.089	292.698	-1108.643	0.117	-1196.569	-1108.773	-1096.476	190.913
	400.00	69.346	312.206	295.265	-1101.983	6.777	-1226.866	-1109.319	-1092.288	142.638
	500.00	73.223	328.129	300.290	-1094.840	13.920	-1258.905	-1109.710	-1087.983	113.661
	600.00	75.737	341.717	306.090	-1087.384	21.376	-1292.414	-1110.061	-1083.605	94.336
	700.00	77.429	353.527	312.042	-1079.720	29.040	-1327.189	-1110.442	-1079.166	80.528
	800.00	78.615	363.948	317.892	-1071.915	36.845	-1363.073	-1110.913	-1074.667	70.169
	900.00	79.480	373.260	323.536	-1064.008	44.752	-1399.942	-1111.545	-1070.101	62.107
	1000.00	80.131	381.670	328.935	-1056.026	52.734	-1437.695	-1122.919	-1064.695	55.614
	1100.00	80.635	389.332	334.083	-1047.987	60.773	-1476.251	-1123.516	-1058.843	50.280
	1200.00	81.036	396.366	338.984	-1039.902	68.858	-1515.541	-1124.109	-1052.938	45.833
	1300.00	81.361	402.865	343.651	-1031.782	76.978	-1555.506	-1124.701	-1046.983	42.068
	1400.00	81.631	408.905	348.099	-1023.632	85.128	-1596.099	-1125.296	-1040.982	38.840
	1500.00	81.857	414.545	352.343	-1015.457	93.303	-1637.274	-1125.893	-1034.939	36.040
	1600.00	82.051	419.834	356.397	-1007.261	101.499	-1678.996	-1126.496	-1028.856	33.589
	1700.00	82.220	424.813	360.277	-999.048	109.712	-1721.231	-1127.105	-1022.734	31.425
	1800.00	82.367	429.517	363.994	-990.818	117.942	-1763.949	-1127.720	-1016.577	29.500
	1900.00	82.499	433.974	367.561	-982.575	126.185	-1807.126	-1128.344	-1010.386	27.777
	2000.00	82.617	438.209	370.988	-974.319	134.441	-1850.737	-1128.977	-1004.161	26.226

References

Phase	H / S	C_p
GAS	Ja1	Ja1

78.004 ALUMINIUM HYDROXIDE (AMORPHOUS) **Al(OH)3**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	93.149	71.128	71.128	-1276.120	0.000	-1297.327	-1276.120	-1138.706	199.497
	300.00	93.538	71.705	71.130	-1275.947	0.173	-1297.459	-1276.154	-1137.854	198.118
	400.00	114.516	101.488	75.049	-1265.545	10.575	-1306.140	-1277.073	-1091.566	142.544
	500.00	135.495	129.295	83.143	-1253.044	23.076	-1317.691	-1276.186	-1045.254	109.197
	600.00	156.473	155.853	93.062	-1238.446	37.674	-1331.957	-1273.476	-999.291	86.996
	700.00	177.452	181.549	103.876	-1221.749	54.371	-1348.833	-1268.935	-953.927	71.183

References

Phase	H / S	C_p
SOL	Nb1/e	M1,e

Al2O3*H2O — DIASPORE — 119.977

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	106.209	70.668	70.668	−1999.115	0.000	−2020.185	−1999.115	−1842.033	322.717
	300.00	106.274	71.325	70.670	−1998.918	0.197	−2020.316	−1999.170	−1841.058	320.557
	400.00	109.788	102.379	74.880	−1988.115	11.000	−2029.067	−2002.229	−1787.896	233.475
	500.00	113.303	127.255	82.947	−1976.961	22.154	−2040.589	−2005.397	−1733.948	181.144

References

Phase	H / S	C_p
SOL	Nb1	Nb1,e

Al2O3*H2O[B] — BOEHMITE — 119.977

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	131.271	96.860	96.860	−1980.706	0.000	−2009.585	−1980.706	−1831.433	320.859
	300.00	131.336	97.672	96.862	−1980.463	0.243	−2009.765	−1980.715	−1830.507	318.720
	400.00	134.850	135.936	102.056	−1967.154	13.552	−2021.528	−1981.267	−1780.357	232.491
	500.00	138.365	166.405	111.979	−1953.493	27.213	−2036.695	−1981.929	−1730.055	180.738

References

Phase	H / S	C_p
SOL	Nb1	Ke1

156.007 GIBBSITE **Al2O3*3H2O**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	183.474	136.901	136.901	−2586.549	0.000	−2627.366	−2586.549	−2310.125	404.724
	300.00	184.180	138.038	136.904	−2586.209	0.340	−2627.620	−2586.622	−2308.410	401.930
	400.00	222.338	196.249	144.584	−2565.883	20.666	−2644.383	−2588.941	−2215.234	289.280
	500.00	260.496	249.961	160.346	−2541.741	44.808	−2666.722	−2588.026	−2121.846	221.668

References

Phase	H / S	C_p
SOL	Nb1,Tk1	Nb1,Ke1

584.953 CORDIERITE **Al4Mg2Si5O18**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	452.309	407.103	407.103	−9161.701	0.000	−9283.079	−9161.701	−8651.336	1515.678
	300.00	455.255	409.910	407.112	−9160.861	0.840	−9283.835	−9161.808	−8648.169	1505.780
	400.00	562.003	557.510	426.511	−9109.301	52.400	−9332.305	−9162.729	−8476.595	1106.930
	500.00	616.312	689.313	466.180	−9050.134	111.567	−9394.791	−9158.389	−8305.497	867.669
	600.00	649.979	804.859	513.205	−8986.708	174.993	−9469.624	−9151.875	−8135.508	708.259
	700.00	673.900	906.938	562.305	−8920.457	241.244	−9555.314	−9144.436	−7966.694	594.482
	800.00	692.628	998.190	611.188	−8852.099	309.602	−9650.651	−9136.705	−7798.972	509.221
	900.00	708.335	1080.700	658.845	−8782.032	379.669	−9754.661	−9129.125	−7632.214	442.962
	1000.00	722.167	1156.059	704.852	−8710.494	451.207	−9866.553	−9181.985	−7461.730	389.761
	1100.00	734.773	1225.488	749.068	−8637.639	524.062	−9985.676	−9173.215	−7290.124	346.179
	1200.00	746.546	1289.932	791.487	−8563.567	598.134	−10111.485	−9163.806	−7119.344	309.897
	1300.00	757.730	1350.132	832.169	−8488.349	673.352	−10243.521	−9153.771	−6949.375	279.229
	1400.00	768.488	1406.682	871.206	−8412.035	749.666	−10381.390	−9397.049	−6772.945	252.702
	1500.00	778.930	1460.060	908.700	−8334.662	827.039	−10524.752	−9383.426	−6585.981	229.344
	1600.00	789.132	1510.657	944.755	−8256.257	905.444	−10673.309	−9369.210	−6399.945	208.937
	1700.00	799.149	1558.800	979.471	−8176.842	984.859	−10826.801	−9605.295	−6212.582	190.889

References

Phase	H / S	C_p
SOL	Nb1	e

Al2SiO5 ALUMINIUM SILICATE (KYANITE) 162.046

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	121.764	84.467	84.467	−2594.080	0.000	−2619.264	−2594.080	−2443.881	428.158
	300.00	122.292	85.221	84.469	−2593.854	0.226	−2619.421	−2594.117	−2442.949	425.355
	400.00	148.280	124.145	89.598	−2580.262	13.818	−2629.919	−2595.088	−2392.359	312.410
	500.00	165.494	159.234	100.083	−2564.505	29.575	−2644.121	−2594.539	−2341.718	244.638
	600.00	176.231	190.430	112.593	−2547.378	46.702	−2661.636	−2593.198	−2291.271	199.473
	700.00	183.245	218.158	125.731	−2529.381	64.699	−2682.092	−2591.521	−2241.080	167.231
	800.00	188.270	242.970	138.863	−2510.794	83.286	−2705.170	−2589.788	−2191.136	143.066
	900.00	192.365	265.387	151.696	−2491.758	102.322	−2730.606	−2588.203	−2141.402	124.284
	1000.00	196.212	285.853	164.103	−2472.329	121.751	−2758.183	−2607.929	−2090.314	109.187
	1100.00	199.817	304.728	176.040	−2452.523	141.557	−2787.724	−2605.900	−2038.649	96.807
	1200.00	203.034	322.255	187.503	−2432.378	161.702	−2819.083	−2603.677	−1987.178	86.500
	1300.00	206.017	338.625	198.505	−2411.924	182.156	−2852.136	−2601.272	−1935.899	77.785
	1400.00	208.843	353.997	209.068	−2391.180	202.900	−2886.775	−2598.694	−1884.813	70.323
	1500.00	211.562	368.499	219.218	−2370.159	223.921	−2922.907	−2595.950	−1833.916	63.863
	1600.00	214.204	382.237	228.981	−2348.870	245.210	−2960.449	−2593.045	−1783.207	58.216
	1700.00	216.792	395.301	238.383	−2327.320	266.760	−2999.332	−2640.157	−1732.239	53.225
	1800.00	219.340	407.765	247.450	−2305.513	288.567	−3039.490	−2636.709	−1678.930	48.721
	1900.00	221.857	419.692	256.203	−2283.453	310.627	−3080.867	−2633.067	−1625.819	44.697
	2000.00	224.351	431.135	264.666	−2261.142	332.938	−3123.412	−2629.233	−1572.904	41.080

References

Phase	H / S	C_p
SOL	Pa3	Ja1

162.046 ALUMINIUM SILICATE (ANDALUSITE) **Al2SiO5**[A]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)		] [		kJ / mol		]	[−]
SOL	298.15	122.760	93.776	93.776	−2590.314	0.000	−2618.273	−2590.314	−2442.890	427.984
	300.00	123.323	94.537	93.778	−2590.086	0.228	−2618.448	−2590.349	−2441.976	425.186
	400.00	149.593	133.868	98.961	−2576.351	13.963	−2629.898	−2591.178	−2392.339	312.407
	500.00	165.303	169.100	109.538	−2560.533	29.781	−2645.083	−2590.568	−2342.679	244.738
	600.00	174.641	200.128	122.106	−2543.501	46.813	−2663.578	−2589.321	−2293.212	199.642
	700.00	181.025	227.553	135.249	−2525.702	64.612	−2684.989	−2587.841	−2243.977	167.448
	800.00	186.091	252.066	148.347	−2507.338	82.976	−2708.991	−2586.333	−2194.957	143.316
	900.00	190.426	274.241	161.122	−2488.507	101.807	−2735.324	−2584.953	−2146.120	124.558
	1000.00	194.043	294.499	173.462	−2469.277	121.037	−2763.776	−2604.877	−2095.908	109.479
	1100.00	197.352	313.151	185.324	−2449.704	140.610	−2794.170	−2603.081	−2045.096	97.114
	1200.00	200.443	330.457	196.706	−2429.813	160.501	−2826.361	−2601.111	−1994.456	86.816
	1300.00	203.389	346.618	207.623	−2409.620	180.694	−2860.224	−2598.968	−1943.987	78.110
	1400.00	206.220	361.795	218.099	−2389.139	201.175	−2895.652	−2596.653	−1893.689	70.654
	1500.00	208.959	376.117	228.160	−2368.379	221.935	−2932.554	−2594.171	−1843.563	64.199
	1600.00	211.626	389.688	237.835	−2347.349	242.965	−2970.850	−2591.524	−1793.608	58.555
	1700.00	214.234	402.596	247.150	−2326.056	264.258	−3010.470	−2638.893	−1743.377	53.567
	1800.00	216.794	414.914	256.131	−2304.504	285.810	−3051.350	−2635.701	−1690.791	49.065
	1900.00	219.314	426.704	264.801	−2282.698	307.616	−3093.435	−2632.313	−1638.387	45.042
	2000.00	221.802	438.016	273.180	−2260.642	329.672	−3136.675	−2628.733	−1586.167	41.426

References

Phase	H / S	C_p
SOL	Pa3	Ja1

Al2SiO5[S] ALUMINIUM SILICATE (SILLIMANITE) 162.046

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	122.230	96.090	96.090	-2587.804	0.000	-2616.453	-2587.804	-2441.070	427.665
	300.00	122.747	96.847	96.092	-2587.577	0.227	-2616.632	-2587.840	-2440.160	424.870
	400.00	147.475	135.752	101.228	-2573.994	13.810	-2628.295	-2588.821	-2390.735	312.198
	500.00	163.202	170.496	111.678	-2558.395	29.409	-2643.643	-2588.430	-2341.239	244.588
	600.00	173.008	201.182	124.091	-2541.549	46.255	-2662.258	-2587.369	-2291.893	199.527
	700.00	179.758	228.385	137.084	-2523.894	63.910	-2683.763	-2586.033	-2242.751	167.356
	800.00	185.004	252.742	150.046	-2505.647	82.157	-2707.841	-2584.641	-2193.806	143.241
	900.00	189.494	274.797	162.701	-2486.918	100.886	-2734.235	-2583.363	-2145.030	124.494
	1000.00	193.535	294.974	174.933	-2467.763	120.041	-2762.737	-2603.363	-2094.869	109.425
	1100.00	197.258	313.594	186.703	-2448.224	139.580	-2793.178	-2601.602	-2044.103	97.066
	1200.00	200.826	330.912	198.007	-2428.319	159.485	-2825.413	-2599.617	-1993.508	86.775
	1300.00	204.238	347.122	208.861	-2408.064	179.740	-2859.323	-2597.412	-1943.086	78.074
	1400.00	207.536	362.379	219.287	-2387.475	200.329	-2894.806	-2594.989	-1892.843	70.623
	1500.00	210.748	376.808	229.312	-2366.560	221.244	-2931.771	-2592.352	-1842.780	64.171
	1600.00	213.894	390.510	238.962	-2345.327	242.477	-2970.143	-2589.502	-1792.901	58.532
	1700.00	216.989	403.570	248.263	-2323.783	264.021	-3009.852	-2636.620	-1742.759	53.548
	1800.00	220.042	416.059	257.241	-2301.931	285.873	-3050.838	-2633.128	-1690.279	49.051
	1900.00	223.064	428.038	265.917	-2279.775	308.029	-3093.047	-2629.390	-1637.999	45.032
	2000.00	226.058	439.555	274.313	-2257.319	330.485	-3136.430	-2625.410	-1585.922	41.420

References

Phase	H / S	C_p
SOL	Pa3	Ja1

426.052 MULLITE **Al6Si2O13**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	325.437	274.889	274.889	−6820.464	0.000	−6902.422	−6820.464	−6443.049	1128.795
	300.00	326.955	276.907	274.895	−6819.861	0.603	−6902.933	−6820.558	−6440.707	1121.427
	400.00	390.477	380.409	288.576	−6783.731	36.733	−6935.894	−6823.025	−6313.592	824.471
	500.00	431.695	472.269	316.317	−6742.488	77.976	−6978.622	−6822.069	−6186.292	646.278
	600.00	459.452	553.604	349.222	−6697.835	122.629	−7029.997	−6819.236	−6059.381	527.516
	700.00	479.840	626.080	383.693	−6650.793	169.671	−7089.049	−6815.448	−5933.030	442.728
	800.00	493.981	691.126	418.127	−6602.065	218.399	−7154.966	−6811.440	−5807.245	379.174
	900.00	504.611	749.949	451.781	−6552.112	268.352	−7227.067	−6807.875	−5681.943	329.771
	1000.00	513.042	803.567	484.318	−6501.215	319.249	−7304.782	−6868.369	−5552.444	290.030
	1100.00	520.019	852.802	515.609	−6449.552	370.912	−7387.634	−6863.875	−5421.066	257.425
	1200.00	525.990	898.312	545.629	−6397.245	423.219	−7475.219	−6859.083	−5290.111	230.273
	1300.00	531.236	940.625	574.405	−6344.378	476.086	−7567.190	−6854.038	−5159.566	207.314
	1400.00	535.945	980.169	601.991	−6291.015	529.449	−7663.251	−6848.779	−5029.418	187.650
	1500.00	540.240	1017.294	628.453	−6237.203	583.261	−7763.143	−6843.332	−4899.653	170.621
	1600.00	544.211	1052.288	653.860	−6182.978	637.486	−7866.639	−6837.723	−4770.256	155.733
	1700.00	547.919	1085.393	678.279	−6128.369	692.095	−7973.538	−6932.328	−4640.321	142.580
	1800.00	551.411	1116.811	701.776	−6073.401	747.063	−8083.662	−6926.002	−4505.679	130.751
	1900.00	554.721	1146.714	724.414	−6018.093	802.371	−8196.850	−6919.488	−4371.393	120.178
	2000.00	557.874	1175.248	746.247	−5962.462	858.002	−8312.959	−6912.803	−4237.455	110.671
	2023.00	558.579	1181.631	751.161	−5949.623	870.841	−8340.063	−6911.242	−4206.698	108.619

References

Phase	H / S	C_p	Remarks
SOL	Ja1	Ja1	Ja1 MPT= 2023.

258.160 KAOLINITE **Al2Si2O7*2H2O**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	246.136	205.016	205.016	−4119.566	0.000	−4180.692	−4119.566	−3799.444	665.647
	300.00	247.255	206.542	205.021	−4119.110	0.456	−4181.072	−4119.625	−3797.457	661.196
	400.00	291.439	284.348	215.330	−4091.958	27.608	−4205.698	−4120.914	−3689.783	481.836
	500.00	319.344	352.553	236.104	−4061.341	58.225	−4237.618	−4119.747	−3582.097	374.219
	600.00	340.842	412.740	260.626	−4028.297	91.269	−4275.941	−4117.042	−3474.800	302.508
	700.00	359.314	466.695	286.275	−3993.272	126.294	−4319.959	−4113.170	−3368.051	251.327

References

Phase	H / S	C_p
SOL	Nb1	S5

Al2Si2O7*2H2O[D] DICKITE 258.160

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	239.484	197.108	197.108	−4118.299	0.000	−4177.067	−4118.299	−3795.819	665.012
	300.00	240.603	198.593	197.113	−4117.855	0.444	−4177.433	−4118.370	−3793.818	660.562
	400.00	284.786	274.486	207.161	−4091.369	26.930	−4201.163	−4120.325	−3685.249	481.244
	500.00	312.691	341.206	227.442	−4061.417	56.882	−4232.020	−4119.823	−3576.500	373.634
	600.00	334.189	400.180	251.412	−4029.039	89.260	−4269.146	−4117.783	−3468.005	301.917
	700.00	352.662	453.110	276.509	−3994.678	123.621	−4311.855	−4114.576	−3359.947	250.722

References

Phase	H / S	C_p
SOL	Nb1	e

Al2Si2O7*2H2O[H] HALLOYSITE 258.160

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	246.262	203.301	203.301	−4101.199	0.000	−4161.813	−4101.199	−3780.565	662.339
	300.00	247.381	204.827	203.305	−4100.742	0.457	−4162.191	−4101.258	−3778.576	657.909
	400.00	291.564	282.670	213.619	−4073.579	27.620	−4186.647	−4102.534	−3670.732	479.348
	500.00	319.469	350.902	234.403	−4042.949	58.250	−4218.400	−4101.355	−3562.880	372.211
	600.00	340.967	411.112	258.935	−4009.893	91.306	−4256.560	−4098.637	−3455.418	300.821
	700.00	359.440	465.087	284.595	−3974.855	126.344	−4300.415	−4094.752	−3348.508	249.869

References

Phase	H / S	C_p
SOL	Nb1	e

181.840 DIALUMINIUM TITANIUM PENTAOXIDE **Al2TiO5**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	136.397	109.621	109.621	−2628.807	0.000	−2661.490	−2628.807	−2482.548	434.932
	300.00	137.086	110.467	109.623	−2628.554	0.253	−2661.694	−2628.826	−2481.640	432.092
	400.00	162.104	153.800	115.362	−2613.432	15.375	−2674.952	−2628.734	−2432.541	317.657
	500.00	174.874	191.475	126.910	−2596.524	32.283	−2692.262	−2627.456	−2383.626	249.016
	600.00	182.825	224.109	140.453	−2578.613	50.194	−2713.079	−2625.739	−2335.017	203.281
	700.00	188.499	252.738	154.491	−2560.034	68.773	−2736.950	−2623.902	−2286.708	170.636
	800.00	192.960	278.210	168.393	−2540.953	87.854	−2763.521	−2622.140	−2238.660	146.170
	900.00	196.715	301.159	181.890	−2521.465	107.342	−2792.508	−2620.622	−2190.820	127.152
	1000.00	200.033	322.060	194.878	−2501.625	127.182	−2823.685	−2640.521	−2141.613	111.866
	1100.00	203.064	341.269	207.325	−2481.468	147.339	−2856.864	−2638.792	−2091.806	99.332
	1200.00	205.901	359.061	219.237	−2461.018	167.789	−2891.892	−2640.976	−2042.040	88.888
	1300.00	208.600	375.649	230.638	−2440.292	188.515	−2928.636	−2638.543	−1992.226	80.049
	1400.00	211.200	391.204	241.557	−2419.302	209.505	−2966.987	−2635.985	−1942.605	72.479
	1500.00	213.726	405.862	252.027	−2398.055	230.752	−3006.847	−2633.308	−1893.170	65.926
	1600.00	216.196	419.734	262.079	−2376.558	252.249	−3048.133	−2630.523	−1843.918	60.198
	1700.00	218.623	432.914	271.744	−2354.817	273.990	−3090.771	−2627.639	−1794.843	55.149
	1800.00	221.016	445.478	281.049	−2332.835	295.972	−3134.695	−2624.664	−1745.941	50.666
	1900.00	223.382	457.491	290.022	−2310.615	318.192	−3179.848	−2621.605	−1697.206	46.659
	2000.00	225.726	469.009	298.685	−2288.159	340.648	−3226.177	−2632.597	−1648.189	43.046
	2100.00	228.052	480.079	307.061	−2265.470	363.337	−3273.635	−2629.278	−1599.050	39.774
	2133.00	228.817	483.640	309.765	−2257.932	370.875	−3289.537	−2628.144	−1582.869	38.763

References

Phase	H / S	C_p	Remarks	
SOL	Ku1	K7,e	K7	MPT= 2133.

AlP ALUMINIUM PHOSPHIDE 57.955

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	42.038	47.279	47.279	-164.431	0.000	-178.527	-164.431	-157.852	27.655
	300.00	42.049	47.539	47.280	-164.353	0.078	-178.615	-164.442	-157.811	27.477
	400.00	42.677	59.722	48.937	-160.117	4.314	-184.006	-165.964	-155.307	20.281
	500.00	43.304	69.312	52.086	-155.818	8.613	-190.474	-166.939	-152.531	15.935
	600.00	43.932	77.263	55.638	-151.456	12.975	-197.814	-167.964	-149.554	13.020
	700.00	44.560	84.083	59.226	-147.031	17.400	-205.889	-169.039	-146.402	10.925
	800.00	45.187	90.074	62.715	-142.544	21.887	-214.603	-170.187	-143.091	9.343
	900.00	45.815	95.432	66.058	-137.994	26.437	-223.883	-171.457	-139.629	8.104
	1000.00	46.442	100.292	69.242	-133.381	31.050	-233.673	-183.422	-135.259	7.065
	1100.00	47.070	104.748	72.270	-128.706	35.725	-243.928	-184.554	-130.388	6.192
	1200.00	47.698	108.870	75.150	-123.967	40.464	-254.611	-249.194	-124.326	5.412
	1300.00	48.325	112.713	77.894	-119.166	45.265	-265.693	-249.426	-113.911	4.577
	1400.00	48.953	116.317	80.511	-114.302	50.129	-277.146	-249.599	-103.480	3.861
	1500.00	49.580	119.716	83.012	-109.375	55.056	-288.949	-249.714	-93.038	3.240
	1600.00	50.208	122.936	85.408	-104.386	60.045	-301.083	-249.770	-82.591	2.696
	1700.00	50.836	125.998	87.706	-99.334	65.097	-313.531	-249.766	-72.142	2.217
	1800.00	51.463	128.922	89.915	-94.219	70.212	-326.278	-249.703	-61.695	1.790
	1900.00	52.091	131.721	92.042	-89.041	75.390	-339.311	-249.579	-51.254	1.409
	2000.00	52.718	134.409	94.094	-83.801	80.630	-352.619	-249.394	-40.820	1.066

References

Phase	H / S	C_p
SOL	Ku1	e

121.953 ALUMINIUM PHOSPHATE **AlPO4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	93.004	90.793	90.793	−1733.431	0.000	−1760.501	−1733.431	−1617.497	283.379
	300.00	93.261	91.369	90.795	−1733.259	0.172	−1760.669	−1733.457	−1616.777	281.506
	400.00	107.194	120.107	94.619	−1723.236	10.195	−1771.279	−1735.134	−1577.534	206.005
	500.00	121.127	145.523	102.301	−1711.820	21.611	−1784.581	−1735.109	−1538.115	160.686
	600.00	135.060	168.839	111.471	−1699.011	34.420	−1800.314	−1734.007	−1498.801	130.482
	700.00	148.992	190.704	121.243	−1684.808	48.623	−1818.301	−1731.813	−1459.759	108.929
	800.00	162.925	211.509	131.236	−1669.212	64.219	−1838.419	−1728.526	−1421.105	92.789
	853.00	170.309	222.195	136.556	−1660.381	73.050	−1849.913	−1726.347	−1400.808	85.780
			1.521		1.297					
SOL−B	853.00	167.360	223.715	136.556	−1659.084	74.347	−1849.913	−1725.050	−1400.808	85.780
	900.00	167.360	232.692	141.344	−1651.218	82.213	−1860.641	−1723.164	−1382.993	80.267
	978.00	167.360	246.602	149.192	−1638.164	95.267	−1879.341	−1730.801	−1353.129	72.270
			1.112		1.088					
SOL−C	978.00	163.176	247.714	149.192	−1637.076	96.355	−1879.341	−1729.713	−1353.129	72.270
	1000.00	163.176	251.344	151.400	−1633.487	99.944	−1884.831	−1728.933	−1344.667	70.238
	1100.00	163.176	266.896	161.204	−1617.169	116.262	−1910.755	−1725.441	−1306.410	62.036
	1200.00	163.176	281.095	170.612	−1600.851	132.580	−1938.165	−1785.600	−1267.378	55.168

References

Phase	H / S	C_p	Remarks	
SOL−A	Nb1,Tk1	Tk1,e		
SOL−B	Tk1	e		
SOL−C	Tk1	e	Tk1	MPT= 2273.

AlS[g] ALUMINIUM MONOSULFIDE (GAS) 59.048

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	33.380	230.648	230.648	238.906	0.000	170.138	238.906	188.126	-32.959
	300.00	33.427	230.854	230.648	238.968	0.062	169.711	238.881	187.811	-32.701
	400.00	35.082	240.730	231.984	242.405	3.499	146.113	235.229	171.089	-22.342
	500.00	35.886	248.654	234.552	245.957	7.051	121.630	232.239	155.376	-16.232
	600.00	36.354	255.242	237.467	249.571	10.665	96.426	229.522	140.266	-12.211
	700.00	36.664	260.870	240.418	253.223	14.317	70.614	226.997	125.589	-9.372
	800.00	36.890	265.782	243.288	256.901	17.995	44.276	224.314	111.282	-7.266
	900.00	37.066	270.137	246.034	260.599	21.693	17.476	168.617	98.479	-5.716
	1000.00	37.212	274.050	248.643	264.313	25.407	-9.737	156.551	91.524	-4.781
	1100.00	37.339	277.603	251.117	268.041	29.135	-37.322	155.262	85.084	-4.040
	1200.00	37.451	280.857	253.461	271.781	32.875	-65.248	153.978	78.761	-3.428
	1300.00	37.554	283.859	255.686	275.531	36.625	-93.485	152.699	72.545	-2.915
	1400.00	37.650	286.645	257.799	279.291	40.385	-122.012	151.426	66.427	-2.478
	1500.00	37.741	289.246	259.809	283.061	44.155	-150.808	150.157	60.400	-2.103
	1600.00	37.828	291.685	261.726	286.839	47.933	-179.856	148.892	54.457	-1.778
	1700.00	37.912	293.980	263.557	290.626	51.720	-209.140	147.632	48.593	-1.493
	1800.00	37.994	296.150	265.308	294.422	55.516	-238.648	146.376	42.804	-1.242
	1900.00	38.074	298.206	266.986	298.225	59.319	-268.366	145.124	37.084	-1.020
	2000.00	38.152	300.161	268.596	302.036	63.130	-298.286	143.875	31.430	-0.821

References

Phase	H / S	C_p
GAS	Mi1	Mi1

150.161 ALUMINIUM SULFIDE **Al2S3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	112.926	116.847	116.847	−723.999	0.000	−758.837	−723.999	−713.304	124.968
	300.00	112.993	117.545	116.849	−723.790	0.209	−759.054	−724.006	−713.238	124.186
	400.00	116.600	150.545	121.324	−712.310	11.689	−772.529	−731.284	−709.298	92.625
	500.00	120.206	176.951	129.893	−700.470	23.529	−788.946	−736.432	−703.273	73.470
	600.00	123.813	199.186	139.636	−688.269	35.730	−807.781	−740.469	−696.235	60.613
	700.00	127.420	218.543	149.555	−675.707	48.292	−828.688	−743.570	−688.612	51.385
	800.00	131.026	235.793	159.276	−662.785	61.214	−851.420	−746.731	−680.550	44.435
	900.00	134.633	251.434	168.660	−649.502	74.497	−875.793	−908.445	−668.619	38.806
	1000.00	138.239	265.805	177.665	−635.859	88.140	−901.664	−928.196	−640.526	33.458
	1100.00	141.846	279.150	186.291	−621.854	102.145	−928.920	−926.068	−611.859	29.055
	1200.00	145.453	291.647	194.556	−607.489	116.510	−957.466	−923.598	−583.401	25.395
	1300.00	149.059	303.432	202.482	−592.764	131.235	−987.225	−920.784	−555.163	22.307
	1370.00	151.584	311.315	207.842	−582.241	141.758	−1008.743	−918.609	−535.533	20.419
			41.229		56.484					
LIQ	1370.00	156.900	352.544	207.842	−525.757	198.242	−1008.743	−862.125	−535.533	20.419
	1400.00	156.900	355.943	210.980	−521.050	202.949	−1019.371	−860.998	−528.394	19.715
	1500.00	156.900	366.768	221.009	−505.360	218.639	−1055.512	−857.249	−504.767	17.578
	1600.00	156.900	376.894	230.439	−489.670	234.329	−1092.701	−853.513	−481.390	15.716
	1700.00	156.900	386.406	239.336	−473.980	250.019	−1130.871	−849.790	−458.246	14.080
	1800.00	156.900	395.374	247.758	−458.290	265.709	−1169.964	−846.080	−435.322	12.633

References

Phase	H / S	C_p
SOL	Nb1/Pa3	Mi1
LIQ	e	e

342.154 ALUMINIUM SULFATE **Al2(SO4)3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	259.395	239.300	239.300	−3440.754	0.000	−3512.101	−3440.754	−3099.581	543.034
	300.00	261.055	240.909	239.305	−3440.273	0.481	−3512.545	−3440.815	−3097.464	539.316
	400.00	321.578	325.417	250.416	−3410.753	30.001	−3540.920	−3447.880	−2982.552	389.481
	500.00	352.954	400.858	273.124	−3376.887	63.867	−3577.316	−3449.356	−2866.071	299.416
	600.00	372.857	467.081	300.049	−3340.535	100.219	−3620.783	−3448.198	−2749.479	239.363
	700.00	387.343	525.694	328.178	−3302.493	138.261	−3670.479	−3445.347	−2633.238	196.495
	800.00	398.941	578.197	356.206	−3263.161	177.593	−3725.719	−3442.120	−2517.444	164.372
	900.00	408.861	625.771	383.556	−3222.760	217.994	−3785.954	−3597.148	−2398.599	139.211
	1000.00	417.739	669.316	409.985	−3181.423	259.331	−3850.739	−3609.978	−2264.351	118.278
	1100.00	425.936	709.519	435.411	−3139.235	301.519	−3919.706	−3600.721	−2130.232	101.156

References

Phase	H / S	C_p
SOL	Nb1	Ku1

AlSb ALUMINIUM ANTIMONY 148.732

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	46.383	64.978	64.978	−50.350	0.000	−69.723	−50.350	−47.720	8.360
	300.00	46.401	65.264	64.978	−50.264	0.086	−69.844	−50.356	−47.704	8.306
	400.00	47.363	78.745	66.810	−45.576	4.774	−77.074	−50.738	−46.766	6.107
	500.00	48.325	89.417	70.300	−40.792	9.558	−85.500	−51.214	−45.720	4.776
	600.00	49.288	98.313	74.248	−35.911	14.439	−94.899	−51.767	−44.570	3.880
	700.00	50.250	105.983	78.246	−30.934	19.416	−105.122	−52.416	−43.321	3.233
	800.00	51.212	112.755	82.144	−25.861	24.489	−116.065	−53.213	−41.969	2.740
	900.00	52.174	118.843	85.889	−20.692	29.658	−127.650	−54.241	−40.505	2.351
	1000.00	53.137	124.390	89.466	−15.426	34.924	−139.816	−85.930	−36.043	1.883
	1100.00	54.099	129.500	92.876	−10.064	40.286	−152.514	−86.881	−31.007	1.472
	1200.00	55.061	134.248	96.128	−4.606	45.744	−165.704	−87.736	−25.889	1.127
	1300.00	56.024	138.693	99.233	0.948	51.298	−179.353	−88.495	−20.704	0.832
	1333.00	56.341	140.102	100.228	2.802	53.152	−183.953	−88.724	−18.980	0.744
			61.520		82.006					
LIQ	1333.00	58.994	201.622	100.228	84.808	135.158	−183.953	−6.718	−18.980	0.744
	1400.00	58.994	204.515	105.150	88.761	139.111	−197.560	−6.995	−19.590	0.731
	1500.00	58.994	208.585	111.911	94.660	145.010	−218.217	−7.408	−20.475	0.713
	1600.00	58.994	212.392	118.074	100.560	150.910	−239.268	−7.822	−21.333	0.696
	1700.00	58.994	215.969	123.728	106.459	156.809	−260.688	−8.235	−22.164	0.681

References

Phase	H / S	C_p
SOL	Hu1	e
LIQ	Tk1	e

211.883 DIALUMINIUM DISELENIDE (GAS) **Al2Se2[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	66.389	308.889	308.889	75.730	0.000	−16.365	75.730	25.694	−4.501
	300.00	66.444	309.299	308.890	75.853	0.123	−16.937	75.669	25.384	−4.420
	400.00	68.380	328.719	311.524	82.608	6.878	−48.880	72.075	9.147	−1.194
	500.00	69.285	344.086	316.554	89.496	13.766	−82.547	56.061	−5.942	0.621
	600.00	69.783	356.766	322.230	96.452	20.722	−117.608	50.477	−17.821	1.551
	700.00	70.090	367.548	327.953	103.446	27.716	−153.837	44.709	−28.751	2.145
	800.00	70.295	376.921	333.501	110.466	34.736	−191.071	38.696	−38.838	2.536
	900.00	70.440	385.210	338.795	117.503	41.773	−229.185	32.327	−48.152	2.795
	1000.00	70.549	392.637	343.814	124.553	48.823	−268.084	4.458	−55.217	2.884
	1100.00	70.633	399.365	348.563	131.612	55.882	−307.689	−108.485	−50.970	2.420
	1200.00	70.701	405.514	353.056	138.679	62.949	−347.938	−111.903	−45.590	1.984
	1300.00	70.758	411.176	357.312	145.752	70.022	−388.776	−115.292	−39.927	1.604
	1400.00	70.806	416.421	361.349	152.830	77.100	−430.159	−118.651	−34.003	1.269
	1500.00	70.848	421.308	365.185	159.913	84.183	−472.048	−121.981	−27.841	0.969
	1600.00	70.885	425.881	368.838	167.000	91.270	−514.410	−125.282	−21.457	0.700
	1700.00	70.919	430.180	372.321	174.090	98.360	−557.215	−128.554	−14.867	0.457
	1800.00	70.949	434.234	375.649	181.184	105.454	−600.438	−131.797	−8.086	0.235

References

Phase	H / S	C_p
GAS	Mi1	e

290.843 ALUMINIUM SELENIDE **Al2Se3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	117.967	154.808	154.808	−566.932	0.000	−613.088	−566.932	−558.430	97.835
	300.00	118.031	155.538	154.810	−566.714	0.218	−613.375	−566.945	−558.377	97.222
	400.00	121.462	189.963	159.481	−554.739	12.193	−630.724	−567.987	−555.383	72.526
	500.00	124.892	217.435	168.414	−542.421	24.511	−651.139	−587.382	−551.797	57.646
	600.00	128.323	240.509	178.557	−529.761	37.171	−674.066	−590.775	−544.359	47.391
	700.00	131.754	260.548	188.869	−516.757	50.175	−699.140	−594.048	−536.362	40.024
	800.00	135.185	278.365	198.962	−503.410	63.522	−726.102	−597.249	−527.903	34.469
	900.00	138.616	294.485	208.694	−489.720	77.212	−754.757	−600.479	−519.042	30.124
	1000.00	142.047	309.268	218.022	−475.687	91.245	−784.954	−624.880	−508.299	26.551
	1100.00	145.478	322.967	226.947	−461.310	105.622	−816.574	−787.331	−481.653	22.872
	1200.00	148.909	335.772	235.488	−446.591	120.341	−849.518	−785.165	−453.957	19.760
	1220.00	149.595	338.239	237.153	−443.606	123.326	−856.258	−784.686	−448.441	19.200

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1	Mi1	MPT= 1220.

AlTe[g] ALUMINIUM MONOTELLURIDE (GAS) 154.582

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	35.567	251.442	251.442	267.358	0.000	192.390	267.358	215.578	−37.768
	300.00	35.589	251.662	251.443	267.424	0.066	191.925	267.331	215.257	−37.480
	400.00	36.361	262.022	252.850	271.027	3.669	166.218	265.742	198.130	−25.873
	500.00	36.722	270.179	255.529	274.683	7.325	139.593	263.851	181.440	−18.955
	600.00	36.920	276.893	258.547	278.366	11.008	112.230	261.652	165.159	−14.378
	700.00	37.042	282.595	261.585	282.064	14.706	84.248	259.136	149.271	−11.139
	800.00	37.123	287.546	264.528	285.773	18.415	55.736	238.651	135.647	−8.857
	900.00	37.180	291.922	267.333	289.488	22.130	26.758	235.413	122.964	−7.137
	1000.00	37.222	295.842	269.992	293.208	25.850	−2.634	221.422	111.411	−5.820
	1100.00	37.255	299.391	272.505	296.932	29.574	−32.398	218.206	100.566	−4.775
	1200.00	37.281	302.634	274.883	300.659	33.301	−62.502	214.992	90.013	−3.918
	1300.00	37.303	305.619	277.134	304.388	37.030	−92.916	211.781	79.728	−3.204
	1400.00	37.321	308.384	279.269	308.120	40.762	−123.618	162.132	72.182	−2.693
	1500.00	37.337	310.959	281.296	311.852	44.494	−154.587	160.499	65.814	−2.292
	1600.00	37.351	313.370	283.226	315.587	48.229	−185.804	158.875	59.555	−1.944
	1700.00	37.363	315.634	285.067	319.323	51.965	−217.256	157.257	53.397	−1.641
	1800.00	37.375	317.770	286.825	323.060	55.702	−248.927	155.644	47.334	−1.374
	1900.00	37.385	319.791	288.507	326.798	59.440	−280.806	154.042	41.361	−1.137
	2000.00	37.395	321.709	290.120	330.537	63.179	−312.882	152.451	35.471	−0.926

References

Phase	H / S	C_p
GAS	Mi1	Mi1

Al2Te3 ALUMINIUM TELLURIDE 436.763

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	121.230	175.728	175.728	−318.821	0.000	−371.214	−318.821	−310.082	54.325
	300.00	121.294	176.478	175.730	−318.597	0.224	−371.540	−318.829	−310.027	53.981
	400.00	124.767	211.848	180.529	−306.294	12.527	−391.033	−319.596	−306.995	40.089
	500.00	128.240	240.062	189.706	−293.643	25.178	−413.674	−320.946	−303.700	31.727
	600.00	131.712	263.750	200.124	−280.646	38.175	−438.895	−322.840	−300.081	26.124
	700.00	135.185	284.314	210.714	−267.301	51.520	−466.321	−325.273	−296.104	22.096
	800.00	138.658	302.592	221.077	−253.609	65.212	−495.682	−381.157	−286.098	18.680
	900.00	142.130	319.124	231.067	−239.569	79.252	−526.781	−384.791	−273.998	15.902
	1000.00	145.603	334.279	240.640	−225.183	93.638	−559.461	−409.591	−259.972	13.580
	1100.00	149.076	348.319	249.799	−210.449	108.372	−593.600	−412.503	−244.867	11.628
	1170.00	151.507	357.590	255.973	−199.928	118.893	−618.309	−414.335	−234.141	10.453

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	e	Mi1	MPT= 1170.

312.983 **3–ALUMINIUM THORIUM** **Al3Th**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	104.408	97.069	97.069	−111.713	0.000	−140.654	−111.713	−99.446	17.423
	300.00	104.433	97.715	97.071	−111.520	0.193	−140.834	−111.705	−99.370	17.302
	400.00	105.772	127.941	101.183	−101.010	10.703	−152.186	−111.516	−95.298	12.445
	500.00	107.110	151.688	108.993	−90.366	21.347	−166.209	−111.723	−91.228	9.530
	600.00	108.449	171.334	117.792	−79.588	32.125	−182.388	−112.265	−87.083	7.581
	700.00	109.788	188.153	126.671	−68.676	43.037	−200.382	−113.136	−82.822	6.180
	800.00	111.127	202.900	135.296	−57.630	54.083	−219.950	−114.406	−78.410	5.120
	900.00	112.466	216.066	143.552	−46.450	65.263	−240.910	−116.228	−73.808	4.284
	1000.00	113.805	227.985	151.409	−35.137	76.576	−263.122	−150.313	−66.693	3.484
	1100.00	115.144	238.895	158.873	−23.689	88.024	−286.473	−152.081	−58.245	2.766
	1200.00	116.483	248.971	165.967	−12.108	99.605	−310.873	−153.843	−49.636	2.161
	1300.00	117.821	258.347	172.716	−0.393	111.320	−336.244	−155.598	−40.881	1.643
	1400.00	119.160	267.128	179.150	11.456	123.169	−362.523	−157.346	−31.991	1.194

References

Phase	H / S	C_p
SOL	Ku1	e

74.862 **ALUMINIUM TITANIUM** **AlTi**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	49.239	52.300	52.300	−75.312	0.000	−90.905	−75.312	−73.304	12.843
	300.00	49.354	52.605	52.301	−75.221	0.091	−91.002	−75.312	−73.292	12.761
	400.00	53.610	67.462	54.298	−70.046	5.266	−97.031	−75.233	−72.627	9.484
	500.00	55.898	79.691	58.190	−64.562	10.750	−104.407	−75.090	−71.991	7.521
	600.00	57.413	90.024	62.657	−58.892	16.420	−112.906	−74.960	−71.384	6.215
	700.00	58.562	98.964	67.220	−53.091	22.221	−122.366	−74.899	−70.794	5.283
	800.00	59.516	106.848	71.690	−47.186	28.126	−132.664	−74.967	−70.205	4.584
	900.00	60.357	113.907	75.995	−41.191	34.121	−143.708	−75.241	−69.596	4.039
	1000.00	61.128	120.307	80.111	−35.117	40.195	−155.423	−86.306	−68.185	3.562
	1100.00	61.853	126.167	84.036	−28.967	46.345	−167.751	−86.637	−66.357	3.151
	1200.00	62.547	131.579	87.775	−22.747	52.565	−180.642	−91.003	−64.378	2.802
	1300.00	63.218	136.612	91.340	−16.459	58.853	−194.054	−90.876	−62.165	2.498
	1400.00	63.874	141.321	94.744	−10.104	65.208	−207.954	−90.745	−59.961	2.237
	1500.00	64.517	145.750	97.998	−3.684	71.628	−222.309	−90.618	−57.767	2.012
	1600.00	65.152	149.934	101.115	2.799	78.111	−237.095	−90.503	−55.580	1.815
	1700.00	65.780	153.903	104.104	9.346	84.658	−252.289	−90.409	−53.401	1.641
	1733.00	65.986	155.169	105.064	11.520	86.832	−257.389	−90.384	−52.682	1.588

References

Phase	H / S	C_p	Remarks	
SOL	Tk1/Ku1	e	Tk1	DPT= 1733. (LIQ + Ti)

Al3Ti — 3–ALUMINIUM TITANIUM — 128.825

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	98.885	92.383	92.383	−146.440	0.000	−173.984	−146.440	−139.523	24.444
	300.00	99.040	92.995	92.385	−146.257	0.183	−174.155	−146.438	−139.480	24.286
	400.00	105.086	122.405	96.353	−136.019	10.421	−184.981	−146.310	−137.179	17.914
	500.00	108.784	146.277	104.026	−125.315	21.125	−198.453	−146.228	−134.907	14.094
	600.00	111.557	166.365	112.786	−114.293	32.147	−214.111	−146.256	−132.643	11.548
	700.00	113.894	183.741	121.708	−103.017	43.423	−231.636	−146.454	−130.361	9.728
	800.00	115.997	199.088	130.440	−91.521	54.919	−250.792	−146.935	−128.034	8.360
	900.00	117.966	212.866	138.846	−79.822	66.618	−271.401	−147.882	−125.620	7.291
	1000.00	119.851	225.393	146.884	−67.931	78.509	−293.324	−181.020	−120.795	6.310
	1100.00	121.680	236.902	154.551	−55.854	90.586	−316.446	−181.773	−114.735	5.448
	1200.00	123.473	247.566	161.863	−43.596	102.844	−340.676	−186.451	−108.491	4.723
	1300.00	125.239	257.519	168.843	−31.160	115.280	−365.936	−186.526	−101.991	4.098
	1400.00	126.986	266.865	175.514	−18.549	127.891	−392.160	−186.488	−95.489	3.563
	1500.00	128.718	275.685	181.901	−5.764	140.676	−419.291	−186.345	−88.993	3.099
	1600.00	130.440	284.047	188.026	7.194	153.634	−447.281	−186.106	−82.511	2.694
	1613.00	130.664	285.104	188.804	8.891	155.331	−450.981	−186.068	−81.669	2.645

References

Phase	H / S	C_p	Remarks	
SOL	Tk1	e	Tk1	DPT= 1613. (LIQ + TiAl)

Al2U — 2–ALUMINIUM URANIUM — 291.992

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	78.431	106.692	106.692	−92.006	0.000	−123.816	−92.006	−91.961	16.111
	300.00	78.450	107.177	106.693	−91.861	0.145	−124.014	−92.002	−91.961	16.012
	400.00	79.496	129.889	109.783	−83.964	8.042	−135.919	−91.987	−91.960	12.009
	500.00	80.542	147.741	115.652	−75.962	16.044	−149.832	−92.349	−91.920	9.603
	600.00	81.588	162.518	122.266	−67.855	24.151	−165.366	−93.086	−91.771	7.989
	700.00	82.634	175.173	128.942	−59.644	32.362	−182.265	−94.243	−91.467	6.825
	800.00	83.680	186.275	135.428	−51.328	40.678	−200.349	−95.917	−90.963	5.939
	900.00	84.726	196.192	141.639	−42.908	49.098	−219.481	−98.263	−90.211	5.236
	1000.00	85.772	205.173	147.550	−34.383	57.623	−239.556	−124.880	−87.474	4.569
	1100.00	86.818	213.397	153.167	−25.754	66.252	−260.490	−131.409	−83.405	3.961
	1200.00	87.864	220.996	158.507	−17.020	74.986	−282.215	−132.853	−78.977	3.438
	1300.00	88.910	228.070	163.589	−8.181	83.825	−304.672	−134.192	−74.432	2.991
	1400.00	89.956	234.697	168.434	0.762	92.768	−327.814	−135.427	−69.788	2.604
	1500.00	91.002	240.939	173.062	9.810	101.816	−351.598	−145.990	−64.453	2.244
	1600.00	92.048	246.846	177.490	18.963	110.969	−375.990	−147.978	−58.952	1.925
	1700.00	93.094	252.457	181.736	28.220	120.226	−400.958	−149.861	−53.330	1.639
	1800.00	94.140	257.808	185.815	37.582	129.588	−426.473	−151.639	−47.600	1.381

References

Phase	H / S	C_p
SOL	Nb1/Ra1	e

318.974 **3–ALUMINIUM URANIUM** **Al3U**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	104.408	135.980	135.980	−104.600	0.000	−145.142	−104.600	−104.857	18.371
	300.00	104.433	136.626	135.982	−104.407	0.193	−145.395	−104.593	−104.859	18.258
	400.00	105.772	166.853	140.094	−93.897	10.703	−160.638	−104.471	−104.980	13.709
	500.00	107.110	190.599	147.904	−83.253	21.347	−178.552	−104.832	−105.075	10.977
	600.00	108.449	210.246	156.703	−72.475	32.125	−198.622	−105.653	−105.054	9.146
	700.00	109.788	227.064	165.582	−61.563	43.037	−220.507	−106.976	−104.857	7.825
	800.00	111.127	241.811	174.207	−50.517	54.083	−243.966	−108.922	−104.430	6.819
	900.00	112.466	254.977	182.463	−39.337	65.263	−268.817	−111.697	−103.712	6.019
	1000.00	113.805	266.896	190.320	−28.024	76.576	−294.920	−149.471	−100.193	5.234
	1100.00	115.144	277.806	197.784	−16.576	88.024	−322.163	−156.356	−94.920	4.507
	1200.00	116.483	287.882	204.878	−4.995	99.605	−350.453	−158.127	−89.255	3.885
	1300.00	117.821	297.258	211.627	6.720	111.320	−379.716	−159.765	−83.449	3.353
	1400.00	119.160	306.039	218.061	18.569	123.169	−409.885	−161.269	−77.521	2.892
	1500.00	120.499	314.306	224.204	30.552	135.152	−440.906	−172.072	−70.884	2.468
	1600.00	121.838	322.125	230.082	42.669	147.269	−472.731	−174.270	−64.066	2.092

References

Phase	H / S	C_p
SOL	Nb1/Ra1	e

345.955 **4–ALUMINIUM URANIUM** **Al4U**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	129.224	163.176	163.176	−129.997	0.000	−178.648	−129.997	−129.933	22.764
	300.00	129.286	163.976	163.178	−129.758	0.239	−178.951	−129.989	−129.932	22.623
	400.00	132.633	201.627	168.289	−116.662	13.335	−197.313	−129.788	−129.956	16.971
	500.00	135.980	231.583	178.051	−103.231	26.766	−219.023	−130.004	−129.981	13.579
	600.00	139.327	256.671	189.119	−89.466	40.531	−243.468	−130.592	−129.927	11.311
	700.00	142.674	278.400	200.355	−75.366	54.631	−270.246	−131.594	−129.744	9.682
	800.00	146.022	297.670	211.337	−60.931	69.066	−299.067	−133.153	−129.381	8.448
	900.00	149.369	315.062	221.911	−46.162	83.835	−329.717	−135.526	−128.777	7.474
	1000.00	152.716	330.972	232.033	−31.057	98.940	−362.030	−183.454	−124.658	6.511

References

Phase	H / S	C_p
SOL	Ku1	e

Am AMERICIUM 243.061

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	25.852	54.488	54.488	0.000	0.000	−16.246	0.000	0.000	0.000
	300.00	25.874	54.648	54.489	0.048	0.048	−16.347	0.000	0.000	0.000
	400.00	27.149	62.264	55.519	2.698	2.698	−22.207	0.000	0.000	0.000
	500.00	28.474	68.464	57.506	5.479	5.479	−28.753	0.000	0.000	0.000
	600.00	29.818	73.774	59.785	8.394	8.394	−35.871	0.000	0.000	0.000
	700.00	31.172	78.472	62.125	11.443	11.443	−43.487	0.000	0.000	0.000
	800.00	32.531	82.724	64.438	14.628	14.628	−51.551	0.000	0.000	0.000
	900.00	33.893	86.634	66.690	17.950	17.950	−60.021	0.000	0.000	0.000
	923.00	34.207	87.493	67.198	18.733	18.733	−62.023	0.000	0.000	0.000
			0.839		0.774					
SOL−B	923.00	31.956	88.332	67.198	19.507	19.507	−62.023	0.000	0.000	0.000
	1000.00	33.018	90.934	68.926	22.008	22.008	−68.926	0.000	0.000	0.000
	1100.00	34.501	94.149	71.074	25.383	25.383	−78.181	0.000	0.000	0.000
	1200.00	36.068	97.218	73.126	28.911	28.911	−87.751	0.000	0.000	0.000
	1300.00	37.693	100.169	75.093	32.598	32.598	−97.621	0.000	0.000	0.000
	1350.00	38.522	101.607	76.049	34.504	34.504	−102.666	0.000	0.000	0.000
			4.339		5.858					
SOL−C	1350.00	39.748	105.946	76.049	40.362	40.362	−102.666	0.000	0.000	0.000
	1400.00	39.748	107.392	77.142	42.349	42.349	−107.999	0.000	0.000	0.000
	1449.00	39.748	108.759	78.188	44.297	44.297	−113.295	0.000	0.000	0.000
			9.933		14.393					
LIQ	1449.00	41.840	118.692	78.188	58.690	58.690	−113.295	0.000	0.000	0.000
	1500.00	41.840	120.139	79.590	60.824	60.824	−119.386	0.000	0.000	0.000
	1600.00	41.840	122.840	82.210	65.008	65.008	−131.536	0.000	0.000	0.000
	1700.00	41.840	125.376	84.675	69.192	69.192	−143.948	0.000	0.000	0.000
	1800.00	41.840	127.768	87.004	73.376	73.376	−156.606	0.000	0.000	0.000
	1900.00	41.840	130.030	89.209	77.560	77.560	−169.497	0.000	0.000	0.000
	2000.00	41.840	132.176	91.304	81.744	81.744	−182.608	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL − A	Oe2	Oe2	Oe2	double hcp
SOL − B	Pa1	Oe2		fcc
SOL − C	Pa1	Oe2		bcc
LIQ	Pa1	Oe2		

243.061 AMERICIUM (GAS) **Am**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.786	194.552	194.552	284.094	0.000	226.088	284.094	242.334	−42.456
	300.00	20.786	194.681	194.553	284.132	0.038	225.728	284.085	242.075	−42.149
	400.00	20.786	200.661	195.368	286.211	2.117	205.947	283.513	228.154	−29.794
	500.00	20.786	205.299	196.908	288.290	4.196	185.640	282.810	214.393	−22.397
	600.00	20.786	209.089	198.632	290.368	6.274	164.915	281.975	200.786	−17.480
	700.00	20.786	212.293	200.360	292.447	8.353	143.842	281.004	187.329	−13.979
	800.00	20.786	215.069	202.029	294.526	10.432	122.471	279.897	174.021	−11.362
	900.00	20.786	217.517	203.617	296.604	12.510	100.839	278.655	160.860	−9.336
	1000.00	20.786	219.707	205.118	298.683	14.589	78.976	276.675	147.902	−7.726
	1100.00	20.786	221.688	206.536	300.761	16.667	56.904	275.378	135.086	−6.415
	1200.00	20.786	223.497	207.875	302.840	18.746	34.644	273.929	122.395	−5.328
	1300.00	20.786	225.161	209.142	304.919	20.825	12.210	272.320	109.831	−4.413
	1400.00	20.786	226.701	210.342	306.997	22.903	−10.384	264.648	97.615	−3.642
	1500.00	20.786	228.135	211.481	309.076	24.982	−33.127	248.252	86.259	−3.004
	1600.00	20.786	229.477	212.564	311.154	27.060	−56.008	246.147	75.528	−2.466
	1700.00	20.786	230.737	213.596	313.233	29.139	−79.019	244.041	64.929	−1.995
	1800.00	20.786	231.925	214.582	315.312	31.218	−102.153	241.936	54.453	−1.580
	1900.00	20.786	233.049	215.524	317.390	33.296	−125.402	239.831	44.095	−1.212
	2000.00	20.786	234.115	216.427	319.469	35.375	−148.761	237.725	33.848	−0.884
	2100.00	20.786	235.129	217.294	321.547	37.453	−172.223	235.620	23.706	−0.590
	2200.00	20.786	236.096	218.127	323.626	39.532	−195.785	233.515	13.664	−0.324
	2300.00	20.786	237.020	218.928	325.705	41.611	−219.441	231.409	3.718	−0.084
	2400.00	20.786	237.905	219.701	327.783	43.689	−243.188	229.304	−6.137	0.134
	2500.00	20.786	238.753	220.446	329.862	45.768	−267.021	227.198	−15.904	0.332
	2600.00	20.786	239.568	221.166	331.941	47.847	−290.937	225.093	−25.586	0.514
	2700.00	20.786	240.353	221.862	334.019	49.925	−314.934	222.988	−35.188	0.681
	2800.00	20.786	241.109	222.536	336.098	52.004	−339.007	220.882	−44.711	0.834
	2900.00	20.786	241.838	223.189	338.176	54.082	−363.154	218.777	−54.159	0.976
	3000.00	20.786	242.543	223.823	340.255	56.161	−387.374	216.671	−63.535	1.106

References

Phase	H / S	C_p
GAS	Oe2	Oe2

Ar[g] ARGON (GAS) 39.948

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.786	154.845	154.845	0.000	0.000	−46.167	0.000	0.000	0.000
	300.00	20.786	154.974	154.845	0.038	0.038	−46.454	0.000	0.000	0.000
	400.00	20.786	160.953	155.661	2.117	2.117	−62.264	0.000	0.000	0.000
	500.00	20.786	165.592	157.200	4.196	4.196	−78.600	0.000	0.000	0.000
	600.00	20.786	169.381	158.924	6.274	6.274	−95.355	0.000	0.000	0.000
	700.00	20.786	172.586	160.653	8.353	8.353	−112.457	0.000	0.000	0.000
	800.00	20.786	175.361	162.322	10.431	10.431	−129.857	0.000	0.000	0.000
	900.00	20.786	177.809	163.909	12.510	12.510	−147.518	0.000	0.000	0.000
	1000.00	20.786	179.999	165.411	14.589	14.589	−165.411	0.000	0.000	0.000
	1100.00	20.786	181.980	166.828	16.667	16.667	−183.511	0.000	0.000	0.000
	1200.00	20.786	183.789	168.168	18.746	18.746	−201.801	0.000	0.000	0.000
	1300.00	20.786	185.453	169.434	20.824	20.824	−220.264	0.000	0.000	0.000
	1400.00	20.786	186.993	170.634	22.903	22.903	−238.888	0.000	0.000	0.000
	1500.00	20.786	188.427	171.773	24.982	24.982	−257.659	0.000	0.000	0.000
	1600.00	20.786	189.769	172.856	27.060	27.060	−276.570	0.000	0.000	0.000
	1700.00	20.786	191.029	173.888	29.139	29.139	−295.610	0.000	0.000	0.000
	1800.00	20.786	192.217	174.874	31.217	31.217	−314.773	0.000	0.000	0.000
	1900.00	20.786	193.341	175.817	33.296	33.296	−334.052	0.000	0.000	0.000
	2000.00	20.786	194.407	176.720	35.375	35.375	−353.440	0.000	0.000	0.000
	2100.00	20.786	195.421	177.586	37.453	37.453	−372.931	0.000	0.000	0.000
	2200.00	20.786	196.388	178.419	39.532	39.532	−392.522	0.000	0.000	0.000
	2300.00	20.786	197.312	179.221	41.610	41.610	−412.208	0.000	0.000	0.000
	2400.00	20.786	198.197	179.993	43.689	43.689	−431.983	0.000	0.000	0.000
	2500.00	20.786	199.045	180.738	45.768	45.768	−451.846	0.000	0.000	0.000
	2600.00	20.786	199.861	181.458	47.846	47.846	−471.791	0.000	0.000	0.000
	2700.00	20.786	200.645	182.154	49.925	49.925	−491.817	0.000	0.000	0.000
	2800.00	20.786	201.401	182.828	52.003	52.003	−511.919	0.000	0.000	0.000
	2900.00	20.786	202.130	183.481	54.082	54.082	−532.096	0.000	0.000	0.000
	3000.00	20.786	202.835	184.115	56.161	56.161	−552.345	0.000	0.000	0.000
	3100.00	20.786	203.517	184.730	58.239	58.239	−572.662	0.000	0.000	0.000
	3200.00	20.786	204.177	185.327	60.318	60.318	−593.047	0.000	0.000	0.000
	3300.00	20.786	204.816	185.908	62.396	62.396	−613.497	0.000	0.000	0.000
	3400.00	20.786	205.437	186.474	64.475	64.475	−634.010	0.000	0.000	0.000
	3500.00	20.786	206.039	187.024	66.554	66.554	−654.584	0.000	0.000	0.000
	3600.00	20.786	206.625	187.560	68.632	68.632	−675.217	0.000	0.000	0.000
	3700.00	20.786	207.194	188.083	70.711	70.711	−695.908	0.000	0.000	0.000
	3800.00	20.786	207.749	188.594	72.789	72.789	−716.656	0.000	0.000	0.000
	3900.00	20.786	208.289	189.092	74.868	74.868	−737.458	0.000	0.000	0.000
	4000.00	20.786	208.815	189.578	76.947	76.947	−758.313	0.000	0.000	0.000
	4100.00	20.786	209.328	190.054	79.025	79.025	−779.220	0.000	0.000	0.000
	4200.00	20.786	209.829	190.519	81.104	81.104	−800.178	0.000	0.000	0.000
	4300.00	20.786	210.318	190.973	83.182	83.182	−821.185	0.000	0.000	0.000
	4400.00	20.786	210.796	191.418	85.261	85.261	−842.241	0.000	0.000	0.000
	4500.00	20.786	211.263	191.854	87.340	87.340	−863.344	0.000	0.000	0.000
	4600.00	20.786	211.720	192.281	89.418	89.418	−884.494	0.000	0.000	0.000
	4700.00	20.786	212.167	192.700	91.497	91.497	−905.688	0.000	0.000	0.000
	4800.00	20.786	212.605	193.110	93.575	93.575	−926.927	0.000	0.000	0.000
	4900.00	20.786	213.033	193.512	95.654	95.654	−948.209	0.000	0.000	0.000
	5000.00	20.786	213.453	193.907	97.733	97.733	−969.533	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Ja2	Ja2

74.922 ARSENIC **As**

Phase	T [K]	C_p J/(K mol)	S J/(K mol)	−(G−H298)/T J/(K mol)	H kJ/mol	H−H298 kJ/mol	G kJ/mol	ΔH_f kJ/mol	ΔG_f kJ/mol	log K_f [−]
SOL−A	298.15	24.652	35.706	35.706	0.000	0.000	−10.646	0.000	0.000	0.000
	300.00	24.671	35.859	35.707	0.046	0.046	−10.712	0.000	0.000	0.000
	400.00	25.388	43.065	36.684	2.552	2.552	−14.674	0.000	0.000	0.000
	500.00	25.945	48.790	38.552	5.119	5.119	−19.276	0.000	0.000	0.000
	600.00	26.501	53.569	40.667	7.741	7.741	−24.400	0.000	0.000	0.000
	700.00	27.054	57.696	42.812	10.419	10.419	−29.968	0.000	0.000	0.000
	800.00	27.580	61.344	44.905	13.151	13.151	−35.924	0.000	0.000	0.000
	900.00	28.032	64.620	46.916	15.934	15.934	−42.225	0.000	0.000	0.000
	1000.00	28.166	67.581	48.837	18.743	18.743	−48.837	0.000	0.000	0.000
	1100.00	28.722	70.285	50.666	21.581	21.581	−55.732	0.000	0.000	0.000
	1200.00	30.582	72.851	52.408	24.531	24.531	−62.890	0.000	0.000	0.000
	1300.00	34.591	75.440	54.079	27.769	27.769	−70.303	0.000	0.000	0.000
	1400.00	41.515	78.237	55.703	31.547	31.547	−77.985	0.000	0.000	0.000
	1407.00	42.127	78.445	55.816	31.840	31.840	−78.533	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL−A	Hu1	Hu1	Hu1,e	rhombohedral SPT = 1407. GAS(As2), L = 34.8 kJ/876., (As4)/MPT = 1081. (hyp.)

74.922 ARSENIC (GAS) **As[g]**

Phase	T [K]	C_p J/(K mol)	S J/(K mol)	−(G−H298)/T J/(K mol)	H kJ/mol	H−H298 kJ/mol	G kJ/mol	ΔH_f kJ/mol	ΔG_f kJ/mol	log K_f [−]
GAS	298.15	20.786	174.210	174.210	301.750	0.000	249.809	301.750	260.455	−45.631
	300.00	20.786	174.338	174.210	301.788	0.038	249.487	301.743	260.199	−45.305
	400.00	20.786	180.318	175.026	303.867	2.117	231.740	301.315	246.414	−32.178
	500.00	20.786	184.957	176.565	305.946	4.196	213.467	300.827	232.744	−24.315
	600.00	20.786	188.746	178.289	308.024	6.274	194.777	300.283	219.177	−19.081
	700.00	20.786	191.951	180.018	310.103	8.353	175.738	299.684	205.706	−15.350
	800.00	20.786	194.726	181.687	312.182	10.432	156.401	299.030	192.324	−12.557
	900.00	20.786	197.174	183.274	314.260	12.510	136.803	298.327	179.028	−10.391
	1000.00	20.786	199.364	184.776	316.339	14.589	116.974	297.595	165.812	−8.661
	1100.00	20.786	201.346	186.193	318.417	16.667	96.937	296.837	152.670	−7.250
	1200.00	20.786	203.154	187.533	320.496	18.746	76.711	295.965	139.601	−6.077

References

Phase	H / S	C_p
GAS	Hu1	Hu1

As2[g] ARSENIC (GAS) 149.843

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	34.971	240.882	240.882	220.999	0.000	149.180	220.999	170.472	−29.866
	300.00	35.000	241.098	240.883	221.064	0.065	148.734	220.972	170.158	−29.627
	400.00	35.997	251.324	242.270	224.621	3.622	124.091	219.516	153.439	−20.037
	500.00	36.467	259.413	244.918	228.246	7.247	98.540	218.009	137.092	−14.322
	600.00	36.729	266.087	247.906	231.907	10.908	72.255	216.425	121.056	−10.539
	700.00	36.893	271.762	250.919	235.589	14.590	45.356	214.751	105.293	−7.857
	800.00	37.005	276.696	253.839	239.284	18.285	17.928	212.982	89.775	−5.862
	900.00	37.086	281.059	256.626	242.989	21.990	−9.964	211.122	74.485	−4.323
	1000.00	37.148	284.970	259.268	246.701	25.702	−38.269	209.214	59.406	−3.103
	1100.00	37.199	288.513	261.768	250.418	29.419	−66.946	207.257	44.519	−2.114
	1200.00	37.240	291.751	264.134	254.140	33.141	−95.962	205.077	29.818	−1.298
	1300.00	37.276	294.734	266.374	257.866	36.867	−125.288	202.328	15.319	−0.616
	1400.00	37.308	297.497	268.500	261.595	40.596	−154.901	198.502	1.068	−0.040
	1500.00	37.336	300.072	270.520	265.327	44.328	−184.781	0.000	0.000	0.000
	1600.00	37.362	302.483	272.443	269.062	48.063	−214.910	0.000	0.000	0.000
	1700.00	37.386	304.749	274.277	272.800	51.801	−245.273	0.000	0.000	0.000
	1800.00	37.409	306.886	276.030	276.540	55.541	−275.855	0.000	0.000	0.000
	1900.00	37.430	308.909	277.708	280.281	59.282	−306.646	0.000	0.000	0.000
	2000.00	37.451	310.830	279.316	284.026	63.027	−337.634	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

As3[g] ARSENIC (GAS) 224.765

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	59.039	310.232	310.232	261.421	0.000	168.925	261.421	200.863	−35.190
	300.00	59.077	310.597	310.233	261.530	0.109	168.351	261.393	200.487	−34.908
	400.00	60.444	327.807	312.570	267.516	6.095	136.393	259.860	180.414	−23.560
	500.00	61.087	341.372	317.022	273.596	12.175	102.910	258.239	160.738	−16.792
	600.00	61.446	352.544	322.039	279.724	18.303	68.198	256.501	141.399	−12.310
	700.00	61.670	362.034	327.091	285.881	24.460	32.457	254.624	122.362	−9.131
	800.00	61.823	370.279	331.986	292.056	30.635	−4.168	252.603	103.604	−6.765
	900.00	61.934	377.568	336.653	298.244	36.823	−41.567	250.443	85.107	−4.939
	1000.00	62.019	384.098	341.077	304.442	43.021	−79.656	248.211	66.856	−3.492
	1100.00	62.087	390.012	345.261	310.647	49.226	−118.366	245.905	48.831	−2.319
	1200.00	62.143	395.417	349.219	316.859	55.438	−157.641	243.264	31.027	−1.351

References

Phase	H / S	C_p
GAS	Hu1	Hu1

299.686 ARSENIC (GAS) **As4**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	77.208	327.432	327.432	153.302	0.000	55.678	153.302	98.261	−17.215
	300.00	77.279	327.910	327.434	153.445	0.143	55.072	153.262	97.920	−17.049
	400.00	79.785	350.536	330.501	161.316	8.014	21.101	151.108	79.796	−10.420
	500.00	80.952	368.480	336.365	169.359	16.057	−14.881	148.884	62.224	−6.500
	600.00	81.592	383.301	342.989	177.489	24.187	−52.491	146.525	45.111	−3.927
	700.00	81.983	395.910	349.670	185.670	32.368	−91.467	143.993	28.406	−2.120
	800.00	82.242	406.875	356.151	193.882	40.580	−131.619	141.277	12.077	−0.789
	900.00	82.423	416.573	362.336	202.115	48.813	−172.800	138.381	−3.901	0.226
	1000.00	82.556	425.264	368.202	210.365	57.063	−214.900	135.391	−19.550	1.021
	1100.00	82.658	433.138	373.753	218.626	65.324	−257.826	132.303	−34.897	1.657
	1200.00	82.739	440.333	379.005	226.896	73.594	−301.505	128.770	−49.946	2.174

References

Phase	H / S	C_p
GAS	Hu1	Hu1

314.634 ARSENIC BROMIDE (GAS) **AsBr3**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	78.992	363.992	363.992	−129.997	0.000	−238.521	−129.997	−159.803	27.997
	300.00	79.041	364.481	363.993	−129.851	0.146	−239.195	−130.106	−159.988	27.856
	400.00	80.777	387.492	367.119	−121.848	8.149	−276.845	−176.333	−160.446	20.952
	500.00	81.593	405.615	373.070	−113.725	16.272	−316.532	−176.315	−156.477	16.347
	600.00	82.047	420.535	379.774	−105.541	24.456	−357.862	−176.331	−152.508	13.277
	700.00	82.330	433.205	386.525	−97.321	32.676	−400.564	−176.392	−148.534	11.084
	800.00	82.522	444.212	393.063	−89.078	40.919	−444.447	−176.502	−144.547	9.438
	900.00	82.661	453.940	399.297	−80.818	49.179	−489.364	−176.661	−140.544	8.157
	1000.00	82.767	462.655	405.205	−72.547	57.450	−535.202	−176.848	−136.521	7.131
	1100.00	82.852	470.548	410.792	−64.266	65.731	−581.868	−177.064	−132.478	6.291
	1200.00	82.922	477.760	416.076	−55.977	74.020	−629.289	−177.395	−128.412	5.590
	1300.00	82.981	484.399	421.080	−47.682	82.315	−677.401	−178.015	−124.307	4.995
	1400.00	83.033	490.551	425.825	−39.381	90.616	−726.152	−179.180	−120.137	4.482
	1500.00	83.080	496.281	430.333	−31.075	98.922	−775.497	−277.687	−109.428	3.811

References

Phase	H / S	C_p	Remarks	
GAS	Nb1	Pa2	Tk1	AsBr3: MPT= 304./BPT= 434.

AsCl3 ARSENIC CHLORIDE 181.280

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
LIQ	298.15	133.470	216.313	216.313	−305.014	0.000	−369.508	−305.014	−259.079	45.389
	300.00	133.470	217.138	216.315	−304.767	0.247	−369.909	−304.907	−258.794	45.060
	400.00	133.470	255.535	221.551	−291.420	13.594	−393.634	−299.267	−244.280	31.900

References

Phase	H / S	C_p
LIQ	Nb1	Tk1

AsCl3[g] ARSENIC CHLORIDE (GAS) 181.280

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	75.395	327.298	327.298	−261.500	0.000	−359.084	−261.500	−248.655	43.563
	300.00	75.483	327.765	327.300	−261.360	0.140	−359.690	−261.500	−248.575	43.281
	400.00	78.598	349.969	330.306	−253.635	7.865	−393.622	−261.482	−244.268	31.898
	500.00	80.090	367.685	336.070	−245.693	15.807	−429.535	−261.463	−239.968	25.069
	600.00	80.944	382.369	342.598	−237.638	23.862	−467.059	−261.483	−235.668	20.517
	700.00	81.497	394.891	349.196	−229.514	31.986	−505.937	−261.552	−231.360	17.264
	800.00	81.888	405.800	355.604	−221.344	40.156	−545.983	−261.672	−227.040	14.824
	900.00	82.187	415.463	361.729	−213.139	48.361	−587.056	−261.838	−222.701	12.925
	1000.00	82.427	424.135	367.543	−204.908	56.592	−629.043	−262.029	−218.342	11.405
	1100.00	82.629	432.001	373.051	−196.655	64.845	−671.856	−262.244	−213.964	10.160
	1200.00	82.806	439.198	378.267	−188.383	73.117	−715.421	−262.569	−209.561	9.122
	1300.00	82.964	445.833	383.213	−180.094	81.406	−759.677	−263.177	−205.122	8.242
	1400.00	83.109	451.986	387.908	−171.791	89.709	−804.571	−264.323	−200.618	7.485
	1500.00	83.245	457.725	392.374	−163.473	98.027	−850.060	−362.805	−189.577	6.602

References

Phase	H / S	C_p
GAS	Nb1	Pa2

131.917 ARSENIC FLUORIDE **AsF3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
LIQ	298.15	126.549	181.209	181.209	−821.319	0.000	−875.346	−821.319	−774.006	135.603
	300.00	126.650	181.992	181.211	−821.085	0.234	−875.682	−821.217	−773.712	134.715
	330.00	128.281	194.140	181.842	−817.261	4.058	−881.327	−819.558	−769.042	121.729

References

Phase	H / S	C_p	Remarks
LIQ	Nb1	R1	Tk1,e BPT= 330., L= 33,47 kJ

131.917 ARSENIC FLUORIDE (GAS) **AsF3[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	64.684	289.224	289.224	−785.755	0.000	−871.987	−785.755	−770.646	135.014
	300.00	64.856	289.624	289.225	−785.635	0.120	−872.523	−785.768	−770.552	134.165
	400.00	71.139	309.258	291.859	−778.796	6.959	−902.499	−786.255	−765.399	99.951
	500.00	74.429	325.517	297.013	−771.503	14.252	−934.262	−786.574	−760.146	79.412
	600.00	76.541	339.286	302.941	−763.948	21.807	−967.519	−786.851	−754.834	65.714
	700.00	78.096	351.206	309.003	−756.213	29.542	−1002.057	−787.119	−749.477	55.927
	800.00	79.355	361.719	314.949	−748.339	37.416	−1037.714	−787.385	−744.082	48.584
	900.00	80.441	371.130	320.677	−740.348	45.407	−1074.365	−787.649	−738.653	42.870
	1000.00	81.421	379.657	326.156	−732.254	53.501	−1111.911	−787.885	−733.196	38.298
	1100.00	82.330	387.460	331.379	−724.066	61.689	−1150.272	−788.094	−727.717	34.556
	1200.00	83.192	394.661	336.356	−715.789	69.966	−1189.382	−788.361	−722.217	31.437
	1300.00	84.020	401.353	341.102	−707.429	78.326	−1229.187	−788.857	−716.687	28.797
	1400.00	84.824	407.609	345.631	−698.986	86.769	−1269.639	−789.837	−711.103	26.532
	1500.00	85.610	413.488	349.961	−690.464	95.291	−1310.696	−888.098	−698.996	24.341

References

Phase	H / S	C_p
GAS	Nb1	Pa2

AsF5[g] ARSENIC PENTAFLUORIDE (GAS) 169.914

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	97.541	317.257	317.257	−1236.790	0.000	−1331.380	−1236.790	−1169.576	204.905
	300.00	97.952	317.861	317.258	−1236.609	0.181	−1331.968	−1236.800	−1169.159	203.569
	400.00	112.393	348.316	321.313	−1225.989	10.801	−1365.315	−1236.720	−1146.598	149.730
	500.00	119.077	374.196	329.373	−1214.378	22.412	−1401.476	−1236.084	−1124.135	117.438
	600.00	122.707	396.258	338.728	−1202.272	34.518	−1440.027	−1235.283	−1101.819	95.922
	700.00	124.897	415.350	348.342	−1189.884	46.906	−1480.629	−1234.448	−1079.641	80.564
	800.00	126.318	432.127	357.788	−1177.318	59.472	−1523.020	−1233.629	−1057.582	69.053
	900.00	127.292	447.065	366.893	−1164.635	72.155	−1566.993	−1232.848	−1035.623	60.106
	1000.00	127.989	460.514	375.594	−1151.869	84.921	−1612.384	−1232.093	−1013.750	52.953
	1100.00	128.504	472.738	383.878	−1139.043	97.747	−1659.055	−1231.370	−991.952	47.104
	1200.00	128.896	483.937	391.756	−1126.172	110.618	−1706.897	−1230.770	−970.214	42.232
	1300.00	129.201	494.267	399.249	−1113.267	123.523	−1755.814	−1230.469	−948.516	38.112
	1400.00	129.444	503.851	406.383	−1100.334	136.456	−1805.726	−1230.721	−926.823	34.580
	1500.00	129.639	512.789	413.182	−1087.380	149.410	−1856.563	−1328.326	−898.656	31.294
	1600.00	129.799	521.161	419.672	−1074.408	162.382	−1908.264	−1326.696	−870.065	28.405
	1700.00	129.931	529.034	425.875	−1061.421	175.369	−1960.778	−1325.082	−841.575	25.858
	1800.00	130.042	536.464	431.815	−1048.422	188.368	−2014.056	−1323.485	−813.179	23.598
	1900.00	130.136	543.497	437.509	−1035.413	201.377	−2068.058	−1321.904	−784.872	21.578
	2000.00	130.217	550.174	442.977	−1022.395	214.395	−2122.744	−1320.339	−756.648	19.762

References

Phase	H / S	C_p
GAS	Tk1/e	e

77.945 ARSENIC HYDRIDE **AsH3[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	38.072	222.782	222.782	66.442	0.000	0.020	66.442	69.109	−12.108
	300.00	38.240	223.018	222.783	66.513	0.071	−0.393	66.387	69.125	−12.036
	400.00	44.933	235.027	224.375	70.703	4.261	−23.308	63.712	70.457	−9.201
	500.00	49.256	245.543	227.580	75.424	8.982	−47.348	61.482	72.408	−7.564
	600.00	52.646	254.832	231.363	80.524	14.082	−72.376	59.566	74.778	−6.510
	700.00	55.595	263.173	235.321	85.938	19.496	−98.283	57.896	77.449	−5.779
	800.00	58.309	270.776	239.284	91.635	25.193	−124.986	56.432	80.344	−5.246
	900.00	60.886	277.793	243.178	97.596	31.154	−152.418	55.148	83.412	−4.841
	1000.00	63.379	284.338	246.971	103.809	37.367	−180.529	54.046	86.613	−4.524
	1100.00	65.817	290.493	250.650	110.270	43.828	−209.273	53.111	89.917	−4.270
	1200.00	68.216	296.323	254.215	116.972	50.530	−238.616	52.245	93.301	−4.061
	1300.00	70.590	301.877	257.670	123.912	57.470	−268.528	51.267	96.760	−3.888
	1400.00	72.943	307.195	261.019	131.089	64.647	−298.984	49.919	100.307	−3.742
	1500.00	75.283	312.307	264.268	138.500	72.058	−329.961	−48.599	110.399	−3.844
	1600.00	77.612	317.240	267.426	146.145	79.703	−361.439	−47.698	120.970	−3.949
	1700.00	79.932	322.015	270.497	154.022	87.580	−393.403	−46.630	131.480	−4.040
	1800.00	82.246	326.649	273.489	162.131	95.689	−425.838	−45.391	141.922	−4.118
	1900.00	84.554	331.158	276.406	170.471	104.029	−458.729	−43.981	152.291	−4.187
	2000.00	86.859	335.554	279.254	179.042	112.600	−492.066	−42.397	162.580	−4.246

References

Phase	H / S	C_p
GAS	Nb1	Nb1,e

455.635 ARSENIC IODIDE **AsI3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	105.773	213.049	213.049	−58.158	0.000	−121.679	−58.158	−59.091	10.353
	300.00	105.891	213.704	213.051	−57.962	0.196	−122.073	−58.159	−59.097	10.290
	400.00	112.257	245.039	217.281	−47.055	11.103	−145.070	−82.216	−58.568	7.648
	413.60	113.122	248.806	218.256	−45.522	12.636	−148.429	−82.675	−57.756	7.294
			53.818		22.259					
LIQ	413.60	137.654	302.624	218.256	−23.263	34.895	−148.429	−60.416	−57.756	7.294
	500.00	137.654	328.738	235.162	−11.370	46.788	−175.739	−121.389	−51.427	5.373
	600.00	137.654	353.835	252.913	2.395	60.553	−209.906	−115.872	−37.954	3.304
	700.00	137.654	375.055	268.885	16.161	74.319	−246.378	−110.429	−25.399	1.895

References

Phase	H / S	C_p
SOL	Nb1	Pa2
LIQ	Pa2	Pa2

AsI3[g] ARSENIC IODIDE (GAS) 455.635

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	80.960	391.816	391.816	38.911	0.000	−77.909	38.911	−15.321	2.684
	300.00	80.986	392.316	391.817	39.061	0.150	−78.634	38.864	−15.658	2.726
	400.00	81.899	415.758	395.007	47.211	8.300	−119.092	12.050	−32.589	4.256
	500.00	82.331	434.085	401.056	55.425	16.514	−161.617	−54.593	−37.305	3.897
	600.00	82.573	449.119	407.851	63.672	24.761	−205.800	−54.596	−33.848	2.947
	700.00	82.726	461.860	414.680	71.937	33.026	−251.365	−54.653	−30.386	2.267
	800.00	82.831	472.914	421.284	80.215	41.304	−298.116	−54.765	−26.913	1.757
	900.00	82.908	482.674	427.573	88.502	49.591	−345.905	−54.930	−23.422	1.359
	1000.00	82.968	491.413	433.528	96.796	57.885	−394.617	−55.128	−19.911	1.040
	1100.00	83.017	499.323	439.155	105.096	66.185	−444.160	−55.358	−16.378	0.778
	1200.00	83.058	506.548	444.475	113.399	74.488	−494.459	−55.706	−12.821	0.558
	1300.00	83.094	513.198	449.509	121.707	82.796	−545.450	−56.348	−9.224	0.371
	1400.00	83.126	519.357	454.281	130.018	91.107	−597.082	−57.536	−5.559	0.207
	1500.00	83.154	525.093	458.812	138.332	99.421	−649.308	−156.069	4.646	−0.162

References

Phase	H / S	C_p
GAS	Pa2	Pa2

AsO[g] ARSENIC MONOXIDE (GAS) 90.921

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	32.342	230.271	230.271	−57.287	0.000	−125.943	−57.287	−84.715	14.842
	300.00	32.414	230.471	230.272	−57.227	0.060	−126.369	−57.300	−84.885	14.780
	400.00	34.956	240.197	231.580	−53.841	3.447	−149.919	−57.906	−93.984	12.273
	500.00	36.133	248.138	234.123	−50.280	7.008	−174.349	−58.441	−102.942	10.754
	600.00	36.772	254.788	237.028	−46.632	10.656	−199.504	−58.995	−111.791	9.732
	700.00	37.158	260.487	239.982	−42.934	14.354	−225.275	−59.602	−120.543	8.995
	800.00	37.408	265.467	242.863	−39.205	18.083	−251.578	−60.273	−129.203	8.436
	900.00	37.579	269.883	245.625	−35.455	21.833	−278.349	−61.009	−137.776	7.996
	1000.00	37.702	273.849	248.252	−31.690	25.597	−305.539	−61.785	−146.264	7.640
	1100.00	37.793	277.447	250.745	−27.915	29.372	−333.107	−62.602	−154.673	7.345
	1200.00	37.862	280.738	253.109	−24.132	33.155	−361.019	−63.544	−163.003	7.095
	1300.00	37.916	283.771	255.353	−20.343	36.944	−389.246	−64.784	−171.244	6.881
	1400.00	37.958	286.583	257.484	−16.550	40.738	−417.765	−66.575	−179.371	6.692
	1500.00	37.993	289.203	259.513	−12.752	44.535	−446.556	−165.715	−180.914	6.300
	1600.00	38.021	291.656	261.446	−8.951	48.336	−475.600	−165.615	−181.931	5.939
	1700.00	38.044	293.961	263.291	−5.148	52.139	−504.882	−165.527	−182.954	5.621
	1800.00	38.064	296.136	265.056	−1.343	55.945	−534.388	−165.449	−183.981	5.339
	1900.00	38.080	298.195	266.747	2.465	59.752	−564.106	−165.383	−185.012	5.086
	2000.00	38.094	300.149	268.368	6.273	63.561	−594.024	−165.327	−186.047	4.859

References

Phase	H / S	C_p
GAS	Tk1	Tk1,e

197.841 ARSENIC OXIDE (CLAUDETITE) **As2O3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	96.979	117.001	117.001	−654.796	0.000	−689.680	−654.796	−576.641	101.025
	300.00	97.261	117.602	117.003	−654.616	0.180	−689.897	−654.789	−576.157	100.318
	400.00	109.231	147.348	120.978	−644.248	10.548	−703.187	−653.890	−550.055	71.830
	500.00	117.913	172.690	128.848	−632.875	21.921	−719.220	−652.239	−524.275	54.771
	585.00	124.242	191.695	136.623	−622.579	32.217	−734.721	−650.413	−502.663	44.883
			38.622		22.594					
LIQ	585.00	152.716	230.317	136.623	−599.985	54.811	−734.721	−627.819	−502.663	44.883
	600.00	152.716	234.184	139.014	−597.694	57.102	−738.204	−627.042	−499.464	43.482
	700.00	152.716	257.725	154.334	−582.423	72.373	−762.830	−622.008	−478.602	35.714
	732.00	152.716	264.552	159.005	−577.536	77.260	−771.187	−620.448	−472.082	33.687

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	Pa1	B1	monoclinic, TPT= 240. (AR.−CL.)
LIQ	Tk1	e	Tk1	BPT= 732., L= 28.033 kJ, GAS (As4O6)

197.841 ARSENIC OXIDE (ARSENOLITE) **As2O3**[A]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	96.878	107.412	107.412	−656.972	0.000	−688.997	−656.972	−575.958	100.905
	300.00	97.170	108.012	107.413	−656.793	0.179	−689.196	−656.965	−575.456	100.196
	400.00	109.986	137.835	111.393	−646.395	10.577	−701.529	−656.037	−548.397	71.613
	500.00	119.821	163.466	119.303	−634.890	22.082	−716.624	−654.255	−521.678	54.499
	551.00	124.333	175.322	123.945	−628.664	28.308	−725.266	−653.087	−508.212	48.178

References

Phase	H / S	C_p	Remarks	
SOL	Nb1/Pa1	Pa1	Tk1	MPT= 551., L= 24.3 kJ

As2O5 DIARSENIC PENTAOXIDE 229.840

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	116.536	105.399	105.399	−924.869	0.000	−956.294	−924.869	−782.091	137.019
	300.00	116.978	106.121	105.401	−924.653	0.216	−956.489	−924.880	−781.205	136.020
	400.00	136.540	142.619	110.245	−911.920	12.949	−968.967	−924.587	−733.312	95.761
	500.00	151.778	174.770	119.998	−897.483	27.386	−984.868	−922.932	−685.661	71.630
	600.00	165.314	203.656	131.573	−881.619	43.250	−1003.813	−920.211	−638.446	55.582

References

Phase	H / S	C_p
SOL	Nb1	Pa1

As4O6[g] TETRAARSENIC HEXAOXIDE (GAS) 395.683

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	173.596	409.346	409.346	−1196.247	0.000	−1318.294	−1196.247	−1092.217	191.352
	300.00	174.180	410.422	409.350	−1195.925	0.322	−1319.052	−1196.271	−1091.571	190.059
	400.00	195.373	463.832	416.488	−1177.310	18.937	−1362.842	−1196.594	−1056.578	137.975
	500.00	206.180	508.700	430.570	−1157.182	39.065	−1411.532	−1195.911	−1021.642	106.730
	600.00	212.899	546.925	446.857	−1136.206	60.041	−1464.361	−1194.903	−986.880	85.916
	700.00	217.687	580.121	463.576	−1114.666	81.581	−1520.750	−1193.838	−952.294	71.061
	800.00	221.446	609.442	480.012	−1092.703	103.544	−1580.257	−1192.813	−917.858	59.930
	900.00	224.608	635.712	495.878	−1070.396	125.851	−1642.537	−1191.853	−883.547	51.280
	1000.00	227.397	659.524	511.070	−1047.793	148.454	−1707.317	−1190.876	−849.343	44.365

References

Phase	H / S	C_p
GAS	Pa1	Pa1

106.988

ARSENIC MONOSULFIDE (GAS) **AsS[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	34.827	242.045	242.045	189.117	0.000	116.951	189.117	137.155	−24.029
	300.00	34.874	242.261	242.046	189.181	0.064	116.503	189.094	136.832	−23.825
	400.00	37.409	252.652	243.445	192.800	3.683	91.739	185.624	119.690	−15.630
	500.00	39.085	261.197	246.166	196.632	7.515	66.034	182.988	103.491	−10.812
	600.00	39.978	268.411	249.289	200.591	11.474	39.544	180.748	87.811	−7.645
	700.00	40.380	274.609	252.474	204.612	15.495	12.385	178.781	72.478	−5.408
	800.00	40.493	280.011	255.586	208.657	19.540	−15.352	176.735	57.429	−3.750
	900.00	40.439	284.778	258.570	212.705	23.588	−43.596	121.794	43.797	−2.542
	1000.00	40.300	289.032	261.407	216.742	27.625	−72.290	121.186	35.163	−1.837
	1100.00	40.129	292.865	264.096	220.764	31.647	−101.388	120.528	26.592	−1.263
	1200.00	39.965	296.350	266.640	224.768	35.651	−130.851	119.733	18.086	−0.787

References

Phase	H / S	C_p
GAS	Pa3	Pa3

213.975

DIARSENIC DISULFIDE **As2S2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	94.067	126.775	126.775	−142.256	0.000	−180.054	−142.256	−139.647	24.466
	300.00	94.136	127.357	126.777	−142.082	0.174	−180.289	−142.257	−139.631	24.312
	400.00	97.872	154.950	130.514	−132.482	9.774	−194.462	−146.832	−138.559	18.094
	500.00	101.608	177.191	137.694	−122.507	19.749	−211.103	−149.796	−136.189	14.228
	580.00	104.597	192.488	144.218	−114.259	27.997	−225.902	−151.527	−133.868	12.056
			10.460		6.067					
LIQ	580.00	146.440	202.948	144.218	−108.192	34.064	−225.902	−145.460	−133.868	12.056
	600.00	146.440	207.913	146.259	−105.263	36.993	−230.011	−144.949	−133.477	11.620
	700.00	146.440	230.487	156.720	−90.619	51.637	−251.960	−142.280	−131.776	9.833

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1		
LIQ	Mi1	Mi1	Mi1	DEC. GAS(As4S4 + As4 + As2 + S2)

As2S3 ARSENIC SULFIDE 246.041

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−1	298.15	116.511	163.594	163.594	−167.360	0.000	−216.136	−167.360	−166.172	29.113
	300.00	116.579	164.315	163.597	−167.144	0.216	−216.439	−167.362	−166.164	28.932
	400.00	120.223	198.352	168.213	−155.304	12.056	−234.645	−174.279	−165.465	21.608
	450.00	122.045	212.617	172.368	−149.248	18.112	−244.925	−176.291	−164.274	19.068
			0.604		0.272					
SOL−2	450.00	122.045	213.222	172.368	−148.976	18.384	−244.925	−176.019	−164.274	19.068
	500.00	123.867	226.175	177.111	−142.828	24.532	−255.915	−178.642	−162.820	17.010
	585.00	126.965	245.859	185.701	−132.167	35.193	−275.995	−181.634	−159.870	14.275
			48.991		28.660					
LIQ	585.00	187.726	294.851	185.701	−103.507	63.853	−275.995	−152.974	−159.870	14.275
	600.00	187.979	299.607	188.490	−100.690	66.670	−280.454	−152.476	−160.053	13.934
	700.00	189.665	328.711	206.493	−81.807	85.553	−311.905	−148.879	−161.596	12.058
	800.00	191.351	354.147	223.393	−62.757	104.603	−346.074	−145.372	−163.657	10.686
	900.00	193.037	376.782	239.201	−43.537	123.823	−382.641	−300.337	−162.687	9.442
	995.00	194.639	396.232	253.280	−25.123	142.237	−419.373	−292.490	−148.557	7.799

References

Phase	H / S	C_p	Remarks
SOL−1	Mi1	Mi1	
SOL−2	Mi1	Mi1	
LIQ	Mi1	Mi1	Mi1/Tk1 DEC. GAS (As2S2 + S2 + As4) / BPT= 995., L= 86.2 kJ

As4S4 TETRAARSENIC TETRASULFIDE 427.950

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	188.147	254.053	254.053	−134.725	0.000	−210.471	−134.725	−129.657	22.715
	300.00	188.342	255.217	254.056	−134.377	0.348	−210.942	−134.728	−129.626	22.570
	400.00	197.438	310.699	261.559	−115.069	19.656	−239.349	−143.771	−127.544	16.656
	500.00	205.133	355.597	276.015	−94.934	39.791	−272.733	−149.512	−122.904	12.840
	580.15	210.886	386.517	289.189	−78.260	56.465	−302.498	−152.832	−118.362	10.657
			45.976		26.673					
LIQ	580.15	266.534	432.493	289.189	−51.587	83.138	−302.498	−126.159	−118.362	10.657
	600.00	268.638	441.493	294.079	−46.277	88.448	−311.173	−125.647	−118.104	10.282
	700.00	285.817	484.073	318.226	−18.632	116.093	−357.483	−121.953	−117.114	8.739
	800.00	310.093	523.766	341.459	11.120	145.845	−407.893	−116.568	−116.771	7.624

References

Phase	H / S	C_p
SOL	Pa3	Pa3
LIQ	Pa3	Pa3

427.950 TETRAARSENIC TETRASULFIDE (GAS) **As4S4[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	164.180	446.082	446.082	−2.092	0.000	−135.091	−2.092	−54.278	9.509
	300.00	164.388	447.098	446.085	−1.788	0.304	−135.918	−2.139	−54.602	9.507
	400.00	172.015	495.576	452.643	15.081	17.173	−183.149	−13.620	−71.345	9.317
	500.00	175.781	534.409	465.243	32.491	34.583	−234.714	−22.087	−84.885	8.868
	600.00	177.903	566.662	479.535	50.184	52.276	−289.813	−29.187	−96.744	8.422
	700.00	179.210	594.191	493.996	68.045	70.137	−347.889	−35.276	−107.520	8.023
	800.00	180.069	618.181	508.052	86.011	88.103	−408.534	−41.677	−117.412	7.666
	900.00	180.663	639.426	521.491	104.050	106.142	−471.434	−259.595	−121.862	7.073
	1000.00	181.087	658.484	534.254	122.138	124.230	−536.346	−260.086	−106.533	5.565
	1100.00	181.401	675.759	546.345	140.263	142.355	−603.072	−260.679	−91.151	4.328
	1200.00	181.637	691.554	557.797	158.416	160.508	−671.449	−261.723	−75.698	3.295

References

Phase	H / S	C_p
GAS	Pa3	Pa3

427.950 TETRAARSENIC TETRASULFIDE (REALGAR) **As4S4[R]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	188.154	254.053	254.053	−138.072	0.000	−213.818	−138.072	−133.004	23.302
	300.00	188.334	255.217	254.056	−137.724	0.348	−214.289	−138.075	−132.973	23.153
	400.00	197.382	310.670	261.556	−118.426	19.646	−242.694	−147.128	−130.890	17.092
	500.00	205.188	355.572	276.006	−98.289	39.783	−276.075	−152.867	−126.246	13.189
	580.15	210.856	386.495	289.178	−81.614	56.458	−305.839	−156.186	−121.703	10.958

References

Phase	H / S	C_p
SOL	Pa3	Pa3

AsSe[g] ARSENIC MONOSELENIDE (GAS) 153.882

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	35.735	247.760	247.760	207.108	0.000	133.238	207.108	156.483	−27.415
	300.00	35.738	247.981	247.761	207.174	0.066	132.780	207.082	156.169	−27.192
	400.00	35.894	258.284	249.165	210.756	3.648	107.442	205.489	139.430	−18.208
	500.00	36.049	266.310	251.820	214.353	7.245	81.198	197.709	123.212	−12.872
	600.00	36.205	272.896	254.801	217.966	10.858	54.228	195.185	108.548	−9.450
	700.00	36.361	278.489	257.795	221.594	14.486	26.651	192.621	94.311	−7.038
	800.00	36.516	283.355	260.693	225.238	18.130	−1.446	190.018	80.444	−5.252
	900.00	36.672	287.665	263.454	228.897	21.789	−30.001	187.380	66.906	−3.883
	1000.00	36.828	291.536	266.072	232.572	25.464	−58.964	184.731	53.662	−2.803
	1100.00	36.983	295.054	268.550	236.263	29.155	−88.297	128.758	45.637	−2.167
	1200.00	37.139	298.278	270.894	239.969	32.861	−117.965	127.446	38.138	−1.660
	1300.00	37.295	301.257	273.117	243.690	36.582	−147.944	125.874	30.756	−1.236
	1400.00	37.450	304.027	275.227	247.428	40.320	−178.210	123.789	23.514	−0.877
	1500.00	37.606	306.616	277.234	251.180	44.072	−208.743	24.394	22.873	−0.797
	1600.00	37.761	309.048	279.147	254.949	47.841	−239.528	24.276	22.776	−0.744
	1700.00	37.917	311.342	280.974	258.733	51.625	−270.548	24.185	22.685	−0.697
	1800.00	38.073	313.513	282.722	262.532	55.424	−301.792	24.121	22.599	−0.656

References

Phase	H / S	C_p
GAS	Mi1	Mi1

As2Se3 ARSENIC SELENIDE 386.723

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	121.387	194.556	194.556	−102.508	0.000	−160.515	−102.508	−101.425	17.769
	300.00	121.545	195.307	194.558	−102.283	0.225	−160.875	−102.515	−101.418	17.659
	400.00	130.122	231.448	199.428	−89.700	12.808	−182.279	−102.948	−100.989	13.188
	500.00	138.700	261.406	208.907	−76.259	26.249	−206.962	−121.072	−100.197	10.467
	600.00	147.277	287.452	219.872	−61.960	40.548	−234.431	−122.561	−95.869	8.346
	650.00	151.565	299.410	225.534	−54.489	48.019	−249.105	−123.026	−93.625	7.524
			62.760		40.794					
LIQ	650.00	195.393	362.170	225.534	−13.695	88.813	−249.105	−82.232	−93.625	7.524
	700.00	195.393	376.650	235.817	−3.925	98.583	−267.580	−80.426	−94.569	7.057
	800.00	195.393	402.741	255.088	15.614	118.122	−306.579	−76.894	−96.832	6.322

References

Phase	H / S	C_p
SOL	Mi1	Mi1
LIQ	Mi1	Mi1

202.522 ARSENIC MONOTELLURIDE (GAS) **AsTe[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	36.605	255.710	255.710	228.865	0.000	152.625	228.865	178.028	−31.190
	300.00	36.606	255.936	255.711	228.933	0.068	152.152	228.839	177.713	−30.943
	400.00	36.677	266.477	257.147	232.597	3.732	126.006	227.312	160.893	−21.011
	500.00	36.748	274.669	259.863	236.268	7.403	98.934	225.510	144.491	−15.095
	600.00	36.819	281.375	262.906	239.946	11.081	71.121	223.439	128.478	−11.185
	700.00	36.890	287.056	265.961	243.632	14.767	42.693	221.099	112.832	−8.420
	800.00	36.961	291.987	268.912	247.325	18.460	13.735	200.869	99.420	−6.491
	900.00	37.033	296.344	271.723	251.024	22.159	−15.686	198.020	86.910	−5.044
	1000.00	37.104	300.250	274.384	254.731	25.866	−45.519	195.151	74.718	−3.903
	1100.00	37.175	303.790	276.899	258.445	29.580	−75.723	192.263	62.814	−2.983
	1200.00	37.246	307.027	279.276	262.166	33.301	−106.267	189.267	51.177	−2.228
	1300.00	37.317	310.011	281.527	265.894	37.029	−137.120	185.992	39.800	−1.599
	1400.00	37.388	312.779	283.662	269.629	40.764	−168.262	135.745	31.184	−1.163
	1500.00	37.459	315.361	285.690	273.372	44.507	−199.670	36.179	30.244	−1.053
	1600.00	37.530	317.781	287.621	277.121	48.256	−231.329	35.877	29.858	−0.975
	1700.00	37.602	320.059	289.463	280.878	52.013	−263.222	35.586	29.491	−0.906
	1800.00	37.673	322.210	291.223	284.642	55.777	−295.336	35.305	29.140	−0.846

References

Phase	H / S	C_p
GAS	Mi1	Mi1

532.643 ARSENIC TELLURIDE **As2Te3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	127.491	226.354	226.354	−37.656	0.000	−105.144	−37.656	−39.580	6.934
	300.00	127.830	227.144	226.357	−37.420	0.236	−105.563	−37.654	−39.592	6.893
	400.00	141.304	265.950	231.556	−23.899	13.757	−130.279	−37.201	−40.291	5.261
	500.00	149.923	298.459	241.775	−9.314	28.342	−158.543	−36.469	−41.146	4.299
	600.00	156.630	326.405	253.605	6.024	43.680	−189.819	−35.757	−42.150	3.670
	648.00	159.496	338.569	259.452	13.612	51.268	−205.781	−35.465	−42.673	3.440
			72.316		46.861					
LIQ	648.00	167.360	410.886	259.452	60.473	98.129	−205.781	−11.396	−42.673	3.440
	700.00	167.360	423.804	271.188	69.175	106.831	−227.487	11.995	−47.037	3.510
	800.00	167.360	446.152	291.693	85.911	123.567	−271.010	−40.306	−49.878	3.257

References

Phase	H / S	C_p	Remarks	
SOL	B3/Z1	B3,Mi1	Pa3	TPT= 358.
LIQ	B3	B3,Mi1		

Au GOLD 196.967

Phase	T [K]	C_p [J / (K mol)]	S [J / (K mol)]	-(G-H298)/T [J / (K mol)]	H [kJ / mol]	H-H298 [kJ / mol]	G [kJ / mol]	ΔH_f [kJ / mol]	ΔG_f [kJ / mol]	log K_f [-]
SOL	298.15	25.317	47.497	47.497	0.000	0.000	-14.161	0.000	0.000	0.000
	300.00	25.325	47.653	47.497	0.047	0.047	-14.249	0.000	0.000	0.000
	400.00	25.761	54.999	48.496	2.601	2.601	-19.398	0.000	0.000	0.000
	500.00	26.196	60.794	50.396	5.199	5.199	-25.198	0.000	0.000	0.000
	600.00	26.631	65.608	52.541	7.840	7.840	-31.525	0.000	0.000	0.000
	700.00	27.066	69.746	54.710	10.525	10.525	-38.297	0.000	0.000	0.000
	800.00	27.502	73.389	56.822	13.254	13.254	-45.457	0.000	0.000	0.000
	900.00	27.962	76.654	58.847	16.026	16.026	-52.962	0.000	0.000	0.000
	1000.00	28.560	79.629	60.779	18.851	18.851	-60.779	0.000	0.000	0.000
	1100.00	29.401	82.388	62.619	21.746	21.746	-68.881	0.000	0.000	0.000
	1200.00	30.569	84.994	64.376	24.742	24.742	-77.251	0.000	0.000	0.000
	1300.00	32.175	87.496	66.059	27.868	27.868	-85.876	0.000	0.000	0.000
	1337.58	33.442	88.429	66.674	29.099	29.099	-89.182	0.000	0.000	0.000
			9.384		12.552					
LIQ	1337.58	30.962	97.813	66.674	41.651	41.651	-89.182	0.000	0.000	0.000
	1400.00	30.962	99.225	68.094	43.584	43.584	-95.332	0.000	0.000	0.000
	1500.00	30.962	101.361	70.242	46.680	46.680	-105.362	0.000	0.000	0.000
	1600.00	30.962	103.360	72.250	49.776	49.776	-115.599	0.000	0.000	0.000
	1700.00	30.962	105.237	74.135	52.872	52.872	-126.030	0.000	0.000	0.000
	1800.00	30.962	107.006	75.913	55.968	55.968	-136.643	0.000	0.000	0.000
	1900.00	30.962	108.680	77.594	59.064	59.064	-147.428	0.000	0.000	0.000
	2000.00	30.962	110.268	79.188	62.160	62.160	-158.376	0.000	0.000	0.000
	2100.00	30.962	111.779	80.704	65.257	65.257	-169.479	0.000	0.000	0.000
	2200.00	30.962	113.219	82.150	68.353	68.353	-180.730	0.000	0.000	0.000
	2300.00	30.962	114.596	83.531	71.449	71.449	-192.121	0.000	0.000	0.000
	2400.00	30.962	115.913	84.853	74.545	74.545	-203.647	0.000	0.000	0.000
	2500.00	30.962	117.177	86.121	77.641	77.641	-215.302	0.000	0.000	0.000
	2600.00	30.962	118.392	87.339	80.737	80.737	-227.081	0.000	0.000	0.000
	2700.00	30.962	119.560	88.511	83.834	83.834	-238.979	0.000	0.000	0.000
	2800.00	30.962	120.686	89.640	86.930	86.930	-250.992	0.000	0.000	0.000
	2900.00	30.962	121.773	90.729	90.026	90.026	-263.115	0.000	0.000	0.000
	3000.00	30.962	122.822	91.782	93.122	93.122	-275.345	0.000	0.000	0.000
	3100.00	30.962	123.838	92.799	96.218	96.218	-287.678	0.000	0.000	0.000
	3127.00	30.962	124.106	93.069	97.054	97.054	-291.025	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL	Hu1	Hu1	Hu1	MPT= 1337.58 (IPTS REF. POINT)
LIQ	Hu1	Hu1	Hu1	BPT= 3127., L= 334.38 kJ

196.967 GOLD (GAS) **Au**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.786	180.503	180.503	368.192	0.000	314.375	368.192	328.536	−57.558
	300.00	20.786	180.631	180.503	368.230	0.038	314.041	368.184	328.290	−57.160
	400.00	20.786	186.611	181.318	370.309	2.117	295.665	367.708	315.063	−41.143
	500.00	20.786	191.249	182.858	372.388	4.196	276.763	367.189	301.961	−31.546
	600.00	20.786	195.039	184.582	374.466	6.274	257.443	366.626	288.968	−25.157
	700.00	20.786	198.243	186.310	376.545	8.353	237.775	366.020	276.072	−20.601
	800.00	20.786	201.019	187.979	378.624	10.432	217.808	365.370	263.266	−17.190
	900.00	20.790	203.467	189.567	380.702	12.510	197.582	364.676	250.544	−14.541
	1000.00	20.799	205.658	191.068	382.782	14.590	177.124	363.931	237.902	−12.427
	1100.00	20.811	207.641	192.486	384.862	16.670	156.457	363.116	225.338	−10.700
	1200.00	20.835	209.453	193.826	386.944	18.752	135.601	362.202	212.852	−9.265
	1300.00	20.882	211.122	195.093	389.030	20.838	114.571	361.162	200.448	−8.054
	1400.00	20.962	212.672	196.294	391.122	22.930	93.381	347.538	188.712	−7.041
	1500.00	21.078	214.122	197.435	393.223	25.031	72.040	346.544	177.403	−6.178
	1600.00	21.235	215.487	198.521	395.339	27.147	50.559	345.563	166.159	−5.425
	1700.00	21.434	216.780	199.557	397.472	29.280	28.945	344.600	154.975	−4.762
	1800.00	21.673	218.012	200.548	399.627	31.435	7.205	343.659	143.848	−4.174
	1900.00	21.952	219.191	201.499	401.808	33.616	−14.656	342.744	132.773	−3.650
	2000.00	22.267	220.325	202.412	404.019	35.827	−36.632	341.858	121.745	−3.180
	2100.00	22.615	221.420	203.291	406.262	38.070	−58.719	341.006	110.760	−2.755
	2200.00	22.991	222.480	204.139	408.542	40.350	−80.915	340.190	99.815	−2.370
	2300.00	23.390	223.511	204.959	410.861	42.669	−103.214	339.412	88.907	−2.019
	2400.00	23.808	224.515	205.753	413.221	45.029	−125.616	338.676	78.031	−1.698
	2500.00	24.239	225.496	206.523	415.623	47.431	−148.117	337.982	67.185	−1.404
	2600.00	24.677	226.455	207.272	418.069	49.877	−170.714	337.332	56.367	−1.132
	2700.00	25.117	227.395	208.000	420.559	52.367	−193.407	336.725	45.572	−0.882
	2800.00	25.552	228.316	208.709	423.092	54.900	−216.193	336.163	34.799	−0.649
	2900.00	25.976	229.220	209.401	425.669	57.477	−239.070	335.643	24.045	−0.433
	3000.00	26.383	230.108	210.076	428.287	60.095	−262.036	335.165	13.309	−0.232
	3100.00	26.767	230.979	210.736	430.945	62.753	−285.091	334.726	2.587	−0.044
	3200.00	27.120	231.835	211.382	433.639	65.447	−308.231	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

Au3AsO4 — TRIGOLD ARSENATE — 729.819

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	177.596	298.361	298.361	−384.217	0.000	−473.173	−384.217	−297.715	52.158
	300.00	177.783	299.460	298.364	−383.888	0.329	−473.726	−384.183	−297.178	51.743
	400.00	187.059	351.909	305.453	−365.635	18.582	−506.398	−382.041	−268.483	35.060
	500.00	195.472	394.563	319.137	−346.504	37.713	−543.785	−379.388	−240.391	25.114
	569.00	201.065	420.187	329.863	−332.823	51.394	−571.909	−377.303	−221.345	20.320

References

Phase	H / S	C_p
SOL	G1	G1

AuBr — GOLD MONOBROMIDE — 276.871

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	50.052	98.253	98.253	−14.226	0.000	−43.520	−14.226	−6.668	1.168
	300.00	50.073	98.563	98.254	−14.133	0.093	−43.702	−14.250	−6.621	1.153
	400.00	51.024	113.106	100.230	−9.076	5.150	−54.318	−28.988	−1.012	0.132

References

Phase	H / S	C_p
SOL	Tk1	e

309.378 GOLD CADMIUM **AuCd**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	55.428	99.998	99.998	−38.828	0.000	−68.642	−38.828	−39.038	6.839
	300.00	55.459	100.341	99.999	−38.725	0.103	−68.828	−38.820	−39.039	6.797
	400.00	57.112	116.521	102.194	−33.097	5.731	−79.705	−38.402	−39.175	5.116
	500.00	58.764	129.443	106.393	−27.303	11.525	−92.025	−37.984	−39.416	4.118
	600.00	60.417	140.303	111.163	−21.344	17.484	−105.526	−43.758	−39.680	3.454
	700.00	62.070	149.741	116.014	−15.220	23.608	−120.038	−43.289	−39.035	2.913
	800.00	63.722	158.137	120.764	−8.930	29.898	−135.439	−42.699	−38.466	2.512
	899.00	65.358	165.665	125.301	−2.541	36.287	−151.473	−41.995	−37.983	2.207

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	e	Tk1	MPT= 899., L= 18.0 kJ

232.419 GOLD MONOCHLORIDE **AuCl**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	48.744	85.923	85.923	−36.401	0.000	−62.019	−36.401	−14.597	2.557
	300.00	48.771	86.224	85.924	−36.311	0.090	−62.178	−36.389	−14.461	2.518
	400.00	49.926	100.426	87.852	−31.372	5.029	−71.542	−35.738	−7.250	0.947
	500.00	50.752	111.658	91.529	−26.336	10.065	−82.165	−35.086	−0.204	0.021
	573.00	51.269	118.610	94.545	−22.612	13.789	−90.575	−34.610	4.856	−0.443

References

Phase	H / S	C_p	Remarks	
SOL	Tk1	e	Tk1	MPT= 573.

AuCl3 GOLD TRICHLORIDE 303.325

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	94.821	148.114	148.114	−117.600	0.000	−161.760	−117.600	−47.816	8.377
	300.00	94.888	148.700	148.115	−117.425	0.175	−162.035	−117.566	−47.383	8.250
	400.00	97.466	176.393	151.874	−107.792	9.808	−178.349	−115.688	−24.271	3.169
	500.00	98.952	198.313	159.045	−97.966	19.634	−197.123	−113.816	−1.633	0.171

References

Phase	H / S	C_p
SOL	Nb1/Ku1	e

AuCu GOLD COPPER 260.513

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SA−12	298.15	48.737	100.583	100.583	−17.489	0.000	−47.478	−17.489	−23.429	4.105
	300.00	48.775	100.885	100.584	−17.399	0.090	−47.664	−17.491	−23.466	4.086
	400.00	50.812	115.196	102.522	−12.419	5.070	−58.498	−17.559	−25.445	3.323
	500.00	52.850	126.753	106.248	−7.236	10.253	−70.613	−17.536	−27.417	2.864
	600.00	54.888	136.569	110.503	−1.849	15.640	−83.791	−17.410	−29.404	2.560
	658.00	107.139	144.012	113.098	2.852	20.341	−91.908	−15.804	−30.614	2.430
			0.000		0.000					
SA−22	658.00	123.512	144.012	113.098	2.852	20.341	−91.908	−15.804	−30.614	2.430
	683.00	123.512	148.618	114.315	5.940	23.429	−95.566	−14.061	−31.210	2.387
			4.104		2.803					
SOL−A	683.00	79.348	152.722	114.315	8.743	26.232	−95.566	−11.258	−31.210	2.387
	700.00	72.462	154.586	115.271	10.032	27.521	−98.178	−10.888	−31.711	2.366
	800.00	54.052	162.700	120.729	16.088	33.577	−114.072	−10.285	−34.750	2.269
	900.00	59.660	169.221	125.755	21.630	39.119	−130.669	−10.291	−37.803	2.194

References

Phase	H / S	C_p	Remarks	
SA−12	Hu1	Hu1		SA−12 = SOL−A(I)2
SA−22	Hu1	Hu1		SA−22 = SOL−A(II)2
SOL−A	Hu1	Hu1		

387.605 GOLD 3–COPPER **AuCu3**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SA–11	298.15	96.754	149.620	149.620	–28.619	0.000	–73.228	–28.619	–29.403	5.151
	300.00	96.835	150.219	149.622	–28.440	0.179	–73.505	–28.622	–29.408	5.120
	400.00	101.929	178.739	153.476	–18.514	10.105	–90.009	–28.730	–29.648	3.872
	500.00	108.479	202.161	160.934	–8.006	20.613	–109.086	–28.506	–29.895	3.123
	600.00	116.485	222.624	169.542	3.231	31.850	–130.344	–27.769	–30.232	2.632
	663.00	217.879	238.582	175.268	13.358	41.977	–144.821	–24.365	–30.602	2.411
			7.219		4.786					
SOL–A	663.00	124.825	245.801	175.268	18.144	46.763	–144.821	–19.579	–30.602	2.411
	700.00	122.105	252.506	179.175	22.713	51.332	–154.042	–18.996	–31.234	2.331
	800.00	114.751	268.331	189.363	34.555	63.174	–180.109	–18.057	–33.058	2.158

References

Phase	H / S	C_p	Remarks
SA–11	Hu1	Hu1	SA–11 = SOL–A(l)1
SOL–A	Hu1	Hu1	

253.962 GOLD TRIFLUORIDE **AuF3**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	91.280	114.223	114.223	–363.598	0.000	–397.654	–363.598	–292.797	51.297
	300.00	91.365	114.788	114.225	–363.429	0.169	–397.865	–363.563	–292.358	50.904
	400.00	94.600	141.565	117.854	–354.113	9.485	–410.740	–361.622	–268.915	35.117
	500.00	96.525	162.896	124.801	–344.551	19.047	–425.999	–359.702	–245.962	25.695
	600.00	97.933	180.624	132.669	–334.825	28.773	–443.199	–357.827	–223.390	19.448

References

Phase	H / S	C_p
SOL	Nb1/Ku1	e

AuI — GOLD MONOIODIDE — 323.871

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	51.830	119.244	119.244	0.000	0.000	−35.553	0.000	−4.078	0.714
	300.00	51.840	119.565	119.245	0.096	0.096	−35.773	−0.001	−4.103	0.714
	400.00	52.384	134.552	121.285	5.307	5.307	−48.514	−8.164	−5.173	0.675

References

Phase	H / S	C_p
SOL	Nb1/Ku1	e

Au2O3 — DIGOLD TRIOXIDE — 441.931

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	114.016	130.332	130.332	−3.347	0.000	−42.205	−3.347	77.864	−13.641
	300.00	114.056	131.037	130.334	−3.136	0.211	−42.447	−3.311	78.368	−13.645
	400.00	116.232	164.147	134.833	8.378	11.725	−57.280	−1.362	105.301	−13.751
	500.00	118.407	190.317	143.402	20.110	23.457	−75.048	0.586	131.741	−13.763

References

Phase	H / S	C_p
SOL	Ku1	e

247.989 GOLD TRIHYDROXIDE (PRECIPITATED) **Au(OH)3**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	94.000	189.502	189.502	-424.701	0.000	-481.201	-424.701	-316.850	55.511
	300.00	94.374	190.084	189.503	-424.527	0.174	-481.552	-424.735	-316.180	55.052
	400.00	114.633	220.009	193.447	-414.076	10.625	-502.080	-425.655	-279.806	36.539

References

Phase	H / S	C_p
SOL	Nb1	e

486.854 DIGOLD TRIPHOSPHIDE **Au2P3**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	119.593	150.624	150.624	-102.508	0.000	-147.417	-102.508	-82.359	14.429
	300.00	119.662	151.364	150.626	-102.287	0.221	-147.696	-102.513	-82.234	14.318
	400.00	123.428	186.304	155.365	-90.132	12.376	-164.654	-105.221	-74.859	9.776
	500.00	127.194	214.251	164.437	-77.601	24.907	-184.727	-105.783	-67.197	7.020
	600.00	130.959	237.774	174.750	-64.693	37.815	-207.358	-106.056	-59.449	5.176
	700.00	134.725	258.244	185.246	-51.409	51.099	-232.180	-106.039	-51.679	3.856
	800.00	138.490	276.480	195.531	-37.748	64.760	-258.933	-105.734	-43.931	2.868
	900.00	142.256	293.009	205.457	-23.711	78.797	-287.420	-105.139	-36.238	2.103
	1000.00	146.022	308.192	214.982	-9.297	93.211	-317.490	-104.272	-28.626	1.495

References

Phase	H / S	C_p
SOL	Tk1/Ku1	e

AuS[g] GOLD MONOSULFIDE (GAS) 229.033

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	35.515	267.676	267.676	230.538	0.000	150.730	230.538	174.449	−30.563
	300.00	35.537	267.896	267.677	230.604	0.066	150.235	230.515	174.101	−30.314
	400.00	36.329	278.244	269.082	234.203	3.665	122.905	226.978	155.581	−20.317
	500.00	36.699	286.395	271.759	237.856	7.318	94.659	224.132	138.038	−14.421
	600.00	36.902	293.105	274.774	241.537	10.999	65.674	221.595	121.065	−10.540
	700.00	37.026	298.804	277.810	245.234	14.696	36.071	219.298	104.492	−7.797
	800.00	37.108	303.754	280.750	248.941	18.403	5.938	216.916	88.252	−5.762
	900.00	37.167	308.128	283.554	252.655	22.117	−24.661	161.651	73.470	−4.264
	1000.00	37.210	312.046	286.211	256.374	25.836	−55.673	160.710	63.722	−3.328
	1100.00	37.243	315.594	288.723	260.096	29.558	−87.057	159.695	54.071	−2.568
	1200.00	37.269	318.836	291.099	263.822	33.284	−118.781	158.577	44.518	−1.938
	1300.00	37.291	321.820	293.349	267.550	37.012	−150.816	157.325	35.063	−1.409
	1400.00	37.309	324.584	295.483	271.280	40.742	−183.138	143.480	26.293	−0.981
	1500.00	37.325	327.159	297.510	275.012	44.474	−215.727	142.252	17.966	−0.626
	1600.00	37.338	329.568	299.439	278.745	48.207	−248.564	141.021	9.720	−0.317
	1700.00	37.351	331.832	301.279	282.479	51.941	−281.635	139.786	1.552	−0.048
	1800.00	37.362	333.967	303.036	286.215	55.677	−314.926	138.549	−6.544	0.190
	1900.00	37.372	335.988	304.717	289.952	59.414	−348.425	137.309	−14.571	0.401
	2000.00	37.381	337.905	306.329	293.689	63.151	−382.121	136.066	−22.532	0.588

References

Phase	H / S	C_p
GAS	Mi1	Mi1

AuSb2 GOLD 2−ANTIMONY 440.467

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	77.418	119.244	119.244	−13.054	0.000	−48.607	−13.054	−7.301	1.279
	300.00	77.454	119.723	119.245	−12.911	0.143	−48.828	−13.051	−7.265	1.265
	400.00	79.396	142.271	122.307	−5.068	7.986	−61.977	−12.889	−5.360	0.700
	500.00	81.337	160.196	128.151	2.968	16.022	−77.130	−12.690	−3.500	0.366
	600.00	83.278	175.197	134.775	11.199	24.253	−93.919	−12.457	−1.684	0.147
	700.00	85.220	188.181	141.498	19.624	32.678	−112.102	−12.235	0.094	−0.007
	733.00	85.860	192.121	143.689	22.447	35.501	−118.378	−12.174	0.673	−0.048

References

Phase	H / S	C_p	Remarks
SOL	Hu1/Ku1	Ku1	Hu1 DPT= 733. (peritec.)

275.927 GOLD MONOSELENIDE (ALPHA) **AuSe**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL−A	298.15	50.161	75.730	75.730	−13.807	0.000	−36.386	−13.807	−9.626	1.686
	300.00	50.212	76.041	75.731	−13.714	0.093	−36.526	−13.808	−9.600	1.671
	400.00	53.003	90.868	77.734	−8.553	5.254	−44.901	−13.869	−8.188	1.069
	500.00	55.794	102.995	81.608	−3.114	10.693	−54.611	−19.838	−6.676	0.697
	600.00	58.584	113.414	86.060	2.605	16.412	−65.443	−20.274	−3.998	0.348
	673.00	60.622	120.255	89.403	6.956	20.763	−73.976	−20.445	−2.007	0.156

References

Phase	H / S	C_p	Remarks
SOL−A	Mi1	Mi1	Mi1 MPT= 673.

275.927 GOLD MONOSELENIDE (BETA) **AuSe[B]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL−B	298.15	50.161	84.935	84.935	−10.878	0.000	−36.201	−10.878	−9.441	1.654
	300.00	50.212	85.246	84.936	−10.785	0.093	−36.359	−10.879	−9.432	1.642
	400.00	53.003	100.073	86.939	−5.624	5.254	−45.654	−10.940	−8.941	1.168
	500.00	55.794	112.200	90.813	−0.185	10.693	−56.285	−16.909	−8.349	0.872
	600.00	58.584	122.619	95.265	5.534	16.412	−68.037	−17.345	−6.592	0.574

References

Phase	H / S	C_p
SOL−B	Mi1	Mi1

AuSn

GOLD TIN

315.677

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	51.308	98.115	98.115	−30.460	0.000	−59.713	−30.460	−30.288	5.306
	300.00	51.338	98.432	98.116	−30.365	0.095	−59.895	−30.462	−30.287	5.273
	400.00	52.928	113.419	100.148	−25.152	5.308	−70.519	−30.596	−30.210	3.945
	500.00	54.518	125.400	104.039	−19.780	10.680	−82.480	−30.795	−30.092	3.144
	600.00	56.107	135.480	108.461	−14.248	16.212	−95.537	−37.860	−28.623	2.492
	691.00	57.554	143.503	112.558	−9.077	21.383	−108.237	−37.734	−27.229	2.058
			35.482		24.518					
LIQ	691.00	72.802	178.985	112.558	15.441	45.901	−108.237	−13.216	−27.229	2.058
	700.00	72.802	179.927	113.418	16.097	46.557	−109.852	−13.060	−27.413	2.046
	800.00	72.802	189.648	122.353	23.377	53.837	−128.342	−11.354	−29.580	1.931
	900.00	72.802	198.223	130.316	30.657	61.117	−147.744	−9.691	−31.959	1.855

References

Phase	H / S	C_p
SOL	Hu1	Hu1
LIQ	Hu1	Hu1

AuSn2

GOLD 2−TIN

434.387

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	83.898	135.562	135.562	−42.426	0.000	−82.844	−42.426	−38.155	6.685
	300.00	83.973	136.081	135.563	−42.271	0.155	−83.095	−42.417	−38.128	6.639
	400.00	88.031	160.794	138.905	−33.671	8.755	−97.988	−41.957	−36.768	4.801
	500.00	92.090	180.874	145.351	−24.664	17.762	−115.101	−41.496	−35.524	3.711
	582.00	95.418	195.105	151.378	−16.977	25.449	−130.528	−54.842	−32.452	2.913

References

Phase	H / S	C_p	Remarks	
SOL	Hu1/Nb1	e	Hu1	DPT= 582. (peritec.)

671.807 GOLD 4–TIN **AuSn4**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	137.867	250.622	250.622	–38.702	0.000	–113.425	–38.702	–38.208	6.694
	300.00	138.009	251.475	250.624	–38.447	0.255	–113.889	–38.693	–38.205	6.652
	400.00	145.687	292.229	256.129	–24.262	14.440	–141.154	–38.234	–38.111	4.977
	500.00	153.365	325.563	266.778	–9.309	29.393	–172.091	–37.774	–38.134	3.984
	525.00	155.284	333.092	269.758	–5.451	33.251	–180.325	–65.667	–37.047	3.686

References

Phase	H / S	C_p	Remarks	
SOL	Hu1/Nb1	e	Hu1	DPT= 525. (peritec.)

452.167 GOLD DITELLURIDE **AuTe2**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	76.676	141.712	141.712	–18.619	0.000	–60.870	–18.619	–17.194	3.012
	300.00	76.721	142.187	141.714	–18.477	0.142	–61.133	–18.619	–17.186	2.992
	400.00	79.619	164.637	144.755	–10.666	7.953	–76.521	–18.733	–16.696	2.180
	500.00	82.968	182.759	150.599	–2.539	16.080	–93.918	–19.016	–16.157	1.688
	600.00	86.494	198.196	157.275	5.933	24.552	–112.984	–19.439	–15.548	1.354
	700.00	90.103	211.799	164.111	14.763	33.382	–133.497	–19.991	–14.857	1.109
	737.00	91.451	216.474	166.623	18.121	36.740	–141.420	–55.274	–13.884	0.984

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1	Mi1	MPT= 737., L= 40.6 kJ

B BORON (BETA) 10.811

Phase	T [K]	C_p [J / (K mol)]	S [J / (K mol)]	-(G-H298)/T [J / (K mol)]	H [kJ / mol]	H-H298 [kJ / mol]	G [kJ / mol]	ΔH_f [kJ / mol]	ΔG_f [kJ / mol]	log K_f [-]
SOL-B	298.15	11.316	5.830	5.830	0.000	0.000	-1.738	0.000	0.000	0.000
	300.00	11.403	5.900	5.830	0.021	0.021	-1.749	0.000	0.000	0.000
	400.00	15.699	9.797	6.332	1.386	1.386	-2.533	0.000	0.000	0.000
	500.00	18.715	13.646	7.413	3.116	3.116	-3.707	0.000	0.000	0.000
	600.00	20.775	17.251	8.756	5.097	5.097	-5.254	0.000	0.000	0.000
	700.00	22.250	20.570	10.210	7.252	7.252	-7.147	0.000	0.000	0.000
	800.00	23.364	23.617	11.698	9.535	9.535	-9.359	0.000	0.000	0.000
	900.00	24.248	26.422	13.181	11.917	11.917	-11.863	0.000	0.000	0.000
	1000.00	24.979	29.016	14.636	14.380	14.380	-14.636	0.000	0.000	0.000
	1100.00	25.607	31.427	16.054	16.910	16.910	-17.660	0.000	0.000	0.000
	1200.00	26.160	33.679	17.430	19.499	19.499	-20.916	0.000	0.000	0.000
	1300.00	26.661	35.793	18.762	22.140	22.140	-24.391	0.000	0.000	0.000
	1400.00	27.123	37.786	20.050	24.830	24.830	-28.071	0.000	0.000	0.000
	1500.00	27.555	39.672	21.296	27.564	27.564	-31.944	0.000	0.000	0.000
	1600.00	27.964	41.464	22.501	30.340	30.340	-36.002	0.000	0.000	0.000
	1700.00	28.356	43.171	23.667	33.156	33.156	-40.234	0.000	0.000	0.000
	1800.00	28.733	44.802	24.796	36.010	36.010	-44.634	0.000	0.000	0.000
	1900.00	29.098	46.366	25.891	38.902	38.902	-49.192	0.000	0.000	0.000
	2000.00	29.454	47.867	26.952	41.830	41.830	-53.905	0.000	0.000	0.000
	2100.00	29.801	49.313	27.983	44.793	44.793	-58.764	0.000	0.000	0.000
	2200.00	30.141	50.707	28.984	47.790	47.790	-63.765	0.000	0.000	0.000
	2300.00	30.474	52.054	29.958	50.820	50.820	-68.904	0.000	0.000	0.000
	2400.00	31.750	74.745	31.351	104.144	104.144	-75.244	0.000	0.000	0.000
	2500.00	31.750	76.041	33.113	107.319	107.319	-82.783	0.000	0.000	0.000
	2600.00	31.750	77.286	34.788	110.494	110.494	-90.450	0.000	0.000	0.000
	2700.00	31.750	78.484	36.385	113.669	113.669	-98.239	0.000	0.000	0.000
	2800.00	31.750	79.639	37.909	116.844	116.844	-106.145	0.000	0.000	0.000
	2900.00	31.750	80.753	39.367	120.019	120.019	-114.165	0.000	0.000	0.000
	3000.00	31.750	81.830	40.765	123.194	123.194	-122.295	0.000	0.000	0.000
	3100.00	31.750	82.871	42.106	126.369	126.369	-130.530	0.000	0.000	0.000
	3200.00	31.750	83.879	43.396	129.544	129.544	-138.868	0.000	0.000	0.000
	3300.00	31.750	84.856	44.638	132.719	132.719	-147.305	0.000	0.000	0.000
	3400.00	31.750	85.803	45.835	135.894	135.894	-155.838	0.000	0.000	0.000
	3500.00	31.750	86.724	46.990	139.069	139.069	-164.465	0.000	0.000	0.000
	3600.00	31.750	87.618	48.106	142.244	142.244	-173.182	0.000	0.000	0.000
	3700.00	31.750	88.488	49.186	145.419	145.419	-181.987	0.000	0.000	0.000
	3800.00	31.750	89.335	50.231	148.594	148.594	-190.879	0.000	0.000	0.000
	3900.00	31.750	90.160	51.245	151.769	151.769	-199.854	0.000	0.000	0.000
	4000.00	31.750	90.963	52.227	154.944	154.944	-208.910	0.000	0.000	0.000
	4100.00	31.750	91.747	53.182	158.119	158.119	-218.046	0.000	0.000	0.000
	4139.45	31.750	92.051	53.551	159.371	159.371	-221.671	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL-B	Ja2	Ja2	Ja2	β-rhombohedral BPT = 4139.449, L = 480.509 kJ

10.811 BORON (GAS) **B[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.796	153.435	153.435	560.000	0.000	514.253	560.000	515.992	−90.400
	300.00	20.796	153.564	153.435	560.038	0.038	513.969	560.017	515.718	−89.795
	400.00	20.792	159.546	154.251	562.118	2.118	498.300	560.732	500.832	−65.402
	500.00	20.790	164.185	155.791	564.197	4.197	482.104	561.081	485.811	−50.752
	600.00	20.789	167.975	157.516	566.276	6.276	465.491	561.179	470.744	−40.982
	700.00	20.788	171.180	159.245	568.355	8.355	448.529	561.103	455.676	−34.003
	800.00	20.787	173.956	160.914	570.433	10.433	431.269	560.898	440.628	−28.770
	900.00	20.787	176.404	162.502	572.512	12.512	413.749	560.595	425.611	−24.702
	1000.00	20.787	178.594	164.003	574.591	14.591	395.997	560.211	410.633	−21.449
	1100.00	20.787	180.575	165.421	576.669	16.669	378.037	559.760	395.696	−18.790
	1200.00	20.787	182.384	166.760	578.748	18.748	359.887	559.250	380.804	−16.576
	1300.00	20.787	184.048	168.027	580.827	20.827	341.565	558.687	365.956	−14.704
	1400.00	20.787	185.588	169.227	582.905	22.905	323.082	558.076	351.153	−13.102
	1500.00	20.787	187.022	170.366	584.984	24.984	304.451	557.420	336.395	−11.714
	1600.00	20.786	188.364	171.450	587.063	27.063	285.681	556.723	321.683	−10.502
	1700.00	20.786	189.624	172.482	589.141	29.141	266.781	555.985	307.015	−9.433
	1800.00	20.786	190.812	173.468	591.220	31.220	247.758	555.210	292.392	−8.485
	1900.00	20.786	191.936	174.410	593.299	33.299	228.620	554.397	277.813	−7.638
	2000.00	20.786	193.002	175.313	595.377	35.377	209.373	553.547	263.278	−6.876
	2100.00	20.786	194.016	176.180	597.456	37.456	190.022	552.663	248.786	−6.188
	2200.00	20.786	194.983	177.013	599.534	39.534	170.571	551.745	234.337	−5.564
	2300.00	20.786	195.907	177.815	601.613	41.613	151.027	550.792	219.930	−4.995
	2400.00	20.786	196.792	178.587	603.691	43.691	131.391	499.548	206.635	−4.497
	2500.00	20.786	197.640	179.332	605.770	45.770	111.669	498.451	194.453	−4.063
	2600.00	20.786	198.456	180.052	607.849	47.849	91.864	497.355	182.314	−3.663
	2700.00	20.787	199.240	180.748	609.927	49.927	71.979	496.259	170.218	−3.293
	2800.00	20.788	199.996	181.422	612.006	52.006	52.017	495.162	158.163	−2.951
	2900.00	20.788	200.725	182.076	614.085	54.085	31.981	494.066	146.146	−2.632
	3000.00	20.790	201.430	182.709	616.164	56.164	11.873	492.970	134.168	−2.336
	3100.00	20.791	202.112	183.324	618.243	58.243	−8.304	491.874	122.226	−2.059
	3200.00	20.793	202.772	183.921	620.322	60.322	−28.549	490.778	110.319	−1.801
	3300.00	20.795	203.412	184.502	622.401	62.401	−48.858	489.683	98.447	−1.558
	3400.00	20.798	204.033	185.068	624.481	64.481	−69.230	488.587	86.608	−1.331
	3500.00	20.803	204.636	185.618	626.561	66.561	−89.664	487.492	74.801	−1.116
	3600.00	20.808	205.222	186.155	628.642	68.642	−110.157	486.398	63.025	−0.914
	3700.00	20.814	205.792	186.678	630.723	70.723	−130.708	485.304	51.280	−0.724
	3800.00	20.822	206.347	187.188	632.804	72.804	−151.315	484.211	39.564	−0.544
	3900.00	20.831	206.888	187.686	634.887	74.887	−171.977	483.118	27.877	−0.373
	4000.00	20.842	207.416	188.173	636.971	76.971	−192.692	482.027	16.218	−0.212
	4100.00	20.855	207.931	188.649	639.056	79.056	−213.460	480.937	4.586	−0.058
	4200.00	20.870	208.433	189.114	641.142	81.142	−234.278	0.000	0.000	0.000
	4300.00	20.887	208.925	189.569	643.230	83.230	−255.146	0.000	0.000	0.000
	4400.00	20.906	209.405	190.014	645.319	85.319	−276.062	0.000	0.000	0.000
	4500.00	20.928	209.875	190.450	647.411	87.411	−297.026	0.000	0.000	0.000
	4600.00	20.952	210.335	190.878	649.505	89.505	−318.037	0.000	0.000	0.000
	4700.00	20.979	210.786	191.296	651.601	91.601	−339.093	0.000	0.000	0.000
	4800.00	21.009	211.228	191.707	653.701	93.701	−360.194	0.000	0.000	0.000
	4900.00	21.042	211.662	192.110	655.803	95.803	−381.338	0.000	0.000	0.000
	5000.00	21.078	212.087	192.505	657.909	97.909	−402.526	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Ja2	Ja2

B[GL] BORON (GLASS) 10.811

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL-GL	298.15	11.320	26.555	26.555	48.927	0.000	41.010	48.927	42.748	−7.489
	300.00	11.400	26.625	26.555	48.948	0.021	40.960	48.927	42.709	−7.436
	400.00	15.691	30.512	27.056	50.310	1.383	38.105	48.924	40.638	−5.307
	500.00	18.721	34.362	28.135	52.041	3.114	34.859	48.924	38.566	−4.029
	600.00	20.778	37.968	29.477	54.022	5.095	31.241	48.925	36.494	−3.177
	700.00	22.249	41.288	30.931	56.177	7.250	27.275	48.925	34.423	−2.569
	800.00	23.361	44.335	32.419	58.460	9.533	22.992	48.925	32.351	−2.112
	900.00	24.245	47.139	33.901	60.842	11.915	18.416	48.924	30.279	−1.757
	1000.00	24.978	49.733	35.356	63.304	14.377	13.571	48.924	28.207	−1.473
	1100.00	25.606	52.143	36.774	65.834	16.907	8.476	48.924	26.136	−1.241
	1200.00	26.161	54.396	38.149	68.423	19.496	3.148	48.924	24.064	−1.047
	1300.00	26.663	56.510	39.481	71.064	22.137	−2.398	48.924	21.992	−0.884
	1400.00	27.125	58.503	40.769	73.754	24.827	−8.150	48.924	19.921	−0.743
	1500.00	27.557	60.389	42.015	76.488	27.561	−14.095	48.925	17.849	−0.622
	1600.00	27.966	62.181	43.220	79.264	30.337	−20.225	48.925	15.777	−0.515
	1700.00	28.356	63.888	44.386	82.081	33.154	−26.529	48.925	13.705	−0.421
	1750.00	28.546	64.713	44.955	83.503	34.576	−29.744	48.925	12.670	−0.378

References

Phase	H / S	C_p	Remarks	
SOL−GL	Ja2	Ja2	Ja2	Glass − Liquid transition at 2350 K

90.715

BORON MONOBROMIDE (GAS) **BBr[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	32.663	224.999	224.999	234.304	0.000	167.220	234.304	191.649	−33.576
	300.00	32.716	225.202	225.000	234.364	0.060	166.804	234.273	191.385	−33.323
	400.00	34.620	234.912	226.311	237.744	3.440	143.780	219.047	180.221	−23.534
	500.00	35.544	242.747	228.840	241.257	6.953	119.884	218.984	170.517	−17.814
	600.00	36.082	249.279	231.718	244.841	10.537	95.273	218.727	160.845	−14.003
	700.00	36.438	254.869	234.635	248.468	14.164	70.059	218.332	151.227	−11.285
	800.00	36.697	259.752	237.476	252.125	17.821	44.323	217.832	141.674	−9.250
	900.00	36.900	264.087	240.197	255.805	21.501	18.127	217.252	132.188	−7.672
	1000.00	37.067	267.983	242.784	259.504	25.200	−8.480	216.605	122.771	−6.413
	1100.00	37.212	271.523	245.238	263.218	28.914	−35.458	215.903	113.421	−5.386
	1200.00	37.341	274.767	247.565	266.946	32.642	−62.774	215.152	104.137	−4.533
	1300.00	37.459	277.760	249.774	270.686	36.382	−90.403	214.357	94.918	−3.814
	1400.00	37.569	280.540	251.874	274.437	40.133	−118.319	213.524	85.762	−3.200
	1500.00	37.673	283.136	253.872	278.199	43.895	−146.505	212.653	76.666	−2.670
	1600.00	37.773	285.571	255.778	281.972	47.668	−174.941	211.748	67.629	−2.208
	1700.00	37.869	287.864	257.599	285.754	51.450	−203.614	210.810	58.650	−1.802
	1800.00	37.963	290.031	259.341	289.546	55.242	−232.510	209.841	49.728	−1.443
	1900.00	38.054	292.086	261.011	293.346	59.042	−261.617	208.841	40.860	−1.123
	2000.00	38.144	294.040	262.614	297.156	62.852	−290.924	207.812	32.045	−0.837

References

Phase	H / S	C_p
GAS	Ja1	Ja1

BBr2[g] BORON DIBROMIDE (GAS) 170.619

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	47.760	294.671	294.671	62.760	0.000	−25.096	62.760	22.023	−3.858
	300.00	47.871	294.967	294.672	62.848	0.088	−25.642	62.687	21.771	−3.791
	400.00	51.804	309.357	296.607	67.860	5.100	−55.883	31.852	14.466	−1.889
	500.00	53.675	321.139	300.372	73.143	10.383	−87.426	31.713	10.133	−1.059
	600.00	54.735	331.027	304.680	78.568	15.808	−120.048	31.439	5.841	−0.508
	700.00	55.412	339.519	309.065	84.078	21.318	−153.585	31.058	1.603	−0.120
	800.00	55.885	346.951	313.346	89.644	26.884	−187.917	30.593	−2.574	0.168
	900.00	56.239	353.554	317.453	95.251	32.491	−222.948	30.061	−6.688	0.388
	1000.00	56.519	359.495	321.365	100.889	38.129	−258.605	29.471	−10.740	0.561
	1100.00	56.751	364.893	325.081	106.553	43.793	−294.829	28.832	−14.731	0.700
	1200.00	56.950	369.839	328.607	112.238	49.478	−331.569	28.149	−18.661	0.812
	1300.00	57.126	374.405	331.957	117.942	55.182	−368.784	27.426	−22.533	0.905
	1400.00	57.285	378.644	335.142	123.663	60.903	−406.439	26.665	−26.348	0.983
	1500.00	57.432	382.602	338.176	129.399	66.639	−444.503	25.870	−30.107	1.048
	1600.00	57.570	386.313	341.069	135.149	72.389	−482.951	25.042	−33.812	1.104
	1700.00	57.700	389.807	343.835	140.913	78.153	−521.759	24.181	−37.464	1.151
	1800.00	57.824	393.108	346.481	146.689	83.929	−560.906	23.290	−41.064	1.192
	1900.00	57.944	396.238	349.018	152.477	89.717	−600.375	22.369	−44.615	1.227
	2000.00	58.061	399.213	351.454	158.278	95.518	−640.148	21.418	−48.116	1.257

References

Phase	H / S	C_p
GAS	Ja1	Ja1

BBr3 BORON TRIBROMIDE 250.523

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
LIQ	298.15	128.030	228.865	228.865	−238.488	0.000	−306.724	−238.488	−236.914	41.506
	300.00	128.030	229.657	228.867	−238.251	0.237	−307.148	−238.482	−236.904	41.249
	400.00	128.030	266.489	233.889	−225.448	13.040	−332.044	−278.767	−227.786	29.746

References

Phase	H / S	C_p	Remarks	
LIQ	Ja1	Ja1	Ja1	BPT= 363.9, L= 30.5 kJ

250.523 BORON TRIBROMIDE (GAS) **BBr3**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	67.779	324.315	324.315	−204.179	0.000	−300.874	−204.179	−231.063	40.481
	300.00	67.881	324.735	324.316	−204.054	0.125	−301.474	−204.284	−231.230	40.261
	400.00	72.600	344.952	327.041	−197.015	7.164	−334.995	−250.334	−230.738	30.131
	500.00	75.656	361.506	332.328	−189.590	14.589	−370.343	−250.178	−225.858	23.595
	600.00	77.609	375.485	338.387	−181.920	22.259	−407.211	−250.066	−221.005	19.240
	700.00	78.908	387.553	344.568	−174.090	30.089	−445.377	−249.994	−216.167	16.131
	800.00	79.808	398.152	350.617	−166.151	38.028	−484.673	−249.960	−211.338	13.799
	900.00	80.454	407.591	356.433	−158.137	46.042	−524.969	−249.963	−206.510	11.986
	1000.00	80.933	416.094	361.981	−150.066	54.113	−566.160	−250.004	−201.680	10.535
	1100.00	81.297	423.825	367.257	−141.954	62.225	−608.162	−250.081	−196.844	9.347
	1200.00	81.580	430.912	372.270	−133.809	70.370	−650.903	−250.194	−192.000	8.358
	1300.00	81.804	437.451	377.036	−125.640	78.539	−694.326	−250.345	−187.145	7.520
	1400.00	81.984	443.520	381.571	−117.450	86.729	−738.378	−250.532	−182.276	6.801
	1500.00	82.131	449.181	385.891	−109.244	94.935	−783.016	−250.756	−177.393	6.177
	1600.00	82.253	454.486	390.015	−101.025	103.154	−828.202	−251.016	−172.494	5.631
	1700.00	82.354	459.476	393.955	−92.794	111.385	−873.903	−251.313	−167.578	5.149
	1800.00	82.440	464.185	397.727	−84.554	119.625	−920.088	−251.647	−162.643	4.720
	1900.00	82.513	468.645	401.343	−76.307	127.872	−966.732	−252.018	−157.688	4.335
	2000.00	82.575	472.879	404.815	−68.052	136.127	−1013.810	−252.426	−152.713	3.988

References

Phase	H / S	C_p
GAS	Ja1	Ja1

B4C TETRABORON MONOCARBIDE 55.255

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	53.096	27.129	27.129	−71.128	0.000	−79.217	−71.128	−70.552	12.360
	300.00	53.640	27.459	27.130	−71.029	0.099	−79.267	−71.129	−70.549	12.284
	400.00	76.340	46.289	29.543	−64.430	6.698	−82.945	−71.026	−70.365	9.189
	500.00	89.857	64.900	34.772	−56.064	15.064	−88.514	−70.913	−70.215	7.335
	600.00	98.255	82.083	41.248	−46.627	24.501	−95.877	−70.979	−70.073	6.100
	700.00	103.749	97.669	48.213	−36.509	34.619	−104.877	−71.259	−69.903	5.216
	800.00	107.672	111.790	55.292	−25.929	45.199	−115.361	−71.736	−69.679	4.550
	900.00	110.951	124.664	62.295	−14.996	56.132	−127.194	−72.364	−69.385	4.027
	1000.00	114.312	136.524	69.132	−3.736	67.392	−140.260	−73.073	−69.016	3.605
	1100.00	117.333	147.562	75.766	7.847	78.975	−154.471	−73.799	−68.576	3.256
	1200.00	120.185	157.895	82.184	19.724	90.852	−169.749	−74.523	−68.069	2.963
	1300.00	122.905	167.623	88.386	31.880	103.008	−186.030	−75.225	−67.502	2.712
	1400.00	125.530	176.828	94.378	44.302	115.430	−203.257	−75.890	−66.883	2.495
	1500.00	128.084	185.576	100.168	56.983	128.111	−221.380	−76.504	−66.218	2.306
	1600.00	130.585	193.922	105.769	69.917	141.045	−240.358	−77.059	−65.514	2.139
	1700.00	133.044	201.913	111.191	83.099	154.227	−260.153	−77.546	−64.777	1.990
	1800.00	135.471	209.586	116.446	96.525	167.653	−280.730	−77.958	−64.014	1.858
	1900.00	137.872	216.975	121.543	110.192	181.320	−302.061	−78.292	−63.229	1.738
	2000.00	140.253	224.108	126.494	124.099	195.227	−324.117	−78.543	−62.430	1.630
	2100.00	142.616	231.008	131.308	138.242	209.370	−346.874	−78.710	−61.620	1.533
	2200.00	144.966	237.697	135.992	152.621	223.749	−370.311	−78.790	−60.804	1.444
	2300.00	147.304	244.192	140.556	167.235	238.363	−394.407	−78.778	−59.986	1.362
	2400.00	149.632	250.511	145.007	182.082	253.210	−419.144	−279.713	−54.895	1.195
	2500.00	151.952	256.666	149.350	197.161	268.289	−444.504	−279.829	−45.525	0.951
	2600.00	154.266	262.671	153.594	212.472	283.600	−470.472	−279.722	−36.154	0.726
	2700.00	156.573	268.536	157.743	228.014	299.142	−497.034	−279.390	−26.792	0.518
	2743.00	157.564	271.018	159.499	234.768	305.896	−508.634	−279.179	−22.770	0.434
			38.133		104.600					
LIQ	2743.00	135.980	309.151	159.499	339.368	410.496	−508.634	−174.579	−22.770	0.434
	2800.00	135.980	311.948	162.574	347.119	418.247	−526.336	−175.503	−19.606	0.366
	2900.00	135.980	316.720	167.808	360.717	431.845	−557.770	−177.130	−14.010	0.252
	3000.00	135.980	321.330	172.849	374.315	445.443	−589.674	−178.763	−8.357	0.146
	3100.00	135.980	325.788	177.711	387.913	459.041	−622.031	−180.402	−2.650	0.045
	3200.00	135.980	330.106	182.406	401.511	472.639	−654.827	−182.049	3.110	−0.051
	3300.00	135.980	334.290	186.945	415.109	486.237	−688.048	−183.701	8.922	−0.141
	3400.00	135.980	338.349	191.339	428.707	499.835	−721.681	−185.360	14.784	−0.227
	3500.00	135.980	342.291	195.596	442.305	513.433	−755.714	−187.025	20.695	−0.309

References

Phase	H / S	C_p
SOL	Nb1,A1	Ja1
LIQ	Ja1	Ja1

46.264 BORON MONOCHLORIDE (GAS) **BCl[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	31.446	213.251	213.251	141.419	0.000	77.838	141.419	112.838	−19.769
	300.00	31.509	213.446	213.251	141.477	0.058	77.444	141.425	112.660	−19.616
	400.00	33.739	222.859	214.520	144.755	3.336	55.611	141.604	103.037	−13.455
	500.00	34.831	230.517	216.978	148.189	6.770	32.930	141.522	93.400	−9.757
	600.00	35.474	236.929	219.783	151.706	10.287	9.549	141.241	83.800	−7.295
	700.00	35.906	242.432	222.635	155.277	13.858	−14.425	140.818	74.258	−5.541
	800.00	36.226	247.248	225.417	158.884	17.465	−38.914	140.290	64.784	−4.230
	900.00	36.480	251.530	228.085	162.520	21.101	−63.857	139.680	55.382	−3.214
	1000.00	36.693	255.385	230.625	166.178	24.759	−89.206	139.006	46.051	−2.405
	1100.00	36.879	258.891	233.038	169.857	28.438	−114.923	138.278	36.790	−1.747
	1200.00	37.048	262.107	235.328	173.554	32.135	−140.975	137.504	27.598	−1.201
	1300.00	37.203	265.079	237.504	177.266	35.847	−167.336	136.689	18.472	−0.742
	1400.00	37.350	267.841	239.573	180.994	39.575	−193.984	135.836	9.410	−0.351
	1500.00	37.489	270.423	241.545	184.736	43.317	−220.898	134.950	0.410	−0.014
	1600.00	37.624	272.847	243.426	188.492	47.073	−248.063	134.031	−8.529	0.278
	1700.00	37.754	275.132	245.225	192.261	50.842	−275.463	133.083	−17.410	0.535
	1800.00	37.881	277.293	246.947	196.043	54.624	−303.085	132.105	−26.235	0.761
	1900.00	38.006	279.345	248.598	199.837	58.418	−330.918	131.099	−35.004	0.962
	2000.00	38.129	281.297	250.185	203.644	62.225	−358.951	130.065	−43.720	1.142

References

Phase	H / S	C_p
GAS	Ja1	Ja1

BCl2[g] BORON DICHLORIDE (GAS) 81.716

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	47.379	272.488	272.488	-79.496	0.000	-160.738	-79.496	-92.478	16.202
	300.00	47.455	272.781	272.489	-79.408	0.088	-161.243	-79.492	-92.558	16.116
	400.00	50.904	286.939	274.396	-74.478	5.018	-189.254	-79.394	-96.935	12.658
	500.00	53.080	298.551	278.101	-69.271	10.225	-218.546	-79.488	-101.312	10.584
	600.00	54.449	308.359	282.348	-63.889	15.607	-248.905	-79.722	-105.657	9.198
	700.00	55.347	316.825	286.682	-58.396	21.100	-280.174	-80.061	-109.954	8.205
	800.00	55.961	324.258	290.924	-52.829	26.667	-312.235	-80.482	-114.196	7.456
	900.00	56.398	330.876	295.002	-47.210	32.286	-344.998	-80.971	-118.382	6.871
	1000.00	56.720	336.835	298.892	-41.553	37.943	-378.388	-81.518	-122.510	6.399
	1100.00	56.965	342.253	302.592	-35.869	43.627	-412.347	-82.117	-126.581	6.011
	1200.00	57.158	347.218	306.107	-30.162	49.334	-446.824	-82.763	-130.595	5.685
	1300.00	57.314	351.800	309.448	-24.438	55.058	-481.778	-83.454	-134.553	5.406
	1400.00	57.444	356.052	312.626	-18.700	60.796	-517.173	-84.186	-138.456	5.166
	1500.00	57.557	360.019	315.655	-12.950	66.546	-552.979	-84.959	-142.306	4.956
	1600.00	57.656	363.737	318.545	-7.189	72.307	-589.169	-85.770	-146.103	4.770
	1700.00	57.747	367.235	321.308	-1.419	78.077	-625.719	-86.619	-149.848	4.604
	1800.00	57.833	370.538	323.952	4.360	83.856	-662.609	-87.505	-153.542	4.456
	1900.00	57.915	373.667	326.487	10.147	89.643	-699.821	-88.427	-157.186	4.321
	2000.00	57.995	376.640	328.921	15.943	95.439	-737.337	-89.384	-160.780	4.199

References

Phase	H / S	C_p
GAS	Ja1	Ja1

117.169 BORON TRICHLORIDE (GAS) **BCl3[g]**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	62.402	290.178	290.178	-402.961	0.000	-489.478	-402.961	-387.956	67.968
	300.00	62.522	290.564	290.179	-402.845	0.116	-490.015	-402.961	-387.863	67.533
	400.00	68.388	309.395	292.706	-396.286	6.675	-520.044	-402.966	-382.830	49.993
	500.00	72.408	325.118	297.660	-389.232	13.729	-551.791	-402.999	-377.793	39.468
	600.00	75.062	338.570	303.385	-381.850	21.111	-584.992	-403.051	-372.747	32.451
	700.00	76.874	350.286	309.266	-374.247	28.714	-619.447	-403.119	-367.692	27.437
	800.00	78.159	360.639	315.053	-366.492	36.469	-655.004	-403.204	-362.625	23.677
	900.00	79.101	369.902	320.642	-358.627	44.334	-691.539	-403.310	-357.546	20.751
	1000.00	79.811	378.275	325.993	-350.680	52.281	-728.954	-403.437	-352.455	18.410
	1100.00	80.357	385.908	331.098	-342.670	60.291	-767.169	-403.588	-347.350	16.494
	1200.00	80.785	392.919	335.962	-334.612	68.349	-806.115	-403.765	-342.229	14.897
	1300.00	81.125	399.400	340.596	-326.516	76.445	-845.735	-403.969	-337.093	13.545
	1400.00	81.397	405.422	345.014	-318.389	84.572	-885.980	-404.204	-331.940	12.385
	1500.00	81.617	411.046	349.230	-310.238	92.723	-926.807	-404.470	-326.770	11.379
	1600.00	81.797	416.319	353.260	-302.067	100.894	-968.178	-404.769	-321.580	10.499
	1700.00	81.945	421.282	357.117	-293.880	109.081	-1010.060	-405.103	-316.371	9.721
	1800.00	82.068	425.970	360.813	-285.679	117.282	-1052.425	-405.472	-311.141	9.029
	1900.00	82.171	430.410	364.360	-277.467	125.494	-1095.246	-405.878	-305.889	8.409
	2000.00	82.259	434.627	367.769	-269.246	133.715	-1138.499	-406.321	-300.615	7.851
	2100.00	82.336	438.642	371.049	-261.016	141.945	-1182.164	-406.803	-295.318	7.346
	2200.00	82.405	442.474	374.209	-252.779	150.182	-1226.222	-407.323	-289.998	6.885
	2300.00	82.469	446.139	377.258	-244.535	158.426	-1270.654	-407.883	-284.652	6.465
	2400.00	82.531	449.650	380.201	-236.285	166.676	-1315.444	-458.741	-278.213	6.055
	2500.00	82.594	453.020	383.047	-228.029	174.932	-1360.579	-459.458	-270.676	5.655

References

Phase	H / S	C_p
GAS	Ja1	Ja1

BF[g] BORON MONOFLUORIDE (GAS) 29.809

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	29.733	200.481	200.481	-115.897	0.000	-175.670	-115.897	-143.701	25.176
	300.00	29.773	200.665	200.482	-115.842	0.055	-176.042	-115.892	-143.873	25.051
	400.00	31.424	209.477	201.672	-112.775	3.122	-196.566	-115.796	-153.224	20.009
	500.00	32.513	216.613	203.969	-109.575	6.322	-217.882	-116.009	-162.562	16.983
	600.00	33.353	222.618	206.590	-106.280	9.617	-239.851	-116.431	-171.836	14.960
	700.00	34.051	227.813	209.259	-102.909	12.988	-262.378	-116.990	-181.027	13.508
	800.00	34.652	232.400	211.870	-99.473	16.424	-285.393	-117.640	-190.132	12.414
	900.00	35.176	236.512	214.384	-95.981	19.916	-308.842	-118.354	-199.151	11.558
	1000.00	35.635	240.243	216.786	-92.440	23.457	-332.683	-119.116	-208.088	10.869
	1100.00	36.035	243.658	219.076	-88.856	27.041	-356.881	-119.915	-216.947	10.302
	1200.00	36.381	246.809	221.257	-85.235	30.662	-381.406	-120.747	-225.731	9.826
	1300.00	36.674	249.733	223.337	-81.582	34.315	-406.235	-121.609	-234.445	9.420
	1400.00	36.916	252.460	225.321	-77.902	37.995	-431.346	-122.500	-243.092	9.070
	1500.00	37.109	255.014	227.216	-74.200	41.697	-456.721	-123.420	-251.673	8.764
	1600.00	37.253	257.414	229.029	-70.482	45.415	-482.344	-124.373	-260.193	8.494
	1700.00	37.348	259.675	230.766	-66.751	49.146	-508.199	-125.359	-268.651	8.255
	1800.00	37.396	261.812	232.432	-63.014	52.883	-534.275	-126.383	-277.051	8.040
	1900.00	37.395	263.834	234.032	-59.274	56.623	-560.558	-127.446	-285.393	7.846
	2000.00	37.347	265.751	235.570	-55.536	60.361	-587.038	-128.552	-293.677	7.670

References

Phase	H / S	C_p
GAS	Ja1	Ja1

48.808 BORON DIFLUORIDE (GAS) **BF2[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol	]		[−]
GAS	298.15	40.559	246.965	246.965	−589.944	0.000	−663.577	−589.944	−601.375	105.358
	300.00	40.624	247.216	246.966	−589.869	0.075	−664.034	−589.948	−601.446	104.721
	400.00	44.401	259.422	248.605	−585.617	4.327	−689.386	−590.274	−605.236	79.036
	500.00	47.511	269.681	251.821	−581.014	8.930	−715.854	−590.765	−608.922	63.614
	600.00	49.819	278.558	255.554	−576.142	13.802	−743.276	−591.346	−612.499	53.323
	700.00	51.542	286.373	259.409	−571.069	18.875	−771.530	−591.979	−615.975	45.965
	800.00	52.840	293.344	263.223	−565.847	24.097	−800.523	−592.646	−619.358	40.440
	900.00	53.815	299.627	266.925	−560.512	29.432	−830.176	−593.341	−622.656	36.138
	1000.00	54.531	305.336	270.485	−555.093	34.851	−860.429	−594.065	−625.875	32.692
	1100.00	55.117	310.562	273.894	−549.609	40.335	−891.228	−594.817	−629.019	29.870
	1200.00	55.570	315.378	277.153	−544.074	45.870	−922.528	−595.599	−632.094	27.514
	1300.00	55.927	319.841	280.267	−538.498	51.446	−954.291	−596.412	−635.103	25.519
	1400.00	56.217	323.996	283.244	−532.891	57.053	−986.486	−597.256	−638.048	23.806
	1500.00	56.455	327.883	286.092	−527.257	62.687	−1019.082	−598.133	−640.931	22.319
	1600.00	56.655	331.533	288.819	−521.601	68.343	−1052.054	−599.044	−643.755	21.016
	1700.00	56.825	334.973	291.434	−515.927	74.017	−1085.381	−599.987	−646.520	19.865
	1800.00	56.972	338.226	293.944	−510.237	79.707	−1119.043	−600.964	−649.229	18.840
	1900.00	57.100	341.309	296.356	−504.533	85.411	−1153.021	−601.975	−651.883	17.922
	2000.00	57.214	344.241	298.678	−498.817	91.127	−1187.300	−603.019	−654.483	17.093

References

Phase	H / S	C_p
GAS	Ja1	Ja1

BF3[g] BORON TRIFLUORIDE (GAS) 67.806

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	49.994	254.120	254.120	−1136.584	0.000	−1212.350	−1136.584	−1119.917	196.205
	300.00	50.212	254.430	254.121	−1136.491	0.093	−1212.820	−1136.599	−1119.813	194.977
	400.00	58.617	270.158	256.208	−1131.004	5.580	−1239.067	−1137.297	−1114.108	145.488
	500.00	63.540	283.805	260.395	−1124.879	11.705	−1266.782	−1137.948	−1108.236	115.777
	600.00	66.997	295.711	265.311	−1118.344	18.240	−1295.770	−1138.603	−1102.232	95.958
	700.00	69.681	306.247	270.420	−1111.505	25.079	−1325.878	−1139.244	−1096.119	81.793
	800.00	71.881	315.700	275.500	−1104.424	32.160	−1356.984	−1139.855	−1089.917	71.164
	900.00	73.734	324.276	280.450	−1097.140	39.444	−1388.989	−1140.425	−1083.640	62.893
	1000.00	75.314	332.129	285.231	−1089.686	46.898	−1421.815	−1140.953	−1077.301	56.272
	1100.00	76.660	339.372	289.828	−1082.085	54.499	−1455.395	−1141.443	−1070.912	50.853
	1200.00	77.799	346.093	294.240	−1074.361	62.223	−1489.672	−1141.899	−1064.480	46.336
	1300.00	78.746	352.359	298.472	−1066.532	70.052	−1524.598	−1142.332	−1058.011	42.511
	1400.00	79.510	358.223	302.533	−1058.618	77.966	−1560.130	−1142.751	−1051.509	39.232
	1500.00	80.100	363.730	306.431	−1050.636	85.948	−1596.231	−1143.169	−1044.977	36.389
	1600.00	80.520	368.914	310.176	−1042.603	93.981	−1632.866	−1143.597	−1038.417	33.901
	1700.00	80.773	373.804	313.776	−1034.537	102.047	−1670.004	−1144.050	−1031.829	31.704
	1800.00	80.861	378.424	317.241	−1026.454	110.130	−1707.617	−1144.540	−1025.214	29.751
	1900.00	80.788	382.795	320.577	−1018.370	118.214	−1745.680	−1145.082	−1018.570	28.002
	2000.00	80.554	386.933	323.792	−1010.302	126.282	−1784.169	−1145.690	−1011.896	26.428
	2100.00	80.160	390.855	326.893	−1002.265	134.319	−1823.060	−1146.379	−1005.190	25.003
	2200.00	79.607	394.572	329.886	−994.275	142.309	−1862.333	−1147.162	−998.449	23.706
	2273.00	79.104	397.162	332.005	−988.482	148.102	−1891.232	−1147.802	−993.504	22.831

References

Phase	H / S	C_p
GAS	Ja1	Ja1

11.819

BORON MONOHYDRIDE (GAS) **BH[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	29.034	171.863	171.863	449.613	0.000	398.372	449.613	419.592	−73.511
	300.00	29.040	172.042	171.863	449.667	0.054	398.054	449.619	419.405	−73.025
	400.00	29.456	180.450	173.007	452.590	2.977	380.410	449.725	409.307	−53.450
	500.00	29.969	187.077	175.181	455.561	5.948	362.023	449.504	399.223	−41.706
	600.00	30.519	192.589	177.635	458.585	8.972	343.032	449.083	389.203	−33.883
	700.00	31.087	197.336	180.118	461.665	12.052	323.530	448.539	379.265	−28.301
	800.00	31.665	201.525	182.537	464.803	15.190	303.583	447.917	369.410	−24.120
	900.00	32.248	205.288	184.860	467.999	18.386	283.239	447.243	359.637	−20.873
	1000.00	32.835	208.716	187.076	471.253	21.640	262.537	446.533	349.941	−18.279
	1100.00	33.424	211.873	189.189	474.566	24.953	241.505	445.797	340.317	−16.160
	1200.00	34.015	214.807	191.203	477.938	28.325	220.169	445.041	330.761	−14.398
	1300.00	34.606	217.553	193.125	481.369	31.756	198.550	444.270	321.269	−12.909
	1400.00	35.199	220.139	194.963	484.859	35.246	176.664	443.488	311.837	−11.635
	1500.00	35.792	222.588	196.724	488.408	38.795	154.527	442.700	302.461	−10.533

References

Phase	H / S	C_p
GAS	Nb1/La1	La1

27.670

DIBORANE (GAS) **B2H6[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	56.205	232.112	232.112	35.606	0.000	−33.598	35.606	86.765	−15.201
	300.00	56.525	232.461	232.113	35.710	0.104	−34.028	35.508	87.083	−15.162
	400.00	72.332	250.948	234.527	42.174	6.568	−58.205	30.525	105.042	−13.717
	500.00	86.135	268.601	239.591	50.111	14.505	−84.189	26.233	124.184	−12.973
	600.00	98.478	285.417	245.838	59.353	23.747	−111.897	22.726	144.117	−12.546
	700.00	109.547	301.444	252.646	69.764	34.158	−141.246	20.014	164.574	−12.281
	800.00	119.422	316.730	259.709	81.223	45.617	−172.161	18.048	185.368	−12.103
	900.00	128.138	331.310	266.861	93.610	58.004	−204.569	16.747	206.368	−11.977
	1000.00	135.716	345.213	274.007	106.812	71.206	−238.401	16.013	227.481	−11.882
	1100.00	142.166	358.459	281.087	120.716	85.110	−273.590	15.740	248.644	−11.807
	1200.00	147.495	371.066	288.064	135.208	99.602	−310.071	15.820	269.816	−11.745
	1300.00	151.708	383.046	294.914	150.177	114.571	−347.782	16.144	290.970	−11.691
	1400.00	154.808	394.409	301.618	165.513	129.907	−386.660	16.607	312.094	−11.644
	1500.00	156.795	405.164	308.166	181.102	145.496	−426.643	17.104	333.183	−11.602
	1600.00	157.672	415.317	314.549	196.835	161.229	−467.672	17.531	354.240	−11.565

References

Phase	H / S	C_p
GAS	La1	La1

BI[g] BORON MONOIODIDE (GAS) 137.715

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	33.477	232.757	232.757	305.432	0.000	236.036	305.432	255.088	−44.690
	300.00	33.523	232.964	232.757	305.494	0.062	235.605	305.423	254.775	−44.360
	400.00	35.171	242.866	234.096	308.940	3.508	211.794	296.684	238.269	−31.115
	500.00	35.970	250.809	236.671	312.501	7.069	187.097	274.418	225.815	−23.591
	600.00	36.436	257.412	239.593	316.123	10.691	161.676	274.184	216.114	−18.814
	700.00	36.744	263.053	242.551	319.783	14.351	135.646	273.808	206.463	−15.406
	800.00	36.969	267.975	245.428	323.469	18.037	109.089	273.325	196.875	−12.855
	900.00	37.144	272.340	248.180	327.175	21.743	82.070	272.758	187.351	−10.874
	1000.00	37.289	276.261	250.796	330.897	25.465	54.636	272.124	177.895	−9.292
	1100.00	37.415	279.821	253.275	334.633	29.201	26.829	271.432	168.505	−8.002
	1200.00	37.527	283.081	255.625	338.380	32.948	−1.318	270.690	159.181	−6.929
	1300.00	37.629	286.089	257.854	342.138	36.706	−29.778	269.902	149.920	−6.024
	1400.00	37.725	288.881	259.972	345.905	40.473	−58.529	269.074	140.722	−5.250
	1500.00	37.815	291.487	261.987	349.682	44.250	−87.548	268.206	131.584	−4.582
	1600.00	37.902	293.931	263.908	353.468	48.036	−116.821	267.303	122.505	−3.999
	1700.00	37.985	296.231	265.742	357.263	51.831	−146.330	266.365	113.483	−3.487
	1800.00	38.066	298.404	267.497	361.065	55.633	−176.063	265.394	104.518	−3.033
	1900.00	38.146	300.465	269.178	364.876	59.444	−206.007	264.391	95.608	−2.628
	2000.00	38.223	302.423	270.792	368.694	63.262	−236.152	263.357	86.751	−2.266

References

Phase	H / S	C_p
GAS	Ja1	Ja1

264.620 BORON DIIODIDE (GAS) **BI2[g]**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	48.842	309.575	309.575	242.672	0.000	150.372	242.672	186.738	-32.716
	300.00	48.943	309.877	309.576	242.762	0.090	149.799	242.641	186.391	-32.454
	400.00	52.533	324.521	311.548	247.861	5.189	118.053	224.736	168.471	-22.000
	500.00	54.234	336.447	315.373	253.209	10.537	84.985	180.159	158.716	-16.581
	600.00	55.193	346.427	319.740	258.684	16.012	50.828	179.903	154.449	-13.446
	700.00	55.801	354.984	324.178	264.236	21.564	15.747	179.537	150.235	-11.211
	800.00	56.221	362.464	328.506	269.838	27.166	-20.133	179.084	146.079	-9.538
	900.00	56.533	369.104	332.655	275.476	32.804	-56.718	178.560	141.984	-8.241
	1000.00	56.778	375.074	336.603	281.142	38.470	-93.931	177.976	137.950	-7.206
	1100.00	56.978	380.495	340.351	286.831	44.159	-131.714	177.339	133.978	-6.362
	1200.00	57.148	385.460	343.906	292.537	49.865	-170.015	176.656	130.066	-5.662
	1300.00	57.298	390.041	347.281	298.260	55.588	-208.793	175.929	126.213	-5.071
	1400.00	57.431	394.292	350.489	303.996	61.324	-248.012	175.162	122.417	-4.567
	1500.00	57.554	398.258	353.543	309.745	67.073	-287.642	174.357	118.678	-4.133
	1600.00	57.668	401.977	356.455	315.507	72.835	-327.656	173.516	114.993	-3.754
	1700.00	57.775	405.476	359.237	321.279	78.607	-368.030	172.640	111.362	-3.422
	1800.00	57.877	408.781	361.898	327.061	84.389	-408.745	171.730	107.783	-3.128
	1900.00	57.974	411.913	364.449	332.854	90.182	-449.781	170.787	104.256	-2.866
	2000.00	58.069	414.889	366.897	338.656	95.984	-491.122	169.812	100.780	-2.632

References

Phase	H / S	C_p
GAS	Ja1	Ja1

BI3[g] BORON TRIIODIDE (GAS) 391.524

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	70.497	348.729	348.729	71.128	0.000	−32.845	71.128	20.834	−3.650
	300.00	70.636	349.165	348.730	71.259	0.131	−33.491	71.086	20.522	−3.573
	400.00	75.548	370.258	351.573	78.602	7.474	−69.501	44.607	4.861	−0.635
	500.00	77.871	387.393	357.078	86.285	15.157	−107.411	−21.731	1.331	−0.139
	600.00	79.174	401.716	363.357	94.143	23.015	−146.886	−21.480	5.919	−0.515
	700.00	79.997	413.987	369.735	102.105	30.977	−187.686	−21.318	10.471	−0.781
	800.00	80.562	424.708	375.950	110.134	39.006	−229.632	−21.230	15.006	−0.980
	900.00	80.979	434.222	381.906	118.212	47.084	−272.588	−21.204	19.533	−1.134
	1000.00	81.303	442.771	387.572	126.327	55.199	−316.444	−21.233	24.060	−1.257
	1100.00	81.567	450.533	392.949	134.471	63.343	−361.116	−21.311	28.593	−1.358
	1200.00	81.790	457.640	398.048	142.639	71.511	−406.529	−21.434	33.135	−1.442
	1300.00	81.983	464.195	402.887	150.828	79.700	−452.625	−21.598	37.689	−1.514
	1400.00	82.156	470.277	407.486	159.035	87.907	−499.353	−21.801	42.257	−1.577
	1500.00	82.313	475.950	411.863	167.258	96.130	−546.667	−22.042	46.840	−1.631
	1600.00	82.458	481.267	416.037	175.497	104.369	−594.531	−22.319	51.441	−1.679
	1700.00	82.593	486.270	420.022	183.750	112.622	−642.910	−22.631	56.061	−1.723
	1800.00	82.722	490.995	423.835	192.015	120.887	−691.776	−22.976	60.700	−1.761
	1900.00	82.845	495.471	427.489	200.294	129.166	−741.101	−23.355	65.358	−1.797
	2000.00	82.963	499.723	430.995	208.584	137.456	−790.862	−23.767	70.038	−1.829

References

Phase	H / S	C_p
GAS	Ja1	Ja1

24.818 BORON NITRIDE **BN**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	19.728	14.811	14.811	−254.387	0.000	−258.803	−254.387	−228.501	40.032
	300.00	19.841	14.934	14.812	−254.350	0.037	−258.831	−254.398	−228.340	39.758
	400.00	26.270	21.532	15.668	−252.041	2.346	−260.654	−254.913	−219.571	28.673
	500.00	31.403	27.974	17.489	−249.145	5.242	−263.132	−255.216	−210.696	22.011
	600.00	35.193	34.051	19.749	−245.806	8.581	−266.236	−255.350	−201.777	17.566
	700.00	38.101	39.704	22.201	−242.135	12.252	−269.928	−255.356	−192.846	14.390
	800.00	40.452	44.950	24.721	−238.204	16.183	−274.164	−255.262	−183.921	12.009
	900.00	42.587	49.841	27.243	−234.049	20.338	−278.906	−255.077	−175.014	10.158
	1000.00	44.367	54.423	29.735	−229.698	24.689	−284.122	−254.809	−166.131	8.678
	1100.00	45.786	58.721	32.176	−225.188	29.199	−289.781	−254.477	−157.279	7.469
	1200.00	46.882	62.754	34.558	−220.552	33.835	−295.857	−254.105	−148.459	6.462
	1300.00	47.702	66.541	36.874	−215.820	38.567	−302.324	−253.712	−139.671	5.612
	1400.00	48.288	70.099	39.122	−211.019	43.368	−309.158	−253.317	−130.914	4.884
	1500.00	48.677	73.445	41.300	−206.169	48.218	−316.336	−252.936	−122.184	4.255
	1600.00	48.900	76.594	43.408	−201.289	53.098	−323.840	−252.581	−113.479	3.705
	1700.00	48.980	79.562	45.448	−196.394	57.993	−331.649	−252.265	−104.795	3.220
	1800.00	48.936	82.361	47.422	−191.498	62.889	−339.747	−251.997	−96.129	2.790
	1900.00	48.953	85.007	49.331	−186.602	67.785	−348.116	−251.778	−87.476	2.405
	2000.00	48.953	87.518	51.178	−181.707	72.680	−356.744	−251.605	−78.833	2.059
	2100.00	48.953	89.907	52.966	−176.812	77.575	−365.616	−251.475	−70.197	1.746
	2200.00	48.953	92.184	54.697	−171.916	82.471	−374.721	−251.387	−61.567	1.462
	2300.00	48.953	94.360	56.375	−167.021	87.366	−384.049	−251.339	−52.940	1.202
	2400.00	48.953	96.444	58.001	−162.126	92.261	−393.590	−301.590	−43.246	0.941
	2500.00	48.953	98.442	59.579	−157.231	97.156	−403.335	−301.697	−32.479	0.679
	2600.00	48.953	100.362	61.111	−152.335	102.052	−413.276	−301.810	−21.709	0.436

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	NDPT= 2600. (2 BN = 2 B + N2)

B2O3 BORON OXIDE 69.620

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	62.593	53.953	53.953	−1271.936	0.000	−1288.022	−1271.936	−1192.799	208.973
	300.00	62.922	54.341	53.954	−1271.820	0.116	−1288.122	−1271.943	−1192.308	207.599
	400.00	77.949	74.614	56.617	−1264.737	7.199	−1294.583	−1272.047	−1165.732	152.229
	500.00	89.285	93.280	62.110	−1256.351	15.585	−1302.991	−1271.710	−1139.185	119.010
	600.00	98.117	110.372	68.750	−1246.963	24.973	−1313.186	−1271.023	−1112.739	96.873
	700.00	105.225	126.048	75.832	−1236.785	35.151	−1325.018	−1270.037	−1086.432	81.071
	723.00	106.694	129.473	77.484	−1234.348	37.588	−1327.957	−1269.771	−1080.404	78.056
			33.293		24.071					
LIQ	723.00	129.704	162.766	77.484	−1210.277	61.659	−1327.957	−1245.700	−1080.404	78.056
	800.00	129.704	175.893	86.334	−1200.289	71.647	−1341.004	−1243.113	−1062.935	69.403
	900.00	129.704	191.170	97.151	−1187.319	84.617	−1359.372	−1240.015	−1040.601	60.395
	1000.00	129.704	204.835	107.248	−1174.349	97.587	−1379.184	−1237.162	−1018.599	53.206
	1100.00	129.704	217.197	116.690	−1161.378	110.558	−1400.295	−1234.516	−996.873	47.338
	1200.00	129.704	228.483	125.543	−1148.408	123.528	−1422.588	−1232.046	−975.379	42.457
	1300.00	129.704	238.865	133.866	−1135.437	136.499	−1445.962	−1229.733	−954.085	38.336
	1400.00	129.704	248.477	141.714	−1122.467	149.469	−1470.335	−1227.562	−932.963	34.809
	1500.00	129.704	257.426	149.133	−1109.497	162.439	−1495.635	−1225.521	−911.993	31.758
	1600.00	129.704	265.797	156.166	−1096.526	175.410	−1521.801	−1223.604	−891.154	29.093
	1700.00	129.704	273.660	162.848	−1083.556	188.380	−1548.778	−1221.804	−870.431	26.745
	1800.00	129.704	281.074	169.212	−1070.585	201.351	−1576.518	−1220.116	−849.812	24.661
	1900.00	129.704	288.086	175.286	−1057.615	214.321	−1604.979	−1218.538	−829.283	22.799
	2000.00	129.704	294.739	181.094	−1044.645	227.291	−1634.123	−1217.067	−808.834	21.125
	2100.00	129.704	301.068	186.657	−1031.674	240.262	−1663.916	−1215.701	−788.457	19.612
	2200.00	129.704	307.101	191.996	−1018.704	253.232	−1694.327	−1214.437	−768.142	18.238
	2300.00	129.704	312.867	197.127	−1005.733	266.203	−1725.327	−1213.274	−747.882	16.985
	2400.00	129.704	318.387	202.065	−992.763	279.173	−1756.892	−1312.730	−725.533	15.791
	2500.00	129.704	323.682	206.825	−979.793	292.143	−1788.997	−1311.921	−701.083	14.648
	2600.00	129.704	328.769	211.418	−966.822	305.114	−1821.622	−1311.145	−676.665	13.594
	2700.00	129.704	333.664	215.855	−953.852	318.084	−1854.745	−1310.401	−652.276	12.619
	2800.00	129.704	338.381	220.147	−940.881	331.055	−1888.348	−1309.687	−627.914	11.714
	2900.00	129.704	342.933	224.303	−927.911	344.025	−1922.415	−1309.003	−603.578	10.872
	3000.00	129.704	347.330	228.331	−914.941	356.995	−1956.930	−1308.348	−579.264	10.086

References

Phase	H / S	C_p	Remarks	
SOL	Ja2	Ja2		
LIQ	Ja2	Ja2	Ja2,e	BPT= 2339., L= 361.1 kJ

69.620 BORON OXIDE (IDEAL GAS) **B2O3**[g]

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	66.854	283.768	283.768	-835.963	0.000	-920.568	-835.963	-825.345	144.597
	300.00	67.028	284.182	283.769	-835.839	0.124	-921.094	-835.963	-825.279	143.694
	400.00	74.723	304.587	286.499	-828.728	7.235	-950.563	-836.038	-821.712	107.305
	500.00	80.364	321.895	291.891	-820.961	15.002	-981.908	-836.320	-818.102	85.467
	600.00	84.819	336.955	298.173	-812.694	23.269	-1014.867	-836.754	-814.420	70.902
	700.00	88.437	350.311	304.686	-804.025	31.938	-1049.243	-837.277	-810.657	60.492
	800.00	91.401	362.320	311.152	-795.028	40.935	-1084.885	-837.852	-806.816	52.680
	900.00	93.833	373.231	317.453	-785.763	50.200	-1121.670	-838.458	-802.900	46.599
	1000.00	95.821	383.224	323.537	-776.277	59.686	-1159.500	-839.090	-798.915	41.731
	1100.00	97.459	392.436	329.387	-766.610	69.353	-1198.289	-839.747	-794.866	37.745
	1200.00	98.818	400.976	335.002	-756.794	79.169	-1237.965	-840.432	-790.756	34.421
	1300.00	99.950	408.932	340.386	-746.854	89.109	-1278.465	-841.150	-786.588	31.605
	1400.00	100.898	416.374	345.551	-736.810	99.153	-1319.734	-841.905	-782.363	29.190
	1500.00	101.697	423.364	350.508	-726.679	109.284	-1361.725	-842.704	-778.082	27.095
	1600.00	102.376	429.949	355.269	-716.475	119.488	-1404.393	-843.552	-773.746	25.260
	1700.00	102.956	436.174	359.847	-706.207	129.756	-1447.702	-844.455	-769.356	23.639
	1800.00	103.454	442.073	364.252	-695.886	140.077	-1491.617	-845.417	-764.911	22.197
	1900.00	103.886	447.678	368.497	-685.519	150.444	-1536.107	-846.442	-760.411	20.905
	2000.00	104.262	453.017	372.591	-675.111	160.852	-1581.144	-847.534	-755.855	19.741
	2100.00	104.590	458.112	376.543	-664.668	171.295	-1626.702	-848.694	-751.243	18.686
	2200.00	104.880	462.984	380.362	-654.194	181.769	-1672.759	-849.927	-746.574	17.726
	2300.00	105.135	467.652	384.056	-643.693	192.270	-1719.292	-851.234	-741.847	16.848
	2400.00	105.362	472.131	387.633	-633.168	202.795	-1766.283	-953.135	-734.924	15.995
	2500.00	105.564	476.437	391.100	-622.621	213.342	-1813.713	-954.750	-725.799	15.165
	2600.00	105.745	480.580	394.462	-612.056	223.907	-1861.565	-956.379	-716.609	14.397
	2700.00	105.908	484.574	397.726	-601.473	234.490	-1909.824	-958.022	-707.355	13.685
	2800.00	106.054	488.429	400.897	-590.875	245.088	-1958.475	-959.681	-698.041	13.022
	2900.00	106.186	492.153	403.980	-580.263	255.700	-2007.505	-961.355	-688.667	12.404
	3000.00	106.306	495.755	406.980	-569.638	266.325	-2056.902	-963.046	-679.236	11.827
	3100.00	106.415	499.242	409.900	-559.002	276.961	-2106.652	-964.753	-669.747	11.285
	3200.00	106.515	502.622	412.745	-548.355	287.608	-2156.747	-966.477	-660.203	10.777
	3300.00	106.606	505.901	415.518	-537.699	298.264	-2207.174	-968.217	-650.606	10.298
	3400.00	106.689	509.085	418.224	-527.034	308.929	-2257.924	-969.974	-640.955	9.847
	3500.00	106.766	512.179	420.864	-516.361	319.602	-2308.988	-971.747	-631.252	9.421
	3600.00	106.836	515.188	423.443	-505.681	330.282	-2360.357	-973.536	-621.498	9.018
	3700.00	106.901	518.116	425.962	-494.994	340.969	-2412.022	-975.340	-611.694	8.636
	3800.00	106.961	520.967	428.425	-484.301	351.662	-2463.977	-977.160	-601.842	8.273
	3900.00	107.017	523.746	430.833	-473.602	362.361	-2516.213	-978.994	-591.941	7.928
	4000.00	107.069	526.457	433.190	-462.898	373.065	-2568.724	-980.843	-581.993	7.600
	4100.00	107.117	529.101	435.497	-452.189	383.774	-2621.503	-982.706	-571.999	7.287
	4200.00	107.162	531.683	437.757	-441.475	394.488	-2674.542	-1944.280	-547.921	6.814
	4300.00	107.203	534.205	439.971	-430.756	405.207	-2727.837	-1943.998	-514.678	6.252
	4400.00	107.242	536.670	442.141	-420.034	415.929	-2781.381	-1943.733	-481.441	5.715
	4500.00	107.279	539.080	444.268	-409.308	426.655	-2835.169	-1943.488	-448.210	5.203
	4600.00	107.313	541.439	446.355	-398.578	437.385	-2889.196	-1943.261	-414.984	4.712
	4700.00	107.345	543.747	448.403	-387.846	448.117	-2943.455	-1943.055	-381.763	4.243
	4800.00	107.375	546.007	450.413	-377.110	458.853	-2997.943	-1942.871	-348.546	3.793
	4900.00	107.403	548.221	452.386	-366.371	469.592	-3052.655	-1942.709	-315.332	3.361
	5000.00	107.430	550.391	454.325	-355.629	480.334	-3107.586	-1942.570	-282.122	2.947

Phase	H / S	C_p	Remarks	
SOL	Ja2	Ja2		
LIQ	Ja2	Ja2	Ja2,e	BPT= 2339., L= 361.1 kJ

B2O3[g] BORON OXIDE (IDEAL GAS) [continued] 69.620

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	5100.00	107.455	552.519	456.229	−344.885	491.078	−3162.732	−1942.457	−248.914	2.549
	5200.00	107.479	554.606	458.101	−334.138	501.825	−3218.089	−1942.371	−215.708	2.167
	5300.00	107.501	556.653	459.941	−323.389	512.574	−3273.652	−1942.313	−182.504	1.799
	5400.00	107.523	558.663	461.751	−312.638	523.325	−3329.418	−1942.285	−149.300	1.444
	5500.00	107.543	560.636	463.531	−301.884	534.079	−3385.383	−1942.290	−116.097	1.103
	5600.00	107.562	562.574	465.282	−291.129	544.834	−3441.544	−1942.328	−82.893	0.773
	5700.00	107.580	564.478	467.006	−280.372	555.591	−3497.897	−1942.403	−49.688	0.455
	5800.00	107.597	566.349	468.703	−269.613	566.350	−3554.439	−1942.517	−16.482	0.148
	5900.00	107.614	568.189	470.373	−258.853	577.110	−3611.166	−1942.672	16.727	−0.148
	6000.00	107.629	569.997	472.019	−248.091	587.872	−3668.075	−1942.870	49.939	−0.435

References

Phase	H / S	C_p	Remarks	
SOL	Ja2	Ja2		
LIQ	Ja2	Ja2	Ja2,e	BPT= 2339., L= 361.1 kJ

B2O3[GL] BORON OXIDE (GLASS) 69.620

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL-GL	298.15	62.802	78.450	78.450	−1253.359	0.000	−1276.749	−1253.359	−1181.526	206.998
	300.00	63.095	78.839	78.451	−1253.243	0.116	−1276.894	−1253.366	−1181.080	205.644
	400.00	77.404	99.239	81.132	−1246.116	7.243	−1285.812	−1253.426	−1156.962	151.084
	500.00	89.203	117.516	86.608	−1237.905	15.454	−1296.663	−1253.264	−1132.857	118.349
	600.00	132.842	136.921	93.317	−1227.197	26.162	−1309.349	−1251.257	−1108.902	96.538
	700.00	129.788	157.113	101.031	−1214.102	39.257	−1324.081	−1247.354	−1085.495	81.001
	723.00	129.704	161.307	102.882	−1211.118	42.241	−1327.743	−1246.541	−1080.190	78.041

References

Phase	H / S	C_p	Remarks	
SOL−GL	Ja1	Ja2	Ja2	Crystal: Melting Point = 723 K

62.263 BORON CHLORIDE OXIDE (GAS) **BOCl[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	44.899	237.426	237.426	−316.310	0.000	−387.099	−316.310	−321.517	56.328
	300.00	45.003	237.704	237.427	−316.227	0.083	−387.538	−316.306	−321.549	55.987
	400.00	49.037	251.264	239.248	−311.504	4.806	−412.009	−316.167	−323.322	42.221
	500.00	51.450	262.484	242.806	−306.471	9.839	−437.713	−316.180	−325.112	33.964
	600.00	53.179	272.024	246.900	−301.236	15.074	−464.450	−316.323	−326.886	28.458
	700.00	54.545	280.328	251.095	−295.847	20.463	−492.077	−316.555	−328.630	24.523
	800.00	55.681	287.687	255.218	−290.335	25.975	−520.484	−316.846	−330.335	21.569
	900.00	56.651	294.303	259.199	−284.717	31.593	−549.589	−317.176	−332.002	19.269
	1000.00	57.491	300.316	263.015	−279.009	37.301	−579.325	−317.532	−333.630	17.427
	1100.00	58.218	305.831	266.660	−273.222	43.088	−609.636	−317.907	−335.222	15.918
	1200.00	58.843	310.924	270.139	−267.369	48.941	−640.477	−318.299	−336.779	14.660
	1300.00	59.376	315.655	273.461	−261.457	54.853	−671.809	−318.707	−338.303	13.593
	1400.00	59.819	320.072	276.634	−255.496	60.814	−703.598	−319.133	−339.794	12.678
	1500.00	60.177	324.212	279.669	−249.496	66.814	−735.814	−319.581	−341.254	11.884
	1600.00	60.451	328.105	282.576	−243.464	72.846	−768.432	−320.057	−342.684	11.187
	1700.00	60.644	331.776	285.363	−237.408	78.902	−801.428	−320.565	−344.083	10.572
	1800.00	60.756	335.246	288.039	−231.338	84.972	−834.781	−321.112	−345.450	10.025
	1900.00	60.789	338.532	290.611	−225.260	91.050	−868.471	−321.704	−346.787	9.534
	2000.00	60.742	341.649	293.086	−219.182	97.128	−902.481	−322.349	−348.090	9.091
	2100.00	60.617	344.610	295.469	−213.114	103.196	−936.796	−323.052	−349.360	8.690
	2200.00	60.413	347.426	297.768	−207.062	109.248	−971.399	−323.821	−350.595	8.324

References

Phase	H / S	C_p
GAS	Ja1	Ja1

41.785 BORON MONOPHOSPHIDE **BP**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	30.249	26.778	26.778	−78.998	0.000	−86.982	−78.998	−72.999	12.789
	300.00	30.301	26.965	26.778	−78.942	0.056	−87.031	−79.007	−72.961	12.704
	400.00	33.104	36.066	28.000	−75.772	3.226	−90.198	−80.453	−70.666	9.228
	500.00	35.907	43.754	30.400	−72.321	6.677	−94.198	−81.366	−68.114	7.116
	600.00	38.710	50.548	33.202	−68.590	10.408	−98.919	−82.248	−65.379	5.692
	700.00	41.514	56.726	36.128	−64.579	14.419	−104.287	−83.024	−62.504	4.664
	800.00	44.317	62.452	39.064	−60.288	18.710	−110.249	−83.649	−59.528	3.887
	900.00	47.120	67.834	41.965	−55.716	23.282	−116.766	−84.092	−56.485	3.278
	1000.00	49.923	72.944	44.809	−50.864	28.134	−123.807	−84.334	−53.402	2.789
	1100.00	52.727	77.833	47.591	−45.731	33.267	−131.348	−84.364	−50.306	2.389

References

Phase	H / S	C_p	Remarks
SOL	Nb1/Tk1	Tk1,e	cubic

BS[g] BORON MONOSULFIDE (GAS) 42.877

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	30.091	216.171	216.171	243.090	0.000	178.639	243.090	189.934	−33.276
	300.00	30.095	216.357	216.172	243.146	0.056	178.238	243.083	189.604	−33.013
	400.00	31.307	225.154	217.363	246.207	3.117	156.145	240.197	171.955	−22.455
	500.00	32.700	232.296	219.657	249.410	6.320	133.262	237.768	155.149	−16.208
	600.00	33.754	238.356	222.281	252.735	9.645	109.721	235.537	138.842	−12.087
	700.00	34.523	243.620	224.962	256.151	13.061	85.617	233.488	122.888	−9.170
	800.00	35.095	248.269	227.590	259.633	16.543	61.018	231.327	107.233	−7.002
	900.00	35.532	252.429	230.123	263.165	20.075	35.979	176.271	93.010	−5.398
	1000.00	35.876	256.191	232.545	266.736	23.646	10.545	175.544	83.797	−4.377
	1100.00	36.154	259.624	234.853	270.338	27.248	−15.248	174.774	74.660	−3.545
	1200.00	36.385	262.780	237.050	273.966	30.876	−41.370	173.964	65.594	−2.855
	1300.00	36.581	265.700	239.143	277.614	34.524	−67.796	173.117	56.597	−2.274
	1400.00	36.751	268.417	241.138	281.281	38.191	−94.503	172.235	47.667	−1.778
	1500.00	36.900	270.958	243.042	284.964	41.874	−121.473	171.320	38.801	−1.351
	1600.00	37.034	273.344	244.862	288.660	45.570	−148.690	170.372	29.997	−0.979
	1700.00	37.155	275.593	246.605	292.370	49.280	−176.138	169.393	21.254	−0.653
	1800.00	37.267	277.720	248.275	296.091	53.001	−203.804	168.383	12.568	−0.365
	1900.00	37.370	279.737	249.878	299.823	56.733	−231.678	167.343	3.940	−0.108
	2000.00	37.467	281.657	251.419	303.565	60.475	−259.748	166.273	−4.632	0.121

References

Phase	H / S	C_p
GAS	Ja1	Ja1

B2S3 DIBORON TRISULFIDE 117.820

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	117.117	92.048	92.048	−252.295	0.000	−279.739	−252.295	−247.590	43.377
	300.00	117.236	92.773	92.050	−252.078	0.217	−279.910	−252.247	−247.561	43.104
	400.00	123.637	127.376	96.725	−240.035	12.260	−290.985	−256.676	−246.087	32.136
	500.00	130.039	155.653	105.764	−227.351	24.944	−305.177	−259.160	−243.221	25.409
	600.00	136.440	179.927	116.147	−214.027	38.268	−321.983	−260.525	−239.876	20.883
	700.00	142.842	201.440	126.823	−200.063	52.232	−341.071	−260.800	−236.405	17.641
	800.00	149.243	220.932	137.387	−185.458	66.837	−362.204	−260.842	−232.917	15.208
	836.00	151.548	227.552	141.127	−180.044	72.251	−370.278	−260.897	−231.660	14.474
			57.555		48.116					
LIQ	836.00	151.670	285.107	141.127	−131.928	120.367	−370.278	−212.781	−231.660	14.474
	900.00	151.670	296.295	151.769	−122.221	130.074	−388.887	−370.988	−229.657	13.329
	1000.00	151.670	312.275	167.034	−107.054	145.241	−419.329	−366.251	−214.209	11.189
	1100.00	151.670	326.731	180.906	−91.887	160.408	−451.291	−361.671	−199.228	9.461

References

Phase	H / S	C_p
SOL	Mi1	Mi1
LIQ	Mi1	Mi1

137.327 BARIUM **Ba**

Phase	T [K]	C_p [J / (K mol)]	S [J / (K mol)]	-(G-H298)/T [J / (K mol)]	H [kJ / mol]	H-H298 [kJ / mol]	G [kJ / mol]	ΔH_f [kJ / mol]	ΔG_f [kJ / mol]	log K_f [-]
SOL	298.15	28.087	62.417	62.417	0.000	0.000	-18.610	0.000	0.000	0.000
	300.00	28.088	62.591	62.417	0.052	0.052	-18.725	0.000	0.000	0.000
	400.00	33.041	71.150	63.552	3.039	3.039	-25.421	0.000	0.000	0.000
	500.00	43.681	79.598	65.908	6.845	6.845	-32.954	0.000	0.000	0.000
	600.00	35.920	88.388	68.935	11.672	11.672	-41.361	0.000	0.000	0.000
	700.00	41.118	94.261	72.134	15.489	15.489	-50.493	0.000	0.000	0.000
	800.00	42.166	99.886	75.258	19.703	19.703	-60.206	0.000	0.000	0.000
	900.00	40.367	104.708	78.269	23.795	23.795	-70.442	0.000	0.000	0.000
	1000.00	40.902	108.992	81.131	27.862	27.862	-81.131	0.000	0.000	0.000
	1002.00	40.894	109.074	81.186	27.944	27.944	-81.349	0.000	0.000	0.000
			7.734		7.749					
LIQ	1002.00	43.347	116.808	81.186	35.693	35.693	-81.349	0.000	0.000	0.000
	1100.00	41.933	120.783	84.541	39.866	39.866	-92.995	0.000	0.000	0.000
	1200.00	41.032	124.389	87.714	44.011	44.011	-105.256	0.000	0.000	0.000
	1300.00	40.520	127.651	90.662	48.086	48.086	-117.861	0.000	0.000	0.000
	1400.00	40.585	130.659	93.413	52.144	52.144	-130.778	0.000	0.000	0.000
	1500.00	40.585	133.459	95.991	56.203	56.203	-143.986	0.000	0.000	0.000
	1600.00	40.585	136.078	98.415	60.261	60.261	-157.464	0.000	0.000	0.000
	1700.00	40.585	138.539	100.704	64.320	64.320	-171.196	0.000	0.000	0.000
	1800.00	40.585	140.858	102.871	68.378	68.378	-185.167	0.000	0.000	0.000
	1900.00	40.585	143.053	104.928	72.437	72.437	-199.364	0.000	0.000	0.000
	2000.00	40.585	145.135	106.887	76.495	76.495	-213.774	0.000	0.000	0.000
	2100.00	40.585	147.115	108.756	80.553	80.553	-228.387	0.000	0.000	0.000
	2167.00	40.585	148.389	109.962	83.273	83.273	-238.287	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL	Hu1	Hu1		TPT= 582. (lamda trans.)
LIQ	Hu1	Hu1	Hu1	BPT= 2167., L= 141.5 kJ

Ba[g] BARIUM (GAS) 137.327

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.786	170.243	170.243	182.004	0.000	131.246	182.004	149.856	−26.254
	300.00	20.786	170.372	170.244	182.042	0.038	130.931	181.990	149.656	−26.057
	400.00	20.786	176.352	171.059	184.121	2.117	113.580	181.082	139.001	−18.152
	500.00	20.786	180.990	172.599	186.200	4.196	95.705	179.355	128.659	−13.441
	600.00	20.786	184.780	174.323	188.278	6.274	77.410	176.606	118.771	−10.340
	700.00	20.786	187.984	176.051	190.357	8.353	58.768	174.868	109.262	−8.153
	800.00	20.786	190.760	177.720	192.436	10.432	39.828	172.732	100.034	−6.532
	900.00	20.782	193.208	179.308	194.514	12.510	20.627	170.719	91.069	−5.286
	1000.00	20.826	195.399	180.809	196.594	14.590	1.195	168.732	82.325	−4.300
	1100.00	20.898	197.387	182.227	198.680	16.676	−18.446	158.814	74.549	−3.540
	1200.00	21.018	199.210	183.568	200.775	18.771	−38.277	156.765	66.979	−2.916
	1300.00	21.242	200.901	184.837	202.887	20.883	−58.284	154.802	59.577	−2.394
	1400.00	21.623	202.488	186.041	205.029	23.025	−78.454	152.885	52.325	−1.952
	1500.00	22.200	203.998	187.188	207.218	25.214	−98.779	151.016	45.207	−1.574
	1600.00	23.001	205.455	188.285	209.476	27.472	−119.252	149.215	38.212	−1.248
	1700.00	24.040	206.880	189.337	211.827	29.823	−139.869	147.507	31.328	−0.963
	1800.00	25.320	208.289	190.351	214.293	32.289	−160.627	145.915	24.540	−0.712
	1900.00	26.838	209.697	191.332	216.899	34.895	−181.526	144.462	17.837	−0.490
	2000.00	28.580	211.117	192.285	219.668	37.664	−202.567	143.173	11.207	−0.293
	2100.00	30.531	212.558	193.216	222.622	40.618	−223.750	142.068	4.637	−0.115
	2200.00	32.670	214.027	194.129	225.780	43.776	−245.080	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

689.819 BARIUM ARSENATE **Ba3(AsO4)2**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	257.212	309.616	309.616	-3421.675	0.000	-3513.987	-3421.675	-3192.208	559.262
	300.00	257.783	311.209	309.621	-3421.199	0.476	-3514.561	-3421.663	-3190.784	555.565
	400.00	279.744	388.717	320.040	-3394.204	27.471	-3549.691	-3420.527	-3113.989	406.645
	500.00	292.813	452.639	340.357	-3365.534	56.141	-3591.853	-3420.643	-3037.391	317.314
	600.00	302.381	506.906	363.706	-3335.755	85.920	-3639.898	-3423.229	-2960.509	257.735
	700.00	310.297	554.127	387.608	-3305.111	116.564	-3693.001	-3422.411	-2883.473	215.167
	800.00	317.332	596.028	411.090	-3273.724	147.951	-3750.547	-3422.478	-2806.477	183.244
	900.00	323.854	633.785	433.771	-3241.662	180.013	-3812.068	-3421.877	-2729.504	158.416
	1000.00	330.059	668.230	455.519	-3208.964	212.711	-3877.194	-3420.848	-2652.628	138.559
	1100.00	336.056	699.970	476.318	-3175.657	246.018	-3945.624	-3443.266	-2573.566	122.208
	1200.00	341.911	729.463	496.199	-3141.758	279.917	-4017.113	-3441.897	-2494.561	108.585
	1300.00	347.667	757.058	515.215	-3107.278	314.397	-4091.454	-3440.448	-2415.676	97.063
	1400.00	353.350	783.032	533.426	-3072.227	349.448	-4168.471	-3439.582	-2336.886	87.190
	1500.00	358.980	807.602	550.892	-3036.610	385.065	-4248.014	-3632.939	-2245.265	78.187
	1600.00	364.569	830.949	567.672	-3000.432	421.243	-4329.951	-3627.340	-2152.933	70.286
	1700.00	370.126	853.218	583.819	-2963.697	457.978	-4414.167	-3621.285	-2060.966	63.326
	1800.00	375.659	874.530	599.382	-2926.408	495.267	-4500.562	-3614.775	-1969.368	57.150
	1878.00	379.961	890.557	611.144	-2896.938	524.737	-4569.404	-3609.380	-1898.181	52.796

References

Phase	H / S	C_p
SOL	G1	G1

BaBr2 BARIUM BROMIDE 297.135

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	77.014	148.532	148.532	−757.722	0.000	−802.007	−757.722	−738.016	129.297
	300.00	77.054	149.009	148.533	−757.579	0.143	−802.282	−757.771	−737.893	128.479
	400.00	79.216	171.472	151.582	−749.766	7.956	−818.355	−787.427	−725.117	94.691
	500.00	81.378	189.380	157.409	−741.736	15.986	−836.426	−786.895	−709.620	74.133
	600.00	83.541	204.409	164.022	−733.490	24.232	−856.135	−787.195	−694.139	60.430
	700.00	85.703	217.449	170.743	−725.028	32.694	−877.242	−786.285	−678.707	50.646
	800.00	87.865	229.034	177.319	−716.350	41.372	−899.577	−785.568	−663.387	43.315
	900.00	90.028	239.508	183.656	−707.455	50.267	−923.012	−784.523	−648.173	37.619
	1000.00	92.190	249.105	189.727	−698.344	59.378	−947.449	−783.245	−633.090	33.069
	1100.00	94.352	257.993	195.534	−689.017	68.705	−972.810	−789.695	−617.377	29.317
	1130.00	95.001	260.541	197.226	−686.177	71.545	−980.588	−789.241	−612.683	28.321
			28.288		31.966					
LIQ	1130.00	104.851	288.829	197.226	−654.211	103.511	−980.588	−789.241	−612.683	28.321
	1200.00	104.851	295.131	202.755	−646.871	110.851	−1001.029	−755.473	−603.781	26.282
	1300.00	104.851	303.524	210.188	−636.386	121.336	−1030.967	−752.849	−591.246	23.757
	1400.00	104.851	311.294	217.136	−625.901	131.821	−1061.713	−750.213	−578.914	21.600
	1500.00	104.851	318.528	223.657	−615.416	142.306	−1093.208	−747.584	−566.770	19.737
	1600.00	104.851	325.295	229.800	−604.931	152.791	−1125.403	−744.960	−554.801	18.112
	1700.00	104.851	331.651	235.606	−594.446	163.276	−1158.253	−742.341	−542.996	16.684
	1800.00	104.851	337.644	241.110	−583.961	173.761	−1191.721	−739.727	−531.345	15.419
	1900.00	104.851	343.313	246.342	−573.476	184.246	−1225.771	−737.119	−519.840	14.291
	2000.00	104.851	348.692	251.326	−562.990	194.732	−1260.374	−734.515	−508.472	13.280
	2100.00	104.851	353.807	256.085	−552.505	205.217	−1295.501	−731.916	−497.233	12.368
	2200.00	104.851	358.685	260.639	−542.020	215.702	−1331.127	−870.491	−484.233	11.497
	2300.00	104.851	363.346	265.004	−531.535	226.187	−1367.230	−867.225	−466.750	10.600
	2301.00	104.851	363.391	265.046	−531.430	226.292	−1367.594	−867.193	−466.576	10.592

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	BPT= 2301., L= 223.0 kJ

297.135 BARIUM BROMIDE (GAS) **BaBr2[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	57.024	341.942	341.942	−424.676	0.000	−526.626	−424.676	−462.635	81.052
	300.00	57.038	342.295	341.943	−424.570	0.106	−527.259	−424.762	−462.870	80.593
	400.00	57.543	358.783	344.188	−418.838	5.838	−562.351	−456.499	−469.114	61.260
	500.00	57.776	371.652	348.441	−413.071	11.605	−598.896	−458.230	−472.090	49.319
	600.00	57.904	382.198	353.215	−407.286	17.390	−636.605	−460.991	−474.609	41.318
	700.00	57.981	391.130	358.009	−401.492	23.184	−675.282	−462.749	−476.747	35.575
	800.00	58.031	398.876	362.644	−395.691	28.985	−714.791	−464.909	−478.601	31.249
	900.00	58.065	405.713	367.057	−389.886	34.790	−755.027	−466.954	−480.188	27.869
	1000.00	58.090	411.832	371.234	−384.078	40.598	−795.910	−468.979	−481.550	25.154
	1100.00	58.109	417.369	375.180	−378.268	46.408	−837.374	−478.946	−481.941	22.885
	1200.00	58.123	422.426	378.910	−372.457	52.219	−879.368	−481.058	−482.120	20.986
	1300.00	58.134	427.079	382.439	−366.644	58.032	−921.846	−483.106	−482.125	19.372
	1400.00	58.143	431.387	385.783	−360.830	63.846	−964.772	−485.142	−481.973	17.983
	1500.00	58.150	435.399	388.959	−355.015	69.661	−1008.114	−487.183	−481.676	16.773
	1600.00	58.156	439.152	391.980	−349.200	75.476	−1051.843	−489.229	−481.242	15.711
	1700.00	58.162	442.678	394.859	−343.384	81.292	−1095.937	−491.279	−480.680	14.769
	1800.00	58.166	446.003	397.609	−337.567	87.109	−1140.372	−493.334	−479.997	13.929
	1900.00	58.170	449.148	400.240	−331.751	92.925	−1185.131	−495.394	−479.200	13.174
	2000.00	58.173	452.131	402.760	−325.934	98.742	−1230.196	−497.458	−478.294	12.492
	2100.00	58.176	454.970	405.179	−320.116	104.560	−1275.553	−499.527	−477.285	11.872
	2200.00	58.179	457.676	407.505	−314.298	110.378	−1321.186	−642.769	−474.292	11.261
	2300.00	58.181	460.262	409.743	−308.480	116.196	−1367.084	−644.170	−466.603	10.597
	2400.00	58.183	462.739	411.900	−302.662	122.014	−1413.235	−645.812	−458.849	9.987
	2500.00	58.185	465.114	413.981	−296.844	127.832	−1459.628	−647.709	−451.021	9.424

References

Phase	H / S	C_p
GAS	Ja1	Ja1

BaC2 BARIUM DICARBIDE 161.349

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	63.888	87.864	87.864	−74.977	0.000	−101.174	−74.977	−79.141	13.865
	300.00	64.029	88.260	87.865	−74.859	0.118	−101.337	−74.942	−79.167	13.784
	400.00	69.104	107.472	90.450	−68.168	6.809	−111.157	−73.313	−80.839	10.556
	500.00	71.655	123.193	95.476	−61.118	13.859	−122.715	−72.731	−82.816	8.652
	600.00	73.213	136.404	101.226	−53.870	21.107	−135.712	−73.470	−84.774	7.380
	700.00	74.302	147.776	107.082	−46.491	28.486	−149.935	−73.465	−86.670	6.467
	800.00	75.141	157.755	112.805	−39.017	35.960	−165.221	−74.053	−88.519	5.780
	900.00	75.834	166.646	118.303	−31.468	43.509	−181.449	−74.661	−90.291	5.240
	1000.00	76.437	174.668	123.545	−23.854	51.123	−198.522	−75.352	−91.992	4.805
	1100.00	76.982	181.979	128.529	−16.182	58.795	−216.359	−84.063	−92.851	4.409
	1200.00	77.486	188.699	133.267	−8.459	66.518	−234.898	−84.975	−93.609	4.075
	1300.00	77.962	194.920	137.774	−0.686	74.291	−254.083	−85.861	−94.292	3.789
	1400.00	78.417	200.715	142.065	7.133	82.110	−273.868	−86.758	−94.908	3.541
	1500.00	78.857	206.140	146.157	14.997	89.974	−294.213	−87.672	−95.458	3.324

References

Phase	H / S	C_p
SOL	Nb1/Ku1	e

197.336 BARIUM CARBONATE **BaCO3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL−A	298.15	85.353	112.131	112.131	−1216.289	0.000	−1249.721	−1216.289	−1137.653	199.312
	300.00	85.687	112.660	112.133	−1216.131	0.158	−1249.929	−1216.280	−1137.165	197.998
	400.00	98.409	139.246	115.672	−1206.859	9.430	−1262.558	−1215.489	−1110.904	145.069
	500.00	106.577	162.125	122.729	−1196.591	19.698	−1277.654	−1214.947	−1084.834	113.332
	600.00	113.341	182.166	130.999	−1185.589	30.700	−1294.888	−1215.091	−1058.799	92.177
	700.00	119.558	200.109	139.612	−1173.941	42.348	−1314.017	−1213.920	−1032.847	77.072
	800.00	125.526	216.465	148.210	−1161.685	54.604	−1334.857	−1212.808	−1007.052	65.754
	900.00	131.369	231.588	156.645	−1148.840	67.449	−1357.269	−1211.195	−981.423	56.960
	1000.00	137.143	245.729	164.853	−1135.414	80.875	−1381.142	−1209.148	−956.000	49.936
	1079.00	141.675	256.327	171.166	−1124.400	91.889	−1400.977	−1215.133	−935.471	45.286
			16.274		17.560					
SOL−B	1079.00	154.808	272.601	171.166	−1106.840	109.449	−1400.977	−1197.573	−935.471	45.286
	1100.00	154.808	275.585	173.131	−1103.589	112.700	−1406.733	−1196.781	−930.377	44.180
	1200.00	154.808	289.055	182.238	−1088.108	128.181	−1434.974	−1193.013	−906.325	39.451
	1241.00	154.808	294.256	185.853	−1081.761	134.528	−1446.933	−1191.476	−896.556	37.737
			2.522		3.130					
SOL−C	1241.00	158.992	296.778	185.853	−1078.631	137.658	−1446.933	−1188.346	−896.556	37.737
	1300.00	158.992	304.163	191.056	−1069.251	147.038	−1464.662	−1185.897	−882.741	35.469
	1400.00	158.992	315.945	199.561	−1053.351	162.938	−1495.675	−1181.805	−859.576	32.071

References

Phase	H / S	C_p
SOL−A	Nb1	Pa3
SOL−B	Pa3	Ku1
SOL−C	Pa3	Pa3

BaCl[g] BARIUM MONOCHLORIDE (GAS) 172.780

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	36.434	258.639	258.639	−142.256	0.000	−219.369	−142.256	−167.498	29.345
	300.00	36.449	258.864	258.639	−142.189	0.067	−219.848	−142.272	−167.655	29.191
	400.00	36.979	269.432	260.077	−138.514	3.742	−246.287	−143.318	−175.973	22.980
	500.00	37.257	277.716	262.806	−134.801	7.455	−273.659	−145.196	−183.941	19.216
	600.00	37.435	284.526	265.875	−131.066	11.190	−301.781	−148.106	−191.423	16.665
	700.00	37.567	290.307	268.963	−127.315	14.941	−330.530	−150.011	−198.500	14.812
	800.00	37.673	295.330	271.952	−123.553	18.703	−359.817	−152.315	−205.271	13.403
	900.00	37.765	299.773	274.801	−119.781	22.475	−389.577	−154.498	−211.758	12.290
	1000.00	37.848	303.756	277.501	−116.001	26.255	−419.757	−156.655	−218.005	11.387
	1100.00	37.913	307.367	280.054	−112.212	30.044	−450.316	−166.748	−223.268	10.602
	1200.00	37.977	310.668	282.470	−108.418	33.838	−481.220	−168.980	−228.307	9.938
	1300.00	38.048	313.711	284.757	−104.617	37.639	−512.441	−171.140	−233.163	9.369
	1400.00	38.131	316.533	286.928	−100.808	41.448	−543.955	−173.281	−237.853	8.874
	1500.00	38.232	319.167	288.990	−96.990	45.266	−575.741	−175.415	−242.391	8.441
	1600.00	38.352	321.639	290.954	−93.161	49.095	−607.783	−177.543	−246.787	8.057
	1700.00	38.494	323.968	292.828	−89.319	52.937	−640.064	−179.661	−251.049	7.714
	1800.00	38.658	326.173	294.620	−85.461	56.795	−672.572	−181.767	−255.188	7.405
	1900.00	38.846	328.268	296.336	−81.586	60.670	−705.295	−183.859	−259.210	7.126
	2000.00	39.058	330.265	297.983	−77.691	64.565	−738.222	−185.935	−263.122	6.872
	2100.00	39.296	332.177	299.566	−73.774	68.482	−771.345	−187.992	−266.930	6.640
	2200.00	39.559	334.011	301.090	−69.831	72.425	−804.655	−331.197	−268.756	6.381
	2300.00	39.848	335.775	302.560	−65.861	76.395	−838.145	−332.531	−265.889	6.039
	2400.00	40.163	337.478	303.980	−61.861	80.395	−871.808	−334.078	−262.959	5.723
	2500.00	40.504	339.124	305.353	−57.828	84.428	−905.639	−335.845	−259.960	5.432
	2600.00	40.872	340.720	306.683	−53.759	88.497	−939.631	−337.839	−256.886	5.161
	2700.00	41.267	342.270	307.972	−49.652	92.604	−973.781	−340.065	−253.731	4.909
	2800.00	41.689	343.778	309.224	−45.505	96.751	−1008.084	−342.522	−250.489	4.673
	2900.00	42.138	345.249	310.441	−41.314	100.942	−1042.535	−345.208	−247.155	4.452
	3000.00	42.614	346.685	311.625	−37.076	105.180	−1077.132	−348.114	−243.725	4.244

References

Phase	H / S	C_p
GAS	Ja1	Ja1

208.232 BARIUM CHLORIDE **BaCl2**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL-1	298.15	75.142	123.667	123.667	-858.557	0.000	-895.428	-858.557	-810.296	141.961
	300.00	75.196	124.131	123.668	-858.418	0.139	-895.657	-858.533	-809.997	141.033
	400.00	77.317	146.083	126.647	-850.782	7.775	-909.216	-857.351	-794.008	103.687
	500.00	78.871	163.506	132.335	-842.972	15.585	-924.725	-856.917	-778.243	81.302
	600.00	80.419	178.021	138.773	-835.008	23.549	-941.821	-857.416	-762.466	66.379
	700.00	82.223	190.542	145.294	-826.883	31.674	-960.263	-856.785	-746.697	55.719
	800.00	84.324	201.658	151.657	-818.556	40.001	-979.883	-856.377	-730.996	47.729
	900.00	86.592	211.718	157.780	-810.013	48.544	-1000.559	-855.652	-715.363	41.519
	1000.00	89.492	220.983	163.643	-801.216	57.341	-1022.200	-854.663	-699.827	36.555
	1100.00	93.524	229.691	169.255	-792.077	66.480	-1044.737	-861.282	-683.636	32.463
	1198.00	98.974	237.890	174.536	-782.658	75.899	-1067.651	-859.614	-667.877	29.120
			14.109		16.903					
SOL-2	1198.00	123.846	252.000	174.536	-765.755	92.802	-1067.651	-859.614	-667.877	29.120
	1200.00	123.846	252.206	174.665	-765.507	93.050	-1068.155	-842.621	-667.585	29.059
	1235.00	123.846	255.767	176.913	-761.173	97.384	-1077.045	-841.038	-662.503	28.021
			12.948		15.991					
LIQ	1235.00	108.784	268.715	176.913	-745.182	113.375	-1077.045	-841.038	-662.503	28.021
	1300.00	108.784	274.295	181.644	-738.111	120.446	-1094.694	-823.072	-653.999	26.278
	1400.00	108.784	282.357	188.553	-727.232	131.325	-1122.532	-820.033	-641.107	23.920
	1500.00	108.784	289.862	195.060	-716.354	142.203	-1151.147	-817.002	-628.433	21.884
	1600.00	108.784	296.883	201.207	-705.475	153.082	-1180.488	-813.978	-615.960	20.109
	1700.00	108.784	303.478	207.031	-694.597	163.960	-1210.509	-810.961	-603.676	18.549
	1800.00	108.784	309.696	212.563	-683.719	174.838	-1241.171	-807.952	-591.570	17.167
	1900.00	108.784	315.577	217.832	-672.840	185.717	-1272.437	-804.949	-579.630	15.935
	2000.00	108.784	321.157	222.860	-661.962	196.595	-1304.276	-801.954	-567.849	14.831
	2100.00	108.784	326.465	227.668	-651.083	207.474	-1336.659	-798.967	-556.217	13.835
	2200.00	108.784	331.525	232.274	-640.205	218.352	-1369.561	-937.155	-542.842	12.889
	2299.40	108.784	336.333	236.670	-629.392	229.165	-1402.755	-933.527	-525.108	11.929

References

Phase	H / S	C_p	Remarks	
SOL-1	Ja1	Ja1		
SOL-2	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	BPT= 2299.4, L= 246.4 kJ

BaCl2[g] BARIUM CHLORIDE (GAS) 208.232

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	56.158	325.750	325.750	−498.733	0.000	−595.855	−498.733	−510.724	89.477
	300.00	56.182	326.098	325.751	−498.629	0.104	−596.458	−498.744	−510.798	88.938
	400.00	57.030	342.393	327.967	−492.963	5.770	−629.920	−499.532	−514.712	67.215
	500.00	57.439	355.167	332.176	−487.237	11.496	−664.821	−501.183	−518.339	54.151
	600.00	57.666	365.662	336.908	−481.481	17.252	−700.878	−503.889	−521.523	45.403
	700.00	57.806	374.562	341.668	−475.707	23.026	−737.900	−505.609	−524.334	39.126
	800.00	57.897	382.287	346.273	−469.921	28.812	−775.751	−507.743	−526.865	34.401
	900.00	57.960	389.111	350.661	−464.128	34.605	−814.328	−509.767	−529.132	30.710
	1000.00	58.006	395.220	354.817	−458.330	40.403	−853.550	−511.777	−531.177	27.746
	1100.00	58.039	400.750	358.745	−452.528	46.205	−893.353	−521.733	−532.251	25.275
	1200.00	58.065	405.801	362.459	−446.722	52.011	−933.684	−523.836	−533.114	23.206
	1300.00	58.085	410.450	365.974	−440.915	57.818	−974.499	−525.876	−533.804	21.449
	1400.00	58.101	414.755	369.307	−435.105	63.628	−1015.762	−527.906	−534.338	19.936
	1500.00	58.114	418.764	372.472	−429.295	69.438	−1057.441	−529.943	−534.726	18.621
	1600.00	58.125	422.515	375.483	−423.483	75.250	−1099.507	−531.985	−534.979	17.465
	1700.00	58.133	426.039	378.355	−417.670	81.063	−1141.936	−534.034	−535.103	16.442
	1800.00	58.141	429.362	381.097	−411.856	86.877	−1184.708	−536.089	−535.107	15.528
	1900.00	58.147	432.506	383.721	−406.042	92.691	−1227.802	−538.151	−534.996	14.708
	2000.00	58.152	435.488	386.235	−400.227	98.506	−1271.203	−540.219	−534.776	13.967
	2100.00	58.156	438.326	388.649	−394.411	104.322	−1314.895	−542.295	−534.453	13.294
	2200.00	58.160	441.031	390.969	−388.595	110.138	−1358.864	−685.546	−532.145	12.635
	2300.00	58.164	443.617	393.202	−382.779	115.954	−1403.098	−686.959	−525.142	11.926
	2400.00	58.166	446.092	395.355	−376.963	121.770	−1447.584	−688.617	−518.072	11.276
	2500.00	58.169	448.467	397.432	−371.146	127.587	−1492.313	−690.533	−510.927	10.675
	2600.00	58.171	450.748	399.439	−365.329	133.404	−1537.274	−692.717	−503.701	10.119
	2700.00	58.173	452.944	401.380	−359.512	139.221	−1582.459	−695.174	−496.385	9.603
	2800.00	58.175	455.059	403.260	−353.694	145.039	−1627.860	−697.908	−488.974	9.122
	2900.00	58.177	457.101	405.081	−347.877	150.856	−1673.469	−700.919	−481.459	8.672
	3000.00	58.178	459.073	406.848	−342.059	156.674	−1719.278	−704.202	−473.837	8.250

References

Phase	H / S	C_p
GAS	Ja1	Ja1

253.321 BARIUM CHROMATE **BaCrO4**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)		] [		kJ / mol		]	[−]
SOL	298.15	120.205	158.615	158.615	−1445.990	0.000	−1493.281	−1445.990	−1345.294	235.690
	300.00	120.543	159.360	158.618	−1445.767	0.223	−1493.575	−1445.971	−1344.670	234.128
	400.00	133.315	195.997	163.526	−1433.002	12.988	−1511.400	−1444.564	−1311.102	171.212
	500.00	140.624	226.589	173.166	−1419.279	26.711	−1532.573	−1443.367	−1277.890	133.500
	600.00	145.784	252.705	184.299	−1404.947	41.043	−1556.570	−1442.932	−1244.839	108.373
	700.00	149.928	275.498	195.734	−1390.155	55.835	−1583.004	−1441.341	−1211.955	90.437
	800.00	153.531	295.758	206.994	−1374.979	71.011	−1611.585	−1440.029	−1179.275	76.999
	900.00	156.819	314.033	217.888	−1359.459	86.531	−1642.089	−1438.475	−1146.771	66.557
	1000.00	159.912	330.717	228.349	−1343.622	102.368	−1674.339	−1436.774	−1114.450	58.213

References

Phase	H / S	C_p
SOL	Nb1	e

BaF[g] BARIUM MONOFLUORIDE (GAS) 156.325

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol	]		[-]
GAS	298.15	34.747	246.212	246.212	-322.168	0.000	-395.576	-322.168	-346.735	60.747
	300.00	34.776	246.427	246.213	-322.104	0.064	-396.032	-322.185	-346.887	60.398
	400.00	35.871	256.599	247.592	-318.565	3.603	-421.205	-323.240	-354.975	46.355
	500.00	36.467	264.674	250.229	-314.946	7.222	-447.282	-325.108	-362.715	37.893
	600.00	36.833	271.357	253.209	-311.279	10.889	-474.094	-328.005	-369.971	32.209
	700.00	37.081	277.055	256.219	-307.583	14.585	-501.521	-329.901	-376.824	28.119
	800.00	37.262	282.018	259.140	-303.865	18.303	-529.480	-332.200	-383.371	25.032
	900.00	37.403	286.416	261.931	-300.132	22.036	-557.906	-334.382	-389.635	22.614
	1000.00	37.518	290.363	264.580	-296.386	25.782	-586.748	-336.544	-395.659	20.667
	1100.00	37.616	293.943	267.089	-292.629	29.539	-615.966	-346.644	-400.697	19.028
	1200.00	37.701	297.220	269.466	-288.863	33.305	-645.527	-348.887	-405.512	17.651
	1300.00	37.778	300.241	271.718	-285.089	37.079	-675.402	-351.061	-410.142	16.480
	1400.00	37.849	303.043	273.857	-281.308	40.860	-705.568	-353.220	-414.606	15.469
	1500.00	37.915	305.657	275.891	-277.519	44.649	-736.004	-355.378	-418.915	14.588
	1600.00	37.978	308.106	277.828	-273.725	48.443	-766.694	-357.537	-423.080	13.812
	1700.00	38.080	310.412	279.678	-269.921	52.247	-797.621	-359.693	-427.111	13.124
	1800.00	38.177	312.591	281.446	-266.108	56.060	-828.772	-361.845	-431.015	12.508
	1900.00	38.289	314.658	283.141	-262.285	59.883	-860.135	-363.991	-434.799	11.953
	2000.00	38.421	316.625	284.766	-258.450	63.718	-891.700	-366.131	-438.470	11.452
	2100.00	38.571	318.503	286.328	-254.600	67.568	-923.457	-368.261	-442.035	10.995
	2200.00	38.743	320.302	287.832	-250.735	71.433	-955.398	-511.547	-443.612	10.533
	2300.00	38.936	322.028	289.281	-246.851	75.317	-987.515	-512.974	-440.493	10.004
	2400.00	39.150	323.689	290.681	-242.947	79.221	-1019.801	-514.622	-437.307	9.518
	2500.00	39.387	325.292	292.033	-239.020	83.148	-1052.251	-516.500	-434.048	9.069
	2600.00	39.647	326.842	293.342	-235.069	87.099	-1084.858	-518.617	-430.709	8.653
	2700.00	39.929	328.344	294.611	-231.090	91.078	-1117.618	-520.974	-427.284	8.266
	2800.00	40.234	329.801	295.842	-227.082	95.086	-1150.525	-523.574	-423.767	7.905
	2900.00	40.563	331.219	297.037	-223.042	99.126	-1183.577	-526.411	-420.153	7.568
	3000.00	40.915	332.600	298.200	-218.969	103.199	-1216.768	-529.481	-416.438	7.251

References

Phase	H / S	C_p
GAS	Ja1	Ja1

175.324 BARIUM FLUORIDE **BaF2**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f [-]
		J / (K mol)			kJ / mol					
SOL-A	298.15	72.221	96.399	96.399	-1208.758	0.000	-1237.499	-1208.758	-1158.427	202.952
	300.00	72.285	96.846	96.401	-1208.624	0.134	-1237.678	-1208.734	-1158.114	201.646
	400.00	75.942	118.158	99.281	-1201.207	7.551	-1248.471	-1207.518	-1141.432	149.056
	500.00	78.447	135.393	104.835	-1193.479	15.279	-1261.175	-1206.958	-1124.995	117.527
	600.00	80.335	149.865	111.166	-1185.538	23.220	-1275.457	-1207.318	-1108.573	96.510
	700.00	82.382	162.397	117.609	-1177.406	31.352	-1291.084	-1206.553	-1092.183	81.500
	800.00	84.935	173.551	123.916	-1169.050	39.708	-1307.891	-1206.017	-1075.879	70.248
	900.00	88.701	183.760	130.005	-1160.379	48.379	-1325.763	-1205.085	-1059.663	61.501
	1000.00	94.558	193.376	135.865	-1151.247	57.511	-1344.623	-1203.701	-1043.574	54.511
	1100.00	104.182	202.810	141.522	-1141.342	67.416	-1364.432	-1209.506	-1026.889	48.763
	1200.00	130.541	213.005	147.044	-1129.605	79.153	-1385.211	-1205.643	-1010.437	43.983
	1240.00	141.084	217.457	149.243	-1124.173	84.585	-1393.820	-1203.343	-1003.967	42.292
			0.000		0.000					
SOL-B	1240.00	151.837	217.457	149.243	-1124.173	84.585	-1393.820	-1203.343	-1003.967	42.292
	1300.00	137.654	224.299	152.553	-1115.488	93.270	-1407.077	-1199.347	-994.419	39.956
	1400.00	114.014	233.635	158.026	-1102.905	105.853	-1429.994	-1194.585	-978.849	36.521
	1480.00	95.102	239.451	162.276	-1094.540	114.218	-1448.927	-1192.488	-966.587	34.114
			1.807		2.674					
SOL-C	1480.00	107.654	241.257	162.276	-1091.866	116.892	-1448.927	-1189.814	-966.587	34.114
	1500.00	107.654	242.702	163.339	-1089.713	119.045	-1453.767	-1189.229	-963.574	33.555
	1600.00	107.654	249.650	168.519	-1078.948	129.810	-1478.388	-1186.312	-948.626	30.969
	1641.00	107.654	252.374	170.580	-1074.534	134.224	-1488.680	-1185.119	-942.550	30.002
			14.235		23.359					
LIQ	1641.00	99.826	266.609	170.580	-1051.175	157.583	-1488.680	-1161.760	-942.550	30.002
	1700.00	99.826	270.135	173.974	-1045.285	163.473	-1504.514	-1160.509	-934.691	28.720
	1800.00	99.826	275.841	179.477	-1035.303	173.455	-1531.816	-1158.398	-921.469	26.740
	1900.00	99.826	281.238	184.692	-1025.320	183.438	-1559.672	-1156.296	-908.363	24.973
	2000.00	99.826	286.358	189.648	-1015.337	193.421	-1588.054	-1154.205	-895.368	23.385
	2100.00	99.826	291.229	194.370	-1005.355	203.403	-1616.936	-1152.122	-882.478	21.950
	2200.00	99.826	295.873	198.879	-995.372	213.386	-1646.292	-1291.217	-867.801	20.604
	2300.00	99.826	300.310	203.194	-985.389	223.369	-1676.103	-1288.474	-848.617	19.273
	2400.00	99.826	304.559	207.329	-975.407	233.351	-1706.348	-1285.977	-829.547	18.055
	2500.00	99.826	308.634	211.301	-965.424	243.334	-1737.009	-1283.738	-810.576	16.936
	2543.00	99.826	310.336	212.961	-961.132	247.626	-1750.317	-1282.856	-802.445	16.483

References

Phase	H / S	C_p	Remarks	
SOL-A	Ja1	Ja1		
SOL-B	Ja1	Ja1		
SOL-C	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	BPT= 2543., L= 285.4 kJ

BaF2[g] BARIUM FLUORIDE (GAS) 175.324

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	53.778	301.274	301.274	−803.746	0.000	−893.571	−803.746	−814.498	142.697
	300.00	53.824	301.607	301.275	−803.646	0.100	−894.128	−803.756	−814.565	141.828
	400.00	55.558	317.359	303.411	−798.167	5.579	−925.110	−804.477	−818.072	106.829
	500.00	56.444	329.861	307.494	−792.562	11.184	−957.493	−806.042	−821.313	85.802
	600.00	56.953	340.201	312.108	−786.890	16.856	−991.011	−808.670	−824.127	71.747
	700.00	57.271	349.006	316.766	−781.178	22.568	−1025.482	−810.325	−826.581	61.680
	800.00	57.483	356.668	321.285	−775.440	28.306	−1060.774	−812.406	−828.762	54.113
	900.00	57.631	363.448	325.601	−769.683	34.063	−1096.787	−814.390	−830.686	48.212
	1000.00	57.738	369.526	329.694	−763.915	39.831	−1133.440	−816.369	−832.392	43.480
	1100.00	57.818	375.033	333.570	−758.137	45.609	−1170.673	−826.302	−833.129	39.562
	1200.00	57.879	380.066	337.238	−752.352	51.394	−1208.431	−828.389	−833.657	36.288
	1300.00	57.927	384.701	340.713	−746.561	57.185	−1246.673	−830.420	−834.014	33.511
	1400.00	57.965	388.995	344.010	−740.767	62.979	−1285.360	−832.447	−834.214	31.125
	1500.00	57.996	392.995	347.144	−734.969	68.777	−1324.462	−834.484	−834.270	29.052
	1600.00	58.021	396.739	350.128	−729.168	74.578	−1363.951	−836.532	−834.188	27.233
	1700.00	58.041	400.257	352.974	−723.365	80.381	−1403.802	−838.589	−833.979	25.625
	1800.00	58.059	403.575	355.694	−717.560	86.186	−1443.995	−840.655	−833.648	24.192
	1900.00	58.073	406.715	358.298	−711.753	91.993	−1484.511	−842.729	−833.203	22.906
	2000.00	58.086	409.694	360.794	−705.945	97.801	−1525.333	−844.813	−832.647	21.747
	2100.00	58.096	412.528	363.190	−700.136	103.610	−1566.445	−846.904	−831.988	20.695
	2200.00	58.105	415.231	365.495	−694.326	109.420	−1607.834	−990.171	−829.343	19.691
	2300.00	58.113	417.814	367.714	−688.515	115.231	−1649.488	−991.600	−822.001	18.668
	2400.00	58.120	420.288	369.853	−682.703	121.043	−1691.394	−993.274	−814.592	17.729
	2500.00	58.126	422.660	371.918	−676.891	126.855	−1733.542	−995.205	−807.108	16.864
	2600.00	58.131	424.940	373.914	−671.078	132.668	−1775.922	−997.401	−799.542	16.063
	2700.00	58.135	427.134	375.845	−665.265	138.481	−1818.527	−999.870	−791.886	15.320
	2800.00	58.139	429.248	377.715	−659.451	144.295	−1861.347	−1002.613	−784.134	14.628
	2900.00	58.143	431.289	379.527	−653.637	150.109	−1904.374	−1005.629	−776.278	13.982
	3000.00	58.146	433.260	381.285	−647.823	155.923	−1947.602	−1008.915	−768.315	13.378

References

Phase	H / S	C_p
GAS	Ja1	Ja1

138.335 BARIUM MONOHYDRIDE (GAS) **BaH[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	30.236	219.008	219.008	203.535	0.000	138.238	203.535	176.328	−30.892
	300.00	30.251	219.195	219.009	203.591	0.056	137.832	203.512	176.160	−30.672
	400.00	31.649	228.075	220.210	206.681	3.146	115.451	202.162	167.235	−21.839
	500.00	33.031	235.292	222.526	209.918	6.383	92.272	200.132	158.719	−16.581
	600.00	34.090	241.412	225.177	213.276	9.741	68.429	197.199	150.708	−13.120
	700.00	34.898	246.730	227.884	216.727	13.192	44.016	195.364	143.097	−10.678
	800.00	35.537	251.434	230.540	220.250	16.715	19.103	193.196	135.778	−8.865
	900.00	36.066	255.651	233.099	223.831	20.296	−6.254	191.198	128.723	−7.471
	1000.00	36.527	259.475	235.549	227.461	23.926	−32.014	189.259	121.885	−6.367
	1100.00	36.949	262.976	237.885	231.135	27.600	−58.139	179.410	116.008	−5.509
	1200.00	37.356	266.209	240.113	234.851	31.316	−84.600	177.441	110.332	−4.803
	1300.00	37.768	269.215	242.237	238.607	35.072	−111.373	175.562	104.817	−4.212
	1400.00	38.200	272.030	244.265	242.405	38.870	−138.437	173.720	99.444	−3.710
	1500.00	38.666	274.681	246.206	246.248	42.713	−165.773	171.900	94.202	−3.280
	1600.00	39.179	277.192	248.064	250.140	46.605	−193.368	170.108	89.081	−2.908
	1700.00	39.751	279.584	249.849	254.086	50.551	−221.208	168.349	84.071	−2.583
	1800.00	40.394	281.874	251.565	258.092	54.557	−249.282	166.630	79.163	−2.297
	1900.00	41.117	284.077	253.218	262.167	58.632	−277.580	164.960	74.349	−2.044
	2000.00	41.932	286.207	254.815	266.319	62.784	−306.095	163.348	69.622	−1.818

References

Phase	H / S	C_p
GAS	Tk1	Pa3

BaH2 BARIUM HYDRIDE 139.343

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL-1	298.15	45.999	62.999	62.999	-190.079	0.000	-208.862	-190.079	-151.290	26.505
	300.00	46.051	63.283	62.999	-189.994	0.085	-208.979	-190.099	-151.049	26.300
	400.00	48.844	76.914	64.839	-185.249	4.830	-216.015	-191.248	-137.867	18.004
	500.00	51.637	88.113	68.405	-180.225	9.854	-224.282	-192.952	-124.341	12.990
	600.00	54.430	97.774	72.512	-174.922	15.157	-233.586	-195.405	-110.390	9.610
	700.00	57.223	106.374	76.746	-169.339	20.740	-243.801	-196.577	-96.132	7.173
	800.00	60.015	114.198	80.946	-163.477	26.602	-254.835	-197.882	-81.692	5.334
	871.00	61.998	119.384	83.869	-159.146	30.933	-263.129	-198.580	-71.348	4.279
			6.437		5.607					
SOL-2	871.00	71.002	125.821	83.869	-153.539	36.540	-263.129	-192.973	-71.348	4.279
	900.00	71.002	128.147	85.259	-151.480	38.599	-266.812	-192.951	-67.299	3.906
	1000.00	71.002	135.628	89.928	-144.379	45.700	-280.007	-192.921	-53.340	2.786
	1100.00	71.002	142.395	94.395	-137.279	52.800	-293.914	-200.864	-38.614	1.834
	1200.00	71.002	148.573	98.656	-130.179	59.900	-308.467	-200.987	-23.859	1.039
	1300.00	71.002	154.256	102.718	-123.079	67.000	-323.612	-201.082	-9.094	0.365
	1400.00	71.002	159.518	106.589	-115.978	74.101	-339.304	-201.205	5.679	-0.212
	1473.00	71.002	163.127	109.302	-110.795	79.284	-351.081	-201.322	16.469	-0.584
			16.971		24.999					
LIQ	1473.00	74.998	180.099	109.302	-85.796	104.283	-351.081	-176.323	16.469	-0.584
	1500.00	74.998	181.461	110.589	-83.771	106.308	-355.963	-176.264	20.002	-0.697
	1600.00	74.998	186.301	115.171	-76.272	113.807	-374.353	-176.074	33.080	-1.080
	1700.00	74.998	190.848	119.491	-68.772	121.307	-393.213	-175.926	46.148	-1.418
	1800.00	74.998	195.135	123.575	-61.272	128.807	-412.514	-175.818	59.208	-1.718
	1900.00	74.998	199.190	127.449	-53.772	136.307	-432.232	-175.750	72.263	-1.987
	2000.00	74.998	203.036	131.133	-46.272	143.807	-452.345	-175.718	85.315	-2.228

References

Phase	H / S	C_p
SOL-1	Tk1	Pa3
SOL-2	Pa3	Pa3
LIQ	Pa3	Pa3

264.231 BARIUM MONOIODIDE (GAS) **BaI[g]**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	37.224	278.722	278.722	-42.426	0.000	-125.527	-42.426	-89.603	15.698
	300.00	37.227	278.952	278.723	-42.357	0.069	-126.043	-42.459	-89.896	15.652
	400.00	37.421	289.689	280.185	-38.624	3.802	-154.500	-52.533	-105.136	13.729
	500.00	37.566	298.056	282.953	-34.875	7.551	-183.903	-76.686	-115.937	12.112
	600.00	37.674	304.915	286.059	-31.112	11.314	-214.061	-79.627	-123.517	10.753
	700.00	37.759	310.729	289.179	-27.341	15.085	-244.851	-81.553	-130.688	9.752
	800.00	37.832	315.776	292.195	-23.561	18.865	-276.182	-83.874	-137.549	8.981
	900.00	37.896	320.236	295.068	-19.775	22.651	-307.987	-86.069	-144.125	8.365
	1000.00	37.956	324.232	297.788	-15.982	26.444	-340.214	-88.237	-150.460	7.859
	1100.00	38.014	327.852	300.359	-12.183	30.243	-372.821	-98.340	-155.810	7.399
	1200.00	38.071	331.162	302.790	-8.379	34.047	-405.774	-100.581	-160.935	7.005
	1300.00	38.128	334.212	305.091	-4.569	37.857	-439.044	-102.750	-165.876	6.665
	1400.00	38.185	337.039	307.273	-0.754	41.672	-472.609	-104.900	-170.651	6.367
	1500.00	38.242	339.676	309.347	3.068	45.494	-506.446	-107.047	-175.272	6.104
	1600.00	38.301	342.146	311.320	6.895	49.321	-540.538	-109.191	-179.751	5.868
	1700.00	38.362	344.470	313.202	10.728	53.154	-574.870	-111.333	-184.095	5.657
	1800.00	38.423	346.664	315.001	14.567	56.993	-609.428	-113.471	-188.314	5.465
	1900.00	38.487	348.743	316.723	18.413	60.839	-644.199	-115.606	-192.413	5.290
	2000.00	38.552	350.719	318.374	22.265	64.691	-679.173	-117.738	-196.401	5.129
	2100.00	38.619	352.602	319.959	26.123	68.549	-714.340	-119.865	-200.281	4.982
	2200.00	38.688	354.400	321.484	29.989	72.415	-749.691	-263.157	-202.175	4.800
	2300.00	38.759	356.121	322.953	33.861	76.287	-785.217	-264.600	-199.372	4.528
	2400.00	38.831	357.772	324.369	37.740	80.166	-820.912	-266.275	-196.501	4.277
	2500.00	38.906	359.359	325.737	41.627	84.053	-856.770	-268.195	-193.555	4.044
	2600.00	38.983	360.886	327.060	45.522	87.948	-892.782	-270.369	-190.527	3.828
	2700.00	39.061	362.359	328.340	49.424	91.850	-928.945	-272.803	-187.411	3.626
	2800.00	39.142	363.781	329.581	53.334	95.760	-965.252	-275.499	-184.200	3.436
	2900.00	39.225	365.156	330.784	57.252	99.678	-1001.700	-278.456	-180.888	3.258
	3000.00	39.310	366.487	331.952	61.179	103.605	-1038.282	-281.670	-177.469	3.090

References

Phase	H / S	C_p
GAS	Ja1	Ja1

BaI2 BARIUM IODIDE 391.136

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	77.493	165.143	165.142	−605.425	0.000	−654.662	−605.425	−601.425	105.367
	300.00	77.530	165.622	165.144	−605.282	0.143	−654.968	−605.434	−601.400	104.713
	400.00	79.530	188.200	168.209	−597.429	7.996	−672.709	−622.207	−599.402	78.274
	500.00	81.530	206.161	174.063	−589.376	16.049	−692.456	−666.154	−589.478	61.582
	600.00	83.530	221.203	180.699	−581.123	24.302	−713.844	−666.479	−574.116	49.981
	700.00	85.530	234.229	187.436	−572.670	32.755	−736.630	−665.606	−558.796	41.698
	800.00	87.530	245.781	194.020	−564.017	41.408	−760.641	−664.939	−543.582	35.492
	900.00	89.530	256.206	200.360	−555.164	50.261	−785.749	−663.958	−528.468	30.671
	984.00	91.210	264.268	205.475	−547.573	57.852	−807.613	−662.961	−515.866	27.384
			26.958		26.527					
LIQ	984.00	112.968	291.227	205.475	−521.046	84.379	−807.613	−636.434	−515.866	27.384
	1000.00	112.968	293.049	206.862	−519.238	86.187	−812.287	−635.887	−513.910	26.844
	1100.00	112.968	303.816	215.194	−507.941	97.484	−842.139	−640.389	−501.111	23.796
	1200.00	112.968	313.645	222.995	−496.645	108.780	−873.019	−637.038	−488.597	21.268
	1300.00	112.968	322.687	230.320	−485.348	120.077	−904.841	−633.624	−476.365	19.141
	1400.00	112.968	331.059	237.221	−474.051	131.374	−937.534	−630.200	−464.396	17.327
	1500.00	112.968	338.853	243.739	−462.754	142.671	−971.034	−626.781	−452.673	15.763
	1600.00	112.968	346.144	249.914	−451.457	153.968	−1005.288	−623.369	−441.177	14.403
	1700.00	112.968	352.993	255.778	−440.161	165.264	−1040.248	−619.963	−429.894	13.209
	1800.00	112.968	359.450	261.360	−428.864	176.561	−1075.873	−616.563	−418.812	12.154
	1900.00	112.968	365.558	266.685	−417.567	187.858	−1112.126	−613.168	−407.918	11.214
	2000.00	112.968	371.352	271.775	−406.270	199.155	−1148.974	−609.780	−397.203	10.374
	2100.00	112.968	376.864	276.649	−394.973	210.452	−1186.387	−606.397	−386.658	9.618
	2200.00	112.968	382.119	281.324	−383.677	221.748	−1224.339	−744.189	−374.387	8.889
	2300.00	112.968	387.141	285.817	−372.380	233.045	−1262.803	−740.140	−357.670	8.123
	2337.00	112.968	388.944	287.435	−368.200	237.225	−1277.161	−738.703	−351.528	7.857

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	BPT= 2337., L= 183.6 kJ

391.136 BARIUM IODIDE (GAS) **BaI2**[g]

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	57.461	348.135	348.135	-302.922	0.000	-406.718	-302.922	-353.481	61.928
	300.00	57.470	348.490	348.136	-302.816	0.106	-407.363	-302.968	-353.795	61.601
	400.00	57.788	365.073	350.395	-297.050	5.872	-443.080	-321.829	-369.773	48.287
	500.00	57.935	377.986	354.669	-291.264	11.658	-480.257	-368.041	-377.279	39.414
	600.00	58.015	388.557	359.463	-285.466	17.456	-518.600	-370.822	-378.871	32.984
	700.00	58.064	397.504	364.274	-279.661	23.261	-557.914	-372.598	-380.080	28.362
	800.00	58.095	405.259	368.923	-273.853	29.069	-598.061	-374.776	-381.002	24.877
	900.00	58.117	412.103	373.348	-268.043	34.879	-638.936	-376.837	-381.655	22.151
	1000.00	58.132	418.227	377.535	-262.230	40.692	-680.457	-378.879	-382.081	19.958
	1100.00	58.144	423.768	381.491	-256.416	46.506	-722.562	-388.864	-381.534	18.118
	1200.00	58.153	428.828	385.228	-250.602	52.320	-765.195	-390.995	-380.773	16.575
	1300.00	58.159	433.483	388.763	-244.786	58.136	-808.314	-393.062	-379.837	15.262
	1400.00	58.165	437.793	392.113	-238.970	63.952	-851.880	-395.118	-378.743	14.131
	1500.00	58.169	441.806	395.294	-233.153	69.769	-895.862	-397.180	-377.501	13.146
	1600.00	58.173	445.561	398.319	-227.336	75.586	-940.233	-399.248	-376.122	12.279
	1700.00	58.176	449.087	401.203	-221.518	81.404	-984.967	-401.321	-374.613	11.510
	1800.00	58.179	452.413	403.956	-215.701	87.221	-1030.044	-403.400	-372.982	10.824
	1900.00	58.181	455.558	406.590	-209.883	93.039	-1075.444	-405.484	-371.235	10.206
	2000.00	58.183	458.543	409.114	-204.065	98.857	-1121.150	-407.574	-369.379	9.647
	2100.00	58.184	461.381	411.536	-198.246	104.676	-1167.147	-409.670	-367.417	9.139
	2200.00	58.186	464.088	413.864	-192.428	110.494	-1213.422	-552.940	-363.471	8.630
	2300.00	58.187	466.675	416.104	-186.609	116.313	-1259.961	-554.369	-354.827	8.058
	2400.00	58.188	469.151	418.263	-180.790	122.132	-1306.753	-556.042	-346.117	7.533
	2500.00	58.189	471.527	420.346	-174.971	127.951	-1353.788	-557.969	-337.331	7.048
	2600.00	58.190	473.809	422.359	-169.152	133.770	-1401.055	-560.161	-328.463	6.599
	2700.00	58.191	476.005	424.305	-163.333	139.589	-1448.547	-562.623	-319.506	6.181
	2800.00	58.192	478.121	426.190	-157.514	145.408	-1496.254	-565.358	-310.452	5.792
	2900.00	58.193	480.163	428.016	-151.695	151.227	-1544.168	-568.365	-301.296	5.427
	3000.00	58.193	482.136	429.787	-145.876	157.046	-1592.284	-571.640	-292.032	5.085

References

Phase	H / S	C_p
GAS	Ja1	Ja1

BaMoO4 — BARIUM MOLYBDATE — 297.265

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	114.673	138.001	138.001	−1548.080	0.000	−1589.225	−1548.080	−1439.761	252.240
	300.00	115.054	138.711	138.003	−1547.868	0.212	−1589.481	−1548.072	−1439.089	250.568
	400.00	129.478	174.023	142.720	−1535.559	12.521	−1605.168	−1547.146	−1402.882	183.198
	500.00	137.714	203.866	152.045	−1522.169	25.911	−1624.103	−1546.231	−1366.933	142.803
	600.00	143.514	229.511	162.869	−1508.095	39.985	−1645.802	−1545.920	−1331.103	115.883
	700.00	148.164	251.994	174.028	−1493.504	54.576	−1669.900	−1544.328	−1295.431	96.666
	800.00	152.201	272.047	185.050	−1478.482	69.598	−1696.120	−1542.914	−1259.970	82.268
	900.00	155.882	290.189	195.740	−1463.076	85.004	−1724.246	−1541.177	−1224.702	71.080
	1000.00	159.342	306.793	206.026	−1447.313	100.767	−1754.106	−1539.219	−1189.642	62.141
	1100.00	162.657	322.137	215.893	−1431.212	116.868	−1785.562	−1545.004	−1154.019	54.800
	1200.00	165.873	336.428	225.349	−1414.785	133.295	−1818.499	−1542.738	−1118.573	48.690

References

Phase	H / S	C_p
SOL	Nb1	Ku1

Ba3N2 — TRIBARIUM DINITRIDE — 439.994

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	117.179	152.298	152.298	−363.171	0.000	−408.579	−363.171	−295.622	51.792
	300.00	117.361	153.023	152.300	−362.954	0.217	−408.861	−363.164	−295.202	51.399
	400.00	127.194	188.132	157.021	−350.726	12.445	−425.979	−362.815	−272.616	35.600
	500.00	137.026	217.571	166.260	−337.515	25.656	−446.301	−363.961	−249.980	26.115
	600.00	146.858	243.423	177.006	−323.321	39.850	−469.375	−367.231	−226.880	19.752
	700.00	156.691	266.800	188.189	−308.144	55.027	−494.903	−366.548	−203.553	15.189
	800.00	166.523	288.365	199.380	−291.983	71.188	−522.675	−366.138	−180.289	11.772
	900.00	176.356	308.546	210.399	−274.839	88.332	−552.530	−364.446	−157.144	9.120
	1000.00	182.004	327.548	221.175	−256.798	106.373	−584.346	−361.847	−134.247	7.012
	1100.00	182.004	344.895	231.647	−238.598	124.573	−617.982	−382.957	−109.314	5.191
	1200.00	182.004	360.731	241.753	−220.397	142.774	−653.275	−380.538	−84.543	3.680
	1300.00	182.004	375.300	251.473	−202.197	160.974	−690.086	−377.957	−59.980	2.410

References

Phase	H / S	C_p
SOL	Nb1/Ku1	e

261.337 BARIUM NITRATE **Ba(NO3)2**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	151.381	213.802	213.802	−992.068	0.000	−1055.813	−992.068	−796.582	139.558
	300.00	151.889	214.740	213.805	−991.787	0.281	−1056.210	−992.056	−795.369	138.486
	400.00	174.982	261.767	220.061	−975.386	16.682	−1080.092	−990.472	−730.001	95.328
	500.00	193.694	302.870	232.596	−956.931	35.137	−1108.366	−987.940	−665.167	69.490
	600.00	210.682	339.703	247.428	−936.703	55.365	−1140.525	−985.001	−600.872	52.311
	700.00	226.855	373.402	263.049	−914.821	77.247	−1176.202	−979.743	−537.257	40.091
	800.00	242.594	404.725	278.823	−891.346	100.722	−1215.126	−973.602	−474.450	30.978

References

Phase	H / S	C_p
SOL	Nb1	Ke1

BaO BARIUM OXIDE 153.326

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	47.278	70.417	70.417	−553.543	0.000	−574.538	−553.543	−525.346	92.038
	300.00	47.332	70.709	70.418	−553.455	0.088	−574.668	−553.535	−525.171	91.440
	400.00	49.898	84.695	72.307	−548.588	4.955	−582.466	−553.140	−515.784	67.354
	500.00	51.785	96.042	75.954	−543.499	10.044	−591.520	−553.386	−506.435	52.907
	600.00	53.223	105.616	80.121	−538.246	15.297	−601.616	−554.540	−496.941	43.263
	700.00	54.395	113.911	84.369	−532.863	20.680	−612.601	−554.602	−487.344	36.366
	800.00	55.406	121.242	88.528	−527.372	26.171	−624.366	−554.993	−477.709	31.191
	900.00	56.313	127.821	92.535	−521.785	31.758	−636.824	−555.201	−468.034	27.164
	1000.00	57.153	133.798	96.367	−516.112	37.431	−649.910	−555.325	−458.342	23.941
	1100.00	57.946	139.283	100.022	−510.356	43.187	−663.568	−563.329	−447.872	21.268
	1200.00	58.706	144.358	103.508	−504.523	49.020	−677.753	−563.415	−437.371	19.038
	1300.00	59.443	149.086	106.834	−498.616	54.927	−692.428	−563.373	−426.868	17.152
	1400.00	60.161	153.518	110.012	−492.636	60.907	−707.560	−563.258	−416.372	15.535
	1500.00	60.867	157.693	113.053	−486.584	66.959	−723.123	−563.086	−405.886	14.134
	1600.00	61.561	161.643	115.968	−480.463	73.080	−739.091	−562.856	−395.413	12.909
	1700.00	62.248	165.396	118.766	−474.272	79.271	−755.445	−562.570	−384.956	11.828
	1800.00	62.928	168.973	121.456	−468.013	85.530	−772.165	−562.228	−374.518	10.868
	1900.00	63.603	172.394	124.048	−461.687	91.856	−789.234	−561.830	−364.100	10.010
	2000.00	64.274	175.673	126.548	−455.293	98.250	−806.639	−561.375	−353.705	9.238
	2100.00	64.942	178.825	128.963	−448.832	104.711	−824.365	−560.866	−343.333	8.540
	2200.00	65.606	181.862	131.299	−442.304	111.239	−842.400	−701.469	−331.102	7.861
	2286.00	66.176	184.388	133.248	−436.638	116.905	−858.149	−700.343	−316.646	7.235
			25.624		58.576					
LIQ	2286.00	66.944	210.012	133.248	−378.062	175.481	−858.149	−641.767	−316.646	7.235
	2300.00	66.944	210.421	133.717	−377.125	176.418	−861.092	−641.585	−314.656	7.146
	2400.00	66.944	213.270	136.973	−370.430	183.113	−882.278	−640.436	−300.467	6.539
	2500.00	66.944	216.003	140.080	−363.736	189.807	−903.742	−639.546	−286.321	5.982
	2600.00	66.944	218.628	143.051	−357.041	196.502	−925.475	−638.926	−272.205	5.469
	2700.00	66.944	221.155	145.897	−350.347	203.196	−947.464	−638.581	−258.108	4.993
	2800.00	66.944	223.589	148.628	−343.653	209.890	−969.702	−638.513	−244.018	4.552
	2900.00	66.944	225.938	151.254	−336.958	216.585	−992.180	−638.722	−229.926	4.141
	3000.00	66.944	228.208	153.781	−330.264	223.279	−1014.887	−639.203	−215.822	3.758

References

Phase	H / S	C_p
SOL	Nb1	Ja1
LIQ	Ja1	Ja1

169.326 BARIUM PEROXIDE **BaO2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	67.344	93.094	93.094	−634.294	0.000	−662.050	−634.294	−582.276	102.012
	300.00	67.396	93.511	93.095	−634.169	0.125	−662.223	−634.276	−581.953	101.327
	400.00	70.199	113.283	95.772	−627.290	7.004	−672.603	−633.354	−564.659	73.737
	500.00	73.002	129.249	100.920	−620.130	14.164	−684.754	−633.059	−547.538	57.201
	600.00	75.806	142.807	106.798	−612.689	21.605	−698.373	−633.605	−530.386	46.174
	700.00	78.609	154.703	112.809	−604.968	29.326	−713.260	−632.956	−513.239	38.298
	800.00	81.412	165.382	118.724	−596.967	37.327	−729.273	−632.506	−496.166	32.396
	900.00	84.216	175.133	124.458	−588.686	45.608	−746.306	−631.722	−479.167	27.810
	1000.00	87.019	184.151	129.981	−580.124	54.170	−764.275	−630.689	−462.270	24.147
	1100.00	89.822	192.577	135.293	−571.282	63.012	−783.116	−637.361	−444.719	21.118

References

Phase	H / S	C_p
SOL	Nb1/Ku1	e

255.288 BARIUM DIALUMINIUM TETRAOXIDE **BaAl2O4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	125.073	148.532	148.532	−2325.886	0.000	−2370.171	−2325.886	−2212.372	387.598
	300.00	125.624	149.307	148.534	−2325.654	0.232	−2370.446	−2325.905	−2211.667	385.085
	400.00	145.743	188.571	153.751	−2311.958	13.928	−2387.386	−2326.151	−2173.522	283.833
	500.00	156.245	222.324	164.177	−2296.812	29.074	−2407.975	−2326.211	−2135.367	223.080
	600.00	162.960	251.442	176.351	−2280.832	45.054	−2431.697	−2326.887	−2097.137	182.572
	700.00	167.888	276.949	188.938	−2264.279	61.607	−2458.143	−2326.394	−2058.891	153.636
	800.00	171.864	299.634	201.383	−2247.285	78.601	−2486.993	−2326.293	−2020.685	131.937
	900.00	175.285	320.079	213.455	−2229.924	95.962	−2517.995	−2326.211	−1982.489	115.061
	1000.00	178.362	338.708	225.062	−2212.240	113.646	−2550.948	−2347.407	−1942.778	101.480
	1100.00	181.215	355.843	236.183	−2194.259	131.627	−2585.687	−2354.799	−1901.571	90.298
	1200.00	183.914	371.728	246.824	−2176.002	149.884	−2622.075	−2354.133	−1860.396	80.981
	1300.00	186.506	386.552	257.009	−2157.480	168.406	−2659.997	−2353.202	−1819.287	73.100
	1400.00	189.020	400.466	266.764	−2138.703	187.183	−2699.355	−2352.060	−1778.259	66.348
	1500.00	191.475	413.591	276.119	−2119.678	206.208	−2740.064	−2350.725	−1737.318	60.499
	1600.00	193.887	426.026	285.103	−2100.410	225.476	−2782.050	−2349.199	−1696.473	55.384
	1700.00	196.265	437.851	293.743	−2080.902	244.984	−2825.249	−2347.483	−1655.729	50.874
	1800.00	198.616	449.136	302.065	−2061.158	264.728	−2869.603	−2345.579	−1615.092	46.869
	1900.00	200.945	459.937	310.092	−2041.179	284.707	−2915.060	−2343.488	−1574.565	43.288
	2000.00	203.258	470.303	317.845	−2020.969	304.917	−2961.576	−2341.211	−1534.154	40.068
	2100.00	205.557	480.276	325.344	−2000.528	325.358	−3009.108	−2338.749	−1493.861	37.158
	2103.00	205.626	480.569	325.565	−1999.911	325.975	−3010.549	−2338.673	−1492.654	37.075

References

Phase	H / S	C_p	Remarks	
SOL	Nb1,K7	e	K7	MPT= 2103.

Ba3Al2O6 TRIBARIUM DIALUMINIUM HEXAOXIDE 561.940

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	215.600	301.248	301.248	−3518.995	0.000	−3608.812	−3518.995	−3352.629	587.367
	300.00	216.396	302.584	301.252	−3518.595	0.400	−3609.371	−3519.004	−3351.597	583.565
	400.00	245.456	369.353	310.158	−3495.317	23.678	−3643.058	−3518.614	−3295.829	430.391
	500.00	260.564	425.897	327.806	−3469.949	49.046	−3682.898	−3519.122	−3240.120	338.493
	600.00	270.179	474.307	348.287	−3443.383	75.612	−3727.967	−3522.026	−3184.058	277.197
	700.00	277.200	516.506	369.368	−3415.999	102.996	−3777.553	−3521.591	−3127.786	233.398
	800.00	282.840	553.901	390.142	−3387.988	131.007	−3831.108	−3522.237	−3071.488	200.548
	900.00	287.676	587.500	410.235	−3359.457	159.538	−3888.207	−3522.574	−3015.120	174.993
	1000.00	292.013	618.037	429.512	−3330.469	188.526	−3948.507	−3544.063	−2957.200	154.468
	1100.00	296.024	646.059	447.941	−3301.065	217.930	−4011.730	−3567.550	−2896.223	137.530
	1200.00	299.813	671.981	465.545	−3271.272	247.723	−4077.649	−3567.186	−2835.205	123.413
	1300.00	303.446	696.123	482.363	−3241.108	277.887	−4146.067	−3566.345	−2774.238	111.470
	1400.00	306.965	718.740	498.448	−3210.586	308.409	−4216.822	−3565.189	−2713.349	101.236
	1500.00	310.400	740.036	513.851	−3179.718	339.277	−4289.771	−3563.769	−2652.551	92.370
	1600.00	313.771	760.176	528.622	−3148.509	370.486	−4364.791	−3562.086	−2591.856	84.615
	1700.00	317.093	779.299	542.810	−3116.965	402.030	−4441.773	−3560.143	−2531.275	77.777
	1800.00	320.376	797.516	556.459	−3085.091	433.904	−4520.621	−3557.942	−2470.816	71.701
	1900.00	323.629	814.925	569.607	−3052.891	466.104	−4601.249	−3555.486	−2410.486	66.269
	2000.00	326.857	831.608	582.293	−3020.366	498.629	−4683.581	−3552.774	−2350.292	61.383
	2023.00	327.596	835.349	585.149	−3012.840	506.155	−4702.751	−3552.115	−2336.467	60.328

References

Phase	H / S	C_p	Remarks	
SOL	Nb1,K7	e	K7	MPT= 2023.

171.342 BARIUM HYDROXIDE **Ba(OH)2**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[	kJ / mol	]			[-]
SOL-A	298.15	101.591	107.110	107.110	-946.300	0.000	-978.235	-946.300	-859.499	150.581
	300.00	101.837	107.740	107.112	-946.112	0.188	-978.434	-946.272	-858.960	149.558
	400.00	112.627	138.648	111.253	-935.342	10.958	-990.801	-944.366	-830.130	108.404
	500.00	118.666	164.492	119.390	-923.749	22.551	-1005.995	-942.560	-801.792	83.763
	521.00	119.597	169.393	121.307	-921.247	25.053	-1009.501	-942.273	-795.886	79.794
			0.000		0.000					
SOL-B	521.00	119.597	169.393	121.307	-921.247	25.053	-1009.501	-942.273	-795.886	79.794
	600.00	122.711	186.497	128.786	-911.674	34.626	-1023.572	-941.400	-773.749	67.361
	681.15	125.948	202.260	136.616	-901.587	44.713	-1039.356	-939.383	-751.207	57.607
			24.570		16.736					
LIQ	681.15	141.001	226.830	136.616	-884.851	61.449	-1039.356	-922.647	-751.207	57.607
	700.00	141.001	230.679	139.098	-882.193	64.107	-1043.668	-921.930	-746.472	55.702
	800.00	141.001	249.507	151.748	-868.093	78.207	-1067.699	-918.333	-721.654	47.119
	900.00	141.001	266.114	163.551	-853.993	92.307	-1093.496	-914.705	-697.286	40.469
	1000.00	141.001	280.970	174.563	-839.893	106.407	-1120.863	-911.138	-673.321	35.171
	1100.00	141.001	294.409	184.857	-825.793	120.507	-1149.643	-915.590	-648.941	30.816
	1200.00	141.001	306.678	194.505	-811.693	134.607	-1179.706	-912.261	-624.847	27.199
	1300.00	141.001	317.964	203.574	-797.593	148.707	-1210.946	-908.940	-601.031	24.150
	1400.00	141.001	328.413	212.122	-783.493	162.807	-1243.271	-905.676	-577.468	21.546
	1500.00	141.001	338.141	220.203	-769.392	176.908	-1276.604	-902.484	-554.137	19.297
	1600.00	141.001	347.241	227.862	-755.292	191.008	-1310.878	-899.360	-531.016	17.336
	1700.00	141.001	355.789	235.138	-741.192	205.108	-1346.034	-896.304	-508.088	15.612
	1800.00	141.001	363.849	242.067	-727.092	219.208	-1382.020	-893.312	-485.339	14.084
	1900.00	141.001	371.472	248.679	-712.992	233.308	-1418.790	-890.383	-462.754	12.722
	2000.00	141.001	378.705	255.001	-698.892	247.408	-1456.302	-887.514	-440.322	11.500

References

Phase	H / S	C_p	Remarks	
SOL-A	Ja1	Ja1		
SOL-B	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	NDPT= 1325.

Ba(OH)2[g] BARIUM HYDROXIDE (GAS) 171.342

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	77.251	315.165	315.165	−626.554	0.000	−720.520	−626.554	−601.784	105.430
	300.00	77.401	315.643	315.166	−626.411	0.143	−721.104	−626.571	−601.630	104.753
	400.00	82.883	338.760	318.281	−618.362	8.192	−753.866	−627.386	−593.195	77.463
	500.00	85.764	357.593	324.319	−609.917	16.637	−788.714	−628.728	−584.511	61.063
	600.00	87.622	373.404	331.218	−601.242	25.312	−825.285	−630.969	−575.462	50.098
	700.00	88.995	387.018	338.239	−592.409	34.145	−863.321	−632.145	−566.125	42.245
	800.00	90.111	398.977	345.099	−583.452	43.102	−902.633	−633.692	−556.589	36.342
	900.00	91.227	409.654	351.689	−574.385	52.169	−943.074	−635.097	−546.864	31.739
	1000.00	92.347	419.324	357.977	−565.206	61.348	−984.531	−636.451	−536.989	28.049
	1100.00	93.438	428.177	363.962	−555.917	70.637	−1026.912	−645.714	−526.210	24.988
	1200.00	94.483	436.353	369.658	−546.520	80.034	−1070.143	−647.089	−515.284	22.430
	1300.00	95.474	443.955	375.084	−537.022	89.532	−1114.163	−648.369	−504.248	20.261
	1400.00	96.406	451.065	380.260	−527.428	99.126	−1158.918	−649.611	−493.115	18.398
	1500.00	97.278	457.746	385.205	−517.743	108.811	−1204.362	−650.834	−481.894	16.781
	1600.00	98.087	464.050	389.938	−507.974	118.580	−1250.455	−652.042	−470.592	15.363
	1700.00	98.832	470.020	394.475	−498.128	128.426	−1297.161	−653.239	−459.215	14.110
	1800.00	99.513	475.688	398.830	−488.210	138.344	−1344.449	−654.430	−447.767	12.994
	1900.00	100.129	481.085	403.019	−478.227	148.327	−1392.289	−655.618	−436.254	11.993
	2000.00	100.681	486.236	407.052	−468.186	158.368	−1440.657	−656.808	−424.677	11.091

References

Phase	H / S	C_p
GAS	Ja1	Ja1

BaHfO3 BARIUM HAFNIUM TRIOXIDE 363.815

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	108.305	122.173	122.173	−1832.174	0.000	−1868.600	−1832.174	−1745.257	305.762
	300.00	108.570	122.844	122.175	−1831.973	0.201	−1868.826	−1832.155	−1744.718	303.782
	400.00	118.350	155.591	126.573	−1820.567	11.607	−1882.803	−1830.805	−1715.768	224.056
	500.00	123.595	182.612	135.160	−1808.448	23.726	−1899.754	−1829.770	−1687.145	176.255
	600.00	127.056	205.469	145.022	−1795.906	36.268	−1919.187	−1829.559	−1658.643	144.398
	700.00	129.675	225.259	155.103	−1783.064	49.110	−1940.746	−1828.259	−1630.268	121.652
	800.00	131.844	242.720	164.985	−1769.986	62.188	−1964.162	−1827.317	−1602.048	104.603
	900.00	133.753	258.361	174.506	−1756.704	75.470	−1989.229	−1826.229	−1573.953	91.350
	1000.00	135.499	272.545	183.612	−1743.241	88.933	−2015.786	−1825.096	−1545.983	80.754
	1100.00	137.139	285.537	192.295	−1729.608	102.566	−2043.699	−1831.878	−1517.360	72.053
	1200.00	138.707	297.538	200.572	−1715.815	116.359	−2072.860	−1830.776	−1488.815	64.806
	1300.00	140.224	308.700	208.465	−1701.868	130.306	−2103.178	−1829.577	−1460.366	58.678
	1400.00	141.705	319.146	216.002	−1687.771	144.403	−2134.576	−1828.334	−1432.012	53.429
	1500.00	143.158	328.973	223.209	−1673.528	158.646	−2166.987	−1827.062	−1403.748	48.883

References

Phase	H / S	C_p
SOL	Nb1/e	e

213.411 BARIUM METASILICATE **BaSiO3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	90.001	109.600	109.600	−1623.601	0.000	−1656.278	−1623.601	−1540.311	269.856
	300.00	90.343	110.158	109.602	−1623.434	0.167	−1656.481	−1623.605	−1539.794	268.102
	400.00	103.736	138.178	113.331	−1613.662	9.939	−1668.933	−1623.399	−1511.874	197.430
	500.00	112.012	162.270	120.769	−1602.850	20.751	−1683.985	−1623.260	−1484.019	155.034
	600.00	118.273	183.266	129.473	−1591.325	32.276	−1701.285	−1623.678	−1456.131	126.767
	700.00	123.583	201.905	138.513	−1579.227	44.374	−1720.560	−1622.728	−1428.285	106.580
	800.00	128.387	218.725	147.505	−1566.625	56.976	−1741.605	−1621.854	−1400.565	91.448
	900.00	132.895	234.109	156.285	−1553.559	70.042	−1764.257	−1620.549	−1372.977	79.686
	1000.00	137.221	248.336	164.787	−1540.052	83.549	−1788.388	−1618.911	−1345.555	70.285
	1100.00	141.427	261.613	172.993	−1526.119	97.482	−1813.893	−1624.902	−1317.543	62.565
	1200.00	145.552	274.096	180.903	−1511.769	111.832	−1840.684	−1622.719	−1289.694	56.139
	1300.00	149.619	285.907	188.530	−1497.011	126.590	−1868.690	−1620.151	−1262.044	50.710
	1400.00	153.645	297.143	195.890	−1481.847	141.754	−1897.847	−1617.250	−1234.604	46.064
	1500.00	157.640	307.879	203.000	−1466.283	157.318	−1928.102	−1614.031	−1207.382	42.045
	1600.00	161.611	318.180	209.879	−1450.320	173.281	−1959.408	−1610.493	−1180.386	38.536
	1700.00	165.565	328.096	216.543	−1433.961	189.640	−1991.725	−1656.813	−1153.174	35.433
	1800.00	169.504	337.671	223.008	−1417.207	206.394	−2025.016	−1652.412	−1123.674	32.608
	1878.00	172.569	344.926	227.922	−1403.867	219.734	−2051.638	−1648.730	−1100.839	30.619

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	Nb1.e	S5	MPT= 1878.

BaSi2O5 BARIUM DISILICATE 273.495

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	134.213	153.134	153.134	−2548.056	0.000	−2593.713	−2548.056	−2410.970	422.392
	300.00	134.775	153.966	153.137	−2547.807	0.249	−2593.997	−2548.069	−2410.119	419.639
	400.00	157.082	196.103	158.731	−2533.107	14.949	−2611.548	−2548.029	−2364.111	308.721
	500.00	171.326	232.771	169.956	−2516.648	31.408	−2633.034	−2547.581	−2318.186	242.179
	600.00	182.397	265.018	183.166	−2498.945	49.111	−2657.955	−2547.357	−2272.323	197.823
	700.00	191.970	293.867	196.955	−2480.218	67.838	−2685.924	−2545.481	−2226.632	166.153
	800.00	200.744	320.080	210.731	−2460.577	87.479	−2716.641	−2543.414	−2181.218	142.419
	900.00	209.053	344.208	224.239	−2440.084	107.972	−2749.871	−2540.648	−2136.101	123.976
	1000.00	217.074	366.651	237.371	−2418.776	129.280	−2785.427	−2537.281	−2091.327	109.240
	1100.00	224.907	387.709	250.090	−2396.676	151.380	−2823.155	−2541.268	−2046.151	97.164
	1200.00	232.612	407.609	262.395	−2373.799	174.257	−2862.930	−2536.807	−2001.332	87.116
	1300.00	240.226	426.529	274.299	−2350.156	197.900	−2904.644	−2531.680	−1956.912	78.630
	1400.00	247.774	444.608	285.823	−2325.756	222.300	−2948.208	−2525.939	−1912.911	71.372
	1500.00	255.274	461.959	296.990	−2300.603	247.453	−2993.542	−2519.597	−1869.341	65.096
	1600.00	262.737	478.672	307.826	−2274.702	273.354	−3040.578	−2512.654	−1826.213	59.620
	1700.00	270.172	494.824	318.354	−2248.057	299.999	−3089.257	−2605.463	−1782.645	54.774
	1800.00	277.584	510.477	328.595	−2220.669	327.387	−3139.526	−2596.863	−1734.489	50.334

References

Phase	H / S	C_p
SOL	Nb1	e

366.737 BARIUM ORTHOSILICATE **Ba2SiO4**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	134.886	176.100	176.100	−2287.799	0.000	−2340.303	−2287.799	−2175.144	381.076
	300.00	135.352	176.936	176.103	−2287.549	0.250	−2340.630	−2287.799	−2174.445	378.605
	400.00	153.219	218.601	181.662	−2273.024	14.775	−2360.464	−2287.312	−2136.722	279.027
	500.00	163.799	254.005	192.683	−2257.138	30.661	−2384.141	−2287.435	−2099.089	219.290
	600.00	171.511	284.580	205.509	−2240.357	47.442	−2411.104	−2289.003	−2061.277	179.450
	700.00	177.869	311.508	218.766	−2222.880	64.919	−2440.935	−2288.119	−2023.403	150.988
	800.00	183.505	335.633	231.892	−2204.807	82.992	−2473.313	−2287.656	−1985.616	129.647
	900.00	188.722	357.551	244.655	−2186.193	101.606	−2507.988	−2286.597	−1947.918	113.054
	1000.00	193.677	377.693	256.965	−2167.071	120.728	−2544.764	−2285.143	−1910.362	99.787
	1100.00	198.463	396.378	268.800	−2147.463	140.336	−2583.479	−2299.218	−1871.433	88.867
	1200.00	203.132	413.848	280.167	−2127.382	160.417	−2623.999	−2297.223	−1832.627	79.772
	1300.00	207.720	430.288	291.088	−2106.839	180.960	−2666.214	−2294.737	−1794.008	72.084
	1400.00	212.249	445.848	301.592	−2085.840	201.959	−2710.028	−2291.866	−1755.596	65.502
	1500.00	216.734	460.645	311.706	−2064.391	223.408	−2755.358	−2288.641	−1717.402	59.805
	1600.00	221.185	474.775	321.460	−2042.494	245.305	−2802.134	−2285.061	−1679.434	54.828
	1700.00	225.611	488.317	330.879	−2020.155	267.644	−2850.294	−2331.305	−1641.254	50.430
	1800.00	230.016	501.337	339.990	−1997.373	290.426	−2899.780	−2326.792	−1600.791	46.454
	1900.00	234.405	513.891	348.814	−1974.152	313.647	−2950.545	−2321.887	−1560.590	42.904
	2000.00	238.782	526.026	357.373	−1950.492	337.307	−3002.545	−2316.589	−1520.657	39.715
	2033.00	240.224	529.946	360.142	−1942.589	345.210	−3019.968	−2314.755	−1507.539	38.734

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	Nb1,e	S5	MPT= 2033.

Ba2Si3O8 DIBARIUM TRISILICATE 486.906

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	224.595	258.199	258.199	−4184.799	0.000	−4261.781	−4184.799	−3963.070	694.313
	300.00	225.500	259.591	258.203	−4184.383	0.416	−4262.260	−4184.815	−3961.694	689.792
	400.00	261.212	329.860	267.542	−4159.872	24.927	−4291.816	−4184.530	−3887.319	507.632
	500.00	283.738	390.709	286.233	−4132.561	52.238	−4327.915	−4183.903	−3813.102	398.352
	600.00	301.073	444.024	308.180	−4103.292	81.507	−4369.707	−4184.057	−3738.921	325.502
	700.00	315.958	491.574	331.042	−4072.427	112.372	−4416.529	−4181.191	−3664.962	273.483
	800.00	329.536	534.662	353.843	−4040.144	144.655	−4467.873	−4178.209	−3591.410	234.495
	900.00	342.355	574.221	376.161	−4006.544	178.255	−4523.344	−4174.098	−3518.294	204.196
	1000.00	354.703	610.935	397.824	−3971.688	213.111	−4582.623	−4169.052	−3445.690	179.984
	1100.00	366.742	645.308	418.776	−3935.614	249.185	−4645.453	−4178.989	−3372.098	160.128
	1200.00	378.572	677.727	439.017	−3898.347	286.452	−4711.619	−4172.304	−3299.031	143.603
	1300.00	390.253	708.491	458.572	−3859.905	324.894	−4780.943	−4164.570	−3226.565	129.645
	1400.00	401.828	737.836	477.480	−3820.300	364.499	−4853.270	−4155.886	−3154.731	117.704
	1500.00	413.323	765.952	495.780	−3779.542	405.257	−4928.469	−4146.284	−3083.549	107.379
	1600.00	424.758	792.992	513.516	−3737.637	447.162	−5006.425	−4135.762	−3013.038	98.366
	1700.00	436.146	819.085	530.728	−3694.592	490.207	−5087.036	−4274.851	−2941.873	90.393
	1800.00	447.498	844.336	547.453	−3650.409	534.390	−5170.214	−4261.808	−2863.834	83.106

References

Phase	H / S	C_p
SOL	Nb1	Nb1,e

233.205 BARIUM TITANIUM TRIOXIDE **BaTiO3**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL-3	298.15	102.467	107.901	107.901	-1659.797	0.000	-1691.968	-1659.797	-1572.440	275.485
	300.00	102.844	108.536	107.903	-1659.607	0.190	-1692.168	-1659.787	-1571.898	273.692
	394.65	115.797	138.665	111.762	-1649.180	10.617	-1703.904	-1658.834	-1544.292	204.398
			0.509		0.201					
SOL-2	394.65	115.797	139.175	111.762	-1648.979	10.818	-1703.904	-1658.633	-1544.292	204.398
	400.00	116.279	140.737	112.140	-1648.358	11.439	-1704.653	-1658.571	-1542.742	201.461
	500.00	122.794	167.458	120.606	-1636.371	23.426	-1720.100	-1657.678	-1513.902	158.156
	600.00	126.585	190.208	130.359	-1623.888	35.909	-1738.012	-1657.546	-1485.163	129.295
	700.00	129.090	209.921	140.348	-1611.096	48.701	-1758.041	-1656.326	-1456.536	108.688
	800.00	130.910	227.283	150.152	-1598.092	61.705	-1779.918	-1655.513	-1428.052	93.242
	900.00	132.332	242.787	159.598	-1584.927	74.870	-1803.436	-1654.628	-1399.671	81.235
	1000.00	133.506	256.792	168.629	-1571.634	88.163	-1828.426	-1653.789	-1371.389	71.634
	1100.00	134.518	269.565	177.233	-1558.232	101.565	-1854.753	-1660.961	-1342.419	63.746
	1200.00	135.420	281.309	185.423	-1544.734	115.063	-1882.305	-1664.342	-1313.368	57.169
	1300.00	136.244	292.181	193.222	-1531.150	128.647	-1910.986	-1663.194	-1284.167	51.598
	1400.00	137.013	302.306	200.656	-1517.487	142.310	-1940.716	-1662.059	-1255.054	46.827
	1500.00	137.739	311.784	207.752	-1503.749	156.048	-1971.425	-1660.959	-1226.020	42.694
	1600.00	138.434	320.696	214.536	-1489.940	169.857	-2003.054	-1659.903	-1197.059	39.080
	1700.00	139.105	329.109	221.030	-1476.063	183.734	-2035.548	-1658.900	-1168.163	35.893
	1733.00	139.322	331.785	223.114	-1471.469	188.328	-2046.453	-1658.582	-1158.639	34.923
			0.000		0.000					
SOL-1	1733.00	134.934	331.785	223.114	-1471.469	188.328	-2046.453	-1658.582	-1158.639	34.923
	1800.00	134.934	336.904	227.255	-1462.428	197.369	-2068.855	-1658.266	-1139.317	33.062
	1889.00	134.934	343.416	232.575	-1450.419	209.378	-2099.132	-1657.936	-1113.667	30.795

References

Phase	H / S	C_p	Remarks	
SOL-3	Nb1	Tk1,e	Tk1	Tetragonal./TPTS.
SOL-2	Tk1	e		
SOL-1	u	e	Tk1	MPT= 1889.

Ba2TiO4 DIBARIUM TITANIUM TETRAOXIDE 386.532

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	152.634	196.602	196.602	−2243.001	0.000	−2301.618	−2243.001	−2132.899	373.675
	300.00	153.133	197.548	196.605	−2242.718	0.283	−2301.982	−2242.977	−2132.216	371.252
	400.00	171.039	244.402	202.872	−2226.389	16.612	−2324.150	−2241.153	−2095.557	273.652
	500.00	179.857	283.613	215.212	−2208.800	34.201	−2350.607	−2239.995	−2059.323	215.136
	600.00	185.098	316.903	229.457	−2190.533	52.468	−2380.675	−2240.486	−2023.151	176.131
	700.00	188.650	345.718	244.054	−2171.836	71.165	−2413.839	−2238.805	−1987.077	148.278
	800.00	191.302	371.089	258.379	−2152.833	90.168	−2449.705	−2237.874	−1951.182	127.399
	900.00	193.431	393.748	272.184	−2133.593	109.408	−2487.967	−2236.709	−1915.411	111.168
	1000.00	195.235	414.224	285.381	−2114.158	128.843	−2528.382	−2235.526	−1879.777	98.189
	1100.00	196.826	432.908	297.955	−2094.553	148.448	−2570.752	−2250.254	−1842.722	87.504
	1200.00	198.273	450.097	309.927	−2074.797	168.204	−2614.913	−2253.297	−1805.595	78.596
	1300.00	199.618	466.021	321.329	−2054.902	188.099	−2660.729	−2251.704	−1768.351	71.053
	1400.00	200.889	480.861	332.200	−2034.876	208.125	−2708.082	−2250.071	−1731.231	64.593
	1500.00	202.105	494.763	342.579	−2014.726	228.275	−2756.870	−2248.438	−1694.228	58.998
	1600.00	203.280	507.844	352.504	−1994.456	248.545	−2807.007	−2246.813	−1657.334	54.106
	1700.00	204.423	520.202	362.008	−1974.071	268.930	−2858.415	−2245.206	−1620.540	49.793
	1800.00	205.540	531.918	371.125	−1953.573	289.428	−2911.026	−2243.625	−1583.841	45.962
	1900.00	206.638	543.061	379.883	−1932.964	310.037	−2964.779	−2242.074	−1547.229	42.536
	2000.00	207.719	553.688	388.310	−1912.246	330.755	−3019.621	−2254.690	−1510.253	39.444
	2100.00	208.787	563.848	396.429	−1891.420	351.581	−3075.501	−2253.109	−1473.069	36.641
	2133.00	209.137	567.106	399.044	−1884.524	358.477	−3094.162	−2252.574	−1460.816	35.774

References

Phase	H / S	C_p	Remarks
SOL	Nb1	Ku1,Tk1	Tk1 MPT= 2133.

BaUO4 BARIUM URANATE 439.354

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	133.504	168.615	168.615	−1996.998	0.000	−2047.271	−1996.998	−1891.337	331.354
	300.00	133.578	169.441	168.618	−1996.751	0.247	−2047.583	−1996.963	−1890.682	329.197
	400.00	137.603	208.421	173.905	−1983.192	13.806	−2066.560	−1995.201	−1855.533	242.308
	500.00	141.628	239.558	184.023	−1969.230	27.768	−2089.009	−1994.245	−1820.749	190.212
	600.00	145.653	265.736	195.516	−1954.866	42.132	−2114.308	−1994.362	−1786.046	155.489
	700.00	149.678	288.491	207.207	−1940.100	56.898	−2142.043	−1993.556	−1751.400	130.691
	800.00	153.703	308.740	218.656	−1924.930	72.068	−2171.923	−1993.260	−1716.828	112.097
	900.00	157.728	327.076	229.700	−1909.359	87.639	−2203.728	−1992.980	−1682.291	97.638
	1000.00	161.753	343.903	240.290	−1893.385	103.613	−2237.288	−1995.250	−1647.616	86.063
	1100.00	165.778	359.509	250.427	−1877.008	119.990	−2272.468	−2006.704	−1611.900	76.543

References

Phase	H / S	C_p
SOL	Nb1/Ku1	Ku1,Tk1

276.549 BARIUM ZIRCONIUM TRIOXIDE **BaZrO3**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	100.710	124.683	124.683	-1779.455	0.000	-1816.629	-1779.455	-1694.684	296.902
	300.00	101.030	125.307	124.685	-1779.268	0.187	-1816.861	-1779.449	-1694.158	294.979
	400.00	112.586	156.174	128.815	-1768.511	10.944	-1830.981	-1778.695	-1665.829	217.535
	500.00	118.407	181.984	136.942	-1756.934	22.521	-1847.926	-1778.136	-1637.691	171.088
	600.00	121.971	203.909	146.323	-1744.903	34.552	-1867.249	-1778.363	-1609.585	140.127
	700.00	124.468	222.908	155.937	-1732.575	46.880	-1888.611	-1777.500	-1581.531	118.015
	800.00	126.397	239.659	165.376	-1720.028	59.427	-1911.756	-1777.022	-1553.569	101.438
	900.00	127.996	254.642	174.476	-1707.306	72.149	-1936.484	-1776.447	-1525.671	88.548
	1000.00	129.390	268.201	183.182	-1694.436	85.019	-1962.637	-1775.893	-1497.837	78.239
	1100.00	130.650	280.593	191.482	-1681.433	98.022	-1990.085	-1783.329	-1469.289	69.771
	1200.00	131.819	292.012	199.390	-1668.309	111.146	-2018.723	-1786.675	-1440.534	62.705
	1300.00	132.923	302.607	206.927	-1655.071	124.384	-2048.460	-1785.756	-1411.725	56.724
	1400.00	133.981	312.496	214.118	-1641.726	137.729	-2079.221	-1784.799	-1382.989	51.600
	1500.00	135.004	321.775	220.989	-1628.276	151.179	-2110.939	-1783.834	-1354.322	47.162
	1600.00	136.001	330.520	227.564	-1614.726	164.729	-2143.558	-1782.869	-1325.720	43.280
	1700.00	136.977	338.795	233.866	-1601.077	178.378	-2177.027	-1781.917	-1297.177	39.857
	1800.00	137.938	346.651	239.916	-1587.331	192.124	-2211.303	-1780.989	-1268.690	36.816
	1900.00	138.886	354.135	245.732	-1573.490	205.965	-2246.345	-1780.097	-1240.254	34.097
	2000.00	139.824	361.282	251.332	-1559.554	219.901	-2282.119	-1779.250	-1211.863	31.651

References

Phase	H / S	C_p
SOL	Nb1	e

BaS BARIUM SULFIDE 169.393

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	49.444	78.241	78.241	−460.240	0.000	−483.567	−460.240	−455.400	79.784
	300.00	49.455	78.547	78.242	−460.149	0.091	−483.713	−460.243	−455.370	79.287
	400.00	50.041	92.854	80.189	−455.174	5.066	−492.315	−462.836	−453.617	59.236
	500.00	50.626	104.083	83.884	−450.140	10.100	−502.182	−465.511	−451.047	47.121
	600.00	51.212	113.365	88.046	−445.048	15.192	−513.068	−468.822	−447.840	38.988
	700.00	51.798	121.304	92.244	−439.898	20.342	−524.811	−470.798	−444.193	33.146
	800.00	52.384	128.259	96.320	−434.689	25.551	−537.296	−473.163	−440.233	28.744
	900.00	52.969	134.462	100.219	−429.421	30.819	−550.437	−528.193	−434.827	25.237
	1000.00	53.555	140.074	103.929	−424.095	36.145	−564.169	−528.770	−424.422	22.170
	1100.00	54.141	145.205	107.451	−418.710	41.530	−578.436	−537.231	−413.194	19.621
	1200.00	54.727	149.941	110.797	−413.267	46.973	−593.197	−537.781	−401.892	17.494
	1300.00	55.312	154.345	113.980	−407.765	52.475	−608.413	−538.208	−390.550	15.692
	1400.00	55.898	158.466	117.012	−402.204	58.036	−624.056	−538.565	−379.178	14.147
	1500.00	56.484	162.342	119.906	−396.585	63.655	−640.098	−538.868	−367.782	12.807
	1600.00	57.070	166.006	122.673	−390.908	69.332	−656.517	−539.117	−356.368	11.634
	1700.00	57.656	169.484	125.326	−385.171	75.069	−673.293	−539.312	−344.940	10.599
	1800.00	58.241	172.796	127.871	−379.376	80.864	−690.409	−539.452	−333.502	9.678
	1900.00	58.827	175.960	130.320	−373.523	86.717	−707.848	−539.538	−322.058	8.854
	2000.00	59.413	178.993	132.678	−367.611	92.629	−725.596	−539.569	−310.611	8.112

References

Phase	H / S	C_p	Remarks
SOL	Nb1	Nb1,e	Mi1 MPT= 2500.

233.391 BARIUM SULFATE **BaSO4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−2	298.15	102.160	132.202	132.202	−1473.199	0.000	−1512.615	−1473.199	−1362.119	238.638
	300.00	102.647	132.835	132.204	−1473.010	0.189	−1512.860	−1473.212	−1361.429	237.046
	400.00	119.793	165.067	136.482	−1461.765	11.434	−1527.792	−1475.478	−1324.048	172.903
	500.00	127.729	192.749	145.040	−1449.345	23.854	−1545.719	−1476.884	−1286.060	134.354
	600.00	132.040	216.453	155.016	−1436.337	36.862	−1566.209	−1478.598	−1247.728	108.624
	700.00	134.639	237.018	165.295	−1422.993	50.206	−1588.905	−1478.890	−1209.233	90.234
	800.00	136.326	255.114	175.414	−1409.439	63.760	−1613.530	−1479.584	−1170.666	76.437
	900.00	137.483	271.242	185.182	−1395.745	77.454	−1639.863	−1532.999	−1130.859	65.633
	1000.00	138.310	285.772	194.527	−1381.953	91.246	−1667.726	−1532.033	−1086.229	56.739
	1100.00	138.923	298.985	203.431	−1368.090	105.109	−1696.973	−1539.035	−1040.926	49.429
	1200.00	139.388	311.094	211.906	−1354.173	119.026	−1727.486	−1538.209	−995.679	43.341
	1300.00	139.751	322.265	219.971	−1340.216	132.983	−1759.161	−1537.347	−950.503	38.192
	1400.00	140.038	332.633	227.652	−1326.226	146.973	−1791.912	−1536.501	−905.394	33.781
	1423.00	140.096	334.915	229.367	−1323.004	150.195	−1799.589	−1536.311	−895.027	32.854
			7.057		10.042					
SOL−1	1423.00	139.746	341.972	229.367	−1312.962	160.237	−1799.589	−1526.269	−895.027	32.854
	1500.00	139.746	349.337	235.339	−1302.202	170.997	−1826.207	−1525.682	−860.886	29.979
	1600.00	139.746	358.356	242.748	−1288.227	184.972	−1861.596	−1524.968	−816.589	26.659
	1700.00	139.746	366.828	249.800	−1274.253	198.946	−1897.860	−1524.308	−772.336	23.731
	1800.00	139.746	374.815	256.526	−1260.278	212.921	−1934.946	−1523.701	−728.120	21.130
	1900.00	139.746	382.371	262.952	−1246.304	226.895	−1972.808	−1523.144	−683.937	18.803
	1953.00	139.746	386.216	266.245	−1238.897	234.302	−1993.176	−1522.870	−660.531	17.666

References

Phase	H / S	C_p	Remarks
SOL−2	Nb1	Ku1,Tk1	
SOL−1	Tk1	e	Tk1 MPT= 1953., L= 40.6 kJ

393.364 2−BARIUM TIN **Ba2Sn**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	73.143	126.775	126.775	−376.560	0.000	−414.358	−376.560	−361.875	63.399
	300.00	73.220	127.228	126.777	−376.425	0.135	−414.593	−376.578	−361.784	62.992
	400.00	77.404	148.865	129.699	−368.893	7.667	−428.439	−377.814	−356.687	46.579
	500.00	81.588	166.587	135.354	−360.944	15.616	−444.237	−380.450	−351.139	36.683
	600.00	85.772	181.832	141.858	−352.576	23.984	−461.675	−391.691	−343.564	29.910
	700.00	89.956	195.368	148.553	−343.789	32.771	−480.547	−393.399	−335.417	25.029
	800.00	94.140	207.653	155.184	−334.585	41.975	−500.707	−395.467	−326.990	21.350
	900.00	98.324	218.982	161.651	−324.961	51.599	−522.046	−396.873	−318.338	18.476

References

Phase	H / S	C_p
SOL	Ku1	e

BaTe — BARIUM TELLURIDE — 264.927

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	45.172	97.906	97.906	−313.800	0.000	−342.991	−313.800	−309.624	54.245
	300.00	45.187	98.185	97.906	−313.716	0.084	−343.172	−313.816	−309.598	53.906
	400.00	46.024	111.299	99.689	−309.156	4.644	−353.676	−314.928	−308.041	40.226
	500.00	46.861	121.659	103.082	−304.512	9.288	−365.341	−316.996	−306.105	31.979
	600.00	47.698	130.277	106.916	−299.784	14.016	−377.950	−320.222	−303.633	26.434
	700.00	48.534	137.692	110.795	−294.972	18.828	−391.357	−322.575	−300.692	22.438
	800.00	49.371	144.228	114.574	−290.077	23.723	−405.459	−343.085	−295.491	19.294
	900.00	50.208	150.091	118.200	−285.098	28.702	−420.180	−345.963	−289.367	16.794
	1000.00	51.045	155.424	121.660	−280.035	33.765	−435.460	−348.733	−282.929	14.779
	1100.00	51.882	160.329	124.955	−274.889	38.911	−451.250	−359.357	−275.450	13.080
	1200.00	52.718	164.879	128.095	−269.659	44.141	−467.514	−362.037	−267.703	11.653
	1300.00	53.555	169.132	131.090	−264.345	49.455	−484.216	−364.564	−259.738	10.436
	1400.00	54.392	173.131	133.951	−258.948	54.852	−501.331	−413.430	−249.092	9.294
	1500.00	55.229	176.912	136.690	−253.467	60.333	−518.835	−414.199	−237.326	8.264

References

Phase	H / S	C_p
SOL	Mi1	e

BaWO4 — BARIUM TUNGSTATE — 385.175

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	133.824	154.808	154.808	−1703.001	0.000	−1749.157	−1703.001	−1598.481	280.047
	300.00	133.888	155.636	154.811	−1702.753	0.248	−1749.444	−1702.959	−1597.832	278.207
	400.00	137.361	194.629	160.104	−1689.191	13.810	−1767.042	−1700.791	−1563.126	204.123
	500.00	140.833	225.653	170.213	−1675.281	27.720	−1788.108	−1699.320	−1528.900	159.723
	600.00	144.306	251.637	181.676	−1661.024	41.977	−1812.006	−1698.767	−1494.873	130.140
	700.00	147.779	274.143	193.313	−1646.420	56.581	−1838.320	−1697.090	−1461.030	109.023
	800.00	151.252	294.102	204.687	−1631.468	71.533	−1866.750	−1695.671	−1427.403	93.200
	900.00	154.724	312.118	215.639	−1616.170	86.831	−1897.076	−1693.963	−1393.968	80.904
	1000.00	158.197	328.599	226.122	−1600.524	102.477	−1929.123	−1692.042	−1360.737	71.078
	1100.00	161.670	343.840	236.139	−1584.530	118.471	−1962.754	−1697.851	−1326.940	63.011
	1200.00	165.142	358.056	245.713	−1568.190	134.811	−1997.857	−1695.577	−1293.319	56.297
	1300.00	168.615	371.412	254.874	−1551.502	151.499	−2034.337	−1693.000	−1259.900	50.623

References

Phase	H / S	C_p
SOL	Nb1/e	e

9.012 BERYLLIUM **Be**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[-]
SOL	298.15	16.449	9.440	9.440	0.000	0.000	-2.815	0.000	0.000	0.000
	300.00	16.529	9.542	9.440	0.031	0.031	-2.832	0.000	0.000	0.000
	400.00	19.957	14.809	10.135	1.870	1.870	-4.054	0.000	0.000	0.000
	500.00	21.984	19.498	11.549	3.975	3.975	-5.774	0.000	0.000	0.000
	600.00	23.339	23.632	13.225	6.244	6.244	-7.935	0.000	0.000	0.000
	700.00	24.420	27.313	14.980	8.634	8.634	-10.486	0.000	0.000	0.000
	800.00	25.374	30.638	16.732	11.124	11.124	-13.386	0.000	0.000	0.000
	900.00	26.221	33.676	18.449	13.705	13.705	-16.604	0.000	0.000	0.000
	1000.00	27.265	36.493	20.114	16.379	16.379	-20.114	0.000	0.000	0.000
	1100.00	28.300	39.140	21.724	19.157	19.157	-23.897	0.000	0.000	0.000
	1200.00	29.300	41.646	23.281	22.038	22.038	-27.937	0.000	0.000	0.000
	1300.00	30.295	44.030	24.786	25.017	25.017	-32.222	0.000	0.000	0.000
	1400.00	31.298	46.312	26.243	28.097	28.097	-36.740	0.000	0.000	0.000
	1500.00	32.292	48.505	27.654	31.277	31.277	-41.481	0.000	0.000	0.000
	1560.00	32.864	49.783	28.481	33.232	33.232	-44.430	0.000	0.000	0.000
			5.061		7.895					
LIQ	1560.00	28.791	54.844	28.481	41.127	41.127	-44.430	0.000	0.000	0.000
	1600.00	28.875	55.574	29.149	42.280	42.280	-46.638	0.000	0.000	0.000
	1700.00	29.086	57.331	30.756	45.178	45.178	-52.284	0.000	0.000	0.000
	1800.00	29.297	58.999	32.279	48.097	48.097	-58.102	0.000	0.000	0.000
	1900.00	29.508	60.589	33.727	51.037	51.037	-64.082	0.000	0.000	0.000
	2000.00	29.719	62.108	35.109	53.999	53.999	-70.217	0.000	0.000	0.000
	2100.00	29.930	63.563	36.429	56.981	56.981	-76.501	0.000	0.000	0.000
	2200.00	30.141	64.960	37.694	59.985	59.985	-82.928	0.000	0.000	0.000
	2300.00	30.352	66.305	38.909	63.009	63.009	-89.491	0.000	0.000	0.000
	2400.00	30.562	67.601	40.078	66.055	66.055	-96.187	0.000	0.000	0.000
	2500.00	30.773	68.853	41.204	69.122	69.122	-103.010	0.000	0.000	0.000
	2600.00	30.984	70.064	42.291	72.210	72.210	-109.956	0.000	0.000	0.000
	2700.00	31.195	71.237	43.341	75.319	75.319	-117.022	0.000	0.000	0.000
	2741.44	31.282	71.713	43.767	76.613	76.613	-119.983	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL	Ja2	Ja1		α(hcp) $-$ β(bcc) TPT = 1527 (approx.)
LIQ	Ja2	Ja1	Ja2	BPT= 2741.437, L= 291.572 kJ

Be[g] BERYLLIUM (GAS) 9.012

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	20.786	136.274	136.274	324.000	0.000	283.370	324.000	286.184	−50.138
	300.00	20.786	136.403	136.274	324.038	0.038	283.118	324.008	285.950	−49.788
	400.00	20.786	142.382	137.090	326.117	2.117	269.164	324.248	273.218	−35.679
	500.00	20.786	147.021	138.629	328.196	4.196	254.685	324.221	260.460	−27.210
	600.00	20.786	150.810	140.353	330.274	6.274	239.788	324.030	247.723	−21.566
	700.00	20.786	154.015	142.082	332.353	8.353	224.543	323.719	235.028	−17.538
	800.00	20.786	156.790	143.751	334.432	10.432	208.999	323.307	222.385	−14.520
	900.00	20.786	159.238	145.338	336.510	12.510	193.196	322.805	209.799	−12.176
	1000.00	20.786	161.428	146.840	338.589	14.589	177.160	322.210	197.274	−10.305
	1100.00	20.786	163.410	148.257	340.667	16.667	160.917	321.510	184.813	−8.776
	1200.00	20.786	165.218	149.597	342.746	18.746	144.484	320.708	172.421	−7.505
	1300.00	20.786	166.882	150.863	344.825	20.825	127.878	319.807	160.100	−6.433
	1400.00	20.786	168.422	152.063	346.903	22.903	111.112	318.806	147.851	−5.516
	1500.00	20.786	169.857	153.202	348.982	24.982	94.197	317.705	135.678	−4.725
	1600.00	20.786	171.198	154.285	351.060	27.060	77.144	308.781	123.782	−4.041
	1700.00	20.786	172.458	155.318	353.139	29.139	59.960	307.961	112.244	−3.449
	1800.00	20.786	173.646	156.303	355.218	31.218	42.654	307.121	100.756	−2.924
	1900.00	20.786	174.770	157.246	357.296	33.296	25.233	306.259	89.315	−2.455
	2000.00	20.788	175.837	158.149	359.375	35.375	7.702	305.377	77.919	−2.035
	2100.00	20.785	176.851	159.016	361.454	37.454	−9.933	304.473	66.568	−1.656
	2200.00	20.787	177.818	159.848	363.532	39.532	−27.666	303.548	55.261	−1.312
	2300.00	20.795	178.742	160.650	365.612	41.612	−45.495	302.602	43.997	−0.999
	2400.00	20.808	179.627	161.422	367.692	43.692	−63.413	301.637	32.774	−0.713
	2500.00	20.827	180.477	162.168	369.773	45.773	−81.419	300.652	21.591	−0.451
	2600.00	20.850	181.294	162.888	371.857	47.857	−99.508	299.648	10.448	−0.210
	2700.00	20.879	182.082	163.584	373.944	49.944	−117.677	298.625	−0.655	0.013
	2800.00	20.913	182.842	164.258	376.033	52.033	−135.923	0.000	0.000	0.000
	2900.00	20.952	183.576	164.912	378.126	54.126	−154.244	0.000	0.000	0.000
	3000.00	20.997	184.287	165.546	380.224	56.224	−172.638	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Ja2	Ja1

304.875 BERYLLIUM ARSENATE **Be3(AsO4)2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	232.517	207.275	207.275	−2738.051	0.000	−2799.850	−2738.051	−2525.457	442.450
	300.00	233.444	208.717	207.280	−2737.620	0.431	−2800.235	−2738.020	−2524.138	439.491
	400.00	267.729	281.175	216.926	−2712.351	25.700	−2824.822	−2735.166	−2453.220	320.358
	500.00	286.227	343.073	236.127	−2684.578	53.473	−2856.115	−2731.078	−2383.191	248.970
	600.00	298.512	396.406	258.500	−2655.307	82.744	−2893.151	−2726.499	−2314.039	201.455
	700.00	307.863	443.150	281.608	−2624.972	113.079	−2935.177	−2721.705	−2245.673	167.574
	800.00	315.650	484.781	304.450	−2593.786	144.265	−2981.611	−2716.803	−2178.002	142.209
	900.00	322.528	522.363	326.608	−2561.872	176.179	−3031.998	−2711.817	−2110.950	122.516
	1000.00	328.841	556.676	347.924	−2529.299	208.752	−3085.975	−2706.734	−2044.459	106.792
	1100.00	334.786	588.299	368.357	−2496.115	241.936	−3143.244	−2701.597	−1978.480	93.950
	1200.00	340.479	617.675	387.924	−2462.350	275.701	−3203.560	−2696.570	−1912.966	83.269
	1300.00	345.996	645.146	406.665	−2428.025	310.026	−3266.716	−2691.991	−1847.856	74.248
	1331.00	347.678	653.320	412.315	−2417.273	320.778	−3286.842	−2690.738	−1827.741	71.729

References

Phase	H / S	C_p
SOL	G1	G1

88.916 BERYLLIUM MONOBROMIDE (GAS) **BeBr[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	32.597	228.556	228.556	120.081	0.000	51.937	120.081	77.442	−13.568
	300.00	32.632	228.758	228.556	120.141	0.060	51.514	120.041	77.178	−13.438
	400.00	34.214	238.376	229.857	123.489	3.408	28.138	104.308	66.100	−8.632
	500.00	35.248	246.130	232.361	126.965	6.884	3.900	103.834	56.601	−5.913
	600.00	35.922	252.620	235.212	130.526	10.445	−21.046	103.266	47.207	−4.110
	700.00	36.385	258.195	238.106	134.143	14.062	−46.593	102.625	37.913	−2.829
	800.00	36.719	263.076	240.929	137.799	17.718	−72.662	101.917	28.716	−1.875
	900.00	36.971	267.416	243.635	141.484	21.403	−99.191	101.143	19.612	−1.138
	1000.00	37.169	271.322	246.212	145.191	25.110	−126.131	100.293	10.598	−0.554
	1100.00	37.329	274.872	248.658	148.917	28.836	−153.443	99.353	1.673	−0.079
	1200.00	37.464	278.126	250.980	152.656	32.575	−181.095	98.323	−7.163	0.312
	1300.00	37.579	281.130	253.185	156.409	36.328	−209.060	97.203	−15.908	0.639
	1400.00	37.681	283.918	255.282	160.172	40.091	−237.314	95.991	−24.564	0.917
	1500.00	37.772	286.521	257.279	163.944	43.863	−265.838	94.685	−33.130	1.154
	1600.00	37.854	288.962	259.184	167.726	47.645	−294.613	85.562	−41.406	1.352
	1700.00	37.931	291.259	261.004	171.515	51.434	−323.625	84.549	−49.310	1.515
	1800.00	38.002	293.429	262.745	175.312	55.231	−352.861	83.520	−57.155	1.659
	1900.00	38.069	295.486	264.415	179.115	59.034	−382.307	82.475	−64.942	1.785
	2000.00	38.132	297.440	266.018	182.925	62.844	−411.954	81.412	−72.673	1.898

References

Phase	H / S	C_p
GAS	Ja1	Ja1

BeBr2 BERYLLIUM BROMIDE 168.820

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	66.063	100.416	100.416	-355.640	0.000	-385.579	-355.640	-337.383	59.108
	300.00	66.107	100.825	100.417	-355.518	0.122	-385.765	-355.688	-337.270	58.724
	400.00	70.636	120.416	103.057	-348.696	6.944	-396.863	-385.188	-324.992	42.440
	500.00	74.787	136.651	108.197	-341.413	14.227	-409.739	-383.702	-310.112	32.397
	600.00	77.642	150.555	114.126	-333.783	21.857	-424.116	-382.060	-295.546	25.730
	700.00	79.687	162.684	120.215	-325.912	29.728	-439.791	-380.313	-281.263	20.988
	781.00	81.043	171.484	125.083	-319.401	36.239	-453.330	-378.847	-269.883	18.050
			12.589		9.832					
LIQ	781.00	112.968	184.073	125.083	-309.569	46.071	-453.330	-369.015	-269.883	18.050
	800.00	112.968	186.788	126.517	-307.423	48.217	-456.853	-368.062	-267.483	17.465
	900.00	112.968	200.094	133.967	-296.126	59.514	-476.210	-363.104	-255.210	14.812
	1000.00	112.968	211.996	141.185	-284.829	70.811	-496.825	-358.246	-243.483	12.718

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	NSPT= 752.
LIQ	Ja1	Ja1		

BeBr2[g] BERYLLIUM BROMIDE (GAS) 168.820

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	53.319	273.743	273.743	-229.283	0.000	-310.899	-229.283	-262.704	46.025
	300.00	53.366	274.073	273.744	-229.184	0.099	-311.406	-229.355	-262.911	45.777
	400.00	55.787	289.768	275.867	-223.723	5.560	-339.630	-260.214	-267.759	34.966
	500.00	57.526	302.417	279.953	-218.051	11.232	-369.260	-260.340	-269.632	28.168
	600.00	58.692	313.015	284.604	-212.236	17.047	-400.045	-260.513	-271.475	23.634
	700.00	59.495	322.126	289.329	-206.325	22.958	-431.813	-260.726	-273.286	20.393
	800.00	60.067	330.110	293.938	-200.345	28.938	-464.433	-260.985	-275.063	17.960
	900.00	60.490	337.211	298.359	-194.316	34.967	-497.806	-261.294	-276.805	16.065
	1000.00	60.812	343.601	302.569	-188.250	41.033	-531.852	-261.668	-278.509	14.548
	1100.00	61.061	349.410	306.567	-182.156	47.127	-566.507	-262.125	-280.172	13.304
	1200.00	61.259	354.731	310.362	-176.040	53.243	-601.717	-262.669	-281.789	12.266
	1300.00	61.418	359.641	313.966	-169.906	59.377	-637.439	-263.300	-283.357	11.385
	1400.00	61.546	364.198	317.394	-163.757	65.526	-673.634	-264.022	-284.874	10.629
	1500.00	61.651	368.448	320.657	-157.597	71.686	-710.269	-264.839	-286.335	9.971
	1600.00	61.736	372.429	323.770	-151.428	77.855	-747.315	-273.475	-287.539	9.387
	1700.00	61.805	376.174	326.743	-145.251	84.032	-784.747	-274.004	-288.402	8.862
	1800.00	61.860	379.708	329.589	-139.067	90.216	-822.542	-274.553	-289.233	8.393
	1900.00	61.903	383.054	332.315	-132.879	96.404	-860.682	-275.123	-290.033	7.974
	2000.00	61.936	386.230	334.932	-126.687	102.596	-899.148	-275.715	-290.802	7.595

References

Phase	H / S	C_p
GAS	Ja1	Ja1

30.035 DIBERYLLIUM CARBIDE **Be2C**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	43.264	16.318	16.318	−116.985	0.000	−121.850	−116.985	−114.510	20.062
	300.00	43.304	16.585	16.318	−116.905	0.080	−121.881	−116.982	−114.494	19.935
	400.00	45.440	29.336	18.042	−112.468	4.517	−124.202	−117.260	−113.645	14.841
	500.00	47.576	39.705	21.369	−107.817	9.168	−127.669	−118.150	−112.648	11.768
	600.00	49.713	48.568	25.180	−102.952	14.033	−132.093	−119.405	−111.434	9.701
	700.00	51.849	56.391	29.091	−97.874	19.111	−137.348	−120.884	−109.991	8.208
	800.00	53.985	63.454	32.951	−92.583	24.402	−143.346	−122.498	−108.326	7.073
	900.00	56.122	69.936	36.705	−87.077	29.908	−150.020	−124.186	−106.454	6.178
	1000.00	58.258	75.960	40.333	−81.358	35.627	−157.318	−125.934	−104.391	5.453
	1100.00	60.394	81.613	43.831	−75.426	41.559	−165.200	−127.748	−102.149	4.851
	1200.00	62.531	86.959	47.205	−69.279	47.706	−173.630	−129.608	−99.740	4.342
	1300.00	64.667	92.049	50.460	−62.920	54.065	−182.583	−131.499	−97.175	3.905
	1400.00	66.803	96.919	53.606	−56.346	60.639	−192.033	−133.414	−94.463	3.524
	1500.00	68.940	101.601	56.650	−49.559	67.426	−201.960	−135.345	−91.613	3.190
	1600.00	71.076	106.118	59.602	−42.558	74.427	−212.348	−152.735	−88.234	2.881
	1700.00	73.212	110.492	62.467	−35.344	81.641	−223.179	−153.721	−84.172	2.586
	1800.00	75.349	114.737	65.254	−27.916	89.069	−234.442	−154.551	−80.056	2.323
	1900.00	77.485	118.868	67.967	−20.274	96.711	−246.123	−155.225	−75.898	2.087
	2000.00	79.622	122.897	70.613	−12.419	104.566	−258.212	−155.739	−71.709	1.873
	2100.00	81.758	126.833	73.197	−4.350	112.635	−270.699	−156.095	−67.498	1.679
	2200.00	83.894	130.686	75.723	3.933	120.918	−283.576	−156.289	−63.274	1.502
	2300.00	86.031	134.462	78.195	12.429	129.414	−296.834	−156.321	−59.045	1.341
	2400.00	88.167	138.169	80.617	21.139	138.124	−310.466	−156.190	−54.818	1.193
			31.380		75.312					
LIQ	2400.00	92.048	169.549	80.617	96.451	213.436	−310.466	−80.878	−54.818	1.193
	2500.00	92.048	173.306	84.250	105.656	222.641	−327.610	−80.303	−53.744	1.123
	2600.00	92.048	176.916	87.745	114.861	231.846	−345.122	−79.777	−52.692	1.059
	2700.00	92.048	180.390	91.112	124.065	241.050	−362.989	−79.301	−51.659	0.999
	2800.00	92.048	183.738	94.361	133.270	250.255	−381.196	−674.043	−27.202	0.507
	2900.00	92.048	186.968	97.499	142.475	259.460	−399.732	−671.549	−4.145	0.075
	3000.00	92.048	190.089	100.534	151.680	268.665	−418.586	−669.070	18.827	−0.328

References

Phase	H / S	C_p
SOL	A1	A1
LIQ	Ku1	Ja1

BeCl[g] BERYLLIUM MONOCHLORIDE (GAS) 44.465

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	31.648	217.610	217.611	60.668	0.000	−4.213	60.668	31.863	−5.582
	300.00	31.677	217.806	217.611	60.727	0.059	−4.615	60.665	31.684	−5.517
	400.00	33.298	227.147	218.874	63.977	3.309	−26.881	60.343	22.066	−2.882
	500.00	34.498	234.714	221.309	67.371	6.703	−49.986	59.846	12.552	−1.311
	600.00	35.312	241.081	224.088	70.864	10.196	−73.785	59.252	3.147	−0.274
	700.00	35.877	246.569	226.916	74.425	13.757	−98.173	58.585	−6.151	0.459
	800.00	36.286	251.388	229.680	78.034	17.366	−123.076	57.851	−15.350	1.002
	900.00	36.593	255.680	232.335	81.679	21.011	−148.433	57.052	−24.453	1.419
	1000.00	36.832	259.549	234.866	85.351	24.683	−174.198	56.179	−33.463	1.748
	1100.00	37.023	263.068	237.272	89.044	28.376	−200.332	55.217	−42.382	2.013
	1200.00	37.181	266.297	239.558	92.754	32.086	−226.802	54.165	−51.208	2.229
	1300.00	37.314	269.278	241.731	96.479	35.811	−253.583	53.024	−59.944	2.409
	1400.00	37.429	272.048	243.799	100.216	39.548	−280.651	51.791	−68.588	2.559
	1500.00	37.530	274.634	245.769	103.965	43.297	−307.986	50.465	−77.141	2.686
	1600.00	37.621	277.059	247.650	107.722	47.054	−335.572	41.322	−85.402	2.788
	1700.00	37.703	279.342	249.448	111.488	50.820	−363.393	40.288	−93.290	2.866
	1800.00	37.778	281.499	251.169	115.262	54.594	−391.436	39.238	−101.118	2.934
	1900.00	37.847	283.544	252.820	119.044	58.376	−419.689	38.170	−108.886	2.993
	2000.00	37.913	285.487	254.405	122.832	62.164	−448.142	37.084	−116.598	3.045
	2100.00	37.974	287.338	255.929	126.626	65.958	−476.784	35.980	−124.255	3.091
	2200.00	38.033	289.106	257.397	130.426	69.758	−505.606	34.857	−131.859	3.131
	2273.00	38.074	290.348	258.436	133.204	72.536	−526.757	34.025	−137.377	3.157

References

Phase	H / S	C_p
GAS	Ja1	Ja1

79.918 BERYLLIUM CHLORIDE **BeCl2**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL−B	298.15	62.415	75.814	75.814	−496.222	0.000	−518.826	−496.222	−449.489	78.749
	300.00	62.575	76.201	75.815	−496.106	0.116	−518.967	−496.200	−449.199	78.213
	400.00	68.831	95.150	78.356	−489.505	6.717	−527.565	−494.904	−433.724	56.639
	500.00	72.731	110.953	83.340	−482.415	13.807	−537.892	−493.491	−418.590	43.730
	600.00	75.704	124.485	89.096	−474.989	21.233	−549.680	−491.969	−403.751	35.150
	676.00	77.657	133.630	93.597	−469.160	27.062	−559.494	−490.738	−392.651	30.340
			10.089		6.820					
SOL−A	676.00	81.201	143.719	93.597	−462.340	33.882	−559.494	−483.918	−392.651	30.340
	688.00	81.394	145.149	94.484	−461.364	34.858	−561.227	−483.676	−391.033	29.688
			12.589		8.661					
LIQ	688.00	121.420	157.738	94.484	−452.703	43.519	−561.227	−475.015	−391.033	29.688
	700.00	121.420	159.838	95.586	−451.246	44.976	−563.132	−474.293	−389.574	29.070
	800.00	121.420	176.051	104.653	−439.104	57.118	−579.945	−468.346	−377.879	24.673
	804.00	121.420	176.656	105.010	−438.618	57.604	−580.650	−468.111	−377.427	24.521

References

Phase	H / S	C_p	Remarks	
SOL−B	Ja1	Ja1	Ja1	MPT(SOL−B) = 682.
SOL−A	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	BPT= 804., L= 105. kJ

BeCl2[g] BERYLLIUM CHLORIDE (GAS) 79.918

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	51.627	251.149	251.149	−360.242	0.000	−435.122	−360.242	−365.785	64.084
	300.00	51.683	251.469	251.150	−360.146	0.096	−435.587	−360.240	−365.820	63.695
	400.00	54.481	266.737	253.213	−354.832	5.410	−461.527	−360.232	−367.686	48.015
	500.00	56.475	279.123	257.195	−349.278	10.964	−488.839	−360.354	−369.538	38.605
	600.00	57.840	289.547	261.741	−343.558	16.684	−517.287	−360.539	−371.358	32.330
	700.00	58.804	298.540	266.371	−337.723	22.519	−546.701	−360.770	−373.143	27.844
	800.00	59.507	306.440	270.896	−331.806	28.436	−576.958	−361.048	−374.892	24.478
	900.00	60.035	313.481	275.243	−325.828	34.414	−607.961	−361.377	−376.604	21.858
	1000.00	60.438	319.828	279.390	−319.803	40.439	−639.632	−361.767	−378.275	19.759
	1100.00	60.750	325.604	283.332	−313.743	46.499	−671.908	−362.239	−379.904	18.040
	1200.00	60.994	330.901	287.079	−307.656	52.586	−704.736	−362.796	−381.486	16.606
	1300.00	61.186	335.791	290.640	−301.546	58.696	−738.074	−363.439	−383.018	15.390
	1400.00	61.338	340.331	294.029	−295.420	64.822	−771.883	−364.174	−384.497	14.346
	1500.00	61.460	344.567	297.259	−289.280	70.962	−806.130	−365.002	−385.921	13.439
	1600.00	61.559	348.537	300.341	−283.129	77.113	−840.787	−373.650	−387.085	12.637
	1700.00	61.643	352.271	303.287	−276.968	83.274	−875.830	−374.191	−387.909	11.919
	1800.00	61.717	355.797	306.107	−270.800	89.442	−911.235	−374.752	−388.699	11.280
	1900.00	61.785	359.136	308.811	−264.625	95.617	−946.983	−375.335	−389.458	10.707
	2000.00	61.853	362.306	311.407	−258.443	101.799	−983.056	−375.939	−390.186	10.191

References

Phase	H / S	C_p
GAS	Ja1	Ja1

159.835 DIBERYLLIUM TETRACHLORIDE (GAS) **Be2Cl4[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	115.373	381.481	381.481	−748.936	0.000	−862.675	−748.936	−724.001	126.842
	300.00	115.518	382.195	381.483	−748.722	0.214	−863.381	−748.909	−723.846	126.033
	400.00	121.556	416.334	386.097	−736.841	12.095	−903.375	−747.640	−715.693	93.460
	500.00	125.067	443.870	394.987	−724.495	24.441	−946.430	−746.646	−707.826	73.946
	600.00	127.222	466.878	405.104	−711.872	37.064	−991.999	−745.833	−700.141	60.953
	700.00	128.626	486.601	415.372	−699.075	49.861	−1039.696	−745.168	−692.580	51.681
	800.00	129.586	503.844	425.376	−686.162	62.774	−1089.236	−744.646	−685.105	44.733
	900.00	130.271	519.148	434.960	−673.167	75.769	−1140.400	−744.265	−677.686	39.332
	1000.00	130.774	532.901	444.078	−660.113	88.823	−1193.014	−744.041	−670.302	35.013
	1100.00	131.154	545.384	452.729	−647.016	101.920	−1246.938	−744.008	−662.932	31.480
	1200.00	131.446	556.809	460.933	−633.886	115.050	−1302.056	−744.166	−655.555	28.536
	1300.00	131.676	567.340	468.719	−620.729	128.207	−1358.270	−744.515	−648.158	26.043
	1400.00	131.858	577.105	476.116	−607.552	141.384	−1415.498	−745.059	−640.727	23.906
	1500.00	132.006	586.207	483.155	−594.358	154.578	−1473.669	−745.803	−633.250	22.052
	1600.00	132.127	594.731	489.865	−581.152	167.784	−1532.721	−762.194	−625.316	20.414
	1700.00	132.228	602.744	496.272	−567.934	181.002	−1592.598	−762.379	−616.756	18.951
	1800.00	132.313	610.304	502.399	−554.707	194.229	−1653.254	−762.611	−608.184	17.649
	1900.00	132.387	617.460	508.268	−541.472	207.464	−1714.646	−762.891	−599.597	16.484
	2000.00	132.453	624.252	513.899	−528.229	220.707	−1776.734	−763.222	−590.994	15.435

References

Phase	H / S	C_p
GAS	Ja1	Ja1

BeF[g] BERYLLIUM MONOFLUORIDE (GAS) 28.011

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	29.922	205.749	205.749	−169.870	0.000	−231.214	−169.870	−198.168	34.718
	300.00	29.920	205.934	205.749	−169.815	0.055	−231.595	−169.874	−198.343	34.535
	400.00	30.996	214.654	206.931	−166.781	3.089	−252.642	−170.286	−207.780	27.133
	500.00	32.406	221.727	209.204	−163.608	6.262	−274.472	−170.901	−217.085	22.679
	600.00	33.501	227.737	211.804	−160.310	9.560	−296.953	−171.609	−226.256	19.697
	700.00	34.312	232.965	214.462	−156.918	12.952	−319.993	−172.380	−235.304	17.559
	800.00	34.922	237.589	217.070	−153.455	16.415	−343.526	−173.211	−244.237	15.947
	900.00	35.394	241.730	219.584	−149.938	19.932	−367.495	−174.099	−253.062	14.687
	1000.00	35.769	245.480	221.989	−146.379	23.491	−391.859	−175.054	−261.786	13.674
	1100.00	36.075	248.904	224.282	−142.786	27.084	−416.580	−176.093	−270.409	12.841
	1200.00	36.333	252.054	226.467	−139.166	30.704	−441.630	−177.217	−278.935	12.142
	1300.00	36.554	254.971	228.549	−135.521	34.349	−466.983	−178.425	−287.363	11.546
	1400.00	36.747	257.687	230.534	−131.856	38.014	−492.618	−179.721	−295.694	11.032
	1500.00	36.919	260.228	232.430	−128.172	41.698	−518.515	−181.105	−303.931	10.584
	1600.00	37.075	262.616	234.243	−124.472	45.398	−544.658	−190.304	−311.871	10.182
	1700.00	37.218	264.868	235.979	−120.758	49.112	−571.034	−191.388	−319.436	9.815
	1800.00	37.350	266.999	237.643	−117.029	52.841	−597.628	−192.485	−326.937	9.487
	1900.00	37.474	269.022	239.242	−113.288	56.582	−624.430	−193.595	−334.376	9.193
	2000.00	37.591	270.947	240.780	−109.535	60.335	−651.429	−194.720	−341.756	8.926

References

Phase	H / S	C_p
GAS	Ja1	Ja1

47.009 BERYLLIUM FLUORIDE **BeF2**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	51.819	53.354	53.354	−1026.754	0.000	−1042.661	−1026.754	−979.384	171.584
	300.00	52.028	53.675	53.355	−1026.658	0.096	−1042.760	−1026.746	−979.090	170.475
	400.00	62.522	70.095	55.524	−1020.926	5.828	−1048.963	−1026.067	−963.292	125.793
	500.00	76.048	85.391	59.974	−1014.046	12.708	−1056.741	−1024.655	−947.741	99.010
			0.440		0.220					
SOL−2	500.00	64.099	85.831	59.974	−1013.825	12.929	−1056.741	−1024.435	−947.741	99.010
	600.00	67.446	97.814	65.304	−1007.248	19.506	−1065.937	−1023.600	−932.479	81.179
	700.00	70.793	108.462	70.723	−1000.336	26.418	−1076.260	−1022.628	−917.366	68.455
	800.00	74.140	118.134	76.053	−993.090	33.664	−1087.597	−1021.478	−902.405	58.921
	825.00	74.977	120.428	77.363	−991.226	35.528	−1090.579	−1021.159	−898.689	56.900
			5.766		4.757					
LIQ	825.00	79.538	126.194	77.363	−986.469	40.285	−1090.579	−1016.402	−898.689	56.900
	900.00	82.228	133.231	81.728	−980.402	46.352	−1100.309	−1015.018	−888.048	51.541
	1000.00	85.643	142.073	87.325	−972.007	54.747	−1114.079	−1012.978	−874.047	45.656
	1100.00	88.942	150.391	92.684	−963.277	63.477	−1128.707	−1010.733	−860.261	40.850
	1200.00	92.165	158.268	97.824	−954.221	72.533	−1144.143	−1008.285	−846.689	36.855
	1300.00	95.333	165.771	102.764	−944.846	81.908	−1160.348	−1005.636	−833.328	33.484
	1400.00	98.457	172.950	107.523	−935.156	91.598	−1177.286	−1002.789	−820.179	30.601
	1447.10	99.917	176.232	109.706	−930.484	96.270	−1185.510	−1001.380	−814.059	29.384

References

Phase	H / S	C_p	Remarks	
SOL−A	Ja2	Ja2		
SOL−2	Ja2	Ja2		
LIQ	Ja2	Ja2	Ja2,e	BPT= 1447.1, L= 199.4 kJ

BeF2[g] BERYLLIUM FLUORIDE (GAS) 47.009

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	46.364	227.556	227.556	−796.006	0.000	−863.852	−796.006	−800.574	140.257
	300.00	46.444	227.843	227.557	−795.920	0.086	−864.273	−796.009	−800.602	139.397
	400.00	50.020	241.725	229.425	−791.086	4.920	−887.776	−796.227	−802.105	104.744
	500.00	52.605	253.178	233.064	−785.949	10.057	−912.538	−796.558	−803.537	83.945
	600.00	54.553	262.950	237.250	−780.586	15.420	−938.356	−796.938	−804.898	70.073
	700.00	56.035	271.476	241.543	−775.053	20.953	−965.086	−797.345	−806.193	60.159
	800.00	57.168	279.035	245.766	−769.391	26.615	−992.619	−797.779	−807.427	52.720
	900.00	58.044	285.821	249.846	−763.629	32.377	−1020.868	−798.245	−808.606	46.930
	1000.00	58.728	291.974	253.756	−757.789	38.217	−1049.762	−798.759	−809.730	42.296
	1100.00	59.270	297.597	257.490	−751.888	44.118	−1079.245	−799.344	−810.800	38.502
	1200.00	59.704	302.774	261.051	−745.938	50.068	−1109.267	−800.002	−811.812	35.337
	1300.00	60.055	307.567	264.447	−739.950	56.056	−1139.787	−800.740	−812.767	32.657
	1400.00	60.344	312.029	267.688	−733.929	62.077	−1170.769	−801.562	−813.662	30.358
	1500.00	60.582	316.200	270.785	−727.883	68.123	−1202.183	−802.472	−814.495	28.363
	1600.00	60.782	320.117	273.747	−721.814	74.192	−1234.001	−811.197	−815.064	26.609
	1700.00	60.951	323.807	276.584	−715.727	80.279	−1266.199	−811.810	−815.287	25.051
	1800.00	61.094	327.295	279.305	−709.625	86.381	−1298.755	−812.439	−815.474	23.664
	1900.00	61.217	330.601	281.919	−703.509	92.497	−1331.652	−813.086	−815.625	22.423
	2000.00	61.323	333.744	284.432	−697.382	98.624	−1364.870	−813.753	−815.741	21.305

References

Phase	H / S	C_p
GAS	Ja2	Ja2

10.020 BERYLLIUM MONOHYDRIDE (GAS) **BeH[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	29.228	176.716	176.716	316.310	0.000	263.622	316.310	285.918	−50.092
	300.00	29.230	176.897	176.717	316.364	0.054	263.295	316.307	285.729	−49.750
	400.00	29.521	185.335	177.865	319.298	2.988	245.164	315.949	275.581	−35.987
	500.00	30.161	191.987	180.047	322.280	5.970	226.287	315.364	265.554	−27.742
	600.00	30.952	197.555	182.513	325.335	9.025	206.802	314.685	255.655	−22.257
	700.00	31.771	202.388	185.014	328.471	12.161	186.800	313.963	245.873	−18.347
	800.00	32.555	206.682	187.459	331.688	15.378	166.343	313.213	236.197	−15.422
	900.00	33.277	210.559	189.814	334.980	18.670	145.478	312.437	226.617	−13.152
	1000.00	33.925	214.099	192.068	338.341	22.031	124.242	311.622	217.124	−11.341
	1100.00	34.496	217.360	194.221	341.763	25.453	102.667	310.746	207.716	−9.864
	1200.00	34.993	220.383	196.277	345.238	28.928	80.778	309.802	198.391	−8.636
	1300.00	35.422	223.201	198.241	348.759	32.449	58.597	308.783	189.148	−7.600
	1400.00	35.791	225.840	200.119	352.320	36.010	36.144	307.682	179.986	−6.715
	1500.00	36.108	228.321	201.917	355.915	39.605	13.435	306.494	170.905	−5.951
	1600.00	36.384	230.660	203.641	359.540	43.230	−9.516	297.490	162.108	−5.292
	1700.00	36.629	232.873	205.296	363.191	46.881	−32.693	296.596	153.673	−4.722
	1800.00	36.855	234.973	206.887	366.866	50.556	−56.086	295.684	145.292	−4.216
	1900.00	37.071	236.972	208.418	370.562	54.252	−79.685	294.754	136.963	−3.765
	2000.00	37.290	238.879	209.894	374.280	57.970	−103.478	293.806	128.682	−3.361

References

Phase	H / S	C_p
GAS	Nb1	Ja1

BeI[g] BERYLLIUM MONOIODIDE (GAS) 135.917

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	33.476	237.300	237.300	169.870	0.000	99.119	169.870	119.247	−20.892
	300.00	33.510	237.508	237.301	169.932	0.062	98.680	169.851	118.933	−20.708
	400.00	34.951	247.363	238.635	173.361	3.491	74.416	160.622	102.413	−13.374
	500.00	35.821	255.263	241.197	176.903	7.033	49.272	137.962	90.058	−9.408
	600.00	36.375	261.846	244.105	180.515	10.645	23.407	137.428	80.526	−7.010
	700.00	36.753	267.484	247.052	184.172	14.302	−3.066	136.815	71.090	−5.305
	800.00	37.026	272.410	249.920	187.862	17.992	−30.066	136.128	61.746	−4.032
	900.00	37.235	276.784	252.666	191.576	21.706	−57.530	135.371	52.493	−3.047
	1000.00	37.401	280.716	255.278	195.308	25.438	−85.408	134.535	43.329	−2.263
	1100.00	37.539	284.287	257.755	199.055	29.185	−113.661	133.607	34.252	−1.626
	1200.00	37.656	287.559	260.105	202.815	32.945	−142.256	132.586	25.264	−1.100
	1300.00	37.759	290.577	262.334	206.586	36.716	−171.164	131.473	16.365	−0.658
	1400.00	37.851	293.379	264.453	210.366	40.496	−200.364	130.267	7.555	−0.282
	1500.00	37.935	295.993	266.469	214.156	44.286	−229.834	128.967	−1.165	0.041
	1600.00	38.013	298.444	268.392	217.953	48.083	−259.557	119.848	−9.595	0.313
	1700.00	38.086	300.750	270.228	221.758	51.888	−289.518	118.839	−17.654	0.542
	1800.00	38.155	302.929	271.985	225.570	55.700	−319.703	117.813	−25.654	0.744
	1900.00	38.220	304.994	273.668	229.389	59.519	−350.100	116.769	−33.596	0.924
	2000.00	38.284	306.956	275.284	233.214	63.344	−380.698	115.708	−41.482	1.083

References

Phase	H / S	C_p
GAS	Ja1	Ja1

BeI2 BERYLLIUM IODIDE 262.821

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	68.970	120.499	120.499	−188.698	0.000	−224.625	−188.698	−187.183	32.794
	300.00	69.119	120.926	120.501	−188.570	0.128	−224.848	−188.702	−187.173	32.590
	400.00	76.864	141.920	123.310	−181.254	7.444	−238.022	−204.863	−186.082	24.300
	500.00	81.658	159.641	128.852	−173.303	15.395	−253.124	−247.211	−177.326	18.525
	600.00	84.159	174.776	135.277	−164.999	23.699	−269.864	−244.927	−163.561	14.239
	700.00	85.490	187.858	141.875	−156.510	32.188	−288.011	−242.591	−150.185	11.207
	753.00	85.977	194.116	145.335	−151.966	36.732	−298.135	−241.353	−143.234	9.936
			0.028		0.021					
LIQ	753.00	112.968	194.144	145.335	−151.945	36.753	−298.135	−241.332	−143.234	9.936
	800.00	112.968	200.984	148.405	−146.635	42.063	−307.422	−238.979	−137.183	8.957
	900.00	112.968	214.289	155.001	−135.338	53.360	−328.199	−234.043	−124.756	7.241
	1000.00	112.968	226.192	161.535	−124.042	64.656	−350.233	−229.208	−112.874	5.896

References

Phase	H / S	C_p	Remarks
SOL	Ja1	Ja1	
LIQ	Ja1	Ja1	NBPT= 759.4

262.821 BERYLLIUM IODIDE (GAS) **BeI2[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	54.944	291.525	291.525	−64.015	0.000	−150.933	−64.015	−113.491	19.883
	300.00	54.987	291.865	291.526	−63.913	0.102	−151.473	−64.045	−113.798	19.814
	400.00	57.131	307.992	293.710	−58.302	5.713	−181.499	−81.911	−129.559	16.919
	500.00	58.598	320.910	297.901	−52.511	11.504	−212.965	−126.419	−137.167	14.330
	600.00	59.556	331.684	302.658	−46.600	17.415	−245.610	−126.528	−139.307	12.128
	700.00	60.201	340.916	307.480	−40.610	23.405	−279.251	−126.691	−141.425	10.553
	800.00	60.650	348.986	312.175	−34.566	29.449	−313.755	−126.909	−143.516	9.371
	900.00	60.975	356.149	316.670	−28.484	35.531	−349.018	−127.188	−145.576	8.449
	1000.00	61.217	362.587	320.945	−22.374	41.641	−384.960	−127.540	−147.601	7.710
	1100.00	61.402	368.430	325.001	−16.242	47.773	−421.516	−127.982	−149.586	7.103
	1200.00	61.546	373.779	328.846	−10.095	53.920	−458.630	−128.515	−151.527	6.596
	1300.00	61.661	378.710	332.494	−3.934	60.081	−496.258	−129.142	−153.420	6.165
	1400.00	61.753	383.283	335.961	2.237	66.252	−534.360	−129.865	−155.261	5.793
	1500.00	61.830	387.547	339.259	8.416	72.431	−572.904	−130.685	−157.047	5.469
	1600.00	61.893	391.539	342.403	14.602	78.617	−611.860	−139.328	−158.575	5.177
	1700.00	61.946	395.293	345.405	20.794	84.809	−651.204	−139.867	−159.762	4.909
	1800.00	61.991	398.835	348.276	26.991	91.006	−690.912	−140.427	−160.916	4.670
	1900.00	62.030	402.188	351.026	33.192	97.207	−730.964	−141.010	−162.038	4.455
	2000.00	62.063	405.370	353.664	39.397	103.412	−771.344	−141.616	−163.130	4.261

References

Phase	H / S	C_p
GAS	Ja1	Ja1

Be3N2 ALPHA BERYLLIUM NITRIDE 55.050

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	64.566	34.129	34.129	−588.270	0.000	−598.446	−588.270	−532.874	93.357
	300.00	64.901	34.529	34.130	−588.150	0.120	−598.509	−588.296	−532.530	92.722
	400.00	83.759	55.829	36.905	−580.701	7.569	−603.032	−589.281	−513.769	67.091
	500.00	97.883	76.139	42.744	−571.572	16.698	−609.642	−589.407	−494.860	51.698
	600.00	107.308	94.876	49.895	−561.281	26.989	−618.207	−588.909	−475.990	41.439
	700.00	113.663	111.926	57.558	−550.212	38.058	−628.561	−588.051	−457.234	34.119
	800.00	118.065	127.408	65.337	−538.613	49.657	−640.540	−587.032	−438.615	28.639
	900.00	121.195	141.505	73.029	−526.642	61.628	−653.996	−585.979	−420.126	24.383
	1000.00	123.470	154.398	80.531	−514.403	73.867	−668.801	−585.002	−401.751	20.985
	1100.00	125.154	166.249	87.792	−501.967	86.303	−684.841	−584.200	−383.467	18.209
	1200.00	126.416	177.196	94.792	−489.386	98.884	−702.020	−583.607	−365.246	15.899
	1300.00	127.369	187.354	101.526	−476.694	111.576	−720.254	−583.249	−347.066	13.945
	1400.00	128.093	196.820	107.999	−463.920	124.350	−739.468	−583.147	−328.903	12.272
	1500.00	128.641	205.677	114.219	−451.082	137.188	−759.598	−583.317	−310.739	10.821
	1600.00	129.054	213.994	120.197	−438.196	150.074	−780.586	−606.939	−291.953	9.531
	1700.00	129.361	221.827	125.947	−425.274	162.996	−802.380	−606.238	−272.288	8.366
	1800.00	129.582	229.228	131.481	−412.327	175.943	−824.937	−605.596	−252.663	7.332
	1900.00	129.736	236.238	136.812	−399.360	188.910	−848.213	−605.021	−233.071	6.408
	2000.00	129.834	242.896	141.951	−386.381	201.889	−872.173	−604.514	−213.509	5.576
	2100.00	129.886	249.232	146.910	−373.395	214.875	−896.781	−604.080	−193.969	4.825
	2200.00	129.900	255.274	151.700	−360.405	227.865	−922.009	−603.721	−174.449	4.142
	2300.00	129.882	261.048	156.329	−347.416	240.854	−947.827	−603.438	−154.943	3.519
	2400.00	129.838	266.575	160.809	−334.430	253.840	−974.211	−603.235	−135.448	2.948
	2473.00	129.791	270.465	163.988	−324.953	263.317	−993.813	−603.136	−121.221	2.560
			52.279		129.286					
LIQ	2473.00	133.888	322.744	163.988	−195.667	392.603	−993.813	−473.850	−121.221	2.560
	2500.00	133.888	324.198	165.711	−192.052	396.218	−1002.547	−473.714	−117.372	2.452
	2600.00	133.888	329.449	171.908	−178.663	409.607	−1035.231	−473.255	−103.127	2.072
	2700.00	133.888	334.502	177.837	−165.275	422.995	−1068.430	−472.869	−88.899	1.720
	2800.00	133.888	339.371	183.520	−151.886	436.384	−1102.125	−1365.308	−39.522	0.737
	2900.00	133.888	344.070	188.975	−138.497	449.773	−1136.299	−1361.891	7.767	−0.140
	3000.00	133.888	348.609	194.221	−125.108	463.162	−1170.934	−1358.494	54.939	−0.957

References

Phase	H / S	C_p
SOL	Ja1	Ja1
LIQ	Ja1	Ja1

25.012 BERYLLIUM OXIDE **BeO**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL-A	298.15	25.567	13.770	13.769	-608.354	0.000	-612.459	-608.354	-579.063	101.449
	300.00	25.743	13.928	13.770	-608.307	0.047	-612.485	-608.364	-578.881	100.792
	400.00	33.727	22.503	14.885	-605.307	3.047	-614.308	-608.689	-568.992	74.303
	500.00	38.935	30.630	17.232	-601.655	6.699	-616.970	-608.672	-559.065	58.405
	600.00	42.397	38.055	20.094	-597.577	10.777	-620.410	-608.444	-549.162	47.809
	700.00	44.836	44.783	23.148	-593.209	15.145	-624.558	-608.092	-539.308	40.244
	800.00	46.656	50.894	26.240	-588.631	19.723	-629.346	-607.673	-529.510	34.573
	900.00	48.084	56.475	29.294	-583.891	24.463	-634.719	-607.217	-519.767	30.166
	1000.00	49.252	61.604	32.272	-579.023	29.331	-640.626	-606.753	-510.075	26.644
	1100.00	50.241	66.345	35.157	-574.047	34.307	-647.027	-606.310	-500.429	23.763
	1200.00	51.105	70.755	37.942	-568.978	39.376	-653.884	-605.897	-490.822	21.365
	1300.00	51.875	74.876	40.626	-563.829	44.525	-661.168	-605.518	-481.248	19.337
	1400.00	52.576	78.747	43.212	-558.606	49.748	-668.851	-605.181	-471.701	17.599
	1500.00	53.225	82.396	45.704	-553.315	55.039	-676.910	-604.891	-462.178	16.094
	1600.00	53.831	85.851	48.106	-547.962	60.392	-685.324	-612.375	-452.471	14.772
	1700.00	54.405	89.132	50.424	-542.550	65.804	-694.074	-611.707	-442.497	13.596
	1800.00	54.951	92.257	52.662	-537.082	71.272	-703.145	-611.016	-432.564	12.553
	1900.00	55.476	95.242	54.825	-531.561	76.793	-712.521	-610.304	-422.669	11.620
	2000.00	55.982	98.101	56.918	-525.988	82.366	-722.189	-609.574	-412.812	10.782
	2100.00	56.473	100.844	58.945	-520.365	87.989	-732.138	-608.826	-402.993	10.024
	2200.00	56.950	103.482	60.909	-514.694	93.660	-742.355	-608.063	-393.209	9.336
	2300.00	57.415	106.024	62.816	-508.975	99.379	-752.831	-607.284	-383.460	8.709
	2373.00	57.748	107.823	64.173	-504.772	103.582	-760.636	-606.707	-376.365	8.285
			2.821		6.694					
SOL-B	2373.00	57.759	110.644	64.173	-498.078	110.276	-760.636	-600.013	-376.365	8.285
	2400.00	57.883	111.298	64.699	-496.517	111.837	-763.633	-599.798	-373.822	8.136
	2500.00	58.339	113.671	66.611	-490.705	117.649	-774.882	-598.991	-364.423	7.614
	2600.00	58.789	115.967	68.466	-484.849	123.505	-786.364	-598.171	-355.056	7.133
	2700.00	59.234	118.194	70.266	-478.948	129.406	-798.073	-597.337	-345.721	6.688
	2800.00	59.675	120.357	72.017	-473.002	135.352	-810.001	-894.075	-324.697	6.057
	2821.20	59.768	120.807	72.382	-471.736	136.618	-812.557	-893.671	-320.387	5.932
			28.022		79.057					
LIQ	2821.20	79.496	148.830	72.382	-392.679	215.675	-812.557	-814.614	-320.387	5.932
	2900.00	79.496	151.020	74.489	-386.415	221.939	-824.372	-811.560	-306.625	5.523
	3000.00	79.496	153.715	77.085	-378.465	229.889	-839.609	-807.696	-289.280	5.037
	3100.00	79.496	156.321	79.599	-370.516	237.838	-855.112	-803.846	-272.063	4.584
	3200.00	79.496	158.845	82.037	-362.566	245.788	-870.871	-800.011	-254.969	4.162
	3300.00	79.496	161.291	84.401	-354.617	253.737	-886.878	-796.190	-237.996	3.767
	3400.00	79.496	163.665	86.698	-346.667	261.687	-903.127	-792.383	-221.138	3.397
	3500.00	79.496	165.969	88.930	-338.717	269.637	-919.609	-788.592	-204.392	3.050

References

Phase	H / S	C_p	Remarks	
SOL-A	Ja1	Ja1	Ku1	MPT (SOL-A)= 2780.
SOL-B	Ja1	Ja1		
LIQ	Ja1	Ja1		

BeAl2O4 BERYLLIUM DIALUMINIUM TETRAOXIDE 126.973

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	105.415	66.291	66.291	−2301.200	0.000	−2320.965	−2301.200	−2178.961	381.745
	300.00	105.975	66.945	66.293	−2301.004	0.196	−2321.088	−2301.234	−2178.202	379.259
	400.00	130.249	101.029	70.775	−2289.099	12.101	−2329.510	−2302.122	−2137.012	279.065
	500.00	145.355	131.845	79.966	−2275.261	25.939	−2341.183	−2301.789	−2095.755	218.942
	600.00	155.169	159.273	90.943	−2260.202	40.998	−2355.766	−2300.829	−2054.631	178.872
	700.00	161.971	183.732	102.484	−2244.326	56.874	−2372.939	−2299.586	−2013.694	150.264
	800.00	166.988	205.703	114.036	−2227.867	73.333	−2392.429	−2298.295	−1972.942	128.820
	900.00	170.911	225.606	125.345	−2210.965	90.235	−2414.010	−2297.161	−1932.343	112.150
	1000.00	174.160	243.786	136.293	−2193.707	107.493	−2437.493	−2317.391	−1890.339	98.741
	1100.00	177.005	260.521	146.836	−2176.146	125.054	−2462.719	−2315.977	−1847.702	87.740
	1200.00	179.633	276.037	156.964	−2158.313	142.887	−2489.557	−2314.471	−1805.197	78.578
	1300.00	182.181	290.516	166.686	−2140.222	160.978	−2517.892	−2312.876	−1762.822	70.831
	1400.00	184.756	304.110	176.022	−2121.876	179.324	−2547.630	−2311.186	−1720.572	64.195
	1500.00	187.446	316.948	184.993	−2103.267	197.933	−2578.689	−2309.388	−1678.448	58.449
	1600.00	190.326	329.136	193.624	−2084.380	216.820	−2610.998	−2315.189	−1636.247	53.418
	1700.00	193.461	340.767	201.940	−2065.193	236.007	−2644.498	−2312.633	−1593.890	48.974
	1800.00	196.911	351.921	209.964	−2045.677	255.523	−2679.136	−2309.818	−1551.691	45.029
	1900.00	200.733	362.668	217.720	−2025.799	275.401	−2714.869	−2306.708	−1509.656	41.503
	2000.00	204.979	373.071	225.229	−2005.517	295.683	−2751.658	−2303.263	−1467.793	38.335
	2100.00	209.700	383.184	232.511	−1984.787	316.413	−2789.473	−2299.436	−1426.112	35.473
	2146.00	212.045	387.753	235.790	−1975.087	326.113	−2807.205	−2297.534	−1407.003	34.247
			81.106		174.054					
LIQ	2146.00	234.304	468.859	235.790	−1801.033	500.167	−2807.205	−2123.480	−1407.003	34.247
	2200.00	234.304	474.682	241.582	−1788.381	512.819	−2832.681	−2119.999	−1389.018	32.979
	2300.00	234.304	485.097	251.945	−1764.950	536.250	−2880.674	−2113.604	−1355.935	30.794
	2400.00	234.304	495.069	261.869	−1741.520	559.680	−2929.686	−2107.275	−1323.128	28.797
	2500.00	234.304	504.634	271.390	−1718.090	583.110	−2979.674	−2101.010	−1290.585	26.965

References

Phase	H / S	C_p
SOL	Ja1	Ja1
LIQ	Ja1	e

330.895 BERYLLIUM HEXAALUMINIUM DECAOXIDE **BeAl6O10**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	265.171	175.561	175.561	−5624.133	0.000	−5676.476	−5624.133	−5317.258	931.561
	300.00	266.561	177.205	175.566	−5623.641	0.492	−5676.803	−5624.213	−5315.353	925.485
	400.00	324.268	262.545	186.808	−5593.838	30.295	−5698.856	−5626.146	−5211.993	680.617
	500.00	358.521	338.890	209.747	−5559.561	64.572	−5729.006	−5625.114	−5108.534	533.685
	600.00	380.574	406.337	237.006	−5522.535	101.598	−5766.337	−5622.684	−5005.431	435.761
	700.00	396.074	466.229	265.556	−5483.662	140.471	−5810.022	−5619.676	−4902.789	365.851
	800.00	407.819	519.915	294.054	−5443.444	180.689	−5859.376	−5616.645	−4800.586	313.446
	900.00	417.260	568.513	321.892	−5402.174	221.959	−5913.836	−5614.113	−4698.739	272.708
	1000.00	425.177	612.896	348.805	−5360.042	264.091	−5972.938	−5675.634	−4592.579	239.892
	1100.00	431.995	653.747	374.695	−5317.175	306.958	−6036.297	−5672.141	−4484.440	212.948
	1200.00	437.940	691.597	399.546	−5273.672	350.461	−6103.588	−5668.311	−4376.634	190.510
	1300.00	443.311	726.866	423.383	−5229.604	394.529	−6174.531	−5664.187	−4269.159	171.537
	1400.00	448.320	759.904	446.253	−5185.022	439.111	−6248.887	−5659.800	−4162.012	155.287
	1500.00	453.329	791.005	468.209	−5139.940	484.193	−6326.447	−5655.153	−4055.188	141.214
	1600.00	458.571	820.427	489.312	−5094.348	529.785	−6407.032	−5657.948	−3948.482	128.905
	1700.00	464.199	848.395	509.618	−5048.213	575.920	−6490.484	−5652.220	−3841.814	118.045
	1800.00	470.317	875.098	529.186	−5001.492	622.641	−6576.668	−5646.046	−3735.495	108.401
	1900.00	476.996	900.703	548.071	−4954.131	670.002	−6665.467	−5639.372	−3629.533	99.783
	2000.00	484.288	925.353	566.322	−4906.072	718.061	−6756.777	−5632.137	−3523.937	92.036
	2100.00	492.228	949.170	583.989	−4857.252	766.881	−6850.510	−5624.276	−3418.717	85.036
	2186.00	499.597	969.072	598.749	−4814.607	809.526	−6932.998	−5616.963	−3328.540	79.536
			183.744		401.664					
LIQ	2186.00	569.024	1152.816	598.749	−4412.943	1211.190	−6932.998	−5616.963	−3328.540	79.536
	2200.00	569.024	1156.448	602.286	−4404.977	1219.156	−6949.163	−5213.094	−3316.464	78.743
	2300.00	569.024	1181.742	626.934	−4348.074	1276.059	−7066.082	−5197.418	−3230.605	73.369
	2400.00	569.024	1205.960	650.559	−4291.172	1332.961	−7185.475	−5181.874	−3145.425	68.458
	2500.00	569.024	1229.188	673.243	−4234.269	1389.864	−7307.241	−5166.461	−3060.890	63.954

References

Phase	H / S	C_p
SOL	Ja1	Ja1
LIQ	Ja1	Ja1

Be3B2O6 TRIBERYLLIUM DIBORATE 144.655

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	140.517	100.416	100.416	−3104.361	0.000	−3134.300	−3104.361	−2938.886	514.881
	300.00	140.639	101.286	100.419	−3104.101	0.260	−3134.487	−3104.398	−2937.859	511.527
	400.00	171.485	145.317	106.211	−3088.719	15.642	−3146.845	−3106.175	−2882.049	376.357
	500.00	206.356	187.478	118.274	−3069.759	34.602	−3163.498	−3106.169	−2825.976	295.228
	600.00	232.418	227.534	133.182	−3047.750	56.611	−3184.270	−3104.409	−2770.078	241.157
	700.00	251.196	264.849	149.360	−3023.518	80.843	−3208.913	−3101.419	−2714.579	202.564
	800.00	264.930	299.334	165.980	−2997.678	106.683	−3237.145	−3097.627	−2659.567	173.652
	900.00	275.233	331.161	182.589	−2970.646	133.715	−3268.691	−3093.319	−2605.064	151.194
	1000.00	283.168	360.588	198.936	−2942.710	161.651	−3303.297	−3088.714	−2551.059	133.254
	1100.00	289.432	387.881	214.888	−2914.068	190.293	−3340.738	−3083.996	−2497.521	118.597
	1200.00	294.489	413.289	230.375	−2884.863	219.498	−3380.811	−3079.256	−2444.415	106.403
	1300.00	298.656	437.031	245.368	−2855.200	249.161	−3423.340	−3074.564	−2391.702	96.100
	1400.00	302.154	459.295	259.862	−2825.154	279.207	−3468.168	−3069.976	−2339.347	87.282
	1500.00	305.139	480.246	273.863	−2794.786	309.575	−3515.155	−3065.539	−2287.315	79.651
	1600.00	307.724	500.024	287.386	−2764.140	340.221	−3564.178	−3084.456	−2234.973	72.964
	1700.00	309.995	518.749	300.449	−2733.252	371.109	−3615.125	−3078.970	−2182.048	67.046
	1768.00	311.393	530.935	309.081	−2712.124	392.237	−3650.817	−3075.237	−2146.245	63.410

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	MPT= 1768.

26.020 BERYLLIUM MONOHYDROXIDE (GAS) **BeOH[g]**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	38.437	209.602	209.602	-114.642	0.000	-177.135	-114.642	-124.257	21.769
	300.00	38.520	209.840	209.603	-114.571	0.071	-177.523	-114.655	-124.317	21.645
	400.00	42.436	221.487	211.164	-110.513	4.129	-199.108	-115.375	-127.429	16.640
	500.00	45.237	231.275	214.234	-106.121	8.521	-221.759	-116.079	-130.360	13.619
	600.00	47.300	239.713	217.793	-101.490	13.152	-245.318	-116.762	-133.152	11.592
	700.00	48.910	247.130	221.465	-96.676	17.966	-269.668	-117.434	-135.830	10.136
	800.00	50.230	253.750	225.094	-91.718	22.924	-294.717	-118.110	-138.412	9.037
	900.00	51.353	259.733	228.616	-86.637	28.005	-320.396	-118.801	-140.909	8.178
	1000.00	52.332	265.195	232.005	-81.452	33.190	-346.647	-119.522	-143.327	7.487
	1100.00	53.202	270.224	235.254	-76.174	38.468	-373.421	-120.297	-145.671	6.917
	1200.00	53.982	274.887	238.364	-70.814	43.828	-400.679	-121.131	-147.941	6.440
	1300.00	54.687	279.237	241.343	-65.380	49.262	-428.388	-122.028	-150.139	6.033
	1400.00	55.327	283.313	244.197	-59.879	54.763	-456.518	-122.996	-152.266	5.681
	1500.00	55.908	287.151	246.934	-54.317	60.325	-485.043	-124.038	-154.321	5.374
	1600.00	56.436	290.776	249.562	-48.699	65.943	-513.941	-132.882	-156.103	5.096
	1700.00	56.912	294.212	252.088	-43.031	71.611	-543.191	-133.605	-157.532	4.840
	1800.00	57.341	297.477	254.520	-37.318	77.324	-572.777	-134.336	-158.919	4.612
	1900.00	57.724	300.588	256.863	-31.565	83.077	-602.682	-135.079	-160.264	4.406
	2000.00	58.062	303.558	259.124	-25.775	88.867	-632.890	-135.837	-161.570	4.220

References

Phase	H / S	C_p
GAS	Ja1	Ja1

43.027 BERYLLIUM HYDROXIDE (ALPHA) **Be(OH)2**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL-A	298.15	65.674	53.555	53.555	-902.907	0.000	-918.874	-902.907	-815.933	142.948
	300.00	66.079	53.963	53.556	-902.785	0.122	-918.974	-902.923	-815.393	141.973
	400.00	82.918	75.496	56.378	-895.260	7.647	-925.458	-903.114	-786.154	102.661
	500.00	92.948	95.165	62.204	-886.426	16.481	-934.009	-902.367	-756.986	79.082
	600.00	99.415	112.722	69.189	-876.787	26.120	-944.420	-901.086	-728.023	63.380
	700.00	103.979	128.407	76.549	-866.606	36.301	-956.491	-899.487	-699.302	52.183
	800.00	107.482	142.529	83.928	-856.026	46.881	-970.050	-897.688	-670.825	43.800
	900.00	110.376	155.360	91.163	-845.130	57.777	-984.954	-895.752	-642.583	37.295
	1000.00	112.919	167.123	98.179	-833.963	68.944	-1001.086	-893.724	-614.561	32.101

References

Phase	H / S	C_p	Remarks	
SOL-A	Ja1	Ja1	Ja1	NDPT= 354.

Be(OH)2[g] BERYLLIUM HYDROXIDE (GAS) 43.027

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	63.419	233.953	233.953	−676.553	0.000	−746.306	−676.553	−643.365	112.715
	300.00	63.628	234.346	233.954	−676.435	0.118	−746.739	−676.574	−643.159	111.984
	400.00	72.738	253.997	236.572	−669.583	6.970	−771.182	−677.437	−631.878	82.515
	500.00	78.628	270.905	241.788	−661.995	14.558	−797.447	−677.936	−620.424	64.815
	600.00	82.727	285.622	247.895	−653.916	22.637	−825.290	−678.216	−608.893	53.009
	700.00	85.823	298.617	254.231	−645.482	31.071	−854.514	−678.364	−597.326	44.573
	800.00	88.314	310.244	260.518	−636.773	39.780	−884.968	−678.434	−585.743	38.245
	900.00	90.480	320.774	266.637	−627.830	48.723	−916.527	−678.453	−574.156	33.323
	1000.00	92.392	330.408	272.540	−618.685	57.868	−949.093	−678.447	−562.567	29.386
	1100.00	94.100	339.295	278.209	−609.359	67.194	−982.583	−678.447	−550.980	26.164
	1200.00	95.638	347.550	283.648	−599.871	76.682	−1016.930	−678.466	−539.391	23.479
	1300.00	97.031	355.261	288.863	−590.236	86.317	−1052.075	−678.515	−527.800	21.207
	1400.00	98.295	362.499	293.867	−580.469	96.084	−1087.967	−678.605	−516.203	19.260
	1500.00	99.443	369.320	298.672	−570.581	105.972	−1124.561	−678.746	−504.598	17.572
	1600.00	100.484	375.772	303.291	−560.584	115.969	−1161.819	−686.671	−492.782	16.088
	1700.00	101.424	381.892	307.736	−550.488	126.065	−1199.704	−686.458	−480.670	14.769
	1800.00	102.268	387.714	312.019	−540.302	136.251	−1238.187	−686.241	−468.571	13.598
	1900.00	103.021	393.264	316.150	−530.037	146.516	−1277.238	−686.028	−456.485	12.550
	2000.00	103.685	398.565	320.139	−519.701	156.852	−1316.832	−685.826	−444.409	11.607

References

Phase	H / S	C_p
GAS	Ja1	Ja1

Be(OH)2[B] BERYLLIUM HYDROXIDE (BETA) 43.027

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL−B	298.15	65.674	50.208	50.208	−905.836	0.000	−920.806	−905.836	−817.864	143.286
	300.00	66.079	50.615	50.209	−905.714	0.122	−920.899	−905.852	−817.318	142.308
	400.00	82.918	72.148	53.030	−898.189	7.647	−927.048	−906.043	−787.744	102.869
	500.00	92.948	91.818	58.857	−889.355	16.481	−935.264	−905.296	−758.241	79.213
	600.00	99.415	109.375	65.842	−879.716	26.120	−945.341	−904.015	−728.944	63.460
	700.00	103.979	125.060	73.201	−869.535	36.301	−957.077	−902.416	−699.888	52.226
	800.00	107.482	139.182	80.581	−858.955	46.881	−970.301	−900.617	−671.077	43.817
	900.00	110.376	152.013	87.816	−848.059	57.777	−984.870	−898.681	−642.499	37.290
	1000.00	112.919	163.776	94.832	−836.892	68.944	−1000.668	−896.653	−614.143	32.080

References

Phase	H / S	C_p	Remarks	
SOL−B	Ja1	Ja1	Ja1	NDPT= 366.

110.107 BERYLLIUM SILICATE (PHENACITE) **Be2SiO4**

Phase	T	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	93.474	64.434	64.434	–2145.555	0.000	–2164.766	–2145.555	–2031.197	355.857
	300.00	94.209	65.014	64.435	–2145.381	0.174	–2164.886	–2145.588	–2030.487	353.539
	400.00	121.767	96.361	68.522	–2134.420	11.135	–2172.964	–2146.369	–1991.955	260.123
	500.00	136.813	125.288	77.034	–2121.428	24.127	–2184.072	–2145.985	–1953.380	204.068
	600.00	146.527	151.147	87.272	–2107.230	38.325	–2197.918	–2145.022	–1914.943	166.711
	700.00	153.372	174.276	98.079	–2092.217	53.338	–2214.210	–2143.746	–1876.694	140.041
	800.00	158.374	195.100	108.927	–2076.617	68.938	–2232.697	–2142.309	–1838.641	120.051
	900.00	162.024	213.976	119.567	–2060.587	84.968	–2253.166	–2140.812	–1800.772	104.514
	1000.00	164.582	231.188	129.882	–2044.248	101.307	–2275.437	–2139.355	–1763.069	92.093
	1100.00	166.193	246.957	139.818	–2027.702	117.853	–2299.355	–2138.039	–1725.505	81.937
	1200.00	166.947	261.456	149.359	–2011.038	134.517	–2324.786	–2136.933	–1688.053	73.479
	1300.00	166.898	274.822	158.503	–1994.340	151.215	–2351.609	–2136.102	–1650.682	66.325
	1400.00	166.084	287.166	167.258	–1977.684	167.871	–2379.716	–2135.616	–1613.362	60.195
	1500.00	164.528	298.575	175.637	–1961.148	184.407	–2409.011	–2135.546	–1576.064	54.883
	1600.00	162.250	309.125	183.655	–1944.803	200.752	–2439.403	–2151.407	–1538.354	50.222
	1700.00	159.259	318.875	191.326	–1928.721	216.834	–2470.809	–2201.589	–1499.593	46.077
	1800.00	155.567	327.877	198.665	–1912.974	232.581	–2503.153	–2201.832	–1458.295	42.319
	1833.00	154.196	330.691	201.017	–1907.863	237.692	–2514.019	–2202.017	–1444.662	41.168

References

Phase	H / S	C_p	Remarks	
SOL	S5	S5	Ja1	MPT= 1833.

BeS BERYLLIUM SULFIDE 41.078

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	34.067	37.028	37.028	−234.304	0.000	−245.344	−234.304	−232.972	40.816
	300.00	34.257	37.240	37.029	−234.241	0.063	−245.413	−234.313	−232.964	40.563
	400.00	42.561	48.325	38.484	−230.368	3.936	−249.698	−236.861	−232.366	30.344
	500.00	47.696	58.418	41.480	−225.835	8.469	−255.044	−238.335	−231.089	24.142
	600.00	51.023	67.428	45.068	−220.888	13.416	−261.345	−239.234	−229.543	19.984
	700.00	53.370	75.479	48.848	−215.662	18.642	−268.498	−239.707	−227.888	17.005
	800.00	55.167	82.727	52.637	−210.232	24.072	−276.414	−240.127	−226.172	14.767
	900.00	56.634	89.312	56.352	−204.640	29.664	−285.021	−293.322	−223.249	12.957
	1000.00	57.887	95.346	59.954	−198.912	35.392	−294.258	−292.104	−215.528	11.258
	1100.00	58.979	100.915	63.428	−193.068	41.236	−304.075	−290.880	−207.930	9.874
	1200.00	59.934	106.089	66.770	−187.121	47.183	−314.428	−289.662	−200.443	8.725
	1300.00	60.752	110.919	69.982	−181.086	53.218	−325.281	−288.460	−193.057	7.757
	1400.00	61.442	115.449	73.070	−174.973	59.331	−336.602	−287.287	−185.762	6.931
	1500.00	61.966	119.706	76.038	−168.802	65.502	−348.362	−286.159	−178.550	6.218
	1600.00	62.428	123.720	78.894	−162.582	71.722	−360.535	−292.810	−171.211	5.589
	1700.00	62.872	127.518	81.644	−156.317	77.987	−373.098	−291.316	−163.657	5.029
	1800.00	63.313	131.125	84.293	−150.008	84.296	−386.032	−289.803	−156.191	4.533
	1900.00	63.758	134.560	86.849	−143.654	90.650	−399.318	−288.270	−148.810	4.091
	2000.00	64.207	137.841	89.317	−137.256	97.048	−412.939	−286.718	−141.510	3.696
	2100.00	64.657	140.985	91.703	−130.813	103.491	−426.881	−285.145	−134.288	3.340
	2200.00	65.106	144.003	94.013	−124.325	109.979	−441.132	−283.553	−127.142	3.019
	2300.00	65.551	146.907	96.250	−117.792	116.512	−455.678	−281.940	−120.068	2.727
	2400.00	65.992	149.706	98.419	−111.215	123.089	−470.510	−280.308	−113.065	2.461
	2500.00	66.428	152.409	100.525	−104.594	129.710	−485.616	−278.657	−106.131	2.217
	2600.00	66.862	155.023	102.571	−97.929	136.375	−500.988	−276.987	−99.263	1.994
	2700.00	67.294	157.554	104.561	−91.221	143.083	−516.618	−275.299	−92.459	1.789
	2800.00	67.730	160.010	106.497	−84.470	149.834	−532.497	−571.176	−73.998	1.380
	2900.00	68.172	162.394	108.384	−77.675	156.629	−548.618	−568.391	−56.290	1.014
	3000.00	68.626	164.713	110.223	−70.835	163.469	−564.973	−565.569	−38.680	0.673

References

Phase	H / S	C_p
SOL	Ja1	Ja1

41.078 BERYLLIUM SULFIDE (GAS) **BeS[g]**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	30.790	210.272	210.272	263.592	0.000	200.899	263.592	213.271	-37.364
	300.00	30.813	210.462	210.272	263.649	0.057	200.510	263.576	212.959	-37.080
	400.00	32.360	219.535	211.499	266.806	3.214	178.992	260.313	196.324	-25.637
	500.00	33.657	226.903	213.865	270.111	6.519	156.659	257.610	180.615	-18.869
	600.00	34.579	233.126	216.570	273.525	9.933	133.650	255.179	165.452	-14.404
	700.00	35.258	238.509	219.328	277.018	13.426	110.062	252.974	150.672	-11.243
	800.00	35.821	243.255	222.028	280.573	16.981	85.969	250.678	136.212	-8.894
	900.00	36.368	247.505	224.627	284.182	20.590	61.428	195.500	123.200	-7.150
	1000.00	36.981	251.368	227.111	287.849	24.257	36.481	194.657	115.211	-6.018
	1100.00	37.730	254.926	229.480	291.583	27.991	11.164	193.771	107.309	-5.096
	1200.00	38.681	258.248	231.740	295.402	31.810	-14.496	192.861	99.489	-4.331
	1300.00	39.892	261.390	233.901	299.328	35.736	-40.479	191.953	91.745	-3.686
	1400.00	41.421	264.400	235.973	303.391	39.799	-66.770	191.077	84.070	-3.137
	1500.00	43.129	267.315	237.965	307.616	44.024	-93.356	190.259	76.455	-2.662
	1600.00	45.017	270.158	239.889	312.022	48.430	-120.230	181.794	69.093	-2.256
	1700.00	47.018	272.947	241.752	316.623	53.031	-147.386	181.624	62.055	-1.907
	1800.00	49.050	275.692	243.561	321.427	57.835	-174.818	181.632	55.023	-1.597
	1900.00	51.030	278.397	245.324	326.431	62.839	-202.523	181.816	47.985	-1.319
	2000.00	52.887	281.062	247.044	331.628	68.036	-230.496	182.167	40.932	-1.069
	2100.00	54.567	283.684	248.727	337.003	73.411	-258.734	182.671	33.859	-0.842
	2200.00	56.029	286.257	250.374	342.535	78.943	-287.232	183.307	26.758	-0.635
	2300.00	57.248	288.776	251.989	348.201	84.609	-315.984	184.052	19.626	-0.446
	2400.00	58.213	291.233	253.574	353.976	90.384	-344.985	184.882	12.460	-0.271
	2500.00	58.924	293.625	255.128	359.835	96.243	-374.228	185.771	5.257	-0.110
	2600.00	59.392	295.946	256.654	365.752	102.160	-403.707	186.694	-1.982	0.040
	2700.00	59.638	298.193	258.151	371.706	108.114	-433.415	187.628	-9.256	0.179
	2800.00	59.687	300.363	259.620	377.673	114.081	-463.343	-109.032	-4.844	0.090
	2900.00	59.574	302.456	261.061	383.638	120.046	-493.485	-107.078	-1.158	0.021
	3000.00	59.337	304.472	262.475	389.584	125.992	-523.832	-105.150	2.462	-0.043

References

Phase	H / S	C_p
GAS	Ja1	Ja1

BeSO4 BERYLLIUM SULFATE 105.076

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL-A	298.15	86.008	77.969	77.969	-1200.808	0.000	-1224.054	-1200.808	-1089.353	190.850
	300.00	86.382	78.502	77.970	-1200.649	0.159	-1224.199	-1200.830	-1088.662	189.553
	400.00	103.049	105.773	81.576	-1191.129	9.679	-1233.438	-1203.673	-1051.061	137.254
	500.00	116.118	130.210	88.901	-1180.154	20.654	-1245.259	-1204.823	-1012.779	105.804
	600.00	127.770	152.425	97.664	-1167.952	32.856	-1259.407	-1204.785	-974.352	84.825
	700.00	138.755	172.952	106.971	-1154.621	46.187	-1275.688	-1203.663	-936.023	69.847
	800.00	149.382	192.177	116.432	-1140.212	60.596	-1293.954	-1201.779	-897.909	58.627
	863.00	155.966	203.747	122.386	-1130.593	70.215	-1306.427	-1200.277	-874.036	52.903
			1.290		1.113					
SOL-B	863.00	158.058	205.037	122.386	-1129.480	71.328	-1306.427	-1199.164	-874.036	52.903
	900.00	162.257	211.760	125.923	-1123.555	77.253	-1314.138	-1250.719	-858.973	49.853
	908.00	163.164	213.200	126.685	-1122.253	78.555	-1315.838	-1250.324	-855.492	49.214
			21.533		19.552					
SOL-C	908.00	163.189	234.733	126.685	-1102.701	98.107	-1315.838	-1230.772	-855.492	49.214
	1000.00	174.460	251.048	137.380	-1087.140	113.668	-1338.188	-1225.737	-817.708	42.713
	1100.00	183.141	268.107	148.495	-1069.234	131.574	-1364.152	-1219.471	-777.203	36.906
	1200.00	189.258	284.320	159.144	-1050.597	150.211	-1391.781	-1212.660	-737.294	32.094
	1300.00	193.570	299.649	169.368	-1031.443	169.365	-1420.987	-1205.505	-697.969	28.045
	1400.00	196.572	314.111	179.196	-1011.926	188.882	-1451.682	-1198.154	-659.202	24.595
	1500.00	198.603	327.747	188.649	-992.160	208.648	-1483.781	-1190.714	-620.965	21.624
	1600.00	199.897	340.610	197.748	-972.230	228.578	-1517.205	-1190.989	-583.024	19.034
	1700.00	200.622	352.753	206.513	-952.200	248.608	-1551.879	-1183.114	-545.268	16.754
	1800.00	200.902	364.230	214.959	-932.121	268.687	-1587.734	-1175.262	-507.974	14.741

References

Phase	H / S	C_p
SOL-A	Ja1	Ja1
SOL-B	Ja1	Ja1
SOL-C	Ja1	Ja1

BeSO4*2H2O BERYLLIUM SULFATE DIHYDRATE 141.106

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	152.844	163.218	163.218	-1822.969	0.000	-1871.632	-1822.969	-1597.842	279.935
	300.00	153.344	164.165	163.221	-1822.686	0.283	-1871.935	-1823.028	-1596.445	277.966
	400.00	180.330	211.975	169.558	-1806.002	16.967	-1890.792	-1827.490	-1520.437	198.549
	500.00	207.317	255.114	182.415	-1786.620	36.349	-1914.176	-1829.137	-1443.461	150.797

References

Phase	H / S	C_p
SOL	Nb1	e

177.137 BERYLLIUM SULFATE TETRAHYDRATE **BeSO4*4H2O**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	216.441	233.049	233.049	−2423.791	0.000	−2493.274	−2423.791	−2080.395	364.477
	300.00	216.940	234.389	233.053	−2423.390	0.401	−2493.707	−2423.894	−2078.264	361.858
	400.00	243.927	300.495	241.884	−2400.347	23.444	−2520.545	−2430.779	−1962.213	256.239
	500.00	270.914	357.825	259.452	−2374.605	49.186	−2553.517	−2434.970	−1844.567	192.701

References

Phase	H / S	C_p	Remarks
SOL−A	Nb1	e	Tetragonal

256.860 BERYLLIUM TUNGSTATE **BeWO4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	96.915	88.366	88.366	−1513.353	0.000	−1539.699	−1513.353	−1404.818	246.118
	300.00	97.342	88.967	88.368	−1513.173	0.180	−1539.863	−1513.357	−1404.145	244.483
	400.00	113.841	119.482	92.417	−1502.527	10.826	−1550.320	−1512.957	−1367.770	178.612
	500.00	123.781	146.023	100.545	−1490.614	22.739	−1563.626	−1511.783	−1331.598	139.111
	600.00	131.139	169.266	110.102	−1477.854	35.499	−1579.414	−1510.169	−1295.707	112.801
	700.00	137.278	189.954	120.059	−1464.426	48.927	−1597.394	−1508.241	−1260.112	94.031
	800.00	142.768	208.648	129.982	−1450.420	62.933	−1617.339	−1506.043	−1224.812	79.972
	900.00	147.879	225.762	139.687	−1435.885	77.468	−1639.071	−1503.589	−1189.802	69.054
	1000.00	152.756	241.597	149.096	−1420.852	92.501	−1662.449	−1500.887	−1155.080	60.335
	1100.00	157.480	256.378	158.184	−1405.339	108.014	−1687.355	−1497.951	−1120.639	53.215
	1200.00	162.099	270.280	166.952	−1389.360	123.993	−1713.695	−1494.774	−1086.477	47.293
	1300.00	166.645	283.434	175.410	−1372.922	140.431	−1741.386	−1491.352	−1052.589	42.294
	1400.00	171.138	295.949	183.577	−1356.032	157.321	−1770.361	−1487.685	−1018.974	38.018
	1500.00	175.591	307.908	191.470	−1338.696	174.657	−1800.558	−1483.772	−985.630	34.323
	1600.00	180.014	319.382	199.108	−1320.915	192.438	−1831.926	−1487.339	−952.354	31.091
	1700.00	184.413	330.427	206.510	−1302.694	210.659	−1864.420	−1482.456	−919.065	28.239
	1800.00	188.795	341.092	213.692	−1284.033	229.320	−1897.999	−1477.249	−886.073	25.713
	1900.00	193.162	351.417	220.670	−1264.935	248.418	−1932.627	−1471.724	−853.380	23.461
	2000.00	197.518	361.435	227.459	−1245.401	267.952	−1968.272	−1465.882	−820.985	21.442

References

Phase	H / S	C_p
SOL	Ja1	Ja1

Bi BISMUTH 208.980

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	25.550	56.735	56.735	0.000	0.000	−16.916	0.000	0.000	0.000
	300.00	25.550	56.893	56.735	0.047	0.047	−17.021	0.000	0.000	0.000
	400.00	26.602	64.346	57.745	2.641	2.641	−23.098	0.000	0.000	0.000
	500.00	28.725	70.499	59.695	5.402	5.402	−29.848	0.000	0.000	0.000
	544.52	29.824	72.995	60.681	6.705	6.705	−33.042	0.000	0.000	0.000
			20.747		11.297					
LIQ	544.52	30.479	93.741	60.681	18.002	18.002	−33.042	0.000	0.000	0.000
	600.00	29.568	96.652	63.876	19.666	19.666	−38.325	0.000	0.000	0.000
	700.00	28.560	101.127	68.888	22.567	22.567	−48.221	0.000	0.000	0.000
	800.00	28.008	104.901	73.160	25.393	25.393	−58.528	0.000	0.000	0.000
	900.00	27.689	108.180	76.872	28.176	28.176	−69.185	0.000	0.000	0.000
	1000.00	27.483	111.086	80.151	30.934	30.934	−80.151	0.000	0.000	0.000
	1100.00	27.325	113.697	83.084	33.675	33.675	−91.393	0.000	0.000	0.000
	1200.00	27.173	116.069	85.736	36.400	36.400	−102.883	0.000	0.000	0.000
	1300.00	27.196	118.245	88.154	39.119	39.119	−114.600	0.000	0.000	0.000
	1400.00	27.196	120.261	90.376	41.839	41.839	−126.526	0.000	0.000	0.000
	1500.00	27.196	122.137	92.432	44.558	44.558	−138.647	0.000	0.000	0.000
	1600.00	27.196	123.892	94.344	47.278	47.278	−150.950	0.000	0.000	0.000
	1700.00	27.196	125.541	96.131	49.998	49.998	−163.422	0.000	0.000	0.000
	1800.00	27.196	127.096	97.808	52.717	52.717	−176.055	0.000	0.000	0.000
	1900.00	27.196	128.566	99.389	55.437	55.437	−188.839	0.000	0.000	0.000
	1934.00	27.196	129.048	99.906	56.362	56.362	−193.218	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL	Hu1	Hu1		
LIQ	Hu1	Hu1	Hu1,e	BPT= 1934.GAS(Bi), L= 187.291 kJ / NBPT= 1837.GAS(Bi+Bi2)

208.980 BISMUTH (GAS) **Bi[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	20.786	187.009	187.009	209.618	0.000	153.861	209.618	170.777	−29.919
	300.00	20.786	187.137	187.009	209.656	0.038	153.515	209.609	170.536	−29.693
	400.00	20.786	193.117	187.824	211.735	2.117	134.488	209.094	157.586	−20.579
	500.00	20.786	197.755	189.364	213.814	4.196	114.936	208.412	144.784	−15.125
	600.00	20.786	201.545	191.088	215.892	6.274	94.965	196.226	133.291	−11.604
	700.00	20.786	204.749	192.817	217.971	8.353	74.646	195.404	122.868	−9.169
	800.00	20.786	207.525	194.486	220.050	10.432	54.030	194.657	112.557	−7.349
	900.00	20.786	209.973	196.073	222.128	12.510	33.152	193.952	102.337	−5.940
	1000.00	20.786	212.163	197.574	224.207	14.589	12.044	193.272	92.195	−4.816
	1100.00	20.786	214.144	198.992	226.285	16.667	−9.273	192.611	82.119	−3.900
	1200.00	20.786	215.953	200.331	228.364	18.746	−30.780	191.964	72.103	−3.139
	1300.00	20.790	217.617	201.598	230.443	20.825	−52.459	191.324	62.141	−2.497
	1400.00	20.795	219.158	202.798	232.522	22.904	−74.299	190.683	52.228	−1.949
	1500.00	20.804	220.593	203.937	234.602	24.984	−96.287	190.043	42.360	−1.475
	1600.00	20.819	221.936	205.020	236.683	27.065	−118.414	189.405	32.535	−1.062
	1700.00	20.840	223.199	206.053	238.766	29.148	−140.672	188.768	22.751	−0.699
	1800.00	20.870	224.391	207.039	240.851	31.233	−163.052	188.134	13.003	−0.377
	1900.00	20.910	225.520	207.982	242.940	33.322	−185.548	187.503	3.291	−0.090
	2000.00	20.962	226.594	208.886	245.034	35.416	−208.154	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

Bi2[g] BISMUTH (GAS) 417.961

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	36.942	273.743	273.743	220.078	0.000	138.462	220.078	172.293	−30.185
	300.00	36.948	273.972	273.744	220.146	0.068	137.955	220.052	171.996	−29.947
	400.00	37.141	284.631	275.196	223.852	3.774	110.000	218.571	156.195	−20.397
	500.00	37.235	292.930	277.943	227.571	7.493	81.106	216.768	140.802	−14.709
	600.00	37.288	299.724	281.024	231.298	11.220	51.463	191.966	128.114	−11.153
	700.00	37.321	305.474	284.117	235.028	14.950	21.196	189.894	117.639	−8.778
	800.00	37.345	310.460	287.105	238.762	18.684	−9.606	187.976	107.449	−7.016
	900.00	37.361	314.859	289.949	242.497	22.419	−40.876	186.144	97.494	−5.658
	1000.00	37.374	318.796	292.640	246.234	26.156	−72.562	184.365	87.740	−4.583
	1100.00	37.384	322.359	295.183	249.972	29.894	−104.623	182.622	78.162	−3.712
	1200.00	37.392	325.612	297.585	253.711	33.633	−137.024	180.911	68.741	−2.992
	1300.00	37.397	328.605	299.858	257.450	37.372	−169.737	179.211	59.463	−2.389
	1400.00	37.402	331.377	302.011	261.190	41.112	−202.738	177.512	50.315	−1.877
	1500.00	37.405	333.957	304.056	264.930	44.852	−236.006	175.813	41.289	−1.438
	1600.00	37.407	336.372	306.001	268.671	48.593	−269.524	174.115	32.376	−1.057
	1700.00	37.407	338.639	307.855	272.412	52.334	−303.275	172.416	23.569	−0.724
	1800.00	37.407	340.777	309.625	276.152	56.074	−337.247	170.718	14.863	−0.431
	1900.00	37.405	342.800	311.318	279.893	59.815	−371.427	169.019	6.250	−0.172
	2000.00	37.403	344.719	312.941	283.633	63.555	−405.804	−206.434	10.504	−0.274

References

Phase	H / S	C_p
GAS	Hu1	Hu1

BiAsO4 BISMUTH ARSENATE 347.900

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	121.123	168.071	168.071	−795.211	0.000	−845.321	−795.211	−695.431	121.837
	300.00	121.426	168.821	168.074	−794.987	0.224	−845.633	−795.188	−694.812	120.977
	400.00	133.385	205.559	173.002	−782.188	13.023	−864.412	−793.431	−661.594	86.395
	500.00	140.963	236.184	182.661	−768.449	26.762	−886.542	−791.139	−628.894	65.700
	600.00	146.817	262.419	193.820	−754.051	41.160	−911.503	−799.946	−595.524	51.845
	700.00	151.857	285.437	205.297	−739.113	56.098	−938.919	−797.096	−561.674	41.913
	758.00	154.567	297.633	211.900	−730.226	64.985	−955.831	−795.286	−542.240	37.366

References

Phase	H / S	C_p
SOL	G1	G1

288.884 BISMUTH MONOBROMIDE (GAS) **BiBr**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	36.839	267.467	267.467	53.409	0.000	−26.336	53.409	13.270	−2.325
	300.00	36.856	267.695	267.468	53.477	0.068	−26.831	53.360	13.021	−2.267
	400.00	37.510	278.399	268.923	57.200	3.791	−54.160	37.248	2.846	−0.372
	500.00	37.857	286.810	271.689	60.969	7.560	−82.436	36.410	−5.661	0.591
	600.00	38.084	293.733	274.803	64.767	11.358	−111.473	24.085	−12.830	1.117
	700.00	38.254	299.617	277.938	68.584	15.175	−141.148	23.133	−18.905	1.411
	800.00	38.393	304.734	280.975	72.417	19.008	−171.371	22.266	−24.851	1.623
	900.00	38.516	309.264	283.871	76.262	22.853	−202.075	21.449	−30.691	1.781
	1000.00	38.627	313.327	286.617	80.119	26.710	−233.208	20.666	−36.442	1.904
	1100.00	38.731	317.014	289.215	83.987	30.578	−264.728	19.907	−42.116	2.000
	1200.00	38.830	320.388	291.674	87.865	34.456	−296.600	19.170	−47.722	2.077
	1300.00	38.926	323.500	294.004	91.753	38.344	−328.797	18.446	−53.267	2.140
	1400.00	39.019	326.388	296.216	95.650	42.241	−361.293	17.728	−58.756	2.192
	1500.00	39.110	329.083	298.318	99.557	46.148	−394.068	17.016	−64.194	2.235
	1600.00	39.200	331.610	300.321	103.472	50.063	−427.104	16.311	−69.585	2.272
	1700.00	39.289	333.989	302.232	107.397	53.988	−460.385	15.612	−74.933	2.302
	1800.00	39.377	336.238	304.059	111.330	57.921	−493.898	14.919	−80.239	2.328
	1900.00	39.465	338.369	305.809	115.272	61.863	−527.629	14.232	−85.506	2.351
	2000.00	39.551	340.395	307.488	119.223	65.814	−561.568	−173.325	−84.350	2.203

References

Phase	H / S	C_p
GAS	Tk1	e

BiBr3 BISMUTH BROMIDE 448.692

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	100.826	195.393	195.393	−276.144	0.000	−334.400	−276.144	−249.413	43.696
	300.00	100.930	196.017	195.395	−275.957	0.187	−334.762	−276.215	−249.247	43.398
	400.00	106.556	225.823	199.421	−265.583	10.561	−355.912	−320.157	−231.090	30.177
	431.00	108.300	233.841	201.611	−262.253	13.891	−363.038	−319.371	−224.216	27.174
			7.717		3.326					
SOL−B	431.00	87.864	241.558	201.611	−258.927	17.217	−363.038	−316.045	−224.216	27.174
	491.70	87.864	253.135	207.273	−253.594	22.550	−378.060	−315.768	−211.303	22.447
			41.908		20.606					
LIQ	491.70	144.613	295.043	207.273	−232.988	43.156	−378.060	−295.162	−211.303	22.447
	500.00	144.248	297.460	208.750	−231.789	44.355	−380.519	−294.662	−209.892	21.927
	600.00	139.844	323.370	225.771	−217.584	58.560	−411.606	−300.299	−192.328	16.744
	700.00	135.441	344.597	241.277	−203.820	72.324	−445.038	−295.039	−174.754	13.040
	800.00	131.038	362.395	255.335	−190.496	85.648	−480.412	−290.162	−157.908	10.310

References

Phase	H / S	C_p
SOL−A	Pa2	Pa2
SOL−B	Pa2	Pa2
LIQ	Pa2	Pa2

BiBr3[g] BISMUTH BROMIDE (GAS) 448.692

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	81.220	384.410	384.410	−156.900	0.000	−271.512	−156.900	−186.524	32.678
	300.00	81.244	384.912	384.411	−156.750	0.150	−272.223	−157.007	−186.708	32.509
	400.00	82.050	408.413	387.610	−148.579	8.321	−311.944	−203.153	−187.121	24.436
	500.00	82.421	426.766	393.673	−140.353	16.547	−353.736	−203.227	−183.110	19.129
	600.00	82.636	441.814	400.480	−132.100	24.800	−397.188	−214.815	−177.910	15.488
	700.00	82.774	454.563	407.318	−123.829	33.071	−442.023	−215.048	−171.739	12.815
	800.00	82.866	465.622	413.930	−115.546	41.354	−488.044	−215.213	−165.540	10.809
	900.00	82.926	475.386	420.227	−107.257	49.643	−535.104	−215.342	−159.323	9.247
	1000.00	82.964	484.126	426.188	−98.962	57.938	−583.088	−215.454	−153.093	7.997
	1100.00	82.988	492.034	431.820	−90.664	66.236	−631.902	−215.556	−146.852	6.973
	1200.00	83.004	499.256	437.143	−82.365	74.535	−681.472	−215.651	−140.602	6.120
	1300.00	83.018	505.900	442.180	−74.063	82.837	−731.734	−215.748	−134.344	5.398
	1400.00	83.035	512.053	446.954	−65.761	91.139	−782.635	−215.852	−128.078	4.779
	1500.00	83.061	517.783	451.487	−57.456	99.444	−834.130	−215.962	−121.805	4.242

References

Phase	H / S	C_p
GAS	Pa2	Pa2

244.433 BISMUTH MONOCHLORIDE (GAS) **BiCl[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	36.253	255.082	255.082	25.104	0.000	−50.949	25.104	−0.772	0.135
	300.00	36.271	255.307	255.083	25.171	0.067	−51.421	25.092	−0.933	0.162
	400.00	36.924	265.842	256.515	28.835	3.731	−77.502	24.429	−9.511	1.242
	500.00	37.271	274.122	259.238	32.546	7.442	−104.515	23.594	−17.904	1.870
	600.00	37.498	280.939	262.303	36.285	11.181	−132.278	11.251	−24.956	2.173
	700.00	37.668	286.732	265.390	40.044	14.940	−160.669	10.270	−30.911	2.307
	800.00	37.808	291.772	268.379	43.818	18.714	−189.599	9.366	−36.732	2.398
	900.00	37.930	296.232	271.231	47.605	22.501	−219.004	8.506	−42.442	2.463
	1000.00	38.041	300.234	273.935	51.403	26.299	−248.831	7.676	−48.058	2.510
	1100.00	38.145	303.865	276.493	55.213	30.109	−279.038	6.869	−53.592	2.545
	1200.00	38.244	307.188	278.914	59.032	33.928	−309.593	6.081	−59.054	2.571
	1300.00	38.340	310.253	281.209	62.861	37.757	−340.467	5.304	−64.450	2.590
	1400.00	38.433	313.098	283.386	66.700	41.596	−371.637	4.533	−69.787	2.604
	1500.00	38.524	315.752	285.456	70.548	45.444	−403.081	3.767	−75.069	2.614
	1600.00	38.614	318.242	287.428	74.405	49.301	−434.782	3.006	−80.300	2.622
	1700.00	38.703	320.585	289.311	78.271	53.167	−466.724	2.251	−85.483	2.627
	1800.00	38.791	322.800	291.110	82.146	57.042	−498.894	1.501	−90.623	2.630

References

Phase	H / S	C_p
GAS	Tk1	e

315.338 BISMUTH CHLORIDE **BiCl3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	100.429	176.983	176.983	−379.070	0.000	−431.838	−379.070	−315.139	55.211
	300.00	100.537	177.605	176.985	−378.884	0.186	−432.166	−379.026	−314.742	54.801
	400.00	106.391	207.329	180.998	−368.538	10.532	−451.469	−376.473	−293.691	38.352
	500.00	112.244	231.698	188.770	−357.606	21.464	−473.455	−373.659	−273.316	28.553
	506.70	112.636	233.195	189.348	−356.853	22.217	−475.013	−373.461	−271.973	28.037
			46.736		23.681					
LIQ	506.70	143.511	279.931	189.348	−333.172	45.898	−475.013	−349.780	−271.973	28.037
	600.00	143.511	304.186	205.372	−319.782	59.288	−502.293	−355.552	−256.977	22.372
	700.00	143.511	326.308	221.109	−305.431	73.639	−533.847	−349.617	−241.016	17.985
	800.00	143.511	345.471	235.484	−291.080	87.990	−567.457	−343.650	−225.909	14.750

References

Phase	H / S	C_p
SOL	Nb1	Pa2
LIQ	Pa2	Pa2

BiCl3[g] BISMUTH CHLORIDE (GAS) 315.338

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	79.569	357.423	357.423	−265.266	0.000	−371.832	−265.266	−255.133	44.698
	300.00	79.612	357.915	357.425	−265.119	0.147	−372.493	−265.260	−255.070	44.412
	400.00	81.117	381.055	360.569	−257.072	8.194	−409.494	−265.007	−251.716	32.871
	500.00	81.814	399.240	366.550	−248.921	16.345	−448.541	−264.974	−248.402	25.950
	600.00	82.192	414.193	373.281	−240.719	24.547	−489.235	−276.489	−243.918	21.235
	700.00	82.421	426.881	380.055	−232.488	32.778	−531.304	−276.674	−238.474	17.795
	800.00	82.569	437.897	386.612	−224.238	41.028	−574.555	−276.808	−233.008	15.214
	900.00	82.670	447.629	392.861	−215.975	49.291	−618.841	−276.918	−227.526	13.205
	1000.00	82.743	456.343	398.781	−207.705	57.561	−664.047	−277.017	−222.033	11.598

References

Phase	H / S	C_p
GAS	Pa2	Pa2,e

BiF[g] BISMUTH MONOFLUORIDE (GAS) 227.979

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	34.407	244.120	244.120	−29.384	0.000	−102.168	−29.384	−55.021	9.639
	300.00	34.444	244.333	244.121	−29.320	0.064	−102.620	−29.397	−55.180	9.608
	400.00	35.768	254.449	245.491	−25.801	3.583	−127.580	−30.077	−63.674	8.315
	500.00	36.426	262.508	248.116	−22.188	7.196	−153.442	−30.907	−71.981	7.520
	600.00	36.822	269.187	251.087	−18.524	10.860	−180.036	−43.244	−78.949	6.873
	700.00	37.093	274.885	254.090	−14.828	14.556	−207.247	−44.224	−84.822	6.329
	800.00	37.299	279.852	257.006	−11.108	18.276	−234.989	−45.133	−90.559	5.913
	900.00	37.466	284.255	259.794	−7.369	22.015	−263.199	−46.001	−96.184	5.582
	1000.00	37.610	288.210	262.441	−3.615	25.769	−291.825	−46.846	−101.715	5.313
	1100.00	37.738	291.801	264.949	0.152	29.536	−320.828	−47.672	−107.162	5.089
	1200.00	37.855	295.089	267.326	3.932	33.316	−350.175	−48.481	−112.534	4.898
	1300.00	37.965	298.124	269.580	7.723	37.107	−379.838	−49.283	−117.839	4.735
	1400.00	38.070	300.941	271.721	11.525	40.909	−409.793	−50.082	−123.083	4.592
	1500.00	38.170	303.571	273.757	15.337	44.721	−440.020	−50.878	−128.269	4.467
	1600.00	38.268	306.038	275.698	19.159	48.543	−470.501	−51.671	−133.403	4.355
	1700.00	38.363	308.361	277.552	22.990	52.374	−501.223	−52.460	−138.487	4.255
	1800.00	38.456	310.556	279.325	26.831	56.215	−532.169	−53.244	−143.525	4.165
	1900.00	38.548	312.638	281.024	30.681	60.065	−563.330	−54.025	−148.519	4.083
	2000.00	38.638	314.617	282.655	34.541	63.925	−594.693	−241.679	−147.084	3.841

References

Phase	H / S	C_p
GAS	Tk1	e

265.976 BISMUTH FLUORIDE **BiF3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	85.775	122.591	122.591	−909.183	0.000	−945.734	−909.183	−838.123	146.836
	300.00	86.042	123.123	122.593	−909.024	0.159	−945.961	−909.158	−837.682	145.853
	400.00	96.597	149.478	126.114	−899.838	9.345	−959.629	−907.386	−814.105	106.311
	500.00	103.102	171.765	133.075	−889.838	19.345	−975.720	−905.192	−791.033	82.639
	600.00	109.799	191.123	141.168	−879.210	29.973	−993.884	−914.038	−767.274	66.797
	700.00	120.378	208.770	149.578	−867.749	41.434	−1013.888	−910.803	−743.055	55.447
	800.00	138.333	225.916	158.048	−854.889	54.294	−1035.621	−906.178	−719.385	46.971
	900.00	167.081	243.746	166.568	−839.722	69.461	−1059.094	−899.266	−696.422	40.419
	922.00	175.190	247.878	168.458	−835.958	73.225	−1064.502	−897.322	−691.486	39.175
			23.280		21.464					
LIQ	922.00	184.514	271.157	168.458	−814.494	94.689	−1064.502	−875.858	−691.486	39.175
	1000.00	184.514	286.142	177.061	−800.102	109.081	−1086.244	−867.925	−676.215	35.322
	1100.00	184.514	303.728	187.790	−781.651	127.532	−1115.752	−857.773	−657.536	31.224

References

Phase	H / S	C_p
SOL	Pa2	Pa2
LIQ	Pa2	Pa2

265.976 BISMUTH FLUORIDE (GAS) **BiF3[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	72.639	317.759	317.759	−707.933	0.000	−802.673	−707.933	−695.062	121.772
	300.00	72.763	318.208	317.760	−707.799	0.134	−803.261	−707.933	−694.982	121.007
	400.00	77.133	339.829	320.678	−700.273	7.660	−836.204	−707.821	−690.680	90.194
	500.00	79.181	357.285	326.311	−692.446	15.487	−871.089	−707.800	−686.402	71.708
	600.00	80.314	371.831	332.720	−684.466	23.467	−907.565	−719.294	−680.955	59.282
	700.00	81.015	384.268	339.217	−676.397	31.536	−945.385	−719.451	−674.551	50.336
	800.00	81.487	395.118	345.541	−668.271	39.662	−984.366	−719.560	−668.129	43.624
	900.00	81.825	404.737	351.594	−660.104	47.829	−1024.367	−719.648	−661.695	38.404
	1000.00	82.079	413.372	357.347	−651.909	56.024	−1065.280	−719.731	−655.252	34.227
	1100.00	82.280	421.204	362.802	−643.690	64.243	−1107.015	−719.813	−648.800	30.809
	1200.00	82.443	428.371	367.972	−635.454	72.479	−1149.499	−719.894	−642.340	27.960
	1300.00	82.580	434.975	372.875	−627.203	80.730	−1192.671	−719.982	−635.874	25.550
	1400.00	82.699	441.100	377.532	−618.939	88.994	−1236.478	−720.081	−629.401	23.483
	1500.00	82.803	446.809	381.962	−610.663	97.270	−1280.877	−720.191	−622.920	21.692

References

Phase	H / S	C_p
GAS	Pa2	Pa2

BiI — BISMUTH MONOIODIDE — 335.885

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL-A	298.15	41.953	125.520	125.520	-54.559	0.000	-91.983	-54.559	-57.753	10.118
	300.00	42.049	125.780	125.521	-54.481	0.078	-92.215	-54.579	-57.773	10.059
	400.00	47.237	138.587	127.232	-50.017	4.542	-105.452	-63.527	-58.411	7.628
	500.00	52.426	149.685	130.635	-45.034	9.525	-119.876	-85.402	-55.017	5.748
	564.00	55.746	156.196	133.170	-41.572	12.987	-129.667	-96.331	-50.745	4.700
			2.314		1.305					
SOL-B	564.00	54.810	158.509	133.170	-40.267	14.292	-129.667	-95.026	-50.745	4.700
	600.00	54.810	161.901	134.793	-38.294	16.265	-135.435	-94.802	-47.925	4.172

References

Phase	H / S	C_p
SOL-A	P1/e	e
SOL-B	P1	e

BiI[g] — BISMUTH MONOIODIDE (GAS) — 335.885

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	37.132	275.417	275.417	74.555	0.000	-7.560	74.555	26.669	-4.672
	300.00	37.149	275.646	275.417	74.624	0.069	-8.070	74.526	26.372	-4.592
	400.00	37.802	286.435	276.884	78.375	3.820	-36.199	64.865	10.842	-1.416
	500.00	38.150	294.911	279.672	82.174	7.619	-65.281	41.806	-0.421	0.044
	600.00	38.377	301.887	282.810	86.001	11.446	-95.131	29.493	-7.622	0.664
	700.00	38.547	307.816	285.969	89.848	15.293	-125.624	28.557	-13.732	1.025
	800.00	38.686	312.973	289.030	93.710	19.155	-156.669	27.707	-19.715	1.287
	900.00	38.808	317.537	291.948	97.585	23.030	-188.199	26.908	-25.594	1.485
	1000.00	38.920	321.631	294.715	101.471	26.916	-220.160	26.143	-31.386	1.639
	1100.00	39.024	325.346	297.334	105.368	30.813	-252.512	25.403	-37.103	1.762
	1200.00	39.123	328.746	299.812	109.276	34.721	-285.219	24.684	-42.754	1.861
	1300.00	39.218	331.881	302.160	113.193	38.638	-318.253	23.978	-48.345	1.943
	1400.00	39.312	334.791	304.388	117.119	42.564	-351.588	23.278	-53.882	2.010
	1500.00	39.403	337.506	306.506	121.055	46.500	-385.204	22.584	-59.369	2.067
	1600.00	39.493	340.052	308.524	125.000	50.445	-419.083	21.896	-64.810	2.116
	1700.00	39.582	342.449	310.450	128.954	54.399	-453.210	21.214	-70.208	2.157
	1800.00	39.670	344.714	312.291	132.916	58.361	-487.569	20.538	-75.567	2.193
	1900.00	39.757	346.861	314.054	136.888	62.333	-522.148	19.868	-80.888	2.224
	2000.00	39.844	348.903	315.746	140.868	66.313	-556.937	-167.673	-79.785	2.084

References

Phase	H / S	C_p
GAS	Tk1	e

589.694

BISMUTH IODIDE

BiI3

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	105.855	224.681	224.681	−150.624	0.000	−217.613	−150.624	−148.755	26.061
	300.00	105.657	225.335	224.683	−150.428	0.196	−218.029	−150.627	−148.744	25.899
	400.00	102.474	255.005	228.751	−140.122	10.502	−242.124	−175.372	−147.198	19.222
	500.00	106.836	278.259	236.397	−129.693	20.931	−268.823	−239.994	−133.939	13.993
	600.00	114.168	298.357	245.081	−118.659	31.965	−297.673	−248.851	−111.796	9.733
	681.80	121.243	313.383	252.385	−109.035	41.589	−322.700	−246.223	−93.275	7.146
			57.378		39.120					
LIQ	681.80	150.624	370.761	252.385	−69.915	80.709	−322.700	−207.103	−93.275	7.146
	700.00	150.624	374.729	255.514	−67.174	83.450	−329.484	−205.912	−90.252	6.735
	800.00	150.624	394.842	271.701	−52.111	98.513	−367.985	−199.333	−74.178	4.843
	900.00	150.624	412.583	286.388	−37.049	113.575	−408.373	−192.725	−58.930	3.420

References

Phase	H / S	C_p
SOL	Pa2	Pa2
LIQ	Pa2	Pa2

589.694

BISMUTH IODIDE (GAS)

BiI3[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	82.088	408.384	408.384	−16.318	0.000	−138.078	−16.318	−69.221	12.127
	300.00	82.101	408.892	408.386	−16.166	0.152	−138.834	−16.365	−69.549	12.110
	400.00	82.555	432.583	411.613	−7.930	8.388	−180.963	−43.180	−86.037	11.235
	500.00	82.764	451.029	417.719	0.337	16.655	−225.178	−109.964	−90.294	9.433
	600.00	82.875	466.130	424.567	8.620	24.938	−271.058	−121.573	−85.182	7.416
	700.00	82.941	478.910	431.441	16.911	33.229	−318.327	−121.827	−79.095	5.902
	800.00	82.983	489.989	438.082	25.207	41.525	−366.784	−122.015	−72.977	4.765
	900.00	83.011	499.764	444.403	33.507	49.825	−416.281	−122.169	−66.838	3.879
	1000.00	83.029	508.511	450.385	41.809	58.127	−466.703	−122.306	−60.683	3.170
	1100.00	83.042	516.426	456.034	50.113	66.431	−517.956	−122.435	−54.514	2.589
	1200.00	83.051	523.652	461.372	58.417	74.735	−569.965	−122.557	−48.334	2.104
	1300.00	83.058	530.300	466.422	66.723	83.041	−622.667	−122.682	−42.144	1.693
	1400.00	83.062	536.455	471.207	75.029	91.347	−676.008	−122.817	−35.943	1.341
	1500.00	83.065	542.186	475.750	83.335	99.653	−729.944	−122.960	−29.733	1.035

References

Phase	H / S	C_p
GAS	Pa2	Pa2

BiK3 BISMUTH 3–POTASSIUM 326.275

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL–A	298.15	92.047	193.422	193.422	–173.218	0.000	–230.887	–173.218	–156.127	27.353
	300.00	92.130	193.992	193.424	–173.048	0.170	–231.245	–173.258	–156.021	27.166
	400.00	96.637	221.113	197.091	–163.609	9.609	–252.055	–182.866	–148.561	19.400
	500.00	101.144	243.161	204.166	–153.720	19.498	–275.301	–185.062	–139.721	14.597
	553.00	103.533	253.470	208.403	–148.296	24.922	–288.465	–197.350	–134.687	12.722
			0.000		0.000					
SOL–B	553.00	103.533	253.470	208.403	–148.296	24.922	–288.465	–197.350	–134.687	12.722
	600.00	105.651	262.000	212.271	–143.380	29.838	–300.581	–198.106	–129.329	11.259
	700.00	110.158	278.625	220.585	–132.590	40.628	–327.628	–199.207	–117.771	8.788
	800.00	114.665	293.629	228.792	–121.349	51.869	–356.252	–199.724	–106.095	6.927
	900.00	119.172	307.395	236.771	–109.657	63.561	–386.312	–199.767	–94.385	5.478
	944.00	121.155	313.130	240.197	–104.370	68.848	–399.964	–199.659	–89.235	4.938

References

Phase	H / S	C_p	Remarks	
SOL–A	Tk1	e	Hu1	TPT= 553.
SOL–B	u	e	Hu1	MPT= 944.

BiMn BISMUTH MANGANESE 263.918

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	47.662	94.140	94.140	–20.999	0.000	–49.067	–20.999	–22.608	3.961
	300.00	47.719	94.435	94.141	–20.911	0.088	–49.241	–21.007	–22.618	3.938
	400.00	50.794	108.584	96.049	–15.985	5.014	–59.419	–21.404	–23.095	3.016
	500.00	53.869	120.249	99.755	–10.752	10.247	–70.876	–21.850	–23.468	2.452
	600.00	56.944	130.342	104.029	–5.211	15.788	–83.416	–33.678	–22.591	1.967
	700.00	60.019	139.351	108.443	0.637	21.636	–96.909	–34.006	–20.713	1.546
	800.00	63.095	147.566	112.827	6.793	27.792	–111.260	–34.087	–18.806	1.228
	870.00	65.247	152.948	115.840	11.285	32.284	–121.780	–34.014	–17.471	1.049

References

Phase	H / S	C_p	Remarks	
SOL	Nb1/e	e	M5	DPT= 870. (peritec.)

267.670 BISMUTH NICKEL **BiNi**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	51.762	88.282	88.282	−7.782	0.000	−34.103	−7.782	−8.281	1.451
	300.00	51.798	88.603	88.283	−7.686	0.096	−34.267	−7.782	−8.284	1.442
	400.00	53.723	103.768	90.338	−2.410	5.372	−43.917	−7.831	−8.448	1.103
	500.00	55.647	115.962	94.282	3.058	10.840	−54.923	−8.080	−8.579	0.896
	600.00	57.572	126.278	98.776	8.719	16.501	−67.048	−19.955	−7.479	0.651
	700.00	59.496	135.297	103.362	14.573	22.355	−80.135	−20.320	−5.357	0.400
	800.00	61.421	143.368	107.867	20.619	28.401	−94.076	−20.192	−3.226	0.211
	900.00	63.346	150.713	112.225	26.857	34.639	−108.785	−19.889	−1.122	0.065
	928.00	63.885	152.662	113.416	28.638	36.420	−113.032	−19.781	−0.539	0.030

References

Phase	H / S	C_p	Remarks	
SOL	P2/Ku1	e	Tk1	DPT= 928.

Bi2O3 BISMUTH OXIDE 465.959

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol	]		[−]
SOL−A	298.15	113.513	151.499	151.499	−573.882	0.000	−619.051	−573.882	−493.473	86.454
	300.00	113.672	152.201	151.501	−573.672	0.210	−619.332	−573.848	−492.975	85.834
	400.00	119.801	185.837	156.045	−561.965	11.917	−636.300	−571.785	−466.320	60.895
	500.00	123.458	212.989	164.806	−549.791	24.091	−656.285	−569.721	−440.197	45.987
	600.00	126.143	235.745	174.784	−537.305	36.577	−678.752	−590.503	−412.162	35.882
	700.00	128.368	255.361	184.925	−524.577	49.305	−703.330	−588.459	−382.596	28.550
	800.00	130.349	272.634	194.831	−511.640	62.242	−729.747	−586.179	−353.340	23.071
	900.00	132.187	288.094	204.349	−498.512	75.370	−757.796	−583.726	−324.381	18.827
	1000.00	133.937	302.112	213.435	−485.205	88.677	−787.317	−581.128	−295.702	15.446
	1003.00	133.989	302.513	213.701	−484.803	89.079	−788.224	−581.048	−294.846	15.355
			31.453		31.547					
SOL−B	1003.00	138.490	333.966	213.701	−453.256	120.626	−788.224	−549.501	−294.846	15.355
	1098.00	138.490	346.499	224.657	−440.100	133.782	−820.555	−546.552	−270.862	12.886
			15.242		16.736					
LIQ	1098.00	179.912	361.741	224.657	−423.364	150.518	−820.555	−529.816	−270.862	12.886
	1100.00	179.912	362.068	224.906	−423.004	150.878	−821.279	−529.671	−270.390	12.840
	1200.00	179.912	377.723	236.998	−405.013	168.869	−858.280	−522.453	−247.138	10.758
	1300.00	179.912	392.124	248.385	−387.021	186.861	−896.782	−515.276	−224.487	9.020
	1400.00	179.912	405.456	259.134	−369.030	204.852	−936.669	−508.144	−202.386	7.551
	1500.00	179.912	417.869	269.307	−351.039	222.843	−977.843	−501.054	−180.794	6.296
	1600.00	179.912	429.480	278.959	−333.048	240.834	−1020.216	−494.002	−159.674	5.213
	1700.00	179.912	440.387	288.137	−315.057	258.825	−1063.715	−486.988	−138.993	4.271
	1800.00	179.912	450.671	296.884	−297.065	276.817	−1108.273	−480.010	−118.724	3.445

References

Phase	H / S	C_p
SOL−A	Nb1	Pa2
SOL−B	Pa2	Pa2
LIQ	Pa2	Pa2

BiOCl BISMUTH CHLORIDE OXIDE 260.432

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol	]		[−]
SOL	298.15	74.038	120.499	120.499	−366.899	0.000	−402.826	−366.899	−322.067	56.425
	300.00	74.140	120.957	120.501	−366.762	0.137	−403.049	−366.868	−321.789	56.028
	400.00	79.705	143.048	123.475	−359.070	7.829	−416.289	−364.988	−307.036	40.095
	500.00	85.270	161.432	129.276	−350.821	16.078	−431.537	−362.815	−292.794	30.588
	600.00	90.835	177.470	135.998	−342.016	24.883	−448.498	−371.672	−277.862	24.190
	700.00	96.399	191.891	142.969	−332.654	34.245	−466.977	−368.677	−262.456	19.585

References

Phase	H / S	C_p
SOL	Nb1	e

514.159 BISMUTH SULFIDE **Bi2S3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	122.055	200.401	200.401	−143.101	0.000	−202.851	−143.101	−140.347	24.588
	300.00	122.131	201.156	200.403	−142.875	0.226	−203.222	−143.096	−140.330	24.434
	400.00	126.231	236.853	205.243	−130.457	12.644	−225.198	−149.608	−139.170	18.174
	500.00	130.332	265.461	214.517	−117.629	25.472	−250.359	−154.009	−136.121	14.220
	600.00	134.432	289.586	225.068	−104.391	38.710	−278.142	−180.027	−129.891	11.308
	700.00	138.532	310.616	235.818	−90.742	52.359	−308.174	−182.110	−121.359	9.056
	800.00	142.633	329.382	246.361	−76.684	66.417	−340.190	−183.783	−112.565	7.350
	900.00	146.733	346.419	256.546	−62.216	80.885	−373.993	−343.501	−100.118	5.811
	1000.00	150.833	362.091	266.327	−47.338	95.763	−409.428	−339.644	−73.278	3.828
	1036.00	152.309	367.451	269.749	−41.881	101.220	−422.561	−338.152	−63.715	3.213
			76.612		79.370					
LIQ	1036.00	209.200	444.063	269.749	37.489	180.590	−422.561	−258.782	−63.715	3.213
	1100.00	209.200	456.603	280.259	50.878	193.979	−451.386	−252.436	−51.857	2.462
	1200.00	209.200	474.806	295.724	71.798	214.899	−497.970	−242.511	−34.061	1.483

References

Phase	H / S	C_p
SOL	Nb1,Tk1	Tk1,e
LIQ	Pa3	Pa3

706.152 BISMUTH SULFATE **Bi2(SO4)3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	278.844	312.545	312.545	−2544.299	0.000	−2637.484	−2544.299	−2207.993	386.831
	300.00	279.156	314.271	312.550	−2543.783	0.516	−2638.064	−2544.330	−2205.906	384.082
	400.00	296.060	396.894	323.702	−2515.022	29.277	−2673.780	−2552.326	−2092.614	273.267
	500.00	312.963	464.774	345.317	−2484.571	59.728	−2716.958	−2557.458	−1977.147	206.551
	600.00	329.867	523.328	370.212	−2452.429	91.870	−2766.426	−2583.529	−1858.417	161.790
	700.00	346.770	575.446	395.873	−2418.598	125.701	−2821.410	−2584.957	−1737.430	129.649
	800.00	363.673	622.854	421.325	−2383.075	161.224	−2881.359	−2585.187	−1616.328	105.535
	900.00	380.577	666.665	446.180	−2345.863	198.436	−2945.861	−2742.594	−1491.805	86.582
	1000.00	397.480	707.637	470.298	−2306.960	237.339	−3014.597	−2735.484	−1353.197	70.684

References

Phase	H / S	C_p
SOL	Nb1/e	e

Bi2Se3 BISMUTH SELENIDE 654.841

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	124.271	239.743	239.743	−140.164	0.000	−211.643	−140.164	−140.014	24.530
	300.00	124.307	240.512	239.746	−139.934	0.230	−212.088	−140.170	−140.013	24.378
	400.00	126.231	276.536	244.644	−127.407	12.757	−238.022	−140.832	−139.883	18.267
	500.00	128.156	304.911	253.958	−114.688	25.476	−267.143	−160.066	−139.235	14.546
	600.00	130.081	328.447	264.467	−101.776	38.388	−298.844	−186.227	−132.432	11.529
	700.00	132.005	348.643	275.083	−88.672	51.492	−332.722	−189.468	−123.205	9.194
	800.00	133.930	366.396	285.409	−75.375	64.789	−368.491	−192.367	−113.537	7.413
	900.00	135.854	382.281	295.306	−61.886	78.278	−405.939	−194.988	−103.523	6.008
	995.00	137.683	396.004	304.274	−48.893	91.271	−442.917	−197.253	−93.751	4.922
			87.044		86.609					
LIQ	995.00	188.280	483.049	304.274	37.716	177.880	−442.917	−110.644	−93.751	4.922
	1000.00	188.280	483.992	305.171	38.658	178.822	−445.335	−110.505	−93.667	4.893
	1100.00	188.280	501.937	322.256	57.486	197.650	−494.645	−267.635	−77.256	3.669

References

Phase	H / S	C_p
SOL	Mi1	Mi1
LIQ	B3	Mi1

Bi2Te3 BISMUTH TELLURIDE 800.761

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	124.456	260.914	260.914	−77.404	0.000	−155.196	−77.404	−77.092	13.506
	300.00	124.558	261.684	260.917	−77.174	0.230	−155.679	−77.411	−77.090	13.423
	400.00	130.081	298.274	265.868	−64.442	12.962	−183.751	−77.922	−76.915	10.044
	500.00	135.603	327.894	275.401	−51.158	26.246	−215.104	−78.878	−76.564	7.999
	600.00	141.126	353.105	286.300	−37.321	40.083	−249.184	−102.952	−73.666	6.413
	700.00	146.649	375.275	297.458	−22.932	54.472	−285.625	−104.409	−68.668	5.124
	800.00	152.172	395.218	308.452	−7.991	69.413	−324.165	−158.692	−57.825	3.776
	850.00	154.934	404.526	313.831	−0.314	77.090	−344.161	−159.454	−51.497	3.165
	850.00	167.360	538.176	310.641	116.001	193.405	−341.448	−43.139	−48.785	2.998
	950.00	167.360	556.791	335.590	132.737	210.141	−396.214	−43.239	−49.443	2.719
	1000.00	167.360	565.375	346.866	141.105	218.509	−424.270	−43.272	−49.769	2.600

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	Mi1		
LIQ	Mi1	Mi1	Mi1	DEC., Bi2Te3(s) = 2 BiTe(g) + 0.5 Te2(g)

447.009 BISMUTH URANIUM **BiU**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	52.482	97.069	97.069	−117.001	0.000	−145.942	−117.001	−114.032	19.978
	300.00	52.509	97.394	97.070	−116.904	0.097	−146.122	−117.002	−114.014	19.852
	400.00	53.974	112.700	99.147	−111.580	5.421	−156.660	−117.140	−113.001	14.756
	500.00	55.438	124.901	103.118	−106.109	10.892	−168.560	−117.513	−111.929	11.693
	600.00	56.902	135.138	107.623	−100.492	16.509	−181.575	−129.494	−109.601	9.542
	700.00	58.367	144.020	112.202	−94.729	22.272	−195.542	−130.266	−106.226	7.927
	800.00	59.831	151.909	116.681	−88.819	28.182	−210.346	−131.167	−102.732	6.708
	900.00	61.296	159.041	120.998	−82.762	34.239	−225.899	−132.284	−99.113	5.752
	1000.00	62.760	165.575	125.133	−76.560	40.441	−242.134	−136.091	−95.191	4.972
	1100.00	64.224	171.625	129.088	−70.210	46.791	−258.998	−141.291	−90.837	4.313
	1200.00	65.689	177.276	132.871	−63.715	53.286	−276.446	−141.348	−86.246	3.754
	1300.00	67.153	182.592	136.493	−57.073	59.928	−294.442	−141.254	−81.657	3.281
	1400.00	68.618	187.622	139.967	−50.284	66.717	−312.955	−141.014	−77.081	2.876
	1500.00	70.082	192.406	143.305	−43.349	73.652	−331.958	−150.060	−71.921	2.505
	1600.00	71.546	196.976	146.517	−36.268	80.733	−351.429	−150.489	−66.697	2.177
	1700.00	73.011	201.357	149.615	−29.040	87.961	−371.347	−150.771	−61.450	1.888

References

Phase	H / S	C_p	Remarks
SOL	Nb1/Ku1	e	Hu1 DPT= 1700. (peritec.)

655.990 2−BISMUTH URANIUM **Bi2U**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	79.442	151.879	151.879	−109.002	0.000	−154.285	−109.002	−105.459	18.476
	300.00	79.496	152.371	151.881	−108.855	0.147	−154.566	−109.001	−105.437	18.358
	400.00	82.425	175.641	155.034	−100.759	8.243	−171.016	−108.960	−104.259	13.615
	500.00	85.354	194.349	161.085	−92.370	16.632	−189.544	−109.175	−103.066	10.767
	600.00	88.282	210.169	167.980	−83.688	25.314	−209.790	−132.356	−99.491	8.661
	700.00	91.211	223.998	175.015	−74.714	34.288	−231.512	−132.818	−93.974	7.012
	800.00	94.140	236.369	181.924	−65.446	43.556	−254.541	−133.188	−88.399	5.772
	900.00	97.069	247.626	188.608	−55.886	53.116	−278.749	−133.583	−82.778	4.804
	1000.00	99.998	258.005	195.035	−46.032	62.970	−304.037	−136.498	−76.943	4.019
	1100.00	102.926	267.673	201.204	−35.886	73.116	−330.326	−140.641	−70.773	3.361
	1200.00	105.855	276.754	207.125	−25.447	83.555	−357.552	−139.480	−64.470	2.806
	1283.00	108.286	283.914	211.863	−16.560	92.442	−380.822	−138.285	−59.321	2.415

References

Phase	H / S	C_p	Remarks
SOL	Nb1/Ku1	e	Hu1 DPT= 1283. (peritec.)

Bi4U3 4–BISMUTH 3–URANIUM 1550.008

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	183.951	342.670	342.670	–384.999	0.000	–487.166	–384.999	–374.520	65.614
	300.00	184.054	343.808	342.673	–384.659	0.340	–487.801	–385.001	–374.455	65.198
	400.00	189.619	397.519	349.959	–365.975	19.024	–524.983	–385.296	–370.909	48.436
	500.00	195.184	440.429	363.901	–346.735	38.264	–566.949	–386.347	–367.211	38.362
	600.00	200.748	476.507	379.739	–326.938	58.061	–612.842	–433.610	–358.596	31.219
	700.00	206.313	507.870	395.851	–306.585	78.414	–662.094	–435.765	–345.923	25.813
	800.00	211.878	535.783	411.629	–285.676	99.323	–714.302	–438.115	–332.933	21.738
	900.00	217.442	561.060	426.849	–264.210	120.789	–769.163	–440.950	–319.621	18.550
	1000.00	223.007	584.258	441.446	–242.187	142.812	–826.445	–451.717	–305.465	15.956
	1100.00	228.572	605.774	455.418	–219.608	165.391	–885.959	–466.524	–290.083	13.775
	1200.00	234.137	625.901	468.795	–196.473	188.526	–947.553	–465.773	–274.072	11.930
	1300.00	239.701	644.861	481.616	–172.781	212.218	–1011.100	–464.445	–258.147	10.372
	1400.00	245.266	662.829	493.924	–148.532	236.467	–1076.493	–462.560	–242.345	9.042
	1423.00	246.546	666.836	496.686	–142.877	242.122	–1091.784	–488.124	–238.400	8.751

References

Phase	H / S	C_p	Remarks	
SOL	Nb1/Ku1	e	Hu1	DPT= 1423. (peritec.)

79.904

BROMINE (GAS) **Br[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	20.793	175.017	175.017	111.860	0.000	59.679	111.860	82.369	−14.431
	300.00	20.790	175.146	175.017	111.898	0.038	59.355	111.828	82.186	−14.310
	400.00	20.734	181.115	175.832	113.973	2.113	41.527	96.662	75.436	−9.851
	500.00	20.788	185.746	177.368	116.049	4.189	23.176	96.892	70.102	−7.324
	600.00	20.885	189.544	179.091	118.132	6.272	4.406	97.116	64.723	−5.635
	700.00	21.003	192.772	180.820	120.226	8.366	−14.714	97.343	59.307	−4.426
	800.00	21.132	195.585	182.494	122.333	10.473	−34.135	97.575	53.857	−3.517
	900.00	21.267	198.082	184.090	124.453	12.593	−53.821	97.817	48.378	−2.808
	1000.00	21.406	200.330	185.603	126.587	14.727	−73.743	98.067	42.871	−2.239
	1100.00	21.547	202.376	187.036	128.734	16.874	−93.880	98.328	37.339	−1.773
	1200.00	21.691	204.257	188.394	130.896	19.036	−114.213	98.601	31.783	−1.383
	1300.00	21.835	205.999	189.682	133.072	21.212	−134.727	98.884	26.203	−1.053
	1400.00	21.981	207.623	190.906	135.263	23.403	−155.409	99.179	20.602	−0.769
	1500.00	22.127	209.144	192.072	137.469	25.609	−176.248	99.486	14.978	−0.522
	1600.00	22.274	210.577	193.184	139.689	27.829	−197.235	99.805	9.334	−0.305
	1700.00	22.421	211.932	194.248	141.923	30.063	−218.361	100.136	3.670	−0.113
	1800.00	22.568	213.218	195.266	144.173	32.313	−239.619	100.479	−2.015	0.058
	1900.00	22.716	214.442	196.243	146.437	34.577	−261.002	100.834	−7.718	0.212
	2000.00	22.864	215.611	197.183	148.716	36.856	−282.505	101.201	−13.441	0.351
	2100.00	23.012	216.730	198.087	151.010	39.150	−304.123	101.581	−19.183	0.477
	2200.00	23.160	217.804	198.959	153.318	41.458	−325.850	101.973	−24.942	0.592
	2300.00	23.308	218.836	199.801	155.642	43.782	−347.682	102.377	−30.720	0.698
	2400.00	23.456	219.831	200.615	157.980	46.120	−369.616	102.794	−36.516	0.795
	2500.00	23.605	220.792	201.403	160.333	48.473	−391.647	103.224	−42.329	0.884

References

Phase	H / S	C_p
GAS	Ja2	Ja1

159.808

BROMINE **Br2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
LIQ	298.15	75.689	152.210	152.210	0.000	0.000	−45.381	0.000	0.000	0.000
	300.00	75.634	152.678	152.211	0.140	0.140	−45.663	0.000	0.000	0.000
	332.50	74.679	160.410	152.642	2.583	2.583	−50.754	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
LIQ	Co1,Ja2	Ja1	Ja2	BPT= 332.503, L= 29.563 kJ

Br2[g] BROMINE (GAS) 159.808

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	36.043	245.394	245.394	30.911	0.000	−42.253	30.911	3.128	−0.548
	300.00	36.062	245.617	245.395	30.978	0.067	−42.707	30.838	2.956	−0.515
	400.00	36.737	256.097	246.819	34.622	3.711	−67.817	0.000	0.000	0.000
	500.00	37.074	264.334	249.528	38.314	7.403	−93.853	0.000	0.000	0.000
	600.00	37.278	271.113	252.577	42.033	11.122	−120.635	0.000	0.000	0.000
	700.00	37.420	276.871	255.646	45.768	14.857	−148.042	0.000	0.000	0.000
	800.00	37.528	281.875	258.619	49.516	18.605	−175.984	0.000	0.000	0.000
	900.00	37.617	286.300	261.454	53.273	22.362	−204.397	0.000	0.000	0.000
	1000.00	37.694	290.268	264.140	57.039	26.128	−233.229	0.000	0.000	0.000
	1100.00	37.763	293.864	266.681	60.812	29.901	−262.438	0.000	0.000	0.000
	1200.00	37.826	297.152	269.085	64.591	33.680	−291.992	0.000	0.000	0.000
	1300.00	37.886	300.182	271.362	68.377	37.466	−321.860	0.000	0.000	0.000
	1400.00	37.943	302.992	273.523	72.168	41.257	−352.021	0.000	0.000	0.000
	1500.00	37.998	305.612	275.576	75.965	45.054	−382.452	0.000	0.000	0.000
	1600.00	38.052	308.066	277.530	79.768	48.857	−413.137	0.000	0.000	0.000
	1700.00	38.104	310.374	279.395	83.575	52.664	−444.061	0.000	0.000	0.000
	1800.00	38.155	312.554	281.177	87.388	56.477	−475.208	0.000	0.000	0.000
	1900.00	38.206	314.618	282.883	91.206	60.295	−506.567	0.000	0.000	0.000
	2000.00	38.255	316.579	284.520	95.030	64.119	−538.128	0.000	0.000	0.000
	2100.00	38.305	318.447	286.091	98.858	67.947	−569.880	0.000	0.000	0.000
	2200.00	38.354	320.230	287.603	102.690	71.779	−601.815	0.000	0.000	0.000
	2300.00	38.403	321.936	289.058	106.528	75.617	−633.923	0.000	0.000	0.000
	2400.00	38.451	323.571	290.463	110.371	79.460	−666.199	0.000	0.000	0.000
	2500.00	38.499	325.142	291.819	114.219	83.308	−698.636	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Ja2	Ja1

12.011 **CARBON (GRAPHITE)** **C**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	8.512	5.740	5.740	0.000	0.000	−1.712	0.000	0.000	0.000
	300.00	8.594	5.793	5.741	0.016	0.016	−1.722	0.000	0.000	0.000
	400.00	11.927	8.754	6.122	1.053	1.053	−2.449	0.000	0.000	0.000
	500.00	14.633	11.713	6.945	2.384	2.384	−3.473	0.000	0.000	0.000
	600.00	16.884	14.588	7.981	3.964	3.964	−4.789	0.000	0.000	0.000
	700.00	18.590	17.326	9.122	5.742	5.742	−6.386	0.000	0.000	0.000
	800.00	19.827	19.893	10.310	7.666	7.666	−8.248	0.000	0.000	0.000
	900.00	20.792	22.286	11.509	9.699	9.699	−10.358	0.000	0.000	0.000
	1000.00	21.566	24.518	12.700	11.818	11.818	−12.700	0.000	0.000	0.000
	1100.00	22.192	26.604	13.870	14.007	14.007	−15.257	0.000	0.000	0.000
	1200.00	22.702	28.558	15.013	16.253	16.253	−18.016	0.000	0.000	0.000
	1300.00	23.117	30.392	16.127	18.545	18.545	−20.965	0.000	0.000	0.000
	1400.00	23.453	32.118	17.208	20.874	20.874	−24.091	0.000	0.000	0.000
	1500.00	23.725	33.745	18.257	23.233	23.233	−27.385	0.000	0.000	0.000
	1600.00	23.946	35.284	19.273	25.617	25.617	−30.837	0.000	0.000	0.000
	1700.00	24.127	36.741	20.258	28.021	28.021	−34.439	0.000	0.000	0.000
	1800.00	24.278	38.125	21.213	30.441	30.441	−38.183	0.000	0.000	0.000
	1900.00	24.410	39.441	22.138	32.876	32.876	−42.061	0.000	0.000	0.000
	2000.00	24.533	40.696	23.034	35.323	35.323	−46.069	0.000	0.000	0.000
	2100.00	24.648	41.896	23.904	37.783	37.783	−50.199	0.000	0.000	0.000
	2200.00	24.745	43.045	24.748	40.252	40.252	−54.446	0.000	0.000	0.000
	2300.00	24.835	44.147	25.568	42.731	42.731	−58.806	0.000	0.000	0.000
	2400.00	24.919	45.206	26.364	45.219	45.219	−63.274	0.000	0.000	0.000
	2500.00	24.997	46.224	27.138	47.715	47.715	−67.846	0.000	0.000	0.000
	2600.00	25.071	47.206	27.891	50.218	50.218	−72.518	0.000	0.000	0.000
	2700.00	25.142	48.154	28.625	52.729	52.729	−77.286	0.000	0.000	0.000
	2800.00	25.211	49.069	29.338	55.247	55.247	−82.148	0.000	0.000	0.000
	2900.00	25.278	49.955	30.034	57.771	57.771	−87.099	0.000	0.000	0.000
	3000.00	25.344	50.813	30.713	60.302	60.302	−92.138	0.000	0.000	0.000
	3100.00	25.409	51.645	31.374	62.840	62.840	−97.261	0.000	0.000	0.000
	3200.00	25.473	52.453	32.021	65.384	65.384	−102.466	0.000	0.000	0.000
	3300.00	25.537	53.238	32.652	67.935	67.935	−107.751	0.000	0.000	0.000
	3400.00	25.601	54.001	33.268	70.492	70.492	−113.113	0.000	0.000	0.000
	3500.00	25.665	54.744	33.872	73.055	73.055	−118.550	0.000	0.000	0.000
	3600.00	25.730	55.468	34.461	75.625	75.625	−124.061	0.000	0.000	0.000
	3700.00	25.795	56.174	35.039	78.201	78.201	−129.643	0.000	0.000	0.000
	3800.00	25.861	56.863	35.604	80.784	80.784	−135.295	0.000	0.000	0.000
	3900.00	25.928	57.535	36.158	83.373	83.373	−141.015	0.000	0.000	0.000
	4000.00	25.996	58.193	36.700	85.969	85.969	−146.802	0.000	0.000	0.000
	4100.00	26.066	58.836	37.233	88.572	88.572	−152.653	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks
SOL	Co1	Ja1	Ja1 NSPT= 4070. (approx.), GAS (C3, C2, C1, C4)

C[g] CARBON (GAS) 12.011

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.786	158.093	158.093	716.652	0.000	669.517	716.652	671.228	−117.596
	300.00	20.786	158.222	158.093	716.690	0.038	669.224	716.675	670.946	−116.822
	400.00	20.791	164.202	158.909	718.769	2.117	653.088	717.716	655.537	−85.604
	500.00	20.797	168.842	160.449	720.849	4.197	636.428	718.465	639.900	−66.850
	600.00	20.802	172.634	162.173	722.929	6.277	619.348	718.964	624.137	−54.336
	700.00	20.807	175.841	163.903	725.009	8.357	601.920	719.267	608.306	−45.392
	800.00	20.813	178.620	165.572	727.090	10.438	584.194	719.424	592.442	−38.682
	900.00	20.818	181.072	167.161	729.172	12.520	566.207	719.473	576.565	−33.463
	1000.00	20.824	183.266	168.664	731.254	14.602	547.988	719.435	560.688	−29.287
	1100.00	20.829	185.250	170.083	733.336	16.684	529.561	719.329	544.818	−25.871
	1200.00	20.835	187.063	171.423	735.420	18.768	510.944	719.167	528.960	−23.025
	1300.00	20.840	188.731	172.691	737.503	20.851	492.153	718.959	513.118	−20.617
	1400.00	20.846	190.276	173.893	739.588	22.936	473.202	718.714	497.293	−18.554
	1500.00	20.851	191.714	175.034	741.672	25.020	454.101	718.439	481.486	−16.767
	1600.00	20.856	193.060	176.119	743.758	27.106	434.862	718.141	465.699	−15.204
	1700.00	20.862	194.324	177.153	745.844	29.192	415.492	717.823	449.931	−13.825
	1800.00	20.867	195.517	178.140	747.930	31.278	396.000	717.489	434.182	−12.600
	1900.00	20.873	196.645	179.085	750.017	33.365	376.391	717.141	418.452	−11.504
	2000.00	20.878	197.716	179.990	752.105	35.453	356.672	716.782	402.741	−10.519
	2100.00	20.992	198.739	180.858	754.200	37.548	336.849	716.418	387.048	−9.627
	2200.00	21.063	199.717	181.694	756.303	39.651	316.926	716.051	371.373	−8.818
	2300.00	21.135	200.655	182.498	758.413	41.761	296.907	715.681	355.714	−8.079
	2400.00	21.206	201.556	183.273	760.530	43.878	276.797	715.311	340.071	−7.401
	2500.00	21.278	202.423	184.022	762.654	46.002	256.597	714.939	324.443	−6.779
	2600.00	21.349	203.259	184.746	764.786	48.134	236.313	714.567	308.831	−6.204
	2700.00	21.421	204.066	185.446	766.924	50.272	215.947	714.195	293.233	−5.673
	2800.00	21.492	204.846	186.125	769.070	52.418	195.501	713.823	277.648	−5.180
	2900.00	21.564	205.601	186.784	771.222	54.570	174.978	713.451	262.077	−4.721
	3000.00	21.635	206.334	187.424	773.382	56.730	154.381	713.080	246.519	−4.292
	3100.00	21.707	207.044	188.045	775.550	58.898	133.712	712.710	230.973	−3.892
	3200.00	21.779	207.735	188.650	777.724	61.072	112.973	712.340	215.439	−3.517
	3300.00	21.850	208.406	189.238	779.905	63.253	92.166	711.971	199.917	−3.164
	3400.00	21.922	209.059	189.812	782.094	65.442	71.292	711.602	184.405	−2.833
	3500.00	21.993	209.696	190.371	784.290	67.638	50.355	711.235	168.905	−2.521
	3600.00	22.065	210.316	190.916	786.493	69.841	29.354	710.868	153.415	−2.226
	3700.00	22.136	210.922	191.449	788.703	72.051	8.292	710.502	137.935	−1.947
	3800.00	22.208	211.513	191.969	790.920	74.268	−12.830	710.136	122.465	−1.683
	3900.00	22.279	212.091	192.478	793.144	76.492	−34.010	709.771	107.005	−1.433
	4000.00	22.351	212.656	192.975	795.376	78.724	−55.248	709.406	91.554	−1.196

References

Phase	H / S	C_p
GAS	Co1	Ja1

12.011 CARBON (DIAMOND) **C**[D]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	6.125	2.368	2.368	1.895	0.000	1.189	1.895	2.900	−0.508
	300.00	6.188	2.406	2.368	1.906	0.011	1.185	1.891	2.907	−0.506
	400.00	10.208	4.730	2.658	2.724	0.829	0.832	1.671	3.281	−0.428
	500.00	13.611	7.392	3.335	3.923	2.028	0.227	1.539	3.700	−0.387
	600.00	16.121	10.107	4.238	5.416	3.521	−0.648	1.452	4.141	−0.360
	700.00	18.004	12.740	5.266	7.126	5.231	−1.791	1.384	4.594	−0.343
	800.00	19.471	15.243	6.358	9.003	7.108	−3.192	1.337	5.056	−0.330
	900.00	20.656	17.607	7.478	11.011	9.116	−4.835	1.312	5.523	−0.321
	1000.00	21.642	19.836	8.603	13.128	11.233	−6.708	1.309	5.991	−0.313
	1100.00	22.481	21.939	9.721	15.335	13.440	−8.798	1.328	6.459	−0.307
	1200.00	23.209	23.927	10.823	17.620	15.725	−11.092	1.367	6.924	−0.301

References

Phase	H / S	C_p
SOL	Pa1	Pa1

C2[g] CARBON (GAS) 24.022

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	43.144	199.381	199.381	837.637	0.000	778.192	837.637	781.615	−136.936
	300.00	43.102	199.648	199.382	837.717	0.080	777.823	837.685	781.267	−136.031
	400.00	39.641	211.588	201.034	841.859	4.222	757.224	839.753	762.121	−99.523
	500.00	37.156	220.137	204.040	845.685	8.048	735.617	840.918	742.562	−77.575
	600.00	35.998	226.794	207.298	849.335	11.698	713.258	841.406	722.835	−62.928
	700.00	35.608	232.306	210.487	852.910	15.273	690.296	841.426	703.067	−52.463
	800.00	35.599	237.058	213.518	856.469	18.832	666.822	841.136	683.318	−44.616
	900.00	35.755	241.259	216.372	860.035	22.398	642.903	840.637	663.619	−38.515
	1000.00	35.972	245.037	219.052	863.622	25.985	618.585	839.985	643.984	−33.638
	1100.00	36.210	248.477	221.573	867.231	29.594	593.906	839.216	624.420	−29.651
	1200.00	36.466	251.638	223.949	870.864	33.227	568.899	838.358	604.931	−26.332
	1300.00	36.764	254.568	226.193	874.525	36.888	543.586	837.436	585.516	−23.526
	1400.00	37.025	257.302	228.318	878.215	40.578	517.991	836.467	566.173	−21.124
	1500.00	37.309	259.866	230.337	881.931	44.294	492.132	835.465	546.901	−19.045
	1600.00	37.603	262.283	232.259	885.677	48.040	466.023	834.443	527.697	−17.228
	1700.00	37.897	264.572	234.093	889.452	51.815	439.679	833.410	508.557	−15.626
	1800.00	38.186	266.746	235.847	893.256	55.619	413.112	832.373	489.478	−14.204
	1900.00	38.467	268.818	237.528	897.089	59.452	386.333	831.336	470.456	−12.934
	2000.00	38.739	270.799	239.143	900.949	63.312	359.352	830.302	451.489	−11.792
	2100.00	39.002	272.695	240.695	904.836	67.199	332.176	829.271	432.574	−10.760
	2200.00	39.256	274.515	242.192	908.749	71.112	304.815	828.244	413.708	−9.823
	2300.00	39.501	276.266	243.635	912.687	75.050	277.276	827.224	394.888	−8.968
	2400.00	39.738	277.952	245.030	916.649	79.012	249.564	826.210	376.113	−8.186
	2500.00	39.967	279.579	246.380	920.634	82.997	221.687	825.204	357.379	−7.467
	2600.00	40.189	281.151	247.687	924.642	87.005	193.650	824.205	338.686	−6.804
	2700.00	40.405	282.671	248.955	928.672	91.035	165.459	823.214	320.031	−6.191
	2800.00	40.616	284.145	250.185	932.723	95.086	137.118	822.229	301.413	−5.623
	2900.00	40.821	285.574	251.381	936.795	99.158	108.631	821.252	282.830	−5.094
	3000.00	41.022	286.961	252.544	940.887	103.250	80.004	820.282	264.280	−4.602
	3100.00	41.218	288.309	253.676	944.999	107.362	51.241	819.319	245.762	−4.141
	3200.00	41.410	289.621	254.779	949.130	111.493	22.344	818.362	227.276	−3.710
	3300.00	41.599	290.898	255.854	953.281	115.644	−6.682	817.412	208.819	−3.305
	3400.00	41.784	292.143	256.903	957.450	119.813	−35.835	816.467	190.391	−2.925
	3500.00	41.966	293.356	257.928	961.638	124.001	−65.110	815.528	171.991	−2.567
	3600.00	42.146	294.541	258.928	965.843	128.206	−94.505	814.594	153.617	−2.229
	3700.00	42.323	295.698	259.907	970.067	132.430	−124.017	813.665	135.270	−1.910
	3800.00	42.498	296.829	260.863	974.308	136.671	−153.644	812.741	116.947	−1.608
	3900.00	42.671	297.936	261.800	978.566	140.929	−183.382	811.820	98.649	−1.321
	4000.00	42.842	299.018	262.717	982.842	145.205	−213.230	810.903	80.374	−1.050

References

Phase	H / S	C_p
GAS	Ja1	Ja1

36.033 CARBON (GAS) **C3**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	37.739	237.342	237.342	820.064	0.000	749.300	820.064	754.435	−132.174
	300.00	37.720	237.576	237.343	820.134	0.070	748.861	820.086	754.028	−131.288
	400.00	37.497	248.360	238.815	823.882	3.818	724.538	820.724	731.884	−95.574
	500.00	38.380	256.809	241.597	827.670	7.606	699.265	820.518	709.683	−74.140
	600.00	39.706	263.920	244.740	831.572	11.508	673.220	819.680	687.586	−59.860
	700.00	41.124	270.148	247.933	835.614	15.550	646.511	818.387	665.667	−49.673
	800.00	42.480	275.729	251.065	839.795	19.731	619.212	816.796	643.956	−42.046
	900.00	43.714	280.805	254.091	844.106	24.042	591.382	815.009	622.456	−36.126
	1000.00	44.800	285.468	256.999	848.533	28.469	563.065	813.078	601.164	−31.402
	1100.00	45.775	289.784	259.786	853.063	32.999	534.300	811.040	580.071	−27.545
	1200.00	46.644	293.805	262.455	857.684	37.620	505.118	808.926	559.166	−24.340
	1300.00	47.417	297.570	265.013	862.388	42.324	475.547	806.754	538.441	−21.635
	1400.00	48.104	301.110	267.466	867.165	47.101	445.611	804.544	517.884	−19.322
	1500.00	48.720	304.450	269.821	872.007	51.943	415.332	802.307	497.486	−17.324
	1600.00	49.275	307.612	272.085	876.907	56.843	384.727	800.056	477.238	−15.580
	1700.00	49.778	310.615	274.264	881.860	61.796	353.815	797.797	457.131	−14.046
	1800.00	50.238	313.473	276.364	886.861	66.797	322.609	795.537	437.157	−12.686
	1900.00	50.661	316.201	278.389	891.906	71.842	291.124	793.278	417.309	−11.473
	2000.00	51.053	318.810	280.346	896.992	76.928	259.373	791.023	397.579	−10.384
	2100.00	51.416	321.309	282.237	902.116	82.052	227.366	788.768	377.963	−9.401
	2200.00	51.756	323.709	284.068	907.275	87.211	195.114	786.518	358.453	−8.511
	2300.00	52.075	326.017	285.842	912.467	92.403	162.627	784.272	339.046	−7.700
	2400.00	52.376	328.240	287.563	917.689	97.625	129.914	782.032	319.736	−6.959
	2500.00	52.659	330.384	289.233	922.941	102.877	96.982	779.796	300.520	−6.279
	2600.00	52.928	332.454	290.856	928.221	108.157	63.839	777.565	281.393	−5.653
	2700.00	53.184	334.457	292.434	933.526	113.462	30.493	775.339	262.352	−5.076
	2800.00	53.427	336.395	293.969	938.857	118.793	−3.050	773.116	243.393	−4.541
	2900.00	53.658	338.274	295.465	944.211	124.147	−36.784	770.897	224.513	−4.044
	3000.00	53.879	340.097	296.922	949.588	129.524	−70.703	768.681	205.710	−3.582
	3100.00	54.090	341.867	298.344	954.987	134.923	−104.801	766.466	186.981	−3.151
	3200.00	54.291	343.588	299.731	960.406	140.342	−139.075	764.253	168.323	−2.748
	3300.00	54.484	345.261	301.085	965.845	145.781	−173.517	762.041	149.735	−2.370
	3400.00	54.667	346.890	302.409	971.302	151.238	−208.125	759.828	131.213	−2.016
	3500.00	54.843	348.478	303.702	976.778	156.714	−242.894	757.613	112.757	−1.683
	3600.00	55.010	350.025	304.968	982.271	162.207	−277.819	755.397	94.364	−1.369
	3700.00	55.170	351.534	306.206	987.780	167.716	−312.898	753.177	76.032	−1.073
	3800.00	55.322	353.008	307.418	993.304	173.240	−348.125	750.954	57.761	−0.794
	3900.00	55.467	354.447	308.606	998.844	178.780	−383.498	748.725	39.548	−0.530
	4000.00	55.604	355.853	309.769	1004.397	184.333	−419.013	746.490	21.392	−0.279

References

Phase	H / S	C_p
GAS	Ja1	Ja1

CBr[g] BROMOMETHYLIDYNE (GAS) 91.915

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	36.121	233.577	233.577	510.448	0.000	440.807	510.448	465.209	−81.503
	300.00	36.146	233.800	233.577	510.515	0.067	440.375	510.429	464.929	−80.951
	400.00	37.009	244.335	235.008	514.179	3.731	416.445	495.815	452.802	−59.130
	500.00	37.410	252.641	237.733	517.902	7.454	391.581	496.361	441.980	−46.173
	600.00	37.630	259.483	240.805	521.655	11.207	365.965	496.674	431.071	−37.528
	700.00	37.763	265.294	243.899	525.425	14.977	339.719	496.799	420.125	−31.350
	800.00	37.851	270.343	246.895	529.206	18.758	312.932	496.782	409.172	−26.716
	900.00	37.912	274.805	249.753	532.994	22.546	285.670	496.659	398.227	−23.112
	1000.00	37.956	278.802	252.462	536.788	26.340	257.986	496.450	387.300	−20.230
	1100.00	37.990	282.421	255.024	540.585	30.137	229.922	496.172	376.398	−17.874
	1200.00	38.016	285.728	257.446	544.385	33.937	201.512	495.837	365.524	−15.911
	1300.00	38.037	288.771	259.740	548.188	37.740	172.785	495.455	354.680	−14.251
	1400.00	38.054	291.591	261.916	551.993	41.545	143.766	495.035	343.867	−12.830
	1500.00	38.069	294.217	263.983	555.799	45.351	114.474	494.583	333.085	−11.599
	1600.00	38.081	296.674	265.950	559.606	49.158	84.928	494.106	322.333	−10.523
	1700.00	38.092	298.983	267.826	563.415	52.967	55.144	493.606	311.613	−9.575
	1800.00	38.102	301.161	269.618	567.225	56.777	25.136	493.089	300.922	−8.733
	1900.00	38.110	303.221	271.333	571.036	60.588	−5.085	492.556	290.261	−7.980
	2000.00	38.118	305.176	272.977	574.847	64.399	−35.505	492.009	279.628	−7.303

References

Phase	H / S	C_p
GAS	Ja1	Ja1

171.819 CARBON DIBROMIDE (GAS) **CBr2[g]**

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	49.290	288.460	288.460	336.627	0.000	250.623	336.627	297.715	−52.159
	300.00	49.372	288.765	288.461	336.718	0.091	250.089	336.562	297.474	−51.795
	400.00	52.475	303.445	290.441	341.828	5.201	220.450	306.153	290.716	−37.964
	500.00	54.189	315.354	294.271	347.169	10.542	189.492	306.471	286.817	−29.964
	600.00	55.275	325.337	298.639	352.646	16.019	157.443	306.649	282.867	−24.626
	700.00	56.008	333.916	303.080	358.212	21.585	124.471	306.702	278.898	−20.812
	800.00	56.515	341.430	307.414	363.840	27.213	90.696	306.658	274.928	−17.951
	900.00	56.868	348.109	311.572	369.510	32.883	56.212	306.538	270.968	−15.727
	1000.00	57.115	354.114	315.531	375.210	38.583	21.096	306.353	267.025	−13.948
	1100.00	57.293	359.566	319.290	380.931	44.304	−14.592	306.112	263.103	−12.494
	1200.00	57.432	364.558	322.857	386.667	50.040	−50.802	305.823	259.206	−11.283
	1300.00	57.559	369.160	326.244	392.417	55.790	−87.490	305.496	255.334	−10.259
	1400.00	57.700	373.430	329.464	398.180	61.553	−124.623	305.138	251.489	−9.383
	1500.00	57.877	377.417	332.529	403.958	67.331	−162.167	304.760	247.670	−8.625
	1600.00	58.007	381.163	335.453	409.762	73.135	−200.098	304.377	243.876	−7.962
	1700.00	58.063	384.680	338.246	415.564	78.937	−238.392	303.968	240.107	−7.378
	1800.00	58.228	388.003	340.919	421.378	84.751	−277.028	303.548	236.363	−6.859
	1900.00	58.475	391.158	343.481	427.213	90.586	−315.987	303.130	232.642	−6.396
	2000.00	58.784	394.165	345.941	433.075	96.448	−355.254	302.722	228.943	−5.979
	2100.00	59.138	397.041	348.306	438.971	102.344	−394.816	302.331	225.263	−5.603
	2200.00	59.526	399.801	350.584	444.904	108.277	−434.659	301.961	221.602	−5.262
	2300.00	59.937	402.456	352.782	450.877	114.250	−474.772	301.617	217.957	−4.950
	2400.00	60.364	405.016	354.906	456.892	120.265	−515.147	301.302	214.327	−4.665
	2500.00	60.801	407.489	356.960	462.950	126.323	−555.773	301.017	210.709	−4.403
	2600.00	61.242	409.882	358.950	469.052	132.425	−596.642	300.763	207.102	−4.161
	2700.00	61.683	412.202	360.879	475.199	138.572	−637.747	300.541	203.504	−3.937
	2800.00	62.122	414.453	362.753	481.389	144.762	−679.080	300.352	199.913	−3.729
	2900.00	62.554	416.641	364.573	487.623	150.996	−720.635	300.195	196.329	−3.536
	3000.00	62.979	418.769	366.344	493.900	157.273	−762.406	300.069	192.750	−3.356

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CBr3[g] CARBON TRIBROMIDE (GAS) 251.723

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	67.411	334.572	334.572	235.000	0.000	135.247	235.000	205.031	−35.921
	300.00	67.544	334.989	334.573	235.125	0.125	134.628	234.899	204.845	−35.667
	400.00	72.681	355.203	337.294	242.163	7.163	100.082	189.177	204.256	−26.673
	500.00	75.645	371.765	342.583	249.591	14.591	63.709	189.736	207.960	−21.725
	600.00	77.594	385.741	348.642	257.259	22.259	25.815	190.246	211.556	−18.418
	700.00	78.947	397.809	354.823	265.090	30.090	−13.376	190.696	215.072	−16.049
	800.00	79.903	408.417	360.873	273.036	38.036	−53.698	191.096	218.526	−14.268
	900.00	80.576	417.870	366.690	281.061	46.061	−95.021	191.453	221.933	−12.881
	1000.00	81.045	426.385	372.241	289.144	54.144	−137.241	191.768	225.302	−11.769
	1100.00	81.371	434.126	377.520	297.266	62.266	−180.273	192.041	228.642	−10.857
	1200.00	81.605	441.216	382.537	305.415	70.415	−224.045	192.276	231.959	−10.097
	1300.00	81.794	447.756	387.306	313.585	78.585	−268.497	192.476	235.257	−9.453
	1400.00	81.983	453.824	391.843	321.774	86.774	−313.580	192.648	238.542	−8.900
	1500.00	82.212	459.488	396.166	329.983	94.983	−359.249	192.802	241.814	−8.421
	1600.00	82.279	464.794	400.291	338.205	103.205	−405.466	192.937	245.077	−8.001
	1700.00	82.376	469.786	404.234	346.438	111.438	−452.197	193.054	248.333	−7.630
	1800.00	82.458	474.496	408.007	354.680	119.680	−499.413	193.156	251.581	−7.301
	1900.00	82.527	478.957	411.625	362.929	127.929	−547.088	193.244	254.825	−7.006
	2000.00	82.587	483.191	415.099	371.185	136.185	−595.197	193.318	258.064	−6.740
	2100.00	82.638	487.222	418.438	379.447	144.447	−643.720	193.378	261.299	−6.499
	2200.00	82.682	491.067	421.653	387.713	152.713	−692.636	193.424	264.533	−6.281
	2300.00	82.721	494.744	424.751	395.983	160.983	−741.927	193.459	267.764	−6.081
	2400.00	82.755	498.265	427.741	404.257	169.257	−791.579	193.481	270.994	−5.898
	2500.00	82.785	501.644	430.630	412.534	177.534	−841.576	193.491	274.224	−5.730
	2600.00	82.812	504.891	433.424	420.814	185.814	−891.903	193.489	277.453	−5.574
	2700.00	82.836	508.017	436.130	429.096	194.096	−942.550	193.475	280.683	−5.430
	2800.00	82.858	511.030	438.751	437.381	202.381	−993.503	193.449	283.913	−5.296
	2900.00	82.877	513.938	441.294	445.667	210.667	−1044.752	193.411	287.144	−5.172
	3000.00	82.894	516.748	443.762	453.956	218.956	−1096.287	193.362	290.377	−5.056

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

331.627 TETRABROMOMETHANE (GAS) **CBr4**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	91.181	358.105	358.105	50.208	0.000	−56.561	50.208	35.913	−6.292
	300.00	91.319	358.669	358.107	50.377	0.169	−57.224	50.081	35.825	−6.238
	400.00	97.087	385.804	361.767	59.823	9.615	−94.499	−10.474	43.583	−5.691
	500.00	100.472	407.864	368.850	69.715	19.507	−134.217	−9.297	56.961	−5.951
	600.00	102.549	426.381	376.937	79.874	29.666	−175.954	−8.155	70.105	−6.103
	700.00	103.899	442.297	385.164	90.201	39.993	−219.407	−7.077	83.062	−6.198
	800.00	104.820	456.234	393.195	100.640	50.432	−264.348	−6.058	95.869	−6.260
	900.00	105.473	468.620	400.900	111.156	60.948	−310.602	−5.089	108.551	−6.300
	1000.00	105.953	479.759	408.238	121.729	71.521	−358.030	−4.167	121.127	−6.327
	1100.00	106.314	489.875	415.207	132.343	82.135	−406.520	−3.288	133.614	−6.345
	1200.00	106.592	499.138	421.821	142.989	92.781	−455.977	−2.446	146.022	−6.356
	1300.00	106.810	507.679	428.101	153.659	103.451	−506.323	−1.639	158.362	−6.363
	1400.00	106.984	515.601	434.072	164.349	114.141	−557.492	−0.861	170.640	−6.367
	1500.00	107.124	522.987	439.756	175.055	124.847	−609.426	−0.109	182.864	−6.368
	1600.00	107.239	529.904	445.176	185.773	135.565	−662.074	0.621	195.038	−6.367
	1700.00	107.334	536.409	450.353	196.502	146.294	−715.393	1.330	207.167	−6.365
	1800.00	107.412	542.546	455.306	207.239	157.031	−769.343	2.021	219.255	−6.363
	1900.00	107.478	548.355	460.052	217.984	167.776	−823.891	2.695	231.305	−6.359
	2000.00	107.534	553.870	464.606	228.735	178.527	−879.005	3.352	243.320	−6.355

References

Phase	H / S	C_p
GAS	Ja1	Ja1

CBrI3[g] BROMOTRIIODOMETHANE (GAS) 472.628

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	94.497	395.270	395.270	275.000	0.000	157.150	275.000	233.494	−40.907
	300.00	94.628	395.855	395.272	275.175	0.175	156.418	274.938	233.237	−40.610
	400.00	99.513	423.831	399.053	284.911	9.911	115.379	233.938	223.565	−29.195
	500.00	102.136	446.344	406.334	295.005	20.005	71.833	168.564	227.268	−23.743
	600.00	103.766	465.120	414.610	305.306	30.306	26.234	169.799	238.891	−20.797
	700.00	104.856	481.203	423.002	315.740	40.740	−21.101	170.944	250.315	−18.679
	800.00	105.607	495.257	431.174	326.266	51.266	−69.939	172.013	261.580	−17.079
	900.00	106.130	507.727	439.000	336.854	61.854	−120.100	173.020	272.715	−15.828
	1000.00	106.493	518.929	446.443	347.487	72.487	−171.443	173.968	283.741	−14.821
	1100.00	106.746	529.092	453.501	358.149	83.149	−223.851	174.864	294.674	−13.993
	1200.00	106.929	538.388	460.193	368.833	93.833	−277.232	175.711	305.528	−13.299
	1300.00	107.076	546.953	466.542	379.534	104.534	−331.505	176.515	316.313	−12.710
	1400.00	107.219	554.893	472.573	390.249	115.249	−386.602	177.284	327.038	−12.202
	1500.00	107.384	562.296	478.310	400.978	125.978	−442.465	178.026	337.709	−11.760
	1600.00	107.439	569.227	483.778	411.718	136.718	−499.045	178.741	348.331	−11.372
	1700.00	107.512	575.743	488.998	422.466	147.466	−556.297	179.433	358.909	−11.028
	1800.00	107.574	581.890	493.990	433.220	158.220	−614.181	180.103	369.447	−10.721
	1900.00	107.626	587.707	498.770	443.980	168.980	−672.664	180.754	379.948	−10.446
	2000.00	107.670	593.229	503.357	454.745	179.745	−731.713	181.385	390.416	−10.197
	2100.00	107.709	598.483	507.762	465.514	190.514	−791.301	181.997	400.852	−9.971
	2200.00	107.742	603.495	512.001	476.287	201.287	−851.402	182.591	411.260	−9.765
	2300.00	107.771	608.285	516.084	487.062	212.062	−911.992	183.168	421.641	−9.576
	2400.00	107.797	612.872	520.022	497.841	222.841	−973.052	183.728	431.997	−9.402
	2500.00	107.820	617.273	523.824	508.622	233.622	−1034.561	184.271	442.330	−9.242
	2600.00	107.840	621.502	527.500	519.405	244.405	−1096.501	184.797	452.642	−9.094
	2700.00	107.858	625.572	531.058	530.190	255.190	−1158.856	185.307	462.934	−8.956
	2800.00	107.874	629.495	534.504	540.976	265.976	−1221.610	185.801	473.208	−8.828
	2900.00	107.888	633.281	537.845	551.764	276.764	−1284.750	186.278	483.464	−8.708
	3000.00	107.901	636.939	541.087	562.554	287.554	−1348.262	186.739	493.704	−8.596

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

425.628 DIBROMODIIODOMETHANE (GAS) **CBr2I2**[g]

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol	]		[−]
GAS	298.15	94.301	385.765	385.765	220.000	0.000	104.984	220.000	186.705	−32.710
	300.00	94.441	386.349	385.767	220.175	0.175	104.270	219.918	186.498	−32.472
	400.00	99.639	414.321	389.545	229.910	9.910	64.182	172.496	182.333	−23.810
	500.00	102.393	436.878	396.830	240.024	20.024	21.585	129.393	188.934	−19.738
	600.00	104.076	455.706	405.117	250.354	30.354	−23.070	130.673	200.721	−17.474
	700.00	105.177	471.838	413.524	260.820	40.820	−69.467	131.863	212.300	−15.842
	800.00	105.917	485.934	421.713	271.377	51.377	−117.370	132.976	223.715	−14.607
	900.00	106.415	498.440	429.556	281.996	61.996	−166.601	134.024	234.994	−13.639
	1000.00	106.747	509.671	437.016	292.655	72.655	−217.016	135.011	246.159	−12.858
	1100.00	106.967	519.856	444.091	303.341	83.341	−268.500	135.941	257.228	−12.215
	1200.00	107.120	529.170	450.798	314.046	94.046	−320.958	136.819	268.215	−11.675
	1300.00	107.242	537.749	457.161	324.764	104.764	−374.309	137.652	279.131	−11.216
	1400.00	107.368	545.701	463.205	335.495	115.495	−428.487	138.448	289.984	−10.819
	1500.00	107.530	553.114	468.954	346.239	126.239	−483.432	139.216	300.781	−10.474
	1600.00	107.563	560.053	474.434	356.992	136.992	−539.094	139.956	311.527	−10.170
	1700.00	107.624	566.576	479.664	367.751	147.751	−595.429	140.672	322.229	−9.901
	1800.00	107.675	572.729	484.665	378.516	158.516	−652.397	141.366	332.888	−9.660
	1900.00	107.718	578.552	489.454	389.286	169.286	−709.963	142.039	343.510	−9.444
	2000.00	107.755	584.079	494.049	400.060	180.060	−768.097	142.692	354.097	−9.248
	2100.00	107.786	589.337	498.462	410.837	190.837	−826.770	143.326	364.651	−9.070
	2200.00	107.813	594.352	502.708	421.617	201.617	−885.957	143.942	375.176	−8.908
	2300.00	107.837	599.145	506.797	432.399	212.399	−945.633	144.541	385.673	−8.759
	2400.00	107.858	603.735	510.741	443.184	223.184	−1005.779	145.122	396.145	−8.622
	2500.00	107.876	608.138	514.550	453.971	233.971	−1066.374	145.686	406.592	−8.495
	2600.00	107.892	612.369	518.231	464.759	244.759	−1127.401	146.234	417.018	−8.378
	2700.00	107.906	616.441	521.793	475.549	255.549	−1188.842	146.766	427.422	−8.269
	2800.00	107.919	620.366	525.244	486.341	266.341	−1250.684	147.282	437.808	−8.167
	2900.00	107.931	624.153	528.590	497.133	277.133	−1312.911	147.781	448.175	−8.072
	3000.00	107.941	627.812	531.837	507.927	287.927	−1375.510	148.264	458.525	−7.984

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CBr3I[g] TRIBROMOIODOMETHANE (GAS) 378.627

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[-]
GAS	298.15	92.118	378.319	378.319	170.000	0.000	57.204	170.000	144.302	-25.281
	300.00	92.265	378.889	378.321	170.171	0.171	56.504	169.894	144.142	-25.097
	400.00	97.828	406.287	382.018	179.707	9.707	17.193	115.852	145.309	-18.975
	500.00	100.887	428.474	389.162	189.656	19.656	-24.581	94.834	154.683	-16.160
	600.00	102.825	447.051	397.304	199.848	29.848	-68.382	95.993	166.543	-14.499
	700.00	104.137	463.006	405.577	210.200	40.200	-113.904	97.083	178.214	-13.298
	800.00	105.050	476.975	413.647	220.662	50.662	-160.918	98.113	189.733	-12.388
	900.00	105.687	489.387	421.386	231.201	61.201	-209.247	99.093	201.126	-11.673
	1000.00	106.130	500.547	428.754	241.793	71.793	-258.754	100.024	212.413	-11.095
	1100.00	106.438	510.678	435.748	252.423	82.423	-309.323	100.907	223.608	-10.618
	1200.00	106.660	519.949	442.384	263.078	93.078	-360.860	101.747	234.726	-10.217
	1300.00	106.840	528.493	448.683	273.753	103.753	-413.288	102.548	245.775	-9.875
	1400.00	107.015	536.417	454.670	284.446	114.446	-466.538	103.318	256.763	-9.580
	1500.00	107.223	543.807	460.369	295.157	125.157	-520.554	104.064	267.697	-9.322
	1600.00	107.288	550.728	465.803	305.881	135.881	-575.284	104.787	278.582	-9.095
	1700.00	107.378	557.235	470.992	316.614	146.614	-630.686	105.489	289.423	-8.893
	1800.00	107.454	563.375	475.955	327.356	157.356	-686.719	106.171	300.223	-8.712
	1900.00	107.518	569.187	480.710	338.105	168.105	-743.350	106.837	310.985	-8.550
	2000.00	107.573	574.703	485.273	348.859	178.859	-800.547	107.484	321.713	-8.402
	2100.00	107.620	579.953	489.658	359.619	189.619	-858.282	108.115	332.409	-8.268
	2200.00	107.661	584.960	493.877	370.383	200.383	-916.529	108.729	343.075	-8.146
	2300.00	107.697	589.747	497.942	381.151	211.151	-975.266	109.328	353.714	-8.033
	2400.00	107.729	594.331	501.863	391.922	221.922	-1034.472	109.911	364.327	-7.929
	2500.00	107.757	598.729	505.650	402.697	232.697	-1094.126	110.478	374.916	-7.833
	2600.00	107.782	602.956	509.312	413.474	243.474	-1154.212	111.031	385.482	-7.744
	2700.00	107.804	607.024	512.856	424.253	254.253	-1214.712	111.569	396.028	-7.662
	2800.00	107.823	610.945	516.290	435.034	265.034	-1275.612	112.092	406.553	-7.584
	2900.00	107.841	614.729	519.619	445.818	275.818	-1336.897	112.599	417.061	-7.512
	3000.00	107.857	618.385	522.851	456.603	286.603	-1398.553	113.092	427.551	-7.444

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

38.029 CARBON CARBIDE-NITRIDE (GAS) **CCN[g]**

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	44.570	239.029	239.029	804.806	0.000	733.540	804.806	765.527	−134.117
	300.00	44.632	239.305	239.030	804.889	0.083	733.097	804.830	765.283	−133.248
	400.00	47.683	252.576	240.819	809.509	4.703	708.479	805.917	751.927	−98.192
	500.00	50.234	263.498	244.293	814.409	9.603	682.659	806.685	738.334	−77.133
	600.00	52.351	272.850	248.292	819.541	14.735	655.831	807.166	724.614	−63.083
	700.00	54.088	281.055	252.398	824.866	20.060	628.127	807.413	710.833	−53.043
	800.00	55.493	288.373	256.446	830.348	25.542	599.649	807.492	697.029	−45.511
	900.00	56.613	294.976	260.366	835.955	31.149	570.476	807.446	683.223	−39.653
	1000.00	57.497	300.989	264.132	841.662	36.856	540.674	807.294	669.427	−34.967
	1100.00	58.189	306.502	267.737	847.448	42.642	510.295	807.053	655.652	−31.134
	1200.00	58.737	311.590	271.182	853.295	48.489	479.387	806.735	641.901	−27.941
	1300.00	59.186	316.310	274.474	859.192	54.386	447.990	806.352	628.180	−25.241
	1400.00	59.583	320.711	277.621	865.131	60.325	416.136	805.915	614.491	−22.927
	1500.00	59.973	324.834	280.633	871.108	66.302	383.857	805.440	600.834	−20.923
	1600.00	60.232	328.713	283.518	877.119	72.313	351.177	804.933	587.210	−19.170
	1700.00	60.475	332.372	286.285	883.154	78.348	318.121	804.398	573.619	−17.625
	1800.00	60.701	335.835	288.943	889.213	84.407	284.709	803.841	560.059	−16.252
	1900.00	60.913	339.123	291.498	895.294	90.488	250.960	803.268	546.531	−15.025
	2000.00	61.116	342.253	293.958	901.395	96.589	216.890	802.681	533.034	−13.921
	2100.00	61.310	345.239	296.329	907.517	102.711	182.514	802.081	519.567	−12.924
	2200.00	61.498	348.096	298.618	913.657	108.851	147.847	801.472	506.128	−12.017
	2300.00	61.681	350.833	300.829	919.816	115.010	112.899	800.856	492.717	−11.190
	2400.00	61.859	353.462	302.968	925.993	121.187	77.684	800.235	479.333	−10.432
	2500.00	62.035	355.991	305.038	932.188	127.382	42.210	799.610	465.975	−9.736
	2600.00	62.208	358.428	307.045	938.400	133.594	6.488	798.982	452.642	−9.094
	2700.00	62.379	360.779	308.992	944.629	139.823	−29.473	798.352	439.333	−8.499
	2800.00	62.547	363.050	310.882	950.876	146.070	−65.665	797.721	426.047	−7.948
	2900.00	62.715	365.248	312.719	957.139	152.333	−102.080	797.089	412.784	−7.435
	3000.00	62.880	367.377	314.506	963.419	158.613	−138.712	796.456	399.543	−6.957

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CCl[g] CHLOROMETHYLIDYNE (GAS) 47.464

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	32.258	224.497	224.497	502.080	0.000	435.146	502.080	470.119	−82.363
	300.00	32.278	224.697	224.498	502.140	0.060	434.731	502.092	469.920	−81.820
	400.00	33.582	234.160	225.779	505.432	3.352	411.768	502.614	459.110	−59.954
	500.00	34.647	241.775	228.241	508.847	6.767	387.959	502.912	448.196	−46.823
	600.00	35.398	248.162	231.043	512.351	10.271	363.454	503.019	437.239	−38.065
	700.00	35.935	253.661	233.891	515.919	13.839	338.356	502.970	426.278	−31.809
	800.00	36.331	258.487	236.670	519.533	17.453	312.744	502.808	415.332	−27.118
	900.00	36.633	262.784	239.337	523.182	21.102	286.677	502.561	404.412	−23.471
	1000.00	36.871	266.656	241.878	526.858	24.778	260.202	502.247	393.522	−20.556
	1100.00	37.064	270.180	244.294	530.555	28.475	233.357	501.878	382.667	−18.171
	1200.00	37.224	273.412	246.587	534.270	32.190	206.175	501.465	371.848	−16.186
	1300.00	37.360	276.397	248.767	537.999	35.919	178.683	501.017	361.065	−14.508
	1400.00	37.477	279.170	250.841	541.741	39.661	150.903	500.539	350.317	−13.070
	1500.00	37.580	281.759	252.817	545.494	43.414	122.855	500.038	339.604	−11.826
	1600.00	37.671	284.188	254.702	549.257	47.177	94.556	499.519	328.925	−10.738
	1700.00	37.754	286.474	256.505	553.028	50.948	66.022	498.985	318.279	−9.780
	1800.00	37.830	288.634	258.230	556.807	54.727	37.266	498.438	307.665	−8.928
	1900.00	37.900	290.681	259.885	560.594	58.514	8.299	497.881	297.082	−8.167
	2000.00	37.965	292.627	261.474	564.387	62.307	−20.867	497.315	286.528	−7.483
	2100.00	38.028	294.481	263.002	568.187	66.107	−50.223	496.739	276.003	−6.865
	2200.00	38.088	296.251	264.473	571.992	69.912	−79.760	496.155	265.505	−6.304
	2300.00	38.147	297.946	265.892	575.804	73.724	−109.471	495.564	255.035	−5.792
	2400.00	38.204	299.570	267.261	579.622	77.542	−139.347	494.965	244.590	−5.323
	2500.00	38.261	301.131	268.585	583.445	81.365	−169.383	494.360	234.170	−4.893
	2600.00	38.318	302.633	269.866	587.274	85.194	−199.572	493.748	223.774	−4.496
	2700.00	38.376	304.080	271.107	591.109	89.029	−229.908	493.130	213.402	−4.129
	2800.00	38.434	305.477	272.309	594.949	92.869	−260.386	492.506	203.053	−3.788
	2900.00	38.495	306.827	273.476	598.796	96.716	−291.001	491.876	192.727	−3.471
	3000.00	38.557	308.133	274.610	602.648	100.568	−321.750	491.241	182.422	−3.176

References

Phase	H / S	C_p
GAS	Ja1	Ja1

82.916 DICHLOROMETHYLENE (GAS) **CCl2[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	46.252	265.375	265.375	238.488	0.000	159.366	238.488	227.600	−39.875
	300.00	46.335	265.661	265.376	238.574	0.086	158.875	238.495	227.533	−39.617
	400.00	50.141	279.549	267.243	243.410	4.922	131.591	238.828	223.826	−29.229
	500.00	52.548	291.017	270.885	248.554	10.066	103.045	239.069	220.046	−22.988
	600.00	54.176	300.749	275.072	253.894	15.406	73.445	239.194	216.227	−18.824
	700.00	55.477	309.201	279.357	259.379	20.891	42.938	239.223	212.396	−15.849
	800.00	56.678	316.687	283.564	264.987	26.499	11.637	239.202	208.565	−13.618
	900.00	57.884	323.432	287.625	270.714	32.226	−20.375	239.172	204.737	−11.883
	1000.00	59.129	329.595	291.518	276.565	38.077	−53.030	239.161	200.912	−10.495
	1100.00	60.356	335.288	295.242	282.539	44.051	−86.278	239.193	197.086	−9.359
	1200.00	61.564	340.592	298.803	288.635	50.147	−120.075	239.280	193.254	−8.412
	1300.00	62.665	345.564	302.210	294.848	56.360	−154.385	239.428	189.413	−7.611
	1400.00	63.624	350.244	305.476	301.164	62.676	−189.178	239.633	185.559	−6.923
	1500.00	64.430	354.662	308.609	307.568	69.080	−224.426	239.889	181.688	−6.327
	1600.00	65.084	358.842	311.619	314.045	75.557	−260.103	240.186	177.798	−5.805
	1700.00	65.590	362.804	314.514	320.579	82.091	−296.187	240.514	173.889	−5.343
	1800.00	65.954	366.564	317.303	327.158	88.670	−332.657	240.861	169.960	−4.932
	1900.00	66.183	370.136	319.990	333.766	95.278	−369.493	241.217	166.011	−4.564
	2000.00	66.281	373.534	322.583	340.390	101.902	−406.678	241.569	162.044	−4.232

References

Phase	H / S	C_p
GAS	Ja1	Ja1

CCl3[g] TRICHLOROMETHYL (GAS) 118.369

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	63.660	296.839	296.839	79.496	0.000	−9.006	79.496	92.488	−16.204
	300.00	63.784	297.233	296.840	79.614	0.118	−9.556	79.504	92.569	−16.118
	400.00	69.647	316.434	299.418	86.302	6.806	−40.271	79.955	96.858	−12.648
	500.00	73.509	332.422	304.465	93.475	13.979	−72.736	80.439	101.027	−10.554
	600.00	75.996	346.060	310.289	100.959	21.463	−106.678	80.890	105.102	−9.150
	700.00	77.655	357.908	316.264	108.647	29.151	−141.889	81.285	109.105	−8.142
	800.00	78.809	368.357	322.136	116.473	36.977	−178.213	81.629	113.055	−7.382
	900.00	79.639	377.690	327.799	124.398	44.902	−215.523	81.933	116.965	−6.788
	1000.00	80.256	386.114	333.216	132.394	52.898	−253.720	82.198	120.843	−6.312
	1100.00	80.726	393.787	338.379	140.444	60.948	−292.721	82.429	124.696	−5.921
	1200.00	81.093	400.827	343.294	148.536	69.040	−332.457	82.629	128.529	−5.595
	1300.00	81.384	407.330	347.973	156.660	77.164	−372.869	82.802	132.347	−5.318
	1400.00	81.619	413.370	352.431	164.810	85.314	−413.907	82.952	136.153	−5.080
	1500.00	81.811	419.008	356.684	172.982	93.486	−455.529	83.081	139.948	−4.873
	1600.00	81.971	424.293	360.746	181.172	101.676	−497.697	83.192	143.735	−4.692
	1700.00	82.105	429.267	364.631	189.376	109.880	−540.377	83.288	147.516	−4.533
	1800.00	82.219	433.963	368.354	197.592	118.096	−583.541	83.368	151.292	−4.390
	1900.00	82.316	438.411	371.925	205.819	126.323	−627.162	83.434	155.064	−4.263
	2000.00	82.400	442.635	375.356	214.055	134.559	−671.216	83.485	158.832	−4.148

References

Phase	H / S	C_p
GAS	Ja1	Ja1

CCl4 TETRACHLOROMETHANE 153.822

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
LIQ	298.15	133.888	216.187	216.187	−132.842	0.000	−197.298	−132.842	−62.542	10.957
	300.00	133.888	217.015	216.190	−132.594	0.248	−197.699	−132.736	−62.106	10.814
	349.30	133.888	237.386	217.780	−125.994	6.848	−208.913	−129.992	−50.716	7.584

References

Phase	H / S	C_p	Remarks	
LIQ	Sw1	Ja1	Re1	BPT= 349.3, L= 30.46 kJ

153.822 TETRACHLOROMETHANE (GAS) **CCl4[g]**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	83.404	310.228	310.228	-100.416	0.000	-192.910	-100.416	-58.154	10.188
	300.00	83.591	310.744	310.229	-100.262	0.154	-193.485	-100.403	-57.892	10.080
	400.00	91.688	335.993	313.616	-91.465	8.951	-225.863	-99.578	-43.840	5.725
	500.00	96.614	357.027	320.255	-82.030	18.386	-260.544	-98.616	-30.016	3.136
	600.00	99.685	374.934	327.914	-72.204	28.212	-297.164	-97.640	-16.388	1.427
	700.00	101.699	390.462	335.765	-62.128	38.288	-335.451	-96.696	-2.921	0.218
	800.00	103.081	404.138	343.474	-51.885	48.531	-375.195	-95.787	10.413	-0.680
	900.00	104.067	416.339	350.904	-41.525	58.891	-416.230	-94.912	23.635	-1.372
	1000.00	104.793	427.343	358.007	-31.080	69.336	-458.423	-94.069	36.762	-1.920
	1100.00	105.342	437.358	364.772	-20.572	79.844	-501.665	-93.257	49.805	-2.365
	1200.00	105.767	446.542	371.209	-10.016	90.400	-545.867	-92.474	62.776	-2.733
	1300.00	106.101	455.022	377.334	0.578	100.994	-590.950	-91.718	75.683	-3.041
	1400.00	106.369	462.895	383.168	11.202	111.618	-636.851	-90.985	88.532	-3.303
	1500.00	106.586	470.241	388.731	21.850	122.266	-683.512	-90.274	101.330	-3.529
	1600.00	106.765	477.126	394.042	32.518	132.934	-730.884	-89.582	114.080	-3.724
	1700.00	106.913	483.603	399.122	43.202	143.618	-778.924	-88.908	126.789	-3.896
	1800.00	107.037	489.718	403.987	53.900	154.316	-827.593	-88.252	139.458	-4.047
	1900.00	107.141	495.508	408.653	64.609	165.025	-876.856	-87.612	152.091	-4.181
	2000.00	107.230	501.006	413.134	75.328	175.744	-926.684	-86.990	164.690	-4.301

References

Phase	H / S	C_p
GAS	Sw1	Ja1

C2Cl[g] DICARBON CHLORIDE (GAS) 59.475

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	45.046	241.944	241.944	534.090	0.000	461.954	534.090	498.639	−87.359
	300.00	45.120	242.223	241.945	534.173	0.083	461.507	534.110	498.418	−86.782
	400.00	48.326	255.673	243.757	538.856	4.766	436.587	534.986	486.378	−63.514
	500.00	50.636	266.716	247.277	543.810	9.720	410.451	535.491	474.160	−49.535
	600.00	52.458	276.115	251.319	548.968	14.878	383.298	535.671	461.872	−40.210
	700.00	53.949	284.317	255.460	554.290	20.200	355.268	535.599	449.575	−33.548
	800.00	55.182	291.604	259.531	559.749	25.659	326.465	535.357	437.301	−28.553
	900.00	56.206	298.165	263.465	565.320	31.230	296.971	535.000	425.065	−24.670
	1000.00	57.056	304.132	267.238	570.984	36.894	266.852	534.555	412.873	−21.566
	1100.00	57.758	309.604	270.844	576.726	42.636	236.162	534.042	400.729	−19.029
	1200.00	58.338	314.655	274.287	582.532	48.442	204.945	533.475	388.634	−16.917
	1300.00	58.820	319.345	277.575	588.390	54.300	173.242	532.863	376.589	−15.132
	1400.00	59.226	323.719	280.717	594.293	60.203	141.087	532.218	364.592	−13.603
	1500.00	59.578	327.817	283.721	600.234	66.144	108.508	531.545	352.642	−12.280
	1600.00	59.871	331.672	286.599	606.206	72.116	75.532	530.851	340.737	−11.124
	1700.00	60.126	335.309	289.358	612.206	78.116	42.181	530.142	328.877	−10.105
	1800.00	60.343	338.752	292.008	618.230	84.140	8.476	529.420	317.058	−9.201
	1900.00	60.529	342.020	294.555	624.274	90.184	−25.564	528.686	305.281	−8.393
	2000.00	60.691	345.129	297.006	630.335	96.245	−59.923	527.940	293.542	−7.667
	2100.00	60.832	348.093	299.369	636.411	102.321	−94.585	527.181	281.840	−7.010
	2200.00	60.957	350.926	301.649	642.501	108.411	−129.537	526.411	270.175	−6.415
	2300.00	61.067	353.638	303.850	648.602	114.512	−164.766	525.630	258.546	−5.872
	2400.00	61.165	356.240	305.979	654.714	120.624	−200.261	524.838	246.950	−5.375
	2500.00	61.253	358.738	308.040	660.835	126.745	−236.010	524.035	235.388	−4.918
	2600.00	61.331	361.142	310.037	666.964	132.874	−272.005	523.220	223.858	−4.497
	2700.00	61.402	363.458	311.973	673.101	139.011	−308.236	522.393	212.360	−4.108
	2800.00	61.466	365.692	313.851	679.245	145.155	−344.694	521.555	200.893	−3.748
	2900.00	61.525	367.850	315.677	685.394	151.304	−381.372	520.704	189.455	−3.412
	3000.00	61.578	369.937	317.451	691.549	157.459	−418.262	519.839	178.048	−3.100

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

94.928 DICHLOROACETYLENE (GAS) **C2Cl2[g]**

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	65.369	272.107	272.107	200.000	0.000	118.871	200.000	188.817	−33.080
	300.00	65.475	272.512	272.108	200.121	0.121	118.368	200.027	188.747	−32.864
	400.00	69.896	292.004	274.736	206.907	6.907	90.106	201.272	184.790	−24.131
	500.00	72.893	307.940	279.831	214.054	14.054	60.084	202.186	180.557	−18.863
	600.00	75.175	321.440	285.669	221.462	21.462	28.598	202.798	176.169	−15.337
	700.00	77.003	333.170	291.636	229.074	29.074	−4.145	203.177	171.699	−12.812
	800.00	78.498	343.553	297.489	236.852	36.852	−37.991	203.401	167.185	−10.916
	900.00	79.732	352.873	303.134	244.765	44.765	−72.820	203.523	162.650	−9.440
	1000.00	80.753	361.328	308.537	252.791	52.791	−108.537	203.569	158.105	−8.259
	1100.00	81.598	369.065	313.693	260.910	60.910	−145.062	203.557	153.559	−7.292
	1200.00	82.299	376.196	318.608	269.106	69.106	−182.330	203.497	149.016	−6.486
	1300.00	82.887	382.808	323.295	277.366	77.366	−220.284	203.401	144.479	−5.805
	1400.00	83.387	388.969	327.769	285.680	85.680	−258.876	203.276	139.952	−5.222
	1500.00	83.826	394.737	332.043	294.041	94.041	−298.065	203.130	135.433	−4.716
	1600.00	84.183	400.158	336.133	302.441	102.441	−337.812	202.966	130.926	−4.274
	1700.00	84.499	405.272	340.051	310.876	110.876	−378.086	202.789	126.428	−3.885
	1800.00	84.768	410.109	343.810	319.340	119.340	−418.857	202.602	121.942	−3.539
	1900.00	85.000	414.699	347.421	327.828	127.828	−460.100	202.404	117.466	−3.229
	2000.00	85.202	419.064	350.895	336.339	136.339	−501.790	202.195	113.001	−2.951
	2100.00	85.378	423.225	354.241	344.868	144.868	−543.906	201.973	108.547	−2.700
	2200.00	85.533	427.201	357.467	353.414	153.414	−586.428	201.739	104.103	−2.472
	2300.00	85.671	431.006	360.583	361.974	161.974	−629.340	201.493	99.671	−2.264
	2400.00	85.794	434.655	363.594	370.547	170.547	−672.624	201.234	95.249	−2.073
	2500.00	85.904	438.159	366.507	379.132	179.132	−716.266	200.962	90.839	−1.898
	2600.00	86.003	441.531	369.328	387.728	187.728	−760.252	200.676	86.440	−1.737
	2700.00	86.092	444.778	372.062	396.332	196.332	−804.568	200.376	82.052	−1.587
	2800.00	86.173	447.910	374.716	404.946	204.946	−849.204	200.060	77.675	−1.449
	2900.00	86.246	450.936	377.292	413.567	213.567	−894.147	199.728	73.310	−1.320
	3000.00	86.313	453.861	379.796	422.195	222.195	−939.387	199.380	68.956	−1.201

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

C2Cl3[g] DICARBON TRICHLORIDE (GAS) 130.381

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	75.996	328.160	328.160	190.279	0.000	92.438	190.279	195.644	−34.276
	300.00	76.195	328.631	328.161	190.420	0.141	91.831	190.294	195.678	−34.071
	400.00	84.456	351.781	331.262	198.487	8.208	57.774	191.086	197.352	−25.772
	500.00	89.872	371.244	337.364	207.219	16.940	21.597	191.800	198.833	−20.772
	600.00	93.792	387.994	344.439	216.412	26.133	−16.385	192.379	200.183	−17.428
	700.00	96.731	402.684	351.732	225.945	35.666	−55.934	192.841	201.446	−15.032
	800.00	98.950	415.752	358.933	235.734	45.455	−96.867	193.224	202.649	−13.232
	900.00	100.618	427.508	365.910	245.717	55.438	−139.040	193.553	203.806	−11.829
	1000.00	101.859	438.176	372.612	255.844	65.565	−182.333	193.829	204.930	−10.704
	1100.00	102.782	447.930	379.022	266.078	75.799	−226.645	194.055	206.029	−9.784
	1200.00	103.481	456.904	385.143	276.393	86.114	−271.893	194.233	207.109	−9.015
	1300.00	104.048	465.210	390.987	286.770	96.491	−318.004	194.367	208.177	−8.365
	1400.00	104.570	472.940	396.568	297.201	106.922	−364.916	194.468	209.235	−7.807
	1500.00	105.132	480.174	401.903	307.685	117.406	−412.575	194.551	210.287	−7.323
	1600.00	105.400	486.965	407.009	318.208	127.929	−460.936	194.612	211.334	−6.899
	1700.00	105.693	493.364	411.902	328.763	138.484	−509.955	194.654	212.378	−6.526
	1800.00	105.940	499.412	416.598	339.345	149.066	−559.597	194.680	213.419	−6.193
	1900.00	106.151	505.146	421.108	349.950	159.671	−609.827	194.689	214.460	−5.896
	2000.00	106.332	510.595	425.448	360.574	170.295	−660.616	194.682	215.501	−5.628
	2100.00	106.489	515.787	429.627	371.216	180.937	−711.938	194.656	216.542	−5.386
	2200.00	106.626	520.744	433.657	381.872	191.593	−763.766	194.612	217.585	−5.166
	2300.00	106.747	525.487	437.547	392.540	202.261	−816.079	194.550	218.631	−4.965
	2400.00	106.853	530.032	441.307	403.220	212.941	−868.857	194.470	219.680	−4.781
	2500.00	106.948	534.396	444.943	413.911	223.632	−922.080	194.370	220.732	−4.612
	2600.00	107.032	538.592	448.465	424.610	234.331	−975.730	194.251	221.789	−4.456
	2700.00	107.108	542.633	451.879	435.317	245.038	−1029.793	194.111	222.851	−4.311
	2800.00	107.176	546.530	455.190	446.031	255.752	−1084.252	193.949	223.918	−4.177
	2900.00	107.238	550.292	458.405	456.752	266.473	−1139.094	193.765	224.991	−4.053
	3000.00	107.294	553.928	461.528	467.478	277.199	−1194.306	193.559	226.072	−3.936

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

165.833 TETRACHLOROETHENE (GAS) **C2Cl4[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	95.619	340.938	340.938	−14.226	0.000	−115.877	−14.226	20.591	−3.607
	300.00	95.779	341.530	340.940	−14.049	0.177	−116.508	−14.206	20.807	−3.623
	400.00	105.036	370.366	344.808	−4.003	10.223	−152.149	−13.169	32.322	−4.221
	500.00	112.147	394.617	352.409	6.878	21.104	−190.430	−12.091	43.570	−4.552
	600.00	116.993	415.521	361.226	18.351	32.577	−230.962	−11.050	54.603	−4.754
	700.00	120.341	433.822	370.317	30.227	44.453	−273.448	−10.083	65.468	−4.885
	800.00	122.732	450.056	379.289	42.387	56.613	−317.657	−9.182	76.199	−4.975
	900.00	124.498	464.618	387.975	54.753	68.979	−363.403	−8.333	86.820	−5.039
	1000.00	125.844	477.808	396.309	67.273	81.499	−410.535	−7.534	97.349	−5.085
	1100.00	126.899	489.854	404.274	79.912	94.138	−458.927	−6.780	107.801	−5.119
	1200.00	127.745	500.933	411.873	92.646	106.872	−508.474	−6.066	118.185	−5.144
	1300.00	128.440	511.186	419.123	105.456	119.682	−559.086	−5.384	128.512	−5.164
	1400.00	129.021	520.726	426.044	118.330	132.556	−610.687	−4.731	138.787	−5.178
	1500.00	129.516	529.645	432.656	131.257	145.483	−663.211	−4.100	149.016	−5.189
	1600.00	129.943	538.018	438.983	144.231	158.457	−716.598	−3.486	159.203	−5.197
	1700.00	130.319	545.907	445.042	157.244	171.470	−770.798	−2.887	169.353	−5.204
	1800.00	130.652	553.366	450.855	170.293	184.519	−825.765	−2.300	179.468	−5.208
	1900.00	130.952	560.438	456.438	183.374	197.600	−881.458	−1.723	189.550	−5.211
	2000.00	131.224	567.162	461.808	196.483	210.709	−937.841	−1.159	199.602	−5.213

References

Phase	H / S	C_p
GAS	Sw1	Ja1

C2Cl5[g] PENTACHLOROETHYL (GAS) 201.287

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	118.731	396.502	396.502	39.000	0.000	−79.217	39.000	90.511	−15.857
	300.00	119.066	397.237	396.504	39.220	0.220	−79.951	39.031	90.831	−15.815
	400.00	131.767	433.440	401.354	51.834	12.834	−121.542	40.904	107.823	−14.080
	500.00	138.752	463.659	410.880	65.390	26.390	−166.440	42.870	124.324	−12.988
	600.00	143.147	489.374	421.873	79.500	40.500	−214.124	44.732	140.438	−12.226
	700.00	146.079	511.675	433.144	93.971	54.971	−264.201	46.454	156.251	−11.660
	800.00	148.066	531.319	444.213	108.685	69.685	−316.370	48.057	171.826	−11.219
	900.00	149.404	548.841	454.883	123.563	84.563	−370.394	49.555	187.206	−10.865
	1000.00	150.286	564.632	465.081	138.551	99.551	−426.081	50.951	202.424	−10.574
	1100.00	150.861	578.984	474.793	153.610	114.610	−483.273	52.248	217.508	−10.329
	1200.00	151.251	592.129	484.031	168.717	129.717	−541.838	53.454	232.478	−10.119
	1300.00	151.565	604.248	492.819	183.858	144.858	−601.664	54.579	247.350	−9.939
	1400.00	151.905	615.492	501.184	199.030	160.030	−662.658	55.641	262.139	−9.781
	1500.00	152.365	625.987	509.159	214.243	175.243	−724.738	56.663	276.853	−9.641
	1600.00	152.436	635.819	516.771	229.477	190.477	−787.833	57.639	291.500	−9.516
	1700.00	152.597	645.065	524.048	244.729	205.729	−851.882	58.575	306.087	−9.405
	1800.00	152.732	653.791	531.016	259.995	220.995	−916.829	59.475	320.621	−9.304
	1900.00	152.845	662.052	537.697	275.274	236.274	−982.625	60.341	335.105	−9.213
	2000.00	152.942	669.895	544.113	290.564	251.564	−1049.226	61.174	349.545	−9.129
	2100.00	153.025	677.359	550.282	305.862	266.862	−1116.591	61.973	363.943	−9.053
	2200.00	153.096	684.479	556.221	321.168	282.168	−1184.686	62.739	378.305	−8.982
	2300.00	153.159	691.286	561.946	336.481	297.481	−1253.477	63.473	392.632	−8.917
	2400.00	153.213	697.806	567.472	351.800	312.800	−1322.933	64.174	406.928	−8.857
	2500.00	153.261	704.061	572.812	367.124	328.124	−1393.029	64.843	421.196	−8.800
	2600.00	153.303	710.073	577.976	382.452	343.452	−1463.738	65.478	435.437	−8.748
	2700.00	153.341	715.859	582.976	397.784	358.784	−1535.036	66.079	449.655	−8.699
	2800.00	153.375	721.437	587.822	413.120	374.120	−1606.902	66.646	463.851	−8.653
	2900.00	153.405	726.819	592.523	428.459	389.459	−1679.317	67.177	478.028	−8.610
	3000.00	153.432	732.020	597.087	443.801	404.801	−1752.260	67.671	492.186	−8.570

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

236.738 HEXACHLOROETHANE (GAS) **C2Cl6[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	138.932	396.627	396.627	−141.419	0.000	−259.673	−141.419	−56.684	9.931
	300.00	139.260	397.488	396.630	−141.162	0.257	−260.408	−141.382	−56.158	9.778
	400.00	153.460	439.655	402.282	−126.470	14.949	−302.332	−139.165	−28.074	3.666
	500.00	162.265	474.921	413.382	−110.650	30.769	−348.110	−136.720	−0.582	0.061
	600.00	167.939	505.042	426.210	−94.120	47.299	−397.145	−134.257	26.413	−2.299
	700.00	171.797	531.238	439.384	−77.122	64.297	−448.988	−131.845	53.000	−3.955
	800.00	174.534	554.366	452.340	−59.798	81.621	−503.291	−129.485	79.245	−5.174
	900.00	176.537	575.045	464.845	−42.239	99.180	−559.780	−127.169	105.197	−6.105
	1000.00	178.032	593.726	476.814	−24.507	116.912	−618.233	−124.899	130.893	−6.837
	1100.00	179.160	610.750	488.228	−6.645	134.774	−678.470	−122.676	156.364	−7.425
	1200.00	180.012	626.377	499.098	11.316	152.735	−740.337	−120.498	181.635	−7.906
	1300.00	180.652	640.812	509.451	29.350	170.769	−803.706	−118.366	206.726	−8.306
	1400.00	181.126	654.218	519.319	47.441	188.860	−868.465	−116.277	231.655	−8.643
	1500.00	181.467	666.727	528.734	65.571	206.990	−934.519	−114.231	256.435	−8.930
	1600.00	181.702	678.447	537.728	83.730	225.149	−1001.784	−112.228	281.081	−9.176
	1700.00	181.855	689.467	546.333	101.909	243.328	−1070.185	−110.267	305.602	−9.390
	1800.00	181.941	699.864	554.577	120.099	261.518	−1139.657	−108.349	330.010	−9.577
	1900.00	181.979	709.703	562.485	138.296	279.715	−1210.140	−106.474	354.312	−9.741
	2000.00	181.981	719.037	570.081	156.494	297.913	−1281.581	−104.645	378.516	−9.886

References

Phase	H / S	C_p
GAS	Sw1	Ja1

CClBr3[g] CHLOROTRIBROMOMETHANE (GAS) 287.176

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[-]
GAS	298.15	89.268	357.610	357.610	65.000	0.000	-41.621	65.000	61.423	-10.761
	300.00	89.437	358.163	357.612	65.165	0.165	-42.284	64.908	61.401	-10.691
	400.00	95.867	384.877	361.210	74.467	9.467	-79.484	19.716	69.583	-9.087
	500.00	99.452	406.687	368.193	84.247	19.247	-119.096	20.842	81.919	-8.558
	600.00	101.749	425.037	376.178	94.315	29.315	-160.707	21.934	94.031	-8.186
	700.00	103.317	440.846	384.313	104.573	39.573	-204.019	22.972	105.965	-7.907
	800.00	104.413	454.718	392.265	114.963	49.963	-248.812	23.964	117.753	-7.688
	900.00	105.181	467.063	399.902	125.445	60.445	-294.912	24.914	129.419	-7.511
	1000.00	105.715	478.174	407.183	135.991	70.991	-342.183	25.822	140.981	-7.364
	1100.00	106.087	488.269	414.103	146.582	81.582	-390.513	26.688	152.455	-7.239
	1200.00	106.355	497.512	420.674	157.205	92.205	-439.809	27.514	163.851	-7.132
	1300.00	106.571	506.033	426.917	167.852	102.852	-489.991	28.304	175.181	-7.039
	1400.00	106.784	513.939	432.853	178.519	113.519	-540.995	29.065	186.450	-6.957
	1500.00	107.037	521.314	438.508	189.210	124.210	-592.762	29.806	197.666	-6.883
	1600.00	107.117	528.223	443.901	199.915	134.915	-645.242	30.526	208.833	-6.818
	1700.00	107.227	534.721	449.054	210.632	145.632	-698.392	31.226	219.956	-6.758
	1800.00	107.319	540.852	453.986	221.360	156.360	-752.174	31.908	231.038	-6.705
	1900.00	107.397	546.657	458.712	232.096	167.096	-806.552	32.574	242.082	-6.655
	2000.00	107.464	552.167	463.248	242.839	177.839	-861.496	33.223	253.092	-6.610
	2100.00	107.521	557.412	467.608	253.588	188.588	-916.977	33.854	264.070	-6.568
	2200.00	107.571	562.415	471.804	264.343	199.343	-972.970	34.470	275.018	-6.530
	2300.00	107.615	567.198	475.849	275.102	210.102	-1029.452	35.069	285.938	-6.494
	2400.00	107.654	571.779	479.751	285.866	220.866	-1086.403	35.653	296.833	-6.460
	2500.00	107.688	576.174	483.521	296.633	231.633	-1143.802	36.220	307.704	-6.429
	2600.00	107.718	580.398	487.166	307.403	242.403	-1201.632	36.771	318.553	-6.400
	2700.00	107.745	584.464	490.695	318.176	253.176	-1259.876	37.306	329.380	-6.372
	2800.00	107.769	588.383	494.114	328.952	263.952	-1318.520	37.824	340.188	-6.346
	2900.00	107.791	592.165	497.430	339.730	274.730	-1377.548	38.326	350.978	-6.322
	3000.00	107.811	595.819	500.649	350.510	285.510	-1436.948	38.811	361.751	-6.299

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

242.725 DICHLORODIBROMOMETHANE (GAS) **CCl2Br2**[g]

Phase	T [K]	C_P	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol		]	[–]
GAS	298.15	87.017	348.484	348.484	10.000	0.000	– 93.901	10.000	19.715	– 3.454
	300.00	87.202	349.023	348.486	10.161	0.161	– 94.546	9.943	19.775	– 3.443
	400.00	94.281	375.192	352.006	19.275	9.275	– 130.802	– 19.930	29.250	– 3.820
	500.00	98.276	396.695	358.858	28.918	18.918	– 169.429	– 18.881	41.424	– 4.328
	600.00	100.859	414.857	366.717	38.884	28.884	– 210.030	– 17.849	53.387	– 4.648
	700.00	102.634	430.545	374.740	49.063	39.063	– 252.318	– 16.860	65.181	– 4.864
	800.00	103.880	444.336	382.595	59.393	49.393	– 296.076	– 15.907	76.836	– 5.017
	900.00	104.756	456.625	390.151	69.827	59.827	– 341.136	– 14.989	88.373	– 5.129
	1000.00	105.366	467.696	397.361	80.335	70.335	– 387.361	– 14.107	99.810	– 5.214
	1100.00	105.791	477.760	404.219	90.894	80.894	– 434.641	– 13.263	111.161	– 5.279
	1200.00	106.098	486.979	410.737	101.489	91.489	– 482.885	– 12.457	122.436	– 5.330
	1300.00	106.345	495.481	416.933	112.112	102.112	– 532.013	– 11.685	133.646	– 5.370
	1400.00	106.589	503.371	422.829	122.758	112.758	– 581.961	– 10.940	144.797	– 5.402
	1500.00	106.880	510.734	428.447	133.431	123.431	– 632.670	– 10.212	155.896	– 5.429
	1600.00	106.970	517.633	433.807	144.121	134.121	– 684.092	– 9.505	166.946	– 5.450
	1700.00	107.096	524.122	438.931	154.824	144.824	– 736.183	– 8.817	177.953	– 5.468
	1800.00	107.201	530.246	443.836	165.539	155.539	– 788.904	– 8.145	188.920	– 5.482
	1900.00	107.291	536.045	448.537	176.264	166.264	– 842.221	– 7.491	199.851	– 5.494
	2000.00	107.367	541.550	453.052	186.997	176.997	– 896.103	– 6.853	210.747	– 5.504
	2100.00	107.434	546.790	457.392	197.737	187.737	– 950.522	– 6.233	221.611	– 5.512
	2200.00	107.491	551.789	461.570	208.484	198.484	– 1005.453	– 5.629	232.447	– 5.519
	2300.00	107.541	556.569	465.597	219.235	209.235	– 1060.873	– 5.043	243.255	– 5.525
	2400.00	107.585	561.147	469.483	229.992	219.992	– 1116.760	– 4.474	254.039	– 5.529
	2500.00	107.624	565.539	473.238	240.752	230.752	– 1173.096	– 3.922	264.799	– 5.533
	2600.00	107.659	569.761	476.870	251.516	241.516	– 1229.862	– 3.388	275.537	– 5.536
	2700.00	107.690	573.825	480.386	262.284	252.284	– 1287.043	– 2.872	286.255	– 5.538
	2800.00	107.718	577.742	483.794	273.054	263.054	– 1344.623	– 2.375	296.954	– 5.540
	2900.00	107.743	581.522	487.099	283.827	273.827	– 1402.587	– 1.897	307.636	– 5.541
	3000.00	107.765	585.175	490.308	294.603	284.603	– 1460.923	– 1.438	318.302	– 5.542

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CCl3Br[g] TRICHLOROBROMOMETHANE (GAS) 198.274

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	85.166	333.574	333.574	−43.000	0.000	−142.455	−43.000	−18.270	3.201
	300.00	85.364	334.101	333.576	−42.842	0.158	−143.073	−43.022	−18.116	3.154
	400.00	93.002	359.826	337.031	−33.882	9.118	−177.812	−57.541	−6.775	0.885
	500.00	97.336	381.083	343.779	−24.348	18.652	−214.889	−56.540	5.801	−0.606
	600.00	100.152	399.095	351.536	−14.464	28.536	−253.921	−55.549	18.176	−1.582
	700.00	102.093	414.688	359.469	−4.346	38.654	−294.628	−54.592	30.387	−2.267
	800.00	103.459	428.415	367.246	5.935	48.935	−336.797	−53.666	42.463	−2.773
	900.00	104.420	440.660	374.735	16.332	59.332	−380.262	−52.769	54.425	−3.159
	1000.00	105.091	451.698	381.889	26.810	69.810	−424.889	−51.906	66.289	−3.463
	1100.00	105.558	461.738	388.698	37.343	80.343	−470.568	−51.078	78.068	−3.707
	1200.00	105.896	470.938	395.174	47.917	90.917	−517.208	−50.285	89.774	−3.908
	1300.00	106.168	479.425	401.332	58.520	101.520	−564.732	−49.526	101.414	−4.075
	1400.00	106.436	487.302	407.195	69.150	112.150	−613.073	−48.793	112.997	−4.216
	1500.00	106.757	494.656	412.783	79.809	122.809	−662.175	−48.075	124.529	−4.336
	1600.00	106.855	501.547	418.118	90.487	133.487	−711.989	−47.376	136.012	−4.440
	1700.00	106.994	508.030	423.218	101.179	144.179	−762.471	−46.696	147.453	−4.531
	1800.00	107.110	514.149	428.101	111.885	154.885	−813.583	−46.033	158.855	−4.610
	1900.00	107.209	519.942	432.784	122.601	165.601	−865.290	−45.387	170.220	−4.680
	2000.00	107.293	525.444	437.281	133.326	176.326	−917.561	−44.758	181.551	−4.742
	2100.00	107.366	530.680	441.605	144.059	187.059	−970.370	−44.147	192.851	−4.797
	2200.00	107.430	535.677	445.768	154.799	197.799	−1023.689	−43.554	204.123	−4.846
	2300.00	107.485	540.453	449.782	165.545	208.545	−1077.498	−42.978	215.368	−4.891
	2400.00	107.534	545.029	453.656	176.296	219.296	−1131.773	−42.421	226.589	−4.932
	2500.00	107.577	549.419	457.399	187.051	230.051	−1186.497	−41.883	237.786	−4.968
	2600.00	107.615	553.639	461.020	197.811	240.811	−1241.651	−41.365	248.963	−5.002
	2700.00	107.649	557.701	464.526	208.574	251.574	−1297.220	−40.867	260.120	−5.032
	2800.00	107.680	561.617	467.924	219.341	262.341	−1353.187	−40.389	271.259	−5.060
	2900.00	107.707	565.396	471.220	230.110	273.110	−1409.539	−39.933	282.381	−5.086
	3000.00	107.732	569.048	474.421	240.882	283.882	−1466.262	−39.499	293.488	−5.110

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

381.177 CHLOROBROMODIIODOMETHANE (GAS) **CClBrI2**[g]

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[-]
GAS	298.15	91.695	382.350	382.350	170.000	0.000	56.002	170.000	148.293	-25.980
	300.00	91.850	382.918	382.352	170.170	0.170	55.294	169.952	148.159	-25.797
	400.00	97.658	410.235	386.037	179.679	9.679	15.585	137.811	144.721	-18.899
	500.00	100.811	432.396	393.163	189.616	19.616	-26.582	94.592	150.605	-15.734
	600.00	102.789	450.963	401.291	199.803	29.803	-70.775	95.770	161.696	-14.077
	700.00	104.120	466.915	409.553	210.153	40.153	-116.687	96.873	172.595	-12.879
	800.00	105.040	480.882	417.615	220.614	50.614	-164.092	97.911	183.341	-11.971
	900.00	105.681	493.293	425.347	231.152	61.152	-212.812	98.895	193.960	-11.257
	1000.00	106.127	504.452	432.709	241.743	71.743	-262.709	99.826	204.473	-10.681
	1100.00	106.437	514.582	439.698	252.372	82.372	-313.668	100.708	214.894	-10.204
	1200.00	106.661	523.854	446.330	263.028	93.028	-365.596	101.545	225.238	-9.804
	1300.00	106.841	532.398	452.627	273.703	103.703	-418.415	102.342	235.513	-9.463
	1400.00	107.016	540.322	458.611	284.396	114.396	-472.055	103.105	245.728	-9.168
	1500.00	107.222	547.712	464.308	295.107	125.107	-526.461	103.844	255.889	-8.911
	1600.00	107.289	554.633	469.739	305.831	135.831	-581.582	104.559	266.002	-8.684
	1700.00	107.379	561.140	474.926	316.564	146.564	-637.374	105.250	276.071	-8.483
	1800.00	107.454	567.280	479.888	327.306	157.306	-693.798	105.922	286.100	-8.302
	1900.00	107.519	573.092	484.642	338.055	168.055	-750.819	106.575	296.092	-8.140
	2000.00	107.574	578.608	489.203	348.810	178.810	-808.407	107.208	306.050	-7.993
	2100.00	107.621	583.858	493.587	359.569	189.569	-866.532	107.823	315.977	-7.859
	2200.00	107.662	588.865	497.805	370.334	200.334	-925.170	108.419	325.875	-7.737
	2300.00	107.698	593.652	501.869	381.102	211.102	-984.298	108.998	335.746	-7.625
	2400.00	107.729	598.236	505.789	391.873	221.873	-1043.894	109.559	345.593	-7.522
	2500.00	107.757	602.634	509.575	402.647	232.647	-1103.939	110.102	355.416	-7.426
	2600.00	107.782	606.861	513.237	413.424	243.424	-1164.415	110.627	365.218	-7.337
	2700.00	107.804	610.929	516.780	424.204	254.204	-1225.306	111.135	375.001	-7.255
	2800.00	107.824	614.850	520.213	434.985	264.985	-1286.596	111.625	384.764	-7.178
	2900.00	107.842	618.634	523.542	445.768	275.768	-1348.271	112.097	394.511	-7.106
	3000.00	107.858	622.291	526.773	456.553	286.553	-1410.318	112.550	404.242	-7.038

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CClBr2I[g] CHLORODIBROMOIODOMETHANE (GAS) 334.176

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[-]
GAS	298.15	90.506	373.302	373.302	115.000	0.000	3.700	115.000	101.368	-17.759
	300.00	90.668	373.862	373.304	115.168	0.168	3.009	114.930	101.283	-17.635
	400.00	96.816	400.890	376.947	124.577	9.577	-35.779	76.268	103.323	-13.493
	500.00	100.187	422.888	384.005	134.442	19.442	-77.002	55.226	112.099	-11.711
	600.00	102.319	441.356	392.066	144.574	29.574	-120.239	56.367	123.365	-10.740
	700.00	103.760	457.244	400.269	154.883	39.883	-165.188	57.442	134.445	-10.032
	800.00	104.761	471.168	408.279	165.312	50.312	-211.623	58.461	145.376	-9.492
	900.00	105.460	483.550	415.967	175.825	60.825	-259.370	59.431	156.181	-9.065
	1000.00	105.945	494.688	423.292	186.397	71.397	-308.292	60.354	166.881	-8.717
	1100.00	106.283	504.803	430.249	197.009	82.009	-358.274	61.230	177.491	-8.428
	1200.00	106.526	514.062	436.853	207.650	92.650	-409.224	62.063	188.023	-8.184
	1300.00	106.722	522.596	443.125	218.313	103.313	-461.062	62.858	198.487	-7.975
	1400.00	106.914	530.512	449.087	228.994	113.994	-513.722	63.622	208.892	-7.794
	1500.00	107.142	537.896	454.765	239.697	124.697	-567.147	64.363	219.242	-7.635
	1600.00	107.213	544.811	460.179	250.412	135.412	-621.286	65.081	229.544	-7.494
	1700.00	107.312	551.314	465.350	261.139	146.139	-676.095	65.778	239.801	-7.368
	1800.00	107.394	557.450	470.298	271.874	156.874	-731.536	66.456	250.018	-7.255
	1900.00	107.465	563.259	475.039	282.617	167.617	-787.575	67.116	260.198	-7.153
	2000.00	107.525	568.773	479.589	293.367	178.367	-844.178	67.758	270.344	-7.061
	2100.00	107.576	574.020	483.962	304.122	189.122	-901.320	68.382	280.457	-6.976
	2200.00	107.621	579.026	488.170	314.882	199.882	-958.974	68.988	290.542	-6.898
	2300.00	107.661	583.810	492.225	325.646	210.646	-1017.118	69.577	300.599	-6.827
	2400.00	107.695	588.393	496.137	336.414	221.414	-1075.730	70.150	310.632	-6.761
	2500.00	107.726	592.790	499.916	347.185	232.185	-1134.790	70.706	320.640	-6.699
	2600.00	107.753	597.016	503.570	357.959	242.959	-1194.282	71.244	330.627	-6.642
	2700.00	107.777	601.083	507.107	368.735	253.735	-1254.188	71.766	340.593	-6.589
	2800.00	107.799	605.003	510.533	379.514	264.514	-1314.494	72.270	350.540	-6.539
	2900.00	107.818	608.786	513.857	390.295	275.295	-1375.184	72.757	360.470	-6.493
	3000.00	107.836	612.441	517.082	401.078	286.078	-1436.247	73.226	370.383	-6.449

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

289.726 DICHLOROBROMOIODOMETHANE (GAS) **CCl2BrI[g]**

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	88.485	361.912	361.912	60.000	0.000	−47.904	60.000	60.334	−10.570
	300.00	88.663	362.460	361.914	60.164	0.164	−48.574	59.965	60.336	−10.505
	400.00	95.416	389.002	365.487	69.406	9.406	−86.195	36.643	63.892	−8.343
	500.00	99.158	410.731	372.430	79.150	19.150	−126.215	15.542	72.724	−7.597
	600.00	101.544	429.035	380.379	89.194	29.194	−168.227	16.635	84.056	−7.318
	700.00	103.167	444.817	388.483	99.434	39.434	−211.938	17.671	95.211	−7.105
	800.00	104.299	458.672	396.408	109.811	49.811	−257.127	18.659	106.220	−6.935
	900.00	105.092	471.005	404.024	120.283	60.283	−303.622	19.604	117.108	−6.797
	1000.00	105.643	482.108	411.287	130.821	70.821	−351.287	20.505	127.893	−6.680
	1100.00	106.027	492.196	418.191	141.406	81.406	−400.010	21.363	138.590	−6.581
	1200.00	106.304	501.434	424.748	152.023	92.023	−449.698	22.180	149.210	−6.495
	1300.00	106.527	509.952	430.979	162.665	102.665	−500.272	22.961	159.764	−6.419
	1400.00	106.746	517.854	436.905	173.328	113.328	−551.667	23.711	170.259	−6.352
	1500.00	107.006	525.227	442.550	184.015	124.015	−603.825	24.442	180.702	−6.293
	1600.00	107.087	532.134	447.936	194.717	134.717	−656.697	25.150	191.096	−6.239
	1700.00	107.200	538.630	453.082	205.432	145.432	−710.239	25.837	201.446	−6.190
	1800.00	107.294	544.760	458.006	216.157	156.157	−764.411	26.506	211.757	−6.145
	1900.00	107.375	550.563	462.726	226.890	166.890	−819.180	27.156	222.031	−6.104
	2000.00	107.443	556.073	467.257	237.631	177.631	−874.514	27.789	232.271	−6.066
	2100.00	107.503	561.316	471.612	248.379	188.379	−930.385	28.402	242.480	−6.031
	2200.00	107.554	566.318	475.804	259.132	199.132	−986.769	28.998	252.660	−5.999
	2300.00	107.599	571.100	479.844	269.889	209.889	−1043.642	29.576	262.813	−5.969
	2400.00	107.638	575.681	483.743	280.651	220.651	−1100.982	30.135	272.942	−5.940
	2500.00	107.673	580.075	487.509	291.417	231.417	−1158.772	30.677	283.048	−5.914
	2600.00	107.704	584.299	491.151	302.186	242.186	−1216.992	31.199	293.132	−5.889
	2700.00	107.732	588.364	494.676	312.958	252.958	−1275.626	31.703	303.197	−5.866
	2800.00	107.757	592.283	498.093	323.732	263.732	−1334.660	32.187	313.243	−5.844
	2900.00	107.779	596.065	501.406	334.509	274.509	−1394.078	32.651	323.273	−5.823
	3000.00	107.799	599.719	504.623	345.288	285.288	−1453.868	33.095	333.286	−5.803

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CCII3[g] CHLOROTRIIODOMETHANE (GAS) 428.178

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	92.477	385.466	385.466	225.000	0.000	110.073	225.000	196.988	−34.511
	300.00	92.623	386.038	385.468	225.171	0.171	109.360	224.973	196.814	−34.268
	400.00	98.113	413.529	389.179	234.740	9.740	69.329	199.313	188.499	−24.615
	500.00	101.107	435.772	396.345	244.714	19.714	26.828	133.880	192.100	−20.069
	600.00	102.992	454.385	404.509	254.925	29.925	−17.706	135.067	203.631	−17.728
	700.00	104.263	470.362	412.803	265.292	40.292	−63.962	136.173	214.970	−16.041
	800.00	105.146	484.346	420.890	275.765	50.765	−111.712	137.211	226.155	−14.766
	900.00	105.762	496.768	428.643	286.312	61.312	−160.779	138.192	237.214	−13.768
	1000.00	106.191	507.935	436.024	296.911	71.911	−211.024	139.120	248.166	−12.963
	1100.00	106.491	518.071	443.029	307.546	82.546	−262.332	139.997	259.028	−12.300
	1200.00	106.708	527.346	449.674	318.207	93.207	−314.609	140.828	269.812	−11.745
	1300.00	106.882	535.895	455.982	328.886	103.886	−367.777	141.618	280.528	−11.272
	1400.00	107.051	543.822	461.977	339.583	114.583	−421.767	142.374	291.185	−10.864
	1500.00	107.250	551.214	467.682	350.297	125.297	−476.523	143.105	301.789	−10.509
	1600.00	107.313	558.136	473.122	361.024	136.024	−531.994	143.810	312.345	−10.197
	1700.00	107.401	564.645	478.316	371.760	146.760	−588.137	144.492	322.857	−9.920
	1800.00	107.474	570.786	483.284	382.503	157.503	−644.911	145.153	333.330	−9.673
	1900.00	107.536	576.598	488.044	393.254	168.254	−702.283	145.794	343.767	−9.451
	2000.00	107.589	582.116	492.611	404.010	179.010	−760.221	146.416	354.170	−9.250
	2100.00	107.635	587.366	496.999	414.772	189.772	−818.697	147.019	364.543	−9.068
	2200.00	107.675	592.374	501.221	425.537	200.537	−877.686	147.602	374.887	−8.901
	2300.00	107.710	597.161	505.289	436.306	211.306	−937.165	148.167	385.206	−8.748
	2400.00	107.740	601.746	509.213	447.079	222.079	−997.112	148.714	395.500	−8.608
	2500.00	107.767	606.145	513.003	457.854	232.854	−1057.508	149.242	405.772	−8.478
	2600.00	107.791	610.372	516.667	468.632	243.632	−1118.335	149.753	416.023	−8.358
	2700.00	107.813	614.440	520.214	479.412	254.412	−1179.577	150.245	426.255	−8.246
	2800.00	107.832	618.362	523.649	490.195	265.195	−1241.218	150.718	436.469	−8.142
	2900.00	107.849	622.146	526.981	500.979	275.979	−1303.245	151.173	446.666	−8.045
	3000.00	107.865	625.803	530.214	511.764	286.764	−1365.643	151.609	456.848	−7.954

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

336.726 DICHLORODIIODOMETHANE (GAS) **CCl2I2**[g]

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol	]		[−]
GAS	298.15	90.083	362.090	362.090	115.000	0.000	7.043	115.000	109.904	−19.255
	300.00	90.253	362.648	362.092	115.167	0.167	6.372	114.987	109.873	−19.131
	400.00	96.645	389.596	365.722	124.549	9.549	−31.289	98.227	108.832	−14.212
	500.00	100.111	411.567	372.763	134.402	19.402	−71.382	54.984	115.643	−12.081
	600.00	102.283	430.025	380.810	144.529	29.529	−113.486	56.145	127.664	−11.114
	700.00	103.742	445.909	389.002	154.835	39.835	−157.301	57.233	139.497	−10.409
	800.00	104.752	459.832	397.003	165.263	50.263	−202.603	58.259	151.178	−9.871
	900.00	105.454	472.213	404.685	175.775	60.775	−249.216	59.233	162.734	−9.445
	1000.00	105.942	483.350	412.004	186.347	71.347	−297.004	60.156	174.184	−9.098
	1100.00	106.281	493.464	418.957	196.959	81.959	−345.852	61.031	185.544	−8.811
	1200.00	106.526	502.723	425.557	207.600	92.600	−395.668	61.861	196.827	−8.568
	1300.00	106.724	511.258	431.825	218.262	103.262	−446.373	62.652	208.042	−8.359
	1400.00	106.915	519.174	437.785	228.944	113.944	−497.899	63.409	219.197	−8.178
	1500.00	107.141	526.558	443.460	239.647	124.647	−550.190	64.144	230.299	−8.020
	1600.00	107.214	533.473	448.872	250.362	135.362	−603.195	64.853	241.353	−7.879
	1700.00	107.312	539.976	454.042	261.089	146.089	−656.871	65.540	252.363	−7.754
	1800.00	107.395	546.112	458.988	271.824	156.824	−711.178	66.207	263.333	−7.642
	1900.00	107.465	551.921	463.727	282.567	167.567	−766.082	66.854	274.267	−7.540
	2000.00	107.526	557.435	468.276	293.317	178.317	−821.552	67.482	285.167	−7.448
	2100.00	107.577	562.682	472.648	304.072	189.072	−877.560	68.089	296.036	−7.363
	2200.00	107.622	567.688	476.855	314.832	199.832	−934.081	68.678	306.877	−7.286
	2300.00	107.661	572.473	480.909	325.596	210.596	−991.090	69.248	317.691	−7.215
	2400.00	107.696	577.055	484.820	336.364	221.364	−1048.568	69.798	328.481	−7.149
	2500.00	107.726	581.452	488.598	347.135	232.135	−1106.495	70.329	339.248	−7.088
	2600.00	107.754	585.678	492.251	357.910	242.910	−1164.853	70.841	349.995	−7.031
	2700.00	107.778	589.745	495.787	368.686	253.686	−1223.626	71.332	360.722	−6.979
	2800.00	107.799	593.665	499.213	379.465	264.465	−1282.797	71.804	371.432	−6.929
	2900.00	107.819	597.448	502.536	390.246	275.246	−1342.354	72.255	382.125	−6.883
	3000.00	107.836	601.104	505.761	401.029	286.029	−1402.283	72.684	392.803	−6.839

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CCl3I[g] TRICHLOROIODOMETHANE (GAS) 245.274

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[-]
GAS	298.15	86.465	340.605	340.605	10.000	0.000	-91.551	10.000	27.257	-4.775
	300.00	86.658	341.140	340.607	10.160	0.160	-92.182	10.000	27.364	-4.765
	400.00	94.017	367.198	344.109	19.235	9.235	-127.644	2.018	33.428	-4.365
	500.00	98.129	388.656	350.937	28.859	18.859	-165.469	-19.143	43.307	-4.524
	600.00	100.769	406.796	358.775	38.813	28.813	-205.265	-18.098	55.698	-4.849
	700.00	102.574	422.474	366.780	48.986	38.986	-246.746	-17.100	67.918	-5.068
	800.00	103.837	436.258	374.621	59.310	49.310	-289.697	-16.143	79.998	-5.223
	900.00	104.723	448.543	382.164	69.740	59.740	-333.948	-15.224	91.960	-5.337
	1000.00	105.341	459.610	389.365	80.245	70.245	-379.365	-14.344	103.821	-5.423
	1100.00	105.771	469.672	396.215	90.802	80.802	-425.836	-13.504	115.597	-5.489
	1200.00	106.082	478.889	402.726	101.396	91.396	-473.271	-12.703	127.298	-5.541
	1300.00	106.332	487.390	408.916	112.017	102.017	-521.590	-11.937	138.933	-5.582
	1400.00	106.578	495.279	414.806	122.662	112.662	-570.729	-11.199	150.511	-5.616
	1500.00	106.870	502.642	420.419	133.334	123.334	-620.629	-10.480	162.036	-5.643
	1600.00	106.961	509.540	425.776	144.023	134.023	-671.241	-9.782	173.515	-5.665
	1700.00	107.088	516.028	430.896	154.725	144.725	-722.523	-9.104	184.950	-5.683
	1800.00	107.195	522.152	435.797	165.439	155.439	-774.435	-8.445	196.346	-5.698
	1900.00	107.285	527.951	440.496	176.164	166.164	-826.943	-7.804	207.705	-5.710
	2000.00	107.362	533.456	445.008	186.896	176.896	-880.015	-7.181	219.032	-5.721
	2100.00	107.429	538.696	449.345	197.636	187.636	-933.625	-6.577	230.327	-5.729
	2200.00	107.487	543.694	453.521	208.381	198.381	-987.746	-5.992	241.595	-5.736
	2300.00	107.537	548.474	457.546	219.133	209.133	-1042.356	-5.426	252.836	-5.742
	2400.00	107.582	553.051	461.431	229.889	219.889	-1097.434	-4.879	264.053	-5.747
	2500.00	107.621	557.444	465.184	240.649	230.649	-1152.961	-4.352	275.247	-5.751
	2600.00	107.656	561.665	468.814	251.413	241.413	-1208.917	-3.846	286.421	-5.754
	2700.00	107.687	565.729	472.329	262.180	252.180	-1265.288	-3.360	297.576	-5.757
	2800.00	107.715	569.646	475.735	272.950	262.950	-1322.058	-2.896	308.713	-5.759
	2900.00	107.740	573.426	479.039	283.723	273.723	-1379.213	-2.454	319.834	-5.761
	3000.00	107.763	577.079	482.246	294.498	284.498	-1436.739	-2.035	330.941	-5.762

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

31.009 FLUOROMETHYLIDYNE (GAS) **CF**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	29.912	213.029	213.029	255.224	0.000	191.709	255.224	223.653	−39.183
	300.00	29.947	213.214	213.030	255.279	0.055	191.315	255.235	223.457	−38.907
	400.00	31.420	222.048	214.224	258.353	3.129	169.534	255.665	212.792	−27.788
	500.00	32.444	229.174	216.524	261.549	6.325	146.962	255.848	202.048	−21.108
	600.00	33.261	235.164	219.145	264.835	9.611	123.737	255.817	191.287	−16.653
	700.00	33.954	240.344	221.811	268.197	12.973	99.956	255.626	180.546	−13.472
	800.00	34.560	244.919	224.419	271.623	16.399	75.688	255.325	169.839	−11.089
	900.00	35.094	249.021	226.929	275.107	19.883	50.988	254.952	159.175	−9.238
	1000.00	35.565	252.743	229.327	278.640	23.416	25.897	254.526	148.556	−7.760
	1100.00	35.979	256.153	231.613	282.218	26.994	0.450	254.061	137.981	−6.552
	1200.00	36.337	259.299	233.791	285.834	30.610	−25.325	253.568	127.450	−5.548
	1300.00	36.642	262.220	235.867	289.483	34.259	−51.403	253.052	116.961	−4.700
	1400.00	36.896	264.945	237.847	293.161	37.937	−77.762	252.519	106.512	−3.974
	1500.00	37.098	267.498	239.740	296.861	41.637	−104.386	251.971	96.102	−3.347
	1600.00	37.250	269.897	241.550	300.579	45.355	−131.257	251.410	85.729	−2.799
	1700.00	37.353	272.159	243.285	304.309	49.085	−158.361	250.836	75.392	−2.317
	1800.00	37.405	274.296	244.949	308.048	52.824	−185.684	250.248	65.088	−1.889
	1900.00	37.408	276.318	246.547	311.789	56.565	−213.216	249.643	54.818	−1.507
	2000.00	37.362	278.236	248.084	315.528	60.304	−240.944	249.018	44.580	−1.164

References

Phase	H / S	C_p
GAS	Ja1	Ja1

CF2[g] DIFLUOROMETHYLENE (GAS) 50.008

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	38.958	240.815	240.815	−182.004	0.000	−253.803	−182.004	−191.628	33.572
	300.00	39.020	241.056	240.816	−181.932	0.072	−254.249	−182.006	−191.688	33.376
	400.00	43.058	252.825	242.393	−177.831	4.173	−278.961	−182.155	−194.895	25.451
	500.00	46.511	262.823	245.503	−173.344	8.660	−304.756	−182.363	−198.057	20.691
	600.00	49.040	271.539	249.132	−168.560	13.444	−331.483	−182.632	−201.172	17.514
	700.00	50.897	279.245	252.894	−163.558	18.446	−359.030	−182.959	−204.236	15.240
	800.00	52.289	286.136	256.626	−158.396	23.608	−387.305	−183.326	−207.251	13.532
	900.00	53.352	292.359	260.257	−153.112	28.892	−416.235	−183.722	−210.219	12.201
	1000.00	54.175	298.025	263.754	−147.734	34.270	−445.758	−184.144	−213.140	11.133
	1100.00	54.819	303.220	267.109	−142.282	39.722	−475.824	−184.588	−216.019	10.258
	1200.00	55.325	308.012	270.321	−136.774	45.230	−506.389	−185.054	−218.856	9.527
	1300.00	55.725	312.457	273.393	−131.221	50.783	−537.415	−185.539	−221.653	8.906
	1400.00	56.043	316.599	276.333	−125.632	56.372	−568.870	−186.042	−224.412	8.373
	1500.00	56.298	320.474	279.148	−120.015	61.989	−600.726	−186.561	−227.135	7.910
	1600.00	56.507	324.115	281.846	−114.374	67.630	−632.957	−187.094	−229.822	7.503
	1700.00	56.685	327.546	284.434	−108.714	73.290	−665.542	−187.640	−232.476	7.143
	1800.00	56.845	330.790	286.920	−103.038	78.966	−698.460	−188.196	−235.098	6.822
	1900.00	56.997	333.868	289.311	−97.345	84.659	−731.694	−188.761	−237.688	6.534
	2000.00	57.155	336.795	291.612	−91.638	90.366	−765.229	−189.334	−240.248	6.275

References

Phase	H / S	C_p
GAS	Ja1	Ja1

69.006 TRIFLUOROMETHYL (GAS) **CF3[g]**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	49.821	265.078	265.078	-470.282	0.000	-549.315	-470.282	-456.909	80.048
	300.00	49.949	265.387	265.079	-470.190	0.092	-549.806	-470.292	-456.825	79.540
	400.00	57.407	280.783	267.127	-464.820	5.462	-577.133	-470.780	-452.258	59.059
	500.00	63.393	294.272	271.235	-458.764	11.518	-605.900	-471.100	-447.588	46.759
	600.00	67.701	306.232	276.091	-452.197	18.085	-635.936	-471.323	-442.863	38.555
	700.00	70.839	316.916	281.174	-445.262	25.020	-667.104	-471.491	-438.106	32.692
	800.00	73.184	326.536	286.253	-438.056	32.226	-699.284	-471.618	-433.328	28.293
	900.00	74.972	335.264	291.221	-430.644	39.638	-732.381	-471.710	-428.536	24.872
	1000.00	76.357	343.237	296.030	-423.075	47.207	-766.312	-471.781	-423.735	22.134
	1100.00	77.441	350.568	300.659	-415.382	54.900	-801.007	-471.837	-418.927	19.893
	1200.00	78.293	357.344	305.104	-407.594	62.688	-836.407	-471.887	-414.115	18.026
	1300.00	78.967	363.639	309.368	-399.730	70.552	-872.460	-471.934	-409.299	16.446
	1400.00	79.503	369.511	313.456	-391.805	78.477	-909.121	-471.983	-404.479	15.091
	1500.00	79.932	375.011	317.379	-383.833	86.449	-946.350	-472.035	-399.655	13.917
	1600.00	80.281	380.182	321.144	-375.822	94.460	-984.112	-472.093	-394.828	12.890
	1700.00	80.575	385.058	324.761	-367.778	102.504	-1022.376	-472.156	-389.997	11.983
	1800.00	80.835	389.671	328.240	-359.708	110.574	-1061.115	-472.225	-385.162	11.177
	1900.00	81.079	394.048	331.590	-351.612	118.670	-1100.303	-472.298	-380.324	10.456
	2000.00	81.325	398.213	334.818	-343.492	126.790	-1139.917	-472.374	-375.481	9.807

References

Phase	H / S	C_p
GAS	Ja1	Ja1

CF4[g] TETRAFLUOROMETHANE (GAS) 88.005

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	61.130	261.417	261.417	−933.199	0.000	−1011.140	−933.199	−888.502	155.662
	300.00	61.293	261.796	261.418	−933.086	0.113	−1011.624	−933.217	−888.225	154.654
	400.00	72.070	280.881	263.947	−926.425	6.774	−1038.778	−934.021	−873.094	114.014
	500.00	80.989	297.978	269.074	−918.747	14.452	−1067.736	−934.400	−857.811	89.615
	600.00	87.196	313.327	275.193	−910.319	22.880	−1098.315	−934.498	−842.480	73.344
	700.00	91.528	327.113	281.643	−901.370	31.829	−1130.349	−934.428	−827.148	61.723
	800.00	94.638	339.549	288.117	−892.054	41.145	−1163.692	−934.248	−811.833	53.007
	900.00	96.944	350.835	294.468	−882.469	50.730	−1198.220	−933.991	−796.546	46.230
	1000.00	98.705	361.144	300.628	−872.683	60.516	−1233.827	−933.685	−781.290	40.810
	1100.00	100.086	370.619	306.566	−862.741	70.458	−1270.421	−933.345	−766.067	36.377
	1200.00	101.195	379.377	312.273	−852.675	80.524	−1307.927	−932.981	−750.876	32.685
	1300.00	102.105	387.514	317.752	−842.508	90.691	−1346.276	−932.599	−735.716	29.561
	1400.00	102.867	395.109	323.009	−832.259	100.940	−1385.412	−932.204	−720.586	26.885
	1500.00	103.515	402.229	328.055	−821.939	111.260	−1425.282	−931.798	−705.484	24.567
	1600.00	104.075	408.928	332.903	−811.559	121.640	−1465.843	−931.381	−690.410	22.540
	1700.00	104.565	415.253	337.563	−801.126	132.073	−1507.055	−930.956	−675.363	20.751
	1800.00	105.001	421.242	342.046	−790.647	142.552	−1548.883	−930.523	−660.340	19.163
	1900.00	105.392	426.930	346.366	−780.127	153.072	−1591.294	−930.083	−645.342	17.742
	2000.00	105.747	432.345	350.530	−769.570	163.629	−1634.259	−929.638	−630.367	16.464

References

Phase	H / S	C_p
GAS	Ja1	Ja1

43.020 DICARBON FLUORIDE (GAS) **C2F**[g]

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	42.598	231.032	231.032	388.855	0.000	319.973	388.855	353.627	−61.954
	300.00	42.669	231.296	231.033	388.934	0.079	319.545	388.873	353.409	−61.534
	400.00	45.930	244.041	232.748	393.372	4.517	295.756	389.631	341.462	−44.590
	500.00	48.467	254.572	236.090	398.096	9.241	270.810	390.011	329.368	−34.409
	600.00	50.550	263.599	239.940	403.050	14.195	244.891	390.068	317.230	−27.617
	700.00	52.286	271.526	243.897	408.195	19.340	218.127	389.881	305.102	−22.767
	800.00	53.738	278.605	247.801	413.498	24.643	190.614	389.533	293.013	−19.132
	900.00	54.949	285.007	251.585	418.934	30.079	162.428	389.080	280.974	−16.307
	1000.00	55.956	290.850	255.224	424.481	35.626	133.631	388.548	268.990	−14.051
	1100.00	56.789	296.223	258.710	430.120	41.265	104.274	387.956	257.062	−12.207
	1200.00	57.478	301.195	262.046	435.834	46.979	74.400	387.315	245.191	−10.673
	1300.00	58.054	305.819	265.237	441.612	52.757	44.047	386.636	233.375	−9.377
	1400.00	58.543	310.140	268.292	447.442	58.587	13.246	385.927	221.612	−8.268
	1500.00	58.975	314.194	271.218	453.318	64.463	−17.972	385.196	209.900	−7.309
	1600.00	59.324	318.011	274.025	459.233	70.378	−49.585	384.447	198.238	−6.472
	1700.00	59.633	321.617	276.719	465.181	76.326	−81.568	383.687	186.624	−5.734
	1800.00	59.896	325.033	279.309	471.158	82.303	−113.902	382.917	175.054	−5.080
	1900.00	60.123	328.278	281.802	477.159	88.304	−146.568	382.137	163.527	−4.496
	2000.00	60.319	331.367	284.203	483.182	94.327	−179.552	381.349	152.042	−3.971
	2100.00	60.491	334.314	286.520	489.222	100.367	−212.837	380.550	140.596	−3.497
	2200.00	60.642	337.132	288.757	495.279	106.424	−246.410	379.742	129.188	−3.067
	2300.00	60.777	339.830	290.919	501.350	112.495	−280.259	378.925	117.818	−2.676
	2400.00	60.896	342.419	293.012	507.434	118.579	−314.373	378.100	106.483	−2.318
	2500.00	61.003	344.908	295.038	513.529	124.674	−348.740	377.266	95.183	−1.989
	2600.00	61.099	347.302	297.002	519.634	130.779	−383.351	376.422	83.916	−1.686
	2700.00	61.186	349.610	298.908	525.749	136.894	−418.198	375.570	72.682	−1.406
	2800.00	61.264	351.836	300.759	531.871	143.016	−453.270	374.707	61.480	−1.147
	2900.00	61.336	353.987	302.558	538.001	149.146	−488.562	373.835	50.308	−0.906
	3000.00	61.400	356.068	304.307	544.138	155.283	−524.066	372.953	39.167	−0.682

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

C2F2[g] DIFLUOROACETYLENE (GAS) 62.019

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	60.108	249.565	249.565	−144.659	0.000	−219.067	−144.659	−155.180	27.187
	300.00	60.222	249.937	249.566	−144.548	0.111	−219.529	−144.637	−155.246	27.031
	400.00	65.175	267.987	251.994	−138.262	6.397	−245.456	−143.639	−158.942	20.756
	500.00	68.761	282.933	256.729	−131.557	13.102	−273.024	−142.959	−162.852	17.013
	600.00	71.594	295.730	262.188	−124.534	20.125	−301.972	−142.570	−166.872	14.527
	700.00	73.909	306.946	267.797	−117.255	27.404	−332.117	−142.398	−170.938	12.756
	800.00	75.823	316.944	273.327	−109.766	34.893	−363.321	−142.362	−175.019	11.428
	900.00	77.410	325.969	278.683	−102.101	42.558	−395.473	−142.411	−179.099	10.395
	1000.00	78.725	334.195	283.829	−94.293	50.366	−428.488	−142.521	−183.170	9.568
	1100.00	79.815	341.751	288.756	−86.364	58.295	−462.290	−142.677	−187.228	8.891
	1200.00	80.721	348.736	293.467	−78.336	66.323	−496.819	−142.868	−191.269	8.326
	1300.00	81.482	355.228	297.971	−70.224	74.435	−532.021	−143.087	−195.294	7.847
	1400.00	82.135	361.291	302.280	−62.043	82.616	−567.850	−143.326	−199.301	7.436
	1500.00	82.716	366.978	306.405	−53.800	90.859	−604.267	−143.579	−203.291	7.079
	1600.00	83.179	372.331	310.360	−45.506	99.153	−641.235	−143.843	−207.263	6.766
	1700.00	83.594	377.386	314.155	−37.167	107.492	−678.723	−144.113	−211.218	6.490
	1800.00	83.948	382.174	317.802	−28.789	115.870	−716.703	−144.389	−215.158	6.244
	1900.00	84.253	386.722	321.311	−20.379	124.280	−755.150	−144.671	−219.082	6.023
	2000.00	84.518	391.050	324.691	−11.940	132.719	−794.040	−144.959	−222.991	5.824
	2100.00	84.750	395.179	327.950	−3.476	141.183	−833.353	−145.256	−226.885	5.643
	2200.00	84.955	399.127	331.096	5.009	149.668	−873.070	−145.560	−230.765	5.479
	2300.00	85.137	402.907	334.137	13.514	158.173	−913.173	−145.873	−234.631	5.329
	2400.00	85.299	406.534	337.078	22.036	166.695	−953.646	−146.194	−238.483	5.190
	2500.00	85.444	410.019	339.926	30.573	175.232	−994.475	−146.524	−242.322	5.063
	2600.00	85.575	413.373	342.687	39.124	183.783	−1035.646	−146.863	−246.147	4.945
	2700.00	85.693	416.605	345.365	47.688	192.347	−1077.146	−147.212	−249.959	4.836
	2800.00	85.800	419.723	347.966	56.262	200.921	−1118.963	−147.571	−253.758	4.734
	2900.00	85.897	422.736	350.492	64.847	209.506	−1161.087	−147.941	−257.544	4.639
	3000.00	85.986	425.649	352.949	73.442	218.101	−1203.507	−148.323	−261.317	4.550

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

81.017 DICARBON TRIFLUORIDE (GAS) **C2F3**[g]

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J/(K mol)]			[kJ/mol]					[-]
GAS	298.15	66.144	297.638	297.638	-228.174	0.000	-316.915	-228.174	-222.797	39.033
	300.00	66.339	298.048	297.639	-228.051	0.123	-317.466	-228.170	-222.763	38.787
	400.00	75.124	318.408	300.356	-220.953	7.221	-348.316	-227.966	-220.993	28.859
	500.00	81.641	335.904	305.757	-213.101	15.073	-381.052	-227.820	-219.268	22.907
	600.00	86.723	351.256	312.086	-204.672	23.502	-415.426	-227.762	-217.564	18.941
	700.00	90.729	364.938	318.677	-195.792	32.382	-451.248	-227.763	-215.865	16.108
	800.00	93.872	377.267	325.243	-186.555	41.619	-488.368	-227.784	-214.164	13.983
	900.00	96.313	388.470	331.655	-177.041	51.133	-526.664	-227.806	-212.460	12.331
	1000.00	98.186	398.719	337.857	-167.311	60.863	-566.031	-227.836	-210.754	11.009
	1100.00	99.617	408.148	343.824	-157.418	70.756	-606.380	-227.880	-209.043	9.927
	1200.00	100.726	416.865	349.552	-147.399	80.775	-647.637	-227.945	-207.328	9.025
	1300.00	101.627	424.964	355.045	-137.280	90.894	-689.733	-228.029	-205.607	8.261
	1400.00	102.435	432.525	360.312	-127.076	101.098	-732.611	-228.128	-203.879	7.607
	1500.00	103.263	439.620	365.365	-116.792	111.382	-776.222	-228.228	-202.143	7.039
	1600.00	103.723	446.296	370.217	-106.447	121.727	-820.521	-228.335	-200.400	6.542
	1700.00	104.191	452.599	374.879	-96.051	132.123	-865.469	-228.449	-198.651	6.104
	1800.00	104.587	458.566	379.364	-85.611	142.563	-911.030	-228.570	-196.895	5.714
	1900.00	104.926	464.230	383.683	-75.135	153.039	-957.172	-228.697	-195.132	5.365
	2000.00	105.217	469.620	387.846	-64.628	163.546	-1003.867	-228.833	-193.362	5.050
	2100.00	105.470	474.759	391.864	-54.093	174.081	-1051.088	-228.980	-191.585	4.765
	2200.00	105.691	479.671	395.744	-43.535	184.639	-1098.811	-229.137	-189.800	4.506
	2300.00	105.886	484.374	399.496	-32.956	195.218	-1147.015	-229.305	-188.008	4.270
	2400.00	106.058	488.884	403.127	-22.358	205.816	-1195.679	-229.484	-186.209	4.053
	2500.00	106.211	493.217	406.645	-11.745	216.429	-1244.786	-229.675	-184.402	3.853
	2600.00	106.348	497.385	410.055	-1.117	227.057	-1294.317	-229.879	-182.587	3.668
	2700.00	106.471	501.401	413.364	9.525	237.699	-1344.258	-230.096	-180.764	3.497
	2800.00	106.582	505.275	416.578	20.177	248.351	-1394.593	-230.326	-178.933	3.338
	2900.00	106.681	509.017	419.702	30.840	259.014	-1445.308	-230.571	-177.093	3.190
	3000.00	106.772	512.635	422.739	41.513	269.687	-1496.392	-230.831	-175.245	3.051

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

C2F4[g] TETRAFLUOROETHENE (GAS) 100.016

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	80.549	300.060	300.060	−658.562	0.000	−748.025	−658.562	−623.675	109.265
	300.00	80.778	300.559	300.062	−658.413	0.149	−748.581	−658.560	−623.459	108.554
	400.00	91.798	325.370	303.370	−649.762	8.800	−779.910	−658.411	−611.778	79.890
	500.00	100.375	346.818	309.963	−640.135	18.427	−813.543	−658.172	−600.146	62.697
	600.00	106.915	365.724	317.712	−629.755	28.807	−849.189	−657.899	−588.566	51.239
	700.00	111.824	382.592	325.798	−618.806	39.756	−886.620	−657.607	−577.034	43.059
	800.00	115.508	397.776	333.862	−607.431	51.131	−925.652	−657.291	−565.544	36.926
	900.00	118.375	411.552	341.741	−595.732	62.830	−966.129	−656.953	−554.096	32.159
	1000.00	120.830	424.153	349.361	−583.770	74.792	−1007.923	−656.590	−542.687	28.347
	1100.00	123.280	435.783	356.695	−571.566	86.996	−1050.927	−656.177	−531.316	25.230
	1200.00	126.131	446.627	363.743	−559.100	99.462	−1095.053	−655.659	−519.986	22.634
	1300.00	129.791	456.861	370.515	−546.313	112.249	−1140.232	−654.948	−508.707	20.440
	1400.00	134.664	466.649	377.035	−533.102	125.460	−1186.411	−653.921	−497.494	18.562
	1500.00	141.159	476.151	383.327	−519.326	139.236	−1233.552	−652.418	−486.370	16.937
	1600.00	149.680	485.521	389.422	−504.802	153.760	−1281.636	−650.242	−475.367	15.519
	1700.00	160.635	494.911	395.350	−489.309	169.253	−1330.657	−647.159	−464.526	14.273
	1800.00	174.430	504.469	401.146	−472.581	185.981	−1380.624	−642.898	−453.899	13.172
	1900.00	191.472	514.341	406.842	−454.314	204.248	−1431.562	−637.146	−443.549	12.194
	2000.00	212.166	524.672	412.473	−434.164	224.398	−1483.508	−629.556	−433.547	11.323

References

Phase	H / S	C_p
GAS	Sw1	Re1

119.014 PENTAFLUOROETHYL (GAS) **C2F5**[g]

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	93.234	348.691	348.691	−896.000	0.000	−999.962	−896.000	−845.381	148.107
	300.00	93.574	349.269	348.693	−895.827	0.173	−1000.608	−896.004	−845.067	147.139
	400.00	108.315	378.354	352.559	−885.682	10.318	−1037.023	−895.966	−828.082	108.136
	500.00	118.621	403.691	360.307	−874.308	21.692	−1076.154	−895.663	−811.143	84.740
	600.00	126.320	426.031	369.437	−862.043	33.957	−1117.662	−895.241	−794.277	69.148
	700.00	132.161	445.963	378.971	−849.106	46.894	−1161.280	−894.735	−777.489	58.017
	800.00	136.568	463.912	388.486	−835.659	60.341	−1206.788	−894.151	−760.778	49.674
	900.00	139.845	480.196	397.785	−821.830	74.170	−1254.007	−893.507	−744.145	43.189
	1000.00	142.239	495.061	406.780	−807.719	88.281	−1302.780	−892.836	−727.585	38.005
	1100.00	143.974	508.704	415.435	−793.404	102.596	−1352.978	−892.165	−711.093	33.767
	1200.00	145.260	521.289	423.738	−778.940	117.060	−1404.486	−891.512	−694.660	30.238
	1300.00	146.301	532.958	431.696	−764.360	131.640	−1457.205	−890.883	−678.282	27.254
	1400.00	147.294	543.836	439.322	−749.681	146.319	−1511.051	−890.268	−661.951	24.698
	1500.00	148.436	554.036	446.633	−734.896	161.104	−1565.950	−889.645	−645.664	22.484
	1600.00	148.881	563.624	453.649	−720.040	175.960	−1621.838	−889.031	−629.419	20.548
	1700.00	149.424	572.666	460.386	−705.124	190.876	−1678.657	−888.427	−613.212	18.842
	1800.00	149.881	581.220	466.864	−690.158	205.842	−1736.355	−887.834	−597.040	17.326
	1900.00	150.271	589.335	473.098	−675.150	220.850	−1794.886	−887.252	−580.900	15.970
	2000.00	150.605	597.051	479.104	−660.106	235.894	−1854.208	−886.683	−564.791	14.751
	2100.00	150.894	604.407	484.897	−645.030	250.970	−1914.284	−886.131	−548.710	13.648
	2200.00	151.146	611.432	490.490	−629.928	266.072	−1975.079	−885.595	−532.655	12.647
	2300.00	151.367	618.156	495.896	−614.802	281.198	−2036.561	−885.075	−516.624	11.733
	2400.00	151.562	624.602	501.125	−599.655	296.345	−2098.701	−884.572	−500.616	10.896
	2500.00	151.735	630.793	506.189	−584.490	311.510	−2161.472	−884.088	−484.628	10.126
	2600.00	151.889	636.747	511.097	−569.309	326.691	−2224.851	−883.622	−468.658	9.415
	2700.00	152.027	642.482	515.857	−554.113	341.887	−2288.815	−883.175	−452.707	8.758
	2800.00	152.151	648.013	520.479	−538.904	357.096	−2353.341	−882.748	−436.771	8.148
	2900.00	152.262	653.354	524.969	−523.683	372.317	−2418.411	−882.341	−420.851	7.580
	3000.00	152.363	658.518	529.335	−508.452	387.548	−2484.006	−881.956	−404.944	7.051

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

C2F6[g] HEXAFLUOROETHANE (GAS) 138.012

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	106.492	332.194	332.194	−1343.064	0.000	−1442.107	−1343.064	−1257.295	220.273
	300.00	106.855	332.853	332.196	−1342.867	0.197	−1442.723	−1343.072	−1256.762	218.822
	400.00	124.347	366.086	336.608	−1331.273	11.791	−1477.707	−1343.193	−1227.957	160.355
	500.00	138.056	395.371	345.490	−1318.123	24.941	−1515.809	−1342.795	−1199.185	125.278
	600.00	148.470	421.509	356.021	−1303.772	39.292	−1556.677	−1342.023	−1170.531	101.904
	700.00	156.075	444.999	367.084	−1288.523	54.541	−1600.023	−1340.981	−1142.028	85.219
	800.00	161.360	466.209	378.171	−1272.634	70.430	−1645.601	−1339.758	−1113.688	72.716
	900.00	164.813	485.429	389.038	−1256.312	86.752	−1693.198	−1338.445	−1085.507	63.001
	1000.00	166.921	502.912	399.565	−1239.716	103.348	−1742.629	−1337.129	−1057.474	55.237
	1100.00	168.172	518.885	409.697	−1222.957	120.107	−1793.730	−1335.867	−1029.570	48.890
	1200.00	169.054	533.557	419.415	−1206.094	136.970	−1846.362	−1334.680	−1001.778	43.606
	1300.00	170.055	547.125	428.724	−1189.142	153.922	−1900.405	−1333.551	−974.082	39.139
	1400.00	171.662	559.781	437.638	−1172.063	171.001	−1955.757	−1332.418	−946.473	35.313
	1500.00	174.363	571.709	446.182	−1154.773	188.291	−2012.337	−1331.178	−918.948	32.001
	1600.00	178.646	583.089	454.385	−1137.138	205.926	−2070.081	−1329.680	−891.513	29.105
	1700.00	184.999	594.099	462.281	−1118.975	224.089	−2128.942	−1327.730	−864.184	26.553
	1800.00	193.910	604.912	469.905	−1100.053	243.011	−2188.894	−1325.087	−836.989	24.289
	1900.00	205.866	615.701	477.295	−1080.091	262.973	−2249.924	−1321.463	−809.966	22.268
	2000.00	221.355	626.639	484.487	−1058.762	284.302	−2312.039	−1316.525	−783.166	20.454

References

Phase	H / S	C_p
GAS	Sw1	Re1

270.721 FLUOROTRIBROMOMETHANE (GAS) **CFBr3**[g]

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J/(K mol)]			[kJ/mol]					[−]
GAS	298.15	84.217	345.719	345.719	−120.000	0.000	−223.076	−120.000	−123.061	21.560
	300.00	84.401	346.241	345.721	−119.844	0.156	−223.716	−120.099	−123.080	21.430
	400.00	91.663	371.619	349.132	−111.005	8.995	−259.653	−165.627	−114.670	14.974
	500.00	96.039	392.578	355.787	−101.604	18.396	−297.893	−164.777	−102.028	10.659
	600.00	99.012	410.367	363.438	−91.843	28.157	−338.063	−163.910	−89.560	7.797
	700.00	101.129	425.797	371.269	−81.830	38.170	−379.888	−163.053	−77.237	5.763
	800.00	102.655	439.406	378.952	−71.637	48.363	−423.162	−162.209	−65.035	4.246
	900.00	103.750	451.564	386.357	−61.314	58.686	−467.721	−161.378	−52.938	3.072
	1000.00	104.525	462.538	393.435	−50.898	69.102	−513.435	−160.570	−40.933	2.138
	1100.00	105.073	472.527	400.178	−40.416	79.584	−560.196	−159.790	−29.007	1.377
	1200.00	105.471	481.688	406.594	−29.888	90.112	−607.913	−159.041	−17.151	0.747
	1300.00	105.793	490.143	412.700	−19.324	100.676	−656.510	−158.321	−5.356	0.215
	1400.00	106.107	497.994	418.515	−8.730	111.270	−705.922	−157.624	6.384	−0.238
	1500.00	106.480	505.327	424.061	1.899	121.899	−756.092	−156.939	18.075	−0.629
	1600.00	106.603	512.201	429.357	12.550	132.550	−806.972	−156.270	29.720	−0.970
	1700.00	106.769	518.669	434.423	23.218	143.218	−858.518	−155.618	41.325	−1.270
	1800.00	106.908	524.775	439.274	33.902	153.902	−910.693	−154.980	52.891	−1.535
	1900.00	107.026	530.559	443.928	44.599	164.599	−963.463	−154.356	64.423	−1.771
	2000.00	107.128	536.051	448.398	55.307	175.307	−1016.795	−153.747	75.921	−1.983
	2100.00	107.215	541.280	452.697	66.024	186.024	−1070.664	−153.152	87.390	−2.174
	2200.00	107.291	546.270	456.838	76.750	196.750	−1125.044	−152.571	98.831	−2.347
	2300.00	107.358	551.040	460.831	87.482	207.482	−1179.911	−152.004	110.245	−2.504
	2400.00	107.416	555.611	464.685	98.221	218.221	−1235.245	−151.450	121.636	−2.647
	2500.00	107.468	559.997	468.411	108.965	228.965	−1291.027	−150.911	133.003	−2.779
	2600.00	107.514	564.213	472.015	119.714	239.714	−1347.239	−150.386	144.349	−2.900
	2700.00	107.555	568.271	475.505	130.468	250.468	−1403.864	−149.874	155.675	−3.012
	2800.00	107.592	572.183	478.889	141.225	261.225	−1460.888	−149.376	166.983	−3.115
	2900.00	107.626	575.959	482.171	151.986	271.986	−1518.296	−148.893	178.273	−3.211
	3000.00	107.656	579.609	485.359	162.750	282.750	−1576.076	−148.424	189.546	−3.300

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CF2Br2[g] DIFLUORODIBROMOMETHANE (GAS) 209.816

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	76.950	325.408	325.408	−380.000	0.000	−477.020	−380.000	−369.464	64.729
	300.00	77.160	325.885	325.409	−379.857	0.143	−477.623	−380.071	−369.399	64.318
	400.00	85.785	349.372	328.553	−371.673	8.327	−511.421	−410.619	−359.539	46.951
	500.00	91.319	369.147	334.747	−362.800	17.200	−547.374	−410.133	−346.822	36.232
	600.00	95.241	386.162	341.932	−353.462	26.538	−585.159	−409.566	−334.212	29.096
	700.00	98.116	401.071	349.337	−343.787	36.213	−624.536	−408.955	−321.701	24.006
	800.00	100.233	414.318	356.647	−333.864	46.136	−665.318	−408.309	−309.280	20.194
	900.00	101.776	426.218	363.728	−323.759	56.241	−707.355	−407.643	−296.941	17.234
	1000.00	102.884	437.001	370.524	−313.523	66.477	−750.524	−406.972	−284.677	14.870
	1100.00	103.674	446.846	377.022	−303.193	76.807	−794.724	−406.310	−272.480	12.939
	1200.00	104.254	455.893	383.223	−292.795	87.205	−839.867	−405.666	−260.342	11.332
	1300.00	104.722	464.257	389.138	−282.346	97.654	−885.880	−405.040	−248.257	9.975
	1400.00	105.175	472.034	394.785	−271.851	108.149	−932.699	−404.429	−236.220	8.813
	1500.00	105.708	479.308	400.180	−261.308	118.692	−980.270	−403.819	−224.226	7.808
	1600.00	105.896	486.133	405.341	−250.733	129.267	−1028.545	−403.220	−212.273	6.930
	1700.00	106.139	492.560	410.284	−240.131	139.869	−1077.483	−402.631	−200.357	6.156
	1800.00	106.344	498.633	415.025	−229.506	150.494	−1127.046	−402.053	−188.475	5.469
	1900.00	106.517	504.388	419.579	−218.863	161.137	−1177.199	−401.485	−176.625	4.856
	2000.00	106.666	509.855	423.957	−208.203	171.797	−1227.914	−400.929	−164.805	4.304
	2100.00	106.795	515.063	428.172	−197.530	182.470	−1279.162	−400.385	−153.012	3.806
	2200.00	106.907	520.033	432.236	−186.845	193.155	−1330.918	−399.853	−141.245	3.354
	2300.00	107.005	524.788	436.157	−176.149	203.851	−1383.161	−399.333	−129.502	2.941
	2400.00	107.092	529.344	439.946	−165.444	214.556	−1435.869	−398.826	−117.781	2.563
	2500.00	107.169	533.717	443.610	−154.731	225.269	−1489.024	−398.332	−106.081	2.216
	2600.00	107.237	537.922	447.157	−144.011	235.989	−1542.607	−397.850	−94.401	1.897
	2700.00	107.298	541.970	450.594	−133.284	246.716	−1596.603	−397.383	−82.738	1.601
	2800.00	107.353	545.873	453.927	−122.551	257.449	−1650.996	−396.928	−71.093	1.326
	2900.00	107.402	549.641	457.163	−111.814	268.186	−1705.773	−396.488	−59.464	1.071
	3000.00	107.447	553.283	460.307	−101.071	278.929	−1760.920	−396.061	−47.850	0.833

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

148.910 TRIFLUOROBROMOMETHANE (GAS) **CF3Br**[g]

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	69.211	297.689	297.689	−648.800	0.000	−737.556	−648.800	−622.459	109.052
	300.00	69.448	298.118	297.690	−648.672	0.128	−738.107	−648.844	−622.295	108.351
	400.00	79.443	319.577	300.548	−641.189	7.611	−769.019	−664.460	−610.236	79.689
	500.00	86.176	338.070	306.247	−632.889	15.911	−801.924	−664.382	−596.685	62.335
	600.00	91.096	354.238	312.927	−624.013	24.787	−836.556	−664.155	−583.165	50.769
	700.00	94.778	368.571	319.872	−614.711	34.089	−872.710	−663.824	−569.692	42.511
	800.00	97.530	381.415	326.776	−605.088	43.712	−910.221	−663.408	−556.272	36.321
	900.00	99.560	393.026	333.502	−595.229	53.571	−948.952	−662.932	−542.908	31.510
	1000.00	101.034	403.596	339.991	−585.195	63.605	−988.791	−662.420	−529.599	27.663
	1100.00	102.097	413.279	346.220	−575.035	73.765	−1029.642	−661.896	−516.343	24.519
	1200.00	102.882	422.197	352.185	−564.785	84.015	−1071.422	−661.373	−503.134	21.901
	1300.00	103.516	430.458	357.892	−554.464	94.336	−1114.059	−660.857	−489.968	19.687
	1400.00	104.125	438.151	363.353	−544.082	104.718	−1157.494	−660.344	−476.842	17.791
	1500.00	104.829	445.358	368.582	−533.636	115.164	−1201.674	−659.821	−463.753	16.149
	1600.00	105.094	452.128	373.595	−523.146	125.654	−1246.551	−659.301	−450.699	14.714
	1700.00	105.424	458.510	378.404	−512.619	136.181	−1292.086	−658.785	−437.677	13.448
	1800.00	105.703	464.544	383.023	−502.063	146.737	−1338.242	−658.274	−424.685	12.324
	1900.00	105.939	470.266	387.466	−491.480	157.320	−1384.985	−657.769	−411.722	11.319
	2000.00	106.142	475.705	391.743	−480.876	167.924	−1432.285	−657.272	−398.785	10.415
	2100.00	106.318	480.888	395.865	−470.253	178.547	−1480.117	−656.785	−385.873	9.598
	2200.00	106.471	485.837	399.843	−459.613	189.187	−1528.455	−656.308	−372.983	8.856
	2300.00	106.605	490.573	403.686	−448.959	199.841	−1577.277	−655.841	−360.115	8.178
	2400.00	106.723	495.113	407.401	−438.293	210.507	−1626.563	−655.385	−347.267	7.558
	2500.00	106.828	499.472	410.998	−427.615	221.185	−1676.294	−654.940	−334.438	6.988
	2600.00	106.921	503.663	414.482	−416.928	231.872	−1726.452	−654.507	−321.627	6.462
	2700.00	107.004	507.700	417.860	−406.231	242.569	−1777.021	−654.086	−308.832	5.975
	2800.00	107.079	511.593	421.138	−395.527	253.273	−1827.987	−653.679	−296.052	5.523
	2900.00	107.147	515.352	424.323	−384.816	263.984	−1879.336	−653.284	−283.287	5.103
	3000.00	107.208	518.985	427.418	−374.098	274.702	−1931.053	−652.903	−270.535	4.710

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CFBrI2[g] FLUOROBROMODIIODOMETHANE (GAS) 364.722

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[-]
GAS	298.15	87.097	373.227	373.227	-15.000	0.000	-126.278	-15.000	-37.016	6.485
	300.00	87.260	373.766	373.229	-14.839	0.161	-126.969	-15.054	-37.153	6.469
	400.00	93.709	399.845	376.741	-5.758	9.242	-165.696	-47.497	-40.645	5.308
	500.00	97.588	421.203	383.562	3.820	18.820	-206.781	-90.971	-34.745	3.630
	600.00	100.216	439.242	391.378	13.718	28.718	-249.827	-90.000	-23.592	2.054
	700.00	102.082	454.839	399.355	23.839	38.839	-294.548	-89.064	-12.598	0.940
	800.00	103.421	468.562	407.165	34.117	49.117	-340.732	-88.158	-1.737	0.113
	900.00	104.376	480.802	414.679	44.510	59.510	-388.211	-87.281	9.013	-0.523
	1000.00	105.048	491.836	421.852	54.983	69.983	-436.852	-86.438	19.667	-1.027
	1100.00	105.518	501.871	428.678	65.513	80.513	-486.545	-85.631	30.238	-1.436
	1200.00	105.857	511.068	435.166	76.082	91.082	-537.199	-84.862	40.737	-1.773
	1300.00	106.131	519.552	441.335	86.682	101.682	-588.735	-84.128	51.174	-2.056
	1400.00	106.401	527.427	447.206	97.308	112.308	-641.089	-83.422	61.555	-2.297
	1500.00	106.728	534.778	452.802	107.964	122.964	-694.203	-82.733	71.887	-2.503
	1600.00	106.828	541.667	458.143	118.639	133.639	-748.029	-82.064	82.173	-2.683
	1700.00	106.969	548.148	463.249	129.329	144.329	-802.523	-81.415	92.417	-2.840
	1800.00	107.088	554.266	468.137	140.032	155.032	-857.646	-80.783	102.624	-2.978
	1900.00	107.189	560.058	472.824	150.746	165.746	-913.365	-80.168	112.797	-3.101
	2000.00	107.275	565.559	477.324	161.469	176.469	-969.648	-79.570	122.937	-3.211
	2100.00	107.349	570.795	481.652	172.200	187.200	-1026.468	-78.988	133.048	-3.309
	2200.00	107.414	575.790	485.818	182.939	197.939	-1083.799	-78.423	143.132	-3.398
	2300.00	107.470	580.566	489.834	193.683	208.683	-1141.619	-77.874	153.190	-3.479
	2400.00	107.520	585.141	493.711	204.432	219.432	-1199.906	-77.340	163.225	-3.553
	2500.00	107.564	589.531	497.456	215.187	230.187	-1258.641	-76.822	173.238	-3.620
	2600.00	107.603	593.751	501.079	225.945	240.945	-1317.806	-76.320	183.231	-3.681
	2700.00	107.638	597.812	504.587	236.707	251.707	-1377.386	-75.833	193.204	-3.738
	2800.00	107.669	601.727	507.987	247.473	262.473	-1437.364	-75.362	203.160	-3.790
	2900.00	107.697	605.506	511.285	258.241	273.241	-1497.727	-74.906	213.099	-3.838
	3000.00	107.723	609.158	514.487	269.012	284.012	-1558.461	-74.466	223.022	-3.883

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

317.722 FLUORODIBROMOIODOMETHANE (GAS) **CFBr2I[g]**

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J/(K mol)]			[kJ/mol]					[-]
GAS	298.15	85.678	366.285	366.285	-70.000	0.000	-179.208	-70.000	-84.570	14.816
	300.00	85.850	366.816	366.287	-69.841	0.159	-179.886	-70.076	-84.660	14.741
	400.00	92.648	392.541	369.748	-60.883	9.117	-217.899	-109.063	-82.882	10.823
	500.00	96.753	413.688	376.485	-51.398	18.602	-258.242	-130.381	-74.292	7.761
	600.00	99.544	431.589	384.215	-41.575	28.425	-300.529	-129.468	-63.160	5.499
	700.00	101.534	447.092	392.115	-31.516	38.484	-344.480	-128.579	-52.179	3.894
	800.00	102.970	460.749	399.858	-21.287	48.713	-389.886	-127.710	-41.325	2.698
	900.00	104.001	472.940	407.313	-10.935	59.065	-436.582	-126.863	-30.578	1.775
	1000.00	104.731	483.938	414.434	-0.497	69.503	-484.434	-126.043	-19.924	1.041
	1100.00	105.246	493.945	421.215	10.004	80.004	-533.336	-125.255	-9.350	0.444
	1200.00	105.621	503.120	427.663	20.548	90.548	-583.196	-124.501	1.153	-0.050
	1300.00	105.924	511.586	433.797	31.125	101.125	-633.936	-123.778	11.595	-0.466
	1400.00	106.220	519.447	439.638	41.732	111.732	-685.493	-123.080	21.982	-0.820
	1500.00	106.572	526.786	445.206	52.371	122.371	-737.808	-122.396	32.320	-1.125
	1600.00	106.688	533.666	450.522	63.031	133.031	-790.835	-121.731	42.612	-1.391
	1700.00	106.844	540.139	455.605	73.708	143.708	-844.528	-121.082	52.864	-1.624
	1800.00	106.975	546.250	460.472	84.399	154.399	-898.850	-120.450	63.077	-1.830
	1900.00	107.087	552.037	465.141	95.102	165.102	-953.767	-119.833	73.256	-2.014
	2000.00	107.182	557.532	469.624	105.816	175.816	-1009.248	-119.231	83.403	-2.178
	2100.00	107.265	562.763	473.936	116.538	186.538	-1065.265	-118.644	93.521	-2.326
	2200.00	107.336	567.755	478.088	127.268	197.268	-1121.793	-118.073	103.610	-2.460
	2300.00	107.399	572.528	482.091	138.005	208.005	-1178.809	-117.516	113.674	-2.582
	2400.00	107.454	577.100	485.955	148.748	218.748	-1236.292	-116.974	123.714	-2.693
	2500.00	107.503	581.487	489.689	159.496	229.496	-1294.222	-116.447	133.732	-2.794
	2600.00	107.547	585.704	493.301	170.248	240.248	-1352.583	-115.934	143.729	-2.888
	2700.00	107.586	589.764	496.799	181.005	251.005	-1411.358	-115.436	153.707	-2.974
	2800.00	107.621	593.677	500.190	191.765	261.765	-1470.531	-114.953	163.666	-3.053
	2900.00	107.652	597.454	503.479	202.529	272.529	-1530.089	-114.484	173.608	-3.127
	3000.00	107.680	601.105	506.673	213.296	283.296	-1590.018	-114.030	183.535	-3.196

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CF2BrI[g] DIFLUOROBROMOIODOMETHANE (GAS) 256.816

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J/(K mol)]			[kJ/mol]					[-]
GAS	298.15	78.203	342.623	342.623	-325.000	0.000	-427.153	-325.000	-324.974	56.934
	300.00	78.401	343.107	342.624	-324.855	0.145	-427.787	-325.049	-324.973	56.583
	400.00	86.575	366.882	345.811	-316.571	8.429	-463.324	-349.076	-321.407	41.971
	500.00	91.859	386.805	352.072	-307.633	17.367	-501.036	-370.776	-312.399	32.636
	600.00	95.623	403.903	359.319	-298.250	26.750	-540.591	-370.180	-300.779	26.185
	700.00	98.392	418.862	366.779	-288.542	36.458	-581.745	-369.550	-289.261	21.585
	800.00	100.437	432.141	374.135	-278.595	46.405	-624.308	-368.893	-277.836	18.141
	900.00	101.932	444.062	381.254	-268.473	56.527	-668.128	-368.220	-266.494	15.467
	1000.00	103.007	454.860	388.083	-258.223	66.777	-713.083	-367.546	-255.227	13.332
	1100.00	103.777	464.716	394.608	-247.881	77.119	-759.069	-366.884	-244.028	11.588
	1200.00	104.343	473.771	400.833	-237.474	87.526	-806.000	-366.241	-232.888	10.137
	1300.00	104.800	482.142	406.770	-227.016	97.984	-853.801	-365.618	-221.800	8.912
	1400.00	105.242	489.924	412.435	-216.515	108.485	-902.408	-365.011	-210.760	7.864
	1500.00	105.758	497.202	417.846	-205.966	119.034	-951.769	-364.407	-199.763	6.956
	1600.00	105.944	504.030	423.021	-195.385	129.615	-1001.834	-363.814	-188.807	6.164
	1700.00	106.181	510.460	427.977	-184.779	140.221	-1052.561	-363.233	-177.886	5.466
	1800.00	106.381	516.535	432.730	-174.150	150.850	-1103.914	-362.663	-167.000	4.846
	1900.00	106.551	522.292	437.294	-163.503	161.497	-1155.858	-362.105	-156.145	4.293
	2000.00	106.696	527.761	441.681	-152.841	172.159	-1208.363	-361.559	-145.320	3.795
	2100.00	106.822	532.970	445.905	-142.165	182.835	-1261.401	-361.026	-134.521	3.346
	2200.00	106.932	537.942	449.977	-131.477	193.523	-1314.949	-360.505	-123.747	2.938
	2300.00	107.028	542.697	453.905	-120.779	204.221	-1368.982	-359.998	-112.997	2.566
	2400.00	107.113	547.254	457.701	-110.072	214.928	-1423.482	-359.504	-102.268	2.226
	2500.00	107.188	551.628	461.371	-99.357	225.643	-1478.427	-359.023	-91.560	1.913
	2600.00	107.254	555.834	464.924	-88.634	236.366	-1533.802	-358.557	-80.871	1.625
	2700.00	107.314	559.882	468.366	-77.906	247.094	-1589.589	-358.104	-70.199	1.358
	2800.00	107.368	563.786	471.705	-67.172	257.828	-1645.773	-357.665	-59.544	1.111
	2900.00	107.416	567.555	474.945	-56.433	268.567	-1702.341	-357.240	-48.904	0.881
	3000.00	107.460	571.197	478.093	-45.689	279.311	-1759.280	-356.831	-38.279	0.666

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

66.462 FLUOROCHLOROMETHYLENE (GAS) **CFCl[g]**

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J/(K mol)]			[kJ/mol]					[-]
GAS	298.15	43.131	259.032	259.032	25.876	0.000	-51.354	25.876	13.850	-2.426
	300.00	43.226	259.299	259.033	25.956	0.080	-51.834	25.880	13.775	-2.398
	400.00	47.201	272.324	260.782	30.493	4.617	-78.437	26.039	9.714	-1.269
	500.00	49.849	283.159	264.204	35.353	9.477	-106.226	26.101	5.623	-0.587
	600.00	51.767	292.425	268.154	40.439	14.563	-135.016	26.053	1.531	-0.133
	700.00	53.191	300.518	272.212	45.690	19.814	-164.672	25.912	-2.546	0.190
	800.00	54.247	307.693	276.207	51.065	25.189	-195.089	25.707	-6.599	0.431
	900.00	55.019	314.129	280.069	56.530	30.654	-226.186	25.453	-10.622	0.616
	1000.00	55.574	319.956	283.771	62.061	36.185	-257.895	25.154	-14.615	0.763
	1100.00	55.971	325.273	287.306	67.640	41.764	-290.160	24.814	-18.576	0.882
	1200.00	56.263	330.156	290.676	73.252	47.376	-322.935	24.434	-22.504	0.980
	1300.00	56.500	334.669	293.889	78.890	53.014	-356.179	24.021	-26.399	1.061
	1400.00	56.734	338.864	296.953	84.552	58.676	-389.858	23.582	-30.261	1.129
	1500.00	57.012	342.788	299.879	90.239	64.363	-423.943	23.126	-34.091	1.187
	1600.00	57.132	346.472	302.678	95.948	70.072	-458.408	22.658	-37.890	1.237
	1700.00	57.228	349.939	305.357	101.666	75.790	-493.230	22.170	-41.660	1.280
	1800.00	57.340	353.213	307.925	107.394	81.518	-528.389	21.666	-45.400	1.317
	1900.00	57.467	356.316	310.391	113.134	87.258	-563.867	21.152	-49.112	1.350
	2000.00	57.610	359.268	312.762	118.888	93.012	-599.648	20.630	-52.796	1.379
	2100.00	57.769	362.082	315.044	124.656	98.780	-635.716	20.102	-56.455	1.404
	2200.00	57.943	364.774	317.244	130.442	104.566	-672.060	19.572	-60.088	1.427
	2300.00	58.132	367.353	319.367	136.246	110.370	-708.667	19.043	-63.697	1.447
	2400.00	58.336	369.832	321.418	142.069	116.193	-745.527	18.516	-67.283	1.464
	2500.00	58.554	372.217	323.403	147.913	122.037	-782.630	17.995	-70.847	1.480
	2600.00	58.784	374.518	325.325	153.780	127.904	-819.968	17.479	-74.391	1.495
	2700.00	59.026	376.741	327.188	159.670	133.794	-857.531	16.971	-77.914	1.507
	2800.00	59.278	378.893	328.996	165.585	139.709	-895.314	16.473	-81.420	1.519
	2900.00	59.541	380.977	330.753	171.526	145.650	-933.308	15.984	-84.907	1.529
	3000.00	59.812	383.000	332.461	177.494	151.618	-971.507	15.507	-88.378	1.539

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CFCl2[g] FLUORODICHLOROMETHYL (GAS) 101.915

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	59.081	298.911	298.911	−105.000	0.000	−194.120	−105.000	−95.655	16.758
	300.00	59.244	299.277	298.912	−104.891	0.109	−194.674	−104.998	−95.597	16.645
	400.00	65.951	317.323	301.327	−98.602	6.398	−225.531	−104.820	−92.487	12.078
	500.00	70.250	332.531	306.088	−91.778	13.222	−258.044	−104.580	−89.431	9.343
	600.00	73.292	345.623	311.611	−84.593	20.407	−291.967	−104.347	−86.423	7.524
	700.00	75.517	357.097	317.307	−77.147	27.853	−327.115	−104.131	−83.453	6.227
	800.00	77.150	367.293	322.930	−69.509	35.491	−363.344	−103.926	−80.513	5.257
	900.00	78.336	376.453	328.377	−61.732	43.268	−400.539	−103.730	−77.598	4.504
	1000.00	79.184	384.753	333.606	−53.853	51.147	−438.606	−103.553	−74.704	3.902
	1100.00	79.786	392.329	338.605	−45.903	59.097	−477.465	−103.398	−71.827	3.411
	1200.00	80.225	399.291	343.376	−37.901	67.099	−517.051	−103.270	−68.963	3.002
	1300.00	80.580	405.727	347.928	−29.861	75.139	−557.306	−103.168	−66.108	2.656
	1400.00	80.927	411.711	352.272	−21.786	83.214	−598.181	−103.084	−63.261	2.360
	1500.00	81.340	417.308	356.424	−13.673	91.327	−639.635	−103.008	−60.419	2.104
	1600.00	81.479	422.560	360.395	−5.536	99.464	−681.631	−102.946	−57.582	1.880
	1700.00	81.664	427.505	364.198	2.621	107.621	−724.137	−102.897	−54.748	1.682
	1800.00	81.820	432.177	367.846	10.796	115.796	−767.123	−102.859	−51.917	1.507
	1900.00	81.952	436.605	371.350	18.984	123.984	−810.564	−102.834	−49.088	1.350
	2000.00	82.065	440.811	374.718	27.185	132.185	−854.437	−102.821	−46.259	1.208
	2100.00	82.163	444.818	377.962	35.397	140.397	−898.720	−102.823	−43.431	1.080
	2200.00	82.248	448.642	381.088	43.618	148.618	−943.394	−102.837	−40.603	0.964
	2300.00	82.323	452.300	384.106	51.846	156.846	−988.443	−102.865	−37.773	0.858
	2400.00	82.389	455.805	387.021	60.082	165.082	−1033.849	−102.908	−34.942	0.761
	2500.00	82.447	459.169	389.840	68.324	173.324	−1079.599	−102.965	−32.109	0.671
	2600.00	82.499	462.404	392.569	76.571	181.571	−1125.679	−103.037	−29.274	0.588
	2700.00	82.545	465.518	395.213	84.823	189.823	−1172.076	−103.125	−26.435	0.511
	2800.00	82.587	468.521	397.778	93.080	198.080	−1218.779	−103.229	−23.593	0.440
	2900.00	82.624	471.420	400.268	101.341	206.341	−1265.777	−103.350	−20.747	0.374
	3000.00	82.658	474.221	402.686	109.605	214.605	−1313.059	−103.488	−17.896	0.312

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

137.368 FLUOROTRICHLOROMETHANE (GAS) **CFCl3**[g]

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J/(K mol)]			[kJ/mol]					[−]
GAS	298.15	78.021	309.779	309.779	−285.000	0.000	−377.361	−285.000	−245.634	43.034
	300.00	78.251	310.262	309.780	−284.855	0.145	−377.934	−284.994	−245.390	42.726
	400.00	87.375	334.153	312.976	−276.529	8.471	−410.190	−284.513	−232.253	30.329
	500.00	92.888	354.286	319.279	−267.497	17.503	−444.639	−283.849	−219.262	22.906
	600.00	96.638	371.573	326.588	−258.009	26.991	−480.953	−283.132	−206.412	17.970
	700.00	99.311	386.681	334.117	−248.205	36.795	−518.882	−282.395	−193.683	14.453
	800.00	101.239	400.075	341.540	−238.172	46.828	−558.232	−281.647	−181.061	11.822
	900.00	102.620	412.084	348.723	−227.975	57.025	−598.851	−280.896	−168.533	9.781
	1000.00	103.599	422.950	355.611	−217.661	67.339	−640.611	−280.153	−156.088	8.153
	1100.00	104.288	432.858	362.190	−207.265	77.735	−683.409	−279.430	−143.717	6.825
	1200.00	104.789	441.955	368.463	−196.810	88.190	−727.155	−278.730	−131.411	5.720
	1300.00	105.194	450.359	374.443	−186.310	98.690	−771.776	−278.055	−119.162	4.788
	1400.00	105.591	458.169	380.148	−175.771	109.229	−817.207	−277.398	−106.964	3.991
	1500.00	106.063	465.469	385.595	−165.190	119.810	−863.393	−276.747	−94.813	3.302
	1600.00	106.217	472.316	390.804	−154.580	130.420	−910.286	−276.111	−82.705	2.700
	1700.00	106.426	478.762	395.790	−143.948	141.052	−957.843	−275.488	−70.636	2.170
	1800.00	106.601	484.850	400.570	−133.296	151.704	−1006.027	−274.878	−58.603	1.701
	1900.00	106.750	490.618	405.159	−122.628	162.372	−1054.802	−274.283	−46.604	1.281
	2000.00	106.878	496.097	409.570	−111.947	173.053	−1104.141	−273.702	−34.636	0.905
	2100.00	106.988	501.314	413.816	−101.253	183.747	−1154.013	−273.138	−22.697	0.565
	2200.00	107.084	506.294	417.907	−90.549	194.451	−1204.395	−272.589	−10.784	0.256
	2300.00	107.168	511.056	421.854	−79.837	205.163	−1255.265	−272.058	1.104	−0.025
	2400.00	107.242	515.618	425.667	−69.116	215.884	−1306.600	−271.544	12.970	−0.282
	2500.00	107.307	519.997	429.353	−58.389	226.611	−1358.382	−271.048	24.814	−0.518
	2600.00	107.365	524.207	432.921	−47.655	237.345	−1410.594	−270.571	36.639	−0.736
	2700.00	107.417	528.260	436.377	−36.916	248.084	−1463.218	−270.113	48.446	−0.937
	2800.00	107.464	532.168	439.729	−26.172	258.828	−1516.241	−269.677	60.236	−1.124
	2900.00	107.506	535.939	442.982	−15.423	269.577	−1569.647	−269.261	72.012	−1.297
	3000.00	107.544	539.585	446.142	−4.671	280.329	−1623.425	−268.868	83.773	−1.459

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CF2Cl[g] DIFLUOROCHLOROMETHYL (GAS) 85.461

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[-]
GAS	298.15	55.129	287.348	287.348	-275.000	0.000	-360.673	-275.000	-265.237	46.468
	300.00	55.299	287.690	287.349	-274.898	0.102	-361.205	-275.003	-265.176	46.171
	400.00	62.517	304.667	289.615	-268.979	6.021	-390.846	-275.068	-261.886	34.199
	500.00	67.379	319.170	294.111	-262.471	12.529	-422.056	-275.040	-258.593	27.015
	600.00	70.931	331.785	299.362	-255.546	19.454	-454.617	-274.986	-255.309	22.227
	700.00	73.587	342.928	304.805	-248.314	26.686	-488.364	-274.921	-252.034	18.807
	800.00	75.570	352.890	310.204	-240.851	34.149	-523.164	-274.841	-248.770	16.243
	900.00	77.030	361.880	315.455	-233.218	41.782	-558.909	-274.750	-245.516	14.249
	1000.00	78.089	370.053	320.512	-225.459	49.541	-595.512	-274.662	-242.273	12.655
	1100.00	78.850	377.534	325.361	-217.610	57.390	-632.897	-274.585	-239.038	11.351
	1200.00	79.412	384.420	329.999	-209.695	65.305	-670.999	-274.526	-235.809	10.265
	1300.00	79.866	390.795	334.434	-201.731	73.269	-709.764	-274.487	-232.584	9.345
	1400.00	80.303	396.729	338.674	-193.723	81.277	-749.144	-274.461	-229.362	8.558
	1500.00	80.812	402.286	342.731	-185.668	89.332	-789.097	-274.437	-226.142	7.875
	1600.00	81.000	407.505	346.618	-177.582	97.418	-829.589	-274.422	-222.923	7.278
	1700.00	81.237	412.423	350.346	-169.470	105.530	-870.588	-274.417	-219.704	6.751
	1800.00	81.436	417.072	353.925	-161.336	113.664	-912.065	-274.422	-216.486	6.282
	1900.00	81.605	421.479	357.365	-153.183	121.817	-953.994	-274.436	-213.267	5.863
	2000.00	81.751	425.669	360.677	-145.015	129.985	-996.354	-274.460	-210.047	5.486
	2100.00	81.877	429.661	363.867	-136.834	138.166	-1039.122	-274.496	-206.825	5.144
	2200.00	81.986	433.472	366.945	-128.641	146.359	-1082.280	-274.543	-203.602	4.834
	2300.00	82.082	437.119	369.918	-120.437	154.563	-1125.811	-274.602	-200.376	4.551
	2400.00	82.167	440.614	372.791	-112.225	162.775	-1169.698	-274.673	-197.147	4.291
	2500.00	82.242	443.970	375.572	-104.004	170.996	-1213.929	-274.756	-193.915	4.052
	2600.00	82.309	447.197	378.265	-95.776	179.224	-1258.488	-274.853	-190.680	3.831
	2700.00	82.369	450.304	380.876	-87.542	187.458	-1303.364	-274.962	-187.440	3.626
	2800.00	82.422	453.301	383.409	-79.303	195.697	-1348.545	-275.086	-184.196	3.436
	2900.00	82.471	456.194	385.869	-71.058	203.942	-1394.021	-275.223	-180.948	3.259
	3000.00	82.514	458.991	388.260	-62.809	212.191	-1439.781	-275.376	-177.694	3.094

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

120.914 DIFLUORODICHLOROMETHANE (GAS) **CF2Cl2**[g]

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J/(K mol)]			[kJ/mol]					[-]
GAS	298.15	72.420	300.903	300.903	-486.000	0.000	-575.714	-486.000	-447.017	78.316
	300.00	72.663	301.352	300.904	-485.866	0.134	-576.271	-486.002	-446.775	77.790
	400.00	82.614	323.744	303.890	-478.058	7.942	-607.556	-485.913	-433.703	56.636
	500.00	88.969	342.906	309.825	-469.459	16.541	-640.912	-485.579	-420.686	43.949
	600.00	93.459	359.546	316.756	-460.326	25.674	-676.053	-485.134	-407.748	35.498
	700.00	96.744	374.212	323.937	-450.807	35.193	-712.756	-484.620	-394.890	29.467
	800.00	99.158	387.297	331.054	-441.006	44.994	-750.843	-484.054	-382.110	24.949
	900.00	100.916	399.083	337.969	-430.997	55.003	-790.172	-483.452	-369.402	21.440
	1000.00	102.176	409.784	344.624	-420.839	65.161	-830.624	-482.835	-356.763	18.635
	1100.00	103.075	419.567	350.999	-410.574	75.426	-872.098	-482.219	-344.186	16.344
	1200.00	103.733	428.566	357.093	-400.232	85.768	-914.511	-481.615	-331.664	14.437
	1300.00	104.265	436.890	362.915	-389.832	96.168	-957.789	-481.025	-319.193	12.825
	1400.00	104.780	444.636	368.478	-379.380	106.620	-1001.870	-480.446	-306.766	11.446
	1500.00	105.387	451.885	373.800	-368.873	117.127	-1046.700	-479.864	-294.380	10.251
	1600.00	105.600	458.689	378.895	-358.329	127.671	-1092.232	-479.290	-282.033	9.207
	1700.00	105.876	465.100	383.779	-347.755	138.245	-1138.424	-478.725	-269.722	8.288
	1800.00	106.108	471.158	388.467	-337.155	148.845	-1185.240	-478.169	-257.444	7.471
	1900.00	106.305	476.901	392.971	-326.534	159.466	-1232.646	-477.623	-245.196	6.741
	2000.00	106.475	482.358	397.305	-315.895	170.105	-1280.611	-477.088	-232.977	6.085
	2100.00	106.621	487.556	401.480	-305.240	180.760	-1329.109	-476.567	-220.785	5.492
	2200.00	106.748	492.519	405.506	-294.571	191.429	-1378.114	-476.059	-208.616	4.953
	2300.00	106.860	497.267	409.394	-283.891	202.109	-1427.605	-475.565	-196.471	4.462
	2400.00	106.958	501.817	413.150	-273.200	212.800	-1477.561	-475.086	-184.347	4.012
	2500.00	107.045	506.185	416.785	-262.500	223.500	-1527.963	-474.622	-172.242	3.599
	2600.00	107.122	510.385	420.305	-251.791	234.209	-1578.792	-474.175	-160.156	3.218
	2700.00	107.191	514.429	423.716	-241.076	244.924	-1630.034	-473.745	-148.087	2.865
	2800.00	107.254	518.329	427.026	-230.353	255.647	-1681.673	-473.332	-136.033	2.538
	2900.00	107.310	522.093	430.240	-219.625	266.375	-1733.696	-472.938	-123.993	2.233
	3000.00	107.360	525.732	433.363	-208.892	277.108	-1786.088	-472.563	-111.967	1.950

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CF3Cl[g] TRIFLUOROCHLOROMETHANE (GAS) 104.459

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[-]
GAS	298.15	66.825	285.419	285.419	-707.800	0.000	-792.898	-707.800	-667.230	116.896
	300.00	67.078	285.833	285.420	-707.676	0.124	-793.426	-707.810	-666.978	116.131
	400.00	77.757	306.713	288.195	-700.393	7.407	-823.078	-708.118	-653.310	85.313
	500.00	84.915	324.878	293.756	-692.239	15.561	-854.678	-708.125	-639.602	66.819
	600.00	90.131	340.845	300.301	-683.474	24.326	-887.980	-707.967	-625.910	54.490
	700.00	94.028	355.046	307.126	-674.256	33.544	-922.788	-707.692	-612.255	45.687
	800.00	96.937	367.801	313.927	-664.701	43.099	-958.941	-707.322	-598.645	39.088
	900.00	99.083	379.349	320.565	-654.894	52.906	-996.308	-706.883	-585.086	33.958
	1000.00	100.640	389.873	326.977	-644.904	62.896	-1034.777	-706.403	-571.579	29.856
	1100.00	101.762	399.521	333.140	-634.781	73.019	-1074.254	-705.905	-558.120	26.503
	1200.00	102.591	408.412	339.047	-624.561	83.239	-1114.656	-705.405	-544.707	23.710
	1300.00	103.261	416.651	344.703	-614.268	93.532	-1155.914	-704.910	-531.336	21.349
	1400.00	103.904	424.327	350.120	-603.910	103.890	-1197.968	-704.416	-518.003	19.327
	1500.00	104.647	431.520	355.309	-593.484	114.316	-1240.764	-703.909	-504.705	17.575
	1600.00	104.927	438.279	360.286	-583.011	124.789	-1284.257	-703.403	-491.441	16.044
	1700.00	105.276	444.650	365.063	-572.501	135.299	-1328.406	-702.901	-478.209	14.694
	1800.00	105.570	450.676	369.653	-561.958	145.842	-1373.176	-702.402	-465.006	13.494
	1900.00	105.820	456.391	374.069	-551.388	156.412	-1418.531	-701.910	-451.831	12.422
	2000.00	106.034	461.825	378.322	-540.795	167.005	-1464.444	-701.426	-438.681	11.457
	2100.00	106.219	467.003	382.423	-530.182	177.618	-1510.888	-700.951	-425.556	10.585
	2200.00	106.381	471.948	386.381	-519.552	188.248	-1557.837	-700.487	-412.453	9.793
	2300.00	106.522	476.680	390.204	-508.907	198.893	-1605.270	-700.033	-399.371	9.070
	2400.00	106.647	481.216	393.903	-498.248	209.552	-1653.167	-699.592	-386.308	8.408
	2500.00	106.757	485.572	397.483	-487.578	220.222	-1701.507	-699.164	-373.263	7.799
	2600.00	106.856	489.761	400.952	-476.897	230.903	-1750.275	-698.748	-360.235	7.237
	2700.00	106.944	493.795	404.316	-466.207	241.593	-1799.454	-698.348	-347.223	6.717
	2800.00	107.023	497.686	407.582	-455.509	252.291	-1849.030	-697.962	-334.226	6.235
	2900.00	107.095	501.443	410.754	-444.803	262.997	-1898.987	-697.591	-321.242	5.786
	3000.00	107.159	505.075	413.838	-434.090	273.710	-1949.314	-697.237	-308.270	5.367

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

78.473 FLUOROCHLOROACETYLENE (GAS) **C2FCl[g]**

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J/(K mol)]			[kJ/mol]					[−]
GAS	298.15	62.620	266.382	266.382	33.773	0.000	−45.649	33.773	21.267	−3.726
	300.00	62.732	266.770	266.383	33.889	0.116	−46.142	33.797	21.189	−3.689
	400.00	67.506	285.521	268.907	40.418	6.645	−73.790	34.912	16.810	−2.195
	500.00	70.842	300.961	273.819	47.344	13.571	−103.137	35.708	12.185	−1.273
	600.00	73.425	314.114	279.466	54.562	20.789	−133.906	36.212	7.429	−0.647
	700.00	75.509	325.595	285.253	62.012	28.239	−165.904	36.492	2.607	−0.195
	800.00	77.219	335.793	290.945	69.652	35.879	−198.983	36.628	−2.244	0.147
	900.00	78.628	344.972	296.446	77.446	43.673	−233.029	36.670	−7.106	0.412
	1000.00	79.792	353.318	301.722	85.369	51.596	−267.949	36.644	−11.969	0.625
	1100.00	80.754	360.970	306.766	93.398	59.625	−303.669	36.565	−16.827	0.799
	1200.00	81.551	368.032	311.581	101.514	67.741	−340.124	36.444	−21.676	0.944
	1300.00	82.220	374.586	316.178	109.704	75.931	−377.259	36.290	−26.513	1.065
	1400.00	82.794	380.701	320.571	117.955	84.182	−415.026	36.111	−31.338	1.169
	1500.00	83.305	386.431	324.773	126.260	92.487	−453.386	35.915	−36.149	1.259
	1600.00	83.710	391.820	328.796	134.611	100.838	−492.301	35.704	−40.946	1.337
	1700.00	84.072	396.906	332.655	143.000	109.227	−531.740	35.484	−45.730	1.405
	1800.00	84.382	401.720	336.359	151.423	117.650	−571.673	35.254	−50.501	1.466
	1900.00	84.648	406.290	339.920	159.875	126.102	−612.076	35.017	−55.259	1.519
	2000.00	84.880	410.638	343.348	168.352	134.579	−652.924	34.770	−60.004	1.567
	2100.00	85.082	414.784	346.652	176.850	143.077	−694.197	34.513	−64.736	1.610
	2200.00	85.261	418.746	349.840	185.367	151.594	−735.875	34.245	−69.456	1.649
	2300.00	85.420	422.540	352.919	193.902	160.129	−777.940	33.968	−74.164	1.684
	2400.00	85.561	426.178	355.896	202.451	168.678	−820.377	33.679	−78.859	1.716
	2500.00	85.688	429.674	358.778	211.013	177.240	−863.171	33.380	−83.542	1.746
	2600.00	85.802	433.037	361.569	219.588	185.815	−906.308	33.068	−88.213	1.772
	2700.00	85.904	436.277	364.277	228.173	194.400	−949.774	32.745	−92.871	1.797
	2800.00	85.997	439.403	366.904	236.768	202.995	−993.559	32.409	−97.518	1.819
	2900.00	86.082	442.422	369.457	245.372	211.599	−1037.651	32.059	−102.152	1.840
	3000.00	86.159	445.342	371.938	253.985	220.212	−1082.040	31.695	−106.773	1.859

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

C2FCl3[g] FLUOROTRICHLOROETHYLENE (GAS) 149.379

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	90.984	342.588	342.588	−166.000	0.000	−268.143	−166.000	−134.705	23.600
	300.00	91.232	343.152	342.590	−165.831	0.169	−268.777	−165.986	−134.510	23.420
	400.00	101.685	370.947	346.309	−156.145	9.855	−304.523	−165.181	−124.137	16.211
	500.00	108.711	394.436	353.646	−145.605	20.395	−342.823	−164.342	−113.974	11.907
	600.00	113.873	414.735	362.174	−134.464	31.536	−383.305	−163.550	−103.975	9.052
	700.00	117.778	432.596	370.984	−122.872	43.128	−425.689	−162.805	−94.105	7.022
	800.00	120.744	448.525	379.699	−110.939	55.061	−469.760	−162.081	−84.341	5.507
	900.00	122.979	462.882	388.158	−98.748	67.252	−515.342	−161.367	−74.666	4.334
	1000.00	124.647	475.930	396.292	−86.362	79.638	−562.292	−160.673	−65.070	3.399
	1100.00	125.887	487.871	404.083	−73.833	92.167	−610.491	−160.005	−55.543	2.637
	1200.00	126.828	498.867	411.529	−61.195	104.805	−659.835	−159.368	−46.074	2.006
	1300.00	127.590	509.049	418.644	−48.473	117.527	−710.237	−158.762	−36.658	1.473
	1400.00	128.292	518.531	425.444	−35.679	130.321	−761.622	−158.179	−27.287	1.018
	1500.00	129.048	527.407	431.949	−22.813	143.187	−813.923	−157.604	−17.958	0.625
	1600.00	129.406	535.744	438.178	−9.895	156.105	−867.085	−157.043	−8.667	0.283
	1700.00	129.801	543.601	444.151	3.066	169.066	−921.056	−156.495	0.590	−0.018
	1800.00	130.133	551.030	449.884	16.063	182.063	−975.791	−155.961	9.815	−0.285
	1900.00	130.417	558.074	455.394	29.091	195.091	−1031.249	−155.440	19.010	−0.523
	2000.00	130.661	564.770	460.697	42.145	208.145	−1087.394	−154.934	28.179	−0.736
	2100.00	130.872	571.150	465.806	55.222	221.222	−1144.193	−154.445	37.322	−0.928
	2200.00	131.056	577.242	470.734	68.318	234.318	−1201.614	−153.974	46.443	−1.103
	2300.00	131.218	583.072	475.492	81.432	247.432	−1259.632	−153.520	55.543	−1.261
	2400.00	131.361	588.659	480.092	94.561	260.561	−1318.221	−153.085	64.623	−1.406
	2500.00	131.488	594.024	484.543	107.704	273.704	−1377.357	−152.670	73.686	−1.540
	2600.00	131.602	599.184	488.853	120.859	286.859	−1437.019	−152.276	82.732	−1.662
	2700.00	131.703	604.152	493.032	134.024	300.024	−1497.187	−151.903	91.764	−1.775
	2800.00	131.795	608.944	497.087	147.199	313.199	−1557.843	−151.553	100.782	−1.880
	2900.00	131.877	613.570	501.024	160.383	326.383	−1618.970	−151.227	109.788	−1.977
	3000.00	131.952	618.042	504.851	173.574	339.574	−1680.552	−150.925	118.783	−2.068

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

132.925 DIFLUORODICHLOROETHYLENE (GAS) **C2F2Cl2**[g]

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J/(K mol)]			[kJ/mol]					[-]
GAS	298.15	89.385	326.485	326.485	-337.837	0.000	-435.179	-337.837	-304.770	53.394
	300.00	89.723	327.039	326.487	-337.671	0.166	-435.783	-337.824	-304.565	53.029
	400.00	103.542	354.920	330.194	-327.947	9.890	-469.915	-336.854	-293.613	38.342
	500.00	112.248	379.025	337.607	-317.128	20.709	-506.641	-335.632	-282.942	29.559
	600.00	118.218	400.050	346.300	-305.587	32.250	-545.617	-334.359	-272.523	23.725
	700.00	122.390	418.606	355.331	-293.544	44.293	-586.569	-333.100	-262.317	19.574
	800.00	125.258	435.149	364.293	-281.152	56.685	-629.271	-331.867	-252.290	16.473
	900.00	127.154	450.020	373.006	-268.525	69.312	-673.543	-330.678	-242.415	14.069
	1000.00	128.339	463.483	381.392	-255.745	82.092	-719.229	-329.559	-232.668	12.153
	1100.00	129.039	475.751	389.420	-242.873	94.964	-766.200	-328.525	-223.030	10.591
	1200.00	129.462	486.998	397.090	-229.947	107.890	-814.345	-327.582	-213.482	9.293
	1300.00	129.807	497.374	404.410	-216.983	120.854	-863.570	-326.722	-204.009	8.197
	1400.00	130.266	507.010	411.399	-203.982	133.855	-913.795	-325.922	-194.600	7.261
	1500.00	131.028	516.021	418.076	-190.920	146.917	-964.951	-325.145	-185.247	6.451
	1600.00	131.028	524.469	424.464	-177.830	160.007	-1016.980	-324.408	-175.945	5.744
	1700.00	131.239	532.419	430.583	-164.716	173.121	-1069.828	-323.707	-166.687	5.122
	1800.00	131.418	539.926	436.451	-151.583	186.254	-1123.449	-323.038	-157.470	4.570
	1900.00	131.570	547.035	442.086	-138.433	199.404	-1177.800	-322.398	-148.290	4.077
	2000.00	131.701	553.787	447.504	-125.270	212.567	-1232.844	-321.786	-139.142	3.634
	2100.00	131.814	560.216	452.719	-112.094	225.743	-1288.547	-321.203	-130.024	3.234
	2200.00	131.913	566.350	457.746	-98.907	238.930	-1344.878	-320.647	-120.934	2.871
	2300.00	132.001	572.216	462.596	-85.712	252.125	-1401.808	-320.117	-111.868	2.541
	2400.00	132.078	577.835	467.282	-72.508	265.329	-1459.313	-319.612	-102.824	2.238
	2500.00	132.146	583.229	471.812	-59.296	278.541	-1517.368	-319.134	-93.801	1.960
	2600.00	132.208	588.413	476.198	-46.078	291.759	-1575.951	-318.680	-84.797	1.704
	2700.00	132.263	593.403	480.447	-32.855	304.982	-1635.044	-318.253	-75.810	1.467
	2800.00	132.313	598.214	484.568	-19.626	318.211	-1694.626	-317.852	-66.838	1.247
	2900.00	132.358	602.858	488.567	-6.393	331.444	-1754.681	-317.477	-57.880	1.043
	3000.00	132.399	607.346	492.452	6.845	344.682	-1815.193	-317.129	-48.934	0.852

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

C2F2Cl2[1,1][g] 1,1-DIFLUORODICHLOROETHYLENE (GAS) 132.925

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[-]
GAS	298.15	86.929	325.917	325.917	-338.000	0.000	-435.172	-338.000	-304.764	53.393
	300.00	87.182	326.456	325.919	-337.839	0.161	-435.776	-337.991	-304.557	53.028
	400.00	98.013	353.132	329.482	-328.540	9.460	-469.793	-337.447	-293.491	38.326
	500.00	105.516	375.853	336.541	-318.344	19.656	-506.270	-336.848	-282.572	29.520
	600.00	111.137	395.610	344.775	-307.499	30.501	-544.865	-336.271	-271.771	23.660
	700.00	115.451	413.081	353.309	-296.160	41.840	-585.317	-335.716	-261.065	19.481
	800.00	118.767	428.723	361.776	-284.442	53.558	-627.420	-335.157	-250.439	16.352
	900.00	121.297	442.865	370.013	-272.433	65.567	-671.011	-334.586	-239.883	13.922
	1000.00	123.207	455.748	377.952	-260.203	77.797	-715.952	-334.017	-229.391	11.982
	1100.00	124.645	467.562	385.568	-247.807	90.193	-762.125	-333.459	-218.956	10.397
	1200.00	125.745	478.457	392.861	-235.285	102.715	-809.433	-332.921	-208.570	9.079
	1300.00	126.639	488.558	399.839	-222.665	115.335	-857.790	-332.403	-198.229	7.965
	1400.00	127.452	497.973	406.516	-209.960	128.040	-907.122	-331.900	-187.927	7.012
	1500.00	128.309	506.795	412.910	-197.173	140.827	-957.365	-331.398	-177.661	6.187
	1600.00	128.745	515.086	419.039	-184.326	153.674	-1008.463	-330.904	-167.428	5.466
	1700.00	129.208	522.905	424.921	-171.427	166.573	-1060.366	-330.418	-157.225	4.831
	1800.00	129.600	530.302	430.572	-158.486	179.514	-1113.030	-329.941	-147.051	4.267
	1900.00	129.933	537.318	436.007	-145.509	192.491	-1166.414	-329.474	-136.903	3.764
	2000.00	130.221	543.991	441.241	-132.501	205.499	-1220.482	-329.017	-126.780	3.311
	2100.00	130.470	550.350	446.287	-119.466	218.534	-1275.202	-328.576	-116.679	2.902
	2200.00	130.687	556.425	451.156	-106.408	231.592	-1330.543	-328.148	-106.599	2.531
	2300.00	130.879	562.238	455.860	-93.330	244.670	-1386.478	-327.735	-96.538	2.192
	2400.00	131.048	567.812	460.409	-80.233	257.767	-1442.983	-327.338	-86.494	1.882
	2500.00	131.198	573.165	464.813	-67.121	270.879	-1500.033	-326.958	-76.467	1.598
	2600.00	131.332	578.313	469.080	-53.994	284.006	-1557.609	-326.596	-66.455	1.335
	2700.00	131.453	583.272	473.218	-40.855	297.145	-1615.690	-326.253	-56.456	1.092
	2800.00	131.561	588.055	477.235	-27.704	310.296	-1674.257	-325.930	-46.469	0.867
	2900.00	131.659	592.673	481.136	-14.543	323.457	-1733.295	-325.627	-36.494	0.657
	3000.00	131.747	597.138	484.929	-1.373	336.627	-1792.787	-325.347	-26.529	0.462

Referenzen

Phase	H / S	Cp
GAS	Tp1	Tp1

132.925 CIS-DIFLUORODICHLOROETHYLENE (GAS) **C2F2Cl2[cis][g]**

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J/(K mol)]			[kJ/mol]					[-]
GAS	298.15	87.558	326.594	326.594	-325.211	0.000	-422.585	-325.211	-292.176	51.188
	300.00	87.810	327.136	326.596	-325.049	0.162	-423.190	-325.201	-291.972	50.837
	400.00	98.600	353.989	330.184	-315.689	9.522	-457.284	-324.596	-280.983	36.693
	500.00	106.051	376.834	337.286	-305.437	19.774	-493.854	-323.940	-270.155	28.223
	600.00	111.619	396.685	345.568	-294.541	30.670	-532.552	-323.313	-259.458	22.588
	700.00	115.882	414.226	354.148	-283.156	42.055	-573.114	-322.712	-248.863	18.570
	800.00	119.150	429.923	362.656	-271.397	53.814	-615.336	-322.112	-238.354	15.563
	900.00	121.635	444.107	370.931	-259.352	65.859	-659.049	-321.506	-227.921	13.228
	1000.00	123.504	457.024	378.904	-247.091	78.120	-704.115	-320.905	-217.555	11.364
	1100.00	124.905	468.864	386.551	-234.667	90.544	-750.418	-320.319	-207.248	9.841
	1200.00	125.973	479.780	393.872	-222.121	103.090	-797.857	-319.756	-196.994	8.575
	1300.00	126.840	489.898	400.874	-209.479	115.732	-846.347	-319.217	-186.786	7.505
	1400.00	127.631	499.327	407.573	-196.756	128.455	-895.814	-318.696	-176.619	6.590
	1500.00	128.471	508.161	413.988	-183.951	141.260	-946.193	-318.176	-166.488	5.798
	1600.00	128.890	516.462	420.136	-171.089	154.122	-997.428	-317.667	-156.392	5.106
	1700.00	129.338	524.290	426.034	-158.176	167.035	-1049.469	-317.168	-146.328	4.496
	1800.00	129.717	531.694	431.700	-145.223	179.988	-1102.272	-316.678	-136.293	3.955
	1900.00	130.040	538.716	437.150	-132.235	192.976	-1155.795	-316.199	-126.285	3.472
	2000.00	130.318	545.393	442.396	-119.217	205.994	-1210.004	-315.733	-116.301	3.037
	2100.00	130.559	551.758	447.454	-106.172	219.039	-1264.864	-315.282	-106.341	2.645
	2200.00	130.770	557.836	452.334	-93.106	232.105	-1320.346	-314.845	-96.401	2.289
	2300.00	130.955	563.653	457.048	-80.019	245.192	-1376.422	-314.425	-86.482	1.964
	2400.00	131.118	569.230	461.607	-66.916	258.295	-1433.068	-314.020	-76.580	1.667
	2500.00	131.263	574.586	466.020	-53.796	271.415	-1490.261	-313.634	-66.694	1.394
	2600.00	131.393	579.737	470.295	-40.663	284.548	-1547.979	-313.265	-56.824	1.142
	2700.00	131.509	584.698	474.441	-27.518	297.693	-1606.202	-312.916	-46.968	0.909
	2800.00	131.614	589.482	478.465	-14.362	310.849	-1664.912	-312.588	-37.124	0.693
	2900.00	131.708	594.102	482.373	-1.196	324.015	-1724.093	-312.280	-27.291	0.492
	3000.00	131.794	598.569	486.172	11.979	337.190	-1783.728	-311.995	-17.469	0.304

Referenzen

Phase	H / S	Cp
GAS	Tp1	Tp1

C2F2Cl2[trans][g] TRANS-DIFLUORODICHLOROETHYLENE (GAS) 132.925

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[-]
GAS	298.15	87.524	327.569	327.569	-324.134	0.000	-421.799	-324.134	-291.390	51.050
	300.00	87.777	328.111	327.571	-323.972	0.162	-422.405	-324.124	-291.187	50.700
	400.00	98.578	354.956	331.158	-314.615	9.519	-456.597	-323.522	-280.295	36.603
	500.00	106.033	377.797	338.258	-304.365	19.769	-493.263	-322.868	-269.564	28.161
	600.00	111.603	397.645	346.538	-293.470	30.664	-532.057	-322.242	-258.963	22.545
	700.00	115.867	415.183	355.116	-282.087	42.047	-572.715	-321.643	-248.464	18.541
	800.00	119.136	430.878	363.623	-270.330	53.804	-615.032	-321.045	-238.051	15.543
	900.00	121.622	445.061	371.896	-258.286	65.848	-658.841	-320.440	-227.713	13.216
	1000.00	123.492	457.976	379.868	-246.026	78.108	-704.002	-319.840	-217.442	11.358
	1100.00	124.894	469.815	387.515	-233.603	90.531	-750.400	-319.255	-207.231	9.841
	1200.00	125.963	480.730	394.834	-221.058	103.076	-797.934	-318.694	-197.072	8.578
	1300.00	126.831	490.848	401.835	-208.417	115.717	-846.520	-318.156	-186.958	7.512
	1400.00	127.623	500.276	408.534	-195.695	128.439	-896.081	-317.635	-176.886	6.600
	1500.00	128.464	509.109	414.947	-182.891	141.243	-946.555	-317.116	-166.851	5.810
	1600.00	128.883	517.410	421.094	-170.029	154.105	-997.885	-316.607	-156.849	5.121
	1700.00	129.333	525.237	426.992	-157.117	167.017	-1050.021	-316.109	-146.880	4.513
	1800.00	129.712	532.641	432.658	-144.165	179.969	-1102.918	-315.620	-136.939	3.974
	1900.00	130.036	539.663	438.107	-131.177	192.957	-1156.537	-315.141	-127.026	3.492
	2000.00	130.314	546.340	443.353	-118.159	205.975	-1210.840	-314.675	-117.137	3.059
	2100.00	130.555	552.704	448.410	-105.115	219.019	-1265.794	-314.225	-107.271	2.668
	2200.00	130.766	558.783	453.289	-92.049	232.085	-1321.371	-313.789	-97.427	2.313
	2300.00	130.951	564.600	458.004	-78.963	245.171	-1377.542	-313.368	-87.602	1.989
	2400.00	131.115	570.176	462.562	-65.859	258.275	-1434.283	-312.964	-77.794	1.693
	2500.00	131.260	575.532	466.974	-52.741	271.393	-1491.570	-312.578	-68.004	1.421
	2600.00	131.390	580.682	471.249	-39.608	284.526	-1549.382	-312.210	-58.228	1.170
	2700.00	131.507	585.643	475.395	-26.463	297.671	-1607.700	-311.861	-48.466	0.938
	2800.00	131.611	590.428	479.418	-13.307	310.827	-1666.505	-311.533	-38.717	0.722
	2900.00	131.706	595.048	483.326	-0.141	323.993	-1725.780	-311.226	-28.979	0.522
	3000.00	131.791	599.515	487.125	13.034	337.168	-1785.510	-310.940	-19.251	0.335

Referenzen

Phase	H / S	Cp
GAS	Tp1	Tp1

116.470 TRIFLUOROCHLOROETHYLENE (GAS) **C2F3Cl[g]**

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J/(K mol)]			[kJ/mol]					[-]
GAS	298.15	83.871	322.383	322.383	-515.200	0.000	-611.318	-515.200	-483.939	84.784
	300.00	84.126	322.903	322.385	-515.045	0.155	-611.915	-515.195	-483.745	84.228
	400.00	95.231	348.733	325.831	-506.039	9.161	-645.532	-514.817	-473.315	61.809
	500.00	103.103	370.872	332.678	-496.103	19.097	-681.539	-514.374	-462.991	48.368
	600.00	109.085	390.222	340.690	-485.481	29.719	-719.614	-513.939	-452.756	39.416
	700.00	113.720	407.401	349.016	-474.331	40.869	-759.511	-513.509	-442.592	33.027
	800.00	117.310	422.830	357.295	-462.772	52.428	-801.036	-513.059	-432.492	28.239
	900.00	120.065	436.814	365.366	-450.897	64.303	-844.029	-512.584	-422.449	24.518
	1000.00	122.159	449.578	373.158	-438.781	76.419	-888.358	-512.098	-412.460	21.545
	1100.00	123.743	461.298	380.646	-426.482	88.718	-933.910	-511.614	-402.520	19.114
	1200.00	124.961	472.120	387.823	-414.044	101.156	-980.588	-511.141	-392.623	17.090
	1300.00	125.950	482.162	394.699	-401.497	113.703	-1028.308	-510.684	-382.765	15.380
	1400.00	126.845	491.529	401.284	-388.857	126.343	-1076.998	-510.237	-372.942	13.915
	1500.00	127.778	500.312	407.596	-376.127	139.073	-1126.594	-509.785	-363.151	12.646
	1600.00	128.270	508.571	413.652	-363.330	151.870	-1177.043	-509.339	-353.390	11.537
	1700.00	128.783	516.363	419.466	-350.476	164.724	-1228.293	-508.897	-343.657	10.559
	1800.00	129.217	523.736	425.056	-337.576	177.624	-1280.301	-508.462	-333.949	9.691
	1900.00	129.587	530.733	430.436	-324.635	190.565	-1333.028	-508.033	-324.266	8.915
	2000.00	129.905	537.388	435.618	-311.660	203.540	-1386.437	-507.614	-314.605	8.217
	2100.00	130.182	543.733	440.617	-298.656	216.544	-1440.495	-507.207	-304.964	7.586
	2200.00	130.423	549.795	445.443	-285.625	229.575	-1495.174	-506.812	-295.343	7.012
	2300.00	130.636	555.597	450.107	-272.572	242.628	-1550.445	-506.430	-285.739	6.489
	2400.00	130.824	561.161	454.619	-259.499	255.701	-1606.285	-506.062	-276.152	6.010
	2500.00	130.991	566.505	458.988	-246.408	268.792	-1662.670	-505.708	-266.580	5.570
	2600.00	131.140	571.646	463.223	-233.301	281.899	-1719.579	-505.371	-257.022	5.164
	2700.00	131.274	576.597	467.331	-220.180	295.020	-1776.993	-505.050	-247.476	4.788
	2800.00	131.394	581.374	471.319	-207.047	308.153	-1834.893	-504.746	-237.942	4.439
	2900.00	131.503	585.986	475.194	-193.902	321.298	-1893.262	-504.461	-228.418	4.114
	3000.00	131.602	590.446	478.962	-180.746	334.454	-1952.085	-504.195	-218.904	3.811

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CFClBr2[g] FLUOROCHLORODIBROMOMETHANE (GAS) 226.270

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[-]
GAS	298.15	82.296	343.080	343.080	-175.000	0.000	-277.289	-175.000	-166.704	29.206
	300.00	82.494	343.590	343.082	-174.848	0.152	-277.924	-175.064	-166.652	29.017
	400.00	90.361	368.512	346.426	-166.166	8.834	-313.570	-205.241	-157.603	20.581
	500.00	95.096	389.221	352.974	-156.876	18.124	-351.487	-204.442	-145.785	15.230
	600.00	98.308	406.861	360.521	-147.196	27.804	-391.313	-203.615	-134.131	11.677
	700.00	100.594	422.196	368.261	-137.245	37.755	-432.782	-202.791	-122.615	9.150
	800.00	102.240	435.742	375.866	-127.099	47.901	-475.693	-201.972	-111.218	7.262
	900.00	103.420	447.856	383.204	-116.813	58.187	-519.883	-201.162	-99.922	5.799
	1000.00	104.256	458.799	390.225	-106.426	68.574	-565.225	-200.372	-88.716	4.634
	1100.00	104.845	468.764	396.919	-95.970	79.030	-611.610	-199.607	-77.587	3.684
	1200.00	105.273	477.906	403.292	-85.463	89.537	-658.950	-198.871	-66.527	2.896
	1300.00	105.619	486.347	409.360	-74.918	100.082	-707.168	-198.163	-55.528	2.231
	1400.00	105.957	494.186	415.143	-64.339	110.661	-756.200	-197.477	-44.581	1.663
	1500.00	106.359	501.510	420.659	-53.724	121.276	-805.988	-196.802	-33.684	1.173
	1600.00	106.492	508.376	425.929	-43.085	131.915	-856.486	-196.142	-22.831	0.745
	1700.00	106.670	514.837	430.971	-32.427	142.573	-907.650	-195.498	-12.019	0.369
	1800.00	106.819	520.939	435.801	-21.752	153.248	-959.442	-194.868	-1.244	0.036
	1900.00	106.947	526.717	440.435	-11.064	163.936	-1011.827	-194.252	9.496	-0.261
	2000.00	107.056	532.206	444.888	-0.364	174.636	-1064.775	-193.651	20.204	-0.528
	2100.00	107.150	537.432	449.171	10.347	185.347	-1118.259	-193.065	30.882	-0.768
	2200.00	107.231	542.418	453.297	21.066	196.066	-1172.254	-192.494	41.533	-0.986
	2300.00	107.303	547.186	457.276	31.793	206.793	-1226.736	-191.938	52.158	-1.185
	2400.00	107.366	551.754	461.119	42.526	217.526	-1281.684	-191.397	62.759	-1.366
	2500.00	107.422	556.138	464.832	53.266	228.266	-1337.081	-190.872	73.338	-1.532
	2600.00	107.471	560.353	468.426	64.010	239.010	-1392.906	-190.361	83.896	-1.685
	2700.00	107.516	564.409	471.906	74.760	249.760	-1449.146	-189.867	94.435	-1.827
	2800.00	107.555	568.320	475.280	85.513	260.513	-1505.783	-189.389	104.956	-1.958
	2900.00	107.591	572.095	478.554	96.271	271.271	-1562.805	-188.928	115.460	-2.080
	3000.00	107.624	575.743	481.733	107.031	282.031	-1620.198	-188.484	125.949	-2.193

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

181.819 FLUORODICHLOROBROMOMETHANE (GAS) **CFCl2Br**[g]

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J/(K mol)]			[kJ/mol]					[-]
GAS	298.15	80.061	330.767	330.767	-235.000	0.000	-333.618	-235.000	-215.492	37.753
	300.00	80.276	331.263	330.769	-234.852	0.148	-334.231	-235.027	-215.370	37.499
	400.00	88.792	355.644	334.035	-226.356	8.644	-368.614	-249.757	-205.746	26.868
	500.00	93.932	376.050	340.454	-217.202	17.798	-405.227	-248.928	-194.838	20.355
	600.00	97.426	393.504	347.877	-207.624	27.376	-443.726	-248.080	-184.100	16.027
	700.00	99.915	408.719	355.505	-197.750	37.250	-483.854	-247.241	-173.503	12.947
	800.00	101.710	422.185	363.015	-187.664	47.336	-525.412	-246.411	-163.026	10.645
	900.00	102.996	434.243	370.271	-177.425	57.575	-568.244	-245.594	-152.652	8.860
	1000.00	103.907	445.145	377.222	-167.077	67.923	-612.222	-244.799	-142.368	7.437
	1100.00	104.550	455.080	383.855	-156.652	78.348	-657.240	-244.033	-132.162	6.276
	1200.00	105.017	464.198	390.176	-146.173	88.827	-703.211	-243.299	-122.025	5.312
	1300.00	105.394	472.619	396.198	-135.652	99.348	-750.057	-242.596	-111.947	4.498
	1400.00	105.763	480.443	401.939	-125.094	109.906	-797.715	-241.917	-101.923	3.803
	1500.00	106.202	487.754	407.419	-114.497	120.503	-846.128	-241.249	-91.947	3.202
	1600.00	106.346	494.610	412.656	-103.874	131.126	-895.250	-240.598	-82.015	2.678
	1700.00	106.540	501.063	417.669	-93.229	141.771	-945.037	-239.965	-72.123	2.216
	1800.00	106.704	507.158	422.473	-82.567	152.433	-995.451	-239.347	-62.267	1.807
	1900.00	106.842	512.931	427.083	-71.889	163.111	-1046.458	-238.745	-52.446	1.442
	2000.00	106.961	518.414	431.514	-61.199	173.801	-1098.027	-238.158	-42.656	1.114
	2100.00	107.064	523.635	435.777	-50.498	184.502	-1150.132	-237.588	-32.895	0.818
	2200.00	107.153	528.618	439.885	-39.787	195.213	-1202.747	-237.034	-23.161	0.550
	2300.00	107.231	533.383	443.847	-29.067	205.933	-1255.848	-236.496	-13.452	0.305
	2400.00	107.300	537.948	447.674	-18.341	216.659	-1309.416	-235.974	-3.765	0.082
	2500.00	107.361	542.330	451.373	-7.608	227.392	-1363.432	-235.469	5.900	-0.123
	2600.00	107.415	546.542	454.953	3.131	238.131	-1417.877	-234.980	15.545	-0.312
	2700.00	107.463	550.596	458.420	13.875	248.875	-1472.735	-234.509	25.171	-0.487
	2800.00	107.507	554.505	461.783	24.624	259.624	-1527.991	-234.054	34.781	-0.649
	2900.00	107.546	558.279	465.045	35.376	270.376	-1583.631	-233.617	44.374	-0.799
	3000.00	107.581	561.925	468.214	46.133	281.133	-1639.643	-233.198	53.953	-0.939

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CF2ClBr[g] DIFLUOROCHLOROBROMOMETHANE (GAS) 165.365

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J/(K mol)		]	[kJ/mol				]	[−]
GAS	298.15	74.597	318.719	318.719	−435.000	0.000	−530.026	−435.000	−408.870	71.632
	300.00	74.824	319.181	318.720	−434.862	0.138	−530.616	−435.039	−408.708	71.162
	400.00	84.151	342.102	321.782	−426.872	8.128	−563.713	−450.402	−396.760	51.812
	500.00	90.115	361.562	327.842	−418.140	16.860	−598.921	−450.099	−383.382	40.052
	600.00	94.331	378.385	334.896	−408.907	26.093	−635.938	−449.677	−370.076	32.218
	700.00	97.418	393.170	342.186	−399.311	35.689	−674.531	−449.179	−356.848	26.628
	800.00	99.688	406.335	349.397	−389.450	45.550	−714.518	−448.624	−343.695	22.441
	900.00	101.340	418.177	356.393	−379.394	55.606	−755.754	−448.029	−330.614	19.188
	1000.00	102.526	428.919	363.117	−369.198	65.802	−798.117	−447.416	−317.601	16.590
	1100.00	103.371	438.733	369.551	−358.900	76.100	−841.506	−446.801	−304.649	14.467
	1200.00	103.990	447.755	375.697	−348.531	86.469	−885.837	−446.195	−291.753	12.700
	1300.00	104.491	456.099	381.565	−338.106	96.894	−931.035	−445.602	−278.907	11.207
	1400.00	104.976	463.860	387.169	−327.633	107.367	−977.037	−445.016	−266.106	9.929
	1500.00	105.546	471.121	392.527	−317.108	117.892	−1023.790	−444.426	−253.348	8.822
	1600.00	105.746	477.936	397.654	−306.549	128.451	−1071.247	−443.843	−240.628	7.856
	1700.00	106.006	484.355	402.567	−295.961	139.039	−1119.364	−443.266	−227.945	7.004
	1800.00	106.225	490.420	407.281	−285.349	149.651	−1168.106	−442.698	−215.295	6.248
	1900.00	106.410	496.169	411.809	−274.717	160.283	−1217.438	−442.139	−202.677	5.572
	2000.00	106.570	501.631	416.165	−264.068	170.932	−1267.330	−441.589	−190.088	4.965
	2100.00	106.707	506.834	420.360	−253.404	181.596	−1317.755	−441.052	−177.526	4.416
	2200.00	106.827	511.801	424.404	−242.727	192.273	−1368.689	−440.527	−164.990	3.917
	2300.00	106.932	516.552	428.308	−232.039	202.961	−1420.108	−440.015	−152.477	3.463
	2400.00	107.024	521.105	432.080	−221.341	213.659	−1471.993	−439.516	−139.986	3.047
	2500.00	107.106	525.476	435.729	−210.634	224.366	−1524.323	−439.032	−127.516	2.664
	2600.00	107.179	529.678	439.262	−199.920	235.080	−1577.082	−438.564	−115.064	2.312
	2700.00	107.244	533.724	442.687	−189.199	245.801	−1630.254	−438.111	−102.631	1.986
	2800.00	107.303	537.625	446.008	−178.471	256.529	−1683.822	−437.675	−90.214	1.683
	2900.00	107.355	541.392	449.232	−167.738	267.262	−1737.774	−437.257	−77.812	1.402
	3000.00	107.403	545.032	452.365	−157.000	278.000	−1792.096	−436.857	−65.424	1.139

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

273.271 FLUOROCHLOROBROMOIODOMETHANE (GAS) **CFClBrI**[g]

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J/(K mol)]			[kJ/mol]					[-]
GAS	298.15	83.723	353.556	353.556	-125.000	0.000	-230.413	-125.000	-125.204	21.935
	300.00	83.909	354.074	353.558	-124.845	0.155	-231.067	-125.042	-125.205	21.800
	400.00	91.295	379.330	356.951	-116.048	8.952	-267.780	-148.683	-121.778	15.903
	500.00	95.759	400.217	363.576	-106.680	18.320	-306.788	-170.055	-113.000	11.805
	600.00	98.797	417.960	371.199	-96.943	28.057	-347.719	-169.188	-101.671	8.851
	700.00	100.962	433.361	379.003	-86.949	38.051	-390.302	-168.335	-90.486	6.752
	800.00	102.525	446.951	386.664	-76.771	48.229	-434.331	-167.496	-79.422	5.186
	900.00	103.646	459.095	394.049	-66.459	58.541	-479.645	-166.672	-68.463	3.973
	1000.00	104.440	470.059	401.111	-56.053	68.947	-526.111	-165.872	-57.594	3.008
	1100.00	105.000	480.040	407.840	-45.579	79.421	-573.624	-165.102	-46.803	2.223
	1200.00	105.407	489.195	414.243	-35.058	89.942	-622.092	-164.362	-36.082	1.571
	1300.00	105.736	497.645	420.338	-24.500	100.500	-671.439	-163.653	-25.421	1.021
	1400.00	106.058	505.493	426.143	-13.911	111.089	-721.601	-162.967	-14.813	0.553
	1500.00	106.441	512.823	431.680	-3.287	121.713	-772.520	-162.294	-4.254	0.148
	1600.00	106.567	519.694	436.969	7.360	132.360	-824.150	-161.638	6.260	-0.204
	1700.00	106.736	526.160	442.027	18.026	143.026	-876.446	-160.999	16.734	-0.514
	1800.00	106.879	532.265	446.872	28.707	153.707	-929.370	-160.376	27.171	-0.788
	1900.00	107.000	538.047	451.520	39.401	164.401	-982.888	-159.767	37.574	-1.033
	2000.00	107.104	543.538	455.985	50.106	175.106	-1036.969	-159.174	47.944	-1.252
	2100.00	107.194	548.766	460.279	60.821	185.821	-1091.587	-158.598	58.286	-1.450
	2200.00	107.271	553.754	464.416	71.544	196.544	-1146.714	-158.037	68.601	-1.629
	2300.00	107.340	558.524	468.404	82.275	207.275	-1202.330	-157.491	78.890	-1.792
	2400.00	107.400	563.094	472.255	93.012	218.012	-1258.413	-156.962	89.156	-1.940
	2500.00	107.453	567.479	475.977	103.755	228.755	-1314.943	-156.449	99.401	-2.077
	2600.00	107.500	571.694	479.578	114.502	239.502	-1371.903	-155.952	109.625	-2.202
	2700.00	107.542	575.752	483.065	125.255	250.255	-1429.276	-155.472	119.830	-2.318
	2800.00	107.580	579.664	486.446	136.011	261.011	-1487.048	-155.008	130.018	-2.426
	2900.00	107.614	583.440	489.726	146.770	271.770	-1545.205	-154.562	140.189	-2.525
	3000.00	107.645	587.088	492.911	157.533	282.533	-1603.732	-154.134	150.346	-2.618

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CFCII2[g] FLUOROCHLORODIIODOMETHANE (GAS) 320.271

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J/(K mol)]			[kJ/mol]					[-]
GAS	298.15	84.981	359.089	359.089	-70.000	0.000	-177.062	-70.000	-77.230	13.530
	300.00	85.156	359.615	359.091	-69.843	0.157	-177.727	-70.020	-77.275	13.455
	400.00	92.100	385.163	362.527	-60.946	9.054	-215.011	-87.139	-78.974	10.313
	500.00	96.299	406.198	369.220	-51.511	18.489	-254.610	-130.696	-72.737	7.599
	600.00	99.162	424.024	376.906	-41.729	28.271	-296.144	-129.800	-61.229	5.330
	700.00	101.210	439.472	384.766	-31.705	38.295	-339.336	-128.930	-49.870	3.721
	800.00	102.694	453.089	392.472	-21.506	48.494	-383.977	-128.083	-38.634	2.523
	900.00	103.765	465.250	399.895	-11.180	58.820	-429.905	-127.256	-27.503	1.596
	1000.00	104.530	476.225	406.988	-0.763	69.237	-476.988	-126.457	-16.462	0.860
	1100.00	105.075	486.215	413.743	9.719	79.719	-525.117	-125.689	-5.500	0.261
	1200.00	105.474	495.375	420.169	20.247	90.247	-574.203	-124.954	5.394	-0.235
	1300.00	105.796	503.831	426.284	30.811	100.811	-624.169	-124.249	16.227	-0.652
	1400.00	106.107	511.682	432.107	41.406	111.406	-674.949	-123.569	27.007	-1.008
	1500.00	106.469	519.015	437.659	52.034	122.034	-726.488	-122.903	37.739	-1.314
	1600.00	106.598	525.888	442.961	62.684	132.684	-778.737	-122.256	48.428	-1.581
	1700.00	106.764	532.356	448.031	73.352	143.352	-831.652	-121.626	59.076	-1.815
	1800.00	106.903	538.462	452.887	84.036	154.036	-885.196	-121.012	69.688	-2.022
	1900.00	107.021	544.245	457.544	94.732	164.732	-939.334	-120.415	80.266	-2.207
	2000.00	107.123	549.738	462.018	105.440	175.440	-994.035	-119.833	90.813	-2.372
	2100.00	107.210	554.966	466.320	116.156	186.156	-1049.273	-119.269	101.331	-2.520
	2200.00	107.287	559.955	470.464	126.881	196.881	-1105.021	-118.720	111.823	-2.655
	2300.00	107.353	564.726	474.459	137.613	207.613	-1161.257	-118.188	122.290	-2.777
	2400.00	107.412	569.296	478.316	148.352	218.352	-1217.959	-117.673	132.735	-2.889
	2500.00	107.464	573.682	482.044	159.096	229.096	-1275.110	-117.174	143.158	-2.991
	2600.00	107.511	577.898	485.650	169.844	239.844	-1332.690	-116.692	153.562	-3.085
	2700.00	107.552	581.956	489.142	180.598	250.598	-1390.684	-116.228	163.947	-3.172
	2800.00	107.589	585.868	492.527	191.355	261.355	-1449.076	-115.781	174.316	-3.252
	2900.00	107.623	589.644	495.811	202.115	272.115	-1507.853	-115.351	184.669	-3.326
	3000.00	107.653	593.293	499.000	212.879	282.879	-1567.001	-114.940	195.008	-3.395

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

228.820 FLUORODICHLOROIODOMETHANE (GAS) **CFCl2I[g]**

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J/(K mol)]			[kJ/mol]					[−]
GAS	298.15	81.638	341.560	341.560	−180.000	0.000	−281.836	−180.000	−166.057	29.092
	300.00	81.840	342.066	341.562	−179.849	0.151	−282.468	−180.007	−165.970	28.898
	400.00	89.849	366.820	344.882	−171.225	8.775	−317.953	−188.313	−160.966	21.020
	500.00	94.695	387.427	351.389	−161.981	18.019	−355.695	−209.750	−152.069	15.887
	600.00	97.994	405.002	358.896	−152.337	27.663	−395.338	−208.933	−140.610	12.241
	700.00	100.348	420.294	366.599	−142.413	37.587	−436.619	−208.121	−129.287	9.648
	800.00	102.046	433.811	374.172	−132.289	47.711	−479.337	−207.315	−118.080	7.710
	900.00	103.264	445.904	381.482	−122.020	57.980	−523.334	−206.518	−106.974	6.209
	1000.00	104.126	456.831	388.480	−111.648	68.352	−568.480	−205.741	−95.955	5.012
	1100.00	104.734	466.786	395.153	−101.203	78.797	−614.668	−204.989	−85.013	4.037
	1200.00	105.177	475.919	401.508	−90.707	89.293	−661.809	−204.267	−74.139	3.227
	1300.00	105.534	484.352	407.560	−80.171	99.829	−709.828	−203.573	−63.323	2.544
	1400.00	105.883	492.185	413.328	−69.600	110.400	−758.660	−202.901	−52.560	1.961
	1500.00	106.300	499.504	418.832	−58.992	121.008	−808.248	−202.239	−41.844	1.457
	1600.00	106.436	506.366	424.091	−48.359	131.641	−858.545	−201.594	−31.172	1.018
	1700.00	106.620	512.825	429.122	−37.706	142.294	−909.508	−200.965	−20.540	0.631
	1800.00	106.775	518.924	433.944	−27.036	152.964	−961.098	−200.351	−9.945	0.289
	1900.00	106.907	524.700	438.570	−16.352	163.648	−1013.282	−199.752	0.617	−0.017
	2000.00	107.019	530.187	443.014	−5.655	174.345	−1066.029	−199.169	11.148	−0.291
	2100.00	107.117	535.411	447.291	5.052	185.052	−1119.311	−198.603	21.649	−0.538
	2200.00	107.201	540.396	451.410	15.768	195.768	−1173.103	−198.053	32.125	−0.763
	2300.00	107.275	545.163	455.384	26.492	206.492	−1227.383	−197.520	42.575	−0.967
	2400.00	107.341	549.730	459.220	37.223	217.223	−1282.129	−197.003	53.003	−1.154
	2500.00	107.398	554.113	462.929	47.960	227.960	−1337.322	−196.505	63.410	−1.325
	2600.00	107.450	558.326	466.518	58.702	238.702	−1392.946	−196.024	73.797	−1.483
	2700.00	107.496	562.382	469.993	69.449	249.449	−1448.982	−195.562	84.166	−1.628
	2800.00	107.537	566.292	473.363	80.201	260.201	−1505.417	−195.119	94.518	−1.763
	2900.00	107.574	570.067	476.633	90.957	270.957	−1562.236	−194.696	104.854	−1.889
	3000.00	107.607	573.714	479.809	101.716	281.716	−1619.426	−194.292	115.177	−2.005

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CF2ClI[g] DIFLUOROCHLOROIODOMETHANE (GAS) 212.365

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[-]
GAS	298.15	76.537	329.099	329.099	-380.000	0.000	-478.121	-380.000	-365.371	64.011
	300.00	76.749	329.573	329.100	-379.858	0.142	-478.730	-380.014	-365.280	63.601
	400.00	85.459	352.954	332.229	-371.710	8.290	-512.892	-388.669	-359.989	47.010
	500.00	91.058	372.664	338.398	-362.867	17.133	-549.199	-410.402	-350.724	36.640
	600.00	95.032	389.636	345.556	-353.552	26.448	-587.334	-409.834	-338.841	29.499
	700.00	97.947	404.516	352.938	-343.895	36.105	-627.057	-409.226	-327.057	24.405
	800.00	100.096	417.742	360.227	-333.988	46.012	-668.182	-408.587	-315.362	20.591
	900.00	101.662	429.627	367.289	-323.896	56.104	-710.560	-407.928	-303.748	17.629
	1000.00	102.788	440.400	374.070	-313.670	66.330	-754.070	-407.266	-292.208	15.263
	1100.00	103.592	450.237	380.554	-303.349	76.651	-798.609	-406.615	-280.734	13.331
	1200.00	104.182	459.277	386.743	-292.959	87.041	-844.091	-405.981	-269.318	11.723
	1300.00	104.659	467.635	392.648	-282.516	97.484	-890.442	-405.367	-257.955	10.365
	1400.00	105.120	475.408	398.285	-272.027	107.973	-937.599	-404.768	-246.638	9.202
	1500.00	105.662	482.678	403.671	-261.489	118.511	-985.507	-404.170	-235.364	8.196
	1600.00	105.854	489.500	408.825	-250.918	129.082	-1034.119	-403.584	-224.129	7.317
	1700.00	106.101	495.925	413.761	-240.320	139.680	-1083.394	-403.010	-212.931	6.543
	1800.00	106.310	501.996	418.496	-229.699	150.301	-1133.293	-402.446	-201.766	5.855
	1900.00	106.487	507.749	423.043	-219.059	160.941	-1183.782	-401.894	-190.632	5.241
	2000.00	106.639	513.215	427.416	-208.403	171.597	-1234.833	-401.355	-179.527	4.689
	2100.00	106.770	518.421	431.627	-197.732	182.268	-1286.417	-400.829	-168.449	4.190
	2200.00	106.884	523.391	435.686	-187.050	192.950	-1338.509	-400.318	-157.395	3.737
	2300.00	106.984	528.144	439.603	-176.356	203.644	-1391.088	-399.820	-146.364	3.324
	2400.00	107.072	532.699	443.388	-165.653	214.347	-1444.131	-399.337	-135.355	2.946
	2500.00	107.151	537.072	447.049	-154.942	225.058	-1497.621	-398.870	-124.365	2.598
	2600.00	107.220	541.276	450.592	-144.223	235.777	-1551.540	-398.417	-113.394	2.278
	2700.00	107.282	545.323	454.026	-133.498	246.502	-1605.871	-397.981	-102.440	1.982
	2800.00	107.338	549.226	457.357	-122.767	257.233	-1660.600	-397.561	-91.502	1.707
	2900.00	107.388	552.994	460.590	-112.031	267.969	-1715.712	-397.158	-80.578	1.451
	3000.00	107.434	556.635	463.731	-101.290	278.710	-1771.194	-396.772	-69.668	1.213

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

411.723 FLUOROTRIIODOMETHANE (GAS) **CFI3**[g]

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J/(K mol)]			[kJ/mol]					[−]
GAS	298.15	88.287	373.196	373.196	45.000	0.000	−66.268	45.000	17.616	−3.086
	300.00	88.442	373.743	373.198	45.163	0.163	−66.959	44.968	17.447	−3.038
	400.00	94.552	400.110	376.751	54.344	9.344	−105.701	19.046	9.386	−1.226
	500.00	98.213	421.632	383.642	63.995	18.995	−146.821	−46.606	13.301	−1.390
	600.00	100.687	439.770	391.524	73.947	28.947	−189.915	−45.597	25.187	−2.193
	700.00	102.441	455.430	399.561	84.109	39.109	−234.693	−44.633	36.907	−2.754
	800.00	103.700	469.196	407.422	94.419	49.419	−280.938	−43.708	48.492	−3.166
	900.00	104.597	481.465	414.980	104.837	59.837	−328.482	−42.817	59.963	−3.480
	1000.00	105.229	492.520	422.190	115.330	70.330	−377.190	−41.965	71.337	−3.726
	1100.00	105.672	502.572	429.048	125.876	80.876	−426.953	−41.153	82.628	−3.924
	1200.00	105.991	511.781	435.564	136.460	91.460	−477.677	−40.381	93.846	−4.085
	1300.00	106.249	520.275	441.758	147.072	102.072	−529.285	−39.645	105.002	−4.219
	1400.00	106.503	528.158	447.651	157.710	112.710	−581.711	−38.939	116.102	−4.332
	1500.00	106.809	535.516	453.266	168.375	123.375	−634.899	−38.252	127.152	−4.428
	1600.00	106.904	542.410	458.624	179.057	134.057	−688.799	−37.587	138.157	−4.510
	1700.00	107.037	548.895	463.746	189.755	144.755	−743.367	−36.943	149.121	−4.582
	1800.00	107.148	555.017	468.648	200.464	155.464	−798.566	−36.317	160.048	−4.644
	1900.00	107.243	560.812	473.347	211.184	166.184	−854.360	−35.710	170.941	−4.699
	2000.00	107.324	566.315	477.859	221.912	176.912	−910.719	−35.119	181.802	−4.748
	2100.00	107.394	571.553	482.197	232.648	187.648	−967.614	−34.547	192.634	−4.792
	2200.00	107.454	576.551	486.373	243.390	198.390	−1025.021	−33.992	203.439	−4.830
	2300.00	107.507	581.329	490.399	254.139	209.139	−1082.917	−33.454	214.219	−4.865
	2400.00	107.554	585.905	494.283	264.892	219.892	−1141.280	−32.932	224.976	−4.896
	2500.00	107.595	590.296	498.037	275.649	230.649	−1200.092	−32.426	235.712	−4.925
	2600.00	107.632	594.517	501.667	286.411	241.411	−1259.334	−31.937	246.428	−4.951
	2700.00	107.665	598.580	505.181	297.176	252.176	−1318.990	−31.464	257.125	−4.974
	2800.00	107.694	602.496	508.587	307.944	262.944	−1379.045	−31.007	267.805	−4.996
	2900.00	107.721	606.276	511.891	318.714	273.714	−1439.485	−30.566	278.469	−5.016
	3000.00	107.745	609.928	515.099	329.488	284.488	−1500.296	−30.142	289.118	−5.034

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CF2I2[g] DIFLUORODIIODOMETHANE (GAS) 303.817

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	80.429	346.507	346.507	−260.000	0.000	−363.311	−260.000	−266.508	46.691
	300.00	80.616	347.005	346.509	−259.851	0.149	−363.953	−260.026	−266.549	46.410
	400.00	88.310	371.347	349.775	−251.371	8.629	−399.910	−277.435	−267.958	34.992
	500.00	93.242	391.617	356.174	−242.278	17.722	−438.087	−321.230	−261.364	27.305
	600.00	96.734	408.943	363.560	−232.770	27.230	−478.136	−320.526	−249.457	21.717
	700.00	99.291	424.057	371.146	−222.962	37.038	−519.802	−319.810	−237.668	17.735
	800.00	101.170	437.444	378.612	−212.934	47.066	−562.890	−319.084	−225.983	14.755
	900.00	102.535	449.443	385.827	−202.745	57.255	−607.245	−318.356	−214.390	12.443
	1000.00	103.513	460.300	392.740	−192.440	67.560	−652.740	−317.638	−202.876	10.597
	1100.00	104.208	470.200	399.339	−182.052	77.948	−699.273	−316.940	−191.434	9.090
	1200.00	104.716	479.291	405.628	−171.605	88.395	−746.754	−316.267	−180.055	7.838
	1300.00	105.127	487.689	411.621	−161.112	98.888	−795.108	−315.621	−168.730	6.780
	1400.00	105.527	495.494	417.337	−150.580	109.420	−844.272	−314.994	−157.454	5.875
	1500.00	106.001	502.790	422.793	−140.004	119.996	−894.190	−314.375	−146.223	5.092
	1600.00	106.163	509.634	428.009	−129.400	130.600	−944.814	−313.771	−135.033	4.408
	1700.00	106.377	516.077	433.002	−118.773	141.227	−996.103	−313.181	−123.880	3.806
	1800.00	106.557	522.162	437.788	−108.126	151.874	−1048.018	−312.605	−112.761	3.272
	1900.00	106.710	527.928	442.382	−97.463	162.537	−1100.525	−312.043	−101.674	2.795
	2000.00	106.840	533.404	446.797	−86.785	173.215	−1153.594	−311.495	−90.616	2.367
	2100.00	106.954	538.620	451.046	−76.095	183.905	−1207.197	−310.962	−79.585	1.980
	2200.00	107.052	543.598	455.141	−65.395	194.605	−1261.310	−310.444	−68.579	1.628
	2300.00	107.138	548.358	459.091	−54.685	205.315	−1315.909	−309.940	−57.597	1.308
	2400.00	107.214	552.920	462.906	−43.967	216.033	−1370.975	−309.450	−46.636	1.015
	2500.00	107.282	557.298	466.595	−33.243	226.757	−1426.487	−308.976	−35.695	0.746
	2600.00	107.341	561.507	470.165	−22.511	237.489	−1482.429	−308.516	−24.773	0.498
	2700.00	107.395	565.559	473.623	−11.774	248.226	−1538.783	−308.071	−13.869	0.268
	2800.00	107.443	569.465	476.977	−1.033	258.967	−1595.536	−307.642	−2.980	0.056
	2900.00	107.486	573.237	480.232	9.714	269.714	−1652.672	−307.228	7.893	−0.142
	3000.00	107.525	576.881	483.393	20.465	280.465	−1710.179	−306.829	18.753	−0.327

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

195.911 TRIFLUOROIODOMETHANE (GAS) **CF3I[g]**

Phase	T	C_P	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J/(K mol)]			[kJ/mol]					[–]
GAS	298.15	70.936	307.778	307.778	–589.200	0.000	–680.964	–589.200	–571.244	100.080
	300.00	71.161	308.217	307.779	–589.069	0.131	–681.534	–589.222	–571.132	99.443
	400.00	80.697	330.101	310.698	–581.439	7.761	–713.479	–598.269	–564.662	73.737
	500.00	87.139	348.840	316.498	–573.029	16.171	–747.449	–620.332	–554.125	57.889
	600.00	91.852	365.165	323.278	–564.068	25.132	–783.167	–620.036	–540.910	47.090
	700.00	95.380	379.602	330.313	–554.698	34.502	–820.419	–619.651	–527.752	39.381
	800.00	98.016	392.519	337.296	–545.022	44.178	–859.037	–619.194	–514.654	33.603
	900.00	99.958	404.182	344.090	–535.118	54.082	–898.881	–618.684	–501.617	29.113
	1000.00	101.366	414.790	350.638	–525.048	64.152	–939.838	–618.148	–488.638	25.524
	1100.00	102.379	424.501	356.918	–514.858	74.342	–981.810	–617.604	–475.713	22.590
	1200.00	103.125	433.443	362.927	–504.581	84.619	–1024.713	–617.066	–462.838	20.147
	1300.00	103.729	441.722	368.674	–494.238	94.962	–1068.476	–616.538	–450.007	18.082
	1400.00	104.310	449.430	374.170	–483.836	105.364	–1113.038	–616.016	–437.217	16.313
	1500.00	104.987	456.649	379.430	–473.373	115.827	–1158.346	–615.487	–424.464	14.781
	1600.00	105.237	463.429	384.471	–462.867	126.333	–1204.353	–614.964	–411.746	13.442
	1700.00	105.551	469.818	389.305	–452.327	136.873	–1251.018	–614.446	–399.060	12.262
	1800.00	105.816	475.859	393.947	–441.759	147.441	–1298.305	–613.936	–386.405	11.213
	1900.00	106.042	481.587	398.410	–431.165	158.035	–1346.180	–613.434	–373.779	10.276
	2000.00	106.235	487.031	402.706	–420.551	168.649	–1394.613	–612.940	–361.178	9.433
	2100.00	106.402	492.218	406.846	–409.919	179.281	–1443.577	–612.458	–348.602	8.671
	2200.00	106.548	497.172	410.840	–399.272	189.928	–1493.049	–611.987	–336.048	7.979
	2300.00	106.676	501.911	414.698	–388.610	200.590	–1543.005	–611.527	–323.516	7.347
	2400.00	106.788	506.453	418.427	–377.937	211.263	–1593.424	–611.079	–311.003	6.769
	2500.00	106.888	510.815	422.036	–367.253	221.947	–1644.289	–610.644	–298.509	6.237
	2600.00	106.977	515.009	425.531	–356.560	232.640	–1695.582	–610.221	–286.032	5.746
	2700.00	107.056	519.047	428.921	–345.858	243.342	–1747.286	–609.812	–273.571	5.293
	2800.00	107.128	522.942	432.209	–335.149	254.051	–1799.386	–609.417	–261.125	4.871
	2900.00	107.192	526.702	435.403	–324.433	264.767	–1851.870	–609.035	–248.693	4.479
	3000.00	107.250	530.337	438.508	–313.710	275.490	–1904.723	–608.668	–236.274	4.114

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CH[g] METHYLIDYNE (GAS) 13.019

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	29.188	183.034	183.034	594.128	0.000	539.556	594.128	560.749	−98.241
	300.00	29.185	183.214	183.034	594.182	0.054	539.218	594.139	560.542	−97.599
	400.00	29.180	191.604	184.178	597.098	2.970	520.457	594.566	549.269	−71.727
	500.00	29.385	198.134	186.340	600.025	5.897	500.958	594.700	537.924	−56.197
	600.00	29.772	203.523	188.768	602.981	8.853	480.867	594.612	526.574	−45.842
	700.00	30.311	208.151	191.214	605.984	11.856	460.278	594.368	515.252	−38.449
	800.00	30.972	212.241	193.591	609.048	14.920	439.255	594.031	503.972	−32.906
	900.00	31.726	215.932	195.872	612.182	18.054	417.844	593.645	492.737	−28.598
	1000.00	32.542	219.316	198.049	615.395	21.267	396.079	593.237	481.547	−25.153
	1100.00	33.392	222.457	200.127	618.691	24.563	373.988	592.825	470.398	−22.337
	1200.00	34.245	225.399	202.112	622.073	27.945	351.594	592.422	459.286	−19.992
	1300.00	35.072	228.173	204.011	625.540	31.412	328.914	592.036	448.207	−18.009
	1400.00	35.844	230.801	205.831	629.086	34.958	305.964	591.671	437.157	−16.311
	1500.00	36.530	233.298	207.580	632.705	38.577	282.758	591.327	426.133	−14.839
	1600.00	37.220	235.678	209.262	636.394	42.266	259.309	591.006	415.130	−13.553
	1700.00	37.824	237.953	210.883	640.147	46.019	235.626	590.708	404.147	−12.418
	1800.00	38.357	240.131	212.448	643.956	49.828	211.721	590.430	393.181	−11.410
	1900.00	38.828	242.217	213.960	647.816	53.688	187.603	590.169	382.230	−10.508
	2000.00	39.246	244.220	215.424	651.720	57.592	163.281	589.921	371.292	−9.697
	2100.00	39.618	246.144	216.841	655.664	61.536	138.762	589.683	360.367	−8.964
	2200.00	39.947	247.994	218.215	659.642	65.514	114.054	589.452	349.452	−8.297
	2300.00	40.237	249.777	219.549	663.652	69.524	89.165	589.227	338.548	−7.689
	2400.00	40.492	251.495	220.845	667.688	73.560	64.101	589.005	327.654	−7.131
	2500.00	40.714	253.152	222.104	671.749	77.621	38.868	588.785	316.769	−6.619
	2600.00	40.904	254.753	223.329	675.830	81.702	13.472	588.564	305.893	−6.145
	2700.00	41.065	256.300	224.522	679.929	85.801	−12.081	588.340	295.025	−5.708
	2800.00	41.198	257.796	225.683	684.042	89.914	−37.786	588.111	284.166	−5.301
	2900.00	41.303	259.243	226.816	688.167	94.039	−63.638	587.875	273.315	−4.923
	3000.00	41.382	260.645	227.920	692.302	98.174	−89.633	587.629	262.472	−4.570

References

Phase	H / S	C_p
GAS	Ja1	Ja1

14.027 METHYLENE (GAS) **CH2**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	34.598	193.912	193.912	386.392	0.000	328.577	386.392	369.251	−64.691
	300.00	34.625	194.126	193.913	386.456	0.064	328.218	386.387	369.144	−64.274
	400.00	36.107	204.289	195.289	389.992	3.600	308.277	385.980	363.452	−47.462
	500.00	37.644	212.510	197.936	393.679	7.287	287.424	385.413	357.884	−37.388
	600.00	39.221	219.512	200.962	397.522	11.130	265.815	384.747	352.439	−30.683
	700.00	40.819	225.678	204.061	401.524	15.132	243.550	384.033	347.110	−25.902
	800.00	42.423	231.233	207.116	405.686	19.294	220.700	383.318	341.885	−22.323
	900.00	44.015	236.322	210.082	410.008	23.616	197.318	382.633	336.747	−19.544
	1000.00	45.579	241.041	212.945	414.488	28.096	173.447	381.990	331.684	−17.325
	1100.00	46.966	245.451	215.701	419.116	32.724	149.120	381.390	326.682	−15.513
	1200.00	48.242	249.593	218.355	423.878	37.486	124.366	380.828	321.734	−14.005
	1300.00	49.382	253.500	220.909	428.760	42.368	99.210	380.298	316.831	−12.730
	1400.00	50.386	257.197	223.371	433.750	47.358	73.673	379.794	311.968	−11.640
	1500.00	51.269	260.704	225.744	438.833	52.441	47.777	379.310	307.140	−10.696
	1600.00	52.043	264.038	228.034	444.000	57.608	21.538	378.841	302.345	−9.871
	1700.00	52.725	267.214	230.246	449.239	62.847	−5.026	378.383	297.578	−9.143
	1800.00	53.326	270.245	232.384	454.542	68.150	−31.900	377.932	292.837	−8.498
	1900.00	53.859	273.143	234.454	459.902	73.510	−59.071	377.484	288.122	−7.921
	2000.00	54.334	275.918	236.458	465.312	78.920	−86.525	377.037	283.430	−7.402
	2100.00	54.759	278.580	238.401	470.767	84.375	−114.250	376.588	278.761	−6.934
	2200.00	55.140	281.136	240.286	476.262	89.870	−142.237	376.134	274.113	−6.508
	2300.00	55.484	283.595	242.116	481.794	95.402	−170.474	375.676	269.486	−6.120
	2400.00	55.795	285.963	243.894	487.358	100.966	−198.953	375.211	264.879	−5.765
	2500.00	56.078	288.246	245.622	492.952	106.560	−227.664	374.739	260.292	−5.438
	2600.00	56.337	290.451	247.304	498.573	112.181	−256.600	374.258	255.723	−5.138
	2700.00	56.575	292.582	248.942	504.218	117.826	−285.752	373.769	251.173	−4.859
	2800.00	56.793	294.643	250.538	509.887	123.495	−315.114	373.271	246.642	−4.601
	2900.00	56.995	296.640	252.093	515.576	129.184	−344.678	372.762	242.128	−4.361
	3000.00	57.182	298.575	253.610	521.285	134.893	−374.439	372.243	237.633	−4.138

References

Phase	H / S	C_p
GAS	Ja1	Ja1

CH3[g] METHYL (GAS) 15.035

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	38.704	194.163	194.163	145.687	0.000	87.797	145.687	147.952	−25.921
	300.00	38.766	194.403	194.164	145.759	0.072	87.438	145.663	147.966	−25.763
	400.00	42.074	206.011	195.725	149.802	4.115	67.397	144.310	148.937	−19.449
	500.00	45.256	215.744	198.780	154.169	8.482	46.297	142.962	150.250	−15.697
	600.00	48.302	224.267	202.331	158.848	13.161	24.288	141.668	151.830	−13.218
	700.00	51.203	231.932	206.021	163.825	18.138	1.472	140.459	153.621	−11.463
	800.00	53.951	238.951	209.704	169.084	23.397	−22.077	139.365	155.577	−10.158
	900.00	56.537	245.456	213.320	174.610	28.923	−46.301	138.396	157.663	−9.151
	1000.00	58.953	251.539	216.841	180.386	34.699	−71.154	137.547	159.851	−8.350
	1100.00	61.188	257.264	220.258	186.394	40.707	−96.597	136.809	162.118	−7.698
	1200.00	63.234	262.678	223.569	192.617	46.930	−122.596	136.169	164.447	−7.158
	1300.00	65.083	267.813	226.777	199.034	53.347	−149.123	135.613	166.827	−6.703
	1400.00	66.725	272.698	229.884	205.627	59.940	−176.151	135.130	169.247	−6.315
	1500.00	68.152	277.351	232.895	212.372	66.685	−203.655	134.704	171.699	−5.979
	1600.00	69.455	281.792	235.813	219.254	73.567	−231.614	134.325	174.177	−5.686
	1700.00	70.621	286.039	238.643	226.259	80.572	−260.007	133.986	176.679	−5.429
	1800.00	71.662	290.105	241.390	233.374	87.687	−288.815	133.680	179.199	−5.200
	1900.00	72.590	294.005	244.058	240.587	94.900	−318.022	133.400	181.736	−4.996
	2000.00	73.419	297.750	246.649	247.889	102.202	−347.611	133.139	184.287	−4.813
	2100.00	74.161	301.350	249.169	255.268	109.581	−377.567	132.891	186.850	−4.648
	2200.00	74.827	304.816	251.620	262.718	117.031	−407.877	132.653	189.425	−4.498
	2300.00	75.426	308.156	254.006	270.231	124.544	−438.526	132.420	192.011	−4.361
	2400.00	75.965	311.377	256.330	277.801	132.114	−469.504	132.191	194.607	−4.236
	2500.00	76.453	314.488	258.594	285.423	139.736	−500.798	131.961	197.212	−4.121
	2600.00	76.896	317.496	260.802	293.091	147.404	−532.398	131.728	199.827	−4.015
	2700.00	77.298	320.405	262.956	300.801	155.114	−564.294	131.492	202.451	−3.917
	2800.00	77.664	323.223	265.058	308.549	162.862	−596.476	131.248	205.083	−3.826
	2900.00	77.999	325.955	267.111	316.332	170.645	−628.936	130.997	207.724	−3.742
	3000.00	78.305	328.604	269.117	324.148	178.461	−661.665	130.735	210.375	−3.663

References

Phase	H / S	C_p
GAS	Ja1,Nb1	Ja1

16.043 METHANE (GAS) **CH4**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	35.645	186.214	186.214	−74.873	0.000	−130.393	−74.873	−50.757	8.892
	300.00	35.707	186.434	186.214	−74.807	0.066	−130.737	−74.930	−50.607	8.811
	400.00	40.489	197.310	187.665	−71.015	3.858	−149.939	−77.986	−42.036	5.489
	500.00	46.349	206.968	190.574	−66.676	8.197	−170.160	−80.824	−32.714	3.418
	600.00	52.232	215.942	194.062	−61.745	13.128	−191.310	−83.331	−22.851	1.989
	700.00	57.798	224.417	197.798	−56.240	18.633	−213.332	−85.480	−12.596	0.940
	800.00	62.929	232.475	201.633	−50.200	24.673	−236.180	−87.270	−2.057	0.134
	900.00	67.591	240.160	205.491	−43.670	31.203	−259.814	−88.722	8.685	−0.504
	1000.00	71.782	247.503	209.327	−36.698	38.175	−284.200	−89.876	19.572	−1.022
	1100.00	75.523	254.523	213.119	−29.329	45.544	−309.304	−90.773	30.562	−1.451
	1200.00	78.839	261.240	216.852	−21.607	53.266	−335.095	−91.454	41.624	−1.812
	1300.00	81.764	267.668	220.515	−13.574	61.299	−361.543	−91.954	52.736	−2.119
	1400.00	84.333	273.824	224.105	−5.266	69.607	−388.619	−92.304	63.880	−2.383
	1500.00	86.583	279.721	227.617	3.282	78.155	−416.299	−92.531	75.044	−2.613
	1600.00	88.553	285.373	231.052	12.041	86.914	−444.555	−92.659	86.221	−2.815
	1700.00	90.281	290.794	234.407	20.985	95.858	−473.366	−92.706	97.402	−2.993
	1800.00	91.808	295.999	237.686	30.091	104.964	−502.707	−92.688	108.585	−3.151
	1900.00	93.174	301.000	240.887	39.341	114.214	−532.559	−92.617	119.765	−3.293
	2000.00	94.420	305.811	244.014	48.721	123.594	−562.901	−92.504	130.940	−3.420

References

Phase	H / S	C_p
GAS	Ja1	Ja1

C2H[g] DICARBON HYDRIDE (GAS) 25.030

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[-]
GAS	298.15	39.641	209.734	209.734	568.522	0.000	505.990	568.522	528.894	-92.660
	300.00	39.707	209.979	209.735	568.595	0.073	505.602	568.537	528.648	-92.046
	400.00	42.400	221.803	211.329	572.712	4.190	483.991	569.127	515.252	-67.285
	500.00	44.328	231.478	214.420	577.051	8.529	461.312	569.342	501.751	-52.418
	600.00	46.048	239.714	217.966	581.571	13.049	437.743	569.237	488.237	-42.505
	700.00	47.724	246.938	221.599	586.260	17.738	413.403	568.900	474.762	-35.427
	800.00	49.405	253.421	225.178	591.116	22.594	388.380	568.432	461.344	-30.123
	900.00	51.093	259.337	228.649	596.141	27.619	362.738	567.905	447.989	-26.001
	1000.00	52.773	264.807	231.995	601.334	32.812	336.527	567.358	434.695	-22.706
	1100.00	54.419	269.915	235.213	606.694	38.172	309.788	566.820	421.455	-20.013
	1200.00	56.002	274.718	238.307	612.216	43.694	282.554	566.312	408.262	-17.771
	1300.00	57.488	279.260	241.284	617.891	49.369	254.853	565.843	395.111	-15.876
	1400.00	58.844	283.571	244.152	623.709	55.187	226.710	565.421	381.994	-14.252
	1500.00	60.034	287.673	246.917	629.655	61.133	198.146	565.044	368.905	-12.846
	1600.00	61.107	291.578	249.588	635.707	67.185	169.182	564.702	355.841	-11.617
	1700.00	62.069	295.313	252.168	641.867	73.345	139.836	564.408	342.796	-10.533
	1800.00	62.832	298.883	254.665	648.114	79.592	110.125	564.147	329.768	-9.570
	1900.00	63.437	302.297	257.083	654.429	85.907	80.065	563.906	316.753	-8.708
	2000.00	63.916	305.563	259.426	660.797	92.275	49.670	563.675	303.751	-7.933
	2100.00	64.295	308.691	261.698	667.208	98.686	18.957	563.445	290.761	-7.232
	2200.00	64.591	311.689	263.902	673.653	105.131	-12.063	563.211	277.781	-6.595
	2300.00	64.820	314.566	266.043	680.124	111.602	-43.377	562.968	264.812	-6.014
	2400.00	64.993	317.328	268.123	686.615	118.093	-74.973	562.713	251.854	-5.481
	2500.00	65.121	319.984	270.145	693.122	124.600	-106.839	562.443	238.908	-4.992
	2600.00	65.212	322.540	272.111	699.639	131.117	-138.966	562.154	225.972	-4.540
	2700.00	65.270	325.003	274.025	706.163	137.641	-171.344	561.845	213.048	-4.122
	2800.00	65.303	327.377	275.888	712.692	144.170	-203.964	561.513	200.135	-3.734
	2900.00	65.313	329.669	277.703	719.223	150.701	-236.817	561.159	187.235	-3.372
	3000.00	65.306	331.883	279.472	725.754	157.232	-269.895	560.779	174.347	-3.036

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

26.038 ACETYLENE (GAS) **C2H2**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	44.059	200.958	200.958	226.731	0.000	166.815	226.731	209.201	−36.651
	300.00	44.214	201.231	200.959	226.813	0.082	166.443	226.728	209.092	−36.406
	400.00	50.587	214.902	202.780	231.580	4.849	145.619	226.515	203.244	−26.541
	500.00	54.873	226.674	206.409	236.863	10.132	123.526	226.213	197.458	−20.628
	600.00	58.261	236.987	210.664	242.525	15.794	100.333	225.786	191.745	−16.693
	700.00	61.159	246.191	215.093	248.499	21.768	76.166	225.266	186.112	−13.888
	800.00	63.737	254.529	219.509	254.746	28.015	51.123	224.712	180.557	−11.789
	900.00	66.076	262.173	223.831	261.239	34.508	25.283	224.165	175.070	−10.161
	1000.00	68.218	269.247	228.023	267.955	41.224	−1.292	223.639	169.644	−8.861
	1100.00	70.189	275.843	232.074	274.877	48.146	−28.550	223.143	164.269	−7.800
	1200.00	72.002	282.029	235.982	281.988	55.257	−56.447	222.685	158.937	−6.918
	1300.00	73.667	287.859	239.750	289.272	62.541	−84.944	222.265	153.642	−6.173
	1400.00	75.190	293.375	243.385	296.716	69.985	−114.008	221.887	148.377	−5.536
	1500.00	76.575	298.610	246.894	304.306	77.575	−143.610	221.549	143.139	−4.985
	1600.00	77.824	303.593	250.283	312.027	85.296	−173.722	221.251	137.921	−4.503
	1700.00	78.941	308.345	253.560	319.866	93.135	−204.321	220.989	132.721	−4.078
	1800.00	79.926	312.886	256.731	327.810	101.079	−235.384	220.759	127.536	−3.701
	1900.00	80.780	317.231	259.801	335.847	109.116	−266.891	220.554	122.363	−3.364
	2000.00	81.505	321.393	262.778	343.962	117.231	−298.824	220.365	117.200	−3.061

References

Phase	H / S	C_p
GAS	Ja1	Ja1

C2H3[g] DICARBON TRIHYDRIDE (GAS) 27.046

Phase	T [K]	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol		]	[-]
GAS	298.15	39.468	232.839	232.839	260.000	0.000	190.579	260.000	252.445	-44.227
	300.00	39.606	233.084	232.840	260.073	0.073	190.148	259.961	252.399	-43.947
	400.00	47.012	245.499	234.483	264.407	4.407	166.207	257.862	250.195	-32.672
	500.00	53.893	256.741	237.826	269.457	9.457	141.087	255.867	248.512	-25.962
	600.00	60.062	267.123	241.854	275.161	15.161	114.887	254.016	247.218	-21.522
	700.00	65.505	276.800	246.163	281.446	21.446	87.686	252.338	246.220	-18.373
	800.00	70.266	285.865	250.565	288.240	28.240	59.548	250.854	245.449	-16.026
	900.00	74.404	294.386	254.966	295.478	35.478	30.531	249.565	244.853	-14.211
	1000.00	77.991	302.415	259.313	303.102	43.102	0.687	248.445	244.391	-12.766
	1100.00	81.102	309.998	263.579	311.060	51.060	-29.937	247.468	244.034	-11.588
	1200.00	83.812	317.173	267.749	319.309	59.309	-61.299	246.608	243.761	-10.611
	1300.00	86.199	323.978	271.815	327.812	67.812	-93.360	245.846	243.555	-9.786
	1400.00	88.343	330.446	275.774	336.541	76.541	-126.083	245.170	243.405	-9.082
	1500.00	90.323	336.609	279.626	345.475	85.475	-159.439	244.574	243.300	-8.472
	1600.00	91.906	342.486	283.372	354.581	94.581	-193.395	244.035	243.233	-7.941
	1700.00	93.386	348.103	287.016	363.848	103.848	-227.927	243.554	243.198	-7.473
	1800.00	94.665	353.478	290.560	373.252	113.252	-263.008	243.116	243.189	-7.057
	1900.00	95.783	358.627	294.008	382.776	122.776	-298.615	242.712	243.205	-6.686
	2000.00	96.767	363.565	297.363	392.404	132.404	-334.726	242.331	243.240	-6.353
	2100.00	97.641	368.308	300.629	402.125	142.125	-371.322	241.965	243.295	-6.052
	2200.00	98.420	372.869	303.810	411.929	151.929	-408.382	241.611	243.367	-5.778
	2300.00	99.120	377.259	306.909	421.807	161.807	-445.890	241.264	243.454	-5.529
	2400.00	99.751	381.491	309.928	431.751	171.751	-483.828	240.921	243.557	-5.301
	2500.00	100.323	385.575	312.873	441.755	181.755	-522.183	240.578	243.674	-5.091
	2600.00	100.842	389.520	315.746	451.814	191.814	-560.939	240.233	243.804	-4.898
	2700.00	101.315	393.335	318.549	461.922	201.922	-600.083	239.884	243.948	-4.719
	2800.00	101.747	397.028	321.286	472.075	212.075	-639.602	239.528	244.105	-4.554
	2900.00	102.143	400.605	323.960	482.270	222.270	-679.484	239.163	244.275	-4.400
	3000.00	102.505	404.074	326.573	492.503	232.503	-719.719	238.788	244.458	-4.256

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

28.054 ETHENE (GAS) **C2H4**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	42.891	219.334	219.334	52.467	0.000	−12.928	52.467	68.420	−11.987
	300.00	43.055	219.600	219.335	52.546	0.079	−13.334	52.408	68.519	−11.930
	400.00	53.038	233.331	221.140	57.343	4.876	−35.989	49.319	74.363	−9.711
	500.00	62.493	246.205	224.878	63.131	10.664	−59.972	46.599	80.947	−8.456
	600.00	70.663	258.340	229.454	69.799	17.332	−85.205	44.248	88.043	−7.665
	700.00	77.713	269.775	234.405	77.226	24.759	−111.617	42.243	95.505	−7.127
	800.00	83.841	280.561	239.507	85.310	32.843	−139.139	40.575	103.232	−6.740
	900.00	89.196	290.752	244.640	93.968	41.501	−167.709	39.218	111.149	−6.451
	1000.00	93.892	300.399	249.738	103.128	50.661	−197.271	38.131	119.201	−6.226
	1100.00	98.011	309.545	254.763	112.727	60.260	−227.772	37.275	127.352	−6.047
	1200.00	101.625	318.231	259.693	122.713	70.246	−259.165	36.613	135.571	−5.901
	1300.00	104.791	326.494	264.516	133.037	80.570	−291.404	36.113	143.839	−5.780
	1400.00	107.562	334.363	269.227	143.658	91.191	−324.450	35.747	152.140	−5.676
	1500.00	109.986	341.869	273.821	154.538	102.071	−358.265	35.492	160.463	−5.588
	1600.00	112.107	349.036	278.300	165.645	113.178	−392.813	35.329	168.800	−5.511
	1700.00	113.969	355.890	282.664	176.951	124.484	−428.061	35.240	177.145	−5.443
	1800.00	115.612	362.452	286.915	188.432	135.965	−463.981	35.212	185.494	−5.383
	1900.00	117.077	368.742	291.058	200.068	147.601	−500.543	35.233	193.842	−5.329
	2000.00	118.404	374.782	295.094	211.843	159.376	−537.721	35.294	202.189	−5.281

References

Phase	H / S	C_p
GAS	Ja1	Ja1

C2H5[g] ETHYL (GAS) 29.061

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	46.575	250.521	250.521	107.000	0.000	32.307	107.000	133.136	−23.325
	300.00	46.749	250.810	250.522	107.086	0.086	31.843	106.921	133.298	−23.209
	400.00	56.964	265.631	252.474	112.263	5.263	6.010	102.759	142.726	−18.638
	500.00	67.326	279.465	256.502	118.482	11.482	−21.251	99.009	153.161	−16.001
	600.00	76.952	292.604	261.433	125.703	18.703	−49.860	95.747	164.306	−14.304
	700.00	85.615	305.130	266.787	133.840	26.840	−79.751	92.983	175.958	−13.130
	800.00	93.287	317.074	272.333	142.793	35.793	−110.866	90.706	187.973	−12.273
	900.00	100.016	328.459	277.942	152.466	45.466	−143.147	88.877	200.245	−11.622
	1000.00	105.883	339.307	283.540	162.767	55.767	−176.540	87.431	212.700	−11.110
	1100.00	110.983	349.644	289.083	173.617	66.617	−210.992	86.305	225.284	−10.698
	1200.00	115.421	359.496	294.544	184.942	77.942	−246.453	85.444	237.959	−10.358
	1300.00	119.305	368.891	299.904	196.682	89.682	−282.876	84.799	250.696	−10.073
	1400.00	122.746	377.861	305.155	208.788	101.788	−320.217	84.336	263.475	−9.830
	1500.00	125.857	386.437	310.290	221.221	114.221	−358.435	84.029	276.283	−9.621
	1600.00	128.430	394.638	315.307	233.929	126.929	−397.491	83.842	289.106	−9.438
	1700.00	130.789	402.497	320.206	246.893	139.893	−437.351	83.765	301.938	−9.277
	1800.00	132.824	410.031	324.989	260.076	153.076	−477.980	83.772	314.772	−9.134
	1900.00	134.598	417.261	329.656	273.449	166.449	−519.347	83.844	327.604	−9.006
	2000.00	136.157	424.206	334.211	286.989	179.989	−561.423	83.965	340.430	−8.891
	2100.00	137.538	430.883	338.657	300.675	193.675	−604.179	84.118	353.250	−8.787
	2200.00	138.768	437.310	342.996	314.491	207.491	−647.591	84.298	366.061	−8.691
	2300.00	139.870	443.503	347.232	328.424	221.424	−691.633	84.495	378.865	−8.604
	2400.00	140.863	449.477	351.368	342.462	235.462	−736.284	84.704	391.659	−8.524
	2500.00	141.760	455.246	355.409	356.594	249.594	−781.522	84.918	404.444	−8.450
	2600.00	142.574	460.822	359.357	370.811	263.811	−827.327	85.134	417.221	−8.382
	2700.00	143.315	466.217	363.215	385.106	278.106	−873.681	85.348	429.989	−8.319
	2800.00	143.990	471.442	366.987	399.472	292.472	−920.565	85.555	442.750	−8.260
	2900.00	144.608	476.505	370.677	413.902	306.902	−967.964	85.752	455.504	−8.205
	3000.00	145.174	481.417	374.287	428.392	321.392	−1015.861	85.936	468.250	−8.153

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

30.070 ETHANE (GAS) **C2H6**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	52.541	229.602	229.602	−84.684	0.000	−153.140	−84.684	−32.830	5.752
	300.00	52.797	229.928	229.603	−84.587	0.097	−153.565	−84.778	−32.508	5.660
	400.00	66.065	246.962	231.836	−78.633	6.051	−177.418	−89.617	−14.339	1.873
	500.00	78.156	263.025	236.482	−71.413	13.271	−202.925	−93.826	4.980	−0.520
	600.00	89.120	278.260	242.186	−63.040	21.644	−229.996	−97.401	25.088	−2.184
	700.00	99.012	292.754	248.383	−53.624	31.060	−258.552	−100.356	45.745	−3.414
	800.00	107.883	306.566	254.800	−43.271	41.413	−288.524	−102.709	66.784	−4.361
	900.00	115.785	319.738	261.289	−32.080	52.604	−319.844	−104.507	88.084	−5.112
	1000.00	122.771	332.306	267.767	−20.145	64.539	−352.451	−105.821	109.557	−5.723

References

Phase	H / S	C_p
GAS	Sw1	Re1

C3H4[g] PROPADIENE (GAS) 40.065

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	59.058	244.037	244.037	192.129	0.000	119.369	192.129	202.428	−35.465
	300.00	59.307	244.403	244.038	192.238	0.109	118.918	192.084	202.493	−35.257
	400.00	71.831	263.222	246.519	198.810	6.681	93.521	189.733	206.322	−26.943
	500.00	82.662	280.444	251.605	206.548	14.419	66.326	187.633	210.717	−22.014
	600.00	91.965	296.359	257.755	215.292	23.163	37.476	185.777	215.513	−18.762
	700.00	99.907	311.149	264.339	224.896	32.767	7.092	184.171	220.599	−16.461
	800.00	106.656	324.942	271.062	235.233	43.104	−24.720	182.831	225.898	−14.750
	900.00	112.378	337.844	277.773	246.193	54.064	−57.867	181.743	231.349	−13.427
	1000.00	117.240	349.943	284.392	257.680	65.551	−92.263	180.865	236.909	−12.375

References

Phase	H / S	C_p	Remarks
GAS	Sw1	Re1	La1 BPT= 239.3, L= 20.96 kJ

C3H4[PY][g] PROPYNE (GAS) 40.065

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	60.677	248.221	248.221	185.435	0.000	111.428	185.435	194.487	−34.073
	300.00	60.907	248.597	248.222	185.547	0.112	110.968	185.393	194.543	−33.873
	400.00	72.522	267.749	250.755	192.233	6.798	85.133	183.156	197.934	−25.847
	500.00	82.563	285.038	255.909	199.999	14.564	57.480	181.084	201.872	−21.089
	600.00	91.226	300.876	262.102	208.700	23.265	28.174	179.185	206.210	−17.952
	700.00	98.704	315.514	268.700	218.205	32.770	−2.655	177.480	210.852	−15.734
	800.00	105.189	329.128	275.413	228.407	42.972	−34.895	176.005	215.723	−14.085
	900.00	110.875	341.852	282.095	239.216	53.781	−68.451	174.767	220.765	−12.813
	1000.00	115.955	353.802	288.675	250.562	65.127	−103.240	173.747	225.932	−11.801

References

Phase	H / S	C_p
GAS	Sw1	Re1

42.081 CYCLOPROPANE (GAS) **C3H6[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	90.196	238.012	238.012	53.220	0.000	−17.743	53.220	104.278	−18.269
	300.00	90.591	238.571	238.013	53.387	0.167	−18.184	53.180	104.595	−18.212
	400.00	115.060	267.857	241.842	63.626	10.406	−43.517	51.589	122.011	−15.933
	500.00	143.469	296.528	249.913	76.527	23.307	−71.737	51.730	139.641	−14.588
	600.00	174.451	325.390	260.082	92.404	39.184	−102.829	54.079	157.043	−13.672
	700.00	207.539	354.741	271.501	111.487	58.267	−136.831	59.014	173.852	−12.973
	800.00	242.536	384.718	283.773	133.976	80.756	−173.798	66.872	189.757	−12.390
	900.00	279.348	415.392	296.686	160.055	106.835	−213.798	77.929	204.488	−11.868
	1000.00	317.927	446.806	310.121	189.904	136.684	−256.901	92.410	217.807	−11.377
	1100.00	358.245	478.984	324.004	223.698	170.478	−303.184	110.520	229.501	−10.898
	1200.00	400.284	511.946	338.287	261.611	208.391	−352.724	132.461	239.379	−10.420
	1300.00	444.035	545.702	352.939	303.812	250.592	−405.600	158.426	247.264	−9.935
	1400.00	489.490	580.261	367.937	350.474	297.254	−461.892	188.607	252.993	−9.439
	1500.00	536.644	615.631	383.266	401.767	348.547	−521.679	223.197	256.412	−8.929
	1600.00	585.495	651.815	398.916	457.860	404.640	−585.045	262.384	257.375	−8.402
	1700.00	636.039	688.819	414.876	518.922	465.702	−652.070	306.355	255.740	−7.858
	1800.00	688.275	726.644	431.142	585.124	531.904	−722.836	355.294	251.376	−7.295

References

Phase	H / S	C_p	Remarks
GAS	La1	La1	La1 BPT= 240.00, L= 20.8 kJ

42.081 PROPENE (GAS) **C3H6[P][g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	63.867	267.049	267.049	20.418	0.000	−59.203	20.418	62.819	−11.006
	300.00	64.184	267.445	267.050	20.536	0.118	−59.697	20.329	63.082	−10.984
	400.00	80.322	288.164	269.766	27.777	7.359	−87.488	15.741	78.039	−10.191
	500.00	94.670	307.660	275.414	36.541	16.123	−117.289	11.744	94.089	−9.829
	600.00	107.361	326.067	282.337	46.656	26.238	−148.984	8.331	110.888	−9.654
	700.00	118.526	343.474	289.839	57.963	37.545	−182.469	5.489	128.214	−9.567
	800.00	128.297	359.953	297.582	70.315	49.897	−217.648	3.211	145.908	−9.527
	900.00	136.808	375.568	305.388	83.580	63.162	−254.431	1.454	163.855	−9.510
	1000.00	144.189	390.373	313.153	97.639	77.221	−292.735	0.144	181.974	−9.505

References

Phase	H / S	C_p
GAS	Sw1	Re1

C3H8[g] PROPANE (GAS) 44.097

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	73.789	270.019	270.019	−103.847	0.000	−184.353	−103.847	−23.370	4.094
	300.00	74.196	270.477	270.021	−103.710	0.137	−184.853	−103.971	−22.870	3.982
	400.00	94.893	294.716	273.186	−95.235	8.612	−213.121	−110.230	5.133	−0.670
	500.00	113.191	317.899	279.828	−84.811	19.036	−243.761	−115.491	34.604	−3.615
	600.00	129.282	339.991	288.030	−72.670	31.177	−276.665	−119.807	65.043	−5.662
	700.00	143.358	361.001	296.966	−59.022	44.825	−311.723	−123.245	96.135	−7.174
	800.00	155.614	380.963	306.229	−44.059	59.788	−348.830	−125.865	127.663	−8.336
	900.00	166.240	399.921	315.595	−27.954	75.893	−387.882	−127.756	159.474	−9.256
	1000.00	175.431	417.923	324.935	−10.859	92.988	−428.782	−129.034	191.462	−10.001
	1100.00	183.379	435.025	334.173	7.091	110.938	−471.437	−129.806	223.553	−10.616
	1200.00	190.276	451.284	343.260	25.782	129.629	−515.759	−130.165	255.696	−11.130
	1300.00	196.315	466.758	352.170	45.117	148.964	−561.668	−130.187	287.854	−11.566
	1400.00	201.690	481.506	360.885	65.022	168.869	−609.087	−129.927	320.002	−11.939
	1500.00	206.592	495.591	369.400	85.440	189.287	−657.947	−129.420	352.124	−12.262

References

Phase	H / S	C_p	Remarks
GAS	Sw1	Re1	NBPT= 231.1

C4H6[g] BUT−1−YNE (GAS) 54.092

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	116.251	290.897	290.897	166.105	0.000	79.374	166.105	203.107	−35.583
	300.00	116.439	291.617	290.900	166.320	0.215	78.835	166.097	203.336	−35.404
	400.00	130.211	326.859	295.612	178.603	12.498	47.860	165.514	215.836	−28.185
	500.00	148.030	357.778	305.002	192.493	26.388	13.604	165.311	228.454	−23.866
	600.00	167.994	386.506	316.214	208.280	42.175	−23.624	165.990	241.037	−20.984
	700.00	189.451	413.997	328.231	226.141	60.036	−63.656	167.925	253.412	−18.910
	800.00	212.128	440.762	340.630	246.211	80.106	−106.399	171.440	265.405	−17.329
	900.00	235.896	467.109	353.222	268.603	102.498	−151.795	176.778	276.849	−16.068
	1000.00	260.685	493.237	365.919	293.424	127.319	−199.814	184.111	287.595	−15.022
	1100.00	286.457	519.284	378.677	320.773	154.668	−250.440	193.587	297.503	−14.127
	1200.00	313.189	545.348	391.480	350.747	184.642	−303.671	205.344	306.448	−13.339
	1300.00	340.866	571.504	404.321	383.442	217.337	−359.513	219.511	314.316	−12.629
	1400.00	369.479	597.806	417.201	418.952	252.847	−417.977	236.211	320.999	−11.977
	1500.00	399.019	624.299	430.123	457.369	291.264	−479.080	255.566	326.396	−11.366
	1600.00	429.484	651.019	443.093	498.786	332.681	−542.844	277.694	330.412	−10.787
	1700.00	460.870	677.993	456.116	543.296	377.191	−609.292	302.708	332.957	−10.231
	1800.00	493.173	705.246	469.198	590.991	424.886	−678.452	330.720	333.943	−9.691

References

Phase	H / S	C_p	Remarks	
GAS	La1	La1	La1	BPT= 280.9, L= 24.5 kJ

56.108 CYCLOBUTANE (GAS) **C4H8[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	70.641	265.501	265.501	26.652	0.000	−52.507	26.652	110.188	−19.304
	300.00	71.229	265.939	265.502	26.783	0.131	−52.999	26.506	110.707	−19.276
	400.00	100.420	290.546	268.659	35.407	8.755	−80.812	19.358	139.892	−18.268
	500.00	125.011	315.675	275.552	46.714	20.062	−111.124	13.650	170.713	−17.834
	600.00	145.630	340.345	284.305	60.276	33.624	−143.931	9.176	202.565	−17.635
	700.00	162.905	364.131	294.022	75.728	49.076	−179.163	5.764	235.080	−17.542
	800.00	177.464	386.861	304.217	92.767	66.115	−216.722	3.295	268.019	−17.500
	900.00	189.935	408.500	314.612	111.151	84.499	−256.499	1.650	301.216	−17.482
	1000.00	200.945	429.092	325.039	130.705	104.053	−298.387	0.712	334.558	−17.475

References

Phase	H / S	C_p	Remarks
GAS	Sw1	Re1	La1 BPT= 265.4, L= 24.2 kJ

56.108 2−METHYLPROP−1−ENE (GAS) **C4H8[l][g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	90.141	293.701	293.701	−16.903	0.000	−104.470	−16.903	58.225	−10.201
	300.00	90.543	294.260	293.702	−16.736	0.167	−105.014	−17.013	58.692	−10.219
	400.00	111.269	323.193	297.507	−6.629	10.274	−135.906	−22.677	84.797	−11.073
	500.00	130.031	350.074	305.363	5.452	22.355	−169.584	−27.611	112.253	−11.727
	600.00	146.884	375.299	314.938	19.314	36.217	−205.866	−31.787	140.631	−12.243
	700.00	161.883	399.091	325.276	34.767	51.670	−244.597	−35.197	169.647	−12.659
	800.00	175.083	421.589	335.922	51.631	68.534	−285.641	−37.841	199.100	−13.000
	900.00	186.537	442.889	346.635	69.726	86.629	−328.875	−39.775	228.841	−13.282
	1000.00	196.301	463.063	357.278	88.882	105.785	−374.181	−41.111	258.763	−13.516

References

Phase	H / S	C_p	Remarks
GAS	Sw1	Re1	NBPT= 266.3

C4H10[g] BUTANE (GAS) 58.123

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	98.273	310.227	310.228	−126.148	0.000	−218.642	−126.148	−16.985	2.976
	300.00	98.761	310.837	310.229	−125.966	0.182	−219.217	−126.296	−16.307	2.839
	400.00	124.012	342.761	314.412	−114.808	11.340	−251.913	−133.816	21.518	−2.810
	500.00	146.981	372.944	323.127	−101.239	24.909	−287.711	−140.185	61.113	−6.384
	600.00	167.650	401.604	333.838	−85.489	40.659	−326.451	−145.400	101.881	−8.870
	700.00	186.002	428.855	345.482	−67.787	58.361	−367.985	−149.500	143.434	−10.703
	800.00	202.021	454.764	357.536	−48.366	77.782	−412.177	−152.539	185.501	−12.112
	900.00	215.689	479.371	369.718	−27.461	98.687	−458.894	−154.638	227.891	−13.226
	1000.00	226.990	502.702	381.861	−5.307	120.841	−508.009	−155.980	270.472	−14.128
	1100.00	235.907	524.773	393.859	17.858	144.006	−559.393	−156.765	313.159	−14.871
	1200.00	242.423	545.597	405.645	41.794	167.942	−612.922	−157.202	355.901	−15.492
	1300.00	246.521	565.179	417.171	66.262	192.410	−668.471	−157.505	398.672	−16.019
	1400.00	248.184	583.524	428.406	91.017	217.165	−725.916	−157.887	441.468	−16.471
	1500.00	247.395	600.634	439.324	115.817	241.965	−785.134	−158.566	484.300	−16.865

References

Phase	H / S	C_p
GAS	Sw1	Re1

C5H8[g] CYCLOPENTENE (GAS) 68.119

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	75.013	289.768	289.768	32.928	0.000	−53.466	32.928	110.940	−19.436
	300.00	75.611	290.234	289.769	33.067	0.139	−54.003	32.775	111.425	−19.401
	400.00	105.854	316.223	293.108	42.174	9.246	−84.315	25.073	138.837	−18.130
	500.00	132.246	342.748	300.384	54.110	21.182	−117.264	18.662	168.046	−17.556
	600.00	155.112	368.931	309.635	68.506	35.578	−152.853	13.441	198.432	−17.275
	700.00	174.779	394.358	319.933	85.026	52.098	−191.025	9.318	229.604	−17.133
	800.00	191.572	418.823	330.776	103.366	70.438	−231.692	6.227	261.296	−17.061
	900.00	205.817	442.232	341.869	123.255	90.327	−274.754	4.055	293.319	−17.024
	1000.00	217.840	464.558	353.031	144.455	111.527	−320.103	2.644	325.541	−17.005

References

Phase	H / S	C_p
GAS	Sw1	Re1

68.119 PENTA–1,2–DIENE (GAS) **C5H8[P][g]**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
GAS	298.15	105.075	333.616	333.616	145.603	0.000	46.135	145.603	210.542	–36.886
	300.00	105.665	334.268	333.618	145.798	0.195	45.518	145.505	210.945	–36.729
	400.00	132.228	368.514	338.108	157.766	12.163	10.360	140.664	233.512	–30.494
	500.00	152.822	400.306	347.410	172.051	26.448	–28.102	136.604	257.208	–26.870
	600.00	170.285	429.750	358.710	188.227	42.624	–69.623	133.162	281.662	–24.521
	700.00	185.587	457.174	370.840	206.037	60.434	–113.985	130.330	306.644	–22.882
	800.00	199.136	482.858	383.253	225.287	79.684	–161.000	128.148	331.989	–21.677
	900.00	211.124	507.020	395.676	245.812	100.209	–210.506	126.612	357.568	–20.753
	1000.00	221.655	529.821	407.961	267.463	121.860	–262.358	125.652	383.286	–20.021

References

Phase	H / S	C_p	Remarks
GAS	La1	La1	La1 NBPT= 318.1

70.134 CYCLOPENTANE (GAS) **C5H10[g]**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
GAS	298.15	82.876	292.989	292.989	–77.237	0.000	–164.592	–77.237	38.777	–6.794
	300.00	83.576	293.504	292.991	–77.083	0.154	–165.134	–77.429	39.497	–6.877
	400.00	118.997	322.511	296.707	–66.915	10.322	–195.920	–86.976	79.960	–10.442
	500.00	149.916	352.466	304.859	–53.434	23.803	–229.667	–94.763	122.630	–12.811
	600.00	176.721	382.228	315.281	–37.069	40.168	–266.406	–100.945	166.715	–14.514
	700.00	199.803	411.248	326.929	–18.214	59.023	–306.087	–105.669	211.717	–15.799
	800.00	219.548	439.252	339.230	2.780	80.017	–348.621	–109.060	257.305	–16.800
	900.00	236.347	466.108	351.847	25.598	102.835	–393.899	–111.278	303.245	–17.600
	1000.00	250.588	491.767	364.566	49.964	127.201	–441.803	–112.527	349.378	–18.250

References

Phase	H / S	C_p
GAS	Sw1	Re1

C5H12[g] PENTANE (GAS) 72.150

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	120.064	349.055	349.055	−146.440	0.000	−250.511	−146.440	−8.180	1.433
	300.00	120.706	349.800	349.057	−146.217	0.223	−251.157	−146.617	−7.321	1.275
	400.00	153.319	389.088	354.194	−132.482	13.958	−288.117	−155.502	40.489	−5.287
	500.00	182.047	426.455	364.941	−115.683	30.757	−328.911	−162.894	90.373	−9.441
	600.00	207.208	461.922	378.175	−96.192	50.248	−373.345	−168.879	141.611	−12.328
	700.00	229.120	495.549	392.562	−74.350	72.090	−421.234	−173.554	193.746	−14.458
	800.00	248.102	527.413	407.445	−50.465	95.975	−472.396	−177.007	246.467	−16.093
	900.00	264.471	557.605	422.467	−24.816	121.624	−526.661	−179.369	299.554	−17.386
	1000.00	278.546	586.217	437.424	2.352	148.792	−583.864	−180.819	352.853	−18.431

References

Phase	H / S	C_p
GAS	Sw1	Re1

C6H6 BENZENE 78.114

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
LIQ	298.15	136.106	173.259	173.259	49.036	0.000	−2.621	49.036	124.534	−21.818
	300.00	136.106	174.101	173.262	49.288	0.252	−2.943	49.033	125.003	−21.765
	352.81	136.106	196.170	175.084	56.476	7.440	−12.735	48.586	138.404	−20.491

References

Phase	H / S	C_p	Remarks	
LIQ	La1	La1	La1	MPT= 278.634, L= 9.837 kJ / BPT= 352.81, L= 30.75 kJ

78.114 BENZENE (GAS) **C6H6[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	82.530	269.308	269.308	82.927	0.000	2.633	82.927	129.789	−22.738
	300.00	83.109	269.820	269.310	83.080	0.153	2.134	82.825	130.080	−22.649
	400.00	112.045	297.800	272.929	92.876	9.949	−26.245	77.681	146.629	−19.148
	500.00	136.661	325.523	280.687	105.345	22.418	−57.416	73.396	164.379	−17.173
	600.00	157.385	352.327	290.409	120.078	37.151	−91.318	69.860	182.920	−15.925
	700.00	174.644	377.926	301.098	136.707	53.780	−127.842	67.006	201.998	−15.073
	800.00	188.866	402.206	312.233	154.906	71.979	−166.859	64.803	221.440	−14.459
	900.00	200.477	425.145	323.517	174.393	91.466	−208.238	63.170	241.123	−13.994
	1000.00	209.907	446.773	334.772	194.928	112.001	−251.845	61.979	260.963	−13.631
	1100.00	217.582	467.151	345.889	216.316	133.389	−297.551	61.116	280.906	−13.339
	1200.00	223.930	486.364	356.803	238.401	155.474	−345.236	60.492	300.916	−13.099
	1300.00	229.377	504.507	367.473	261.072	178.145	−394.788	60.051	320.970	−12.897
	1400.00	234.353	521.690	377.880	284.260	201.333	−446.105	59.772	341.052	−12.725
	1500.00	239.284	538.026	388.017	307.941	225.014	−499.098	59.672	361.148	−12.576

References

Phase	H / S	C_p
GAS	Sw1	Re1

82.145 CYCLOHEXENE **C6H10**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
LIQ	298.15	140.206	216.187	216.187	−38.828	0.000	−103.284	−38.828	101.796	−17.834
	300.00	140.206	217.055	216.190	−38.569	0.259	−103.685	−38.930	102.669	−17.876
	400.00	140.206	257.389	221.689	−24.548	14.280	−127.504	−45.661	150.824	−19.696

References

Phase	H / S	C_p	Remarks
LIQ	Sw1	La1	NBPT= 356

C6H10[g] CYCLOHEXENE (GAS) 82.145

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	103.719	310.855	310.855	−5.356	0.000	−98.037	−5.356	107.043	−18.753
	300.00	104.543	311.499	310.857	−5.163	0.193	−98.613	−5.525	107.741	−18.759
	400.00	145.219	347.321	315.466	7.386	12.742	−131.542	−13.727	146.786	−19.168
	500.00	179.020	383.476	325.461	23.651	29.007	−168.087	−20.062	187.683	−19.607
	600.00	206.929	418.664	338.081	42.994	48.350	−208.205	−24.846	229.704	−19.998
	700.00	229.934	452.346	352.018	64.874	70.230	−251.769	−28.325	272.421	−20.328
	800.00	249.020	484.334	366.576	88.850	94.206	−298.617	−30.656	315.557	−20.604
	900.00	265.173	514.621	381.359	114.580	119.936	−348.579	−31.995	358.923	−20.831
	1000.00	279.378	543.308	396.132	141.820	147.176	−401.488	−32.490	402.392	−21.019

References

Phase	H / S	C_p
GAS	Sw1	Re1

C6H12 CYCLOHEXANE 84.161

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
LIQ	298.15	156.482	204.347	204.347	−156.231	0.000	−217.157	−156.231	26.886	−4.710
	300.00	156.482	205.315	204.350	−155.942	0.289	−217.536	−156.357	28.022	−4.879
	353.40	156.482	230.949	206.485	−147.585	8.646	−229.203	−160.368	61.169	−9.041

References

Phase	H / S	C_p	Remarks
LIQ	Sw1	La1	BPT= 353.4, L= 30.1 kJ

84.161 CYCLOHEXANE (GAS) **C6H12**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	105.558	298.345	298.345	−123.135	0.000	−212.087	−123.135	31.956	−5.599
	300.00	106.415	299.001	298.347	−122.939	0.196	−212.639	−123.354	32.919	−5.732
	400.00	150.339	335.744	303.060	−110.062	13.073	−244.359	−134.134	86.696	−11.321
	500.00	189.535	373.589	313.376	−93.029	30.106	−279.823	−142.624	142.933	−14.932
	600.00	224.085	411.269	326.559	−72.309	50.826	−319.071	−148.960	200.674	−17.470
	700.00	254.066	448.121	341.306	−48.364	74.771	−362.049	−153.311	259.316	−19.350
	800.00	279.558	483.761	356.899	−21.646	101.489	−408.654	−155.853	318.457	−20.793
	900.00	300.641	517.948	372.908	7.401	130.536	−458.753	−156.851	377.820	−21.928
	1000.00	317.394	550.528	389.055	38.338	161.473	−512.190	−156.651	437.226	−22.838

References

Phase	H / S	C_p
GAS	Sw1	Re1

84.161 METHYLCYCLOPENTANE **C6H12**[M]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
LIQ	298.15	158.699	247.944	247.944	−138.407	0.000	−212.331	−138.407	31.711	−5.556
	300.00	158.699	248.925	247.947	−138.113	0.294	−212.791	−138.529	32.767	−5.705
	344.84	158.699	271.032	249.545	−130.997	7.410	−224.460	−141.753	58.593	−8.875

References

Phase	H / S	C_p	Remarks	
LIQ	Sw1	La1	La1	BPT= 344.84, L= 29.3 kJ

C6H12[M][g] METHYLCYCLOPENTANE (GAS) 84.161

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	109.807	340.018	340.018	−106.692	0.000	−208.068	−106.692	35.974	−6.303
	300.00	110.624	340.699	340.020	−106.488	0.204	−208.698	−106.903	36.860	−6.418
	400.00	151.873	378.307	344.868	−93.317	13.375	−244.639	−117.389	86.416	−11.285
	500.00	187.765	416.147	355.347	−76.292	30.400	−284.366	−125.887	138.390	−14.458
	600.00	218.781	453.193	368.583	−55.926	50.766	−327.842	−132.577	191.903	−16.707
	700.00	245.400	488.970	383.242	−32.682	74.010	−374.962	−137.629	246.404	−18.387
	800.00	268.103	523.262	398.618	−6.977	99.715	−425.586	−141.184	301.525	−19.688
	900.00	287.370	555.984	414.300	20.824	127.516	−479.562	−143.428	357.011	−20.720
	1000.00	303.683	587.129	430.038	50.399	157.091	−536.730	−144.591	412.686	−21.557

References

Phase	H / S	C_p
GAS	Sw1	Re1

C6H14 HEXANE 86.177

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
LIQ	298.15	195.016	296.018	296.018	−198.782	0.000	−287.040	−198.782	−4.035	0.707
	300.00	195.016	297.224	296.022	−198.421	0.361	−287.589	−198.890	−2.826	0.492
	341.85	195.016	322.691	297.762	−190.260	8.522	−300.572	−201.576	24.699	−3.774

References

Phase	H / S	C_p	Remarks	
LIQ	La1	La1	La1	NBPT= 341.9

86.177 HEXANE (GAS) **C6H14[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	143.002	388.510	388.510	−167.193	0.000	−283.027	−167.193	−0.023	0.004
	300.00	143.765	389.397	388.513	−166.928	0.265	−283.747	−167.396	1.015	−0.177
	400.00	182.507	436.178	394.629	−150.574	16.619	−325.045	−177.605	58.738	−7.670
	500.00	216.573	480.646	407.425	−130.582	36.611	−370.905	−186.059	118.837	−12.415
	600.00	246.353	522.827	423.175	−107.402	59.791	−421.098	−192.864	180.482	−15.712
	700.00	272.235	562.793	440.291	−81.442	85.751	−475.397	−198.137	243.144	−18.144
	800.00	294.610	600.643	457.991	−53.072	114.121	−533.586	−201.981	306.463	−20.010
	900.00	313.866	636.483	475.850	−22.623	144.570	−595.458	−204.551	370.185	−21.485
	1000.00	330.394	670.430	493.626	9.611	176.804	−660.819	−206.059	434.134	−22.677
	1100.00	344.581	702.602	511.175	43.377	210.570	−729.485	−206.698	498.191	−23.657
	1200.00	356.819	733.122	528.410	78.462	245.655	−801.285	−206.635	562.273	−24.475
	1300.00	367.495	762.114	545.281	114.689	281.882	−876.059	−206.002	626.327	−25.166
	1400.00	376.999	789.702	561.763	151.922	319.115	−953.661	−204.894	690.313	−25.756
	1500.00	385.722	816.013	577.842	190.063	357.256	−1033.956	−203.366	754.206	−26.264

References

Phase	H / S	C_p
GAS	Sw1	Re1

92.141 TOLUENE (METHYLBENZENE) **C7H8**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
LIQ	298.15	166.021	220.957	220.957	12.008	0.000	−53.870	12.008	113.959	−19.965
	300.00	166.021	221.984	220.960	12.315	0.307	−54.280	11.991	114.592	−19.952
	383.27	166.021	262.652	225.781	26.140	14.132	−74.527	10.253	143.252	−19.523

References

Phase	H / S	C_p	Remarks	
LIQ	Sw1	La1	La1	BPT= 383.27, L= 33.5 kJ

C7H8[g] TOLUENE (METHYLBENZENE) (GAS) 92.141

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
GAS	298.15	105.085	320.771	320.771	49.999	0.000	−45.639	49.999	122.191	−21.407
	300.00	105.751	321.423	320.773	50.194	0.195	−46.233	49.870	122.639	−21.353
	400.00	139.435	356.567	325.337	62.491	12.492	−80.136	43.284	147.914	−19.316
	500.00	168.769	390.910	335.036	77.936	27.937	−117.519	37.721	174.736	−18.255
	600.00	194.048	423.974	347.123	96.109	46.110	−158.275	33.116	202.587	−17.637
	700.00	215.568	455.549	360.376	116.620	66.621	−202.264	29.429	231.136	−17.248
	800.00	233.621	485.550	374.164	139.107	89.108	−249.332	26.637	260.152	−16.986
	900.00	248.503	513.955	388.133	163.239	113.240	−299.321	24.641	289.469	−16.800
	1000.00	260.508	540.783	402.070	188.712	138.713	−352.071	23.264	318.973	−16.661

References

Phase	H / S	C_p
GAS	Sw1	Re1

C7H14 CYCLOHEPTANE 98.188

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
LIQ	298.15	180.707	242.547	242.547	−158.072	0.000	−230.387	−158.072	54.329	−9.518
	300.00	180.707	243.664	242.550	−157.738	0.334	−230.837	−158.222	55.647	−9.689
	392.00	180.707	292.000	248.736	−141.113	16.959	−255.577	−166.902	122.391	−16.309

References

Phase	H / S	C_p	Remarks
LIQ	Sw1	La1	NBPT= 392

98.188 CYCLOHEPTANE (GAS) **C7H14[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	122.922	342.444	342.444	−119.328	0.000	−221.428	−119.328	63.288	−11.088
	300.00	123.949	343.208	342.447	−119.100	0.228	−222.062	−119.584	64.422	−11.217
	400.00	175.957	386.152	347.950	−104.048	15.280	−258.508	−132.132	127.723	−16.679
	500.00	221.378	430.413	360.012	−84.128	35.200	−299.334	−141.989	193.881	−20.255
	600.00	260.663	474.337	375.418	−59.976	59.352	−344.579	−149.403	261.790	−22.791
	700.00	294.267	517.112	392.621	−32.185	87.143	−394.163	−154.623	330.763	−24.682
	800.00	322.644	558.314	410.775	−1.297	118.031	−447.948	−157.873	400.348	−26.140
	900.00	346.246	597.723	429.375	32.185	151.513	−505.766	−159.442	470.236	−27.292
	1000.00	365.527	635.238	448.102	67.808	187.136	−567.430	−159.680	540.223	−28.218

References

Phase	H / S	C_p
GAS	Sw1	Re1

98.188 METHYLCYCLOHEXANE **C7H14[M]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
LIQ	298.15	184.598	247.944	247.944	−190.163	0.000	−264.087	−190.163	20.629	−3.614
	300.00	184.598	249.086	247.947	−189.821	0.342	−264.547	−190.306	21.937	−3.820
	373.60	184.598	289.587	252.307	−176.235	13.928	−284.425	−196.798	74.716	−10.446

References

Phase	H / S	C_p	Remarks	
LIQ	La1,Sw1	La1	La1	BPT= 373.6, L= 31.71 kJ

C7H14[M][g] METHYLCYCLOHEXANE (GAS) 98.188

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	134.828	343.449	343.449	−154.766	0.000	−257.165	−154.766	27.551	−4.827
	300.00	135.834	344.286	343.451	−154.516	0.250	−257.801	−155.000	28.683	−4.994
	400.00	186.618	390.483	349.407	−138.336	16.430	−294.529	−166.420	91.702	−11.975
	500.00	230.778	436.987	362.281	−117.413	37.353	−335.906	−175.274	157.309	−16.434
	600.00	268.876	482.518	378.545	−92.382	62.384	−381.893	−181.808	224.476	−19.542
	700.00	301.474	526.480	396.559	−63.821	90.945	−432.357	−186.259	292.569	−21.832
	800.00	329.132	568.594	415.451	−32.252	122.514	−487.127	−188.828	361.169	−23.582
	900.00	352.413	608.745	434.716	1.859	156.625	−546.011	−189.767	429.991	−24.956
	1000.00	371.878	646.913	454.044	38.103	192.869	−608.810	−189.384	498.843	−26.057

References

Phase	H / S	C_p
GAS	Sw1	Re1

C7H16 HEPTANE 100.204

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
LIQ	298.15	224.723	328.570	328.570	−224.388	0.000	−322.351	−224.388	1.327	−0.233
	300.00	224.723	329.960	328.574	−223.972	0.416	−322.960	−224.510	2.728	−0.475
	371.07	224.723	377.737	333.577	−208.001	16.387	−348.168	−229.967	57.135	−8.043

References

Phase	H / S	C_p	Remarks	
LIQ	La1/Sw1	La1	La1	BPT= 371.07, L= 31.67 kJ

100.204 HEPTANE (GAS) **C7H16[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	165.918	428.007	428.007	−187.778	0.000	−315.388	−187.778	8.290	−1.452
	300.00	166.803	429.036	428.010	−187.470	0.308	−316.181	−188.008	9.507	−1.655
	400.00	211.667	483.303	435.106	−168.499	19.279	−361.820	−199.543	77.138	−10.073
	500.00	251.070	534.865	449.947	−145.319	42.459	−412.751	−209.062	147.451	−15.404
	600.00	285.473	583.754	468.210	−118.452	69.326	−468.704	−216.689	219.500	−19.109
	700.00	315.333	630.057	488.054	−88.376	99.402	−529.416	−222.563	292.686	−21.840
	800.00	341.111	673.890	508.569	−55.521	132.257	−594.633	−226.799	366.600	−23.937
	900.00	363.265	715.379	529.264	−20.274	167.504	−664.116	−229.577	440.956	−25.592
	1000.00	382.254	754.662	549.858	17.026	204.804	−737.636	−231.141	515.554	−26.930
	1100.00	398.539	791.878	570.183	56.086	243.864	−814.979	−231.715	590.258	−28.029
	1200.00	412.576	827.172	590.141	96.659	284.437	−895.947	−231.487	664.979	−28.946
	1300.00	424.827	860.690	609.674	138.542	326.320	−980.354	−230.611	739.653	−29.720
	1400.00	435.750	892.579	628.752	181.580	369.358	−1068.031	−229.192	814.238	−30.380
	1500.00	445.804	922.989	647.362	225.663	413.441	−1158.821	−227.289	888.705	−30.947

References

Phase	H / S	C_p
GAS	Sw1	Re1

106.167 O−XYLENE (1,2−DIMETHYLBENZENE) **C8H10**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
LIQ	298.15	188.782	246.019	246.019	−24.393	0.000	−97.744	−24.393	110.760	−19.405
	300.00	188.782	247.187	246.023	−24.044	0.349	−98.200	−24.437	111.598	−19.431
	400.00	188.782	301.496	253.428	−5.166	19.227	−125.764	−28.384	157.462	−20.562
	417.03	188.782	309.367	255.552	−1.951	22.442	−130.966	−29.313	165.393	−20.716

References

Phase	H / S	C_p	Remarks	
LIQ	La1	La1	La1	BPT= 417.03, L= 36.8 kJ

C8H10[g] O-XYLENE (1,2-DIMETHYLBENZENE) (GAS) 106.167

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	133.204	352.863	352.863	18.995	0.000	-86.211	18.995	122.292	-21.425
	300.00	133.963	353.689	352.865	19.242	0.247	-86.865	18.849	122.934	-21.405
	400.00	172.240	397.596	358.593	34.596	15.601	-124.442	11.378	158.783	-20.735
	500.00	205.441	439.687	370.636	53.521	34.526	-166.323	5.040	196.391	-20.517
	600.00	234.016	479.736	385.511	75.530	56.535	-212.311	-0.238	235.174	-20.474
	700.00	258.419	517.693	401.708	100.185	81.190	-262.200	-4.498	274.761	-20.503
	800.00	279.099	553.589	418.470	127.090	108.095	-315.781	-7.749	314.888	-20.560
	900.00	296.508	587.497	435.385	155.896	136.901	-372.852	-10.078	355.367	-20.625
	1000.00	311.097	619.515	452.213	186.298	167.303	-433.218	-11.649	396.062	-20.688

References

Phase	H / S	C_p
GAS	Sw1	Re1

C8H10[E] ETHYLBENZENE 106.167

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
LIQ	298.15	185.895	255.182	255.182	-12.468	0.000	-88.551	-12.468	119.953	-21.015
	300.00	185.895	256.332	255.186	-12.124	0.344	-89.024	-12.517	120.774	-21.029
	400.00	185.895	309.811	262.477	6.465	18.933	-117.459	-16.753	165.767	-21.647
	408.83	185.895	313.870	263.544	8.107	20.575	-120.213	-17.252	169.801	-21.695

References

Phase	H / S	C_p	Remarks	
LIQ	La1	La1	La1	BPT= 408.83, L= 36.0 kJ

106.167 ETHYLBENZENE (GAS) **C8H10[E][g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	128.336	360.561	360.561	29.790	0.000	−77.711	29.790	130.792	−22.914
	300.00	129.176	361.357	360.563	30.028	0.238	−78.379	29.635	131.419	−22.882
	400.00	171.002	404.412	366.151	45.094	15.304	−116.670	21.876	166.555	−21.750
	500.00	206.333	446.479	378.035	64.012	34.222	−159.227	15.531	203.487	−21.258
	600.00	235.949	486.797	392.829	86.171	56.381	−205.907	10.402	241.579	−21.031
	700.00	260.630	525.080	409.012	111.037	81.247	−256.519	6.354	280.442	−20.927
	800.00	281.156	561.264	425.804	138.158	108.368	−310.853	3.319	319.817	−20.882
	900.00	298.307	595.399	442.770	167.156	137.366	−368.703	1.182	359.516	−20.866
	1000.00	312.863	627.601	459.659	197.733	167.943	−429.869	−0.213	399.411	−20.863

References

Phase	H / S	C_p
GAS	Sw1	Re1

110.199 OCT−1−YNE (GAS) **C8H14[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	177.836	446.124	446.124	82.425	0.000	−50.587	82.425	235.841	−41.318
	300.00	178.781	447.227	446.127	82.755	0.330	−51.413	82.255	236.793	−41.229
	400.00	222.185	504.907	453.698	102.909	20.484	−99.054	73.771	289.626	−37.821
	500.00	256.801	558.317	469.351	126.908	44.483	−152.250	66.663	344.437	−35.983
	600.00	286.579	607.829	488.354	154.110	71.685	−210.588	60.720	400.569	−34.873
	700.00	312.873	654.020	508.758	184.108	101.683	−273.706	55.928	457.606	−34.147
	800.00	336.248	697.355	529.652	216.587	134.162	−341.297	52.345	515.248	−33.642
	900.00	356.974	738.181	550.576	251.270	168.845	−413.093	49.944	573.266	−33.272
	1000.00	375.195	776.757	571.283	287.899	205.474	−488.858	48.593	631.495	−32.986
	1100.00	390.989	813.276	591.637	326.228	243.803	−568.376	48.138	689.814	−32.757
	1200.00	404.407	847.889	611.562	366.018	283.593	−651.450	48.415	748.140	−32.566
	1300.00	415.478	880.712	631.015	407.031	324.606	−737.894	49.251	806.420	−32.402
	1400.00	424.223	911.837	649.972	449.036	366.611	−827.536	50.472	864.620	−32.259
	1500.00	430.655	941.337	668.422	491.799	409.374	−920.208	51.903	922.724	−32.132
	1600.00	434.784	969.275	686.360	535.090	452.665	−1015.751	53.364	980.731	−32.018
	1700.00	436.616	995.701	703.787	578.679	496.254	−1114.012	54.669	1038.650	−31.914
	1800.00	436.157	1020.655	720.704	622.337	539.912	−1214.842	55.626	1096.502	−31.820

References

Phase	H / S	C_p	Remarks	
GAS	La1	La1	La1	NBPT= 399.4

C8H16 ETHYLCYCLOHEXANE 112.215

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
LIQ	298.15	211.794	280.914	280.914	−212.212	0.000	−295.966	−212.212	29.423	−5.155
	300.00	211.794	282.224	280.918	−211.820	0.392	−296.487	−212.374	30.923	−5.384
	400.00	211.794	343.153	289.225	−190.641	21.571	−327.902	−222.738	113.505	−14.822
	404.44	211.794	345.491	289.830	−189.700	22.512	−329.431	−223.260	117.240	−15.142

References

Phase	H / S	C_p	Remarks
LIQ	La1	La1	La1 BPT= 404.44, L= 34.9 kJ

C8H16[g] ETHYLCYCLOHEXANE (GAS) 112.215

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	158.658	382.694	382.694	−171.753	0.000	−285.853	−171.753	39.537	−6.927
	300.00	159.792	383.679	382.697	−171.458	0.295	−286.562	−172.012	40.848	−7.112
	400.00	217.006	437.673	389.672	−152.553	19.200	−327.622	−184.649	113.785	−14.859
	500.00	266.657	491.565	404.677	−128.309	43.444	−374.092	−194.436	189.583	−19.806
	600.00	309.404	544.060	423.558	−99.451	72.302	−425.888	−201.653	267.105	−23.254
	700.00	345.911	594.573	444.406	−66.636	105.117	−482.837	−206.566	345.650	−25.793
	800.00	376.836	642.840	466.218	−30.455	141.298	−544.727	−209.399	424.754	−27.734
	900.00	402.843	688.771	488.416	8.567	180.320	−611.327	−210.435	504.103	−29.257
	1000.00	424.592	732.375	510.651	49.971	221.724	−682.404	−210.015	583.485	−30.478

References

Phase	H / S	C_p
GAS	Sw1	Re1

114.231 OCTANE **C8H18**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
LIQ	298.15	254.094	361.205	361.205	−249.952	0.000	−357.645	−249.952	6.707	−1.175
	300.00	254.094	362.776	361.210	−249.482	0.470	−358.315	−250.089	8.300	−1.445
	397.95	254.094	434.569	370.846	−224.593	25.359	−397.530	−258.916	93.894	−12.324

References

Phase	H / S	C_p	Remarks
LIQ	La1,Sw1	La1	La1 BPT= 397.95, L= 34.9 kJ

114.231 OCTANE (GAS) **C8H18**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	193.833	466.835	466.835	−208.447	0.000	−347.634	−208.447	16.718	−2.929
	300.00	194.956	468.037	466.838	−208.087	0.360	−348.498	−208.694	18.116	−3.154
	400.00	247.149	531.609	475.153	−185.865	22.582	−398.508	−220.921	95.626	−12.487
	500.00	289.435	591.430	492.492	−158.978	49.469	−454.693	−230.987	175.969	−18.383
	600.00	326.088	647.511	513.704	−128.163	80.284	−516.669	−239.175	258.159	−22.475
	700.00	358.571	700.265	536.625	−93.898	114.549	−584.084	−245.577	341.578	−25.489
	800.00	387.497	750.072	560.222	−56.567	151.880	−656.624	−250.212	425.795	−27.802
	900.00	413.158	797.225	583.959	−16.508	191.939	−734.010	−253.186	510.490	−29.628
	1000.00	435.708	841.950	607.541	25.961	234.408	−815.988	−254.705	595.437	−31.102

References

Phase	H / S	C_p
GAS	Sw1	La1

C9H16[g] NON−1−YNE (GAS) 124.226

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
GAS	298.15	287.486	485.704	485.705	61.798	0.000	−83.015	61.798	244.087	−42.763
	300.00	288.086	487.485	485.710	62.330	0.532	−83.915	61.761	245.218	−42.696
	400.00	329.080	575.636	497.454	93.071	31.273	−137.184	59.921	306.672	−40.047
	500.00	379.937	654.405	521.071	128.465	66.667	−198.738	59.954	368.410	−38.487
	600.00	436.276	728.587	549.521	169.238	107.440	−267.914	63.073	429.867	−37.423
	700.00	496.597	800.324	580.246	215.852	154.054	−344.375	70.180	490.498	−36.601
	800.00	560.271	870.756	612.168	268.669	206.871	−427.936	82.059	549.793	−35.898
	900.00	627.000	940.570	644.782	328.008	266.210	−518.505	99.307	607.283	−35.246
	1000.00	696.625	1010.210	677.843	394.166	332.368	−616.045	122.361	662.544	−34.608

References

Phase	H / S	C_p	Remarks
GAS	Sw1	La1	La1 NBPT= 424.0

C9H20 NONANE 128.258

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
LIQ	298.15	284.386	393.673	393.673	−275.475	0.000	−392.848	−275.475	12.177	−2.133
	300.00	284.386	395.432	393.678	−274.949	0.526	−393.578	−275.625	13.963	−2.431
	400.00	284.386	477.245	404.833	−246.510	28.965	−437.408	−285.578	111.902	−14.613
	423.43	284.386	493.433	409.292	−239.847	35.628	−448.781	−288.341	135.263	−16.686

References

Phase	H / S	C_p	Remarks
LIQ	Sw1	La1	La1 BPT= 423.43, L= 37.7 kJ

128.258 NONANE (GAS) **C9H20[g]**

Phase	T [K]	C_p [J / (K mol)]	S [J / (K mol)]	−(G−H298)/T [J / (K mol)]	H [kJ / mol]	H−H298 [kJ / mol]	G [kJ / mol]	ΔH_f [kJ / mol]	ΔG_f [kJ / mol]	log K_f [−]
GAS	298.15	217.432	505.788	505.788	−229.032	0.000	−379.833	−229.032	25.193	−4.414
	300.00	218.683	507.137	505.792	−228.629	0.403	−380.770	−229.305	26.772	−4.661
	400.00	276.734	578.381	515.113	−203.725	25.307	−435.077	−242.793	114.233	−14.917
	500.00	323.577	645.310	534.534	−173.644	55.388	−496.299	−253.919	204.822	−21.398
	600.00	364.020	707.961	558.274	−139.220	89.812	−563.996	−263.007	297.456	−25.896
	700.00	399.710	766.810	583.904	−100.998	128.034	−637.765	−270.167	391.459	−29.211
	800.00	431.336	822.291	610.268	−59.413	169.619	−717.246	−275.426	486.358	−31.756
	900.00	459.226	874.741	636.767	−14.855	214.177	−802.122	−278.908	581.807	−33.767
	1000.00	483.554	924.415	663.070	32.313	261.345	−892.102	−280.851	677.560	−35.392

References

Phase	H / S	C_p
GAS	Sw1	La1

142.285 DECANE **C10H22**

Phase	T [K]	C_p [J / (K mol)]	S [J / (K mol)]	−(G−H298)/T [J / (K mol)]	H [kJ / mol]	H−H298 [kJ / mol]	G [kJ / mol]	ΔH_f [kJ / mol]	ΔG_f [kJ / mol]	log K_f [−]
LIQ	298.15	314.511	425.889	425.889	−301.039	0.000	−428.018	−301.039	17.682	−3.098
	300.00	314.511	427.835	425.895	−300.457	0.582	−428.808	−301.202	19.660	−3.423
	400.00	314.511	518.314	438.232	−269.006	32.033	−476.332	−312.086	128.154	−16.735
	446.83	314.511	553.135	448.483	−254.277	46.762	−501.435	−318.299	180.039	−21.047

References

Phase	H / S	C_p	Remarks	
LIQ	La1	La1	La1,e	BPT= 446.83, L= 51.9 kJ

C10H22[g] DECANE (GAS) 142.285

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	241.726	544.741	544.741	−249.659	0.000	−412.073	−249.659	33.626	−5.891
	300.00	243.117	546.240	544.745	−249.211	0.448	−413.083	−249.956	35.385	−6.161
	400.00	307.651	625.443	555.108	−221.525	28.134	−471.702	−264.605	132.784	−17.340
	500.00	359.807	699.856	576.699	−188.080	61.579	−538.008	−276.621	233.572	−24.401
	600.00	404.948	769.535	603.094	−149.794	99.865	−611.515	−286.357	336.561	−29.300
	700.00	444.915	835.019	631.595	−107.262	142.397	−691.776	−293.923	441.009	−32.908
	800.00	480.473	896.797	660.921	−60.958	188.701	−778.396	−299.339	546.394	−35.676
	900.00	511.991	955.247	690.406	−11.302	238.357	−871.024	−302.731	652.334	−37.860
	1000.00	539.661	1010.656	719.685	41.312	290.971	−969.344	−304.350	758.554	−39.623

References

Phase	H / S	C_p
GAS	Sw1	La1

252.731 TRIBROMOMETHANE (GAS) **CHBr3**[g]

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[	kJ/mol	]			[−]
GAS	298.15	70.949	330.669	330.669	60.000	0.000	−38.589	60.000	50.676	−8.878
	300.00	71.132	331.108	330.670	60.131	0.131	−39.201	59.879	50.618	−8.813
	400.00	78.814	352.712	333.564	67.659	7.659	−73.426	13.194	57.112	−7.458
	500.00	83.988	370.886	339.259	75.813	15.813	−109.630	13.017	68.116	−7.116
	600.00	87.862	386.556	345.866	84.414	24.414	−147.520	12.996	79.139	−6.890
	700.00	90.890	400.337	352.683	93.358	33.358	−186.878	13.089	90.157	−6.728
	800.00	93.300	412.637	359.422	102.572	42.572	−227.538	13.281	101.155	−6.605
	900.00	95.231	423.742	365.962	112.002	52.002	−269.366	13.555	112.124	−6.507
	1000.00	96.789	433.859	372.253	121.606	61.606	−312.253	13.889	123.058	−6.428
	1100.00	98.058	443.145	378.282	131.350	71.350	−356.110	14.266	133.957	−6.361
	1200.00	99.115	451.724	384.049	141.210	81.210	−400.859	14.672	144.821	−6.304
	1300.00	100.032	459.694	389.565	151.168	91.168	−446.434	15.100	155.649	−6.254
	1400.00	100.878	467.139	394.843	161.214	101.214	−492.780	15.547	166.444	−6.210
	1500.00	101.717	474.127	399.898	171.344	111.344	−539.847	16.018	177.206	−6.171
	1600.00	102.265	480.707	404.745	181.539	121.539	−587.592	16.499	187.936	−6.135
	1700.00	102.815	486.923	409.398	191.793	131.793	−635.976	16.992	198.636	−6.103
	1800.00	103.289	492.814	413.870	202.099	142.099	−684.965	17.491	209.307	−6.074
	1900.00	103.700	498.410	418.173	212.449	152.449	−734.529	17.993	219.949	−6.047
	2000.00	104.061	503.738	422.319	222.838	162.838	−784.638	18.495	230.566	−6.022
	2100.00	104.380	508.823	426.318	233.260	173.260	−835.268	18.993	241.157	−5.998
	2200.00	104.663	513.685	430.180	243.712	183.712	−886.396	19.487	251.724	−5.977
	2300.00	104.916	518.344	433.913	254.192	194.192	−937.999	19.974	262.270	−5.956
	2400.00	105.144	522.814	437.524	264.695	204.695	−990.058	20.455	272.794	−5.937
	2500.00	105.349	527.110	441.022	275.220	215.220	−1042.556	20.928	283.298	−5.919
	2600.00	105.535	531.246	444.413	285.764	225.764	−1095.475	21.391	293.784	−5.902
	2700.00	105.704	535.232	447.704	296.326	236.326	−1148.800	21.845	304.252	−5.886
	2800.00	105.858	539.079	450.899	306.904	246.904	−1202.517	22.288	314.703	−5.871
	2900.00	105.998	542.796	454.004	317.497	257.497	−1256.611	22.720	325.139	−5.856
	3000.00	106.127	546.392	457.024	328.103	268.103	−1311.072	23.139	335.560	−5.843

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CH2Br2[g] DIBROMOMETHANE (GAS) 173.835

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	54.540	293.426	293.426	10.000	0.000	−77.485	10.000	8.570	−1.501
	300.00	54.728	293.764	293.427	10.101	0.101	−78.028	9.892	8.562	−1.491
	400.00	63.186	310.735	295.684	16.021	6.021	−108.273	−22.614	14.719	−1.922
	500.00	69.581	325.549	300.207	22.671	12.671	−140.103	−23.909	24.209	−2.529
	600.00	74.751	338.708	305.547	29.896	19.896	−173.328	−24.911	33.931	−2.954
	700.00	79.032	350.562	311.145	37.592	27.592	−207.802	−25.667	43.801	−3.268
	800.00	82.608	361.356	316.757	45.679	35.679	−243.405	−26.204	53.764	−3.510
	900.00	85.604	371.264	322.270	54.094	44.094	−280.043	−26.554	63.783	−3.702
	1000.00	88.122	380.417	327.633	62.784	52.784	−317.633	−26.753	73.832	−3.857
	1100.00	90.252	388.919	332.823	71.706	61.706	−356.105	−26.832	83.895	−3.984
	1200.00	92.077	396.852	337.832	80.824	70.824	−395.398	−26.817	93.961	−4.090
	1300.00	93.676	404.286	342.661	90.113	80.113	−435.459	−26.725	104.023	−4.180
	1400.00	95.129	411.282	347.315	99.555	89.555	−476.241	−26.569	114.075	−4.256
	1500.00	96.511	417.893	351.802	109.137	99.137	−517.702	−26.352	124.114	−4.322
	1600.00	97.529	424.151	356.130	118.834	108.834	−559.807	−26.092	134.137	−4.379
	1700.00	98.508	430.094	360.307	128.637	118.637	−602.522	−25.794	144.142	−4.429
	1800.00	99.353	435.749	364.342	138.531	128.531	−645.816	−25.467	154.129	−4.473
	1900.00	100.089	441.140	368.244	148.504	138.504	−689.663	−25.120	164.097	−4.511
	2000.00	100.736	446.291	372.018	158.546	148.546	−734.036	−24.758	174.047	−4.546
	2100.00	101.309	451.220	375.673	168.649	158.649	−778.914	−24.388	183.978	−4.576
	2200.00	101.820	455.945	379.215	178.806	168.806	−824.274	−24.013	193.891	−4.604
	2300.00	102.278	460.482	382.651	189.011	179.011	−870.096	−23.635	203.787	−4.628
	2400.00	102.691	464.843	385.985	199.260	189.260	−916.364	−23.258	213.667	−4.650
	2500.00	103.063	469.043	389.224	209.548	199.548	−963.060	−22.884	223.531	−4.670
	2600.00	103.402	473.092	392.372	219.871	209.871	−1010.168	−22.514	233.381	−4.689
	2700.00	103.709	477.000	395.435	230.227	220.227	−1057.673	−22.150	243.216	−4.705
	2800.00	103.990	480.777	398.415	240.612	230.612	−1105.563	−21.794	253.038	−4.720
	2900.00	104.247	484.431	401.319	251.024	241.024	−1153.825	−21.446	262.847	−4.734
	3000.00	104.482	487.969	404.149	261.461	251.461	−1202.446	−21.110	272.644	−4.747

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

94.939 BROMOMETHANE (GAS) **CH3Br[g]**

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	42.421	245.913	245.913	−36.400	0.000	−109.719	−36.400	−26.873	4.708
	300.00	42.567	246.176	245.914	−36.321	0.079	−110.174	−36.487	−26.814	4.669
	400.00	50.049	259.467	247.675	−31.683	4.717	−135.470	−54.486	−20.022	2.615
	500.00	56.694	271.364	251.243	−26.340	10.060	−162.021	−56.704	−11.142	1.164
	600.00	62.562	282.230	255.515	−20.370	16.030	−189.709	−58.567	−1.849	0.161
	700.00	67.718	292.270	260.057	−13.851	22.549	−218.440	−60.100	7.729	−0.577
	800.00	72.228	301.614	264.675	−6.848	29.552	−248.140	−61.325	17.506	−1.143
	900.00	76.158	310.354	269.270	0.576	36.976	−278.743	−62.274	27.420	−1.591
	1000.00	79.576	318.559	273.793	8.366	44.766	−310.193	−62.991	37.426	−1.955
	1100.00	82.547	326.286	278.217	16.476	52.876	−342.439	−63.515	47.495	−2.255
	1200.00	85.140	333.582	282.530	24.863	61.263	−375.435	−63.881	57.604	−2.507
	1300.00	87.422	340.489	286.725	33.494	69.894	−409.142	−64.116	67.738	−2.722
	1400.00	89.459	347.043	290.801	42.339	78.739	−443.522	−64.241	77.886	−2.906
	1500.00	91.320	353.280	294.760	51.379	87.779	−478.540	−64.271	88.039	−3.066
	1600.00	92.834	359.219	298.605	60.583	96.983	−514.167	−64.230	98.193	−3.206
	1700.00	94.237	364.890	302.338	69.938	106.338	−550.375	−64.122	108.341	−3.329
	1800.00	95.449	370.312	305.965	79.424	115.824	−587.137	−63.964	118.481	−3.438
	1900.00	96.507	375.501	309.489	89.023	125.423	−624.430	−63.768	128.612	−3.536
	2000.00	97.438	380.476	312.915	98.721	135.121	−662.230	−63.544	138.732	−3.623
	2100.00	98.263	385.250	316.247	108.507	144.907	−700.518	−63.299	148.840	−3.702
	2200.00	99.000	389.839	319.488	118.371	154.771	−739.274	−63.040	158.935	−3.774
	2300.00	99.660	394.254	322.644	128.304	164.704	−778.480	−62.771	169.019	−3.839
	2400.00	100.256	398.508	325.716	138.301	174.701	−818.120	−62.496	179.091	−3.898
	2500.00	100.795	402.612	328.711	148.354	184.754	−858.177	−62.218	189.152	−3.952
	2600.00	101.284	406.575	331.630	158.458	194.858	−898.637	−61.940	199.201	−4.002
	2700.00	101.730	410.406	334.477	168.609	205.009	−939.487	−61.664	209.239	−4.048
	2800.00	102.137	414.113	337.255	178.803	215.203	−980.714	−61.393	219.268	−4.090
	2900.00	102.509	417.704	339.968	189.035	225.435	−1022.306	−61.129	229.287	−4.130
	3000.00	102.850	421.185	342.617	199.303	235.703	−1064.251	−60.873	239.297	−4.167

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CHBrI2[g] BROMODIIODOMETHANE (GAS) 346.732

Phase	T [K]	C_P [J/(K mol)	S	−(G−H298)/T]	H [	H−H298	G kJ/mol	ΔH_f	ΔG_f]	log K_f [−]
GAS	298.15	73.591	355.143	355.143	165.000	0.000	59.114	165.000	137.625	−24.111
	300.00	73.769	355.599	355.144	165.136	0.136	58.457	164.923	137.456	−23.933
	400.00	81.081	377.912	358.137	172.910	7.910	21.745	131.327	132.352	−17.283
	500.00	85.872	396.550	364.007	181.271	16.271	−17.004	86.856	136.913	−14.303
	600.00	89.406	412.533	370.794	190.043	25.043	−57.477	86.973	146.915	−12.790
	700.00	92.150	426.529	377.778	199.126	34.126	−99.444	87.179	156.890	−11.707
	800.00	94.330	438.982	384.664	208.454	43.454	−142.731	87.460	166.830	−10.893
	900.00	96.082	450.197	391.333	217.978	52.978	−187.200	87.805	176.731	−10.257
	1000.00	97.501	460.397	397.737	227.660	62.660	−232.737	88.195	186.591	−9.747
	1100.00	98.666	469.746	403.864	237.470	72.470	−279.251	88.616	196.411	−9.327
	1200.00	99.644	478.374	409.718	247.387	82.387	−326.662	89.057	206.191	−8.975
	1300.00	100.497	486.384	415.311	257.394	92.394	−374.905	89.512	215.934	−8.676
	1400.00	101.283	493.861	420.658	267.484	102.484	−423.921	89.980	225.641	−8.419
	1500.00	102.061	500.875	425.774	277.651	112.651	−473.661	90.465	235.314	−8.194
	1600.00	102.577	507.476	430.676	287.879	122.879	−524.082	90.957	244.955	−7.997
	1700.00	103.093	513.710	435.379	298.163	133.163	−575.144	91.454	254.565	−7.822
	1800.00	103.538	519.616	439.896	308.495	143.495	−626.813	91.954	264.145	−7.665
	1900.00	103.925	525.224	444.241	318.869	153.869	−679.058	92.454	273.698	−7.524
	2000.00	104.265	530.564	448.425	329.279	164.279	−731.849	92.950	283.224	−7.397
	2100.00	104.566	535.658	452.458	339.721	174.721	−785.162	93.441	292.725	−7.281
	2200.00	104.833	540.529	456.352	350.191	185.191	−838.973	93.924	302.204	−7.175
	2300.00	105.072	545.195	460.114	360.686	195.686	−893.261	94.398	311.660	−7.078
	2400.00	105.288	549.671	463.753	371.204	206.204	−948.006	94.864	321.097	−6.988
	2500.00	105.482	553.973	467.276	381.743	216.743	−1003.190	95.319	330.514	−6.906
	2600.00	105.658	558.114	470.691	392.300	227.300	−1058.795	95.763	339.913	−6.829
	2700.00	105.818	562.104	474.003	402.874	237.874	−1114.807	96.195	349.295	−6.758
	2800.00	105.964	565.955	477.218	413.463	248.463	−1171.212	96.615	358.661	−6.691
	2900.00	106.098	569.676	480.343	424.067	259.067	−1227.994	97.021	368.013	−6.629
	3000.00	106.220	573.275	483.381	434.683	269.683	−1285.143	97.414	377.351	−6.570

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

299.731 DIBROMOIODOMETHANE (GAS) **CHBr2I[g]**

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	72.555	347.169	347.169	110.000	0.000	6.492	110.000	90.379	−15.834
	300.00	72.746	347.618	347.170	110.134	0.134	5.849	109.902	90.258	−15.715
	400.00	80.566	369.716	350.130	117.834	7.834	−30.052	69.810	90.520	−11.821
	500.00	85.623	388.270	355.953	126.159	16.159	−67.976	47.553	97.854	−10.223
	600.00	89.310	404.223	362.700	134.914	24.914	−107.620	47.669	107.905	−9.394
	700.00	92.142	418.212	369.651	143.992	33.992	−148.756	47.884	117.929	−8.800
	800.00	94.370	430.667	376.514	153.322	43.322	−191.211	48.180	127.916	−8.352
	900.00	96.141	441.888	383.165	162.851	52.851	−234.848	48.541	137.862	−8.001
	1000.00	97.563	452.094	389.555	172.539	62.539	−279.555	48.948	147.765	−7.718
	1100.00	98.719	461.448	395.671	182.355	72.355	−325.238	49.386	157.626	−7.485
	1200.00	99.685	470.081	401.517	192.276	82.276	−371.821	49.842	167.446	−7.289
	1300.00	100.528	478.094	407.103	202.288	92.288	−419.234	50.312	177.227	−7.121
	1400.00	101.314	485.573	412.444	212.380	102.380	−467.421	50.795	186.972	−6.976
	1500.00	102.105	492.589	417.555	222.551	112.551	−516.333	51.295	196.681	−6.849
	1600.00	102.607	499.192	422.453	232.782	122.782	−565.925	51.801	206.357	−6.737
	1700.00	103.120	505.429	427.153	243.069	133.069	−616.159	52.314	216.001	−6.637
	1800.00	103.563	511.336	431.667	253.404	143.404	−667.000	52.829	225.615	−6.547
	1900.00	103.947	516.946	436.009	263.780	153.780	−718.417	53.344	235.200	−6.466
	2000.00	104.285	522.286	440.190	274.192	164.192	−770.380	53.856	244.758	−6.392
	2100.00	104.584	527.382	444.222	284.636	174.636	−822.866	54.362	254.291	−6.325
	2200.00	104.850	532.253	448.113	295.108	185.108	−875.849	54.861	263.800	−6.263
	2300.00	105.088	536.919	451.874	305.605	195.605	−929.309	55.352	273.286	−6.207
	2400.00	105.302	541.396	455.511	316.124	206.124	−983.227	55.834	282.751	−6.154
	2500.00	105.495	545.699	459.033	326.664	216.664	−1037.583	56.306	292.196	−6.105
	2600.00	105.670	549.840	462.447	337.223	227.223	−1092.361	56.768	301.622	−6.060
	2700.00	105.830	553.831	465.758	347.798	237.798	−1147.546	57.218	311.031	−6.017
	2800.00	105.975	557.682	468.972	358.388	248.388	−1203.123	57.656	320.424	−5.978
	2900.00	106.107	561.404	472.096	368.992	258.992	−1259.078	58.081	329.801	−5.940
	3000.00	106.229	565.003	475.133	379.609	269.609	−1315.399	58.493	339.163	−5.905

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CH2BrI[g] BROMOIODOMETHANE (GAS) 220.835

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[-]
GAS	298.15	56.072	307.087	307.087	60.000	0.000	-31.558	60.000	49.120	-8.606
	300.00	56.257	307.434	307.088	60.104	0.104	-32.126	59.914	49.053	-8.541
	400.00	64.501	324.817	309.402	66.166	6.166	-63.761	33.973	49.266	-6.433
	500.00	70.667	339.900	314.027	72.937	12.937	-97.013	10.547	55.384	-5.786
	600.00	75.636	353.238	319.472	80.260	20.260	-131.683	9.626	64.442	-5.610
	700.00	79.753	365.216	325.165	88.036	28.036	-167.616	8.937	73.636	-5.495
	800.00	83.199	376.098	330.862	96.188	36.188	-204.690	8.453	82.914	-5.414
	900.00	86.098	386.069	336.450	104.657	44.657	-242.805	8.146	92.242	-5.354
	1000.00	88.545	395.271	341.878	113.393	53.393	-281.878	7.982	101.596	-5.307
	1100.00	90.624	403.810	347.125	122.354	62.354	-321.837	7.931	110.960	-5.269
	1200.00	92.410	411.774	352.184	131.508	71.508	-362.621	7.971	120.325	-5.238
	1300.00	93.977	419.234	357.058	140.829	80.829	-404.175	8.083	129.684	-5.211
	1400.00	95.396	426.251	361.752	150.298	90.298	-446.453	8.256	139.032	-5.187
	1500.00	96.735	432.879	366.275	159.905	99.905	-489.413	8.487	148.365	-5.167
	1600.00	97.739	439.151	370.635	169.625	109.625	-533.017	8.757	157.682	-5.148
	1700.00	98.698	445.106	374.842	179.448	119.448	-577.232	9.063	166.980	-5.131
	1800.00	99.525	450.771	378.905	189.360	129.360	-622.028	9.395	176.260	-5.115
	1900.00	100.247	456.172	382.830	199.349	139.349	-667.378	9.746	185.521	-5.100
	2000.00	100.881	461.330	386.627	209.406	149.406	-713.255	10.110	194.763	-5.087
	2100.00	101.442	466.266	390.303	219.523	159.523	-759.636	10.480	203.987	-5.074
	2200.00	101.943	470.997	393.864	229.693	169.693	-806.501	10.854	213.192	-5.062
	2300.00	102.392	475.539	397.317	239.910	179.910	-853.829	11.228	222.381	-5.050
	2400.00	102.796	479.905	400.668	250.170	190.170	-901.603	11.601	231.554	-5.040
	2500.00	103.161	484.109	403.922	260.468	200.468	-949.805	11.970	240.711	-5.029
	2600.00	103.493	488.162	407.085	270.801	210.801	-998.420	12.333	249.853	-5.020
	2700.00	103.795	492.073	410.160	281.165	221.165	-1047.433	12.689	258.982	-5.010
	2800.00	104.070	495.853	413.154	291.559	231.559	-1096.830	13.037	268.097	-5.001
	2900.00	104.322	499.510	416.069	301.979	241.979	-1146.599	13.374	277.201	-4.993
	3000.00	104.552	503.050	418.909	312.422	252.422	-1196.728	13.700	286.293	-4.985

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

48.472 CHLOROMETHYLENE (GAS) **CHCl[g]**

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	36.719	234.881	234.881	308.280	0.000	238.250	308.280	292.704	−51.281
	300.00	36.781	235.108	234.882	308.348	0.068	237.815	308.274	292.607	−50.947
	400.00	39.702	246.108	236.362	312.179	3.899	213.735	307.881	287.441	−37.536
	500.00	42.037	255.226	239.248	316.269	7.989	188.656	307.394	282.386	−29.501
	600.00	43.989	263.068	242.579	320.573	12.293	162.732	306.835	277.436	−24.153
	700.00	45.649	269.977	246.010	325.057	16.777	136.073	306.234	272.583	−20.340
	800.00	47.072	276.168	249.399	329.695	21.415	108.761	305.619	267.817	−17.487
	900.00	48.304	281.785	252.690	334.465	26.185	80.859	305.006	263.129	−15.272
	1000.00	49.381	286.931	255.861	339.351	31.071	52.419	304.400	258.509	−13.503
	1100.00	50.341	291.684	258.904	344.338	36.058	23.486	303.802	253.949	−12.059
	1200.00	51.218	296.102	261.822	349.416	41.136	−5.906	303.213	249.442	−10.858
	1300.00	52.044	300.234	264.619	354.579	46.299	−35.725	302.638	244.985	−9.844
	1400.00	52.853	304.121	267.303	359.824	51.544	−65.945	302.081	240.571	−8.976
	1500.00	53.678	307.795	269.881	365.151	56.871	−96.542	301.550	236.196	−8.225
	1600.00	54.398	311.285	272.361	370.558	62.278	−127.498	301.050	231.856	−7.569
	1700.00	55.119	314.604	274.749	376.033	67.753	−158.794	300.573	227.546	−6.992
	1800.00	55.894	317.776	277.052	381.584	73.304	−190.414	300.130	223.263	−6.479
	1900.00	56.698	320.820	279.276	387.213	78.933	−222.344	299.730	219.004	−6.021
	2000.00	57.511	323.749	281.427	392.923	84.643	−254.574	299.376	214.765	−5.609
	2100.00	58.318	326.574	283.510	398.715	90.435	−287.091	299.069	210.542	−5.237
	2200.00	59.108	329.305	285.530	404.586	96.306	−319.885	298.811	206.332	−4.899
	2300.00	59.875	331.950	287.491	410.536	102.256	−352.949	298.602	202.134	−4.591
	2400.00	60.610	334.514	289.397	416.560	108.280	−386.273	298.440	197.943	−4.308
	2500.00	61.312	337.002	291.252	422.657	114.377	−419.849	298.322	193.758	−4.048
	2600.00	61.975	339.420	293.058	428.821	120.541	−453.671	298.248	189.577	−3.809
	2700.00	62.599	341.771	294.819	435.050	126.770	−487.731	298.212	185.398	−3.587
	2800.00	63.181	344.058	296.537	441.340	133.060	−522.023	298.212	181.220	−3.381
	2900.00	63.721	346.285	298.214	447.685	139.405	−556.541	298.244	177.041	−3.189
	3000.00	64.219	348.453	299.853	454.082	145.802	−591.278	298.305	172.861	−3.010

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CHCl2[g] DICHLOROMETHYL (GAS) 83.925

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J/(K mol)]			[kJ/mol]					[-]
GAS	298.15	52.636	277.830	277.830	73.895	0.000	-8.940	73.895	78.775	-13.801
	300.00	52.771	278.156	277.831	73.993	0.098	-9.454	73.887	78.805	-13.721
	400.00	58.528	294.187	279.978	79.579	5.684	-38.096	73.516	80.503	-10.513
	500.00	62.521	307.698	284.206	85.641	11.746	-68.208	73.215	82.285	-8.596
	600.00	65.583	319.379	289.117	92.052	18.157	-99.575	72.947	84.125	-7.324
	700.00	68.029	329.679	294.190	98.737	24.842	-132.038	72.708	86.008	-6.418
	800.00	70.016	338.897	299.212	105.643	31.748	-165.475	72.508	87.922	-5.741
	900.00	71.643	347.241	304.093	112.729	38.834	-199.788	72.348	89.858	-5.215
	1000.00	72.983	354.861	308.794	119.962	46.067	-234.899	72.219	91.811	-4.796
	1100.00	74.097	361.871	313.305	127.318	53.423	-270.740	72.112	93.776	-4.453
	1200.00	75.040	368.360	317.626	134.776	60.881	-307.256	72.022	95.749	-4.168
	1300.00	75.863	374.399	321.763	142.322	68.427	-344.397	71.943	97.730	-3.927
	1400.00	76.614	380.049	325.727	149.946	76.051	-382.123	71.874	99.716	-3.720
	1500.00	77.340	385.360	329.527	157.644	83.749	-420.396	71.820	101.707	-3.542
	1600.00	77.848	390.365	333.175	165.400	91.505	-459.184	71.771	103.701	-3.385
	1700.00	78.345	395.100	336.679	173.210	99.315	-498.460	71.727	105.698	-3.248
	1800.00	78.773	399.591	340.051	181.067	107.172	-538.196	71.686	107.698	-3.125
	1900.00	79.145	403.860	343.298	188.963	115.068	-578.370	71.644	109.699	-3.016
	2000.00	79.472	407.928	346.428	196.894	122.999	-618.961	71.598	111.703	-2.917
	2100.00	79.761	411.812	349.450	204.856	130.961	-659.950	71.546	113.710	-2.828
	2200.00	80.018	415.529	352.370	212.845	138.950	-701.318	71.485	115.719	-2.748
	2300.00	80.249	419.091	355.194	220.859	146.964	-743.051	71.416	117.731	-2.674
	2400.00	80.456	422.511	357.928	228.894	154.999	-785.132	71.336	119.747	-2.606
	2500.00	80.643	425.799	360.577	236.949	163.054	-827.548	71.245	121.766	-2.544
	2600.00	80.812	428.965	363.147	245.022	171.127	-870.288	71.141	123.788	-2.487
	2700.00	80.966	432.018	365.642	253.111	179.216	-913.338	71.024	125.815	-2.434
	2800.00	81.106	434.965	368.065	261.215	187.320	-956.688	70.892	127.847	-2.385
	2900.00	81.235	437.814	370.422	269.332	195.437	-1000.327	70.744	129.884	-2.339
	3000.00	81.352	440.570	372.714	277.462	203.567	-1044.247	70.579	131.926	-2.297

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

119.377 TRICHLOROMETHANE (GAS) **CHCl3**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	65.806	295.751	295.751	−101.253	0.000	−189.431	−101.253	−68.455	11.993
	300.00	65.986	296.159	295.752	−101.131	0.122	−189.979	−101.268	−68.252	11.884
	400.00	74.489	316.361	298.449	−94.088	7.165	−220.633	−101.916	−57.140	7.462
	500.00	80.910	333.707	303.807	−86.303	14.950	−253.156	−102.279	−45.899	4.795
	600.00	85.647	348.900	310.083	−77.962	23.291	−287.303	−102.436	−34.605	3.013
	700.00	89.100	362.376	316.609	−69.216	32.037	−322.879	−102.452	−23.297	1.738
	800.00	91.667	374.449	323.098	−60.172	41.081	−359.731	−102.366	−11.994	0.783
	900.00	93.748	385.369	329.420	−50.899	50.354	−397.731	−102.202	−0.707	0.041
	1000.00	95.742	395.348	335.520	−41.425	59.828	−436.773	−101.961	10.558	−0.551

References

Phase	H / S	C_p
GAS	Sw1	Re1

CH2Cl[g] CHLOROMETHYL (GAS) 49.480

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	43.158	243.476	243.476	116.872	0.000	44.280	116.872	118.214	−20.711
	300.00	43.253	243.743	243.477	116.952	0.080	43.829	116.851	118.223	−20.584
	400.00	47.901	256.844	245.232	121.517	4.645	18.779	115.740	118.849	−15.520
	500.00	51.853	267.968	248.693	126.509	9.637	−7.475	114.693	119.749	−12.510
	600.00	55.304	277.734	252.735	131.871	14.999	−34.769	113.728	120.852	−10.521
	700.00	58.338	286.491	256.943	137.556	20.684	−62.988	112.859	122.109	−9.112
	800.00	61.012	294.460	261.142	143.527	26.655	−92.041	112.100	123.484	−8.063
	900.00	63.364	301.785	265.256	149.748	32.876	−121.858	111.451	124.947	−7.252
	1000.00	65.433	308.570	269.252	156.190	39.318	−152.380	110.899	126.477	−6.606
	1100.00	67.251	314.894	273.117	162.826	45.954	−183.557	110.431	128.058	−6.081
	1200.00	68.852	320.816	276.848	169.633	52.761	−215.346	110.032	129.679	−5.645
	1300.00	70.265	326.384	280.446	176.590	59.718	−247.708	109.690	131.330	−5.277
	1400.00	71.523	331.638	283.917	183.681	66.809	−280.612	109.397	133.006	−4.963
	1500.00	72.657	336.612	287.266	190.891	74.019	−314.027	109.145	134.702	−4.691
	1600.00	73.607	341.330	290.498	198.202	81.330	−347.926	108.923	136.413	−4.453
	1700.00	74.481	345.819	293.622	205.607	88.735	−382.285	108.729	138.137	−4.244
	1800.00	75.236	350.098	296.641	213.094	96.222	−417.082	108.557	139.872	−4.059
	1900.00	75.895	354.184	299.563	220.651	103.779	−452.298	108.398	141.616	−3.893
	2000.00	76.476	358.092	302.393	228.270	111.398	−487.913	108.247	143.368	−3.744
	2100.00	76.991	361.836	305.135	235.944	119.072	−523.911	108.100	145.128	−3.610
	2200.00	77.451	365.428	307.794	243.667	126.795	−560.275	107.954	146.895	−3.488
	2300.00	77.863	368.880	310.376	251.433	134.561	−596.992	107.806	148.668	−3.376
	2400.00	78.236	372.202	312.883	259.238	142.366	−634.047	107.654	150.448	−3.274
	2500.00	78.573	375.403	315.320	267.079	150.207	−671.428	107.495	152.234	−3.181
	2600.00	78.879	378.490	317.691	274.952	158.080	−709.124	107.330	154.027	−3.094
	2700.00	79.158	381.473	319.998	282.854	165.982	−747.123	107.155	155.826	−3.015
	2800.00	79.413	384.356	322.245	290.782	173.910	−785.415	106.970	157.632	−2.941
	2900.00	79.646	387.147	324.435	298.735	181.863	−823.991	106.773	159.445	−2.872
	3000.00	79.859	389.851	326.571	306.711	189.839	−862.842	106.563	161.265	−2.808

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

84.932 DICHLOROMETHANE (GAS) **CH2Cl2[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	50.870	270.287	270.287	−95.521	0.000	−176.107	−95.521	−68.911	12.073
	300.00	51.080	270.602	270.288	−95.427	0.094	−176.607	−95.559	−68.746	11.970
	400.00	59.931	286.596	272.409	−89.846	5.675	−204.485	−97.388	−59.522	7.773
	500.00	66.685	300.718	276.686	−83.505	12.016	−233.864	−98.872	−49.877	5.211
	600.00	72.328	313.390	281.765	−76.546	18.975	−264.580	−100.057	−39.962	3.479
	700.00	77.006	324.903	287.118	−69.072	26.449	−296.503	−100.976	−29.870	2.229
	800.00	80.852	335.445	292.509	−61.172	34.349	−329.528	−101.658	−19.663	1.284
	900.00	84.054	345.158	297.826	−52.923	42.598	−363.565	−102.142	−9.383	0.545
	1000.00	86.840	354.161	303.015	−44.375	51.146	−398.536	−102.459	0.942	−0.049
	1100.00	89.243	362.554	308.051	−35.568	59.953	−434.377	−102.633	11.292	−0.536
	1200.00	91.274	370.408	312.923	−26.539	68.982	−471.029	−102.692	21.652	−0.942
	1300.00	93.021	377.785	317.632	−17.322	78.199	−508.442	−102.660	32.013	−1.286
	1400.00	94.539	384.735	322.179	−7.943	87.578	−546.572	−102.555	42.369	−1.581
	1500.00	95.868	391.304	326.570	1.579	97.100	−585.377	−102.390	52.716	−1.836
	1600.00	97.035	397.529	330.813	11.225	106.746	−624.821	−102.174	63.049	−2.058
	1700.00	98.059	403.443	334.912	20.981	116.502	−664.872	−101.919	73.368	−2.254
	1800.00	98.954	409.074	338.877	30.833	126.354	−705.500	−101.632	83.671	−2.428
	1900.00	99.730	414.445	342.714	40.768	136.289	−746.678	−101.322	93.957	−2.583
	2000.00	100.397	419.578	346.430	50.775	146.296	−788.381	−100.996	104.226	−2.722

References

Phase	H / S	C_p
GAS	Ja1	Ja1

50.488 CHLOROMETHANE (GAS) **CH3Cl[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	40.693	234.581	234.581	−86.316	0.000	−156.256	−86.316	−62.840	11.009
	300.00	40.838	234.833	234.582	−86.241	0.075	−156.690	−86.368	−62.694	10.916
	400.00	48.347	247.627	236.275	−81.775	4.541	−180.826	−89.032	−54.393	7.103
	500.00	55.139	259.158	239.716	−76.595	9.721	−206.174	−91.352	−45.458	4.749
	600.00	61.232	269.760	243.852	−70.771	15.545	−232.627	−93.319	−36.088	3.142
	700.00	66.639	279.614	248.265	−64.372	21.944	−260.101	−94.944	−26.417	1.971
	800.00	71.377	288.829	252.766	−57.465	28.851	−288.528	−96.243	−16.535	1.080
	900.00	75.461	297.478	257.258	−50.118	36.198	−317.848	−97.253	−6.508	0.378
	1000.00	78.906	305.613	261.691	−42.394	43.922	−348.007	−98.025	3.619	−0.189

References

Phase	H / S	C_p
GAS	Sw1	Re1

C2HCl[g] CHLOROACETYLENE (GAS) 60.483

Phase	T	C_P	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[–]
GAS	298.15	54.309	241.950	241.950	212.864	0.000	140.727	212.864	196.892	–34.495
	300.00	54.453	242.286	241.951	212.965	0.101	140.279	212.875	196.793	–34.265
	400.00	60.253	258.823	244.166	218.727	5.863	115.197	213.376	191.352	–24.988
	500.00	63.988	272.692	248.522	224.949	12.085	88.603	213.690	185.805	–19.411
	600.00	66.805	284.618	253.567	231.494	18.630	60.724	213.792	180.215	–15.689
	700.00	69.106	295.094	258.766	238.293	25.429	31.727	213.727	174.622	–13.030
	800.00	71.061	304.452	263.903	245.304	32.440	1.742	213.561	169.046	–11.038
	900.00	72.759	312.922	268.886	252.497	39.633	–29.133	213.339	163.495	–9.489
	1000.00	74.250	320.667	273.682	259.849	46.985	–60.818	213.080	157.970	–8.252
	1100.00	75.565	327.807	278.282	267.341	54.477	–93.247	212.797	152.473	–7.240
	1200.00	76.728	334.433	282.689	274.957	62.093	–126.363	212.501	147.002	–6.399
	1300.00	77.756	340.616	286.910	282.682	69.818	–160.119	212.196	141.556	–5.688
	1400.00	78.666	346.412	290.955	290.504	77.640	–194.473	211.887	136.134	–5.079
	1500.00	79.469	351.867	294.836	298.411	85.547	–229.390	211.578	130.734	–4.553
	1600.00	80.174	357.018	298.563	306.393	93.529	–264.836	211.267	125.354	–4.092
	1700.00	80.814	361.898	302.146	314.443	101.579	–300.784	210.961	119.994	–3.687
	1800.00	81.368	366.533	305.595	322.552	109.688	–337.208	210.658	114.652	–3.327
	1900.00	81.854	370.946	308.920	330.714	117.850	–374.083	210.355	109.326	–3.006
	2000.00	82.283	375.156	312.127	338.921	126.057	–411.390	210.051	104.017	–2.717
	2100.00	82.664	379.180	315.225	347.169	134.305	–449.108	209.741	98.723	–2.456
	2200.00	83.006	383.033	318.220	355.453	142.589	–487.220	209.425	93.444	–2.219
	2300.00	83.313	386.730	321.119	363.769	150.905	–525.710	209.104	88.179	–2.003
	2400.00	83.590	390.282	323.927	372.114	159.250	–564.562	208.775	82.929	–1.805
	2500.00	83.842	393.699	326.650	380.486	167.622	–603.762	208.437	77.692	–1.623
	2600.00	84.071	396.992	329.293	388.882	176.018	–643.297	208.090	72.469	–1.456
	2700.00	84.280	400.169	331.859	397.300	184.436	–683.156	207.732	67.259	–1.301
	2800.00	84.471	403.237	334.354	405.737	192.873	–723.327	207.363	62.063	–1.158
	2900.00	84.646	406.205	336.781	414.193	201.329	–763.800	206.981	56.881	–1.025
	3000.00	84.807	409.077	339.143	422.666	209.802	–804.565	206.586	51.712	–0.900

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

131.389 TRICHLOROETHYLENE (GAS) **C2HCl3[g]**

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	80.020	324.961	324.961	−19.100	0.000	−115.987	−19.100	6.700	−1.174
	300.00	80.276	325.457	324.963	−18.952	0.148	−116.589	−19.104	6.860	−1.195
	400.00	91.243	350.169	328.258	−10.336	8.764	−150.403	−19.216	15.538	−2.029
	500.00	98.842	371.388	334.812	−0.812	18.288	−186.506	−19.172	24.224	−2.531
	600.00	104.606	389.941	342.487	9.373	28.473	−224.592	−19.065	32.894	−2.864
	700.00	109.127	406.419	350.465	20.068	39.168	−264.425	−18.910	41.542	−3.100
	800.00	112.712	421.234	358.401	31.167	50.267	−305.821	−18.694	50.164	−3.275
	900.00	115.562	434.681	366.141	42.586	61.686	−348.627	−18.416	58.755	−3.410
	1000.00	117.829	446.978	373.619	54.260	73.360	−392.719	−18.094	67.313	−3.516
	1100.00	119.644	458.297	380.809	66.137	85.237	−437.990	−17.745	75.837	−3.601
	1200.00	121.129	468.773	387.708	78.178	97.278	−484.350	−17.381	84.328	−3.671
	1300.00	122.395	478.520	394.323	90.355	109.455	−531.720	−17.006	92.789	−3.728
	1400.00	123.553	487.633	400.666	102.653	121.753	−580.033	−16.620	101.220	−3.777
	1500.00	124.708	496.196	406.752	115.066	134.166	−629.228	−16.214	109.623	−3.817
	1600.00	125.440	504.264	412.597	127.568	146.668	−679.255	−15.799	117.999	−3.852
	1700.00	126.176	511.892	418.216	140.149	159.249	−730.067	−15.377	126.348	−3.882
	1800.00	126.806	519.122	423.622	152.799	171.899	−781.620	−14.950	134.673	−3.908
	1900.00	127.352	525.993	428.831	165.508	184.608	−833.879	−14.523	142.974	−3.931
	2000.00	127.829	532.538	433.854	178.267	197.367	−886.808	−14.101	151.252	−3.950
	2100.00	128.249	538.785	438.703	191.072	210.172	−940.377	−13.687	159.509	−3.968
	2200.00	128.621	544.760	443.389	203.915	223.015	−994.556	−13.282	167.747	−3.983
	2300.00	128.952	550.485	447.922	216.794	235.894	−1049.320	−12.889	175.967	−3.996
	2400.00	129.249	555.979	452.311	229.705	248.805	−1104.645	−12.510	184.170	−4.008
	2500.00	129.517	561.261	456.564	242.643	261.743	−1160.509	−12.146	192.357	−4.019
	2600.00	129.758	566.346	460.689	255.607	274.707	−1216.891	−11.800	200.531	−4.029
	2700.00	129.977	571.247	464.693	268.594	287.694	−1273.772	−11.472	208.691	−4.037
	2800.00	130.177	575.977	468.584	281.602	300.702	−1331.135	−11.164	216.839	−4.045
	2900.00	130.358	580.549	472.366	294.629	313.729	−1388.962	−10.879	224.977	−4.052
	3000.00	130.524	584.971	476.046	307.673	326.773	−1447.239	−10.617	233.106	−4.059

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

C2H2Cl2[g] DICHLOROETHYLENE (GAS) 96.944

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J/(K mol)]			[kJ/mol]					[-]
GAS	298.15	68.798	297.015	297.015	3.410	0.000	-85.145	3.410	23.762	-4.163
	300.00	69.030	297.441	297.016	3.537	0.127	-85.695	3.390	23.889	-4.159
	400.00	79.505	318.818	299.860	10.993	7.583	-116.534	2.398	30.877	-4.032
	500.00	87.433	337.446	305.554	19.356	15.946	-149.367	1.605	38.092	-3.979
	600.00	93.824	353.971	312.272	28.429	25.019	-183.953	0.954	45.453	-3.957
	700.00	99.087	368.842	319.309	38.083	34.673	-220.106	0.437	52.913	-3.948
	800.00	103.449	382.367	326.359	48.217	44.807	-257.677	0.064	60.436	-3.946
	900.00	107.072	394.767	333.280	58.748	55.338	-296.542	-0.170	67.998	-3.947
	1000.00	110.085	406.209	340.009	69.611	66.201	-336.599	-0.291	75.580	-3.948
	1100.00	112.606	416.823	346.515	80.749	77.339	-377.757	-0.323	83.169	-3.949
	1200.00	114.742	426.715	352.791	92.119	88.709	-419.939	-0.286	90.758	-3.951
	1300.00	116.600	435.974	358.837	103.688	100.278	-463.079	-0.194	98.342	-3.951
	1400.00	118.281	444.678	364.661	115.433	112.023	-507.115	-0.053	105.916	-3.952
	1500.00	119.886	452.893	370.272	127.342	123.932	-551.998	0.140	113.479	-3.952
	1600.00	121.051	460.664	375.681	139.383	135.973	-597.679	0.366	121.028	-3.951
	1700.00	122.172	468.037	380.898	151.546	148.136	-644.117	0.624	128.562	-3.950
	1800.00	123.138	475.048	385.936	163.812	160.402	-691.274	0.906	136.079	-3.949
	1900.00	123.978	481.729	390.803	176.169	172.759	-739.116	1.203	143.581	-3.947
	2000.00	124.717	488.107	395.510	188.604	185.194	-787.610	1.510	151.067	-3.945
	2100.00	125.369	494.208	400.066	201.109	197.699	-836.728	1.818	158.537	-3.943
	2200.00	125.951	500.054	404.479	213.676	210.266	-886.443	2.126	165.992	-3.941
	2300.00	126.471	505.665	408.757	226.297	222.887	-936.731	2.430	173.434	-3.939
	2400.00	126.939	511.057	412.908	238.968	235.558	-987.569	2.727	180.863	-3.936
	2500.00	127.361	516.248	416.938	251.684	248.274	-1038.936	3.015	188.279	-3.934
	2600.00	127.745	521.251	420.855	264.439	261.029	-1090.812	3.292	195.684	-3.931
	2700.00	128.093	526.078	424.663	277.231	273.821	-1143.180	3.555	203.079	-3.929
	2800.00	128.411	530.743	428.369	290.057	286.647	-1196.023	3.802	210.464	-3.926
	2900.00	128.701	535.254	431.977	302.913	299.503	-1249.324	4.031	217.841	-3.924
	3000.00	128.967	539.622	435.493	315.796	312.386	-1303.069	4.241	225.210	-3.921

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

96.944 1,1-DICHLOROETHYLENE (GAS) **C2H2Cl2[1,1][g]**

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol	]		[−]
GAS	298.15	67.075	288.159	288.159	2.300	0.000	−83.615	2.300	25.293	−4.431
	300.00	67.342	288.575	288.160	2.424	0.124	−84.148	2.277	25.436	−4.429
	400.00	78.927	309.646	290.955	9.777	7.477	−114.082	1.182	33.330	−4.352
	500.00	87.255	328.195	296.586	18.104	15.804	−145.993	0.354	41.466	−4.332
	600.00	93.792	344.703	303.255	27.169	24.869	−179.653	−0.307	49.753	−4.331
	700.00	99.102	359.573	310.256	36.822	34.522	−214.879	−0.824	58.140	−4.338
	800.00	103.474	373.101	317.279	46.958	44.658	−251.523	−1.195	66.590	−4.348
	900.00	107.095	385.504	324.180	57.492	55.192	−289.462	−1.426	75.079	−4.357
	1000.00	110.105	396.948	330.892	68.356	66.056	−328.592	−1.545	83.586	−4.366
	1100.00	112.624	407.564	337.385	79.497	77.197	−368.824	−1.576	92.102	−4.374
	1200.00	114.762	417.458	343.650	90.869	88.569	−410.081	−1.537	100.617	−4.380
	1300.00	116.621	426.718	349.688	102.440	100.140	−452.294	−1.443	109.126	−4.385
	1400.00	118.299	435.423	355.504	114.187	111.887	−495.406	−1.299	117.626	−4.389
	1500.00	119.894	443.640	361.108	126.097	123.797	−539.363	−1.105	126.114	−4.392
	1600.00	121.061	451.411	366.512	138.139	135.839	−584.119	−0.878	134.588	−4.394
	1700.00	122.181	458.785	371.724	150.302	148.002	−629.632	−0.619	143.047	−4.395
	1800.00	123.146	465.796	376.758	162.570	160.270	−675.864	−0.336	151.490	−4.396
	1900.00	123.985	472.478	381.621	174.927	172.627	−722.780	−0.038	159.917	−4.396
	2000.00	124.723	478.856	386.324	187.364	185.064	−770.349	0.269	168.328	−4.396
	2100.00	125.375	484.958	390.877	199.869	197.569	−818.542	0.578	176.723	−4.396
	2200.00	125.955	490.804	395.287	212.436	210.136	−867.332	0.886	185.104	−4.395
	2300.00	126.475	496.414	399.563	225.058	222.758	−916.695	1.190	193.470	−4.394
	2400.00	126.943	501.807	403.712	237.729	235.429	−966.608	1.488	201.824	−4.393
	2500.00	127.365	506.998	407.740	250.445	248.145	−1017.049	1.777	210.165	−4.391
	2600.00	127.748	512.001	411.654	263.201	260.901	−1068.001	2.054	218.495	−4.390
	2700.00	128.096	516.829	415.461	275.994	273.694	−1119.444	2.317	226.815	−4.388
	2800.00	128.413	521.493	419.165	288.819	286.519	−1171.361	2.564	235.125	−4.386
	2900.00	128.703	526.004	422.771	301.675	299.375	−1223.737	2.794	243.427	−4.385
	3000.00	128.969	530.372	426.286	314.559	312.259	−1276.557	3.004	251.721	−4.383

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

C2H2Cl2[cis][g] CIS-DICHLOROETHYLENE (GAS) 96.944

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[-]
GAS	298.15	64.833	289.573	289.573	4.100	0.000	-82.236	4.100	26.671	-4.673
	300.00	65.102	289.975	289.574	4.220	0.120	-82.772	4.072	26.811	-4.668
	400.00	77.001	310.440	292.284	11.362	7.262	-112.814	2.768	34.598	-4.518
	500.00	85.722	328.601	297.766	19.517	15.417	-144.783	1.767	42.676	-4.458
	600.00	92.614	344.862	304.284	28.447	24.347	-178.471	0.971	50.936	-4.434
	700.00	98.212	359.573	311.149	37.997	33.897	-213.704	0.351	59.315	-4.426
	800.00	102.802	372.997	318.053	48.056	43.956	-250.342	-0.097	67.771	-4.425
	900.00	106.577	385.331	324.852	58.531	54.431	-288.267	-0.388	76.273	-4.427
	1000.00	109.689	396.726	331.477	69.349	65.249	-327.377	-0.553	84.801	-4.430
	1100.00	112.274	407.306	337.896	80.451	76.351	-367.585	-0.621	93.340	-4.432
	1200.00	114.453	417.171	344.096	91.790	87.690	-408.815	-0.615	101.883	-4.435
	1300.00	116.345	426.408	350.076	103.332	99.232	-450.998	-0.551	110.422	-4.437
	1400.00	118.065	435.094	355.841	115.053	110.953	-494.078	-0.433	118.954	-4.438
	1500.00	119.726	443.296	361.401	126.943	122.843	-538.001	-0.259	127.476	-4.439
	1600.00	120.897	451.056	366.764	138.968	134.868	-582.722	-0.049	135.985	-4.439
	1700.00	122.036	458.420	371.941	151.116	147.016	-628.199	0.194	144.480	-4.439
	1800.00	123.017	465.424	376.941	163.370	159.270	-674.394	0.463	152.960	-4.439
	1900.00	123.870	472.099	381.775	175.715	171.615	-721.273	0.749	161.424	-4.438
	2000.00	124.619	478.472	386.452	188.140	184.040	-768.804	1.045	169.873	-4.437
	2100.00	125.281	484.569	390.980	200.636	196.536	-816.958	1.344	178.307	-4.435
	2200.00	125.871	490.410	395.368	213.194	209.094	-865.709	1.644	186.727	-4.433
	2300.00	126.398	496.018	399.623	225.808	221.708	-915.032	1.940	195.133	-4.432
	2400.00	126.872	501.407	403.752	238.472	234.372	-964.905	2.231	203.526	-4.430
	2500.00	127.300	506.595	407.763	251.181	247.081	-1015.307	2.512	211.908	-4.428
	2600.00	127.688	511.596	411.661	263.930	259.830	-1066.218	2.783	220.278	-4.425
	2700.00	128.040	516.421	415.452	276.717	272.617	-1117.620	3.040	228.638	-4.423
	2800.00	128.362	521.084	419.142	289.537	285.437	-1169.497	3.282	236.989	-4.421
	2900.00	128.655	525.593	422.735	302.388	298.288	-1221.832	3.507	245.332	-4.419
	3000.00	128.924	529.960	426.237	315.268	311.168	-1274.611	3.713	253.667	-4.417

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

96.944 TRANS-DICHLROROETHYLENE (GAS) **C2H2Cl2[trans][g]**

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J/(K mol)]			[kJ/mol]					[-]
GAS	298.15	66.504	290.047	290.047	6.100	0.000	-80.378	6.100	28.530	-4.998
	300.00	66.749	290.459	290.048	6.223	0.123	-80.914	6.075	28.669	-4.992
	400.00	77.826	311.267	292.810	13.483	7.383	-111.024	4.888	36.387	-4.752
	500.00	86.197	329.570	298.369	21.701	15.601	-143.084	3.950	44.375	-4.636
	600.00	92.919	345.901	304.954	30.668	24.568	-176.873	3.192	52.534	-4.573
	700.00	98.425	360.651	311.874	40.244	34.144	-212.212	2.597	60.807	-4.537
	800.00	102.961	374.100	318.824	50.321	44.221	-248.960	2.168	69.154	-4.515
	900.00	106.702	386.450	325.662	60.810	54.710	-286.995	1.891	77.545	-4.501
	1000.00	109.791	397.857	332.318	71.639	65.539	-326.218	1.738	85.960	-4.490
	1100.00	112.357	408.446	338.763	82.750	76.650	-366.540	1.678	94.386	-4.482
	1200.00	114.523	418.317	344.986	94.097	87.997	-407.883	1.692	102.814	-4.475
	1300.00	116.404	427.560	350.986	105.646	99.546	-450.182	1.763	111.238	-4.470
	1400.00	118.116	436.250	356.769	117.372	111.272	-493.377	1.886	119.655	-4.464
	1500.00	119.771	444.455	362.344	129.267	123.167	-537.416	2.065	128.061	-4.459
	1600.00	120.936	452.218	367.721	141.296	135.196	-582.253	2.279	136.454	-4.455
	1700.00	122.070	459.585	372.910	153.447	147.347	-627.846	2.526	144.833	-4.450
	1800.00	123.048	466.590	377.921	165.704	159.604	-674.158	2.798	153.196	-4.446
	1900.00	123.898	473.266	382.765	178.053	171.953	-721.153	3.087	161.543	-4.441
	2000.00	124.644	479.641	387.451	190.481	184.381	-768.801	3.386	169.876	-4.437
	2100.00	125.304	485.739	391.987	202.979	196.879	-817.072	3.687	178.193	-4.432
	2200.00	125.891	491.582	396.382	215.539	209.439	-865.940	3.989	186.495	-4.428
	2300.00	126.417	497.189	400.644	228.155	222.055	-915.381	4.287	194.784	-4.424
	2400.00	126.889	502.580	404.780	240.821	234.721	-965.371	4.579	203.061	-4.419
	2500.00	127.316	507.769	408.796	253.531	247.431	-1015.890	4.863	211.325	-4.415
	2600.00	127.703	512.770	412.699	266.282	260.182	-1066.918	5.135	219.578	-4.411
	2700.00	128.054	517.596	416.496	279.071	272.971	-1118.438	5.394	227.821	-4.407
	2800.00	128.375	522.259	420.190	291.892	285.792	-1170.432	5.637	236.054	-4.404
	2900.00	128.667	526.769	423.788	304.745	298.645	-1222.885	5.863	244.279	-4.400
	3000.00	128.935	531.135	427.294	317.625	311.525	-1275.781	6.070	252.497	-4.396

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

C2H3Cl[g] CHLOROETHENE (GAS) 62.499

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	53.728	264.036	264.036	35.146	0.000	−43.576	35.146	51.551	−9.032
	300.00	53.956	264.369	264.037	35.246	0.100	−44.065	35.103	51.653	−8.994
	400.00	65.154	281.474	266.294	41.218	6.072	−71.371	32.909	57.510	−7.510
	500.00	74.427	297.042	270.910	48.212	13.066	−100.309	31.071	63.880	−6.674
	600.00	82.061	311.310	276.471	56.049	20.903	−130.737	29.536	70.591	−6.145
	700.00	88.341	324.447	282.399	64.579	29.433	−162.533	28.265	77.537	−5.786
	800.00	93.555	336.593	288.424	73.682	38.536	−195.593	27.238	84.649	−5.527
	900.00	97.988	347.875	294.410	83.264	48.118	−229.823	26.430	91.876	−5.332
	1000.00	101.926	358.406	300.289	93.263	58.117	−265.143	25.814	99.182	−5.181

References

Phase	H / S	C_p
GAS	Sw1	Re1

C2H5Cl[g] CHLOROETHANE (GAS) 64.514

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	62.229	275.961	275.961	−111.713	0.000	−193.991	−111.713	−59.901	10.494
	300.00	62.535	276.346	275.962	−111.598	0.115	−194.502	−111.794	−59.579	10.374
	400.00	77.762	296.482	278.604	−104.562	7.151	−223.155	−115.831	−41.546	5.425
	500.00	90.643	315.259	284.079	−96.123	15.590	−253.753	−119.147	−22.577	2.359
	600.00	101.511	332.773	290.752	−86.500	25.213	−286.164	−121.824	−3.002	0.261
	700.00	110.697	349.131	297.937	−75.877	35.836	−320.269	−123.941	16.977	−1.267
	800.00	118.534	364.437	305.303	−64.406	47.307	−355.955	−125.552	37.224	−2.430
	900.00	125.356	378.800	312.680	−52.204	59.509	−393.125	−126.715	57.645	−3.346
	1000.00	131.495	392.330	319.975	−39.357	72.356	−431.688	−127.486	78.174	−4.083

References

Phase	H / S	C_p	Remarks
GAS	Sw1	Re1	NBPT= 285.4

208.279 CHLORODIBROMOMETHANE (GAS) **CHClBr2**[g]

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	69.105	328.020	328.020	10.000	0.000	−87.799	10.000	12.036	−2.109
	300.00	69.297	328.448	328.021	10.128	0.128	−88.406	9.914	12.049	−2.098
	400.00	77.373	349.580	330.848	17.493	7.493	−122.339	−21.427	19.183	−2.505
	500.00	82.854	367.467	336.429	25.519	15.519	−158.215	−21.671	29.368	−3.068
	600.00	86.972	382.953	342.921	34.019	24.019	−195.753	−21.751	39.586	−3.446
	700.00	90.192	396.611	349.635	42.883	32.883	−234.744	−21.708	49.807	−3.717
	800.00	92.750	408.828	356.284	52.035	42.035	−275.027	−21.556	60.014	−3.918
	900.00	94.794	419.875	362.746	61.416	51.416	−316.471	−21.316	70.196	−4.074
	1000.00	96.435	429.950	368.970	70.981	60.981	−358.970	−21.009	80.348	−4.197
	1100.00	97.765	439.206	374.940	80.693	70.693	−402.434	−20.655	90.467	−4.296
	1200.00	98.867	447.761	380.656	90.526	80.526	−446.788	−20.268	100.552	−4.377
	1300.00	99.820	455.713	386.128	100.461	90.461	−491.966	−19.857	110.604	−4.444
	1400.00	100.697	463.143	391.366	110.488	100.488	−537.913	−19.424	120.624	−4.501
	1500.00	101.573	470.120	396.386	120.601	110.601	−584.580	−18.965	130.611	−4.548
	1600.00	102.135	476.691	401.202	130.782	120.782	−631.923	−18.494	140.568	−4.589
	1700.00	102.702	482.900	405.827	141.024	131.024	−679.906	−18.012	150.494	−4.624
	1800.00	103.189	488.784	410.274	151.320	141.320	−728.492	−17.522	160.392	−4.654
	1900.00	103.612	494.375	414.554	161.660	151.660	−777.653	−17.029	170.263	−4.681
	2000.00	103.982	499.699	418.679	172.040	162.040	−827.359	−16.537	180.108	−4.704
	2100.00	104.309	504.781	422.659	182.455	172.455	−877.585	−16.048	189.928	−4.724
	2200.00	104.599	509.640	426.503	192.901	182.901	−928.307	−15.565	199.725	−4.742
	2300.00	104.859	514.296	430.220	203.374	193.374	−979.506	−15.088	209.500	−4.758
	2400.00	105.092	518.763	433.817	213.872	203.872	−1031.160	−14.620	219.255	−4.772
	2500.00	105.301	523.058	437.301	224.392	214.392	−1083.253	−14.161	228.990	−4.784
	2600.00	105.491	527.191	440.679	234.931	224.931	−1135.766	−13.713	238.707	−4.796
	2700.00	105.664	531.176	443.958	245.489	235.489	−1188.686	−13.277	248.408	−4.806
	2800.00	105.821	535.022	447.142	256.064	246.064	−1241.997	−12.854	258.092	−4.815
	2900.00	105.964	538.738	450.237	266.653	256.653	−1295.686	−12.444	267.761	−4.823
	3000.00	106.095	542.332	453.247	277.256	267.256	−1349.741	−12.049	277.417	−4.830

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CHCl2Br[g] DICHLOROBROMOMETHANE (GAS) 163.829

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J/(K mol)]			[kJ/mol]					[-]
GAS	298.15	67.350	316.473	316.473	-45.000	0.000	-139.356	-45.000	-42.731	7.486
	300.00	67.549	316.890	316.474	-44.875	0.125	-139.942	-45.046	-42.717	7.438
	400.00	75.990	337.572	319.237	-37.666	7.334	-172.695	-60.754	-38.717	5.056
	500.00	81.752	355.181	324.709	-29.764	15.236	-207.354	-60.737	-33.205	3.469
	600.00	86.091	370.487	331.091	-21.362	23.638	-243.655	-60.522	-27.716	2.413
	700.00	89.486	384.023	337.704	-12.577	32.423	-281.393	-60.158	-22.275	1.662
	800.00	92.179	396.155	344.266	-3.488	41.512	-320.412	-59.673	-16.895	1.103
	900.00	94.326	407.141	350.651	5.841	50.841	-360.586	-59.093	-11.582	0.672
	1000.00	96.044	417.171	356.809	15.362	60.362	-401.809	-58.448	-6.337	0.331
	1100.00	97.431	426.393	362.721	25.039	70.039	-443.993	-57.763	-1.159	0.055
	1200.00	98.577	434.921	368.387	34.841	79.841	-487.064	-57.056	3.956	-0.172
	1300.00	99.565	442.851	373.813	44.749	89.749	-530.957	-56.340	9.011	-0.362
	1400.00	100.475	450.263	379.012	54.751	99.751	-575.617	-55.617	14.011	-0.523
	1500.00	101.386	457.226	383.997	64.844	109.844	-620.995	-54.885	18.959	-0.660
	1600.00	101.965	463.785	388.781	75.007	120.007	-667.049	-54.156	23.858	-0.779
	1700.00	102.550	469.984	393.377	85.233	130.233	-713.740	-53.432	28.712	-0.882
	1800.00	103.053	475.861	397.797	95.514	140.514	-761.035	-52.717	33.523	-0.973
	1900.00	103.489	481.444	402.054	105.842	150.842	-808.903	-52.015	38.295	-1.053
	2000.00	103.871	486.763	406.157	116.210	161.210	-857.315	-51.327	43.030	-1.124
	2100.00	104.208	491.839	410.118	126.615	171.615	-906.247	-50.658	47.732	-1.187
	2200.00	104.507	496.694	413.943	137.051	182.051	-955.675	-50.008	52.402	-1.244
	2300.00	104.774	501.345	417.643	147.515	192.515	-1005.579	-49.376	57.043	-1.295
	2400.00	105.013	505.809	421.224	158.004	203.004	-1055.938	-48.766	61.656	-1.342
	2500.00	105.229	510.101	424.694	168.517	213.517	-1106.735	-48.176	66.245	-1.384
	2600.00	105.424	514.232	428.059	179.049	224.049	-1157.953	-47.608	70.811	-1.423
	2700.00	105.601	518.214	431.325	189.601	234.601	-1209.576	-47.061	75.355	-1.458
	2800.00	105.763	522.057	434.497	200.169	245.169	-1261.591	-46.538	79.879	-1.490
	2900.00	105.910	525.771	437.581	210.753	255.753	-1313.984	-46.037	84.385	-1.520
	3000.00	106.044	529.364	440.580	221.351	266.351	-1366.741	-45.561	88.874	-1.547

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

129.384 CHLOROBROMOMETHANE (GAS) **CH2ClBr[g]**

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol	]		[−]
GAS	298.15	52.682	287.285	287.285	−45.000	0.000	−130.654	−45.000	−20.249	3.547
	300.00	52.869	287.611	287.286	−44.902	0.098	−131.186	−45.078	−20.095	3.499
	400.00	61.423	304.055	289.470	−39.166	5.834	−160.788	−62.539	−8.281	1.081
	500.00	68.039	318.499	293.861	−32.681	12.319	−191.930	−64.264	5.490	−0.573
	600.00	73.445	331.397	299.061	−25.598	19.402	−224.436	−65.720	19.581	−1.705
	700.00	77.940	343.067	304.527	−18.022	26.978	−258.169	−66.936	33.897	−2.529
	800.00	81.700	353.727	310.020	−10.035	34.965	−293.016	−67.928	48.372	−3.158
	900.00	84.848	363.537	315.429	−1.703	43.297	−328.886	−68.720	62.959	−3.654
	1000.00	87.488	372.617	320.699	6.918	51.918	−365.699	−69.345	77.625	−4.055
	1100.00	89.714	381.063	325.808	15.781	60.781	−403.388	−69.830	92.347	−4.385
	1200.00	91.614	388.953	330.745	24.850	69.850	−441.894	−70.200	107.107	−4.662
	1300.00	93.275	396.353	335.510	34.096	79.096	−481.163	−70.471	121.895	−4.898
	1400.00	94.779	403.321	340.107	43.500	88.500	−521.150	−70.656	136.700	−5.100
	1500.00	96.209	409.909	344.543	53.049	98.049	−561.814	−70.757	151.515	−5.276
	1600.00	97.261	416.149	348.825	62.718	107.718	−603.120	−70.795	166.334	−5.430
	1700.00	98.270	422.076	352.961	72.496	117.496	−645.034	−70.775	181.155	−5.566
	1800.00	99.140	427.718	356.959	82.367	127.367	−687.525	−70.708	195.972	−5.687
	1900.00	99.898	433.099	360.825	92.320	137.320	−730.568	−70.602	210.785	−5.795
	2000.00	100.563	438.240	364.569	102.344	147.344	−774.137	−70.467	225.592	−5.892
	2100.00	101.152	443.162	368.195	112.430	157.430	−818.209	−70.309	240.391	−5.979
	2200.00	101.677	447.879	371.710	122.572	167.572	−862.763	−70.133	255.182	−6.059
	2300.00	102.147	452.410	375.121	132.764	177.764	−907.779	−69.944	269.965	−6.131
	2400.00	102.570	456.766	378.433	143.000	188.000	−953.239	−69.744	284.739	−6.197
	2500.00	102.952	460.961	381.651	153.276	198.276	−999.127	−69.537	299.505	−6.258
	2600.00	103.299	465.006	384.779	163.589	208.589	−1045.426	−69.327	314.263	−6.314
	2700.00	103.614	468.910	387.823	173.935	218.935	−1092.123	−69.117	329.012	−6.365
	2800.00	103.902	472.684	390.787	184.311	229.311	−1139.204	−68.907	343.754	−6.413
	2900.00	104.165	476.335	393.674	194.715	239.715	−1186.656	−68.702	358.488	−6.457
	3000.00	104.405	479.870	396.489	205.143	250.143	−1234.467	−68.503	373.215	−6.498

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CHClBrI[g] CHLOROBROMOIODOMETHANE (GAS) 255.280

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[-]
GAS	298.15	72.348	338.095	338.095	60.000	0.000	-40.803	60.000	53.655	-9.400
	300.00	72.536	338.543	338.096	60.134	0.134	-41.429	59.940	53.616	-9.335
	400.00	80.267	360.566	341.047	67.808	7.808	-76.419	35.330	55.138	-7.200
	500.00	85.289	379.049	346.849	76.100	16.100	-113.424	13.101	62.244	-6.503
	600.00	88.972	394.940	353.571	84.822	24.822	-152.142	13.225	72.062	-6.274
	700.00	91.819	408.878	360.497	93.867	33.867	-192.348	13.436	81.853	-6.108
	800.00	94.075	421.291	367.334	103.166	43.166	-233.867	13.722	91.608	-5.981
	900.00	95.882	432.480	373.961	112.667	52.667	-276.565	14.072	101.323	-5.881
	1000.00	97.343	442.661	380.330	122.331	62.331	-320.330	14.467	110.997	-5.798
	1100.00	98.538	451.996	386.426	132.127	72.127	-365.069	14.894	120.629	-5.728
	1200.00	99.539	460.614	392.254	142.032	82.032	-410.705	15.342	130.222	-5.668
	1300.00	100.409	468.617	397.824	152.030	92.030	-457.171	15.805	139.777	-5.616
	1400.00	101.211	476.087	403.151	162.111	102.111	-504.411	16.282	149.295	-5.570
	1500.00	102.002	483.097	408.249	172.272	112.272	-552.374	16.776	158.779	-5.529
	1600.00	102.526	489.694	413.135	182.495	122.495	-601.016	17.277	168.229	-5.492
	1700.00	103.049	495.926	417.824	192.774	132.774	-650.300	17.784	177.648	-5.458
	1800.00	103.500	501.829	422.328	203.102	143.102	-700.191	18.294	187.037	-5.428
	1900.00	103.892	507.436	426.661	213.472	153.472	-750.656	18.804	196.398	-5.399
	2000.00	104.236	512.774	430.834	223.879	163.879	-801.669	19.309	205.732	-5.373
	2100.00	104.540	517.867	434.858	234.318	174.318	-853.203	19.808	215.041	-5.349
	2200.00	104.810	522.737	438.743	244.786	184.786	-905.235	20.299	224.326	-5.326
	2300.00	105.052	527.401	442.497	255.279	195.279	-957.743	20.782	233.589	-5.305
	2400.00	105.270	531.877	446.129	265.795	205.795	-1010.709	21.253	242.832	-5.285
	2500.00	105.466	536.178	449.645	276.332	216.332	-1064.113	21.713	252.055	-5.266
	2600.00	105.644	540.318	453.053	286.888	226.888	-1117.939	22.161	261.260	-5.249
	2700.00	105.805	544.308	456.360	297.460	237.460	-1172.171	22.595	270.447	-5.232
	2800.00	105.952	548.159	459.570	308.048	248.048	-1226.796	23.015	279.619	-5.216
	2900.00	106.087	551.879	462.689	318.651	258.651	-1281.799	23.419	288.777	-5.201
	3000.00	106.210	555.478	465.723	329.265	269.265	-1337.168	23.808	297.920	-5.187
	3100.00	106.322	558.962	468.674	339.892	279.892	-1392.891	24.180	307.051	-5.174
	3200.00	106.426	562.339	471.549	350.530	290.530	-1448.956	24.534	316.170	-5.161
	3300.00	106.521	565.616	474.350	361.177	301.177	-1505.355	24.870	325.279	-5.149
	3400.00	106.609	568.797	477.081	371.834	311.834	-1562.076	25.187	334.377	-5.137
	3500.00	106.689	571.889	479.746	382.499	322.499	-1619.111	25.484	343.467	-5.126
	3600.00	106.763	574.895	482.348	393.171	333.171	-1676.451	25.761	352.548	-5.115
	3700.00	106.832	577.821	484.889	403.851	343.851	-1734.088	26.017	361.622	-5.105
	3800.00	106.895	580.671	487.372	414.537	354.537	-1792.013	26.251	370.689	-5.095
	3900.00	106.953	583.449	489.800	425.230	365.230	-1850.220	26.462	379.750	-5.086
	4000.00	107.007	586.157	492.175	435.928	375.928	-1908.700	26.650	388.806	-5.077
	4100.00	107.057	588.800	494.500	446.631	386.631	-1967.449	26.815	397.858	-5.069
	4200.00	107.103	591.380	496.776	457.339	397.339	-2026.458	26.955	406.906	-5.061
	4300.00	107.146	593.901	499.005	468.052	408.052	-2085.723	27.070	415.951	-5.053
	4400.00	107.185	596.365	501.190	478.768	418.768	-2145.237	27.160	424.994	-5.045
	4500.00	107.222	598.774	503.332	489.489	429.489	-2204.994	27.224	434.035	-5.038
	4600.00	107.257	601.131	505.433	500.213	440.213	-2264.990	27.261	443.075	-5.031
	4700.00	107.289	603.438	507.493	510.940	450.940	-2325.219	27.272	452.114	-5.025
	4800.00	107.319	605.697	509.516	521.670	461.670	-2385.676	27.255	461.153	-5.018
	4900.00	107.348	607.910	511.501	532.404	472.404	-2446.356	27.210	470.193	-5.012
	5000.00	107.374	610.079	513.451	543.140	483.140	-2507.256	27.138	479.234	-5.007
	5100.00	107.400	612.206	515.367	553.879	493.879	-2568.371	27.037	488.277	-5.001
	5200.00	107.425	614.292	517.249	564.620	504.620	-2629.696	26.908	497.323	-4.996
	5300.00	107.448	616.338	519.100	575.363	515.363	-2691.228	26.750	506.370	-4.991
	5400.00	107.471	618.347	520.919	586.109	526.109	-2752.962	26.563	515.422	-4.986
	5500.00	107.494	620.319	522.708	596.858	536.858	-2814.896	26.347	524.476	-4.981
	5600.00	107.516	622.256	524.469	607.608	547.608	-2877.025	26.101	533.536	-4.977
	5700.00	107.538	624.159	526.201	618.361	558.361	-2939.346	25.827	542.599	-4.972
	5800.00	107.560	626.030	527.906	629.116	569.116	-3001.856	25.523	551.668	-4.968
	5900.00	107.583	627.868	529.585	639.873	579.873	-3064.551	25.190	560.742	-4.964
	6000.00	107.606	629.677	531.238	650.632	590.632	-3127.428	24.827	569.822	-4.961

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

302.281 CHLORODIIODOMETHANE (GAS) **CHCII2** [g]

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[-]
GAS	298.15	71.571	342.806	342.806	110.000	0.000	7.792	110.000	96.874	-16.972
	300.00	71.764	343.249	342.807	110.133	0.133	7.158	109.958	96.793	-16.853
	400.00	79.681	365.077	345.730	117.739	7.739	-28.292	91.702	93.300	-12.184
	500.00	84.843	383.445	351.485	125.980	15.980	-65.743	47.172	98.011	-10.239
	600.00	88.631	399.265	358.160	134.662	24.662	-104.896	47.240	108.174	-9.417
	700.00	91.557	413.156	365.045	143.678	33.678	-145.531	47.407	118.318	-8.829
	800.00	93.868	425.538	371.847	152.953	42.953	-187.477	47.658	128.432	-8.386
	900.00	95.713	436.705	378.443	162.436	52.436	-230.599	47.977	138.510	-8.039
	1000.00	97.199	446.869	384.785	172.084	62.084	-274.785	48.346	148.550	-7.759
	1100.00	98.410	456.192	390.859	181.866	71.866	-319.944	48.749	158.551	-7.529
	1200.00	99.422	464.799	396.666	191.759	81.759	-365.999	49.174	168.515	-7.335
	1300.00	100.302	472.792	402.218	201.746	91.746	-412.884	49.615	178.442	-7.170
	1400.00	101.115	480.256	407.529	211.818	101.818	-460.540	50.070	188.335	-7.027
	1500.00	101.925	487.259	412.613	221.969	111.969	-508.920	50.544	198.194	-6.902
	1600.00	102.451	493.852	417.486	232.184	122.184	-557.978	51.025	208.022	-6.791
	1700.00	102.981	500.079	422.163	242.456	132.456	-607.678	51.513	217.819	-6.693
	1800.00	103.438	505.978	426.657	252.778	142.778	-657.983	52.004	227.588	-6.604
	1900.00	103.835	511.582	430.981	263.142	153.142	-708.864	52.494	237.329	-6.525
	2000.00	104.184	516.917	435.145	273.543	163.543	-760.291	52.981	247.045	-6.452
	2100.00	104.492	522.008	439.161	283.977	173.977	-812.239	53.461	256.736	-6.386
	2200.00	104.766	526.875	443.039	294.440	184.440	-864.685	53.934	266.405	-6.325
	2300.00	105.011	531.538	446.786	304.929	194.929	-917.607	54.397	276.052	-6.269
	2400.00	105.231	536.012	450.411	315.442	205.442	-970.986	54.849	285.680	-6.218
	2500.00	105.430	540.311	453.921	325.975	215.975	-1024.803	55.290	295.289	-6.170
	2600.00	105.610	544.450	457.324	336.527	226.527	-1079.043	55.718	304.880	-6.125
	2700.00	105.773	548.439	460.625	347.096	237.096	-1133.688	56.132	314.455	-6.084
	2800.00	105.923	552.288	463.831	357.681	247.681	-1188.726	56.531	324.016	-6.045
	2900.00	106.059	556.008	466.945	368.280	258.280	-1244.142	56.916	333.562	-6.008
	3000.00	106.184	559.605	469.974	378.893	268.893	-1299.923	57.283	343.095	-5.974

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CHCl2I[g] DICHLOROIODOMETHANE (GAS) 210.829

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	68.905	324.119	324.119	5.000	0.000	−91.636	5.000	13.393	−2.346
	300.00	69.122	324.546	324.120	5.128	0.128	−92.236	4.972	13.445	−2.341
	400.00	77.989	345.758	326.952	12.522	7.522	−125.781	−4.410	16.761	−2.189
	500.00	83.704	363.813	332.565	20.624	15.624	−161.282	−26.768	24.223	−2.531
	600.00	87.851	379.458	339.106	29.212	24.212	−198.463	−26.736	34.421	−2.997
	700.00	91.019	393.249	345.875	38.162	33.162	−237.112	−26.591	44.603	−3.328
	800.00	93.492	405.571	352.580	47.392	42.392	−277.064	−26.353	54.759	−3.575
	900.00	95.442	416.700	359.096	56.843	51.843	−318.187	−26.038	64.879	−3.765
	1000.00	96.992	426.839	365.371	66.467	61.467	−360.371	−25.670	74.962	−3.916
	1100.00	98.240	436.143	371.388	76.231	71.231	−403.527	−25.265	85.006	−4.037
	1200.00	99.272	444.737	377.147	86.108	81.108	−447.576	−24.837	95.012	−4.136
	1300.00	100.169	452.719	382.657	96.081	91.081	−492.454	−24.393	104.981	−4.218
	1400.00	101.006	460.173	387.930	106.140	101.140	−538.103	−23.934	114.916	−4.288
	1500.00	101.856	467.171	392.982	116.283	111.283	−584.473	−23.453	124.817	−4.347
	1600.00	102.379	473.758	397.827	126.490	121.490	−631.523	−22.965	134.686	−4.397
	1700.00	102.919	479.981	402.478	136.755	131.755	−679.213	−22.469	144.524	−4.441
	1800.00	103.383	485.877	406.949	147.071	142.071	−727.508	−21.970	154.333	−4.479
	1900.00	103.787	491.478	411.252	157.430	152.430	−776.378	−21.472	164.114	−4.512
	2000.00	104.141	496.811	415.397	167.827	162.827	−825.795	−20.977	173.869	−4.541
	2100.00	104.453	501.899	419.396	178.257	173.257	−875.732	−20.489	183.599	−4.567
	2200.00	104.731	506.765	423.258	188.716	183.716	−926.167	−20.010	193.306	−4.590
	2300.00	104.979	511.426	426.991	199.202	194.202	−977.079	−19.541	202.992	−4.610
	2400.00	105.202	515.899	430.603	209.711	204.711	−1028.446	−19.083	212.657	−4.628
	2500.00	105.403	520.198	434.101	220.241	215.241	−1080.253	−18.639	222.304	−4.645
	2600.00	105.586	524.335	437.492	230.791	225.791	−1132.480	−18.208	231.933	−4.660
	2700.00	105.751	528.323	440.783	241.358	236.358	−1185.115	−17.793	241.546	−4.673
	2800.00	105.902	532.172	443.979	251.941	246.941	−1238.140	−17.394	251.144	−4.685
	2900.00	106.040	535.891	447.084	262.538	257.538	−1291.545	−17.013	260.727	−4.696
	3000.00	106.166	539.488	450.105	273.148	268.148	−1345.315	−16.650	270.298	−4.706

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

176.384 CHLOROIODOMETHANE (GAS) **CH2ClI[g]**

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J/(K mol)		]	[kJ/mol		]			[−]
GAS	298.15	54.178	295.547	295.547	5.000	0.000	−83.117	5.000	8.131	−1.425
	300.00	54.363	295.883	295.548	5.100	0.100	−83.664	4.949	8.151	−1.419
	400.00	62.747	312.735	297.789	10.978	5.978	−114.116	−5.668	9.897	−1.292
	500.00	69.162	327.452	302.281	17.586	12.586	−146.140	−29.197	16.095	−1.681
	600.00	74.382	340.538	307.586	24.771	19.771	−179.552	−30.214	25.253	−2.198
	700.00	78.719	352.340	313.150	32.433	27.433	−214.205	−30.988	34.562	−2.579
	800.00	82.350	363.096	318.731	40.492	35.492	−249.985	−31.545	43.967	−2.871
	900.00	85.395	372.976	324.217	48.883	43.883	−286.795	−31.914	53.429	−3.101
	1000.00	87.956	382.110	329.555	57.554	52.554	−324.555	−32.130	62.925	−3.287
	1100.00	90.121	390.597	334.724	66.461	61.461	−363.196	−32.225	72.436	−3.440
	1200.00	91.973	398.520	339.713	75.568	70.568	−402.656	−32.225	81.951	−3.567
	1300.00	93.594	405.947	344.526	84.848	79.848	−442.883	−32.147	91.463	−3.675
	1400.00	95.062	412.938	349.165	94.282	89.282	−483.831	−32.004	100.966	−3.767
	1500.00	96.453	419.544	353.639	103.858	98.858	−525.458	−31.800	110.458	−3.846
	1600.00	97.483	425.799	357.955	113.550	108.550	−567.728	−31.554	119.934	−3.915
	1700.00	98.470	431.739	362.122	123.349	118.349	−610.607	−31.270	129.393	−3.976
	1800.00	99.321	437.392	366.148	133.239	128.239	−654.066	−30.958	138.835	−4.029
	1900.00	100.062	442.782	370.041	143.209	138.209	−698.077	−30.626	148.259	−4.076
	2000.00	100.714	447.932	373.807	153.249	148.249	−742.615	−30.281	157.665	−4.118
	2100.00	101.291	452.860	377.455	163.350	158.350	−787.656	−29.929	167.054	−4.155
	2200.00	101.804	457.584	380.991	173.505	168.505	−833.180	−29.574	176.426	−4.189
	2300.00	102.265	462.120	384.420	183.709	178.709	−879.167	−29.218	185.781	−4.219
	2400.00	102.679	466.481	387.749	193.956	188.956	−925.598	−28.864	195.122	−4.247
	2500.00	103.053	470.680	390.983	204.243	199.243	−972.457	−28.516	204.447	−4.272
	2600.00	103.393	474.729	394.127	214.566	209.566	−1019.729	−28.174	213.759	−4.294
	2700.00	103.702	478.637	397.185	224.921	219.921	−1067.398	−27.841	223.058	−4.315
	2800.00	103.983	482.413	400.161	235.305	230.305	−1115.452	−27.518	232.344	−4.334
	2900.00	104.241	486.067	403.061	245.717	240.717	−1163.877	−27.208	241.620	−4.352
	3000.00	104.477	489.605	405.887	256.153	251.153	−1212.662	−26.911	250.884	−4.368

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

C12H4Cl4O2[g] 2, 3, 7, 8-TETRACHLORODIBENZEDIOXIN 321.952

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[−]
SOL	298.15	245.138	286.000	286.000	−471.600	0.000	−556.871	−471.600	−264.199	46.287
	300.00	246.100	287.519	286.005	−471.146	0.454	−557.401	−471.622	−262.912	45.777
	400.00	298.100	365.439	296.279	−443.936	27.664	−590.111	−472.573	−193.176	25.226
	500.00	350.100	437.545	317.396	−411.526	60.074	−630.298	−472.183	−123.337	12.885
	578.00	390.660	491.166	337.249	−382.636	88.964	−666.530	−470.544	−69.021	6.238
			67.320		38.911					
LIQ	578.00	469.908	558.486	337.249	−343.725	127.875	−666.530	−431.633	−69.021	6.238
	600.00	475.340	576.141	345.686	−333.327	138.273	−679.012	−429.236	−55.264	4.811
	700.00	500.030	651.269	384.067	−284.559	187.041	−740.447	−418.289	6.202	−0.463
	800.00	524.720	719.650	421.802	−233.321	238.279	−809.042	−406.793	66.069	−4.314

Referenzen

Phase	H/S	Cp
SOL	S7	S7
LIQ	S7	S7

321.952 2, 3, 7, 8-TETRACHLORODIBENZEDIOXIN (GAS) **C12H4Cl4O2**[g]

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	228.487	478.100	478.100	−345.140	0.000	−487.686	−345.140	−195.014	34.166
	300.00	230.489	479.520	478.104	−344.715	0.425	−488.571	−345.192	−194.082	33.793
	400.00	306.212	557.443	488.215	−317.449	27.691	−540.426	−346.087	−143.490	18.738
	500.00	349.480	630.767	509.505	−284.509	60.631	−599.892	−345.166	−92.931	9.708
	600.00	379.972	697.306	535.352	−247.967	97.173	−666.351	−343.876	−42.603	3.709
	700.00	404.433	757.771	562.873	−208.712	136.428	−739.151	−342.442	7.498	−0.560
	800.00	425.678	813.189	590.746	−167.186	177.954	−817.737	−340.658	57.374	−3.746
	900.00	445.054	864.459	618.345	−123.638	221.502	−901.651	−338.307	106.993	−6.210
	1000.00	463.270	912.301	645.375	−78.214	266.926	−990.515	−335.267	156.315	−8.165
	1100.00	480.727	957.279	671.705	−31.009	314.131	−1084.016	−331.424	205.294	−9.749
	1200.00	497.668	999.837	697.292	17.915	363.055	−1181.890	−326.681	253.884	−11.051
	1300.00	514.245	1040.328	722.134	68.513	413.653	−1283.914	−320.953	302.040	−12.136
	1400.00	530.558	1079.037	746.255	120.755	465.895	−1389.896	−314.164	349.714	−13.048
	1500.00	546.676	1116.192	769.687	174.618	519.758	−1499.670	−306.248	396.865	−13.820

Referenzen

Phase	H/S	Cp
GAS	S7	S7

CHF[g] FLUOROMETHYLENE (GAS) 32.017

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	34.597	234.871	234.871	105.286	0.000	35.259	105.286	86.683	−15.187
	300.00	34.634	235.085	234.872	105.350	0.064	34.825	105.279	86.568	−15.073
	400.00	36.898	245.350	236.256	108.923	3.637	10.784	104.755	80.405	−10.500
	500.00	39.267	253.839	238.946	112.732	7.446	−14.187	104.090	74.392	−7.772
	600.00	41.472	261.197	242.055	116.771	11.485	−39.947	103.348	68.521	−5.965
	700.00	43.444	267.741	245.265	121.019	15.733	−66.399	102.573	62.778	−4.685
	800.00	45.173	273.657	248.450	125.452	20.166	−93.474	101.803	57.145	−3.731
	900.00	46.671	279.067	251.556	130.046	24.760	−121.114	101.053	51.608	−2.995
	1000.00	47.960	284.052	254.559	134.779	29.493	−149.273	100.325	46.154	−2.411
	1100.00	49.066	288.676	257.453	139.632	34.346	−177.912	99.616	40.771	−1.936
	1200.00	50.020	292.988	260.237	144.587	39.301	−206.998	98.922	35.452	−1.543
	1300.00	50.852	297.025	262.913	149.632	44.346	−236.501	98.242	30.191	−1.213
	1400.00	51.592	300.821	265.486	154.754	49.468	−266.395	97.572	24.982	−0.932
	1500.00	52.274	304.404	267.963	159.948	54.662	−296.658	96.914	19.820	−0.690
	1600.00	52.816	307.794	270.347	165.201	59.915	−327.269	96.262	14.701	−0.480
	1700.00	53.320	311.011	272.645	170.508	65.222	−358.211	95.618	9.623	−0.296
	1800.00	53.754	314.072	274.862	175.863	70.577	−389.466	94.978	4.583	−0.133
	1900.00	54.132	316.988	277.003	181.257	75.971	−421.021	94.341	−0.421	0.012
	2000.00	54.463	319.774	279.073	186.687	81.401	−452.860	93.702	−5.392	0.141
	2100.00	54.756	322.438	281.075	192.149	86.863	−484.971	93.061	−10.331	0.257
	2200.00	55.018	324.992	283.013	197.638	92.352	−517.344	92.415	−15.239	0.362
	2300.00	55.253	327.442	284.892	203.151	97.865	−549.966	91.765	−20.118	0.457
	2400.00	55.465	329.799	286.715	208.687	103.401	−582.829	91.109	−24.969	0.543
	2500.00	55.658	332.067	288.484	214.244	108.958	−615.923	90.446	−29.792	0.622
	2600.00	55.834	334.253	290.202	219.818	114.532	−649.240	89.777	−34.588	0.695
	2700.00	55.995	336.363	291.873	225.410	120.124	−682.771	89.100	−39.358	0.761
	2800.00	56.143	338.402	293.499	231.017	125.731	−716.510	88.415	−44.104	0.823
	2900.00	56.280	340.375	295.081	236.638	131.352	−750.449	87.722	−48.824	0.879
	3000.00	56.408	342.285	296.623	242.273	136.987	−784.583	87.020	−53.521	0.932

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

51.016 DIFLUOROMETHYL (GAS) **CHF2**[g]

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[-]
GAS	298.15	45.245	258.502	258.502	-254.000	0.000	-331.072	-254.000	-249.416	43.697
	300.00	45.381	258.782	258.503	-253.916	0.084	-331.551	-254.017	-249.388	43.422
	400.00	51.701	272.745	260.364	-249.047	4.953	-358.146	-254.851	-247.716	32.348
	500.00	56.659	284.834	264.076	-243.621	10.379	-386.038	-255.580	-245.846	25.683
	600.00	60.688	295.533	268.444	-237.746	16.254	-415.066	-256.224	-243.837	21.228
	700.00	63.986	305.144	273.012	-231.507	22.493	-445.108	-256.782	-241.727	18.038
	800.00	66.682	313.870	277.582	-224.969	29.031	-476.066	-257.250	-239.543	15.641
	900.00	68.876	321.856	282.064	-218.188	35.812	-507.858	-257.636	-237.306	13.773
	1000.00	70.657	329.208	286.416	-211.208	42.792	-540.416	-257.958	-235.029	12.277
	1100.00	72.108	336.013	290.619	-204.067	49.933	-573.681	-258.232	-232.723	11.051
	1200.00	73.310	342.340	294.669	-196.795	57.205	-607.602	-258.473	-230.393	10.029
	1300.00	74.342	348.249	298.565	-189.411	64.589	-642.135	-258.687	-228.044	9.163
	1400.00	75.283	353.794	302.314	-181.929	72.071	-677.240	-258.880	-225.680	8.420
	1500.00	76.208	359.019	305.922	-174.355	79.645	-712.883	-259.046	-223.302	7.776
	1600.00	76.823	363.954	309.396	-166.707	87.293	-749.034	-259.198	-220.914	7.212
	1700.00	77.430	368.630	312.744	-158.994	95.006	-785.665	-259.336	-218.517	6.714
	1800.00	77.952	373.071	315.973	-151.224	102.776	-822.752	-259.467	-216.112	6.271
	1900.00	78.404	377.298	319.091	-143.406	110.594	-860.272	-259.592	-213.700	5.875
	2000.00	78.799	381.330	322.103	-135.545	118.455	-898.205	-259.716	-211.282	5.518
	2100.00	79.148	385.183	325.015	-127.647	126.353	-936.533	-259.842	-208.857	5.195
	2200.00	79.457	388.873	327.835	-119.717	134.283	-975.237	-259.972	-206.426	4.901
	2300.00	79.733	392.411	330.566	-111.757	142.243	-1014.302	-260.106	-203.989	4.633
	2400.00	79.980	395.810	333.214	-103.771	150.229	-1053.714	-260.246	-201.546	4.387
	2500.00	80.203	399.079	335.784	-95.762	158.238	-1093.460	-260.393	-199.098	4.160
	2600.00	80.405	402.229	338.279	-87.731	166.269	-1133.526	-260.548	-196.643	3.951
	2700.00	80.588	405.267	340.704	-79.682	174.318	-1173.902	-260.712	-194.182	3.757
	2800.00	80.754	408.201	343.063	-71.614	182.386	-1214.576	-260.886	-191.715	3.576
	2900.00	80.905	411.037	345.358	-63.531	190.469	-1255.539	-261.070	-189.241	3.409
	3000.00	81.044	413.782	347.593	-55.434	198.566	-1296.780	-261.266	-186.761	3.252

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CHF3[g] TRIFLUOROMETHANE (GAS) 70.014

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J/(K mol)]			[kJ/mol]					[-]
GAS	298.15	51.014	259.674	259.674	-696.700	0.000	-774.122	-696.700	-662.234	116.021
	300.00	51.226	259.990	259.675	-696.605	0.095	-774.602	-696.735	-662.020	115.268
	400.00	61.363	276.172	261.813	-690.956	5.744	-801.425	-698.396	-650.187	84.906
	500.00	69.550	290.775	266.169	-684.397	12.303	-829.784	-699.674	-637.979	66.649
	600.00	76.264	304.069	271.394	-677.095	19.605	-859.536	-700.626	-625.546	54.459
	700.00	81.762	316.252	276.944	-669.185	27.515	-890.561	-701.288	-612.976	45.741
	800.00	86.234	327.472	282.568	-660.777	35.923	-922.755	-701.690	-600.330	39.198
	900.00	89.845	337.845	288.141	-651.967	44.733	-956.027	-701.871	-587.647	34.106
	1000.00	92.749	347.467	293.599	-642.832	53.868	-990.299	-701.878	-574.953	30.032
	1100.00	95.095	356.421	298.908	-633.435	63.265	-1025.498	-701.750	-562.266	26.700
	1200.00	97.028	364.781	304.053	-623.826	72.874	-1061.563	-701.518	-549.595	23.923
	1300.00	98.693	372.614	309.028	-614.039	82.661	-1098.437	-701.202	-536.947	21.575
	1400.00	100.234	379.985	313.836	-604.092	92.608	-1136.071	-700.811	-524.327	19.563
	1500.00	101.793	386.953	318.480	-593.991	102.709	-1174.421	-700.339	-511.736	17.820
	1600.00	102.822	393.551	322.968	-583.767	112.933	-1213.449	-699.809	-499.180	16.297
	1700.00	103.863	399.816	327.306	-573.432	123.268	-1253.120	-699.227	-486.658	14.953
	1800.00	104.783	405.779	331.501	-562.999	133.701	-1293.402	-698.600	-474.172	13.760
	1900.00	105.607	411.467	335.561	-552.479	144.221	-1334.266	-697.935	-461.722	12.694
	2000.00	106.351	416.903	339.493	-541.880	154.820	-1375.687	-697.237	-449.307	11.735
	2100.00	107.029	422.109	343.304	-531.211	165.489	-1417.639	-696.513	-436.929	10.868
	2200.00	107.654	427.103	347.001	-520.476	176.224	-1460.102	-695.763	-424.585	10.081
	2300.00	108.232	431.901	350.588	-509.681	187.019	-1503.053	-694.992	-412.276	9.363
	2400.00	108.772	436.519	354.073	-498.831	197.869	-1546.476	-694.201	-400.001	8.706
	2500.00	109.277	440.969	357.461	-487.928	208.772	-1590.351	-693.393	-387.759	8.102
	2600.00	109.754	445.265	360.756	-476.976	219.724	-1634.664	-692.568	-375.550	7.545
	2700.00	110.206	449.415	363.963	-465.978	230.722	-1679.400	-691.729	-363.373	7.030
	2800.00	110.635	453.431	367.087	-454.936	241.764	-1724.543	-690.877	-351.227	6.552
	2900.00	111.044	457.321	370.132	-443.852	252.848	-1770.082	-690.014	-339.112	6.108
	3000.00	111.436	461.092	373.101	-432.728	263.972	-1816.003	-689.139	-327.027	5.694

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

33.025 FLUOROMETHYL (GAS) **CH2F[g]**

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	40.284	236.524	236.524	−32.000	0.000	−102.520	−32.000	−31.614	5.539
	300.00	40.362	236.773	236.525	−31.925	0.075	−102.957	−32.024	−31.612	5.504
	400.00	44.676	248.974	238.159	−27.674	4.326	−127.264	−33.322	−31.279	4.085
	500.00	48.844	259.396	241.387	−22.996	9.004	−152.694	−34.579	−30.621	3.199
	600.00	52.663	268.645	245.173	−17.917	14.083	−179.104	−35.746	−29.718	2.587
	700.00	56.088	277.025	249.134	−12.476	19.524	−206.394	−36.796	−28.629	2.136
	800.00	59.124	284.717	253.108	−6.712	25.288	−234.486	−37.712	−27.398	1.789
	900.00	61.795	291.839	257.020	−0.664	31.336	−263.318	−38.495	−26.061	1.513
	1000.00	64.130	298.473	260.838	5.635	37.635	−292.838	−39.159	−24.642	1.287
	1100.00	66.167	304.683	264.544	12.153	44.153	−322.999	−39.723	−23.163	1.100
	1200.00	67.941	310.518	268.135	18.860	50.860	−353.762	−40.203	−21.636	0.942
	1300.00	69.490	316.019	271.609	25.733	57.733	−385.091	−40.616	−20.071	0.806
	1400.00	70.855	321.220	274.968	32.752	64.752	−416.956	−40.972	−18.477	0.689
	1500.00	72.073	326.150	278.218	39.899	71.899	−449.326	−41.280	−16.859	0.587
	1600.00	73.104	330.834	281.361	47.156	79.156	−482.177	−41.553	−15.222	0.497
	1700.00	74.039	335.294	284.403	54.515	86.515	−515.486	−41.793	−13.569	0.417
	1800.00	74.845	339.550	287.350	61.960	93.960	−549.229	−42.009	−11.902	0.345
	1900.00	75.548	343.616	290.205	69.480	101.480	−583.389	−42.207	−10.224	0.281
	2000.00	76.165	347.507	292.973	77.067	109.067	−617.947	−42.394	−8.536	0.223
	2100.00	76.711	351.236	295.660	84.711	116.711	−652.885	−42.575	−6.839	0.170
	2200.00	77.198	354.816	298.268	92.407	124.407	−688.189	−42.753	−5.133	0.122
	2300.00	77.634	358.258	300.802	100.149	132.149	−723.844	−42.931	−3.419	0.078
	2400.00	78.027	361.570	303.265	107.932	139.932	−759.836	−43.110	−1.697	0.037
	2500.00	78.382	364.763	305.662	115.753	147.753	−796.154	−43.294	0.032	−0.001
	2600.00	78.703	367.843	307.994	123.608	155.608	−832.785	−43.482	1.769	−0.036
	2700.00	78.996	370.819	310.266	131.493	163.493	−869.719	−43.677	3.513	−0.068
	2800.00	79.263	373.697	312.481	139.406	171.406	−906.946	−43.880	5.265	−0.098
	2900.00	79.507	376.483	314.640	147.345	179.345	−944.455	−44.093	7.024	−0.127
	3000.00	79.730	379.182	316.746	155.307	187.307	−982.239	−44.316	8.790	−0.153

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CH2F2[g] DIFLUOROMETHANE (GAS) 52.024

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	42.841	246.707	246.707	−452.200	0.000	−525.756	−452.200	−424.619	74.391
	300.00	42.995	246.972	246.708	−452.121	0.079	−526.212	−452.248	−424.447	73.903
	400.00	51.291	260.485	248.494	−447.404	4.796	−551.598	−454.687	−414.804	54.168
	500.00	58.935	272.768	252.138	−441.885	10.315	−578.269	−456.786	−404.583	42.267
	600.00	65.640	284.120	256.534	−435.648	16.552	−606.120	−458.531	−393.973	34.298
	700.00	71.388	294.682	261.238	−428.789	23.411	−635.067	−459.938	−383.098	28.587
	800.00	76.244	304.541	266.042	−421.400	30.800	−665.033	−461.032	−372.042	24.292
	900.00	80.305	313.763	270.837	−413.567	38.633	−695.954	−461.854	−360.867	20.944
	1000.00	83.680	322.404	275.567	−405.362	46.838	−727.767	−462.452	−349.612	18.262
	1100.00	86.485	330.516	280.197	−396.850	55.350	−760.417	−462.874	−338.306	16.065
	1200.00	88.838	338.144	284.711	−388.080	64.120	−793.854	−463.157	−326.969	14.233
	1300.00	90.860	345.337	289.101	−379.093	73.107	−828.031	−463.329	−315.612	12.681
	1400.00	92.674	352.138	293.363	−369.915	82.285	−862.908	−463.407	−304.246	11.352
	1500.00	94.402	358.591	297.498	−360.561	91.639	−898.447	−463.397	−292.877	10.199
	1600.00	95.650	364.719	301.509	−351.064	101.136	−934.615	−463.326	−281.511	9.190
	1700.00	96.840	370.555	305.401	−341.438	110.762	−971.381	−463.198	−270.151	8.301
	1800.00	97.862	376.119	309.176	−331.702	120.498	−1008.717	−463.029	−258.800	7.510
	1900.00	98.749	381.435	312.840	−321.870	130.330	−1046.597	−462.828	−247.459	6.803
	2000.00	99.526	386.520	316.398	−311.956	140.244	−1084.996	−462.603	−236.130	6.167
	2100.00	100.210	391.393	319.854	−301.968	150.232	−1123.894	−462.362	−224.812	5.592
	2200.00	100.818	396.069	323.213	−291.916	160.284	−1163.268	−462.109	−213.506	5.069
	2300.00	101.361	400.563	326.479	−281.807	170.393	−1203.101	−461.849	−202.212	4.592
	2400.00	101.848	404.887	329.656	−271.646	180.554	−1243.375	−461.584	−190.929	4.155
	2500.00	102.287	409.054	332.749	−261.439	190.761	−1284.074	−461.319	−179.657	3.754
	2600.00	102.684	413.074	335.762	−251.190	201.010	−1325.181	−461.055	−168.396	3.383
	2700.00	103.044	416.956	338.698	−240.903	211.297	−1366.684	−460.794	−157.144	3.040
	2800.00	103.372	420.709	341.560	−230.582	221.618	−1408.568	−460.538	−145.903	2.722
	2900.00	103.671	424.342	344.352	−220.230	231.970	−1450.822	−460.290	−134.670	2.426
	3000.00	103.944	427.861	347.078	−209.849	242.351	−1493.433	−460.051	−123.446	2.149

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

34.033 FLUOROMETHANE (GAS) **CH3F[g]**

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	37.484	222.822	222.822	−255.000	0.000	−321.434	−255.000	−231.048	40.479
	300.00	37.592	223.054	222.823	−254.931	0.069	−321.847	−255.055	−230.899	40.203
	400.00	44.263	234.755	224.373	−250.847	4.153	−344.749	−257.975	−222.401	29.043
	500.00	51.262	245.388	227.526	−246.069	8.931	−368.763	−260.593	−213.197	22.273
	600.00	57.800	255.321	231.339	−240.611	14.389	−393.804	−262.845	−203.500	17.716
	700.00	63.669	264.681	235.440	−234.532	20.468	−419.808	−264.726	−193.456	14.436
	800.00	68.834	273.528	239.654	−227.901	27.099	−446.723	−266.251	−183.166	11.960
	900.00	73.327	281.901	243.887	−220.787	34.213	−474.498	−267.456	−172.705	10.024
	1000.00	77.209	289.833	248.088	−213.256	41.744	−503.088	−268.390	−162.125	8.469
	1100.00	80.552	297.352	252.228	−205.363	49.637	−532.451	−269.098	−151.462	7.192
	1200.00	83.438	304.488	256.288	−197.160	57.840	−562.546	−269.622	−140.744	6.126
	1300.00	85.953	311.268	260.259	−188.688	66.312	−593.337	−269.996	−129.988	5.223
	1400.00	88.183	317.721	264.135	−179.979	75.021	−624.789	−270.244	−119.208	4.448
	1500.00	90.217	323.875	267.914	−171.058	83.942	−656.871	−270.383	−108.414	3.775
	1600.00	91.862	329.747	271.596	−161.958	93.042	−689.554	−270.439	−97.614	3.187
	1700.00	93.378	335.363	275.183	−152.694	102.306	−722.812	−270.420	−86.813	2.667
	1800.00	94.684	340.738	278.677	−143.290	111.710	−756.619	−270.342	−76.014	2.206
	1900.00	95.822	345.889	282.080	−133.763	121.237	−790.952	−270.221	−65.221	1.793
	2000.00	96.821	350.830	285.395	−124.130	130.870	−825.790	−270.066	−54.436	1.422
	2100.00	97.706	355.576	288.624	−114.403	140.597	−861.111	−269.887	−43.659	1.086
	2200.00	98.493	360.139	291.772	−104.592	150.408	−896.899	−269.690	−32.890	0.781
	2300.00	99.198	364.533	294.841	−94.707	160.293	−933.134	−269.480	−22.131	0.503
	2400.00	99.832	368.769	297.833	−84.755	170.245	−969.800	−269.261	−11.382	0.248
	2500.00	100.405	372.856	300.753	−74.742	180.258	−1006.883	−269.038	−0.641	0.013
	2600.00	100.925	376.804	303.603	−64.676	190.324	−1044.367	−268.813	10.090	−0.203
	2700.00	101.397	380.622	306.385	−54.559	200.441	−1082.239	−268.589	20.813	−0.403
	2800.00	101.828	384.318	309.102	−44.398	210.602	−1120.487	−268.368	31.527	−0.588
	2900.00	102.222	387.898	311.758	−34.195	220.805	−1159.099	−268.153	42.234	−0.761
	3000.00	102.582	391.370	314.354	−23.954	231.046	−1198.063	−267.947	52.934	−0.922

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

C2HF[g] FLUOROACETYLENE (GAS) 44.028

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J/(K mol)]			[kJ/mol]					[−]
GAS	298.15	52.256	231.569	231.569	41.700	0.000	−27.342	41.700	25.793	−4.519
	300.00	52.396	231.893	231.570	41.797	0.097	−27.771	41.710	25.695	−4.474
	400.00	58.186	247.828	233.703	47.350	5.650	−51.781	42.129	20.288	−2.649
	500.00	62.088	261.253	237.906	53.373	11.673	−77.253	42.347	14.798	−1.546
	600.00	65.112	272.850	242.786	59.739	18.039	−103.971	42.351	9.285	−0.808
	700.00	67.612	283.080	247.825	66.378	24.678	−131.778	42.190	3.785	−0.282
	800.00	69.748	292.252	252.815	73.249	31.549	−160.552	41.934	−1.685	0.110
	900.00	71.601	300.576	257.667	80.319	38.619	−190.200	41.627	−7.119	0.413
	1000.00	73.223	308.206	262.344	87.562	45.862	−220.644	41.289	−12.517	0.654
	1100.00	74.649	315.253	266.838	94.957	53.257	−251.822	40.934	−17.881	0.849
	1200.00	75.906	321.804	271.149	102.486	60.786	−283.678	40.568	−23.212	1.010
	1300.00	77.017	327.924	275.283	110.133	68.433	−316.168	40.198	−28.512	1.146
	1400.00	78.002	333.668	279.250	117.885	76.185	−349.251	39.829	−33.783	1.260
	1500.00	78.880	339.080	283.060	125.730	84.030	−382.891	39.462	−39.028	1.359
	1600.00	79.635	344.194	286.723	133.654	91.954	−417.057	39.098	−44.249	1.445
	1700.00	80.326	349.044	290.248	141.653	99.953	−451.721	38.742	−49.447	1.519
	1800.00	80.924	353.652	293.643	149.716	108.016	−486.857	38.391	−54.625	1.585
	1900.00	81.448	358.042	296.918	157.836	116.136	−522.444	38.043	−59.783	1.644
	2000.00	81.910	362.232	300.080	166.004	124.304	−558.459	37.696	−64.923	1.696
	2100.00	82.320	366.238	303.135	174.216	132.516	−594.884	37.345	−70.045	1.742
	2200.00	82.688	370.076	306.091	182.466	140.766	−631.701	36.992	−75.151	1.784
	2300.00	83.018	373.759	308.954	190.752	149.052	−668.894	36.634	−80.240	1.822
	2400.00	83.317	377.299	311.728	199.069	157.369	−706.448	36.271	−85.314	1.857
	2500.00	83.587	380.706	314.420	207.414	165.714	−744.350	35.902	−90.372	1.888
	2600.00	83.833	383.989	317.033	215.786	174.086	−782.585	35.526	−95.416	1.917
	2700.00	84.058	387.157	319.572	224.180	182.480	−821.143	35.142	−100.445	1.943
	2800.00	84.263	390.218	322.040	232.597	190.897	−860.013	34.748	−105.459	1.967
	2900.00	84.451	393.178	324.443	241.033	199.333	−899.184	34.345	−110.459	1.990
	3000.00	84.624	396.044	326.782	249.486	207.786	−938.646	33.932	−115.446	2.010

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

82.025 TRIFLUOROETHYLENE (GAS) **C2HF3**[g]

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	69.137	292.659	292.659	−491.000	0.000	−578.256	−491.000	−464.657	81.406
	300.00	69.402	293.087	292.660	−490.872	0.128	−578.798	−491.017	−464.494	80.876
	400.00	81.324	314.783	295.538	−483.302	7.698	−609.215	−491.794	−455.528	59.486
	500.00	90.238	333.929	301.339	−474.705	16.295	−641.670	−492.366	−446.392	46.634
	600.00	97.285	351.029	308.221	−465.316	25.684	−675.933	−492.811	−437.154	38.058
	700.00	102.943	366.466	315.457	−455.294	35.706	−711.820	−493.140	−427.850	31.927
	800.00	107.490	380.520	322.725	−444.764	46.236	−749.180	−493.344	−418.507	27.326
	900.00	111.130	393.399	329.872	−433.826	57.174	−787.885	−493.430	−409.146	23.746
	1000.00	114.035	405.263	336.826	−422.563	68.437	−827.826	−493.427	−399.781	20.882
	1100.00	116.359	416.245	343.553	−411.039	79.961	−868.908	−493.360	−390.419	18.539
	1200.00	118.251	426.453	350.041	−399.305	91.695	−911.049	−493.249	−381.065	16.587
	1300.00	119.852	435.983	356.289	−387.398	103.602	−954.176	−493.106	−371.722	14.936
	1400.00	121.303	444.919	362.304	−375.340	115.660	−998.226	−492.932	−362.391	13.521
	1500.00	122.743	453.337	368.095	−363.138	127.862	−1043.143	−492.718	−353.074	12.295
	1600.00	123.667	461.284	373.673	−350.824	140.176	−1088.878	−492.483	−343.772	11.223
	1700.00	124.584	468.809	379.050	−338.410	152.590	−1135.386	−492.226	−334.485	10.277
	1800.00	125.368	475.953	384.237	−325.911	165.089	−1182.627	−491.954	−325.214	9.437
	1900.00	126.047	482.750	389.245	−313.340	177.660	−1230.565	−491.672	−315.959	8.686
	2000.00	126.639	489.231	394.083	−300.705	190.295	−1279.166	−491.386	−306.718	8.011
	2100.00	127.159	495.422	398.762	−288.014	202.986	−1328.401	−491.099	−297.491	7.400
	2200.00	127.620	501.348	403.292	−275.275	215.725	−1378.242	−490.815	−288.279	6.845
	2300.00	128.030	507.031	407.679	−262.492	228.508	−1428.663	−490.534	−279.079	6.338
	2400.00	128.397	512.487	411.933	−249.671	241.329	−1479.640	−490.260	−269.891	5.874
	2500.00	128.726	517.736	416.061	−236.814	254.186	−1531.153	−489.994	−260.715	5.447
	2600.00	129.024	522.790	420.070	−223.926	267.074	−1583.181	−489.737	−251.548	5.054
	2700.00	129.293	527.665	423.965	−211.010	279.990	−1635.705	−489.491	−242.392	4.689
	2800.00	129.538	532.371	427.753	−198.069	292.931	−1688.708	−489.257	−233.245	4.351
	2900.00	129.761	536.921	431.439	−185.103	305.897	−1742.174	−489.037	−224.105	4.037
	3000.00	129.964	541.324	435.029	−172.117	318.883	−1796.088	−488.831	−214.973	3.743

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

C2H2F2[g] DIFLUOROETHYLENE (GAS) 64.035

Phase	T [K]	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol		]	[-]
GAS	298.15	60.216	266.049	266.049	-336.400	0.000	-415.723	-336.400	-312.874	54.814
	300.00	60.481	266.422	266.050	-336.288	0.112	-416.215	-336.431	-312.728	54.451
	400.00	73.410	285.653	268.585	-329.573	6.827	-443.834	-337.909	-304.592	39.776
	500.00	84.096	303.219	273.781	-321.681	14.719	-473.290	-338.965	-296.132	30.937
	600.00	92.936	319.359	280.050	-312.815	23.585	-504.430	-339.662	-287.495	25.029
	700.00	100.182	334.248	286.743	-303.147	33.253	-537.120	-340.038	-278.766	20.802
	800.00	106.045	348.023	293.553	-292.825	43.575	-571.243	-340.123	-270.004	17.629
	900.00	110.717	360.794	300.324	-281.977	54.423	-606.692	-339.963	-261.246	15.162
	1000.00	114.386	372.657	306.971	-270.715	65.685	-643.371	-339.623	-252.517	13.190
	1100.00	117.234	383.698	313.450	-259.128	77.272	-681.195	-339.159	-243.828	11.578
	1200.00	119.444	393.998	319.738	-247.289	89.111	-720.086	-338.619	-235.185	10.237
	1300.00	121.195	403.630	325.825	-235.254	101.146	-759.973	-338.034	-226.589	9.104
	1400.00	122.667	412.666	331.709	-223.059	113.341	-800.792	-337.425	-218.039	8.135
	1500.00	124.040	421.176	337.392	-210.724	125.676	-842.488	-336.793	-209.533	7.297
	1600.00	124.955	429.209	342.882	-198.277	138.123	-885.012	-336.155	-201.070	6.564
	1700.00	125.791	436.810	348.186	-185.738	150.662	-928.316	-335.519	-192.647	5.919
	1800.00	126.497	444.021	353.311	-173.123	163.277	-972.361	-334.891	-184.261	5.347
	1900.00	127.100	450.877	358.268	-160.442	175.958	-1017.108	-334.276	-175.909	4.836
	2000.00	127.620	457.410	363.063	-147.706	188.694	-1062.525	-333.676	-167.590	4.377
	2100.00	128.071	463.647	367.705	-134.921	201.479	-1108.580	-333.097	-159.300	3.962
	2200.00	128.466	469.615	372.203	-122.093	214.307	-1155.246	-332.538	-151.037	3.586
	2300.00	128.814	475.333	376.563	-109.229	227.171	-1202.495	-332.002	-142.799	3.243
	2400.00	129.123	480.822	380.794	-96.332	240.068	-1250.305	-331.490	-134.584	2.929
	2500.00	129.398	486.099	384.901	-83.406	252.994	-1298.652	-331.001	-126.389	2.641
	2600.00	129.644	491.179	388.891	-70.453	265.947	-1347.518	-330.536	-118.214	2.375
	2700.00	129.865	496.076	392.771	-57.478	278.922	-1396.882	-330.097	-110.056	2.129
	2800.00	130.065	500.802	396.545	-44.481	291.919	-1446.727	-329.684	-101.914	1.901
	2900.00	130.247	505.370	400.220	-31.465	304.935	-1497.037	-329.297	-93.787	1.689
	3000.00	130.412	509.788	403.799	-18.432	317.968	-1547.796	-328.937	-85.672	1.492

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

64.035 1,1-DIFLUOROETHYLENE (GAS) **C2H2F2[1,1][g]**

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	60.067	266.036	266.036	−336.400	0.000	−415.719	−336.400	−312.870	54.814
	300.00	60.347	266.408	266.037	−336.289	0.111	−416.211	−336.432	−312.724	54.450
	400.00	72.809	285.582	268.567	−329.594	6.806	−443.827	−337.930	−304.585	39.775
	500.00	82.075	302.867	273.728	−321.830	14.570	−473.264	−339.115	−296.106	30.934
	600.00	89.460	318.508	279.909	−313.241	23.159	−504.345	−340.088	−287.410	25.021
	700.00	95.490	332.766	286.457	−303.983	32.417	−536.920	−340.875	−278.565	20.787
	800.00	100.451	345.852	293.075	−294.178	42.222	−570.860	−341.477	−269.621	17.604
	900.00	104.543	357.927	299.618	−283.922	52.478	−606.056	−341.908	−260.611	15.125
	1000.00	107.922	369.122	306.016	−273.294	63.106	−642.416	−342.202	−251.562	13.140
	1100.00	110.728	379.544	312.232	−262.357	74.043	−679.855	−342.389	−242.488	11.515
	1200.00	113.092	389.283	318.251	−251.163	85.237	−718.302	−342.492	−233.401	10.160
	1300.00	115.139	398.417	324.070	−239.749	96.651	−757.692	−342.529	−224.308	9.013
	1400.00	116.988	407.019	329.691	−228.142	108.258	−797.967	−342.507	−215.214	8.030
	1500.00	118.760	415.150	335.120	−216.354	120.046	−839.080	−342.423	−206.124	7.178
	1600.00	120.030	422.851	340.364	−204.421	131.979	−880.983	−342.299	−197.042	6.433
	1700.00	121.253	430.166	345.434	−192.355	144.045	−923.637	−342.136	−187.968	5.776
	1800.00	122.307	437.127	350.336	−180.176	156.224	−967.004	−341.944	−178.905	5.192
	1900.00	123.223	443.765	355.080	−167.898	168.502	−1011.052	−341.731	−169.853	4.670
	2000.00	124.027	450.106	359.674	−155.535	180.865	−1055.748	−341.505	−160.812	4.200
	2100.00	124.737	456.175	364.126	−143.096	193.304	−1101.064	−341.272	−151.783	3.775
	2200.00	125.369	461.993	368.443	−130.590	205.810	−1146.974	−341.035	−142.765	3.390
	2300.00	125.934	467.578	372.632	−118.025	218.375	−1193.455	−340.798	−133.758	3.038
	2400.00	126.442	472.949	376.701	−105.405	230.995	−1240.483	−340.563	−124.762	2.715
	2500.00	126.900	478.120	380.655	−92.738	243.662	−1288.038	−340.333	−115.775	2.419
	2600.00	127.316	483.105	384.500	−80.027	256.373	−1336.100	−340.110	−106.797	2.146
	2700.00	127.693	487.917	388.242	−67.276	269.124	−1384.653	−339.896	−97.827	1.893
	2800.00	128.038	492.568	391.885	−54.489	281.911	−1433.679	−339.692	−88.866	1.658
	2900.00	128.352	497.066	395.435	−41.669	294.731	−1483.161	−339.501	−79.911	1.439
	3000.00	128.639	501.422	398.896	−28.820	307.580	−1533.087	−339.324	−70.963	1.236

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

C2H2F2[cis][g] CIS-DIFLUOROETHYLENE (GAS) 64.035

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	58.287	268.718	268.718	−313.192	0.000	−393.310	−313.192	−290.462	50.888
	300.00	58.545	269.079	268.719	−313.084	0.108	−393.808	−313.227	−290.321	50.549
	400.00	70.544	287.645	271.169	−306.602	6.590	−421.660	−314.938	−282.418	36.880
	500.00	79.966	304.436	276.171	−299.059	14.133	−451.277	−316.344	−274.119	28.637
	600.00	87.659	319.718	282.174	−290.666	22.526	−482.497	−317.513	−265.561	23.119
	700.00	94.003	333.723	288.552	−281.572	31.620	−515.179	−318.464	−256.824	19.164
	800.00	99.234	346.628	295.016	−271.902	41.290	−549.205	−319.200	−247.966	16.191
	900.00	103.537	358.573	301.422	−261.757	51.435	−584.472	−319.743	−239.027	13.873
	1000.00	107.072	369.671	307.699	−251.220	61.972	−620.891	−320.129	−230.037	12.016
	1100.00	109.991	380.017	313.808	−240.363	72.829	−658.381	−320.395	−221.014	10.495
	1200.00	112.437	389.695	319.733	−229.238	83.954	−696.872	−320.567	−211.971	9.227
	1300.00	114.551	398.780	325.468	−217.886	95.306	−736.301	−320.667	−202.917	8.153
	1400.00	116.472	407.340	331.013	−206.334	106.858	−776.611	−320.700	−193.857	7.233
	1500.00	118.338	415.440	336.374	−194.594	118.598	−817.753	−320.663	−184.798	6.435
	1600.00	119.634	423.113	341.558	−182.703	130.489	−859.684	−320.581	−175.743	5.737
	1700.00	120.898	430.405	346.571	−170.674	142.518	−902.363	−320.455	−166.694	5.122
	1800.00	121.987	437.347	351.423	−158.529	154.663	−945.754	−320.297	−157.654	4.575
	1900.00	122.933	443.968	356.121	−146.282	166.910	−989.822	−320.115	−148.623	4.086
	2000.00	123.762	450.296	360.673	−133.946	179.246	−1034.538	−319.916	−139.602	3.646
	2100.00	124.495	456.352	365.086	−121.533	191.659	−1079.872	−319.709	−130.591	3.248
	2200.00	125.146	462.159	369.367	−109.050	204.142	−1125.800	−319.495	−121.591	2.887
	2300.00	125.729	467.735	373.524	−96.506	216.686	−1172.296	−319.279	−112.600	2.557
	2400.00	126.252	473.097	377.561	−83.906	229.286	−1219.339	−319.064	−103.619	2.255
	2500.00	126.725	478.261	381.487	−71.257	241.935	−1266.909	−318.852	−94.646	1.978
	2600.00	127.153	483.240	385.305	−58.563	254.629	−1314.985	−318.646	−85.682	1.721
	2700.00	127.541	488.046	389.022	−45.828	267.364	−1363.551	−318.447	−76.726	1.484
	2800.00	127.896	492.691	392.642	−33.056	280.136	−1412.589	−318.258	−67.776	1.264
	2900.00	128.219	497.184	396.170	−20.250	292.942	−1462.084	−318.081	−58.834	1.060
	3000.00	128.515	501.536	399.610	−7.413	305.779	−1512.021	−317.917	−49.897	0.869

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

64.035 TRANS-DIFLUOROETHYLENE (GAS) **C2H2F2[trans]**[g]

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J/(K mol)		]	[kJ/mol		]			[−]
GAS	298.15	60.017	267.842	267.842	−310.038	0.000	−389.895	−310.038	−287.047	50.289
	300.00	60.260	268.214	267.843	−309.927	0.111	−390.391	−310.070	−286.904	49.954
	400.00	71.706	287.189	270.353	−303.304	6.734	−418.179	−311.640	−278.937	36.425
	500.00	80.813	304.202	275.451	−295.662	14.376	−447.763	−312.947	−270.605	28.270
	600.00	88.301	319.620	281.548	−287.195	22.843	−478.967	−314.042	−262.031	22.812
	700.00	94.502	333.712	288.007	−278.045	31.993	−511.643	−314.936	−253.289	18.901
	800.00	99.633	346.677	294.542	−268.330	41.708	−545.671	−315.628	−244.433	15.960
	900.00	103.865	358.664	301.009	−258.148	51.890	−580.946	−316.134	−235.501	13.668
	1000.00	107.350	369.794	307.338	−247.582	62.456	−617.376	−316.490	−226.521	11.832
	1100.00	110.232	380.165	313.492	−236.698	73.340	−654.880	−316.730	−217.512	10.329
	1200.00	112.651	389.863	319.457	−225.551	84.487	−693.386	−316.880	−208.485	9.075
	1300.00	114.741	398.964	325.226	−214.179	95.859	−732.832	−316.959	−199.449	8.014
	1400.00	116.638	407.537	330.803	−202.609	107.429	−773.162	−316.974	−190.408	7.104
	1500.00	118.474	415.647	336.191	−190.854	119.184	−814.324	−316.923	−181.369	6.316
	1600.00	119.762	423.330	341.399	−178.949	131.089	−856.277	−316.827	−172.335	5.626
	1700.00	121.013	430.629	346.435	−166.908	143.130	−898.978	−316.690	−163.308	5.018
	1800.00	122.090	437.577	351.307	−154.752	155.286	−942.391	−316.520	−154.291	4.477
	1900.00	123.026	444.204	356.023	−142.495	167.543	−986.482	−316.328	−145.283	3.994
	2000.00	123.847	450.535	360.592	−130.151	179.887	−1031.222	−316.121	−136.286	3.559
	2100.00	124.572	456.596	365.020	−117.729	192.309	−1076.580	−315.905	−127.300	3.166
	2200.00	125.217	462.406	369.316	−105.239	204.799	−1122.532	−315.684	−118.324	2.809
	2300.00	125.794	467.985	373.485	−92.688	217.350	−1169.054	−315.461	−109.358	2.484
	2400.00	126.313	473.350	377.535	−80.082	229.956	−1216.122	−315.240	−100.401	2.185
	2500.00	126.781	478.516	381.472	−67.427	242.611	−1263.717	−315.022	−91.454	1.911
	2600.00	127.205	483.497	385.301	−54.727	255.311	−1311.819	−314.810	−82.516	1.658
	2700.00	127.590	488.305	389.027	−41.987	268.051	−1360.411	−314.607	−73.585	1.424
	2800.00	127.941	492.952	392.656	−29.210	280.828	−1409.475	−314.413	−64.662	1.206
	2900.00	128.262	497.447	396.192	−16.400	293.638	−1458.996	−314.232	−55.746	1.004
	3000.00	128.555	501.800	399.641	−3.559	306.479	−1508.960	−314.063	−46.835	0.815

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

C2H3F[g] FLUOROETHYLENE (GAS) 46.044

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J/(K mol)]			[kJ/mol]					[-]
GAS	298.15	50.350	252.669	252.669	-140.100	0.000	-215.433	-140.100	-123.335	21.608
	300.00	50.594	252.981	252.670	-140.007	0.093	-215.901	-140.147	-123.231	21.456
	400.00	62.198	269.191	254.802	-134.344	5.756	-242.021	-142.524	-117.224	15.308
	500.00	71.636	284.116	259.192	-127.638	12.462	-269.696	-144.546	-110.658	11.560
	600.00	79.553	297.897	264.510	-120.067	20.033	-298.806	-146.266	-103.714	9.029
	700.00	86.250	310.678	270.203	-111.768	28.332	-329.242	-147.705	-96.504	7.201
	800.00	91.918	322.575	276.015	-102.852	37.248	-360.912	-148.869	-89.107	5.818
	900.00	96.711	333.686	281.813	-93.413	46.687	-393.731	-149.782	-81.580	4.735
	1000.00	100.764	344.092	287.526	-83.534	56.566	-427.626	-150.487	-73.963	3.863
	1100.00	104.205	353.861	293.117	-73.281	66.819	-462.528	-151.023	-66.283	3.148
	1200.00	107.157	363.058	298.566	-62.709	77.391	-498.379	-151.424	-58.561	2.549
	1300.00	109.741	371.739	303.864	-51.862	88.238	-535.123	-151.714	-50.810	2.042
	1400.00	112.076	379.958	309.008	-40.769	99.331	-572.711	-151.908	-43.040	1.606
	1500.00	114.281	387.767	314.001	-29.451	110.649	-611.101	-152.009	-35.259	1.228
	1600.00	115.941	395.190	318.845	-17.947	122.153	-650.252	-152.045	-27.475	0.897
	1700.00	117.522	402.268	323.546	-6.272	133.828	-690.127	-152.018	-19.689	0.605
	1800.00	118.886	409.025	328.108	5.550	145.650	-730.695	-151.944	-11.907	0.346
	1900.00	120.076	415.485	332.538	17.500	157.600	-771.922	-151.834	-4.130	0.114
	2000.00	121.123	421.672	336.841	29.561	169.661	-813.783	-151.699	3.640	-0.095
	2100.00	122.050	427.604	341.023	41.720	181.820	-856.248	-151.547	11.403	-0.284
	2200.00	122.876	433.301	345.089	53.967	194.067	-899.295	-151.383	19.159	-0.455
	2300.00	123.617	438.780	349.044	66.292	206.392	-942.901	-151.212	26.907	-0.611
	2400.00	124.284	444.055	352.894	78.688	218.788	-987.045	-151.038	34.648	-0.754
	2500.00	124.887	449.141	356.642	91.147	231.247	-1031.706	-150.864	42.381	-0.886
	2600.00	125.434	454.050	360.295	103.664	243.764	-1076.867	-150.692	50.108	-1.007
	2700.00	125.933	458.794	363.856	116.232	256.332	-1122.511	-150.527	57.827	-1.119
	2800.00	126.387	463.382	367.329	128.849	268.949	-1168.621	-150.369	65.541	-1.223
	2900.00	126.803	467.824	370.718	141.508	281.608	-1215.182	-150.221	73.250	-1.319
	3000.00	127.184	472.130	374.027	154.208	294.308	-1262.181	-150.087	80.953	-1.410

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

191.825 FLUORODIBROMOMETHANE (GAS) **CHFBr2**[g]

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	64.870	316.919	316.919	−175.000	0.000	−269.489	−175.000	−172.684	30.253
	300.00	65.062	317.321	316.920	−174.880	0.120	−270.076	−175.091	−172.669	30.064
	400.00	73.476	337.270	319.583	−167.925	7.075	−302.833	−206.716	−165.396	21.598
	500.00	79.515	354.346	324.869	−160.262	14.738	−337.435	−207.218	−155.003	16.193
	600.00	84.189	369.273	331.052	−152.067	22.933	−373.631	−207.523	−144.528	12.582
	700.00	87.898	382.540	337.477	−143.456	31.544	−411.234	−207.669	−134.015	10.000
	800.00	90.862	394.478	343.869	−134.512	40.488	−450.095	−207.677	−123.491	8.063
	900.00	93.230	405.322	350.104	−125.303	49.697	−490.093	−207.569	−112.974	6.557
	1000.00	95.122	415.247	356.129	−115.882	59.118	−531.129	−207.375	−102.473	5.353
	1100.00	96.644	424.387	361.924	−106.291	68.709	−573.117	−207.119	−91.994	4.368
	1200.00	97.894	432.851	367.486	−96.562	78.438	−615.984	−206.818	−81.542	3.549
	1300.00	98.966	440.730	372.821	−86.718	88.282	−659.667	−206.485	−71.115	2.857
	1400.00	99.951	448.101	377.938	−76.772	98.228	−704.113	−206.123	−60.715	2.265
	1500.00	100.939	455.030	382.848	−66.728	108.272	−749.273	−205.728	−50.343	1.753
	1600.00	101.562	461.561	387.566	−56.608	118.392	−795.105	−205.315	−39.997	1.306
	1700.00	102.191	467.738	392.102	−46.419	128.581	−841.573	−204.885	−29.678	0.912
	1800.00	102.730	473.594	396.468	−36.173	138.827	−888.642	−204.445	−19.384	0.563
	1900.00	103.198	479.161	400.675	−25.876	149.124	−936.282	−203.999	−9.115	0.251
	2000.00	103.607	484.465	404.733	−15.535	159.465	−984.466	−203.549	1.130	−0.030
	2100.00	103.967	489.529	408.651	−5.156	169.844	−1033.167	−203.101	11.353	−0.282
	2200.00	104.287	494.373	412.438	5.257	180.257	−1082.364	−202.656	21.555	−0.512
	2300.00	104.572	499.016	416.102	15.700	190.700	−1132.035	−202.215	31.736	−0.721
	2400.00	104.827	503.472	419.650	26.171	201.171	−1182.161	−201.779	41.899	−0.912
	2500.00	105.057	507.756	423.090	36.665	211.665	−1232.724	−201.351	52.043	−1.087
	2600.00	105.265	511.880	426.426	47.181	222.181	−1283.707	−200.931	62.171	−1.249
	2700.00	105.454	515.856	429.665	57.717	232.717	−1335.095	−200.520	72.282	−1.398
	2800.00	105.625	519.695	432.812	68.271	243.271	−1386.874	−200.120	82.378	−1.537
	2900.00	105.781	523.404	435.872	78.842	253.842	−1439.030	−199.730	92.461	−1.665
	3000.00	105.924	526.993	438.850	89.427	264.427	−1491.550	−199.353	102.530	−1.785

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CHF2Br[g] DIFLUOROBROMOMETHANE (GAS) 130.920

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J/(K mol)]			[kJ/mol]					[-]
GAS	298.15	58.716	295.225	295.225	-422.000	0.000	-510.021	-422.000	-416.425	72.956
	300.00	58.911	295.589	295.226	-421.891	0.109	-510.568	-422.059	-416.390	72.500
	400.00	67.843	313.825	297.652	-415.531	6.469	-541.061	-438.490	-411.168	53.693
	500.00	74.702	329.730	302.511	-408.390	13.610	-573.255	-439.131	-404.257	42.232
	600.00	80.183	343.852	308.246	-400.636	21.364	-606.948	-439.481	-397.244	34.583
	700.00	84.601	356.557	314.255	-392.389	29.611	-641.979	-439.593	-390.193	29.117
	800.00	88.150	368.094	320.275	-383.745	38.255	-678.220	-439.503	-383.140	25.016
	900.00	90.985	378.647	326.183	-374.783	47.217	-715.565	-439.250	-376.108	21.829
	1000.00	93.238	388.354	331.921	-365.567	56.433	-753.921	-438.881	-369.111	19.280
	1100.00	95.036	397.328	337.465	-356.150	65.850	-793.211	-438.431	-362.156	17.197
	1200.00	96.497	405.662	342.805	-346.571	75.429	-833.366	-437.930	-355.243	15.463
	1300.00	97.740	413.436	347.942	-336.858	85.142	-874.325	-437.395	-348.374	13.998
	1400.00	98.879	420.721	352.883	-327.027	94.973	-916.036	-436.835	-341.547	12.743
	1500.00	100.031	427.582	357.637	-317.082	104.918	-958.455	-436.244	-334.762	11.657
	1600.00	100.740	434.057	362.212	-307.049	114.951	-1001.540	-435.643	-328.016	10.709
	1700.00	101.458	440.186	366.620	-296.938	125.062	-1045.255	-435.034	-321.308	9.873
	1800.00	102.073	446.003	370.870	-286.761	135.239	-1089.567	-434.423	-314.635	9.130
	1900.00	102.605	451.537	374.972	-276.526	145.474	-1134.446	-433.817	-307.997	8.467
	2000.00	103.070	456.812	378.933	-266.242	155.758	-1179.865	-433.217	-301.391	7.872
	2100.00	103.478	461.851	382.762	-255.914	166.086	-1225.800	-432.629	-294.814	7.333
	2200.00	103.839	466.673	386.467	-245.548	176.452	-1272.228	-432.054	-288.265	6.844
	2300.00	104.161	471.296	390.056	-235.148	186.852	-1319.128	-431.492	-281.741	6.399
	2400.00	104.449	475.735	393.534	-224.717	197.283	-1366.481	-430.945	-275.242	5.990
	2500.00	104.708	480.004	396.908	-214.259	207.741	-1414.270	-430.415	-268.766	5.616
	2600.00	104.941	484.116	400.183	-203.776	218.224	-1462.477	-429.901	-262.310	5.270
	2700.00	105.153	488.080	403.366	-193.271	228.729	-1511.088	-429.405	-255.874	4.950
	2800.00	105.345	491.908	406.460	-182.746	239.254	-1560.088	-428.927	-249.455	4.654
	2900.00	105.520	495.608	409.471	-172.203	249.797	-1609.465	-428.468	-243.054	4.378
	3000.00	105.680	499.188	412.402	-161.643	260.357	-1659.206	-428.029	-236.668	4.121

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

112.929 FLUOROBROMOMETHANE (GAS) **CH2FBr[g]**

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	49.047	276.277	276.277	−215.000	0.000	−297.372	−215.000	−193.025	33.817
	300.00	49.218	276.581	276.278	−214.909	0.091	−297.883	−215.080	−192.889	33.585
	400.00	57.591	291.926	278.314	−209.555	5.445	−326.325	−232.670	−181.987	23.765
	500.00	64.567	305.549	282.423	−203.437	11.563	−356.212	−234.554	−169.093	17.665
	600.00	70.453	317.857	287.319	−196.678	18.322	−387.392	−236.171	−155.845	13.567
	700.00	75.419	329.101	292.496	−189.377	25.623	−419.748	−237.536	−142.346	10.622
	800.00	79.592	339.452	297.728	−181.620	33.380	−453.182	−238.659	−128.668	8.401
	900.00	83.085	349.035	302.903	−173.481	41.519	−487.612	−239.567	−114.862	6.666
	1000.00	86.003	357.944	307.967	−165.022	49.978	−522.967	−240.292	−100.966	5.274
	1100.00	88.447	366.259	312.892	−156.296	58.704	−559.181	−240.867	−87.004	4.131
	1200.00	90.519	374.046	317.667	−147.345	67.655	−596.201	−241.319	−72.996	3.177
	1300.00	92.317	381.364	322.288	−138.202	76.798	−633.975	−241.667	−58.954	2.369
	1400.00	93.940	388.265	326.757	−128.888	86.112	−672.460	−241.923	−44.889	1.675
	1500.00	95.487	394.800	331.077	−119.416	95.584	−711.616	−242.090	−30.809	1.073
	1600.00	96.614	400.995	335.255	−109.817	105.183	−751.408	−242.191	−16.720	0.546
	1700.00	97.694	406.885	339.297	−100.100	114.900	−791.805	−242.230	−2.626	0.081
	1800.00	98.624	412.496	343.209	−90.283	124.717	−832.776	−242.220	11.468	−0.333
	1900.00	99.432	417.851	346.997	−80.379	134.621	−874.295	−242.169	25.561	−0.703
	2000.00	100.142	422.969	350.669	−70.400	144.600	−916.338	−242.086	39.650	−1.036
	2100.00	100.769	427.871	354.229	−60.354	154.646	−958.882	−241.977	53.734	−1.337
	2200.00	101.327	432.572	357.684	−50.248	164.752	−1001.906	−241.848	67.812	−1.610
	2300.00	101.826	437.087	361.039	−40.090	174.910	−1045.390	−241.703	81.885	−1.860
	2400.00	102.274	441.430	364.299	−29.885	185.115	−1089.317	−241.545	95.950	−2.088
	2500.00	102.679	445.614	367.468	−19.637	195.363	−1133.671	−241.377	110.009	−2.299
	2600.00	103.046	449.648	370.552	−9.350	205.650	−1178.435	−241.202	124.061	−2.492
	2700.00	103.379	453.543	373.554	0.971	215.971	−1223.596	−241.023	138.106	−2.672
	2800.00	103.683	457.309	376.478	11.325	226.325	−1269.139	−240.842	152.145	−2.838
	2900.00	103.961	460.952	379.329	21.707	236.707	−1315.053	−240.660	166.177	−2.993
	3000.00	104.215	464.481	382.109	32.116	247.116	−1361.326	−240.480	180.203	−3.138

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CHFBrI[g] FLUOROBROMOIODOMETHANE (GAS) 238.826

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J/(K mol)]			[kJ/mol]					[-]
GAS	298.15	67.314	325.273	325.273	-120.000	0.000	-216.980	-120.000	-125.551	21.996
	300.00	67.515	325.690	325.274	-119.875	0.125	-217.582	-120.067	-125.586	21.866
	400.00	76.019	346.372	328.036	-112.666	7.334	-251.215	-145.015	-123.742	16.159
	500.00	81.811	363.991	333.509	-104.759	15.241	-286.755	-167.525	-116.237	12.143
	600.00	86.163	379.309	339.894	-96.351	23.649	-323.936	-167.633	-105.967	9.225
	700.00	89.561	392.856	346.511	-87.558	32.442	-362.558	-167.611	-95.690	7.140
	800.00	92.251	404.998	353.076	-78.462	41.538	-402.461	-167.479	-85.423	5.578
	900.00	94.392	415.992	359.466	-69.126	50.874	-443.519	-167.255	-75.179	4.363
	1000.00	96.101	426.029	365.628	-59.598	60.402	-485.628	-166.965	-64.963	3.393
	1100.00	97.480	435.256	371.544	-49.917	70.083	-528.698	-166.629	-54.779	2.601
	1200.00	98.617	443.788	377.213	-40.110	79.890	-572.656	-166.262	-44.626	1.943
	1300.00	99.598	451.721	382.643	-30.199	89.801	-617.436	-165.873	-34.506	1.386
	1400.00	100.504	459.135	387.845	-20.193	99.807	-662.982	-165.462	-24.416	0.911
	1500.00	101.415	466.100	392.832	-10.098	109.902	-709.248	-165.027	-14.356	0.500
	1600.00	101.989	472.660	397.618	0.068	120.068	-756.189	-164.581	-4.326	0.141
	1700.00	102.571	478.861	402.216	10.296	130.296	-803.768	-164.123	5.676	-0.174
	1800.00	103.071	484.739	406.639	20.579	140.579	-851.950	-163.660	15.651	-0.454
	1900.00	103.506	490.323	410.898	30.909	150.909	-900.706	-163.194	25.600	-0.704
	2000.00	103.886	495.642	415.003	41.279	161.279	-950.006	-162.729	35.524	-0.928
	2100.00	104.221	500.719	418.965	51.684	171.684	-999.826	-162.268	45.426	-1.130
	2200.00	104.519	505.575	422.792	62.121	182.121	-1050.142	-161.812	55.305	-1.313
	2300.00	104.784	510.227	426.493	72.587	192.587	-1100.934	-161.364	65.164	-1.480
	2400.00	105.023	514.691	430.076	83.077	203.077	-1152.182	-160.923	75.004	-1.632
	2500.00	105.238	518.983	433.547	93.591	213.591	-1203.867	-160.492	84.825	-1.772
	2600.00	105.433	523.114	436.913	104.124	224.124	-1255.973	-160.070	94.629	-1.901
	2700.00	105.609	527.097	440.179	114.677	234.677	-1308.485	-159.660	104.418	-2.020
	2800.00	105.770	530.940	443.353	125.246	245.246	-1361.387	-159.262	114.191	-2.130
	2900.00	105.916	534.655	446.437	135.830	255.830	-1414.668	-158.876	123.950	-2.233
	3000.00	106.050	538.248	449.438	146.429	266.429	-1468.314	-158.504	133.696	-2.328

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

67.470 FLUOROCHLOROMETHYL (GAS) **CHFCl[g]**

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J/(K mol)		]	[kJ/mol		]			[−]
GAS	298.15	45.041	268.502	268.502	−83.141	0.000	−163.195	−83.141	−78.509	13.755
	300.00	45.171	268.781	268.503	−83.058	0.083	−163.692	−83.160	−78.481	13.665
	400.00	51.364	282.660	270.353	−78.218	4.923	−191.282	−84.151	−76.768	10.025
	500.00	56.335	294.674	274.042	−72.825	10.316	−220.162	−85.018	−74.819	7.816
	600.00	60.413	305.318	278.384	−66.981	16.160	−250.172	−85.773	−72.707	6.330
	700.00	63.765	314.891	282.927	−60.767	22.374	−281.190	−86.419	−70.477	5.259
	800.00	66.507	323.591	287.475	−54.248	28.893	−313.121	−86.956	−68.161	4.450
	900.00	68.735	331.557	291.936	−47.482	35.659	−345.884	−87.397	−65.785	3.818
	1000.00	70.540	338.896	296.270	−40.515	42.626	−379.411	−87.762	−63.363	3.310
	1100.00	72.008	345.690	300.458	−33.386	49.755	−413.645	−88.071	−60.908	2.892
	1200.00	73.221	352.009	304.494	−26.122	57.019	−448.534	−88.338	−58.426	2.543
	1300.00	74.262	357.912	308.378	−18.747	64.394	−484.033	−88.575	−55.924	2.247
	1400.00	75.213	363.451	312.116	−11.273	71.868	−520.104	−88.784	−53.404	1.993
	1500.00	76.156	368.672	315.714	−3.705	79.436	−556.712	−88.962	−50.871	1.771
	1600.00	76.772	373.604	319.180	3.937	87.078	−593.829	−89.123	−48.326	1.578
	1700.00	77.385	378.277	322.520	11.646	94.787	−631.425	−89.267	−45.772	1.406
	1800.00	77.911	382.715	325.742	19.412	102.553	−669.476	−89.400	−43.209	1.254
	1900.00	78.367	386.940	328.852	27.226	110.367	−707.961	−89.527	−40.640	1.117
	2000.00	78.766	390.970	331.858	35.083	118.224	−746.858	−89.651	−38.063	0.994
	2100.00	79.118	394.822	334.766	42.978	126.119	−786.149	−89.775	−35.481	0.883
	2200.00	79.430	398.510	337.580	50.905	134.046	−825.817	−89.902	−32.893	0.781
	2300.00	79.708	402.047	340.306	58.862	142.003	−865.846	−90.033	−30.298	0.688
	2400.00	79.957	405.445	342.950	66.846	149.987	−906.221	−90.170	−27.698	0.603
	2500.00	80.182	408.713	345.516	74.853	157.994	−946.930	−90.315	−25.092	0.524
	2600.00	80.385	411.862	348.007	82.882	166.023	−987.960	−90.467	−22.480	0.452
	2700.00	80.569	414.899	350.429	90.930	174.071	−1029.299	−90.630	−19.862	0.384
	2800.00	80.737	417.833	352.784	98.995	182.136	−1070.936	−90.802	−17.238	0.322
	2900.00	80.890	420.669	355.076	107.076	190.217	−1112.862	−90.987	−14.608	0.263
	3000.00	81.030	423.413	357.309	115.173	198.314	−1155.067	−91.185	−11.971	0.208

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CHFCl2[g] FLUORODICHLOROMETHANE (GAS) 102.923

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[-]
GAS	298.15	60.958	293.303	293.303	-280.000	0.000	-367.448	-280.000	-249.502	43.712
	300.00	61.169	293.681	293.304	-279.887	0.113	-367.991	-280.021	-249.312	43.409
	400.00	70.430	312.632	295.825	-273.277	6.723	-398.330	-280.975	-238.922	31.200
	500.00	77.108	329.100	300.870	-265.885	14.115	-430.435	-281.628	-228.328	23.853
	600.00	82.278	343.635	306.810	-257.905	22.095	-464.086	-282.065	-217.624	18.946
	700.00	86.375	356.637	313.016	-249.465	30.535	-499.111	-282.323	-206.861	15.436
	800.00	89.636	368.392	319.215	-240.658	39.342	-535.372	-282.425	-196.072	12.802
	900.00	92.229	379.106	325.283	-231.560	48.440	-572.755	-282.397	-185.279	10.753
	1000.00	94.288	388.934	331.164	-222.230	57.770	-611.164	-282.269	-174.494	9.115
	1100.00	95.933	398.000	336.833	-212.716	67.284	-650.516	-282.071	-163.726	7.775
	1200.00	97.275	406.407	342.285	-203.053	76.947	-690.742	-281.821	-152.978	6.659
	1300.00	98.421	414.239	347.522	-193.267	86.733	-731.778	-281.533	-142.252	5.716
	1400.00	99.477	421.572	352.552	-183.372	96.628	-773.573	-281.212	-131.550	4.908
	1500.00	100.544	428.471	357.386	-173.372	106.628	-816.078	-280.852	-120.872	4.209
	1600.00	101.201	434.977	362.034	-163.290	116.710	-859.254	-280.471	-110.219	3.598
	1700.00	101.869	441.133	366.507	-153.136	126.864	-903.062	-280.071	-99.591	3.060
	1800.00	102.442	446.973	370.817	-142.919	137.081	-947.470	-279.658	-88.986	2.582
	1900.00	102.938	452.525	374.972	-132.650	147.350	-992.447	-279.239	-78.405	2.155
	2000.00	103.371	457.816	378.983	-122.334	157.666	-1037.966	-278.816	-67.845	1.772
	2100.00	103.752	462.869	382.858	-111.977	168.023	-1084.002	-278.395	-57.307	1.425
	2200.00	104.090	467.704	386.606	-101.585	178.415	-1130.533	-277.977	-46.789	1.111
	2300.00	104.391	472.337	390.233	-91.160	188.840	-1177.536	-277.565	-36.290	0.824
	2400.00	104.661	476.786	393.747	-80.708	199.292	-1224.994	-277.161	-25.808	0.562
	2500.00	104.904	481.063	397.155	-70.229	209.771	-1272.888	-276.767	-15.343	0.321
	2600.00	105.123	485.182	400.462	-59.728	220.272	-1321.201	-276.384	-4.894	0.098
	2700.00	105.321	489.153	403.674	-49.205	230.795	-1369.919	-276.014	5.541	-0.107
	2800.00	105.502	492.987	406.796	-38.664	241.336	-1419.027	-275.657	15.962	-0.298
	2900.00	105.667	496.692	409.832	-28.105	251.895	-1468.512	-275.317	26.371	-0.475
	3000.00	105.817	500.277	412.787	-17.531	262.469	-1518.362	-274.993	36.769	-0.640

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

86.469 DIFLUOROCHLOROMETHANE (GAS) **CHF2Cl[g]**

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[-]
GAS	298.15	55.801	280.916	280.916	-475.000	0.000	-558.755	-475.000	-454.589	79.642
	300.00	56.010	281.262	280.917	-474.897	0.103	-559.275	-475.026	-454.462	79.129
	400.00	65.597	298.759	283.238	-468.792	6.208	-588.295	-476.204	-447.417	58.427
	500.00	72.925	314.216	287.918	-461.851	13.149	-618.959	-476.985	-440.123	45.979
	600.00	78.764	328.047	293.474	-454.256	20.744	-651.084	-477.453	-432.702	37.670
	700.00	83.458	340.554	299.321	-446.136	28.864	-684.524	-477.663	-425.223	31.731
	800.00	87.220	351.954	305.198	-437.595	37.405	-719.158	-477.654	-417.730	27.275
	900.00	90.217	362.406	310.982	-428.718	46.282	-754.884	-477.471	-410.249	23.810
	1000.00	92.592	372.040	316.612	-419.573	55.427	-791.612	-477.159	-402.796	21.040
	1100.00	94.481	380.956	322.061	-410.215	64.785	-829.268	-476.760	-395.378	18.775
	1200.00	96.012	389.245	327.319	-400.688	74.312	-867.783	-476.303	-388.000	16.889
	1300.00	97.312	396.983	332.383	-391.021	83.979	-907.098	-475.808	-380.661	15.295
	1400.00	98.504	404.238	337.259	-381.230	93.770	-947.163	-475.282	-373.361	13.930
	1500.00	99.713	411.075	341.955	-371.319	103.681	-987.932	-474.722	-366.101	12.749
	1600.00	100.449	417.530	346.478	-361.317	113.683	-1029.365	-474.148	-358.878	11.716
	1700.00	101.198	423.643	350.839	-351.234	123.766	-1071.427	-473.564	-351.691	10.806
	1800.00	101.839	429.446	355.046	-341.081	133.919	-1114.083	-472.977	-344.539	9.998
	1900.00	102.393	434.967	359.109	-330.869	144.131	-1157.306	-472.392	-337.420	9.276
	2000.00	102.877	440.232	363.034	-320.605	154.395	-1201.068	-471.814	-330.331	8.627
	2100.00	103.302	445.262	366.831	-310.296	164.704	-1245.345	-471.247	-323.271	8.041
	2200.00	103.678	450.076	370.506	-299.946	175.054	-1290.113	-470.692	-316.237	7.508
	2300.00	104.012	454.692	374.067	-289.562	185.438	-1335.353	-470.151	-309.229	7.023
	2400.00	104.311	459.125	377.519	-279.145	195.855	-1381.046	-469.625	-302.244	6.578
	2500.00	104.580	463.389	380.869	-268.700	206.300	-1427.173	-469.117	-295.280	6.170
	2600.00	104.823	467.496	384.122	-258.230	216.770	-1473.718	-468.627	-288.336	5.793
	2700.00	105.043	471.456	387.284	-247.736	227.264	-1520.667	-468.155	-281.411	5.444
	2800.00	105.243	475.280	390.359	-237.222	237.778	-1568.005	-467.704	-274.503	5.121
	2900.00	105.424	478.976	393.351	-226.688	248.312	-1615.719	-467.274	-267.611	4.820
	3000.00	105.590	482.553	396.265	-216.138	258.862	-1663.796	-466.865	-260.733	4.540

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CH2FCl[g] FLUOROCHLOROMETHANE (GAS) 68.478

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[-]
GAS	298.15	47.002	264.421	264.421	-270.000	0.000	-348.837	-270.000	-233.920	40.982
	300.00	47.175	264.712	264.422	-269.913	0.087	-349.327	-270.045	-233.696	40.690
	400.00	55.740	279.492	266.379	-264.755	5.245	-376.552	-272.324	-221.229	28.889
	500.00	62.990	292.731	270.348	-258.808	11.192	-405.174	-274.318	-208.218	21.752
	600.00	69.141	304.775	275.097	-252.193	17.807	-435.058	-276.039	-194.832	16.962
	700.00	74.337	315.834	280.137	-245.012	24.988	-466.096	-277.493	-181.179	13.520
	800.00	78.701	326.054	285.246	-237.354	32.646	-498.197	-278.694	-167.335	10.926
	900.00	82.346	335.541	290.314	-229.296	40.704	-531.283	-279.667	-153.354	8.900
	1000.00	85.382	344.379	295.284	-220.905	49.095	-565.284	-280.448	-139.276	7.275
	1100.00	87.917	352.639	300.126	-212.236	57.764	-600.139	-281.071	-125.128	5.942
	1200.00	90.059	360.383	304.829	-203.334	66.666	-635.794	-281.564	-110.928	4.829
	1300.00	91.913	367.666	309.385	-194.234	75.766	-672.200	-281.948	-96.692	3.885
	1400.00	93.588	374.540	313.796	-184.958	85.042	-709.314	-282.237	-82.431	3.076
	1500.00	95.188	381.052	318.064	-175.519	94.481	-747.096	-282.433	-68.151	2.373
	1600.00	96.344	387.228	322.196	-165.948	104.052	-785.513	-282.559	-53.861	1.758
	1700.00	97.453	393.103	326.195	-156.257	113.743	-824.532	-282.622	-39.565	1.216
	1800.00	98.408	398.701	330.069	-146.462	123.538	-864.124	-282.633	-25.268	0.733
	1900.00	99.237	404.044	333.823	-136.579	133.421	-904.264	-282.602	-10.970	0.302
	2000.00	99.965	409.154	337.463	-126.618	143.382	-944.925	-282.538	3.325	-0.087
	2100.00	100.608	414.047	340.994	-116.589	153.411	-986.087	-282.449	17.616	-0.438
	2200.00	101.180	418.740	344.422	-106.499	163.501	-1027.728	-282.339	31.902	-0.757
	2300.00	101.691	423.250	347.752	-96.355	173.645	-1069.829	-282.213	46.183	-1.049
	2400.00	102.150	427.587	350.988	-86.163	183.837	-1112.372	-282.075	60.458	-1.316
	2500.00	102.564	431.766	354.136	-75.927	194.073	-1155.341	-281.928	74.727	-1.561
	2600.00	102.940	435.796	357.200	-65.651	204.349	-1198.720	-281.775	88.991	-1.788
	2700.00	103.281	439.687	360.184	-55.340	214.660	-1242.496	-281.620	103.248	-1.997
	2800.00	103.591	443.449	363.091	-44.996	225.004	-1286.654	-281.463	117.499	-2.192
	2900.00	103.875	447.089	365.925	-34.622	235.378	-1331.182	-281.309	131.745	-2.373
	3000.00	104.134	450.615	368.689	-24.222	245.778	-1376.068	-281.159	145.986	-2.542

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

114.934 FLUORODICHLOROETHYLENE (GAS) **C2HFCl2[g]**

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	77.255	320.185	320.185	−168.648	0.000	−264.111	−168.648	−144.453	25.308
	300.00	77.537	320.664	320.186	−168.505	0.143	−264.704	−168.655	−144.303	25.125
	400.00	89.632	344.753	323.389	−160.102	8.546	−298.004	−168.853	−136.147	17.779
	500.00	98.002	365.701	329.803	−150.699	17.949	−333.550	−168.826	−127.971	13.369
	600.00	104.302	384.151	337.355	−140.570	28.078	−371.061	−168.694	−119.811	10.430
	700.00	109.183	400.612	345.237	−129.886	38.762	−410.314	−168.487	−111.679	8.334
	800.00	112.991	415.450	353.101	−118.769	49.879	−451.129	−168.203	−103.582	6.763
	900.00	115.957	428.937	360.790	−107.315	61.333	−493.359	−167.851	−95.525	5.544
	1000.00	118.263	441.279	368.230	−95.600	73.048	−536.878	−167.457	−87.509	4.571
	1100.00	120.067	452.639	375.394	−83.680	84.968	−581.582	−167.041	−79.534	3.777
	1200.00	121.515	463.150	382.275	−71.598	97.050	−627.378	−166.618	−71.598	3.117
	1300.00	122.746	472.926	388.876	−59.384	109.264	−674.187	−166.194	−63.697	2.559
	1400.00	123.894	482.064	395.210	−47.052	121.596	−721.942	−165.765	−55.828	2.083
	1500.00	125.091	490.652	401.289	−34.603	134.045	−770.582	−165.316	−47.991	1.671
	1600.00	125.766	498.742	407.130	−22.068	146.580	−820.056	−164.865	−40.184	1.312
	1700.00	126.478	506.389	412.746	−9.455	159.193	−870.316	−164.411	−32.406	0.996
	1800.00	127.089	513.636	418.151	3.225	171.873	−921.320	−163.956	−24.654	0.715
	1900.00	127.616	520.522	423.359	15.960	184.608	−973.031	−163.505	−16.927	0.465
	2000.00	128.076	527.080	428.383	28.746	197.394	−1025.414	−163.060	−9.224	0.241
	2100.00	128.481	533.338	433.233	41.574	210.222	−1078.437	−162.627	−1.543	0.038
	2200.00	128.838	539.324	437.920	54.440	223.088	−1132.072	−162.205	6.118	−0.145
	2300.00	129.157	545.058	442.454	67.340	235.988	−1186.293	−161.796	13.760	−0.312
	2400.00	129.442	550.561	446.845	80.270	248.918	−1241.076	−161.403	21.384	−0.465
	2500.00	129.698	555.850	451.100	93.228	261.876	−1296.398	−161.025	28.992	−0.606
	2600.00	129.929	560.942	455.227	106.209	274.857	−1352.239	−160.666	36.586	−0.735
	2700.00	130.138	565.849	459.234	119.213	287.861	−1408.580	−160.325	44.166	−0.854
	2800.00	130.328	570.586	463.127	132.236	300.884	−1465.404	−160.004	51.734	−0.965
	2900.00	130.501	575.162	466.912	145.278	313.926	−1522.692	−159.705	59.290	−1.068
	3000.00	130.659	579.589	470.594	158.336	326.984	−1580.431	−159.429	66.837	−1.164

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

C2HFCl2[1,1][g] 1,1-FLUORODICHLOROETHYLENE (GAS) 114.934

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J/(K mol)]			[kJ/mol]					[−]
GAS	298.15	76.545	314.430	314.430	−159.076	0.000	−252.823	−159.076	−133.165	23.330
	300.00	76.797	314.904	314.431	−158.934	0.142	−253.405	−159.084	−133.005	23.158
	400.00	87.835	338.612	317.589	−150.667	8.409	−286.112	−159.418	−124.255	16.226
	500.00	95.800	359.108	323.890	−141.467	17.609	−321.021	−159.594	−115.442	12.060
	600.00	101.981	377.143	331.292	−131.566	27.510	−357.851	−159.690	−106.601	9.280
	700.00	106.893	393.246	339.013	−121.113	37.963	−396.385	−159.714	−97.750	7.294
	800.00	110.820	407.786	346.716	−110.220	48.856	−436.449	−159.653	−88.901	5.805
	900.00	113.955	421.027	354.248	−98.975	60.101	−477.899	−159.511	−80.065	4.647
	1000.00	116.454	433.167	361.541	−87.450	71.626	−520.617	−159.308	−71.248	3.722
	1100.00	118.457	444.364	368.568	−75.701	83.375	−564.501	−159.063	−62.454	2.966
	1200.00	120.091	454.743	375.323	−63.771	95.305	−609.463	−158.791	−53.683	2.337
	1300.00	121.479	464.412	381.808	−51.691	107.385	−655.426	−158.501	−44.936	1.806
	1400.00	122.743	473.461	388.035	−39.479	119.597	−702.325	−158.192	−36.211	1.351
	1500.00	123.999	481.972	394.016	−27.143	131.933	−750.101	−157.856	−27.510	0.958
	1600.00	124.803	489.997	399.767	−14.708	144.368	−798.703	−157.506	−18.831	0.615
	1700.00	125.603	497.587	405.300	−2.187	156.889	−848.085	−157.143	−10.175	0.313
	1800.00	126.290	504.787	410.628	10.409	169.485	−898.207	−156.772	−1.541	0.045
	1900.00	126.884	511.631	415.766	23.068	182.144	−949.031	−156.397	7.073	−0.194
	2000.00	127.402	518.153	420.723	35.783	194.859	−1000.523	−156.023	15.667	−0.409
	2100.00	127.858	524.380	425.512	48.546	207.622	−1052.652	−155.654	24.242	−0.603
	2200.00	128.262	530.337	430.143	61.353	220.429	−1105.390	−155.292	32.800	−0.779
	2300.00	128.622	536.047	434.624	74.197	233.273	−1158.711	−154.939	41.342	−0.939
	2400.00	128.944	541.528	438.965	87.076	246.152	−1212.591	−154.597	49.869	−1.085
	2500.00	129.234	546.798	443.173	99.985	259.061	−1267.009	−154.268	58.381	−1.220
	2600.00	129.496	551.872	447.257	112.922	271.998	−1321.944	−153.953	66.881	−1.344
	2700.00	129.733	556.763	451.223	125.883	284.959	−1377.378	−153.654	75.369	−1.458
	2800.00	129.948	561.485	455.077	138.867	297.943	−1433.291	−153.373	83.846	−1.564
	2900.00	130.145	566.049	458.825	151.872	310.948	−1489.669	−153.111	92.313	−1.663
	3000.00	130.324	570.464	462.473	164.896	323.972	−1546.496	−152.869	100.772	−1.755

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

114.934 CIS-FLUORODICHLOROETHYLENE (GAS) **C2HFCl2[cis][g]**

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	76.242	313.886	313.886	−168.205	0.000	−261.790	−168.205	−142.132	24.901
	300.00	76.509	314.358	313.887	−168.064	0.141	−262.371	−168.214	−141.970	24.719
	400.00	88.019	338.060	317.041	−159.797	8.408	−295.021	−168.548	−133.165	17.390
	500.00	96.141	358.618	323.347	−150.570	17.635	−329.878	−168.697	−124.299	12.985
	600.00	102.363	376.719	330.764	−140.632	27.573	−366.663	−168.755	−115.413	10.048
	700.00	107.268	392.882	338.504	−130.141	38.064	−405.158	−168.742	−106.523	7.949
	800.00	111.166	407.470	346.228	−119.212	48.993	−445.187	−168.645	−97.640	6.375
	900.00	114.265	420.749	353.781	−107.934	60.271	−486.608	−168.470	−88.774	5.152
	1000.00	116.728	432.920	361.095	−96.380	71.825	−529.300	−168.237	−79.931	4.175
	1100.00	118.697	444.142	368.142	−84.605	83.600	−573.161	−167.967	−71.113	3.377
	1200.00	120.302	454.541	374.913	−72.652	95.553	−618.101	−167.673	−62.321	2.713
	1300.00	121.666	464.225	381.415	−60.553	107.652	−664.045	−167.363	−53.554	2.152
	1400.00	122.911	473.287	387.657	−48.323	119.882	−710.925	−167.036	−44.812	1.672
	1500.00	124.154	481.809	393.653	−35.970	132.235	−758.684	−166.684	−36.094	1.257
	1600.00	124.939	489.843	399.416	−23.522	144.683	−807.271	−166.319	−27.400	0.895
	1700.00	125.727	497.442	404.961	−10.987	157.218	−856.639	−165.943	−18.729	0.575
	1800.00	126.402	504.648	410.301	1.620	169.825	−906.746	−165.561	−10.080	0.293
	1900.00	126.986	511.498	415.448	14.290	182.495	−957.556	−165.175	−1.453	0.040
	2000.00	127.495	518.025	420.415	27.015	195.220	−1009.035	−164.791	7.154	−0.187
	2100.00	127.944	524.256	425.213	39.787	207.992	−1061.151	−164.413	15.742	−0.392
	2200.00	128.341	530.218	429.851	52.602	220.807	−1113.877	−164.043	24.313	−0.577
	2300.00	128.695	535.931	434.340	65.454	233.659	−1167.187	−163.683	32.866	−0.746
	2400.00	129.012	541.415	438.688	78.340	246.545	−1221.056	−163.333	41.404	−0.901
	2500.00	129.297	546.687	442.903	91.255	259.460	−1275.463	−162.998	49.928	−1.043
	2600.00	129.554	551.763	446.993	104.198	272.403	−1330.387	−162.677	58.439	−1.174
	2700.00	129.788	556.657	450.965	117.165	285.370	−1385.809	−162.372	66.937	−1.295
	2800.00	129.999	561.381	454.824	130.155	298.360	−1441.713	−162.086	75.425	−1.407
	2900.00	130.192	565.946	458.578	143.165	311.370	−1498.080	−161.818	83.903	−1.511
	3000.00	130.369	570.363	462.231	156.193	324.398	−1554.897	−161.572	92.371	−1.608

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

C2HFCl2[trans][g] TRANS-FLUORODICHLOROETHYLENE (GAS) 114.934

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[-]
GAS	298.15	76.127	314.730	314.730	-169.057	0.000	-262.894	-169.057	-143.236	25.094
	300.00	76.390	315.202	314.731	-168.916	0.141	-263.476	-169.066	-143.076	24.912
	400.00	87.830	338.856	317.879	-160.666	8.391	-296.209	-169.417	-134.352	17.545
	500.00	95.961	359.372	324.172	-151.457	17.600	-331.143	-169.584	-125.564	13.118
	600.00	102.210	377.443	331.575	-141.536	27.521	-368.002	-169.660	-116.752	10.164
	700.00	107.144	393.584	339.301	-131.059	37.998	-406.568	-169.660	-107.932	8.054
	800.00	111.065	408.157	347.012	-120.141	48.916	-446.666	-169.574	-99.119	6.472
	900.00	114.181	421.426	354.554	-108.872	60.185	-488.156	-169.408	-90.321	5.242
	1000.00	116.655	433.589	361.858	-97.326	71.731	-530.915	-169.184	-81.546	4.260
	1100.00	118.629	444.803	368.895	-85.558	83.499	-574.842	-168.920	-72.794	3.457
	1200.00	120.238	455.197	375.659	-73.612	95.445	-619.848	-168.633	-64.068	2.789
	1300.00	121.606	464.876	382.154	-61.519	107.538	-665.857	-168.329	-55.367	2.225
	1400.00	122.857	473.934	388.390	-49.295	119.762	-712.803	-168.008	-46.689	1.742
	1500.00	124.113	482.453	394.379	-36.947	132.110	-760.626	-167.660	-38.035	1.325
	1600.00	124.898	490.484	400.137	-24.503	144.554	-809.277	-167.300	-29.405	0.960
	1700.00	125.689	498.080	405.677	-11.972	157.085	-858.708	-166.928	-20.798	0.639
	1800.00	126.367	505.284	411.013	0.631	169.688	-908.880	-166.549	-12.213	0.354
	1900.00	126.953	512.132	416.156	13.298	182.355	-959.753	-166.167	-3.649	0.100
	2000.00	127.466	518.657	421.119	26.020	195.077	-1011.295	-165.786	4.894	-0.128
	2100.00	127.916	524.888	425.913	38.789	207.846	-1063.475	-165.411	13.419	-0.334
	2200.00	128.316	530.848	430.549	51.601	220.658	-1116.264	-165.044	21.926	-0.521
	2300.00	128.671	536.560	435.034	64.451	233.508	-1169.636	-164.686	30.417	-0.691
	2400.00	128.990	542.043	439.380	77.334	246.391	-1223.568	-164.339	38.892	-0.846
	2500.00	129.276	547.314	443.592	90.248	259.305	-1278.038	-164.005	47.353	-0.989
	2600.00	129.535	552.390	447.680	103.188	272.245	-1333.024	-163.686	55.801	-1.121
	2700.00	129.769	557.283	451.649	116.154	285.211	-1388.510	-163.384	64.237	-1.243
	2800.00	129.982	562.006	455.507	129.142	298.199	-1444.475	-163.099	72.662	-1.356
	2900.00	130.176	566.571	459.258	142.150	311.207	-1500.905	-162.833	81.077	-1.460
	3000.00	130.354	570.987	462.909	155.176	324.233	-1557.785	-162.588	89.484	-1.558

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

98.480 DIFLUOROCHLOROETHYLENE (GAS) **C2HF2Cl[g]**

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	76.549	304.236	304.236	−333.654	0.000	−424.362	−333.654	−318.484	55.797
	300.00	76.909	304.711	304.237	−333.512	0.142	−424.925	−333.657	−318.390	55.437
	400.00	91.242	328.998	307.452	−325.035	8.619	−456.635	−333.501	−313.308	40.914
	500.00	100.037	350.369	313.945	−315.442	18.212	−490.626	−332.959	−308.318	32.210
	600.00	106.171	369.180	321.615	−305.115	28.539	−526.623	−332.276	−303.452	26.418
	700.00	110.698	385.903	329.627	−294.261	39.393	−564.393	−331.530	−298.706	22.290
	800.00	114.123	400.919	337.616	−283.012	50.642	−603.747	−330.737	−294.071	19.201
	900.00	116.743	414.519	345.417	−271.463	62.191	−644.530	−329.915	−289.537	16.804
	1000.00	118.765	426.928	352.957	−259.683	73.971	−686.611	−329.088	−285.095	14.892
	1100.00	120.355	438.325	360.207	−247.724	85.930	−729.882	−328.276	−280.735	13.331
	1200.00	121.652	448.854	367.161	−235.622	98.032	−774.247	−327.489	−276.448	12.033
	1300.00	122.789	458.637	373.826	−223.399	110.255	−819.628	−326.730	−272.226	10.938
	1400.00	123.885	467.777	380.214	−211.066	122.588	−865.953	−325.991	−268.061	10.001
	1500.00	125.059	476.363	386.340	−198.620	135.034	−913.165	−325.255	−263.948	9.192
	1600.00	125.681	484.449	392.222	−186.091	147.563	−961.209	−324.539	−259.885	8.484
	1700.00	126.374	492.089	397.874	−173.487	160.167	−1010.039	−323.838	−255.865	7.862
	1800.00	126.969	499.330	403.311	−160.819	172.835	−1059.614	−323.157	−251.887	7.310
	1900.00	127.487	506.209	408.547	−148.096	185.558	−1109.893	−322.495	−247.946	6.816
	2000.00	127.941	512.760	413.595	−135.324	198.330	−1160.845	−321.857	−244.038	6.374
	2100.00	128.342	519.012	418.467	−122.510	211.144	−1212.436	−321.243	−240.163	5.974
	2200.00	128.699	524.991	423.175	−109.657	223.997	−1264.638	−320.655	−236.316	5.611
	2300.00	129.018	530.719	427.727	−96.771	236.883	−1317.425	−320.091	−232.495	5.280
	2400.00	129.304	536.216	432.133	−83.855	249.799	−1370.774	−319.554	−228.698	4.977
	2500.00	129.563	541.500	436.403	−70.911	262.743	−1424.662	−319.043	−224.923	4.700
	2600.00	129.797	546.586	440.544	−57.943	275.711	−1479.068	−318.558	−221.168	4.443
	2700.00	130.010	551.489	444.563	−44.952	288.702	−1533.973	−318.100	−217.431	4.206
	2800.00	130.204	556.221	448.466	−31.941	301.713	−1589.360	−317.670	−213.710	3.987
	2900.00	130.381	560.793	452.261	−18.912	314.742	−1645.212	−317.268	−210.004	3.783
	3000.00	130.543	565.216	455.953	−5.866	327.788	−1701.513	−316.895	−206.312	3.592

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

C2HF2Cl[1,1][g] 1,1-DIFLUOROCHLOROETHYLENE (GAS) 98.480

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[-]
GAS	298.15	72.006	302.879	302.879	-334.000	0.000	-424.303	-334.000	-318.425	55.787
	300.00	72.277	303.325	302.880	-333.867	0.133	-424.864	-334.012	-318.329	55.426
	400.00	84.217	325.863	305.872	-326.004	7.996	-456.349	-334.469	-313.022	40.877
	500.00	92.862	345.628	311.888	-317.130	16.870	-489.944	-334.648	-307.635	32.138
	600.00	99.578	363.177	319.001	-307.495	26.505	-525.401	-334.656	-302.230	26.311
	700.00	104.915	378.943	326.458	-297.260	36.740	-562.520	-334.529	-296.834	22.150
	800.00	109.177	393.241	333.926	-286.548	47.452	-601.141	-334.273	-291.465	19.031
	900.00	112.573	406.304	341.253	-275.454	58.546	-641.127	-333.906	-286.135	16.607
	1000.00	115.275	418.310	348.366	-264.056	69.944	-682.366	-333.461	-280.850	14.670
	1100.00	117.435	429.402	355.235	-252.417	81.583	-724.759	-332.969	-275.613	13.088
	1200.00	119.192	439.698	361.850	-240.582	93.418	-768.220	-332.450	-270.421	11.771
	1300.00	120.683	449.299	368.212	-228.587	105.413	-812.676	-331.918	-265.274	10.659
	1400.00	122.041	458.293	374.328	-216.450	117.550	-858.060	-331.376	-260.167	9.707
	1500.00	123.395	466.758	380.211	-204.179	129.821	-904.316	-330.814	-255.100	8.883
	1600.00	124.252	474.745	385.872	-191.803	142.197	-951.395	-330.250	-250.071	8.164
	1700.00	125.110	482.305	391.324	-179.334	154.666	-999.251	-329.685	-245.077	7.530
	1800.00	125.844	489.477	396.580	-166.785	167.215	-1047.843	-329.122	-240.117	6.968
	1900.00	126.479	496.298	401.650	-154.168	179.832	-1097.135	-328.567	-235.187	6.466
	2000.00	127.033	502.800	406.546	-141.492	192.508	-1147.092	-328.024	-230.286	6.014
	2100.00	127.520	509.010	411.279	-128.764	205.236	-1197.685	-327.497	-225.412	5.607
	2200.00	127.952	514.953	415.857	-115.990	218.010	-1248.886	-326.987	-220.563	5.237
	2300.00	128.336	520.649	420.290	-103.175	230.825	-1300.668	-326.496	-215.737	4.900
	2400.00	128.680	526.118	424.587	-90.324	243.676	-1353.008	-326.023	-210.932	4.591
	2500.00	128.989	531.378	428.754	-77.440	256.560	-1405.884	-325.572	-206.145	4.307
	2600.00	129.268	536.442	432.799	-64.527	269.473	-1459.277	-325.142	-201.377	4.046
	2700.00	129.521	541.326	436.728	-51.588	282.412	-1513.167	-324.736	-196.624	3.804
	2800.00	129.750	546.040	440.549	-38.624	295.376	-1567.536	-324.353	-191.887	3.580
	2900.00	129.959	550.597	444.265	-25.638	308.362	-1622.369	-323.995	-187.162	3.371
	3000.00	130.150	555.006	447.884	-12.633	321.367	-1677.651	-323.662	-182.450	3.177

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

98.480 CIS-DIFLUOROCHLOROETHYLENE (GAS) **C2HF2Cl[cis][g]**

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	73.101	304.399	304.399	−323.569	0.000	−414.326	−323.569	−308.448	54.039
	300.00	73.356	304.852	304.400	−323.434	0.135	−414.889	−323.579	−308.354	53.689
	400.00	84.748	327.613	307.427	−315.494	8.075	−446.540	−323.960	−303.213	39.596
	500.00	93.158	347.468	313.492	−306.581	16.988	−480.315	−324.098	−298.006	31.132
	600.00	99.758	365.059	320.648	−296.923	26.646	−515.958	−324.084	−292.787	25.489
	700.00	105.034	380.848	328.140	−286.673	36.896	−553.267	−323.942	−287.580	21.460
	800.00	109.261	395.160	335.637	−275.951	47.618	−592.078	−323.676	−282.402	18.439
	900.00	112.638	408.231	342.987	−264.849	58.720	−632.258	−323.301	−277.265	16.092
	1000.00	115.328	420.244	350.121	−253.446	70.123	−673.690	−322.851	−272.173	14.217
	1100.00	117.479	431.340	357.006	−241.802	81.767	−716.276	−322.354	−267.129	12.685
	1200.00	119.230	441.639	363.635	−229.964	93.605	−759.931	−321.831	−262.132	11.410
	1300.00	120.715	451.243	370.009	−217.965	105.604	−804.580	−321.296	−257.178	10.334
	1400.00	122.067	460.239	376.136	−205.825	117.744	−850.159	−320.751	−252.267	9.412
	1500.00	123.415	468.706	382.028	−193.551	130.018	−896.611	−320.187	−247.395	8.615
	1600.00	124.271	476.694	387.697	−181.173	142.396	−943.884	−319.621	−242.560	7.919
	1700.00	125.125	484.255	393.157	−168.702	154.867	−991.935	−319.054	−237.761	7.306
	1800.00	125.858	491.428	398.419	−156.152	167.417	−1040.722	−318.490	−232.996	6.761
	1900.00	126.491	498.250	403.495	−143.534	180.035	−1090.209	−317.934	−228.261	6.275
	2000.00	127.044	504.752	408.396	−130.857	192.712	−1140.362	−317.389	−223.556	5.839
	2100.00	127.530	510.963	413.134	−118.128	205.441	−1191.150	−316.861	−218.877	5.444
	2200.00	127.960	516.906	417.717	−105.353	218.216	−1242.545	−316.350	−214.223	5.086
	2300.00	128.343	522.602	422.154	−92.537	231.032	−1294.523	−315.858	−209.592	4.760
	2400.00	128.686	528.072	426.454	−79.685	243.884	−1347.058	−315.385	−204.982	4.461
	2500.00	128.995	533.332	430.625	−66.801	256.768	−1400.130	−314.933	−200.391	4.187
	2600.00	129.273	538.396	434.673	−53.887	269.682	−1453.718	−314.503	−195.818	3.934
	2700.00	129.526	543.280	438.605	−40.947	282.622	−1507.804	−314.095	−191.261	3.700
	2800.00	129.755	547.995	442.428	−27.983	295.586	−1562.369	−313.712	−186.719	3.483
	2900.00	129.964	552.552	446.148	−14.997	308.572	−1617.397	−313.353	−182.190	3.282
	3000.00	130.154	556.961	449.768	−1.991	321.578	−1672.874	−313.021	−177.673	3.094

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

C2HF2Cl[trans][g] TRANS-DIFLUOROCHLOROETHYLENE (GAS) 98.480

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	73.110	303.742	303.742	−323.103	0.000	−413.664	−323.103	−307.786	53.923
	300.00	73.372	304.195	303.743	−322.968	0.135	−414.226	−323.113	−307.691	53.574
	400.00	84.941	326.991	306.773	−315.016	8.087	−445.812	−323.482	−302.486	39.501
	500.00	93.382	346.894	312.850	−306.081	17.022	−479.528	−323.599	−297.219	31.050
	600.00	99.969	364.525	320.021	−296.401	26.702	−515.115	−323.562	−291.944	25.416
	700.00	105.221	380.345	327.528	−286.131	36.972	−552.373	−323.400	−286.686	21.393
	800.00	109.424	394.680	335.040	−275.391	47.712	−591.135	−323.117	−281.459	18.377
	900.00	112.781	407.769	342.404	−264.275	58.828	−631.267	−322.727	−276.274	16.035
	1000.00	115.457	419.796	349.550	−252.858	70.245	−672.653	−322.263	−271.137	14.163
	1100.00	117.598	430.904	356.448	−241.201	81.902	−715.196	−321.753	−266.049	12.634
	1200.00	119.342	441.214	363.087	−229.351	93.752	−758.808	−321.219	−261.008	11.361
	1300.00	120.820	450.826	369.471	−217.342	105.761	−803.415	−320.673	−256.013	10.287
	1400.00	122.162	459.829	375.607	−205.192	117.911	−848.953	−320.118	−251.060	9.367
	1500.00	123.495	468.302	381.507	−192.910	130.193	−895.363	−319.545	−246.147	8.572
	1600.00	124.348	476.296	387.184	−180.523	142.580	−942.597	−318.971	−241.273	7.877
	1700.00	125.196	483.861	392.650	−168.045	155.058	−990.608	−318.396	−236.434	7.265
	1800.00	125.923	491.038	397.918	−155.488	167.615	−1039.356	−317.826	−231.629	6.722
	1900.00	126.551	497.863	403.000	−142.864	180.239	−1088.804	−317.263	−226.856	6.237
	2000.00	127.099	504.369	407.908	−130.181	192.922	−1138.918	−316.713	−222.112	5.801
	2100.00	127.581	510.582	412.650	−117.446	205.657	−1189.668	−316.180	−217.395	5.407
	2200.00	128.008	516.527	417.237	−104.666	218.437	−1241.025	−315.664	−212.703	5.050
	2300.00	128.388	522.226	421.679	−91.846	231.257	−1292.965	−315.167	−208.034	4.725
	2400.00	128.728	527.697	425.983	−78.990	244.113	−1345.463	−314.689	−203.387	4.427
	2500.00	129.034	532.958	430.158	−66.101	257.002	−1398.497	−314.233	−198.759	4.153
	2600.00	129.310	538.025	434.210	−53.184	269.919	−1452.048	−313.799	−194.148	3.900
	2700.00	129.560	542.910	438.146	−40.240	282.863	−1506.096	−313.388	−189.554	3.667
	2800.00	129.787	547.626	441.972	−27.273	295.830	−1560.625	−313.002	−184.975	3.451
	2900.00	129.994	552.184	445.694	−14.283	308.820	−1615.616	−312.640	−180.409	3.250
	3000.00	130.183	556.594	449.318	−1.274	321.829	−1671.056	−312.304	−175.855	3.062

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

80.489 FLUOROCHLOROETHYLENE (GAS) **C2H2FCl[g]**

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[-]
GAS	298.15	68.253	284.537	284.537	-165.082	0.000	-249.917	-165.082	-133.288	23.352
	300.00	68.603	284.960	284.538	-164.955	0.127	-250.443	-165.103	-133.091	23.173
	400.00	82.587	306.802	287.421	-157.330	7.752	-280.051	-165.952	-122.279	15.968
	500.00	91.334	326.232	293.280	-148.606	16.476	-311.722	-166.500	-111.294	11.627
	600.00	97.628	343.467	300.236	-139.143	25.939	-345.224	-166.953	-100.209	8.724
	700.00	102.475	358.896	307.533	-129.128	35.954	-380.355	-167.352	-89.053	6.645
	800.00	106.337	372.841	314.839	-118.681	46.401	-416.953	-167.687	-77.843	5.083
	900.00	109.476	385.553	322.001	-107.885	57.197	-454.883	-167.955	-66.596	3.865
	1000.00	112.065	397.225	328.947	-96.804	68.278	-494.029	-168.165	-55.322	2.890
	1100.00	114.235	408.011	335.651	-85.486	79.596	-534.298	-168.328	-44.030	2.091
	1200.00	116.098	418.032	342.103	-73.967	91.115	-575.606	-168.450	-32.724	1.424
	1300.00	117.748	427.391	348.308	-62.274	102.808	-617.882	-168.533	-21.410	0.860
	1400.00	119.277	436.174	354.274	-50.422	114.660	-661.065	-168.574	-10.091	0.377
	1500.00	120.770	444.454	360.012	-38.419	126.663	-705.101	-168.566	1.229	-0.043
	1600.00	121.801	452.277	365.537	-26.298	138.784	-749.941	-168.526	12.548	-0.410
	1700.00	122.827	459.693	370.859	-14.065	151.017	-795.542	-168.451	23.863	-0.733
	1800.00	123.714	466.739	375.992	-1.737	163.345	-841.867	-168.349	35.173	-1.021
	1900.00	124.489	473.449	380.946	10.674	175.756	-888.879	-168.225	46.476	-1.278
	2000.00	125.172	479.852	385.732	23.158	188.240	-936.546	-168.085	57.772	-1.509
	2100.00	125.777	485.974	390.361	35.706	200.788	-984.840	-167.937	69.062	-1.718
	2200.00	126.317	491.838	394.841	48.311	213.393	-1033.733	-167.781	80.344	-1.908
	2300.00	126.802	497.464	399.182	60.967	226.049	-1083.200	-167.622	91.619	-2.081
	2400.00	127.239	502.870	403.390	73.670	238.752	-1133.218	-167.461	102.886	-2.239
	2500.00	127.635	508.072	407.474	86.414	251.496	-1183.767	-167.302	114.148	-2.385
	2600.00	127.995	513.085	411.440	99.196	264.278	-1234.826	-167.147	125.403	-2.519
	2700.00	128.322	517.922	415.295	112.012	277.094	-1286.378	-166.997	136.652	-2.644
	2800.00	128.622	522.594	419.044	124.859	289.941	-1338.405	-166.855	147.895	-2.759
	2900.00	128.896	527.113	422.693	137.735	302.817	-1390.892	-166.723	159.134	-2.866
	3000.00	129.147	531.487	426.247	150.638	315.720	-1443.823	-166.602	170.368	-2.966

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

C2H2FCl[1,1][g] 1,1-FLUOROCHLOROETHYLENE (GAS) 80.489

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[-]
GAS	298.15	64.166	283.335	283.335	-165.393	0.000	-249.869	-165.393	-133.241	23.343
	300.00	64.437	283.733	283.336	-165.274	0.119	-250.394	-165.422	-133.041	23.165
	400.00	76.414	304.019	286.021	-158.194	7.199	-279.801	-166.815	-122.030	15.935
	500.00	85.174	322.054	291.459	-150.096	15.297	-311.122	-167.989	-110.694	11.564
	600.00	92.106	338.218	297.928	-141.219	24.174	-344.150	-169.029	-99.135	8.630
	700.00	97.755	352.855	304.746	-131.717	33.676	-378.715	-169.940	-87.412	6.523
	800.00	102.405	366.221	311.607	-121.701	43.692	-414.679	-170.708	-75.568	4.934
	900.00	106.247	378.512	318.367	-111.263	54.130	-451.924	-171.333	-63.637	3.693
	1000.00	109.430	389.876	324.957	-100.474	64.919	-490.350	-171.835	-51.643	2.698
	1100.00	112.081	400.434	331.344	-89.394	75.999	-529.872	-172.236	-39.603	1.881
	1200.00	114.318	410.285	337.517	-78.071	87.322	-570.413	-172.554	-27.531	1.198
	1300.00	116.253	419.513	343.473	-66.541	98.852	-611.908	-172.800	-15.436	0.620
	1400.00	117.995	428.193	349.218	-54.827	110.566	-654.298	-172.980	-3.324	0.124
	1500.00	119.650	436.391	354.758	-42.945	122.448	-697.531	-173.092	8.799	-0.306
	1600.00	120.853	444.148	360.105	-30.925	134.468	-741.561	-173.153	20.927	-0.683
	1700.00	122.004	451.510	365.267	-18.781	146.612	-786.347	-173.167	33.058	-1.016
	1800.00	122.995	458.512	370.254	-6.530	158.863	-831.851	-173.141	45.188	-1.311
	1900.00	123.856	465.186	375.077	5.814	171.207	-878.038	-173.085	57.316	-1.576
	2000.00	124.611	471.558	379.743	18.238	183.631	-924.878	-173.005	69.441	-1.814
	2100.00	125.277	477.654	384.261	30.733	196.126	-972.341	-172.909	81.561	-2.029
	2200.00	125.870	483.496	388.640	43.291	208.684	-1020.400	-172.801	93.676	-2.224
	2300.00	126.400	489.103	392.887	55.905	221.298	-1069.032	-172.684	105.786	-2.402
	2400.00	126.876	494.493	397.009	68.569	233.962	-1118.214	-172.562	117.891	-2.566
	2500.00	127.306	499.681	401.012	81.279	246.672	-1167.924	-172.437	129.990	-2.716
	2600.00	127.695	504.682	404.904	94.029	259.422	-1218.144	-172.313	142.085	-2.855
	2700.00	128.048	509.508	408.690	106.817	272.210	-1268.855	-172.192	154.175	-2.983
	2800.00	128.370	514.171	412.374	119.638	285.031	-1320.040	-172.077	166.261	-3.102
	2900.00	128.664	518.681	415.962	132.490	297.883	-1371.684	-171.968	178.342	-3.212
	3000.00	128.933	523.047	419.459	145.370	310.763	-1423.771	-171.870	190.420	-3.316

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

80.489 CIS-FLUOROCHLOROETHYLENE (GAS) **C2H2FCl[cis][g]**

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[-]
GAS	298.15	61.470	284.925	284.925	-155.376	0.000	-240.326	-155.376	-123.698	21.671
	300.00	61.734	285.306	284.926	-155.262	0.114	-240.854	-155.410	-123.501	21.503
	400.00	73.725	304.802	287.503	-148.456	6.920	-270.377	-157.078	-112.605	14.705
	500.00	82.818	322.270	292.741	-140.611	14.765	-301.746	-158.505	-101.318	10.585
	600.00	90.124	338.038	298.998	-131.952	23.424	-334.775	-159.761	-89.760	7.814
	700.00	96.103	352.395	305.616	-122.631	32.745	-369.307	-160.854	-78.004	5.821
	800.00	101.018	365.560	312.298	-112.766	42.610	-405.214	-161.773	-66.104	4.316
	900.00	105.060	377.699	318.899	-102.456	52.920	-442.385	-162.526	-54.098	3.140
	1000.00	108.385	388.946	325.348	-91.778	63.598	-480.724	-163.140	-42.017	2.195
	1100.00	111.137	399.409	331.611	-80.798	74.578	-520.148	-163.640	-29.880	1.419
	1200.00	113.449	409.181	337.672	-69.566	85.810	-560.583	-164.048	-17.701	0.770
	1300.00	115.452	418.343	343.529	-58.119	97.257	-601.964	-164.378	-5.491	0.221
	1400.00	117.273	426.966	349.184	-46.481	108.895	-644.233	-164.634	6.741	-0.251
	1500.00	119.037	435.117	354.644	-34.666	120.710	-687.341	-164.813	18.988	-0.661
	1600.00	120.270	442.834	359.916	-22.707	132.669	-731.242	-164.936	31.246	-1.020
	1700.00	121.472	450.163	365.011	-10.619	144.757	-775.895	-165.005	43.510	-1.337
	1800.00	122.506	457.136	369.937	1.581	156.957	-821.263	-165.030	55.776	-1.619
	1900.00	123.405	463.784	374.703	13.878	169.254	-867.312	-165.021	68.043	-1.871
	2000.00	124.194	470.134	379.317	26.259	181.635	-914.010	-164.984	80.309	-2.097
	2100.00	124.892	476.211	383.787	38.714	194.090	-961.329	-164.929	92.572	-2.303
	2200.00	125.512	482.036	388.122	51.235	206.611	-1009.244	-164.858	104.833	-2.489
	2300.00	126.067	487.627	392.327	63.814	219.190	-1057.729	-164.775	117.090	-2.659
	2400.00	126.565	493.003	396.411	76.446	231.822	-1106.762	-164.685	129.343	-2.815
	2500.00	127.015	498.179	400.379	89.125	244.501	-1156.323	-164.591	141.592	-2.958
	2600.00	127.423	503.169	404.237	101.848	257.224	-1206.391	-164.495	153.837	-3.091
	2700.00	127.794	507.985	407.991	114.609	269.985	-1256.951	-164.400	166.079	-3.213
	2800.00	128.131	512.639	411.645	127.405	282.781	-1307.983	-164.309	178.317	-3.327
	2900.00	128.440	517.140	415.206	140.234	295.610	-1359.473	-164.224	190.553	-3.432
	3000.00	128.722	521.500	418.677	153.092	308.468	-1411.406	-164.147	202.785	-3.531

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

C2H2FCl[trans][g] TRANS-FLUOROCHLOROETHYLENE (GAS) 80.489

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J/(K mol)]			[kJ/mol]					[-]
GAS	298.15	63.320	285.320	285.320	-152.387	0.000	-237.455	-152.387	-120.827	21.168
	300.00	63.562	285.712	285.321	-152.270	0.117	-237.983	-152.417	-120.631	21.004
	400.00	74.741	305.607	287.958	-145.328	7.059	-267.570	-153.949	-109.798	14.338
	500.00	83.463	323.257	293.286	-137.402	14.985	-299.030	-155.296	-98.602	10.301
	600.00	90.571	339.123	299.625	-128.688	23.699	-332.162	-156.498	-87.147	7.587
	700.00	96.435	353.539	306.313	-119.329	33.058	-366.806	-157.552	-75.504	5.634
	800.00	101.281	366.743	313.053	-109.435	42.952	-402.830	-158.442	-63.720	4.160
	900.00	105.278	378.911	319.704	-99.101	53.286	-440.120	-159.171	-51.834	3.008
	1000.00	108.574	390.179	326.195	-88.403	63.984	-478.582	-159.764	-39.875	2.083
	1100.00	111.305	400.659	332.494	-77.405	74.982	-518.130	-160.247	-27.862	1.323
	1200.00	113.602	410.445	338.586	-66.157	86.230	-558.691	-160.639	-15.809	0.688
	1300.00	115.591	419.618	344.470	-54.695	97.692	-600.199	-160.954	-3.726	0.150
	1400.00	117.397	428.251	350.150	-43.044	109.343	-642.596	-161.197	8.378	-0.313
	1500.00	119.144	436.410	355.631	-31.217	121.170	-685.833	-161.364	20.497	-0.714
	1600.00	120.368	444.134	360.923	-19.249	133.138	-729.864	-161.477	32.625	-1.065
	1700.00	121.560	451.468	366.035	-7.151	145.236	-774.647	-161.537	44.758	-1.375
	1800.00	122.587	458.446	370.977	5.058	157.445	-820.146	-161.554	56.894	-1.651
	1900.00	123.480	465.099	375.757	17.362	169.749	-866.325	-161.537	69.030	-1.898
	2000.00	124.263	471.453	380.384	29.750	182.137	-913.155	-161.493	81.164	-2.120
	2100.00	124.955	477.533	384.867	42.212	194.599	-960.607	-161.431	93.295	-2.321
	2200.00	125.571	483.360	389.212	54.739	207.126	-1008.653	-161.354	105.423	-2.503
	2300.00	126.121	488.954	393.428	67.324	219.711	-1057.271	-161.266	117.547	-2.670
	2400.00	126.616	494.333	397.521	79.961	232.348	-1106.437	-161.170	129.668	-2.822
	2500.00	127.063	499.511	401.498	92.645	245.032	-1156.131	-161.071	141.784	-2.962
	2600.00	127.468	504.502	405.364	105.372	257.759	-1206.333	-160.970	153.896	-3.092
	2700.00	127.835	509.320	409.125	118.138	270.525	-1257.025	-160.871	166.004	-3.212
	2800.00	128.171	513.975	412.787	130.938	283.325	-1308.192	-160.776	178.109	-3.323
	2900.00	128.477	518.478	416.355	143.771	296.158	-1359.815	-160.687	190.210	-3.426
	3000.00	128.757	522.838	419.832	156.633	309.020	-1411.882	-160.607	202.309	-3.523

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

147.374 FLUOROCHLOROBROMOMETHANE (GAS) **CHFClBr**[g]

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[	kJ/mol	]			[-]
GAS	298.15	62.820	310.686	310.686	-230.000	0.000	-322.631	-230.000	-215.255	37.712
	300.00	63.022	311.075	310.687	-229.884	0.116	-323.206	-230.056	-215.163	37.463
	400.00	71.865	330.499	313.276	-223.111	6.889	-355.310	-246.355	-206.888	27.017
	500.00	78.234	347.252	318.434	-215.591	14.409	-389.217	-246.941	-196.948	20.575
	600.00	83.167	361.970	324.489	-207.511	22.489	-424.693	-247.319	-186.911	16.272
	700.00	87.080	375.096	330.797	-198.991	31.009	-461.558	-247.527	-176.824	13.195
	800.00	90.201	386.935	337.087	-190.121	39.879	-499.669	-247.587	-166.718	10.886
	900.00	92.688	397.708	343.233	-180.972	49.028	-538.910	-247.524	-156.612	9.090
	1000.00	94.668	407.580	349.181	-171.601	58.399	-579.181	-247.367	-146.518	7.653
	1100.00	96.256	416.680	354.909	-162.052	67.948	-620.400	-247.143	-136.444	6.479
	1200.00	97.555	425.113	360.413	-152.359	77.641	-662.495	-246.871	-126.392	5.502
	1300.00	98.667	432.967	365.695	-142.547	87.453	-705.404	-246.563	-116.364	4.676
	1400.00	99.690	440.316	370.765	-132.629	97.371	-749.072	-246.224	-106.362	3.968
	1500.00	100.720	447.229	375.635	-122.609	107.391	-793.452	-245.849	-96.384	3.356
	1600.00	101.362	453.746	380.315	-112.510	117.490	-838.504	-245.454	-86.433	2.822
	1700.00	102.012	459.911	384.817	-102.340	127.660	-884.190	-245.041	-76.507	2.351
	1800.00	102.570	465.758	389.153	-92.111	137.889	-930.476	-244.616	-66.605	1.933
	1900.00	103.053	471.317	393.333	-81.829	148.171	-977.332	-244.185	-56.727	1.560
	2000.00	103.475	476.614	397.365	-71.502	158.498	-1024.730	-243.750	-46.872	1.224
	2100.00	103.847	481.672	401.260	-61.135	168.865	-1072.647	-243.317	-37.039	0.921
	2200.00	104.177	486.511	405.026	-50.734	179.266	-1121.058	-242.887	-27.226	0.646
	2300.00	104.471	491.148	408.670	-40.301	189.699	-1169.942	-242.461	-17.433	0.396
	2400.00	104.734	495.600	412.200	-29.841	200.159	-1219.281	-242.043	-7.658	0.167
	2500.00	104.971	499.880	415.623	-19.355	210.645	-1269.056	-241.632	2.099	-0.044
	2600.00	105.185	504.002	418.943	-8.847	221.153	-1319.252	-241.232	11.841	-0.238
	2700.00	105.379	507.975	422.167	1.681	231.681	-1369.852	-240.842	21.567	-0.417
	2800.00	105.556	511.811	425.301	12.228	242.228	-1420.842	-240.465	31.279	-0.584
	2900.00	105.717	515.518	428.348	22.792	252.792	-1472.210	-240.100	40.977	-0.738
	3000.00	105.864	519.104	431.314	33.371	263.371	-1523.942	-239.750	50.664	-0.882

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CHFClI[g] FLUOROCHLOROIODOMETHANE (GAS) 194.375

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[-]
GAS	298.15	65.049	313.014	313.014	-175.000	0.000	-268.325	-175.000	-166.326	29.140
	300.00	65.267	313.417	313.015	-174.879	0.121	-268.905	-175.033	-166.272	28.951
	400.00	74.433	333.552	315.698	-167.859	7.141	-301.279	-184.662	-162.822	21.262
	500.00	80.635	350.864	321.042	-160.089	14.911	-335.521	-207.248	-155.166	16.210
	600.00	85.271	365.994	327.299	-151.783	23.217	-371.380	-207.417	-144.731	12.600
	700.00	88.874	379.421	333.804	-143.068	31.932	-408.663	-207.444	-134.280	10.020
	800.00	91.714	391.481	340.273	-134.034	40.966	-447.218	-207.351	-123.833	8.085
	900.00	93.962	402.418	346.580	-124.745	50.255	-486.922	-207.160	-113.403	6.582
	1000.00	95.748	412.414	352.671	-115.257	59.743	-527.671	-206.897	-102.999	5.380
	1100.00	97.180	421.610	358.526	-105.608	69.392	-569.378	-206.584	-92.625	4.398
	1200.00	98.356	430.117	364.141	-95.829	79.171	-611.970	-206.237	-82.280	3.582
	1300.00	99.369	438.031	369.524	-85.942	89.058	-655.382	-205.865	-71.965	2.892
	1400.00	100.307	445.429	374.685	-75.958	99.042	-699.559	-205.471	-61.680	2.301
	1500.00	101.255	452.382	379.635	-65.880	109.120	-744.453	-205.050	-51.423	1.791
	1600.00	101.841	458.932	384.388	-55.730	119.270	-790.022	-204.616	-41.196	1.345
	1700.00	102.439	465.124	388.957	-45.516	129.484	-836.227	-204.170	-30.995	0.952
	1800.00	102.954	470.995	393.353	-35.245	139.755	-883.036	-203.717	-20.822	0.604
	1900.00	103.400	476.573	397.588	-24.927	150.073	-930.416	-203.262	-10.673	0.293
	2000.00	103.790	481.887	401.671	-14.567	160.433	-978.342	-202.808	-0.549	0.014
	2100.00	104.134	486.960	405.612	-4.171	170.829	-1026.786	-202.359	9.553	-0.238
	2200.00	104.439	491.811	409.421	6.258	181.258	-1075.726	-201.915	19.634	-0.466
	2300.00	104.711	496.460	413.105	16.716	191.716	-1125.141	-201.479	29.694	-0.674
	2400.00	104.956	500.921	416.672	27.200	202.200	-1175.012	-201.053	39.736	-0.865
	2500.00	105.176	505.210	420.128	37.706	212.706	-1225.320	-200.637	49.761	-1.040
	2600.00	105.375	509.339	423.480	48.234	223.234	-1276.049	-200.233	59.768	-1.201
	2700.00	105.556	513.320	426.734	58.781	233.781	-1327.183	-199.841	69.761	-1.350
	2800.00	105.720	517.162	429.896	69.345	244.345	-1378.708	-199.464	79.739	-1.488
	2900.00	105.870	520.874	432.969	79.924	254.924	-1430.611	-199.101	89.704	-1.616
	3000.00	106.007	524.466	435.960	90.518	265.518	-1482.879	-198.755	99.657	-1.735

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

285.826 FLUORODIIODOMETHANE (GAS) **CHFI2**[g]

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol	]		[−]
GAS	298.15	67.152	332.720	332.720	−65.000	0.000	−164.200	−65.000	−78.148	13.691
	300.00	67.374	333.136	332.721	−64.876	0.124	−164.816	−65.048	−78.230	13.621
	400.00	76.507	353.883	335.488	−57.642	7.358	−199.195	−83.550	−81.688	10.667
	500.00	82.437	371.631	340.986	−49.677	15.323	−235.493	−128.253	−76.890	8.033
	600.00	86.763	387.062	347.407	−41.207	23.793	−273.444	−128.315	−66.609	5.799
	700.00	90.078	400.696	354.065	−32.358	32.642	−312.846	−128.251	−56.328	4.203
	800.00	92.671	412.901	360.670	−23.216	41.784	−353.536	−128.084	−46.064	3.008
	900.00	94.720	423.939	367.097	−13.842	51.158	−395.387	−127.835	−35.826	2.079
	1000.00	96.349	434.006	373.292	−4.286	60.714	−438.292	−127.527	−25.619	1.338
	1100.00	97.662	443.253	379.237	5.417	70.417	−482.161	−127.180	−15.444	0.733
	1200.00	98.749	451.798	384.932	15.239	80.239	−526.919	−126.808	−5.303	0.231
	1300.00	99.693	459.740	390.385	25.162	90.162	−572.500	−126.418	4.807	−0.193
	1400.00	100.574	467.161	395.607	35.176	100.176	−618.849	−126.011	14.886	−0.555
	1500.00	101.468	474.130	400.612	45.277	110.277	−665.917	−125.582	24.936	−0.868
	1600.00	102.022	480.693	405.414	55.447	120.447	−713.662	−125.143	34.956	−1.141
	1700.00	102.593	486.896	410.026	65.679	130.679	−762.044	−124.695	44.948	−1.381
	1800.00	103.084	492.774	414.461	75.963	140.963	−811.030	−124.242	54.914	−1.594
	1900.00	103.512	498.359	418.731	86.293	151.293	−860.589	−123.788	64.855	−1.783
	2000.00	103.886	503.678	422.847	96.664	161.664	−910.693	−123.336	74.772	−1.953
	2100.00	104.218	508.755	426.817	107.069	172.069	−961.317	−122.889	84.666	−2.106
	2200.00	104.512	513.610	430.653	117.506	182.506	−1012.437	−122.448	94.539	−2.245
	2300.00	104.776	518.262	434.362	127.971	192.971	−1064.032	−122.015	104.393	−2.371
	2400.00	105.013	522.726	437.951	138.460	203.460	−1116.083	−121.591	114.227	−2.486
	2500.00	105.226	527.018	441.429	148.972	213.972	−1168.571	−121.176	124.045	−2.592
	2600.00	105.420	531.148	444.800	159.505	224.505	−1221.481	−120.772	133.845	−2.689
	2700.00	105.596	535.130	448.073	170.056	235.056	−1274.796	−120.380	143.631	−2.779
	2800.00	105.757	538.974	451.251	180.624	245.624	−1328.502	−120.000	153.402	−2.862
	2900.00	105.903	542.687	454.340	191.207	256.207	−1382.587	−119.633	163.160	−2.939
	3000.00	106.037	546.280	457.345	201.804	266.804	−1437.036	−119.280	172.905	−3.011

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CHF2I[g] DIFLUOROIODOMETHANE (GAS) 177.920

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J/(K mol)]			[kJ/mol]					[-]
GAS	298.15	60.880	305.900	305.900	-365.000	0.000	-456.204	-365.000	-357.234	62.586
	300.00	61.052	306.277	305.901	-364.887	0.113	-456.770	-365.038	-357.186	62.192
	400.00	69.183	325.004	308.399	-358.358	6.642	-488.360	-375.032	-353.987	46.226
	500.00	75.636	341.161	313.372	-351.106	13.894	-521.686	-398.032	-346.482	36.197
	600.00	80.877	355.431	319.216	-343.271	21.729	-556.529	-398.591	-336.116	29.262
	700.00	85.139	368.229	325.319	-334.963	30.037	-592.723	-398.961	-325.672	24.302
	800.00	88.582	379.831	331.419	-326.271	38.729	-630.135	-399.161	-315.187	20.580
	900.00	91.343	390.430	337.396	-317.269	47.731	-668.656	-399.218	-304.685	17.683
	1000.00	93.543	400.172	343.193	-308.021	56.979	-708.193	-399.164	-294.184	15.367
	1100.00	95.302	409.173	348.787	-298.575	66.425	-748.666	-399.031	-283.691	13.471
	1200.00	96.733	417.529	354.172	-288.971	76.029	-790.006	-398.841	-273.214	11.893
	1300.00	97.950	425.321	359.348	-279.236	85.764	-832.153	-398.608	-262.754	10.558
	1400.00	99.066	432.621	364.324	-269.385	95.615	-875.054	-398.338	-252.314	9.414
	1500.00	100.192	439.494	369.109	-259.422	105.578	-918.663	-398.026	-241.894	8.424
	1600.00	100.888	445.979	373.712	-249.374	115.626	-962.939	-397.690	-231.496	7.558
	1700.00	101.592	452.117	378.145	-239.249	125.751	-1007.847	-397.333	-221.120	6.794
	1800.00	102.195	457.941	382.418	-229.059	135.941	-1053.352	-396.962	-210.765	6.116
	1900.00	102.717	463.481	386.540	-218.813	146.187	-1099.426	-396.581	-200.431	5.510
	2000.00	103.172	468.761	390.520	-208.518	156.482	-1146.040	-396.196	-190.118	4.965
	2100.00	103.572	473.805	394.367	-198.180	166.820	-1193.170	-395.810	-179.823	4.473
	2200.00	103.926	478.631	398.088	-187.805	177.195	-1240.794	-395.426	-169.547	4.026
	2300.00	104.241	483.258	401.691	-177.396	187.604	-1288.890	-395.044	-159.289	3.618
	2400.00	104.523	487.701	405.183	-166.958	198.042	-1337.439	-394.668	-149.046	3.244
	2500.00	104.777	491.973	408.570	-156.492	208.508	-1386.424	-394.299	-138.820	2.900
	2600.00	105.006	496.087	411.857	-146.003	218.997	-1435.828	-393.938	-128.608	2.584
	2700.00	105.213	500.053	415.051	-135.492	229.508	-1485.636	-393.586	-118.409	2.291
	2800.00	105.402	503.883	418.155	-124.961	240.039	-1535.834	-393.244	-108.224	2.019
	2900.00	105.573	507.585	421.175	-114.412	250.588	-1586.409	-392.913	-98.051	1.766
	3000.00	105.730	511.167	424.116	-103.847	261.153	-1637.347	-392.595	-87.888	1.530

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

159.930 FLUOROIODOMETHANE (GAS) **CH2FI[g]**

Phase	T	C_P	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J/(K mol)		]	[kJ/mol		]			[–]
GAS	298.15	50.260	286.264	286.264	–165.000	0.000	–250.350	–165.000	–162.130	28.405
	300.00	50.433	286.575	286.265	–164.907	0.093	–250.879	–165.055	–162.112	28.226
	400.00	58.772	302.270	288.348	–159.431	5.569	–280.339	–175.949	–160.412	20.948
	500.00	65.619	316.143	292.546	–153.202	11.798	–311.273	–199.751	–154.189	16.108
	600.00	71.362	328.629	297.537	–146.344	18.656	–343.522	–201.015	–144.953	12.619
	700.00	76.196	340.004	302.803	–138.959	26.041	–376.962	–202.003	–135.527	10.113
	800.00	80.257	350.451	308.115	–131.131	33.869	–411.492	–202.740	–125.977	8.225
	900.00	83.657	360.106	313.362	–122.930	42.070	–447.026	–203.261	–116.349	6.753
	1000.00	86.500	369.072	318.490	–114.418	50.582	–483.490	–203.606	–106.672	5.572
	1100.00	88.885	377.432	323.473	–105.645	59.355	–520.820	–203.811	–96.968	4.605
	1200.00	90.909	385.255	328.299	–96.653	68.347	–558.959	–203.908	–87.249	3.798
	1300.00	92.667	392.602	332.965	–87.472	77.528	–597.855	–203.917	–77.527	3.115
	1400.00	94.253	399.528	337.475	–78.125	86.875	–637.465	–203.851	–67.807	2.530
	1500.00	95.762	406.083	341.832	–68.624	96.376	–677.748	–203.716	–58.094	2.023
	1600.00	96.865	412.295	346.044	–58.998	106.002	–718.670	–203.533	–48.391	1.580
	1700.00	97.921	418.200	350.116	–49.257	115.743	–760.197	–203.307	–38.701	1.189
	1800.00	98.831	423.823	354.056	–39.419	125.581	–802.301	–203.048	–29.026	0.842
	1900.00	99.621	429.188	357.870	–29.495	135.505	–844.953	–202.765	–19.366	0.532
	2000.00	100.315	434.316	361.565	–19.498	145.502	–888.130	–202.466	–9.721	0.254
	2100.00	100.929	439.226	365.147	–9.435	155.565	–931.809	–202.156	–0.091	0.002
	2200.00	101.474	443.934	368.622	0.686	165.686	–975.969	–201.840	9.523	–0.226
	2300.00	101.962	448.456	371.996	10.858	175.858	–1020.590	–201.521	19.124	–0.434
	2400.00	102.401	452.804	375.273	21.077	186.077	–1065.654	–201.202	28.710	–0.625
	2500.00	102.797	456.993	378.458	31.337	196.337	–1111.145	–200.885	38.283	–0.800
	2600.00	103.156	461.032	381.557	41.635	206.635	–1157.048	–200.573	47.844	–0.961
	2700.00	103.482	464.931	384.573	51.967	216.967	–1203.347	–200.266	57.393	–1.110
	2800.00	103.779	468.700	387.511	62.330	227.330	–1250.030	–199.967	66.930	–1.249
	2900.00	104.051	472.346	390.373	72.722	237.722	–1297.083	–199.677	76.457	–1.377
	3000.00	104.299	475.878	393.165	83.139	248.139	–1344.495	–199.399	85.974	–1.497

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CHI3[g] TRIIODOMETHANE (GAS) 393.732

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	74.781	355.547	355.547	220.000	0.000	113.994	220.000	187.128	−32.784
	300.00	74.950	356.010	355.548	220.139	0.139	113.335	219.945	186.924	−32.546
	400.00	81.923	378.612	358.583	228.012	8.012	76.567	192.870	177.208	−23.141
	500.00	86.496	397.413	364.522	236.446	16.446	37.739	126.221	179.741	−18.777
	600.00	89.877	413.496	371.376	245.272	25.272	−2.826	126.376	190.432	−16.579
	700.00	92.509	427.556	378.418	254.396	34.396	−44.893	126.609	201.090	−15.006
	800.00	94.609	440.051	385.356	263.756	43.756	−88.285	126.910	211.711	−13.823
	900.00	96.303	451.296	392.068	273.305	53.305	−132.862	127.268	222.290	−12.901
	1000.00	97.683	461.516	398.510	283.006	63.006	−178.510	127.667	232.827	−12.162
	1100.00	98.820	470.881	404.669	292.833	72.833	−225.136	128.094	243.322	−11.554
	1200.00	99.778	479.522	410.552	302.764	82.764	−272.662	128.538	253.778	−11.047
	1300.00	100.615	487.542	416.169	312.785	92.785	−321.020	128.995	264.196	−10.616
	1400.00	101.385	495.027	421.538	322.885	102.885	−370.153	129.464	274.579	−10.245
	1500.00	102.141	502.048	426.673	333.061	113.061	−420.010	129.946	284.927	−9.922
	1600.00	102.652	508.654	431.593	343.298	123.298	−470.548	130.434	295.244	−9.639
	1700.00	103.160	514.893	436.311	353.589	133.589	−521.728	130.926	305.529	−9.388
	1800.00	103.598	520.802	440.842	363.927	143.927	−573.516	131.420	315.786	−9.164
	1900.00	103.979	526.413	445.199	374.307	154.307	−625.879	131.913	326.015	−8.963
	2000.00	104.314	531.756	449.395	384.722	164.722	−678.789	132.401	336.218	−8.781
	2100.00	104.610	536.852	453.439	395.168	175.168	−732.222	132.882	346.397	−8.616
	2200.00	104.873	541.725	457.342	405.642	185.642	−786.152	133.355	356.553	−8.466
	2300.00	105.109	546.392	461.113	416.142	196.142	−840.560	133.818	366.688	−8.328
	2400.00	105.322	550.870	464.760	426.664	206.664	−895.425	134.272	376.803	−8.201
	2500.00	105.514	555.173	468.291	437.205	217.205	−950.728	134.715	386.900	−8.084
	2600.00	105.687	559.315	471.713	447.766	227.766	−1006.454	135.146	396.979	−7.975
	2700.00	105.845	563.307	475.032	458.342	238.342	−1062.586	135.564	407.041	−7.875
	2800.00	105.990	567.159	478.254	468.934	248.934	−1119.111	135.969	417.088	−7.781
	2900.00	106.121	570.881	481.384	479.540	259.540	−1176.014	136.361	427.121	−7.693
	3000.00	106.242	574.480	484.428	490.158	270.158	−1233.283	136.738	437.141	−7.611

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

267.836 DIIODOMETHANE (GAS) **CH2I2**[g]

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	57.678	309.946	309.946	121.000	0.000	28.590	121.000	103.891	−18.201
	300.00	57.871	310.303	309.947	121.107	0.107	28.016	120.937	103.785	−18.071
	400.00	66.253	328.180	312.328	127.341	6.341	−3.931	101.589	99.131	−12.945
	500.00	72.302	343.644	317.080	134.282	13.282	−37.540	56.083	102.943	−10.754
	600.00	77.084	357.264	322.664	141.760	20.760	−72.599	55.300	112.393	−9.785
	700.00	81.005	369.450	328.493	149.670	28.670	−108.945	54.732	121.956	−9.100
	800.00	84.269	380.487	334.313	157.939	36.939	−146.450	54.352	131.588	−8.592
	900.00	87.008	390.575	340.012	166.507	45.507	−185.011	54.132	141.257	−8.198
	1000.00	89.319	399.865	345.539	175.326	54.326	−224.539	54.041	150.943	−7.884
	1100.00	91.285	408.473	350.874	184.359	63.359	−264.961	54.051	160.634	−7.628
	1200.00	92.980	416.490	356.011	193.574	72.574	−306.214	54.141	170.320	−7.414
	1300.00	94.474	423.992	360.955	202.948	81.948	−348.242	54.296	179.995	−7.232
	1400.00	95.833	431.044	365.712	212.465	91.465	−390.997	54.504	189.657	−7.076
	1500.00	97.123	437.700	370.292	222.113	101.113	−434.437	54.765	199.302	−6.940
	1600.00	98.081	443.996	374.703	231.868	110.868	−478.525	55.059	208.928	−6.821
	1700.00	99.003	449.970	378.956	241.724	120.724	−523.226	55.385	218.535	−6.715
	1800.00	99.799	455.652	383.061	251.665	130.665	−568.509	55.734	228.122	−6.620
	1900.00	100.494	461.067	387.025	261.680	140.680	−614.347	56.098	237.690	−6.535
	2000.00	101.105	466.238	390.857	271.761	150.761	−660.715	56.472	247.237	−6.457
	2100.00	101.647	471.184	394.565	281.899	160.899	−707.587	56.849	256.766	−6.387
	2200.00	102.130	475.924	398.157	292.088	171.088	−754.945	57.228	266.277	−6.322
	2300.00	102.563	480.474	401.637	302.323	181.323	−802.766	57.606	275.771	−6.263
	2400.00	102.954	484.847	405.014	312.599	191.599	−851.033	57.980	285.249	−6.208
	2500.00	103.307	489.057	408.292	322.913	201.913	−899.730	58.349	294.711	−6.158
	2600.00	103.628	493.115	411.477	333.260	212.260	−948.840	58.710	304.158	−6.111
	2700.00	103.920	497.032	414.573	343.637	222.637	−998.348	59.062	313.591	−6.067
	2800.00	104.187	500.816	417.586	354.043	233.043	−1048.242	59.405	323.012	−6.026
	2900.00	104.431	504.476	420.520	364.474	243.474	−1098.507	59.736	332.421	−5.988
	3000.00	104.654	508.021	423.378	374.928	253.928	−1149.133	60.054	341.818	−5.952

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CH3I[g] IODOMETHANE (GAS) 141.939

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	44.047	253.906	253.906	14.400	0.000	−61.302	14.400	16.167	−2.832
	300.00	44.198	254.179	253.907	14.482	0.082	−61.772	14.335	16.178	−2.817
	400.00	51.686	267.948	255.734	19.286	4.886	−87.893	2.924	17.589	−2.297
	500.00	58.147	280.192	259.422	24.785	10.385	−115.311	−21.389	23.653	−2.471
	600.00	63.796	291.304	263.824	30.888	16.488	−143.894	−23.135	32.831	−2.858
	700.00	68.747	301.519	268.489	37.521	23.121	−173.542	−24.568	42.276	−3.155
	800.00	73.081	310.988	273.217	44.617	30.217	−204.173	−25.711	51.907	−3.389
	900.00	76.868	319.819	277.910	52.119	37.719	−235.719	−26.594	61.665	−3.579
	1000.00	80.173	328.093	282.519	59.975	45.575	−268.119	−27.257	71.509	−3.735
	1100.00	83.057	335.873	287.019	68.139	53.739	−301.321	−27.737	81.410	−3.866
	1200.00	85.583	343.211	291.399	76.574	62.174	−335.279	−28.066	91.348	−3.976
	1300.00	87.810	350.151	295.654	85.246	70.846	−369.950	−28.270	101.308	−4.071
	1400.00	89.799	356.732	299.783	94.128	79.728	−405.297	−28.371	111.280	−4.152
	1500.00	91.608	362.990	303.790	103.200	88.800	−441.285	−28.381	121.256	−4.223
	1600.00	93.095	368.947	307.678	112.431	98.031	−477.885	−28.323	131.230	−4.284
	1700.00	94.469	374.633	311.450	121.811	107.411	−515.066	−28.203	141.199	−4.339
	1800.00	95.657	380.068	315.113	131.319	116.919	−552.803	−28.036	151.159	−4.387
	1900.00	96.695	385.268	318.669	140.937	126.537	−591.072	−27.833	161.109	−4.429
	2000.00	97.608	390.251	322.125	150.654	136.254	−629.849	−27.604	171.047	−4.467
	2100.00	98.418	395.034	325.483	160.456	146.056	−669.115	−27.357	180.974	−4.501
	2200.00	99.142	399.629	328.750	170.334	155.934	−708.850	−27.097	190.888	−4.532
	2300.00	99.791	404.051	331.928	180.281	165.881	−749.035	−26.829	200.791	−4.560
	2400.00	100.376	408.310	335.023	190.290	175.890	−789.655	−26.557	210.681	−4.585
	2500.00	100.905	412.419	338.037	200.355	185.955	−830.692	−26.283	220.561	−4.608
	2600.00	101.387	416.386	340.974	210.470	196.070	−872.134	−26.010	230.429	−4.629
	2700.00	101.825	420.221	343.839	220.631	206.231	−913.965	−25.741	240.287	−4.649
	2800.00	102.225	423.931	346.633	230.833	216.433	−956.174	−25.478	250.135	−4.666
	2900.00	102.591	427.525	349.361	241.075	226.675	−998.747	−25.223	259.974	−4.683
	3000.00	102.927	431.009	352.025	251.351	236.951	−1041.675	−24.978	269.804	−4.698

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

29.018 OXOMETHYL (GAS) **CHO**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[——— J / (K mol) ———]			[——— kJ / mol ———]					[−]
GAS	298.15	34.593	224.623	224.623	43.514	0.000	−23.457	43.514	28.318	−4.961
	300.00	34.624	224.837	224.624	43.578	0.064	−23.873	43.508	28.223	−4.914
	400.00	36.524	235.047	226.003	47.132	3.618	−46.887	43.086	23.187	−3.028
	500.00	38.731	243.431	228.673	50.893	7.379	−70.823	42.526	18.274	−1.909
	600.00	40.963	250.691	231.751	54.878	11.364	−95.536	41.887	13.483	−1.174
	700.00	43.060	257.166	234.927	59.081	15.567	−120.935	41.215	8.802	−0.657
	800.00	44.952	263.042	238.080	63.484	19.970	−146.950	40.549	4.217	−0.275
	900.00	46.615	268.434	241.157	68.064	24.550	−173.527	39.906	−0.285	0.017
	1000.00	48.054	273.422	244.137	72.799	29.285	−200.623	39.289	−4.718	0.246
	1100.00	49.283	278.061	247.013	77.668	34.154	−228.200	38.695	−9.089	0.432
	1200.00	50.328	282.396	249.783	82.650	39.136	−256.225	38.118	−13.408	0.584
	1300.00	51.216	286.460	252.449	87.728	44.214	−284.670	37.553	−17.679	0.710
	1400.00	51.980	290.284	255.017	92.889	49.375	−313.509	36.995	−21.906	0.817
	1500.00	52.651	293.894	257.489	98.121	54.607	−342.720	36.444	−26.094	0.909
	1600.00	53.243	297.311	259.872	103.416	59.902	−372.282	35.896	−30.245	0.987
	1700.00	53.750	300.555	262.171	108.767	65.253	−402.176	35.350	−34.363	1.056
	1800.00	54.189	303.640	264.390	114.164	70.650	−432.387	34.802	−38.447	1.116
	1900.00	54.574	306.580	266.533	119.603	76.089	−462.899	34.250	−42.502	1.168
	2000.00	54.916	309.388	268.606	125.078	81.564	−493.699	33.691	−46.527	1.215
	2100.00	55.222	312.075	270.613	130.585	87.071	−524.773	33.123	−50.524	1.257
	2200.00	55.499	314.651	272.556	136.121	92.607	−556.110	32.546	−54.494	1.294
	2300.00	55.752	317.123	274.441	141.684	98.170	−587.700	31.959	−58.437	1.327
	2400.00	55.985	319.501	276.269	147.271	103.757	−619.532	31.361	−62.354	1.357
	2500.00	56.201	321.791	278.044	152.880	109.366	−651.597	30.753	−66.247	1.384
	2600.00	56.402	323.999	279.770	158.511	114.997	−683.887	30.132	−70.115	1.409
	2700.00	56.591	326.131	281.447	164.160	120.646	−716.394	29.501	−73.958	1.431
	2800.00	56.769	328.193	283.080	169.828	126.314	−749.111	28.858	−77.778	1.451
	2900.00	56.938	330.188	284.671	175.514	132.000	−782.030	28.203	−81.575	1.469
	3000.00	57.100	332.121	286.220	181.216	137.702	−815.146	27.537	−85.349	1.486

References

Phase	H / S	C_p
GAS	Ja1	Ja1

CH2O[g] FORMALDEHYDE (GAS) 30.026

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		J / (K mol)			kJ / mol					
GAS	298.15	35.396	218.765	218.765	−115.901	0.000	−181.126	−115.901	−109.870	19.249
	300.00	35.448	218.984	218.766	−115.835	0.066	−181.531	−115.932	−109.832	19.124
	400.00	39.250	229.667	220.197	−112.113	3.788	−203.980	−117.638	−107.542	14.044
	500.00	43.771	238.908	223.033	−107.963	7.938	−227.417	−119.271	−104.827	10.951
	600.00	48.209	247.285	226.387	−103.362	12.539	−251.733	−120.759	−101.796	8.862
	700.00	52.302	255.029	229.932	−98.333	17.568	−276.853	−122.074	−98.529	7.352
	800.00	55.966	262.257	233.526	−92.916	22.985	−302.722	−123.202	−95.086	6.208
	900.00	59.191	269.039	237.099	−87.154	28.747	−329.290	−124.150	−91.513	5.311
	1000.00	61.994	275.424	240.615	−81.092	34.809	−356.516	−124.942	−87.843	4.588
	1100.00	64.413	281.449	244.056	−74.768	41.133	−384.363	−125.601	−84.100	3.994
	1200.00	66.491	287.145	247.412	−68.221	47.680	−412.795	−126.151	−80.302	3.495
	1300.00	68.277	292.540	250.678	−61.480	54.421	−441.782	−126.614	−76.462	3.072
	1400.00	69.823	297.657	253.852	−54.573	61.328	−471.294	−127.008	−72.589	2.708
	1500.00	71.183	302.522	256.936	−47.522	68.379	−501.305	−127.344	−68.690	2.392
	1600.00	72.347	307.154	259.931	−40.344	75.557	−531.790	−127.635	−64.770	2.115
	1700.00	73.362	311.571	262.840	−33.057	82.844	−562.728	−127.892	−60.833	1.869
	1800.00	74.249	315.790	265.665	−25.676	90.225	−594.098	−128.122	−56.881	1.651
	1900.00	75.026	319.826	268.410	−18.211	97.690	−625.880	−128.335	−52.917	1.455
	2000.00	75.711	323.692	271.078	−10.674	105.227	−658.058	−128.536	−48.943	1.278
	2100.00	76.317	327.401	273.673	−3.072	112.829	−690.614	−128.731	−44.958	1.118
	2200.00	76.854	330.964	276.196	4.587	120.488	−723.533	−128.925	−40.965	0.973
	2300.00	77.333	334.391	278.653	12.297	128.198	−756.802	−129.121	−36.962	0.839
	2400.00	77.761	337.691	281.044	20.052	135.953	−790.407	−129.321	−32.951	0.717
	2500.00	78.145	340.874	283.374	27.848	143.749	−824.336	−129.529	−28.931	0.604
	2600.00	78.490	343.945	285.645	35.680	151.581	−858.578	−129.746	−24.903	0.500
	2700.00	78.803	346.914	287.860	43.545	159.446	−893.122	−129.975	−20.866	0.404
	2800.00	79.085	349.785	290.020	51.440	167.341	−927.957	−130.216	−16.821	0.314
	2900.00	79.342	352.564	292.129	59.361	175.262	−963.076	−130.471	−12.767	0.230
	3000.00	79.575	355.258	294.189	67.307	183.208	−998.467	−130.742	−8.703	0.152

References

Phase	H / S	C_p	Remarks	
GAS	Ja1	Ja1	La1	BPT= 253.6, L= 23.3 kJ

CH2O2 FORMIC ACID 46.026

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		J / (K mol)			kJ / mol					
LIQ	298.15	99.161	128.951	128.951	−424.760	0.000	−463.207	−424.760	−361.368	63.310
	300.00	99.161	129.564	128.953	−424.577	0.183	−463.446	−424.700	−360.975	62.851
	400.00	99.161	158.091	132.842	−414.660	10.100	−477.897	−421.698	−340.198	44.425

References

Phase	H / S	C_p	Remarks	
LIQ	Sw1	La1	La1	BPT= 373.0, L= 22.3 kJ

46.026 FORMIC ACID (GAS) **CH2O2[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	45.224	248.848	248.848	−378.610	0.000	−452.804	−378.610	−350.966	61.488
	300.00	45.392	249.128	248.849	−378.526	0.084	−453.265	−378.650	−350.794	61.079
	400.00	53.823	263.372	250.734	−373.555	5.055	−478.904	−380.593	−341.205	44.557
	500.00	61.056	276.180	254.563	−367.802	10.808	−505.892	−382.152	−331.170	34.597
	600.00	67.212	287.871	259.154	−361.380	17.230	−534.102	−383.399	−320.852	27.933
	700.00	72.413	298.634	264.036	−354.391	24.219	−563.435	−384.381	−310.346	23.158
	800.00	76.779	308.597	268.991	−346.925	31.685	−593.803	−385.128	−299.717	19.569
	900.00	80.432	317.858	273.912	−339.059	39.551	−625.131	−385.675	−289.005	16.773
	1000.00	83.492	326.495	278.743	−330.858	47.752	−657.353	−386.059	−278.242	14.534

References

Phase	H / S	C_p
GAS	Sw1	Re1

CH3O[g] CARBON OXIDE-TRIHYDRIDE (GAS) 31.034

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[-]
GAS	298.15	37.136	232.861	232.861	13.000	0.000	-56.428	13.000	34.310	-6.011
	300.00	37.236	233.091	232.862	13.069	0.069	-56.859	12.946	34.442	-5.997
	400.00	43.691	244.651	234.394	17.103	4.103	-80.758	10.098	42.043	-5.490
	500.00	50.682	255.154	237.509	21.822	8.822	-105.755	7.573	50.329	-5.258
	600.00	57.281	264.986	241.277	27.225	14.225	-131.766	5.423	59.089	-5.144
	700.00	63.232	274.272	245.334	33.257	20.257	-158.734	3.642	68.179	-5.088
	800.00	68.482	283.066	249.506	39.848	26.848	-186.605	2.212	77.500	-5.060
	900.00	73.055	291.403	253.702	46.931	33.931	-215.332	1.097	86.981	-5.048
	1000.00	77.006	299.309	257.871	54.439	41.439	-244.871	0.249	96.571	-5.044
	1100.00	80.407	306.812	261.982	62.314	49.314	-275.180	-0.378	106.235	-5.045
	1200.00	83.339	313.937	266.017	70.504	57.504	-306.221	-0.825	115.948	-5.047
	1300.00	85.886	320.711	269.966	78.968	65.968	-337.956	-1.125	125.693	-5.050
	1400.00	88.137	327.160	273.823	87.672	74.672	-370.352	-1.304	135.455	-5.054
	1500.00	90.180	333.311	277.585	96.589	83.589	-403.378	-1.379	145.227	-5.057
	1600.00	91.978	339.190	281.253	105.699	92.699	-437.005	-1.363	155.001	-5.060
	1700.00	93.511	344.813	284.828	114.976	101.976	-471.207	-1.276	164.771	-5.063
	1800.00	94.834	350.197	288.311	124.394	111.394	-505.960	-1.136	174.535	-5.065
	1900.00	95.986	355.356	291.705	133.937	120.937	-541.239	-0.958	184.289	-5.066
	2000.00	96.998	360.305	295.012	143.587	130.587	-577.024	-0.751	194.034	-5.068
	2100.00	97.894	365.060	298.235	153.332	140.332	-613.294	-0.526	203.768	-5.068
	2200.00	98.692	369.633	301.377	163.162	150.162	-650.030	-0.288	213.490	-5.069
	2300.00	99.407	374.036	304.441	173.068	160.068	-687.215	-0.043	223.202	-5.069
	2400.00	100.052	378.281	307.430	183.041	170.041	-724.832	0.204	232.903	-5.069
	2500.00	100.634	382.377	310.346	193.076	180.076	-762.866	0.450	242.594	-5.069
	2600.00	101.163	386.334	313.193	203.166	190.166	-801.303	0.693	252.275	-5.068
	2700.00	101.645	390.161	315.973	213.307	200.307	-840.128	0.928	261.947	-5.068
	2800.00	102.084	393.866	318.690	223.494	210.494	-879.331	1.154	271.610	-5.067
	2900.00	102.487	397.455	321.344	233.723	220.723	-918.898	1.369	281.265	-5.066
	3000.00	102.856	400.936	323.939	243.990	230.990	-958.818	1.571	290.913	-5.065

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

32.042 METHANOL **CH4O**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
LIQ	298.15	81.588	126.775	126.775	−238.572	0.000	−276.370	−238.572	−166.152	29.109
	300.00	81.588	127.280	126.777	−238.421	0.151	−276.605	−238.571	−165.702	28.851
	400.00	81.588	150.751	129.977	−230.262	8.310	−290.563	−238.746	−141.398	18.465

References

Phase	H / S	C_p	Remarks	
LIQ	Sw1	La1	La1	BPT= 337.4, L= 35.39 kJ

CH4O[g] METHANOL (GAS) 32.042

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	43.812	239.811	239.811	−201.167	0.000	−272.667	−201.167	−162.448	28.460
	300.00	43.958	240.082	239.812	−201.086	0.081	−273.110	−201.236	−162.208	28.243
	400.00	51.801	253.804	241.630	−196.297	4.870	−297.819	−204.781	−148.654	19.412
	500.00	59.477	266.193	245.321	−190.731	10.436	−323.827	−207.921	−134.250	14.025
	600.00	66.815	277.692	249.768	−184.413	16.754	−351.028	−210.621	−119.255	10.382
	700.00	73.645	288.512	254.538	−177.385	23.782	−379.343	−212.874	−103.843	7.749
	800.00	79.794	298.756	259.430	−169.707	31.460	−408.711	−214.694	−88.138	5.755
	900.00	85.093	308.469	264.344	−161.455	39.712	−439.077	−216.126	−72.229	4.192
	1000.00	89.370	317.666	269.221	−152.722	48.445	−470.388	−217.252	−56.178	2.934

References

Phase	H / S	C_p
GAS	Sw1	Re1

C2H2O[g] ETHENONE (KETENE) (GAS) 42.037

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	46.275	241.903	241.903	−61.086	0.000	−133.209	−61.086	−60.242	10.554
	300.00	46.472	242.190	241.904	−61.000	0.086	−133.657	−61.112	−60.236	10.488
	400.00	56.256	256.937	243.848	−55.850	5.236	−158.625	−62.428	−59.739	7.801
	500.00	64.520	270.405	247.832	−49.800	11.286	−185.002	−63.492	−58.939	6.157
	600.00	71.426	282.798	252.641	−42.992	18.094	−212.670	−64.353	−57.945	5.045
	700.00	77.135	294.251	257.778	−35.554	25.532	−241.530	−65.037	−56.820	4.240
	800.00	81.809	304.867	263.009	−27.599	33.487	−271.493	−65.551	−55.609	3.631
	900.00	85.611	314.730	268.214	−19.222	41.864	−302.479	−65.917	−54.343	3.154
	1000.00	88.701	323.915	273.330	−10.501	50.585	−334.416	−66.169	−53.043	2.771

References

Phase	H / S	C_p
GAS	Sw1	Re1

44.053 ACETALDEHYDE (GAS) **C2H4O[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	53.702	264.329	264.329	−166.356	0.000	−245.166	−166.356	−133.236	23.342
	300.00	53.940	264.662	264.330	−166.256	0.100	−245.655	−166.422	−133.030	23.163
	400.00	65.992	281.866	266.594	−160.247	6.109	−272.994	−169.784	−121.380	15.851
	500.00	76.603	297.757	271.257	−153.106	13.250	−301.985	−172.680	−108.935	11.380
	600.00	85.917	312.565	276.922	−144.970	21.386	−332.509	−175.142	−95.948	8.353
	700.00	94.075	326.436	283.015	−135.961	30.395	−364.467	−177.193	−82.581	6.162
	800.00	101.220	339.475	289.266	−126.189	40.167	−397.769	−178.842	−68.948	4.502
	900.00	107.495	351.767	295.534	−115.746	50.610	−432.337	−180.117	−55.131	3.200
	1000.00	113.043	363.386	301.744	−104.714	61.642	−468.100	−181.062	−41.190	2.152

References

Phase	H / S	C_p	Remarks
GAS	Sw1	Re1	NBPT= 293.6

60.053 ACETIC ACID **C2H4O2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
LIQ	298.15	123.386	159.829	159.829	−484.089	0.000	−531.742	−484.089	−389.230	68.191
	300.00	123.386	160.592	159.831	−483.861	0.228	−532.038	−484.053	−388.641	67.668
	389.00	123.386	192.647	163.831	−472.879	11.210	−547.819	−482.698	−360.535	48.412

References

Phase	H / S	C_p	Remarks	
LIQ	Sw1	La1	La1	BPT= 389.0, L= 23.8 kJ

C2H4O2[g] ACETIC ACID (GAS) 60.053

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	66.508	282.613	282.613	−434.843	0.000	−519.104	−434.843	−376.592	65.977
	300.00	66.809	283.025	282.614	−434.720	0.123	−519.627	−434.912	−376.230	65.508
	400.00	81.844	304.363	285.422	−427.266	7.577	−549.012	−438.316	−356.137	46.507
	500.00	94.563	324.033	291.203	−418.428	16.415	−580.445	−441.044	−335.264	35.025
	600.00	105.261	342.248	298.212	−408.421	26.422	−613.770	−443.216	−313.895	27.327
	700.00	114.236	359.168	305.726	−397.433	37.410	−648.851	−444.914	−292.202	21.804
	800.00	121.784	374.929	313.402	−385.622	49.221	−685.565	−446.193	−270.294	17.648
	900.00	128.202	389.653	321.066	−373.114	61.729	−723.802	−447.106	−248.248	14.408
	1000.00	133.788	403.456	328.622	−360.009	74.834	−763.465	−447.708	−226.118	11.811

References

Phase	H / S	C_p
GAS	Sw1	Re1

C2H6O ETHANOL 46.069

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
LIQ	298.15	111.420	160.666	160.666	−276.981	0.000	−324.883	−276.981	−173.991	30.483
	300.00	111.420	161.355	160.668	−276.775	0.206	−325.181	−276.994	−173.352	30.183
	351.30	111.420	178.943	162.086	−271.059	5.922	−333.922	−277.479	−155.594	23.135

References

Phase	H / S	C_p	Remarks	
LIQ	Sw1	La1	La1	BPT= 351.3, L= 38.7 kJ

46.069 ETHANOL (GAS) **C2H6O[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	65.374	282.697	282.697	−234.806	0.000	−319.092	−234.806	−168.200	29.468
	300.00	65.677	283.102	282.698	−234.685	0.121	−319.615	−234.904	−167.786	29.214
	400.00	81.252	304.169	285.465	−227.325	7.481	−348.992	−239.821	−144.652	18.890
	500.00	95.182	323.826	291.193	−218.489	16.317	−380.402	−243.945	−120.366	12.575
	600.00	107.476	342.292	298.186	−208.343	26.463	−413.718	−247.326	−95.321	8.298
	700.00	118.143	359.681	305.741	−197.048	37.758	−448.825	−250.029	−69.764	5.206
	800.00	127.191	376.065	313.518	−184.768	50.038	−485.620	−252.123	−43.862	2.864
	900.00	134.627	391.491	321.333	−171.664	63.142	−524.006	−253.711	−17.730	1.029
	1000.00	140.461	405.992	329.082	−157.896	76.910	−563.888	−254.924	8.558	−0.447

References

Phase	H / S	C_p
GAS	Sw1	Re1

58.080 ACETONE **C3H6O**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
LIQ	298.15	125.018	200.414	200.414	−248.111	0.000	−307.864	−248.111	−155.261	27.201
	300.00	125.018	201.187	200.416	−247.880	0.231	−308.236	−248.114	−154.685	26.933
	328.90	125.018	212.685	200.997	−244.267	3.844	−314.219	−248.231	−145.680	23.136

References

Phase	H / S	C_p	Remarks	
LIQ	Sw1	La1	La1	BPT= 328.9, L= 29.08 kJ

C3H6O[g] ACETONE (GAS) 58.080

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	73.350	295.040	295.040	−217.568	0.000	−305.534	−217.568	−152.931	26.793
	300.00	73.704	295.494	295.041	−217.432	0.136	−306.080	−217.667	−152.529	26.558
	400.00	91.735	319.217	298.154	−209.143	8.425	−336.829	−222.692	−130.040	16.982
	500.00	107.752	341.444	304.612	−199.152	18.416	−369.874	−226.992	−106.365	11.112
	600.00	121.876	362.366	312.511	−187.655	29.913	−405.075	−230.603	−81.889	7.129
	700.00	134.229	382.103	321.057	−174.836	42.732	−442.308	−233.559	−56.861	4.243
	800.00	144.934	400.743	329.863	−160.864	56.704	−481.459	−235.886	−31.453	2.054
	900.00	154.113	418.358	338.727	−145.900	71.668	−522.422	−237.646	−5.787	0.336
	1000.00	161.887	435.010	347.530	−130.089	87.479	−565.098	−238.935	20.048	−1.047

References

Phase	H / S	C_p
GAS	Sw1	Re1

C6H6O PHENOL 94.113

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	143.720	144.013	144.013	−165.017	0.000	−207.955	−165.017	−50.217	8.798
	300.00	143.720	144.902	144.016	−164.751	0.266	−208.222	−165.033	−49.504	8.619
	314.00	143.720	151.457	144.203	−162.739	2.278	−210.297	−165.187	−44.109	7.338

References

Phase	H / S	C_p	Remarks	
SOL	Sw1	La1,e	La1	MPT= 314.00, L= 11.59 kJ / BPT= 454.3, L= 47.32 kJ

94.113 PHENOL (GAS) **C6H6O[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[———	J / (K mol)	———]	[———		kJ / mol	———	———]	[−]
GAS	298.15	103.603	315.709	315.709	−96.358	0.000	−190.487	−96.358	−32.749	5.737
	300.00	104.251	316.351	315.711	−96.166	0.192	−191.071	−96.448	−32.354	5.633
	400.00	135.918	350.834	320.198	−84.104	12.254	−224.437	−100.811	−10.302	1.345
	500.00	161.598	384.024	329.672	−69.182	27.176	−261.194	−104.173	12.733	−1.330
	600.00	182.207	415.379	341.371	−51.953	44.405	−301.180	−106.793	36.371	−3.166
	700.00	198.661	444.749	354.065	−32.879	63.479	−344.203	−108.829	60.400	−4.507
	800.00	211.876	472.170	367.134	−12.329	84.029	−390.065	−110.350	84.685	−5.529
	900.00	222.767	497.773	380.243	9.419	105.777	−438.577	−111.425	109.133	−6.334
	1000.00	232.250	521.743	393.207	32.178	128.536	−489.565	−112.124	133.680	−6.983

References

Phase	H / S	C_p
GAS	Sw1	Re1

CH2OH[g] CARBON DIHYDRIDE-HYDROXIDE (GAS) 31.034

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[-]
GAS	298.15	46.453	245.747	245.747	-20.000	0.000	-93.269	-20.000	-2.532	0.444
	300.00	46.597	246.035	245.748	-19.914	0.086	-93.724	-20.037	-2.424	0.422
	400.00	53.651	260.436	247.664	-14.891	5.109	-119.065	-21.896	3.735	-0.488
	500.00	59.689	273.072	251.506	-9.217	10.783	-145.753	-23.466	10.331	-1.079
	600.00	64.956	284.431	256.062	-2.979	17.021	-173.637	-24.782	17.218	-1.499
	700.00	69.574	294.798	260.866	3.752	23.752	-202.606	-25.862	24.306	-1.814
	800.00	73.624	304.359	265.713	10.917	30.917	-232.570	-26.720	31.534	-2.059
	900.00	77.174	313.240	270.506	18.461	38.461	-263.455	-27.373	38.857	-2.255
	1000.00	80.286	321.536	275.199	26.337	46.337	-295.199	-27.853	46.243	-2.415
	1100.00	83.018	329.319	279.769	34.505	54.505	-327.746	-28.186	53.670	-2.549
	1200.00	85.427	336.648	284.206	42.930	62.930	-361.047	-28.399	61.122	-2.661
	1300.00	87.570	343.572	288.509	51.582	71.582	-395.062	-28.511	68.587	-2.756
	1400.00	89.501	350.133	292.678	60.437	80.437	-429.750	-28.539	76.057	-2.838
	1500.00	91.276	356.369	296.718	69.477	89.477	-465.077	-28.491	83.527	-2.909
	1600.00	92.736	362.304	300.633	78.673	98.673	-501.013	-28.389	90.992	-2.971
	1700.00	94.101	367.968	304.429	88.016	108.016	-537.529	-28.235	98.449	-3.025
	1800.00	95.285	373.381	308.110	97.487	117.487	-574.599	-28.044	105.896	-3.073
	1900.00	96.324	378.561	311.683	107.069	127.069	-612.198	-27.826	113.331	-3.116
	2000.00	97.242	383.526	315.152	116.748	136.748	-650.304	-27.590	120.754	-3.154
	2100.00	98.059	388.290	318.522	126.514	146.514	-688.896	-27.344	128.165	-3.188
	2200.00	98.792	392.869	321.798	136.357	156.357	-727.956	-27.093	135.565	-3.219
	2300.00	99.451	397.276	324.984	146.270	166.270	-767.464	-26.841	142.953	-3.247
	2400.00	100.048	401.521	328.086	156.245	176.245	-807.405	-26.592	150.330	-3.272
	2500.00	100.590	405.616	331.105	166.277	186.277	-847.763	-26.348	157.696	-3.295
	2600.00	101.083	409.571	334.048	176.361	196.361	-888.524	-26.113	165.053	-3.316
	2700.00	101.534	413.395	336.916	186.492	206.492	-929.673	-25.887	172.402	-3.335
	2800.00	101.946	417.095	339.714	196.667	216.667	-971.199	-25.673	179.742	-3.353
	2900.00	102.324	420.679	342.444	206.881	226.881	-1013.088	-25.473	187.074	-3.370
	3000.00	102.672	424.154	345.110	217.131	237.131	-1055.331	-25.289	194.400	-3.385

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

110.225 CARBONOTRITHIONIC ACID **CH2S3**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
LIQ	298.15	148.532	223.007	223.007	25.104	0.000	−41.386	25.104	27.961	−4.899
	300.00	148.532	223.926	223.010	25.379	0.275	−41.799	25.183	27.978	−4.871
	400.00	148.532	266.656	228.836	40.232	15.128	−66.430	22.350	28.578	−3.732

References

Phase	H / S	C_p
LIQ	Sw1	Sw1

CI[g] CARBON IODIDE (GAS) 138.916

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	36.907	241.315	241.315	570.201	0.000	498.253	570.201	517.278	−90.625
	300.00	36.953	241.543	241.316	570.269	0.068	497.806	570.203	516.950	−90.009
	400.00	38.344	252.404	242.787	574.048	3.847	473.086	562.125	499.478	−65.225
	500.00	38.740	261.013	245.602	577.906	7.705	447.400	540.556	485.885	−50.760
	600.00	38.807	268.085	248.777	581.785	11.584	420.935	540.979	474.907	−41.344
	700.00	38.765	274.064	251.974	585.664	15.463	393.819	541.199	463.875	−34.615
	800.00	38.698	279.236	255.066	589.538	19.337	366.148	541.262	452.823	−29.566
	900.00	38.642	283.791	258.009	593.404	23.203	337.993	541.206	441.770	−25.640
	1000.00	38.607	287.860	260.795	597.267	27.066	309.406	541.055	430.729	−22.499
	1100.00	38.597	291.539	263.425	601.127	30.926	280.433	540.829	419.707	−19.930
	1200.00	38.608	294.898	265.910	604.987	34.786	251.109	540.542	408.708	−17.791
	1300.00	38.633	297.989	268.260	608.849	38.648	221.463	540.209	397.735	−15.981
	1400.00	38.663	300.853	270.487	612.714	42.513	191.519	539.838	386.789	−14.431
	1500.00	38.689	303.522	272.602	616.581	46.380	161.299	539.436	375.871	−13.089
	1600.00	38.747	306.024	274.613	620.459	50.258	130.820	539.017	364.980	−11.915
	1700.00	38.743	308.373	276.531	624.333	54.132	100.099	538.571	354.117	−10.881
	1800.00	38.789	310.589	278.362	628.209	58.008	69.150	538.108	343.280	−9.962
	1900.00	38.869	312.688	280.114	632.092	61.891	37.985	537.634	332.469	−9.140
	2000.00	38.972	314.684	281.793	635.984	65.783	6.616	537.154	321.683	−8.401
	2100.00	39.088	316.588	283.405	639.887	69.686	−24.949	536.669	310.921	−7.734
	2200.00	39.210	318.410	284.955	643.802	73.601	−56.699	536.184	300.183	−7.127
	2300.00	39.334	320.155	286.447	647.729	77.528	−88.628	535.698	289.466	−6.574
	2400.00	39.455	321.832	287.887	651.669	81.468	−120.728	535.213	278.771	−6.067
	2500.00	39.571	323.445	289.277	655.620	85.419	−152.992	534.729	268.096	−5.602
	2600.00	39.678	324.999	290.622	659.582	89.381	−185.415	534.246	257.440	−5.172
	2700.00	39.775	326.498	291.923	663.555	93.354	−217.990	533.763	246.803	−4.775
	2800.00	39.860	327.946	293.184	667.537	97.336	−250.713	533.279	236.184	−4.406
	2900.00	39.932	329.346	294.407	671.527	101.326	−283.578	532.793	225.582	−4.063
	3000.00	39.991	330.701	295.594	675.523	105.322	−316.581	532.305	214.996	−3.743

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

265.820 CARBON DIIODIDE (GAS) **CI2**[g]

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	50.935	304.318	304.318	468.397	0.000	377.665	468.397	414.004	−72.532
	300.00	51.006	304.633	304.319	468.491	0.094	377.101	468.375	413.666	−72.026
	400.00	53.655	319.715	306.357	473.740	5.343	345.854	450.948	396.189	−51.737
	500.00	55.068	331.854	310.283	479.183	10.786	313.256	406.866	386.752	−40.404
	600.00	55.938	341.977	314.745	484.736	16.339	279.550	407.088	382.706	−33.318
	700.00	56.513	350.646	319.269	490.361	21.964	244.909	407.171	378.634	−28.254
	800.00	56.906	358.219	323.675	496.033	27.636	209.457	407.147	374.558	−24.456
	900.00	57.178	364.938	327.893	501.738	33.341	173.293	407.039	370.490	−21.503
	1000.00	57.369	370.973	331.905	507.466	39.069	136.492	406.860	366.438	−19.141
	1100.00	57.509	376.448	335.709	513.210	44.813	99.117	406.621	362.407	−17.209
	1200.00	57.621	381.457	339.316	518.966	50.569	61.218	406.330	358.400	−15.601
	1300.00	57.726	386.073	342.737	524.734	56.337	22.839	405.999	354.419	−14.241
	1400.00	57.844	390.355	345.987	530.512	62.115	−15.985	405.634	350.465	−13.076
	1500.00	57.991	394.351	349.080	536.303	67.906	−55.223	405.246	346.538	−12.068
	1600.00	58.115	398.104	352.028	542.119	73.722	−94.847	404.852	342.636	−11.186
	1700.00	58.153	401.628	354.843	547.932	79.535	−134.836	404.428	338.761	−10.409
	1800.00	58.308	404.956	357.535	553.754	85.357	−175.167	403.992	334.910	−9.719
	1900.00	58.551	408.115	360.115	559.596	91.199	−215.821	403.555	331.085	−9.102
	2000.00	58.860	411.125	362.591	565.466	97.069	−256.785	403.129	327.281	−8.548
	2100.00	59.217	414.006	364.971	571.370	102.973	−298.042	402.717	323.499	−8.047
	2200.00	59.610	416.770	367.263	577.311	108.914	−339.582	402.327	319.736	−7.592
	2300.00	60.028	419.428	369.474	583.293	114.896	−381.393	401.962	315.990	−7.176
	2400.00	60.463	421.992	371.609	589.317	120.920	−423.464	401.626	312.260	−6.796
	2500.00	60.909	424.470	373.674	595.386	126.989	−465.788	401.320	308.543	−6.447
	2600.00	61.359	426.867	375.674	601.499	133.102	−508.356	401.045	304.837	−6.124
	2700.00	61.810	429.191	377.613	607.658	139.261	−551.159	400.802	301.141	−5.826
	2800.00	62.257	431.447	379.496	613.861	145.464	−594.192	400.592	297.454	−5.549
	2900.00	62.699	433.640	381.325	620.109	151.712	−637.447	400.413	293.774	−5.291
	3000.00	63.132	435.773	383.105	626.401	158.004	−680.918	400.266	290.099	−5.051

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CI3[g] CARBON TRIIODIDE (GAS) 392.724

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	70.528	304.547	304.547	405.987	0.000	315.186	405.987	368.839	−64.619
	300.00	70.641	304.984	304.548	406.118	0.131	314.622	405.951	368.609	−64.181
	400.00	74.947	325.965	307.380	413.421	7.434	283.035	379.759	357.312	−46.660
	500.00	77.353	342.970	312.852	421.046	15.059	249.561	313.762	358.070	−37.407
	600.00	78.896	357.219	319.091	428.864	22.877	214.532	314.373	366.872	−31.939
	700.00	79.949	369.465	325.433	436.809	30.822	178.184	314.896	375.580	−28.026
	800.00	80.685	380.191	331.621	444.843	38.856	140.690	315.348	384.217	−25.087
	900.00	81.200	389.726	337.557	452.939	46.952	102.185	315.741	392.802	−22.798
	1000.00	81.558	398.301	343.210	461.078	55.091	62.777	316.079	401.345	−20.964
	1100.00	81.806	406.087	348.578	469.247	63.260	22.551	316.367	409.858	−19.463
	1200.00	81.985	413.213	353.671	477.437	71.450	−18.419	316.609	418.346	−18.210
	1300.00	82.129	419.781	358.507	485.643	79.656	−60.073	316.812	426.815	−17.150
	1400.00	82.272	425.873	363.104	493.863	87.876	−102.359	316.982	435.270	−16.240
	1500.00	82.443	431.554	367.480	502.098	96.111	−145.233	317.128	443.714	−15.452
	1600.00	82.447	436.873	371.653	510.338	104.351	−188.658	317.245	452.150	−14.761
	1700.00	82.521	441.873	375.638	518.587	112.600	−232.597	317.342	460.578	−14.152
	1800.00	82.582	446.592	379.450	526.842	120.855	−277.023	317.419	469.001	−13.610
	1900.00	82.634	451.058	383.102	535.103	129.116	−321.907	317.480	477.421	−13.125
	2000.00	82.679	455.298	386.607	543.369	137.382	−367.227	317.524	485.838	−12.689
	2100.00	82.717	459.333	389.975	551.639	145.652	−412.960	317.551	494.253	−12.294
	2200.00	82.751	463.182	393.216	559.912	153.925	−459.087	317.562	502.667	−11.935
	2300.00	82.780	466.861	396.338	568.189	162.202	−505.591	317.559	511.080	−11.607
	2400.00	82.806	470.384	399.351	576.468	170.481	−552.454	317.540	519.495	−11.307
	2500.00	82.828	473.765	402.260	584.750	178.763	−599.663	317.508	527.910	−11.030
	2600.00	82.848	477.014	405.073	593.034	187.047	−647.203	317.462	536.327	−10.775
	2700.00	82.866	480.141	407.796	601.319	195.332	−695.062	317.401	544.746	−10.539
	2800.00	82.883	483.155	410.434	609.607	203.620	−743.227	317.326	553.168	−10.319
	2900.00	82.897	486.064	412.992	617.896	211.909	−791.689	317.238	561.592	−10.115
	3000.00	82.910	488.874	415.475	626.186	220.199	−840.437	317.136	570.020	−9.925

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

519.629 CARBON TETRAIODIDE (GAS) **CI4**[g]

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	95.687	391.891	391.891	340.000	0.000	223.158	340.000	294.125	−51.529
	300.00	95.809	392.483	391.893	340.177	0.177	222.432	339.960	293.840	−51.162
	400.00	100.355	420.748	395.716	350.013	10.013	181.714	305.481	279.934	−36.556
	500.00	102.760	443.424	403.065	360.180	20.180	138.467	217.929	281.988	−29.459
	600.00	104.237	462.300	411.409	370.535	30.535	93.155	219.202	294.678	−25.654
	700.00	105.215	478.447	419.860	381.011	41.011	46.098	220.374	307.164	−22.921
	800.00	105.886	492.543	428.083	391.568	51.568	−2.466	221.463	319.487	−20.860
	900.00	106.351	505.043	435.953	402.181	62.181	−52.357	222.483	331.678	−19.250
	1000.00	106.674	516.266	443.432	412.833	72.833	−103.432	223.441	343.759	−17.956
	1100.00	106.900	526.444	450.524	423.513	83.513	−155.576	224.342	355.747	−16.893
	1200.00	107.063	535.753	457.244	434.211	94.211	−208.692	225.192	367.655	−16.004
	1300.00	107.195	544.328	463.617	444.924	104.924	−262.702	225.998	379.494	−15.248
	1400.00	107.320	552.276	469.669	455.650	115.650	−317.537	226.767	391.272	−14.599
	1500.00	107.465	559.685	475.426	466.389	126.389	−373.139	227.507	402.996	−14.034
	1600.00	107.515	566.622	480.911	477.137	137.137	−429.458	228.218	414.672	−13.538
	1700.00	107.580	573.142	486.147	487.891	147.891	−486.450	228.905	426.304	−13.099
	1800.00	107.634	579.293	491.152	498.652	158.652	−544.074	229.569	437.897	−12.707
	1900.00	107.680	585.113	495.946	509.418	169.418	−602.297	230.212	449.453	−12.356
	2000.00	107.719	590.638	500.544	520.188	180.188	−661.087	230.835	460.976	−12.039
	2100.00	107.753	595.894	504.960	530.962	190.962	−720.416	231.438	472.468	−11.752
	2200.00	107.783	600.907	509.208	541.738	201.738	−780.258	232.022	483.932	−11.490
	2300.00	107.809	605.699	513.300	552.518	212.518	−840.590	232.588	495.370	−11.250
	2400.00	107.831	610.288	517.246	563.300	223.300	−901.391	233.136	506.783	−11.030
	2500.00	107.851	614.690	521.057	574.084	234.084	−962.641	233.667	518.174	−10.827
	2600.00	107.869	618.921	524.740	584.870	244.870	−1024.323	234.180	529.544	−10.639
	2700.00	107.885	622.992	528.304	595.658	255.658	−1086.420	234.676	540.895	−10.464
	2800.00	107.899	626.916	531.756	606.447	266.447	−1148.917	235.156	552.227	−10.302
	2900.00	107.912	630.702	535.103	617.238	277.238	−1211.799	235.618	563.543	−10.151
	3000.00	107.923	634.361	538.351	628.029	288.029	−1275.053	236.063	574.843	−10.009

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CN[g] CYANOGEN (GAS) 26.018

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	29.154	202.657	202.657	435.136	0.000	374.714	435.136	404.989	−70.952
	300.00	29.159	202.837	202.657	435.190	0.054	374.339	435.147	404.802	−70.482
	400.00	29.410	211.257	203.804	438.117	2.981	353.614	435.579	394.614	−51.531
	500.00	29.935	217.871	205.978	441.082	5.946	332.147	435.743	384.349	−40.153
	600.00	30.653	223.390	208.433	444.111	8.975	310.076	435.699	374.071	−32.566
	700.00	31.424	228.173	210.918	447.214	12.078	287.493	435.504	363.813	−27.148
	800.00	32.169	232.419	213.345	450.395	15.259	264.460	435.205	353.591	−23.087
	900.00	32.850	236.248	215.681	453.646	18.510	241.023	434.836	343.411	−19.931
	1000.00	33.456	239.741	217.915	456.962	21.826	217.221	434.412	333.275	−17.409
	1100.00	33.988	242.955	220.047	460.335	25.199	193.084	433.947	323.184	−15.347
	1200.00	34.458	245.933	222.082	463.758	28.622	168.638	433.450	313.136	−13.630
	1300.00	34.880	248.708	224.024	467.225	32.089	143.905	432.929	303.131	−12.180
	1400.00	35.273	251.307	225.881	470.733	35.597	118.902	432.391	293.166	−10.938
	1500.00	35.657	253.754	227.659	474.279	39.143	93.648	431.844	283.241	−9.863
	1600.00	35.996	256.066	229.362	477.861	42.725	68.156	431.292	273.352	−8.924
	1700.00	36.367	258.259	230.998	481.479	46.343	42.439	430.744	263.497	−8.096
	1800.00	36.762	260.349	232.571	485.136	50.000	16.508	430.205	253.675	−7.361
	1900.00	37.173	262.347	234.086	488.832	53.696	−9.628	429.682	243.882	−6.705
	2000.00	37.597	264.265	235.547	492.571	57.435	−35.959	429.179	234.116	−6.114
	2100.00	38.030	266.110	236.959	496.352	61.216	−62.478	428.699	224.375	−5.581
	2200.00	38.469	267.889	238.325	500.177	65.041	−89.179	428.244	214.656	−5.097
	2300.00	38.912	269.609	239.648	504.046	68.910	−116.054	427.817	204.957	−4.655
	2400.00	39.357	271.274	240.931	507.959	72.823	−143.099	427.420	195.276	−4.250
	2500.00	39.802	272.890	242.177	511.917	76.781	−170.307	427.054	185.611	−3.878
	2600.00	40.248	274.460	243.389	515.920	80.784	−197.675	426.720	175.960	−3.535
	2700.00	40.692	275.987	244.568	519.967	84.831	−225.198	426.418	166.322	−3.218
	2800.00	41.134	277.475	245.717	524.058	88.922	−252.871	426.150	156.693	−2.923
	2900.00	41.574	278.926	246.837	528.194	93.058	−280.691	425.915	147.074	−2.649
	3000.00	42.010	280.343	247.930	532.373	97.237	−308.655	425.713	137.462	−2.393

References

Phase	H / S	C_p
GAS	Ja1	Ja1

40.024 CARBON NITRIDE (NCN RADICAL) (GAS) **CN2[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	42.221	226.213	226.213	472.792	0.000	405.347	472.792	464.186	−81.324
	300.00	42.270	226.474	226.214	472.870	0.078	404.928	472.800	464.133	−80.813
	400.00	46.024	239.124	227.913	477.277	4.485	381.627	473.252	461.177	−60.224
	500.00	49.480	249.783	231.248	482.060	9.268	357.168	473.765	458.100	−47.857
	600.00	52.057	259.044	235.125	487.143	14.351	331.717	474.284	454.917	−39.604
	700.00	53.971	267.219	239.138	492.449	19.657	305.396	474.770	451.651	−33.703
	800.00	55.428	274.525	243.113	497.922	25.130	278.302	475.210	448.317	−29.272
	900.00	56.565	281.122	246.975	503.524	30.732	250.514	475.602	444.932	−25.823
	1000.00	57.470	287.130	250.695	509.227	36.435	222.097	475.946	441.505	−23.062
	1100.00	58.203	292.643	254.261	515.012	42.220	193.105	476.245	438.046	−20.801
	1200.00	58.802	297.734	257.675	520.863	48.071	163.582	476.502	434.562	−18.916
	1300.00	59.296	302.461	260.940	526.769	53.977	133.570	476.722	431.057	−17.320
	1400.00	59.704	306.871	264.065	532.720	59.928	103.101	476.910	427.538	−15.952
	1500.00	60.042	311.002	267.058	538.708	65.916	72.205	477.070	424.005	−14.765
	1600.00	60.322	314.886	269.927	544.726	71.934	40.909	477.205	420.463	−13.727
	1700.00	60.553	318.550	272.681	550.770	77.978	9.235	477.320	416.913	−12.810
	1800.00	60.743	322.017	275.326	556.835	84.043	−22.795	477.416	413.357	−11.995
	1900.00	60.900	325.305	277.871	562.918	90.126	−55.162	477.494	409.796	−11.266
	2000.00	61.029	328.433	280.321	569.015	96.223	−87.851	477.555	406.231	−10.610
	2100.00	61.135	331.413	282.684	575.123	102.331	−120.844	477.599	402.664	−10.016
	2200.00	61.224	334.259	284.964	581.241	108.449	−154.129	477.627	399.095	−9.476
	2300.00	61.300	336.982	287.167	587.367	114.575	−187.692	477.641	395.525	−8.983
	2400.00	61.367	339.592	289.297	593.501	120.709	−221.521	477.642	391.954	−8.531
	2500.00	61.429	342.099	291.359	599.640	126.848	−255.607	477.629	388.384	−8.115
	2600.00	61.491	344.509	293.358	605.786	132.994	−289.938	477.605	384.815	−7.731
	2700.00	61.556	346.831	295.295	611.939	139.147	−324.506	477.571	381.247	−7.376
	2800.00	61.628	349.071	297.176	618.098	145.306	−359.301	477.528	377.680	−7.046
	2900.00	61.711	351.235	299.003	624.265	151.473	−394.317	477.478	374.115	−6.739
	3000.00	61.807	353.329	300.779	630.441	157.649	−429.546	477.423	370.551	−6.452

References

Phase	H / S	C_p
GAS	Ja1	Ja1

C2N2[g] ETHANEDINITRILE (GAS) 52.035

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	56.627	241.572	241.572	309.072	0.000	237.047	309.072	297.598	-52.138
	300.00	56.756	241.923	241.573	309.177	0.105	236.600	309.091	297.527	-51.804
	400.00	62.053	259.042	243.872	315.140	6.068	211.523	310.063	293.522	-38.330
	500.00	65.584	273.288	248.370	321.531	12.459	184.887	310.852	289.291	-30.222
	600.00	68.336	285.497	253.564	328.232	19.160	156.933	311.409	284.923	-24.805
	700.00	70.649	296.209	258.907	335.184	26.112	127.837	311.762	280.478	-20.930
	800.00	72.663	305.777	264.178	342.351	33.279	97.730	311.973	275.993	-18.020
	900.00	74.447	314.441	269.289	349.709	40.637	66.712	312.088	271.488	-15.757
	1000.00	76.035	322.368	274.206	357.234	48.162	34.866	312.135	266.973	-13.945
	1100.00	77.449	329.683	278.921	364.910	55.838	2.259	312.135	262.457	-12.463
	1200.00	78.699	336.477	283.438	372.719	63.647	-31.053	312.104	257.942	-11.228
	1300.00	79.795	342.820	287.764	380.645	71.573	-65.022	312.053	253.430	-10.183
	1400.00	80.740	348.769	291.912	388.673	79.601	-99.604	311.989	248.923	-9.287
	1500.00	81.538	354.368	295.891	396.788	87.716	-134.764	311.916	244.421	-8.512
	1600.00	82.191	359.652	299.712	404.975	95.903	-170.467	311.837	239.924	-7.833
	1700.00	82.703	364.651	303.386	413.221	104.149	-206.685	311.750	235.432	-7.234
	1800.00	83.072	369.389	306.923	421.511	112.439	-243.389	311.650	230.946	-6.702
	1900.00	83.301	373.887	310.330	429.831	120.759	-280.554	311.531	226.465	-6.226
	2000.00	83.390	378.163	313.615	438.167	129.095	-318.159	311.384	221.992	-5.798

References

Phase	H / S	C_p
GAS	Ja1	Ja1

38.029 NITROGEN DICARBIDE (GAS) **CNC**[g]

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	45.033	233.818	233.818	684.924	0.000	615.211	684.924	647.198	−113.386
	300.00	45.100	234.097	233.819	685.007	0.083	614.778	684.949	646.964	−112.646
	400.00	48.374	247.536	235.629	689.687	4.763	590.672	686.095	634.120	−82.808
	500.00	51.052	258.628	239.151	694.662	9.738	565.349	686.939	621.023	−64.878
	600.00	53.229	268.135	243.208	699.880	14.956	538.999	687.505	607.782	−52.912
	700.00	54.975	276.477	247.377	705.294	20.370	511.760	687.841	594.466	−44.360
	800.00	56.350	283.911	251.487	710.863	25.939	483.734	688.007	581.114	−37.943
	900.00	57.413	290.612	255.468	716.553	31.629	455.002	688.044	567.749	−32.951
	1000.00	58.220	296.705	259.292	722.337	37.413	425.632	687.969	554.386	−28.958
	1100.00	58.827	302.284	262.950	728.191	43.267	395.679	687.796	541.035	−25.692
	1200.00	59.291	307.423	266.445	734.098	49.174	365.190	687.537	527.704	−22.970
	1300.00	59.666	312.184	269.783	740.046	55.122	334.207	687.205	514.397	−20.669
	1400.00	60.008	316.619	272.972	746.030	61.106	302.764	686.814	501.119	−18.697
	1500.00	60.373	320.771	276.021	752.048	67.124	270.892	686.380	487.870	−16.989
	1600.00	60.556	324.672	278.941	758.093	73.169	238.618	685.907	474.651	−15.496
	1700.00	60.751	328.349	281.740	764.158	79.234	205.965	685.402	461.463	−14.179
	1800.00	60.916	331.826	284.427	770.242	85.318	172.955	684.870	448.305	−13.009
	1900.00	61.057	335.124	287.009	776.341	91.417	139.606	684.315	435.177	−11.964
	2000.00	61.178	338.258	289.494	782.453	97.529	105.936	683.738	422.080	−11.024
	2100.00	61.283	341.246	291.888	788.576	103.652	71.959	683.140	409.012	−10.174
	2200.00	61.375	344.099	294.197	794.709	109.785	37.691	682.523	395.972	−9.402
	2300.00	61.455	346.829	296.426	800.850	115.926	3.144	681.890	382.961	−8.697
	2400.00	61.526	349.446	298.581	807.000	122.076	−31.671	681.241	369.978	−8.052
	2500.00	61.589	351.959	300.666	813.155	128.231	−66.742	680.577	357.022	−7.460
	2600.00	61.646	354.376	302.686	819.317	134.393	−102.060	679.899	344.094	−6.913
	2700.00	61.696	356.703	304.644	825.484	140.560	−137.614	679.207	331.191	−6.407
	2800.00	61.742	358.948	306.543	831.656	146.732	−173.398	678.501	318.315	−5.938
	2900.00	61.783	361.115	308.388	837.833	152.909	−209.401	677.782	305.463	−5.502
	3000.00	61.820	363.210	310.181	844.013	159.089	−245.618	677.050	292.637	−5.095

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CNN[g] NITROGEN CARBIDE-NITRIDE (GAS) 40.024

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	42.281	232.088	232.088	633.484	0.000	564.287	633.484	623.127	−109.169
	300.00	42.346	232.350	232.089	633.562	0.078	563.857	633.493	623.062	−108.485
	400.00	45.212	244.948	233.787	637.948	4.464	539.969	633.924	619.519	−80.901
	500.00	47.438	255.283	237.083	642.584	9.100	514.942	634.289	615.874	−64.340
	600.00	49.380	264.107	240.869	647.427	13.943	488.962	634.568	612.163	−53.294
	700.00	51.153	271.854	244.753	652.455	18.971	462.157	634.775	608.412	−45.400
	800.00	52.796	278.793	248.582	657.653	24.169	434.618	634.941	604.634	−39.479
	900.00	54.321	285.101	252.294	663.010	29.526	406.419	635.088	600.837	−34.872
	1000.00	55.728	290.898	255.869	668.513	35.029	377.615	635.232	597.023	−31.185
	1100.00	57.012	296.271	259.300	674.151	40.667	348.254	635.384	593.195	−28.168
	1200.00	58.163	301.282	262.592	679.911	46.427	318.373	635.550	589.352	−25.654
	1300.00	59.171	305.978	265.751	685.779	52.295	288.008	635.732	585.495	−23.525
	1400.00	60.025	310.395	268.784	691.740	58.256	257.187	635.930	581.624	−21.701
	1500.00	60.712	314.561	271.698	697.779	64.295	225.937	636.141	577.737	−20.119
	1600.00	61.350	318.500	274.501	703.882	70.398	194.282	636.361	573.837	−18.734
	1700.00	61.879	322.235	277.200	710.044	76.560	162.244	636.594	569.922	−17.512
	1800.00	62.300	325.785	279.801	716.254	82.770	129.841	636.834	565.993	−16.425
	1900.00	62.637	329.162	282.311	722.501	89.017	97.093	637.077	562.051	−15.452
	2000.00	62.907	332.382	284.735	728.779	95.295	64.014	637.319	558.096	−14.576
	2100.00	63.123	335.457	287.078	735.081	101.597	30.621	637.557	554.129	−13.783
	2200.00	63.295	338.398	289.344	741.402	107.918	−3.073	637.789	550.151	−13.062
	2300.00	63.432	341.215	291.538	747.739	114.255	−37.054	638.013	546.162	−12.404
	2400.00	63.539	343.916	293.665	754.088	120.604	−71.312	638.229	542.164	−11.800
	2500.00	63.621	346.512	295.727	760.446	126.962	−105.834	638.435	538.157	−11.244
	2600.00	63.683	349.009	297.729	766.811	133.327	−140.611	638.630	534.142	−10.731
	2700.00	63.729	351.413	299.673	773.182	139.698	−175.633	638.814	530.120	−10.256
	2800.00	63.760	353.731	301.562	779.556	146.072	−210.891	638.987	526.091	−9.814
	2900.00	63.780	355.969	303.400	785.934	152.450	−246.376	639.147	522.056	−9.403
	3000.00	63.790	358.131	305.189	792.312	158.828	−282.082	639.295	518.016	−9.019

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

28.010 CARBON MONOXIDE (GAS) **CO**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	29.140	197.661	197.661	−110.541	0.000	−169.474	−110.541	−137.180	24.033
	300.00	29.144	197.841	197.662	−110.487	0.054	−169.840	−110.530	−137.345	23.914
	400.00	29.342	206.250	198.807	−107.564	2.977	−190.064	−110.129	−146.354	19.112
	500.00	29.794	212.841	200.977	−104.609	5.932	−211.030	−110.035	−155.426	16.237
	600.00	30.444	218.328	203.424	−101.599	8.942	−232.596	−110.185	−164.494	14.320
	700.00	31.171	223.075	205.900	−98.518	12.023	−254.671	−110.510	−173.522	12.948
	800.00	31.898	227.285	208.315	−95.364	15.177	−277.193	−110.949	−182.494	11.916
	900.00	32.578	231.082	210.637	−92.140	18.401	−300.114	−111.460	−191.408	11.109
	1000.00	33.183	234.547	212.857	−88.851	21.690	−323.398	−112.021	−200.261	10.461
	1100.00	33.710	237.735	214.976	−85.506	25.035	−347.014	−112.619	−209.056	9.927
	1200.00	34.172	240.688	216.997	−82.111	28.430	−370.937	−113.245	−217.796	9.480
	1300.00	34.573	243.440	218.926	−78.674	31.867	−395.145	−113.890	−226.482	9.100
	1400.00	34.919	246.015	220.770	−75.199	35.342	−419.619	−114.551	−235.118	8.772
	1500.00	35.220	248.434	222.535	−71.691	38.850	−444.343	−115.224	−243.707	8.487
	1600.00	35.481	250.716	224.225	−68.156	42.385	−469.302	−115.906	−252.250	8.235
	1700.00	35.710	252.874	225.848	−64.596	45.945	−494.482	−116.596	−260.751	8.012
	1800.00	35.912	254.921	227.407	−61.015	49.526	−519.873	−117.293	−269.210	7.812
	1900.00	36.090	256.868	228.906	−57.415	53.126	−545.463	−117.997	−277.631	7.633
	2000.00	36.249	258.723	230.351	−53.797	56.744	−571.243	−118.708	−286.015	7.470
	2100.00	36.391	260.495	231.745	−50.165	60.376	−597.205	−119.429	−294.362	7.322
	2200.00	36.519	262.191	233.090	−46.520	64.021	−623.340	−120.157	−302.675	7.186
	2300.00	36.634	263.817	234.391	−42.862	67.679	−649.641	−120.893	−310.955	7.062
	2400.00	36.740	265.378	235.650	−39.193	71.348	−676.101	−121.639	−319.203	6.947
	2500.00	36.836	266.880	236.869	−35.514	75.027	−702.714	−122.393	−327.419	6.841
	2600.00	36.924	268.326	238.052	−31.826	78.715	−729.475	−123.157	−335.605	6.742
	2700.00	37.005	269.722	239.199	−28.130	82.411	−756.378	−123.929	−343.762	6.650
	2800.00	37.081	271.069	240.313	−24.425	86.116	−783.418	−124.712	−351.889	6.565
	2900.00	37.151	272.371	241.396	−20.714	89.827	−810.590	−125.503	−359.989	6.484
	3000.00	37.216	273.632	242.450	−16.995	93.546	−837.891	−126.305	−368.061	6.409

References

Phase	H / S	C_p
GAS	Co1	Ja1

CO2[g] CARBON DIOXIDE (GAS) 44.010

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	37.132	213.770	213.770	−393.505	0.000	−457.240	−393.505	−394.364	69.091
	300.00	37.217	214.000	213.770	−393.436	0.069	−457.636	−393.506	−394.370	68.666
	400.00	41.326	225.291	215.282	−389.501	4.004	−479.618	−393.580	−394.646	51.535
	500.00	44.625	234.880	218.266	−385.198	8.307	−502.638	−393.666	−394.903	41.255
	600.00	47.323	243.262	221.748	−380.596	12.909	−526.554	−393.805	−395.139	34.400
	700.00	49.563	250.731	225.364	−375.749	17.756	−551.260	−393.990	−395.347	29.501
	800.00	51.434	257.475	228.963	−370.696	22.809	−576.676	−394.198	−395.527	25.825
	900.00	52.999	263.626	232.478	−365.472	28.033	−602.735	−394.412	−395.680	22.965
	1000.00	54.308	269.280	235.879	−360.105	33.400	−629.384	−394.626	−395.810	20.675
	1100.00	55.412	274.509	239.156	−354.617	38.888	−656.577	−394.837	−395.918	18.801
	1200.00	56.342	279.371	242.307	−349.028	44.477	−684.274	−395.042	−396.007	17.238
	1300.00	57.130	283.913	245.335	−343.354	50.151	−712.441	−395.242	−396.079	15.915
	1400.00	57.803	288.172	248.244	−337.606	55.899	−741.047	−395.437	−396.136	14.780
	1500.00	58.381	292.180	251.041	−331.796	61.709	−770.067	−395.628	−396.179	13.796
	1600.00	58.883	295.965	253.732	−325.932	67.573	−799.476	−395.815	−396.210	12.935
	1700.00	59.321	299.548	256.322	−320.022	73.483	−829.253	−396.000	−396.229	12.175
	1800.00	59.705	302.950	258.819	−314.070	79.435	−859.379	−396.185	−396.237	11.499
	1900.00	60.046	306.187	261.228	−308.082	85.423	−889.837	−396.371	−396.235	10.893
	2000.00	60.349	309.275	263.553	−302.062	91.443	−920.612	−396.561	−396.223	10.348
	2100.00	60.620	312.226	265.801	−296.013	97.492	−951.688	−396.757	−396.201	9.855
	2200.00	60.864	315.052	267.976	−289.939	103.566	−983.053	−396.961	−396.170	9.406
	2300.00	61.086	317.762	270.082	−283.841	109.664	−1014.694	−397.173	−396.129	8.996
	2400.00	61.288	320.366	272.124	−277.722	115.783	−1046.602	−397.394	−396.079	8.620
	2500.00	61.473	322.872	274.104	−271.584	121.921	−1078.764	−397.627	−396.020	8.274
	2600.00	61.644	325.286	276.026	−265.428	128.077	−1111.173	−397.870	−395.951	7.955
	2700.00	61.804	327.616	277.894	−259.256	134.249	−1143.819	−398.126	−395.872	7.659
	2800.00	61.953	329.866	279.710	−253.068	140.437	−1176.694	−398.393	−395.784	7.383
	2900.00	62.094	332.043	281.477	−246.865	146.640	−1209.790	−398.673	−395.686	7.127
	3000.00	62.228	334.150	283.198	−240.649	152.856	−1243.100	−398.965	−395.578	6.888

References

Phase	H / S	C_p
GAS	Co1	Ja1

40.021 DICARBON OXIDE (GAS) **C2O**[g]

Phase	T	C_P	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[–]
GAS	298.15	43.086	233.609	233.609	291.043	0.000	221.392	291.043	255.398	–44.745
	300.00	43.158	233.876	233.610	291.123	0.080	220.960	291.064	255.177	–44.430
	400.00	46.457	246.766	235.345	295.611	4.568	196.905	291.993	243.064	–31.741
	500.00	49.053	257.421	238.725	300.391	9.348	171.681	292.581	230.757	–24.107
	600.00	51.219	266.562	242.620	305.408	14.365	145.471	292.858	218.361	–19.010
	700.00	53.062	274.599	246.626	310.624	19.581	118.405	292.890	205.940	–15.367
	800.00	54.645	281.791	250.580	316.012	24.969	90.579	292.761	193.525	–12.636
	900.00	56.010	288.308	254.415	321.546	30.503	62.069	292.528	181.134	–10.513
	1000.00	57.190	294.272	258.107	327.208	36.165	32.936	292.219	168.773	–8.816
	1100.00	58.216	299.772	261.648	332.979	41.936	3.230	291.858	156.445	–7.429
	1200.00	59.117	304.876	265.040	338.847	47.804	–27.005	291.460	144.153	–6.275
	1300.00	59.919	309.641	268.290	344.799	53.756	–57.734	291.038	131.894	–5.300
	1400.00	60.650	314.108	271.405	350.828	59.785	–88.923	290.602	119.668	–4.465
	1500.00	61.335	318.316	274.393	356.927	65.884	–120.547	290.162	107.474	–3.743
	1600.00	61.907	322.293	277.264	363.090	72.047	–152.579	289.724	95.309	–3.112
	1700.00	62.420	326.062	280.024	369.307	78.264	–184.998	289.286	83.172	–2.556
	1800.00	62.889	329.643	282.682	375.573	84.530	–217.785	288.853	71.060	–2.062
	1900.00	63.321	333.055	285.244	381.884	90.841	–250.921	288.425	58.972	–1.621
	2000.00	63.721	336.314	287.717	388.236	97.193	–284.391	288.002	46.907	–1.225
	2100.00	64.093	339.432	290.106	394.627	103.584	–318.179	287.581	34.862	–0.867
	2200.00	64.440	342.421	292.416	401.054	110.011	–352.273	287.165	22.838	–0.542
	2300.00	64.764	345.293	294.653	407.514	116.471	–386.660	286.751	10.832	–0.246
	2400.00	65.067	348.056	296.821	414.006	122.963	–421.328	286.341	–1.156	0.025
	2500.00	65.350	350.718	298.924	420.527	129.484	–456.268	285.933	–13.126	0.274
	2600.00	65.616	353.286	300.966	427.076	136.033	–491.469	285.527	–25.081	0.504
	2700.00	65.865	355.767	302.950	433.650	142.607	–526.922	285.121	–37.019	0.716
	2800.00	66.098	358.167	304.879	440.248	149.205	–562.619	284.715	–48.943	0.913
	2900.00	66.316	360.490	306.757	446.869	155.826	–598.553	284.308	–60.852	1.096
	3000.00	66.520	362.742	308.586	453.511	162.468	–634.715	283.899	–72.747	1.267

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

C3O2[g] TRICARBON DIOXIDE (GAS) 68.014

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	62.180	276.642	276.642	−97.600	0.000	−180.081	−97.600	−113.782	19.934
	300.00	62.356	277.027	276.643	−97.485	0.115	−180.593	−97.587	−113.882	19.829
	400.00	70.159	296.103	279.191	−90.835	6.765	−209.276	−97.019	−119.407	15.593
	500.00	75.951	312.407	284.243	−83.518	14.082	−239.722	−96.754	−125.042	13.063
	600.00	80.605	326.680	290.151	−75.683	21.917	−271.690	−96.819	−130.698	11.378
	700.00	84.454	339.403	296.294	−67.424	30.176	−305.006	−97.149	−136.322	10.172
	800.00	87.668	350.897	302.413	−58.813	38.787	−339.530	−97.648	−141.885	9.264
	900.00	90.356	361.382	308.391	−49.908	47.692	−375.152	−98.246	−147.380	8.554
	1000.00	92.597	371.022	314.178	−40.757	56.843	−411.778	−98.914	−152.804	7.982
	1100.00	94.462	379.938	319.756	−31.401	66.199	−449.332	−99.635	−158.159	7.510
	1200.00	96.011	388.225	325.121	−21.875	75.725	−487.745	−100.395	−163.446	7.115
	1300.00	97.303	395.963	330.276	−12.207	85.393	−526.959	−101.185	−168.668	6.777
	1400.00	98.393	403.215	335.230	−2.421	95.179	−566.921	−101.999	−173.829	6.486
	1500.00	99.337	410.036	339.992	7.467	105.067	−607.587	−102.831	−178.930	6.231
	1600.00	100.125	416.472	344.572	17.439	115.039	−648.916	−103.677	−183.976	6.006
	1700.00	100.812	422.563	348.983	27.487	125.087	−690.870	−104.533	−188.969	5.806
	1800.00	101.395	428.342	353.232	37.598	135.198	−733.418	−105.399	−193.911	5.627
	1900.00	101.895	433.838	357.331	47.763	145.363	−776.529	−106.277	−198.804	5.466
	2000.00	102.327	439.076	361.289	57.975	155.575	−820.177	−107.170	−203.651	5.319
	2100.00	102.704	444.078	365.113	68.227	165.827	−864.337	−108.082	−208.452	5.185
	2200.00	103.034	448.864	368.812	78.514	176.114	−908.986	−109.012	−213.210	5.062
	2300.00	103.326	453.450	372.393	88.833	186.433	−954.103	−109.962	−217.925	4.949
	2400.00	103.584	457.853	375.862	99.178	196.778	−999.669	−110.932	−222.599	4.845
	2500.00	103.814	462.087	379.227	109.549	207.149	−1045.668	−111.924	−227.231	4.748
	2600.00	104.019	466.162	382.493	119.940	217.540	−1092.082	−112.939	−231.824	4.657
	2700.00	104.203	470.092	385.665	130.352	227.952	−1138.895	−113.977	−236.376	4.573
	2800.00	104.369	473.884	388.748	140.780	238.380	−1186.095	−115.039	−240.890	4.494
	2900.00	104.518	477.549	391.748	151.225	248.825	−1233.668	−116.126	−245.366	4.420
	3000.00	104.653	481.095	394.667	161.684	259.284	−1281.601	−117.237	−249.804	4.349

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

63.463 CARBONYL CHLORIDE (GAS) **COCl[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	45.077	267.885	267.885	−62.760	0.000	−142.630	−62.760	−77.075	13.503
	300.00	45.121	268.164	267.886	−62.677	0.083	−143.126	−62.751	−77.164	13.435
	400.00	47.243	281.448	269.683	−58.054	4.706	−170.633	−62.385	−82.030	10.712
	500.00	48.934	292.178	273.143	−53.242	9.518	−199.331	−62.219	−86.964	9.085
	600.00	50.323	301.226	277.089	−48.277	14.483	−229.013	−62.231	−91.914	8.002
	700.00	51.486	309.074	281.110	−43.185	19.575	−259.537	−62.383	−96.851	7.227
	800.00	52.465	316.015	285.047	−37.986	24.774	−290.798	−62.629	−101.759	6.644
	900.00	53.291	322.243	288.840	−32.697	30.063	−322.716	−62.939	−106.633	6.189
	1000.00	53.984	327.895	292.467	−27.332	35.428	−355.227	−63.295	−111.469	5.823
	1100.00	54.563	333.068	295.926	−21.904	40.856	−388.279	−63.687	−116.267	5.521
	1200.00	55.043	337.837	299.223	−16.423	46.337	−421.827	−64.108	−121.029	5.268
	1300.00	55.438	342.259	302.365	−10.898	51.862	−455.835	−64.553	−125.755	5.053
	1400.00	55.762	346.379	305.364	−5.338	57.422	−490.269	−65.019	−130.445	4.867
	1500.00	56.028	350.236	308.228	0.252	63.012	−525.102	−65.503	−135.102	4.705
	1600.00	56.248	353.859	310.968	5.866	68.626	−560.309	−66.004	−139.725	4.562
	1700.00	56.436	357.275	313.592	11.501	74.261	−595.867	−66.521	−144.317	4.434
	1800.00	56.602	360.506	316.110	17.153	79.913	−631.757	−67.053	−148.878	4.320
	1900.00	56.760	363.570	318.528	22.821	85.581	−667.962	−67.598	−153.409	4.218
	2000.00	56.922	366.486	320.853	28.505	91.265	−704.466	−68.155	−157.911	4.124

References

Phase	H / S	C_p
GAS	Ja1	Ja1

COCl2[g] CARBONIC DICHLORIDE (PHOSGEN) 98.916

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	57.703	283.852	283.852	−220.078	0.000	−304.708	−220.078	−205.892	36.071
	300.00	57.835	284.209	283.853	−219.971	0.107	−305.234	−220.077	−205.804	35.834
	400.00	63.909	301.730	286.200	−213.866	6.212	−334.558	−219.962	−201.061	26.256
	500.00	68.103	316.470	290.819	−207.253	12.825	−365.488	−219.780	−196.357	20.513
	600.00	71.074	329.164	296.177	−200.286	19.792	−397.784	−219.608	−191.689	16.688
	700.00	73.277	340.293	301.701	−193.063	27.015	−431.268	−219.468	−187.047	13.958
	800.00	74.969	350.193	307.155	−185.647	34.431	−465.802	−219.350	−182.423	11.911
	900.00	76.300	359.103	312.440	−178.082	41.996	−501.274	−219.245	−177.814	10.320
	1000.00	77.361	367.199	317.517	−170.397	49.681	−537.595	−219.151	−173.216	9.048
	1100.00	78.215	374.614	322.376	−162.616	57.462	−574.691	−219.068	−168.626	8.007
	1200.00	78.904	381.450	327.017	−154.759	65.319	−612.499	−218.995	−164.044	7.141
	1300.00	79.462	387.788	331.451	−146.840	73.238	−650.965	−218.932	−159.467	6.407
	1400.00	79.914	393.694	335.689	−138.870	81.208	−690.042	−218.879	−154.895	5.779
	1500.00	80.282	399.221	339.742	−130.860	89.218	−729.691	−218.838	−150.326	5.235
	1600.00	80.586	404.412	343.623	−122.816	97.262	−769.875	−218.807	−145.760	4.759
	1700.00	80.842	409.305	347.344	−114.744	105.334	−810.563	−218.789	−141.195	4.338
	1800.00	81.067	413.933	350.916	−106.649	113.429	−851.727	−218.782	−136.631	3.965
	1900.00	81.276	418.321	354.349	−98.531	121.547	−893.342	−218.786	−132.067	3.631
	2000.00	81.483	422.496	357.653	−90.393	129.685	−935.384	−218.802	−127.503	3.330

References

Phase	H / S	C_p
GAS	Ja1	Ja1

47.009 CARBONYL FLUORIDE (GAS) **COF**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	38.939	246.965	246.965	−171.544	0.000	−245.177	−171.544	−182.651	32.000
	300.00	38.994	247.206	246.966	−171.472	0.072	−245.634	−171.544	−182.720	31.814
	400.00	42.247	258.867	248.534	−167.411	4.133	−270.958	−171.612	−186.439	24.346
	500.00	45.094	268.612	251.601	−163.038	8.506	−297.344	−171.782	−190.128	19.863
	600.00	47.350	277.041	255.154	−158.412	13.132	−324.636	−172.052	−193.773	16.869
	700.00	49.146	284.480	258.822	−153.584	17.960	−352.720	−172.404	−197.366	14.728
	800.00	50.594	291.140	262.453	−148.594	22.950	−381.506	−172.810	−200.905	13.118
	900.00	51.772	297.170	265.981	−143.474	28.070	−410.927	−173.249	−204.391	11.863
	1000.00	52.734	302.676	269.379	−138.247	33.297	−440.923	−173.713	−207.827	10.856
	1100.00	53.520	307.740	272.639	−132.933	38.611	−471.447	−174.196	−211.215	10.030
	1200.00	54.161	312.425	275.762	−127.548	43.996	−502.458	−174.695	−214.558	9.339
	1300.00	54.682	316.782	278.752	−122.105	49.439	−533.921	−175.208	−217.859	8.754
	1400.00	55.106	320.850	281.615	−116.615	54.929	−565.805	−175.735	−221.121	8.250
	1500.00	55.451	324.664	284.359	−111.086	60.458	−598.083	−176.275	−224.344	7.812
	1600.00	55.736	328.252	286.992	−105.527	66.017	−630.731	−176.828	−227.530	7.428
	1700.00	55.977	331.639	289.519	−99.941	71.603	−663.727	−177.393	−230.682	7.088
	1800.00	56.192	334.845	291.949	−94.332	77.212	−697.052	−177.969	−233.800	6.785
	1900.00	56.394	337.888	294.287	−88.703	82.841	−730.690	−178.555	−236.886	6.512
	2000.00	56.601	340.786	296.541	−83.053	88.491	−764.625	−179.150	−239.940	6.267

References

Phase	H / S	C_p
GAS	Ja1	Ja1

COF2[g] CARBONIC DIFLUORIDE (GAS) 66.007

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)		] [		kJ / mol			] [−]
GAS	298.15	47.268	258.890	258.890	−638.897	0.000	−716.085	−638.897	−623.328	109.204
	300.00	47.400	259.183	258.891	−638.809	0.088	−716.564	−638.910	−623.231	108.514
	400.00	54.720	273.837	260.839	−633.698	5.199	−743.233	−639.535	−617.905	80.690
	500.00	60.567	286.708	264.752	−627.919	10.978	−771.273	−639.980	−612.443	63.981
	600.00	64.915	298.154	269.383	−621.634	17.263	−800.527	−640.328	−606.902	52.836
	700.00	68.209	308.419	274.239	−614.971	23.926	−830.864	−640.621	−601.307	44.870
	800.00	70.765	317.701	279.101	−608.017	30.880	−862.178	−640.865	−595.674	38.893
	900.00	72.784	326.157	283.867	−600.836	38.061	−894.377	−641.067	−590.012	34.243
	1000.00	74.396	333.912	288.489	−593.474	45.423	−927.386	−641.236	−584.330	30.522
	1100.00	75.693	341.066	292.948	−585.967	52.930	−961.139	−641.379	−578.632	27.477
	1200.00	76.737	347.698	297.237	−578.344	60.553	−995.582	−641.504	−572.923	24.939
	1300.00	77.580	353.875	301.359	−570.626	68.271	−1030.664	−641.616	−567.203	22.790
	1400.00	78.262	359.650	305.319	−562.833	76.064	−1066.343	−641.721	−561.475	20.949
	1500.00	78.815	365.069	309.123	−554.978	83.919	−1102.582	−641.823	−555.739	19.353
	1600.00	79.272	370.171	312.781	−547.073	91.824	−1139.346	−641.926	−549.997	17.956
	1700.00	79.658	374.989	316.300	−539.126	99.771	−1176.607	−642.030	−544.248	16.723
	1800.00	79.998	379.551	319.688	−531.143	107.754	−1214.336	−642.138	−538.493	15.627
	1900.00	80.316	383.885	322.954	−523.127	115.770	−1252.509	−642.250	−532.732	14.646
	2000.00	80.636	388.013	326.104	−515.080	123.817	−1291.106	−642.363	−526.965	13.763

References

Phase	H / S	C_p
GAS	Ja1	Ja1

45.018 CARBOXYL (GAS) **COOH**[g]

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[-]
GAS	298.15	43.585	251.732	251.732	-213.000	0.000	-288.054	-213.000	-205.697	36.037
	300.00	43.710	252.002	251.733	-212.919	0.081	-288.520	-213.016	-205.651	35.807
	400.00	49.621	265.421	253.522	-208.241	4.759	-314.409	-213.798	-203.074	26.519
	500.00	54.379	277.022	257.088	-203.033	9.967	-341.544	-214.442	-200.316	20.927
	600.00	58.328	287.296	261.282	-197.392	15.608	-369.769	-215.005	-197.437	17.188
	700.00	61.628	296.543	265.670	-191.389	21.611	-398.969	-215.504	-194.468	14.511
	800.00	64.384	304.958	270.063	-185.084	27.916	-429.050	-215.937	-191.433	12.499
	900.00	66.680	312.678	274.375	-178.527	34.473	-459.937	-216.306	-188.347	10.931
	1000.00	68.591	319.805	278.566	-171.761	41.239	-491.566	-216.622	-185.223	9.675
	1100.00	70.187	326.420	282.619	-164.820	48.180	-523.881	-216.898	-182.069	8.646
	1200.00	71.536	332.586	286.529	-157.732	55.268	-556.835	-217.144	-178.892	7.787
	1300.00	72.705	338.359	290.296	-150.519	62.481	-590.385	-217.366	-175.695	7.060
	1400.00	73.761	343.786	293.925	-143.194	69.806	-624.495	-217.566	-172.482	6.435
	1500.00	74.769	348.910	297.422	-135.768	77.232	-659.133	-217.744	-169.256	5.894
	1600.00	75.508	353.757	300.793	-128.257	84.743	-694.268	-217.911	-166.018	5.420
	1700.00	76.216	358.356	304.044	-120.670	92.330	-729.876	-218.066	-162.769	5.001
	1800.00	76.827	362.730	307.184	-113.017	99.983	-765.932	-218.217	-159.512	4.629
	1900.00	77.359	366.899	310.218	-105.308	107.692	-802.415	-218.367	-156.247	4.296
	2000.00	77.827	370.879	313.153	-97.548	115.452	-839.305	-218.522	-152.973	3.995
	2100.00	78.242	374.686	315.993	-89.744	123.256	-876.585	-218.686	-149.692	3.723
	2200.00	78.611	378.335	318.744	-81.901	131.099	-914.237	-218.860	-146.403	3.476
	2300.00	78.941	381.836	321.412	-74.023	138.977	-952.247	-219.048	-143.105	3.250
	2400.00	79.239	385.203	324.000	-66.114	146.886	-990.600	-219.249	-139.799	3.043
	2500.00	79.508	388.443	326.513	-58.176	154.824	-1029.283	-219.468	-136.484	2.852
	2600.00	79.753	391.566	328.956	-50.213	162.787	-1068.285	-219.703	-133.160	2.675
	2700.00	79.975	394.580	331.331	-42.226	170.774	-1107.593	-219.956	-129.827	2.512
	2800.00	80.178	397.492	333.642	-34.219	178.781	-1147.197	-220.229	-126.484	2.360
	2900.00	80.363	400.309	335.892	-26.191	186.809	-1187.088	-220.521	-123.130	2.218
	3000.00	80.533	403.037	338.085	-18.146	194.854	-1227.256	-220.832	-119.767	2.085

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

COS[g] CARBON OXIDE SULFIDE (GAS) 60.076

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	41.506	231.581	231.581	−138.407	0.000	−207.453	−138.407	−165.602	29.013
	300.00	41.592	231.838	231.582	−138.330	0.077	−207.882	−138.415	−165.770	28.863
	400.00	45.791	244.403	233.266	−133.952	4.455	−231.714	−141.141	−174.726	22.817
	500.00	48.937	254.977	236.579	−129.208	9.199	−256.696	−143.160	−182.912	19.109
	600.00	51.304	264.117	240.424	−124.191	14.216	−282.661	−144.878	−190.693	16.601
	700.00	53.159	272.171	244.395	−118.964	19.443	−309.484	−146.367	−198.210	14.791
	800.00	54.660	279.370	248.325	−113.571	24.836	−337.067	−147.926	−205.512	13.419
	900.00	55.902	285.882	252.142	−108.041	30.366	−365.335	−202.338	−211.460	12.273
	1000.00	56.945	291.828	255.818	−102.397	36.010	−394.225	−202.379	−212.471	11.098
	1100.00	57.828	297.298	259.343	−96.657	41.750	−423.685	−202.425	−213.478	10.137
	1200.00	58.581	302.362	262.720	−90.836	47.571	−453.671	−202.472	−214.481	9.336
	1300.00	59.223	307.077	265.953	−84.945	53.462	−484.145	−202.519	−215.480	8.658
	1400.00	59.771	311.487	269.049	−78.994	59.413	−515.076	−202.563	−216.475	8.077
	1500.00	60.240	315.627	272.018	−72.993	65.414	−546.434	−202.605	−217.468	7.573
	1600.00	60.642	319.528	274.867	−66.948	71.459	−578.193	−202.647	−218.457	7.132
	1700.00	60.987	323.215	277.603	−60.867	77.540	−610.332	−202.687	−219.444	6.743
	1800.00	61.285	326.710	280.235	−54.753	83.654	−642.830	−202.728	−220.428	6.397
	1900.00	61.547	330.030	282.769	−48.611	89.796	−675.668	−202.771	−221.411	6.087
	2000.00	61.780	333.193	285.212	−42.444	95.963	−708.831	−202.818	−222.390	5.808
	2100.00	61.993	336.213	287.569	−36.255	102.152	−742.302	−202.870	−223.368	5.556
	2200.00	62.196	339.101	289.846	−30.046	108.361	−776.069	−202.926	−224.343	5.327
	2300.00	62.395	341.871	292.049	−23.816	114.591	−810.119	−202.987	−225.315	5.117
	2400.00	62.599	344.530	294.180	−17.567	120.840	−844.440	−203.051	−226.284	4.925
	2500.00	62.816	347.090	296.246	−11.296	127.111	−879.021	−203.116	−227.251	4.748

References

Phase	H / S	C_p
GAS	Ja1	Ja1

42.985 CARBON PHOSPHIDE (GAS) **CP**[g]

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	29.900	216.254	216.254	520.162	0.000	455.686	520.162	469.642	−82.279
	300.00	29.923	216.439	216.255	520.217	0.055	455.286	520.157	469.329	−81.717
	400.00	31.196	225.221	217.443	523.273	3.111	433.185	518.925	452.633	−59.108
	500.00	32.379	232.312	219.730	526.453	6.291	410.297	518.141	436.147	−45.564
	600.00	33.388	238.308	222.339	529.743	9.581	386.758	517.218	419.833	−36.550
	700.00	34.218	243.519	225.001	533.125	12.963	362.661	516.189	403.683	−30.123
	800.00	34.891	248.134	227.609	536.581	16.419	338.074	515.089	387.685	−25.313
	900.00	35.436	252.276	230.124	540.099	19.937	313.050	513.941	371.828	−21.580
	1000.00	35.890	256.034	232.530	543.666	23.504	287.632	512.756	356.101	−18.601
	1100.00	36.289	259.473	234.825	547.275	27.113	261.854	511.544	340.493	−16.169
	1200.00	36.670	262.647	237.013	550.923	30.761	235.746	446.743	326.087	−14.194
	1300.00	37.072	265.598	239.100	554.610	34.448	209.332	446.280	316.051	−12.699
	1400.00	37.533	268.362	241.092	558.339	38.177	182.633	445.818	306.051	−11.419
	1500.00	38.092	270.970	242.998	562.120	41.958	155.665	445.372	296.083	−10.311
	1600.00	38.552	273.439	244.824	565.945	45.783	128.444	444.943	286.145	−9.342
	1700.00	39.150	275.794	246.577	569.830	49.668	100.981	444.551	276.232	−8.488
	1800.00	39.746	278.048	248.263	573.775	53.613	73.288	444.199	266.341	−7.729
	1900.00	40.330	280.213	249.888	577.779	57.617	45.375	443.889	256.469	−7.051
	2000.00	40.894	282.296	251.457	581.841	61.679	17.248	443.622	246.612	−6.441
	2100.00	41.432	284.304	252.973	585.957	65.795	−11.082	443.395	236.767	−5.889
	2200.00	41.941	286.244	254.442	590.126	69.964	−39.610	443.209	226.932	−5.388
	2300.00	42.416	288.119	255.866	594.344	74.182	−68.329	443.061	217.105	−4.931
	2400.00	42.858	289.933	257.247	598.608	78.446	−97.232	442.948	207.283	−4.511
	2500.00	43.265	291.691	258.590	602.915	82.753	−126.314	442.867	197.466	−4.126
	2600.00	43.637	293.396	259.896	607.260	87.098	−155.568	442.817	187.651	−3.770
	2700.00	43.973	295.049	261.168	611.641	91.479	−184.991	442.792	177.837	−3.440
	2800.00	44.274	296.654	262.407	616.053	95.891	−214.577	442.791	168.024	−3.135
	2900.00	44.540	298.212	263.615	620.494	100.332	−244.320	442.811	158.211	−2.850
	3000.00	44.773	299.726	264.793	624.960	104.798	−274.217	442.847	148.397	−2.584

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

CS[g] CARBON MONOSULFIDE (GAS) 44.077

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	29.804	210.565	210.565	280.328	0.000	217.548	280.328	228.817	−40.088
	300.00	29.813	210.749	210.565	280.383	0.055	217.158	280.325	228.498	−39.785
	400.00	30.943	219.462	211.746	283.415	3.087	195.630	277.739	211.356	−27.600
	500.00	32.204	226.506	214.015	286.574	6.246	173.321	275.664	194.974	−20.369
	600.00	33.230	232.472	216.606	289.847	9.519	150.364	273.782	179.019	−15.585
	700.00	34.039	237.658	219.251	293.213	12.885	126.852	272.059	163.362	−12.190
	800.00	34.680	242.247	221.844	296.650	16.322	102.852	270.212	147.957	−9.661
	900.00	35.193	246.362	224.344	300.144	19.816	78.419	215.468	133.945	−7.774
	1000.00	35.606	250.092	226.735	303.685	23.357	53.593	215.054	124.909	−6.525
	1100.00	35.939	253.502	229.016	307.263	26.935	28.411	214.601	115.916	−5.504
	1200.00	36.209	256.641	231.189	310.871	30.543	2.902	214.115	106.966	−4.656
	1300.00	36.427	259.548	233.260	314.503	34.175	−22.910	213.601	98.057	−3.940
	1400.00	36.605	262.254	235.235	318.155	37.827	−49.001	213.065	89.189	−3.328
	1500.00	36.751	264.785	237.122	321.823	41.495	−75.355	212.510	80.360	−2.798
	1600.00	36.874	267.161	238.926	325.504	45.176	−101.953	211.939	71.569	−2.336
	1700.00	36.980	269.400	240.653	329.197	48.869	−128.782	211.355	62.813	−1.930
	1800.00	37.077	271.516	242.310	332.900	52.572	−155.829	210.761	54.093	−1.570
	1900.00	37.172	273.523	243.900	336.612	56.284	−183.082	210.158	45.405	−1.248
	2000.00	37.270	275.433	245.429	340.334	60.006	−210.531	209.549	36.750	−0.960
	2100.00	37.378	277.254	246.902	344.067	63.739	−238.166	208.933	28.125	−0.700
	2200.00	37.503	278.995	248.321	347.811	67.483	−265.979	208.315	19.530	−0.464

References

Phase	H / S	C_p
GAS	Ja1	Ja1

76.143 CARBON DISULFIDE (GAS) **CS2**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	45.677	237.970	237.970	116.943	0.000	45.992	116.943	66.819	−11.706
	300.00	45.750	238.253	237.971	117.028	0.085	45.552	116.927	66.508	−11.580
	400.00	49.613	251.958	239.813	121.801	4.858	21.018	111.502	50.021	−6.532
	500.00	52.545	263.362	243.414	126.917	9.974	−4.764	107.482	35.071	−3.664
	600.00	54.667	273.140	247.573	132.283	15.340	−31.601	104.116	20.921	−1.821
	700.00	56.252	281.691	251.849	137.833	20.890	−59.351	101.268	7.282	−0.543
	800.00	57.477	289.286	256.063	143.522	26.579	−87.907	98.313	−5.946	0.388
	900.00	58.453	296.114	260.140	149.320	32.377	−117.183	−10.334	−16.488	0.957
	1000.00	59.245	302.315	264.052	155.206	38.263	−147.109	−10.237	−17.177	0.897
	1100.00	59.899	307.993	267.792	161.164	44.221	−177.629	−10.153	−17.876	0.849
	1200.00	60.444	313.229	271.363	167.182	50.239	−208.693	−10.077	−18.581	0.809
	1300.00	60.901	318.086	274.773	173.250	56.307	−240.262	−10.009	−19.293	0.775
	1400.00	61.288	322.614	278.030	179.360	62.417	−272.299	−9.946	−20.009	0.747
	1500.00	61.617	326.854	281.145	185.506	68.563	−304.775	−9.888	−20.730	0.722
	1600.00	61.897	330.840	284.128	191.682	74.739	−337.662	−9.832	−21.455	0.700
	1700.00	62.139	334.600	286.987	197.884	80.941	−370.935	−9.779	−22.183	0.682
	1800.00	62.350	338.157	289.732	204.109	87.166	−404.575	−9.728	−22.914	0.665
	1900.00	62.537	341.534	292.370	210.353	93.410	−438.561	−9.679	−23.648	0.650
	2000.00	62.706	344.746	294.910	216.615	99.672	−472.876	−9.633	−24.384	0.637

References

Phase	H / S	C_p
GAS	Ja1	Ja1

Ca CALCIUM 40.078

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	25.311	41.422	41.422	0.000	0.000	−12.350	0.000	0.000	0.000
	300.00	25.323	41.578	41.422	0.047	0.047	−12.427	0.000	0.000	0.000
	400.00	26.255	48.978	42.425	2.621	2.621	−16.970	0.000	0.000	0.000
	500.00	27.683	54.981	44.353	5.314	5.314	−22.176	0.000	0.000	0.000
	600.00	29.552	60.187	46.566	8.172	8.172	−27.940	0.000	0.000	0.000
	700.00	31.846	64.910	48.854	11.239	11.239	−34.198	0.000	0.000	0.000
	720.00	32.355	65.814	49.313	11.881	11.881	−35.505	0.000	0.000	0.000
			1.278		0.920					
SOL−B	720.00	29.345	67.092	49.313	12.801	12.801	−35.505	0.000	0.000	0.000
	800.00	32.647	70.354	51.254	15.281	15.281	−41.003	0.000	0.000	0.000
	900.00	36.775	74.438	53.603	18.752	18.752	−48.242	0.000	0.000	0.000
	1000.00	40.903	78.526	55.891	22.636	22.636	−55.891	0.000	0.000	0.000
	1100.00	45.031	82.618	58.134	26.932	26.932	−63.948	0.000	0.000	0.000
	1112.00	45.526	83.109	58.401	27.476	27.476	−64.942	0.000	0.000	0.000
			7.675		8.535					
LIQ	1112.00	29.288	90.785	58.401	36.011	36.011	−64.942	0.000	0.000	0.000
	1200.00	29.288	93.015	60.859	38.588	38.588	−73.031	0.000	0.000	0.000
	1300.00	29.288	95.360	63.424	41.517	41.517	−82.451	0.000	0.000	0.000
	1400.00	29.288	97.530	65.783	44.445	44.445	−92.097	0.000	0.000	0.000
	1500.00	29.288	99.551	67.968	47.374	47.374	−101.952	0.000	0.000	0.000
	1600.00	29.288	101.441	70.002	50.303	50.303	−112.003	0.000	0.000	0.000
	1700.00	29.288	103.217	71.904	53.232	53.232	−122.236	0.000	0.000	0.000
	1755.00	29.288	104.149	72.900	54.843	54.843	−127.939	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL−A	Hu1	Hu1		fcc
SOL−B	Hu1	Hu1		bcc
LIQ	Hu1	Hu1	Hu1	BPT= 1755., L= 153.64 kJ

40.078 CALCIUM (GAS) **Ca**[g]

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	20.786	154.884	154.884	178.238	0.000	132.059	178.238	144.409	-25.300
	300.00	20.786	155.013	154.884	178.276	0.038	131.773	178.230	144.199	-25.107
	400.00	20.786	160.992	155.700	180.355	2.117	115.958	177.734	132.928	-17.359
	500.00	20.786	165.631	157.239	182.434	4.196	99.618	177.119	121.795	-12.724
	600.00	20.786	169.420	158.963	184.512	6.274	82.860	176.340	110.800	-9.646
	700.00	20.786	172.625	160.692	186.591	8.353	65.754	175.352	99.952	-7.458
	800.00	20.786	175.400	162.361	188.670	10.432	48.349	173.389	89.352	-5.834
	900.00	20.786	177.848	163.948	190.748	12.510	30.685	171.996	78.927	-4.581
	1000.00	20.786	180.038	165.450	192.827	14.589	12.788	170.191	68.679	-3.587
	1100.00	20.786	182.020	166.867	194.905	16.667	-5.316	167.973	58.632	-2.784
	1200.00	20.786	183.828	168.207	196.984	18.746	-23.610	158.396	49.421	-2.151
	1300.00	20.786	185.492	169.473	199.063	20.825	-42.077	157.546	40.374	-1.622
	1400.00	20.792	187.033	170.673	201.141	22.903	-60.704	156.696	31.393	-1.171
	1500.00	20.795	188.467	171.812	203.221	24.983	-79.480	155.847	22.472	-0.783
	1600.00	20.802	189.810	172.895	205.301	27.063	-98.395	154.998	13.608	-0.444
	1700.00	20.817	191.071	173.928	207.381	29.143	-117.439	154.150	4.797	-0.147
	1800.00	20.846	192.262	174.914	209.465	31.227	-136.606	0.000	0.000	0.000
	1900.00	20.890	193.390	175.857	211.551	33.313	-155.890	0.000	0.000	0.000
	2000.00	20.952	194.463	176.760	213.643	35.405	-175.283	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

Ca3(AsO4)2 CALCIUM ARSENATE 398.072

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	249.785	225.999	225.999	−3298.707	0.000	−3366.089	−3298.707	−3063.089	536.640
	300.00	250.456	227.546	226.004	−3298.244	0.463	−3366.508	−3298.693	−3061.627	533.077
	400.00	275.881	303.493	236.186	−3271.784	26.923	−3393.181	−3296.854	−2982.832	389.518
	500.00	290.524	366.743	256.153	−3243.412	55.295	−3426.784	−3293.930	−2904.654	303.447
	600.00	300.923	420.673	279.189	−3213.817	84.890	−3466.221	−3290.792	−2827.094	246.120
	700.00	309.318	467.709	302.832	−3183.293	115.414	−3510.689	−3287.842	−2750.049	205.211
	800.00	316.644	509.500	326.101	−3151.988	146.719	−3559.588	−3287.474	−2673.128	174.537
	900.00	323.350	547.187	348.606	−3119.985	178.722	−3612.453	−3285.070	−2596.488	150.696
	1000.00	329.670	581.585	370.209	−3087.331	211.376	−3668.916	−3283.536	−2520.069	131.635
	1100.00	335.738	613.292	390.885	−3054.059	244.648	−3728.680	−3282.865	−2443.762	116.045
	1200.00	341.634	642.759	410.661	−3020.189	278.518	−3791.500	−3304.060	−2365.625	102.973
	1300.00	347.410	670.333	429.586	−2985.736	312.971	−3857.169	−3299.200	−2287.621	91.918
	1400.00	353.098	696.287	447.718	−2950.710	347.997	−3925.512	−3294.970	−2209.972	82.455
	1500.00	358.721	720.841	465.115	−2915.119	383.588	−3996.380	−3484.963	−2119.732	73.816
	1600.00	364.294	744.170	481.833	−2878.968	419.739	−4069.640	−3476.001	−2029.007	66.240
	1700.00	369.830	766.422	497.924	−2842.261	456.446	−4145.178	−3466.586	−1938.855	59.574
	1723.00	371.099	771.400	501.541	−2833.740	464.967	−4162.863	−3464.357	−1918.201	58.152

References

Phase	H / S	C_p
SOL	Nb1	G1

119.982 CALCIUM MONOBROMIDE (GAS) **CaBr[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)		] [		kJ / mol		]	[−]
GAS	298.15	36.376	252.907	252.907	−49.371	0.000	−124.775	−49.371	−89.735	15.721
	300.00	36.391	253.132	252.907	−49.304	0.067	−125.243	−49.421	−89.985	15.668
	400.00	36.945	263.687	254.343	−45.633	3.738	−151.108	−65.566	−100.230	13.089
	500.00	37.232	271.965	257.069	−41.923	7.448	−177.906	−66.395	−108.803	11.367
	600.00	37.413	278.770	260.136	−38.190	11.181	−205.452	−67.379	−117.195	10.203
	700.00	37.544	284.547	263.221	−34.442	14.929	−233.625	−68.565	−125.407	9.358
	800.00	37.649	289.568	266.207	−30.683	18.688	−262.337	−70.721	−133.342	8.706
	900.00	37.738	294.007	269.054	−26.913	22.458	−291.520	−72.301	−141.079	8.188
	1000.00	37.818	297.988	271.752	−23.135	26.236	−321.123	−74.290	−148.618	7.763
	1100.00	37.891	301.595	274.303	−19.350	30.021	−351.105	−76.688	−155.938	7.405
	1200.00	37.960	304.895	276.717	−15.557	33.814	−381.432	−86.441	−162.405	7.069
	1300.00	38.026	307.936	279.003	−11.758	37.613	−412.075	−87.463	−168.694	6.778
	1400.00	38.090	310.757	281.172	−7.952	41.419	−443.012	−88.482	−174.905	6.526
	1500.00	38.153	313.387	283.233	−4.140	45.231	−474.220	−89.497	−181.042	6.304
	1600.00	38.214	315.851	285.195	−0.321	49.050	−505.684	−90.508	−187.112	6.109
	1700.00	38.274	318.170	287.067	3.503	52.874	−537.386	−91.517	−193.119	5.934
	1800.00	38.334	320.359	288.857	7.333	56.704	−569.313	−245.825	−195.103	5.662
	1900.00	38.393	322.433	290.570	11.170	60.541	−601.454	−245.985	−192.280	5.286
	2000.00	38.451	324.404	292.213	15.012	64.383	−633.796	−246.146	−189.450	4.948

References

Phase	H / S	C_p
GAS	Ja1	Ja1

CaBr2 CALCIUM BROMIDE 199.886

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	75.046	129.704	129.704	−683.247	0.000	−721.918	−683.247	−664.187	116.363
	300.00	75.123	130.168	129.705	−683.108	0.139	−722.159	−683.295	−664.069	115.625
	400.00	77.966	152.220	132.693	−675.436	7.811	−736.324	−712.679	−651.538	85.082
	500.00	79.486	169.795	138.415	−667.557	15.690	−752.455	−711.186	−636.426	66.487
	600.00	80.487	184.381	144.895	−659.556	23.691	−770.184	−709.761	−621.609	54.116
	700.00	81.624	196.863	151.448	−651.457	31.790	−789.261	−708.464	−607.022	45.297
	800.00	83.481	207.877	157.826	−643.207	40.040	−809.508	−708.003	−592.521	38.688
	900.00	85.848	217.842	163.949	−634.744	48.503	−830.801	−706.769	−578.162	33.556
	1000.00	88.620	227.027	169.803	−626.024	57.223	−853.050	−705.698	−563.931	29.457
	1015.00	89.067	228.350	170.659	−624.691	58.556	−856.466	−705.549	−561.805	28.912
			28.649		29.079					
LIQ	1015.00	112.968	256.999	170.659	−595.612	87.635	−856.466	−676.470	−561.805	28.912
	1100.00	112.968	266.084	177.686	−586.010	97.237	−878.702	−673.753	−552.316	26.227
	1200.00	112.968	275.913	185.468	−574.713	108.534	−905.809	−677.892	−540.787	23.540
	1300.00	112.968	284.956	192.778	−563.416	119.831	−933.858	−673.310	−529.547	21.277
	1400.00	112.968	293.327	199.665	−552.119	131.128	−962.778	−668.733	−518.660	19.351
	1500.00	112.968	301.121	206.172	−540.823	142.424	−992.505	−664.162	−508.100	17.694
	1600.00	112.968	308.412	212.336	−529.526	153.721	−1022.985	−659.597	−497.845	16.253
	1700.00	112.968	315.261	218.191	−518.229	165.018	−1054.172	−655.036	−487.875	14.991
	1800.00	112.968	321.718	223.765	−506.932	176.315	−1086.024	−803.785	−474.210	13.761
	1900.00	112.968	327.826	229.083	−495.635	187.612	−1118.504	−798.393	−456.047	12.538
	2000.00	112.968	333.620	234.166	−484.339	198.908	−1151.579	−793.011	−438.168	11.444
	2081.00	112.968	338.105	238.125	−475.188	208.059	−1178.785	−788.661	−423.884	10.640

References

Phase	H / S	C_p	Remarks	
SOL	Ja1,Nb1	Ja1		
LIQ	Ja1	Ja1	Ja1	BPT= 2081., L= 201. kJ

199.886 CALCIUM BROMIDE (GAS) **CaBr2[g]**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	60.387	314.746	314.746	-384.928	0.000	-478.770	-384.928	-421.038	73.764
	300.00	60.409	315.120	314.747	-384.816	0.112	-479.352	-385.003	-421.262	73.348
	400.00	61.214	332.624	317.128	-378.730	6.198	-511.779	-415.973	-426.993	55.760
	500.00	61.609	346.330	321.648	-372.587	12.341	-545.752	-416.215	-429.723	44.893
	600.00	61.831	357.584	326.727	-366.414	18.514	-580.964	-416.619	-432.389	37.643
	700.00	61.967	367.127	331.834	-360.223	24.705	-617.212	-417.230	-434.973	32.458
	800.00	62.057	375.407	336.775	-354.022	30.906	-654.348	-418.818	-437.361	28.557
	900.00	62.120	382.721	341.481	-347.813	37.115	-692.261	-419.837	-439.622	25.515
	1000.00	62.165	389.268	345.938	-341.598	43.330	-730.866	-421.272	-441.747	23.074
	1100.00	62.198	395.195	350.151	-335.380	49.548	-770.094	-423.124	-443.708	21.070
	1200.00	62.224	400.608	354.134	-329.159	55.769	-809.888	-432.338	-444.866	19.365
	1300.00	62.243	405.589	357.903	-322.936	61.992	-850.201	-432.829	-445.890	17.916
	1400.00	62.259	410.202	361.476	-316.710	68.218	-890.994	-433.324	-446.876	16.673
	1500.00	62.272	414.498	364.869	-310.484	74.444	-932.231	-433.823	-447.827	15.595
	1600.00	62.282	418.518	368.098	-304.256	80.672	-973.884	-434.327	-448.744	14.650
	1700.00	62.291	422.294	371.176	-298.027	86.901	-1015.927	-434.835	-449.630	13.815
	1800.00	62.298	425.854	374.115	-291.798	93.130	-1058.336	-588.651	-446.521	12.958
	1900.00	62.304	429.223	376.928	-285.568	99.360	-1101.091	-588.326	-438.634	12.059
	2000.00	62.309	432.419	379.623	-279.337	105.591	-1144.175	-588.010	-430.764	11.250
	2100.00	62.313	435.459	382.210	-273.106	111.822	-1187.570	-587.706	-422.909	10.519
	2200.00	62.317	438.358	384.697	-266.875	118.053	-1231.262	-587.416	-415.069	9.855
	2300.00	62.320	441.128	387.091	-260.643	124.285	-1275.237	-587.141	-407.241	9.249
	2400.00	62.323	443.780	389.398	-254.411	130.517	-1319.483	-586.885	-399.425	8.693
	2500.00	62.325	446.324	391.625	-248.178	136.750	-1363.989	-586.649	-391.619	8.182

References

Phase	H / S	C_p
GAS	Ja1	Ja1

CaC2 CALCIUM DICARBIDE 64.100

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL−A	298.15	62.718	69.961	69.961	−59.802	0.000	−80.661	−59.802	−64.888	11.368
	300.00	62.826	70.349	69.962	−59.686	0.116	−80.791	−59.764	−64.920	11.304
	400.00	68.086	89.184	72.494	−53.126	6.676	−88.800	−57.853	−66.932	8.740
	500.00	71.423	104.769	77.436	−46.136	13.666	−98.520	−56.218	−69.398	7.250
	600.00	73.312	117.975	83.121	−38.889	20.913	−109.674	−54.990	−72.157	6.282
	700.00	74.308	129.360	88.932	−31.503	28.299	−122.054	−54.226	−75.085	5.603
	720.00	74.433	131.455	90.084	−30.015	29.787	−124.663	−54.130	−75.683	5.491
			7.671		5.523					
SOL−B	720.00	71.265	139.125	90.084	−24.492	35.310	−124.663	−48.607	−75.683	5.491
	800.00	71.786	146.661	95.371	−18.770	41.032	−136.099	−49.384	−78.600	5.132
	900.00	72.438	155.154	101.550	−11.559	48.243	−151.197	−49.709	−82.238	4.773
	1000.00	73.091	162.820	107.300	−4.283	55.519	−167.102	−50.555	−85.812	4.482
	1100.00	73.743	169.817	112.670	3.059	62.861	−183.739	−51.888	−89.277	4.239
	1200.00	74.395	176.261	117.704	10.466	70.268	−201.047	−60.628	−91.984	4.004

References

Phase	H / S	C_p
SOL−A	Nb1	Pa3
SOL−B	Pa3	Pa3

80.102 CALCIUM CYANAMIDE **CaCN2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	83.241	81.588	81.588	−350.619	0.000	−374.944	−350.619	−303.755	53.217
	300.00	83.430	82.103	81.590	−350.465	0.154	−375.096	−350.581	−303.464	52.838
	400.00	90.630	107.207	84.963	−341.722	8.897	−384.604	−348.367	−288.084	37.620
	500.00	94.814	127.912	91.544	−332.435	18.184	−396.391	−346.044	−273.283	28.550
	600.00	97.811	145.475	99.106	−322.798	27.821	−410.082	−343.829	−258.942	22.543
	700.00	100.248	160.741	106.844	−312.891	37.728	−425.410	−341.810	−244.957	18.279
	800.00	102.386	174.269	114.442	−302.758	47.861	−442.173	−340.751	−231.154	15.093
	900.00	104.350	186.443	121.777	−292.420	58.199	−460.218	−339.093	−217.558	12.627
	1000.00	106.207	197.534	128.806	−281.891	68.728	−479.425	−337.808	−204.127	10.662
	1100.00	107.043	207.696	135.523	−271.229	79.390	−499.694	−336.928	−190.805	9.061
	1200.00	107.880	217.046	141.932	−260.483	90.136	−520.938	−343.432	−176.928	7.701
	1300.00	108.717	225.714	148.047	−249.653	100.966	−543.081	−341.217	−163.142	6.555
	1400.00	109.554	233.801	153.887	−238.739	111.880	−566.061	−338.995	−149.527	5.579
	1500.00	110.391	241.388	159.470	−227.742	122.877	−589.824	−336.754	−136.072	4.738
	1600.00	111.227	248.539	164.816	−216.661	133.958	−614.324	−334.485	−122.767	4.008
	1700.00	112.064	255.308	169.941	−205.497	145.122	−639.519	−332.179	−109.605	3.368
	1800.00	112.901	261.737	174.864	−194.248	156.371	−665.374	−483.133	−92.616	2.688
	1900.00	113.738	267.863	179.599	−182.916	167.703	−691.857	−479.892	−71.009	1.952
	2000.00	114.575	273.719	184.159	−171.501	179.118	−718.938	−476.604	−49.574	1.295

References

Phase	H / S	C_p
SOL	Nb1/e	e

100.087 CALCIUM CARBONATE (CALCITE) **CaCO3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	83.471	92.902	92.902	−1206.921	0.000	−1234.620	−1206.921	−1128.811	197.763
	300.00	83.817	93.419	92.903	−1206.766	0.155	−1234.792	−1206.910	−1128.327	196.459
	400.00	96.985	119.548	96.376	−1197.652	9.269	−1245.471	−1205.865	−1102.268	143.941
	500.00	104.547	142.063	103.318	−1187.549	19.372	−1258.580	−1204.373	−1076.538	112.465
	600.00	109.872	161.616	111.441	−1176.816	30.105	−1273.785	−1202.818	−1051.117	91.508
	700.00	114.144	178.884	119.866	−1165.609	41.312	−1290.827	−1201.338	−1025.952	76.558
	800.00	117.863	194.373	128.228	−1154.005	52.916	−1309.503	−1200.705	−1000.901	65.352
	900.00	121.266	208.454	136.371	−1142.046	64.875	−1329.655	−1199.358	−976.009	56.646
	1000.00	124.474	221.398	144.235	−1129.758	77.163	−1351.156	−1198.266	−951.253	49.688
	1100.00	127.554	233.407	151.802	−1117.156	89.765	−1373.903	−1197.413	−926.595	44.000
	1200.00	130.541	244.634	159.075	−1104.250	102.671	−1397.811	−1203.733	−901.388	39.236

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	Pa3	Tk1	TPT= 298./ 753.

CaCO3[A] CALCIUM CARBONATE (ARAGONITE) 100.087

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	82.299	88.701	88.701	−1207.126	0.000	−1233.572	−1207.126	−1127.764	197.580
	300.00	82.542	89.211	88.702	−1206.974	0.152	−1233.737	−1207.118	−1127.272	196.275
	400.00	92.678	114.459	92.076	−1198.173	8.953	−1243.956	−1206.385	−1100.753	143.744
	500.00	99.824	135.939	98.754	−1188.533	18.593	−1256.503	−1205.358	−1074.461	112.248
	600.00	105.778	154.677	106.545	−1178.247	28.879	−1271.053	−1204.249	−1048.385	91.270
	700.00	111.167	171.393	114.636	−1167.396	39.730	−1287.371	−1203.125	−1022.497	76.300

References

Phase	H / S	C_p	Remarks
SOL	Nb1	Pa3	Tk1 TPT= 1073.

CaMg(CO3)2 DOLOMITE 184.401

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	157.531	155.226	155.226	−2326.304	0.000	−2372.585	−2326.304	−2163.576	379.049
	300.00	157.978	156.202	155.229	−2326.012	0.292	−2372.873	−2326.300	−2162.566	376.536
	400.00	176.523	204.406	161.676	−2309.212	17.092	−2390.974	−2325.613	−2108.070	275.286
	500.00	189.431	245.243	174.410	−2290.887	35.417	−2413.509	−2324.489	−2053.811	214.560
	600.00	200.119	280.747	189.237	−2271.398	54.906	−2439.846	−2323.283	−1999.788	174.097
	700.00	209.760	312.329	204.606	−2250.898	75.406	−2469.528	−2322.074	−1945.968	145.210
	800.00	218.843	340.936	219.886	−2229.464	96.840	−2502.213	−2321.563	−1892.232	123.550
	900.00	227.601	367.220	234.815	−2207.140	119.164	−2537.638	−2320.132	−1838.651	106.713
	1000.00	236.158	391.644	249.291	−2183.951	142.353	−2575.595	−2327.657	−1784.472	93.211
	1100.00	244.582	414.548	263.284	−2159.913	166.391	−2615.916	−2326.085	−1730.228	82.162
	1200.00	252.917	436.188	276.799	−2135.037	191.267	−2658.462	−2331.266	−1675.519	72.933

References

Phase	H / S	C_p
SOL	Nb1	M1

75.531 CALCIUM MONOCHLORIDE (GAS) **CaCl[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	35.667	241.526	241.526	−104.600	0.000	−176.611	−104.600	−131.000	22.951
	300.00	35.686	241.747	241.527	−104.534	0.066	−177.058	−104.612	−131.164	22.838
	400.00	36.469	252.132	242.937	−100.922	3.678	−201.775	−105.308	−139.912	18.271
	500.00	36.910	260.321	245.624	−97.251	7.349	−227.412	−106.116	−148.472	15.511
	600.00	37.183	267.076	248.653	−93.546	11.054	−253.792	−107.086	−156.855	13.655
	700.00	37.367	272.823	251.706	−89.818	14.782	−280.794	−108.263	−165.060	12.317
	800.00	37.501	277.822	254.664	−86.074	18.526	−308.332	−110.414	−172.989	11.295
	900.00	37.605	282.245	257.488	−82.319	22.281	−336.339	−111.992	−180.720	10.489
	1000.00	37.692	286.212	260.165	−78.554	26.046	−364.765	−113.982	−188.253	9.833
	1100.00	37.768	289.808	262.699	−74.781	29.819	−393.569	−116.382	−195.568	9.287
	1200.00	37.837	293.097	265.097	−71.000	33.600	−422.717	−126.140	−202.029	8.794
	1300.00	37.902	296.128	267.369	−67.213	37.387	−452.180	−127.168	−208.312	8.370
	1400.00	37.964	298.939	269.525	−63.420	41.180	−481.935	−128.194	−214.515	8.004
	1500.00	38.026	301.561	271.574	−59.621	44.979	−511.961	−129.218	−220.645	7.684
	1600.00	38.088	304.017	273.526	−55.815	48.785	−542.242	−130.239	−226.707	7.401
	1700.00	38.151	306.328	275.388	−52.003	52.597	−572.760	−131.257	−232.705	7.150
	1800.00	38.215	308.510	277.168	−48.185	56.415	−603.503	−285.577	−234.679	6.810
	1900.00	38.281	310.578	278.873	−44.360	60.240	−634.458	−285.747	−231.847	6.374
	2000.00	38.348	312.543	280.507	−40.528	64.072	−665.615	−285.920	−229.006	5.981
	2100.00	38.418	314.416	282.078	−36.690	67.910	−696.964	−286.097	−226.156	5.625
	2200.00	38.490	316.205	283.589	−32.845	71.755	−728.495	−286.280	−223.297	5.302
	2300.00	38.564	317.917	285.044	−28.992	75.608	−760.202	−286.471	−220.430	5.006
	2400.00	38.641	319.560	286.449	−25.132	79.468	−792.077	−286.672	−217.555	4.735
	2500.00	38.721	321.139	287.805	−21.264	83.336	−824.112	−286.886	−214.670	4.485

References

Phase	H / S	C_p
GAS	Ja1	Ja1

CaCl2 CALCIUM CHLORIDE 110.983

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	72.858	104.600	104.600	−795.797	0.000	−826.983	−795.797	−748.111	131.066
	300.00	72.924	105.051	104.601	−795.662	0.135	−827.177	−795.772	−747.816	130.206
	400.00	75.656	126.445	107.500	−788.219	7.578	−838.797	−794.370	−732.040	95.595
	500.00	77.134	143.500	113.052	−780.573	15.224	−852.323	−792.988	−716.619	74.865
	600.00	78.202	157.659	119.340	−772.805	22.992	−867.401	−791.714	−701.467	61.068
	700.00	79.379	169.799	125.701	−764.929	30.868	−883.788	−790.581	−686.518	51.229
	800.00	80.944	180.495	131.895	−756.917	38.880	−901.313	−790.315	−671.630	43.853
	900.00	83.051	190.145	137.839	−748.722	47.075	−919.852	−789.317	−656.856	38.123
	1000.00	85.789	199.031	143.519	−740.285	55.512	−939.316	−788.506	−642.183	33.544
	1045.00	87.243	202.838	145.992	−736.393	59.404	−948.359	−788.183	−635.606	31.771
			27.314		28.543					
LIQ	1045.00	102.533	230.152	145.992	−707.850	87.947	−948.359	−759.640	−635.606	31.771
	1100.00	102.533	235.412	150.333	−702.210	93.587	−961.163	−758.481	−629.108	29.874
	1200.00	102.533	244.333	157.800	−691.957	103.840	−985.157	−763.648	−616.813	26.849
	1300.00	102.533	252.540	164.776	−681.704	114.093	−1010.006	−760.096	−604.721	24.298
	1400.00	102.533	260.139	171.320	−671.450	124.347	−1035.644	−756.553	−592.902	22.121
	1500.00	102.533	267.213	177.479	−661.197	134.600	−1062.016	−753.017	−581.336	20.244
	1600.00	102.533	273.830	183.297	−650.944	144.853	−1089.072	−749.488	−570.005	18.609
	1700.00	102.533	280.046	188.807	−640.690	155.107	−1116.769	−745.967	−558.896	17.173
	1800.00	102.533	285.907	194.040	−630.437	165.360	−1145.069	−895.757	−544.029	15.787
	1900.00	102.533	291.450	199.022	−620.184	175.613	−1173.939	−891.407	−524.607	14.422
	2000.00	102.533	296.710	203.776	−609.931	185.866	−1203.350	−887.071	−505.414	13.200
	2100.00	102.533	301.712	208.322	−599.677	196.120	−1233.273	−882.749	−486.438	12.099
	2200.00	102.533	306.482	212.676	−589.424	206.373	−1263.684	−878.444	−467.667	11.104
	2206.30	102.533	306.775	212.944	−588.778	207.019	−1265.616	−878.174	−466.491	11.044

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	BPT= 2206.3, L= 235.1 kJ

110.983 CALCIUM CHLORIDE (GAS) **CaCl2[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	59.325	290.061	290.061	−471.537	0.000	−558.019	−471.537	−479.147	83.944
	300.00	59.358	290.428	290.062	−471.427	0.110	−558.556	−471.537	−479.194	83.435
	400.00	60.571	307.692	292.407	−465.423	6.114	−588.500	−471.574	−481.743	62.909
	500.00	61.178	321.280	296.871	−459.333	12.204	−619.973	−471.748	−484.269	50.591
	600.00	61.523	332.468	301.899	−453.196	18.341	−652.677	−472.105	−486.743	42.375
	700.00	61.738	341.969	306.962	−447.032	24.505	−686.410	−472.684	−489.140	36.500
	800.00	61.880	350.223	311.865	−440.851	30.686	−721.029	−474.250	−491.346	32.082
	900.00	61.978	357.517	316.540	−434.658	36.879	−756.423	−475.253	−493.427	28.638
	1000.00	62.050	364.051	320.970	−428.456	43.081	−792.507	−476.677	−495.374	25.876
	1100.00	62.103	369.967	325.160	−422.248	49.289	−829.213	−478.519	−497.158	23.608
	1200.00	62.143	375.373	329.122	−416.036	55.501	−866.483	−487.726	−498.139	21.683
	1300.00	62.175	380.348	332.874	−409.820	61.717	−904.273	−488.212	−498.988	20.050
	1400.00	62.200	384.957	336.431	−403.601	67.936	−942.541	−488.703	−499.798	18.648
	1500.00	62.221	389.249	339.811	−397.380	74.157	−981.254	−489.200	−500.573	17.432
	1600.00	62.237	393.265	343.028	−391.157	80.380	−1020.382	−489.702	−501.315	16.366
	1700.00	62.251	397.039	346.095	−384.933	86.604	−1059.899	−490.209	−502.025	15.425
	1800.00	62.262	400.597	349.025	−378.707	92.830	−1099.782	−644.026	−498.742	14.473
	1900.00	62.272	403.964	351.829	−372.480	99.057	−1140.012	−643.704	−490.679	13.490
	2000.00	62.280	407.158	354.516	−366.253	105.284	−1180.569	−643.393	−482.634	12.605
	2100.00	62.287	410.197	357.096	−360.024	111.513	−1221.438	−643.096	−474.603	11.805
	2200.00	62.293	413.095	359.576	−353.795	117.742	−1262.604	−642.816	−466.586	11.078
	2300.00	62.298	415.864	361.963	−347.566	123.971	−1304.053	−642.554	−458.582	10.415
	2400.00	62.303	418.515	364.265	−341.336	130.201	−1345.773	−642.314	−450.588	9.807
	2500.00	62.306	421.059	366.486	−335.105	136.432	−1387.752	−642.098	−442.604	9.248

References

Phase	H / S	C_p
GAS	Ja1	Ja1

CaF[g] CALCIUM MONOFLUORIDE (GAS) 59.076

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	33.659	229.644	229.644	-272.295	0.000	-340.763	-272.295	-298.182	52.240
	300.00	33.693	229.852	229.644	-272.233	0.062	-341.188	-272.309	-298.342	51.946
	400.00	35.082	239.754	230.985	-268.787	3.508	-364.689	-273.044	-306.910	40.078
	500.00	35.891	247.677	233.558	-265.235	7.060	-389.074	-273.867	-315.284	32.938
	600.00	36.402	254.269	236.476	-261.619	10.676	-414.180	-274.845	-323.479	28.161
	700.00	36.750	259.908	239.430	-257.960	14.335	-439.896	-276.028	-331.494	24.736
	800.00	37.000	264.833	242.304	-254.272	18.023	-466.138	-278.185	-339.232	22.150
	900.00	37.190	269.202	245.054	-250.562	21.733	-492.844	-279.770	-346.773	20.126
	1000.00	37.339	273.128	247.669	-246.836	25.459	-519.964	-281.767	-354.114	18.497
	1100.00	37.460	276.693	250.148	-243.095	29.200	-547.458	-284.177	-361.236	17.154
	1200.00	37.561	279.957	252.498	-239.344	32.951	-575.292	-293.945	-367.503	15.997
	1300.00	37.648	282.967	254.727	-235.584	36.711	-603.441	-294.987	-373.591	15.011
	1400.00	37.724	285.760	256.845	-231.815	40.480	-631.879	-296.029	-379.598	14.163
	1500.00	37.793	288.365	258.861	-228.039	44.256	-660.586	-297.070	-385.531	13.425
	1600.00	37.857	290.806	260.782	-224.257	48.038	-689.546	-298.111	-391.394	12.778
	1700.00	37.918	293.103	262.616	-220.468	51.827	-718.743	-299.152	-397.193	12.204
	1800.00	37.978	295.272	264.371	-216.673	55.622	-748.162	-453.496	-398.966	11.578
	1900.00	38.038	297.327	266.052	-212.872	59.423	-777.793	-453.693	-395.931	10.885
	2000.00	38.099	299.280	267.665	-209.065	63.230	-807.624	-453.895	-392.886	10.261
	2100.00	38.162	301.140	269.215	-205.252	67.043	-837.646	-454.101	-389.830	9.697
	2200.00	38.229	302.917	270.707	-201.433	70.862	-867.850	-454.315	-386.765	9.183
	2300.00	38.301	304.618	272.144	-197.606	74.689	-898.227	-454.538	-383.689	8.714
	2400.00	38.378	306.249	273.532	-193.772	78.523	-928.771	-454.771	-380.604	8.284
	2500.00	38.461	307.818	274.872	-189.931	82.364	-959.475	-455.016	-377.509	7.888
	2600.00	38.551	309.328	276.168	-186.080	86.215	-990.332	-455.274	-374.404	7.522
	2700.00	38.650	310.785	277.423	-182.220	90.075	-1021.338	-455.548	-371.288	7.183
	2800.00	38.758	312.192	278.640	-178.350	93.945	-1052.488	-455.838	-368.162	6.868
	2900.00	38.875	313.554	279.821	-174.468	97.827	-1083.775	-456.145	-365.025	6.575
	3000.00	39.003	314.874	280.967	-170.574	101.721	-1115.197	-456.473	-361.878	6.301

References

Phase	H / S	C_p
GAS	Ja1,Nb1	Ja1

78.075 CALCIUM FLUORIDE **CaF2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL−A	298.15	68.590	68.576	68.576	−1225.912	0.000	−1246.358	−1225.912	−1173.545	205.600
	300.00	68.771	69.001	68.577	−1225.785	0.127	−1246.485	−1225.890	−1173.220	204.276
	400.00	73.863	89.636	71.356	−1218.600	7.312	−1254.455	−1224.493	−1155.867	150.941
	500.00	76.222	106.382	76.740	−1211.091	14.821	−1264.282	−1223.040	−1138.880	118.978
	600.00	78.518	120.478	82.885	−1203.356	22.556	−1275.643	−1221.637	−1122.180	97.694
	700.00	81.089	132.771	89.151	−1195.378	30.534	−1288.318	−1220.275	−1105.712	82.509
	800.00	83.919	143.781	95.303	−1187.130	38.782	−1302.155	−1219.674	−1089.346	71.127
	900.00	86.950	153.839	101.256	−1178.588	47.324	−1317.043	−1218.251	−1073.142	62.284
	1000.00	90.128	163.163	106.986	−1169.735	56.177	−1332.898	−1216.963	−1057.089	55.217
	1100.00	93.413	171.906	112.494	−1160.559	65.353	−1349.656	−1215.789	−1041.159	49.441
	1200.00	96.780	180.178	117.793	−1151.050	74.862	−1367.264	−1221.664	−1024.716	44.605
	1300.00	100.207	188.060	122.897	−1141.201	84.711	−1385.679	−1218.491	−1008.430	40.519
	1400.00	103.680	195.613	127.823	−1131.007	94.905	−1404.865	−1214.988	−992.400	37.027
	1424.00	104.519	197.382	128.981	−1128.508	97.404	−1409.581	−1214.098	−988.592	36.263
			3.350		4.770					
SOL−B	1424.00	122.884	200.732	128.981	−1123.738	102.174	−1409.581	−1209.328	−988.592	36.263
	1500.00	123.679	207.142	132.780	−1114.369	111.543	−1425.082	−1205.056	−976.923	34.019
	1600.00	124.725	215.157	137.680	−1101.949	123.963	−1446.200	−1199.355	−961.900	31.403
	1691.00	125.677	222.083	142.037	−1090.556	135.356	−1466.097	−1194.086	−948.541	29.300
			17.567		29.706					
LIQ	1691.00	99.914	239.650	142.037	−1060.850	165.062	−1466.097	−1164.380	−948.541	29.300
	1700.00	99.914	240.180	142.556	−1059.950	165.962	−1468.257	−1164.087	−947.393	29.110
	1800.00	99.914	245.891	148.139	−1049.959	175.953	−1492.563	−1314.141	−930.776	27.010
	1900.00	99.914	251.293	153.428	−1039.968	185.944	−1517.424	−1310.059	−909.590	25.006
	2000.00	99.914	256.418	158.450	−1029.976	195.936	−1542.812	−1305.992	−888.618	23.208
	2100.00	99.914	261.293	163.232	−1019.985	205.927	−1568.700	−1301.941	−867.849	21.587
	2200.00	99.914	265.941	167.796	−1009.993	215.919	−1595.063	−1297.909	−847.272	20.117
	2300.00	99.914	270.382	172.160	−1000.002	225.910	−1621.881	−1293.896	−826.879	18.779
	2400.00	99.914	274.634	176.342	−990.011	235.901	−1649.133	−1289.905	−806.659	17.556
	2500.00	99.914	278.713	180.356	−980.019	245.893	−1676.802	−1285.938	−786.606	16.435
	2600.00	99.914	282.632	184.215	−970.028	255.884	−1704.871	−1281.997	−766.710	15.403
	2700.00	99.914	286.403	187.930	−960.036	265.876	−1733.324	−1278.085	−746.966	14.451
	2800.00	99.914	290.036	191.512	−950.045	275.867	−1762.147	−1274.203	−727.366	13.569
	2803.70	99.914	290.168	191.642	−949.675	276.237	−1763.220	−1274.060	−726.644	13.538

References

Phase	H / S	C_p	Remarks	
SOL−A	Ja1	Ja1		
SOL−B	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	BPT= 2803.7, L= 308.7 kJ

CaF2[g] CALCIUM FLUORIDE (GAS) 78.075

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	51.264	273.785	273.785	−784.500	0.000	−866.129	−784.500	−793.316	138.986
	300.00	51.329	274.102	273.786	−784.405	0.095	−866.636	−784.510	−793.370	138.138
	400.00	53.881	289.258	275.835	−779.131	5.369	−894.834	−785.024	−796.247	103.979
	500.00	55.270	301.444	279.778	−773.667	10.833	−924.389	−785.616	−798.987	83.470
	600.00	56.094	311.600	284.259	−768.095	16.405	−955.055	−786.376	−801.593	69.785
	700.00	56.619	320.289	288.801	−762.458	22.042	−986.660	−787.355	−804.055	59.999
	800.00	56.973	327.874	293.221	−756.777	27.723	−1019.077	−789.322	−806.268	52.644
	900.00	57.223	334.600	297.452	−751.067	33.433	−1052.207	−790.730	−808.306	46.913
	1000.00	57.405	340.639	301.474	−745.335	39.165	−1085.974	−792.562	−810.165	42.319
	1100.00	57.541	346.117	305.287	−739.587	44.913	−1120.316	−794.818	−811.819	38.550
	1200.00	57.646	351.128	308.901	−733.828	50.672	−1155.182	−804.442	−812.634	35.373
	1300.00	57.728	355.746	312.330	−728.059	56.441	−1190.528	−805.349	−813.280	32.678
	1400.00	57.794	360.026	315.585	−722.283	62.217	−1226.320	−806.264	−813.855	30.365
	1500.00	57.847	364.016	318.683	−716.501	67.999	−1262.524	−807.188	−814.365	28.359
	1600.00	57.890	367.750	321.634	−710.714	73.786	−1299.114	−808.120	−814.814	26.601
	1700.00	57.926	371.261	324.451	−704.923	79.577	−1336.067	−809.059	−815.203	25.048
	1800.00	57.956	374.573	327.144	−699.129	85.371	−1373.360	−963.310	−811.573	23.551
	1900.00	57.981	377.707	329.724	−693.332	91.168	−1410.975	−963.423	−803.141	22.080
	2000.00	58.002	380.682	332.198	−687.533	96.967	−1448.896	−963.548	−794.702	20.755
	2100.00	58.020	383.512	334.575	−681.732	102.768	−1487.107	−963.688	−786.256	19.557
	2200.00	58.036	386.211	336.861	−675.929	108.571	−1525.594	−963.844	−777.803	18.467
	2300.00	58.049	388.792	339.063	−670.125	114.375	−1564.345	−964.018	−769.343	17.472
	2400.00	58.061	391.262	341.187	−664.319	120.181	−1603.349	−964.214	−760.875	16.560
	2500.00	58.071	393.633	343.238	−658.512	125.988	−1642.594	−964.431	−752.398	15.720
	2600.00	58.079	395.910	345.220	−652.705	131.795	−1682.072	−964.674	−743.912	14.945
	2700.00	58.087	398.102	347.138	−646.897	137.603	−1721.773	−964.945	−735.416	14.227
	2800.00	58.094	400.215	348.996	−641.088	143.412	−1761.690	−965.245	−726.909	13.561
	2900.00	58.099	402.254	350.798	−635.278	149.222	−1801.814	−965.578	−718.392	12.940
	3000.00	58.104	404.224	352.546	−629.468	155.032	−1842.138	−965.946	−709.862	12.360

References

Phase	H / S	C_p
GAS	Ja1	Ja1

41.086 CALCIUM MONOHYDRIDE (GAS) **CaH[g]**

Phase	T [K]	C_p [J / (K mol)]	S [J / (K mol)]	−(G−H298)/T [J / (K mol)]	H [kJ / mol]	H−H298 [kJ / mol]	G [kJ / mol]	ΔH_f [kJ / mol]	ΔG_f [kJ / mol]	log K_f [−]
GAS	298.15	29.896	201.841	201.841	229.409	0.000	169.230	229.409	201.061	−35.225
	300.00	29.907	202.026	201.842	229.464	0.055	168.857	229.391	200.885	−34.977
	400.00	31.121	210.779	203.027	232.510	3.101	148.198	228.409	191.532	−25.011
	500.00	32.448	217.869	205.308	235.690	6.281	126.755	227.435	182.425	−19.058
	600.00	33.534	223.885	207.915	238.991	9.582	104.660	226.413	173.518	−15.106
	700.00	34.405	229.122	210.578	242.390	12.981	82.004	225.276	164.790	−12.297
	800.00	35.115	233.764	213.192	245.867	16.458	58.855	223.235	156.327	−10.207
	900.00	35.705	237.935	215.713	249.409	20.000	35.267	221.819	148.045	−8.592
	1000.00	36.204	241.724	218.128	253.005	23.596	11.281	220.029	139.940	−7.310
	1100.00	36.634	245.195	220.433	256.647	27.238	−13.067	217.856	132.033	−6.270
	1200.00	37.008	248.399	222.632	260.330	30.921	−37.749	208.343	124.957	−5.439
	1300.00	37.341	251.374	224.730	264.047	34.638	−62.739	207.572	118.040	−4.743
	1400.00	37.640	254.153	226.733	267.797	38.388	−88.017	206.810	111.182	−4.148
	1500.00	37.915	256.759	228.649	271.574	42.165	−113.564	206.055	104.377	−3.635
	1600.00	38.172	259.214	230.483	275.379	45.970	−139.364	205.305	97.623	−3.187
	1700.00	38.418	261.536	232.242	279.208	49.799	−165.403	204.559	90.916	−2.794
	1800.00	38.660	263.739	233.931	283.062	53.653	−191.667	50.514	88.216	−2.560
	1900.00	38.903	265.836	235.556	286.941	57.532	−218.147	50.619	90.308	−2.483
	2000.00	39.152	267.837	237.120	290.843	61.434	−244.831	50.725	92.394	−2.413

References

Phase	H / S	C_p
GAS	Tk1	Pa3

CaH2 CALCIUM HYDRIDE 42.094

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	40.999	41.401	41.401	−176.983	0.000	−189.327	−176.983	−138.015	24.180
	300.00	41.068	41.655	41.401	−176.907	0.076	−189.403	−177.007	−137.773	23.988
	400.00	44.781	53.978	43.057	−172.615	4.368	−194.206	−178.195	−124.509	16.259
	500.00	48.495	64.369	46.305	−167.951	9.032	−200.135	−179.147	−110.972	11.593
	600.00	52.208	73.539	50.094	−162.916	14.067	−207.039	−179.899	−97.264	8.468
	700.00	55.921	81.866	54.046	−157.509	19.474	−214.815	−180.497	−83.442	6.227
	800.00	59.634	89.575	58.011	−151.732	25.251	−223.392	−181.714	−69.452	4.535
	900.00	63.347	96.814	61.924	−145.582	31.401	−232.715	−182.010	−55.402	3.215
	1000.00	67.061	103.680	65.759	−139.062	37.921	−242.742	−182.377	−41.315	2.158
	1053.00	69.029	107.194	67.757	−135.456	41.527	−248.331	−182.603	−33.833	1.678
			6.357		6.694					
SOL−B	1053.00	69.036	113.551	67.757	−128.762	48.221	−248.331	−175.909	−33.833	1.678
	1100.00	69.036	116.565	69.778	−125.517	51.466	−253.739	−176.168	−27.486	1.305
	1200.00	69.036	122.572	73.931	−118.613	58.370	−265.700	−183.998	−13.318	0.580
	1273.00	69.036	126.649	76.838	−113.574	63.409	−274.798	−183.370	−2.954	0.121
			17.281		21.999					
LIQ	1273.00	74.998	143.930	76.838	−91.575	85.408	−274.798	−161.371	−2.954	0.121
	1300.00	74.998	145.504	78.248	−89.550	87.433	−278.706	−160.984	0.402	−0.016
	1400.00	74.998	151.062	83.253	−82.050	94.933	−293.537	−159.578	12.764	−0.476
	1500.00	74.998	156.237	87.948	−74.550	102.433	−308.905	−158.215	25.026	−0.871
	1600.00	74.998	161.077	92.369	−67.050	109.933	−324.774	−156.895	37.199	−1.214
	1700.00	74.998	165.624	96.546	−59.551	117.432	−341.111	−155.617	49.290	−1.515
	1800.00	74.998	169.911	100.504	−52.051	124.932	−357.890	−307.684	65.271	−1.894
	1900.00	74.998	173.965	104.264	−44.551	132.432	−375.085	−305.643	85.935	−2.363
	2000.00	74.998	177.812	107.846	−37.051	139.932	−392.676	−303.645	106.493	−2.781

References

Phase	H / S	C_p
SOL−A	Tk1	Pa3
SOL−B	Pa3	Pa3
LIQ	Pa3	Pa3

136.057 CALCIUM HYDROGEN PHOSPHATE **CaHPO4**

Phase	T [K]	C_p [J / (K mol)]	S [J / (K mol)]	-(G-H298)/T [J / (K mol)]	H [kJ / mol]	H-H298 [kJ / mol]	G [kJ / mol]	ΔH_f [kJ / mol]	ΔG_f [kJ / mol]	log K_f [-]
SOL	298.15	110.039	111.380	111.380	-1814.390	0.000	-1847.598	-1814.390	-1681.193	294.538
	300.00	110.699	112.063	111.382	-1814.186	0.204	-1847.805	-1814.412	-1680.366	292.578
	400.00	135.837	147.756	116.078	-1801.719	12.671	-1860.821	-1815.166	-1635.442	213.567
	500.00	150.431	179.748	125.678	-1787.355	27.035	-1877.229	-1813.707	-1590.657	166.175
	600.00	160.877	208.139	137.101	-1771.767	42.623	-1896.650	-1811.394	-1546.254	134.613
	700.00	169.362	233.593	149.098	-1755.244	59.146	-1918.759	-1808.548	-1502.282	112.102
	800.00	176.804	256.703	161.126	-1737.929	76.461	-1943.291	-1806.057	-1458.655	95.240
	900.00	183.638	277.926	172.941	-1719.903	94.487	-1970.037	-1802.433	-1415.446	82.150
	1000.00	190.096	297.611	184.435	-1701.214	113.176	-1998.825	-1798.686	-1372.647	71.700

References

Phase	H / S	C_p
SOL	Nb1	Nb1,e

172.088 CALCIUM HYDROGEN PHOSPHATE DIHYDRATE **CaHPO4*2H2O**

Phase	T [K]	C_p [J / (K mol)]	S [J / (K mol)]	-(G-H298)/T [J / (K mol)]	H [kJ / mol]	H-H298 [kJ / mol]	G [kJ / mol]	ΔH_f [kJ / mol]	ΔG_f [kJ / mol]	log K_f [-]
SOL	298.15	196.945	189.535	189.535	-2403.708	0.000	-2460.218	-2403.708	-2154.724	377.499
	300.00	197.605	190.755	189.539	-2403.343	0.365	-2460.570	-2403.730	-2153.179	374.902
	400.00	222.743	251.450	197.644	-2382.185	21.523	-2482.765	-2404.577	-2069.409	270.237
	500.00	237.337	302.834	213.680	-2359.131	44.577	-2510.548	-2403.331	-1985.741	207.449
	600.00	247.783	347.070	232.311	-2334.853	68.855	-2543.095	-2401.345	-1902.400	165.619
	700.00	256.268	385.921	251.536	-2309.639	94.069	-2579.783	-2398.939	-1819.429	135.767
	800.00	263.710	420.635	270.542	-2283.633	120.075	-2620.141	-2397.000	-1736.730	113.397

References

Phase	H / S	C_p
SOL	Nb1	e

CaI[g] CALCIUM MONOIODIDE (GAS) 166.982

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	36.648	261.317	261.317	−5.063	0.000	−82.975	−5.063	−53.311	9.340
	300.00	36.656	261.543	261.317	−4.995	0.068	−83.458	−5.092	−53.610	9.334
	400.00	37.026	272.144	262.760	−1.310	3.753	−110.167	−14.800	−69.254	9.044
	500.00	37.247	280.432	265.496	2.405	7.468	−137.811	−37.876	−80.622	8.423
	600.00	37.384	287.236	268.569	6.137	11.200	−166.204	−38.877	−89.081	7.755
	700.00	37.475	293.006	271.658	9.880	14.943	−195.224	−40.082	−97.356	7.265
	800.00	37.540	298.014	274.646	13.631	18.694	−224.780	−42.259	−105.351	6.879
	900.00	37.590	302.439	277.493	17.388	22.451	−254.807	−43.864	−113.145	6.567
	1000.00	37.632	306.402	280.190	21.149	26.212	−285.253	−45.880	−120.739	6.307
	1100.00	37.671	309.990	282.738	24.914	29.977	−316.075	−48.309	−128.111	6.083
	1200.00	37.707	313.269	285.148	28.683	33.746	−347.240	−58.096	−134.627	5.860
	1300.00	37.743	316.289	287.429	32.456	37.519	−378.720	−59.156	−140.961	5.664
	1400.00	37.780	319.087	289.591	36.232	41.295	−410.491	−60.216	−147.214	5.493
	1500.00	37.819	321.695	291.646	40.012	45.075	−442.531	−61.275	−153.392	5.342
	1600.00	37.860	324.137	293.601	43.796	48.859	−474.824	−62.333	−159.498	5.207
	1700.00	37.904	326.434	295.465	47.584	52.647	−507.354	−63.390	−165.539	5.086
	1800.00	37.950	328.602	297.247	51.376	56.439	−540.107	−217.749	−167.553	4.862
	1900.00	38.000	330.655	298.951	55.174	60.237	−573.071	−217.960	−164.759	4.530
	2000.00	38.054	332.605	300.586	58.977	64.040	−606.234	−218.174	−161.953	4.230
	2100.00	38.110	334.463	302.155	62.785	67.848	−639.589	−218.393	−159.137	3.958
	2200.00	38.171	336.238	303.664	66.599	71.662	−673.124	−218.618	−156.310	3.711
	2300.00	38.235	337.936	305.118	70.419	75.482	−706.834	−218.851	−153.472	3.485
	2400.00	38.302	339.565	306.519	74.246	79.309	−740.709	−219.093	−150.625	3.278
	2500.00	38.374	341.130	307.873	78.079	83.142	−774.744	−219.348	−147.767	3.087

References

Phase	H / S	C_p
GAS	Ja1	Ja1

293.887 CALCIUM IODIDE **CaI2**

Phase	T	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[–]
SOL	298.15	77.158	145.269	145.269	−536.807	0.000	−580.119	−536.807	−533.141	93.404
	300.00	77.195	145.746	145.270	−536.664	0.143	−580.388	−536.812	−533.118	92.824
	400.00	79.170	168.224	148.321	−528.846	7.961	−596.136	−553.207	−531.280	69.378
	500.00	81.144	186.102	154.149	−520.830	15.977	−613.881	−596.078	−521.681	54.500
	600.00	83.119	201.071	160.755	−512.617	24.190	−633.260	−594.474	−506.952	44.134
	700.00	85.094	214.032	167.460	−504.206	32.601	−654.029	−592.892	−492.491	36.750
	800.00	87.069	225.524	174.013	−495.598	41.209	−676.018	−592.098	−478.162	31.221
	900.00	89.044	235.893	180.322	−486.793	50.014	−699.097	−590.544	−464.016	26.931
	1000.00	91.019	245.377	186.360	−477.789	59.018	−723.167	−589.212	−450.030	23.507
	1052.00	92.046	250.017	189.392	−473.030	63.777	−736.048	−588.608	−442.809	21.987
			39.772		41.840					
LIQ	1052.00	103.345	289.789	189.392	−431.190	105.617	−736.048	−546.768	−442.809	21.987
	1100.00	103.345	294.400	193.875	−426.229	110.578	−750.069	−545.743	−438.089	20.803
	1200.00	103.345	303.392	202.632	−415.895	120.912	−779.965	−550.866	−427.769	18.620
	1300.00	103.345	311.664	210.705	−405.560	131.247	−810.724	−547.268	−417.657	16.782
	1400.00	103.345	319.323	218.193	−395.226	141.581	−842.278	−543.676	−407.822	15.216
	1500.00	103.345	326.453	225.176	−384.891	151.916	−874.571	−540.090	−398.243	13.868
	1600.00	103.345	333.123	231.716	−374.557	162.250	−907.553	−536.511	−388.903	12.696
	1700.00	103.345	339.388	237.867	−364.222	172.585	−941.182	−532.937	−379.787	11.669
	1800.00	103.345	345.295	243.673	−353.888	182.919	−975.419	−682.673	−366.918	10.648
	1900.00	103.345	350.882	249.170	−343.553	193.254	−1010.230	−678.269	−349.496	9.608
	2000.00	103.345	356.183	254.389	−333.219	203.588	−1045.585	−673.877	−332.306	8.679
	2025.00	103.345	357.467	255.654	−330.635	206.172	−1054.506	−672.780	−328.043	8.462

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	BPT= 2025., L= 179.4 kJ

CaI2[g] CALCIUM IODIDE (GAS) 293.887

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	60.625	327.549	327.549	−258.153	0.000	−355.812	−258.153	−308.834	54.106
	300.00	60.646	327.924	327.550	−258.041	0.112	−356.418	−258.188	−309.149	53.828
	400.00	61.382	345.487	329.940	−251.934	6.219	−390.129	−276.295	−325.273	42.476
	500.00	61.723	359.225	334.473	−245.777	12.376	−425.389	−321.025	−333.189	34.808
	600.00	61.909	370.496	339.566	−239.595	18.558	−461.892	−321.451	−335.585	29.215
	700.00	62.022	380.049	344.684	−233.398	24.755	−499.432	−322.084	−337.894	25.214
	800.00	62.096	388.336	349.634	−227.191	30.962	−537.860	−323.691	−340.004	22.200
	900.00	62.148	395.653	354.349	−220.979	37.174	−577.067	−324.730	−341.986	19.848
	1000.00	62.185	402.203	358.812	−214.762	43.391	−616.965	−326.185	−343.829	17.960
	1100.00	62.213	408.131	363.030	−208.542	49.611	−657.487	−328.056	−345.506	16.407
	1200.00	62.234	413.545	367.018	−202.320	55.833	−698.574	−337.291	−346.378	15.077
	1300.00	62.252	418.527	370.791	−196.096	62.057	−740.181	−337.803	−347.115	13.947
	1400.00	62.266	423.141	374.367	−189.870	68.283	−782.267	−338.320	−347.812	12.977
	1500.00	62.277	427.437	377.764	−183.643	74.510	−824.799	−338.842	−348.471	12.135
	1600.00	62.287	431.457	380.995	−177.414	80.739	−867.746	−339.368	−349.096	11.397
	1700.00	62.296	435.233	384.076	−171.185	86.968	−911.082	−339.900	−349.688	10.745
	1800.00	62.303	438.794	387.018	−164.955	93.198	−954.785	−493.741	−346.284	10.049
	1900.00	62.310	442.163	389.832	−158.725	99.428	−998.835	−493.441	−338.101	9.295
	2000.00	62.315	445.359	392.530	−152.493	105.660	−1043.212	−493.151	−329.932	8.617
	2100.00	62.321	448.400	395.118	−146.262	111.891	−1087.901	−492.874	−321.778	8.004
	2200.00	62.325	451.299	397.607	−140.029	118.124	−1132.887	−492.612	−313.637	7.447
	2300.00	62.330	454.070	400.002	−133.797	124.356	−1178.157	−492.366	−305.507	6.938
	2400.00	62.334	456.722	402.310	−127.563	130.590	−1223.697	−492.139	−297.388	6.472
	2500.00	62.338	459.267	404.538	−121.330	136.823	−1269.498	−491.933	−289.278	6.044

References

Phase	H / S	C_p
GAS	Ja1	Ja1

CaMg2 CALCIUM 2−MAGNESIUM 88.688

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	75.687	104.265	104.265	−40.166	0.000	−71.253	−40.166	−39.418	6.906
	300.00	75.748	104.734	104.267	−40.026	0.140	−71.446	−40.165	−39.413	6.862
	400.00	78.773	126.948	107.275	−32.297	7.869	−83.076	−40.112	−39.171	5.115
	500.00	81.574	144.829	113.054	−24.278	15.888	−96.693	−40.125	−38.936	4.068
	600.00	84.286	159.942	119.640	−15.985	24.181	−111.950	−40.263	−38.688	3.368
	700.00	86.956	173.136	126.360	−7.423	32.743	−128.618	−40.576	−38.403	2.866
	800.00	89.604	184.920	132.956	1.405	41.571	−146.531	−41.834	−37.969	2.479
	900.00	92.239	195.626	139.333	10.498	50.664	−165.566	−42.493	−37.450	2.174
	990.00	94.603	204.528	144.860	18.906	59.072	−183.578	−61.321	−35.582	1.877

References

Phase	H / S	C_p	Remarks	
SOL	Hu1,e	Hu1,e	Hu1	MPT= 990., L= 49.14 kJ

200.016 CALCIUM MOLYBDATE **CaMoO4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	114.306	122.600	122.600	−1542.235	0.000	−1578.788	−1542.235	−1435.584	251.508
	300.00	114.669	123.308	122.602	−1542.023	0.212	−1579.016	−1542.223	−1434.922	249.842
	400.00	128.451	158.407	127.294	−1529.790	12.445	−1593.153	−1540.959	−1399.318	182.732
	500.00	136.398	187.987	136.555	−1516.519	25.716	−1610.512	−1539.050	−1364.121	142.509
	600.00	142.050	213.377	147.293	−1502.584	39.651	−1630.611	−1536.911	−1329.334	115.729
	700.00	146.617	235.627	158.355	−1488.145	54.090	−1653.084	−1534.718	−1294.911	96.627
	800.00	150.606	255.470	169.276	−1473.280	68.955	−1677.656	−1533.289	−1260.709	82.316
	900.00	154.259	273.422	179.866	−1458.035	84.200	−1704.115	−1531.092	−1226.771	71.200
	1000.00	157.703	289.855	190.055	−1442.435	99.800	−1732.290	−1529.115	−1193.066	62.319

References

Phase	H / S	C_p
SOL	Nb1	Nb1,e

148.247 TRICALCIUM DINITRIDE **Ca3N2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	110.877	104.600	104.600	−430.998	0.000	−462.184	−430.998	−368.007	64.473
	300.00	111.270	105.287	104.602	−430.793	0.205	−462.379	−430.987	−367.616	64.008
	400.00	125.611	139.525	109.173	−418.857	12.141	−474.667	−429.692	−346.656	45.269
	500.00	133.080	168.430	118.214	−405.890	25.108	−490.105	−427.743	−326.117	34.069
	600.00	137.845	193.142	128.693	−392.329	38.669	−508.214	−425.740	−305.982	26.638
	700.00	141.333	214.664	139.470	−378.362	52.636	−528.627	−424.016	−286.164	21.354
	800.00	144.140	233.725	150.083	−364.085	66.913	−551.065	−424.972	−266.288	17.387
	900.00	146.551	250.845	160.344	−349.548	81.450	−575.308	−424.025	−246.521	14.308
	1000.00	148.716	266.399	170.184	−334.783	96.215	−601.182	−424.152	−226.801	11.847
	1100.00	150.721	280.668	179.588	−319.810	111.188	−628.545	−425.366	−207.017	9.830
	1200.00	152.616	293.865	188.568	−304.642	126.356	−657.279	−448.514	−185.224	8.063
	1300.00	154.435	306.153	197.146	−289.289	141.709	−687.287	−445.342	−163.411	6.566
	1400.00	156.197	317.662	205.347	−273.757	157.241	−718.484	−442.030	−141.848	5.292
	1500.00	157.919	328.498	213.200	−258.051	172.947	−750.797	−438.579	−120.526	4.197

References

Phase	H / S	C_p
SOL	Nb1/Pa3	e

Ca(NO3)2 CALCIUM NITRATE 164.088

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	149.364	193.301	193.301	−938.392	0.000	−996.025	−938.392	−743.053	130.180
	300.00	149.888	194.226	193.304	−938.115	0.277	−996.383	−938.379	−741.841	129.166
	400.00	173.689	240.779	199.490	−921.876	16.516	−1018.188	−936.545	−676.548	88.348
	500.00	192.979	281.657	211.916	−903.521	34.871	−1044.350	−933.000	−611.929	63.928
	600.00	210.492	318.407	226.651	−883.338	55.054	−1074.382	−928.137	−548.151	47.721
	700.00	227.167	352.114	242.198	−861.450	76.942	−1107.930	−922.122	−485.280	36.212
	800.00	243.395	383.511	257.921	−837.920	100.472	−1144.729	−915.753	−423.255	27.636
	834.00	248.847	393.754	263.250	−829.551	108.841	−1157.943	−913.043	−402.380	25.202

References

Phase	H / S	C_p	Remarks
SOL	Nb1	La1	La1 MPT= 834., L= 21.3 kJ

Ca(NO3)2*2H2O CALCIUM NITRATE DIHYDRATE 200.118

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	231.496	269.399	269.399	−1540.758	0.000	−1621.079	−1540.758	−1229.019	215.319
	300.00	232.020	270.833	269.404	−1540.329	0.429	−1621.579	−1540.754	−1227.084	213.654
	400.00	255.821	341.014	278.812	−1515.877	24.881	−1652.283	−1539.490	−1122.665	146.605
	500.00	275.111	400.219	297.321	−1489.309	51.449	−1689.419	−1536.636	−1018.762	106.429
	600.00	292.624	451.943	318.868	−1460.913	79.845	−1732.079	−1532.577	−915.550	79.706
	700.00	309.299	498.311	341.245	−1430.812	109.946	−1779.629	−1527.479	−813.101	60.674
	800.00	325.526	540.675	363.562	−1399.068	141.690	−1831.608	−1522.139	−711.359	46.447

References

Phase	H / S	C_p
SOL	Nb1	e

218.134 CALCIUM NITRATE TRIHYDRATE **Ca(NO3)2*3H2O**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	267.060	319.201	319.201	−1838.002	0.000	−1933.172	−1838.002	−1471.567	257.812
	300.00	267.584	320.855	319.207	−1837.507	0.495	−1933.764	−1838.013	−1469.293	255.827
	400.00	291.385	401.267	330.009	−1809.499	28.503	−1970.006	−1837.584	−1346.400	175.822
	500.00	310.675	468.408	351.153	−1779.374	58.628	−2013.578	−1835.625	−1223.804	127.850
	600.00	328.188	526.616	375.649	−1747.422	90.580	−2063.392	−1832.519	−1101.714	95.913
	700.00	344.863	578.467	400.984	−1713.764	124.238	−2118.691	−1828.430	−980.224	73.145
	800.00	361.090	625.580	426.157	−1678.464	159.538	−2178.927	−1824.155	−859.291	56.106

References

Phase	H / S	C_p
SOL	Nb1	e

236.149 CALCIUM NITRATE TETRAHYDRATE **Ca(NO3)2*4H2O**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	300.532	375.301	375.301	−2132.330	0.000	−2244.226	−2132.330	−1713.076	300.124
	300.00	301.056	377.161	375.306	−2131.774	0.556	−2244.922	−2132.359	−1710.474	297.820
	400.00	324.857	467.202	387.422	−2100.418	31.912	−2287.299	−2132.975	−1569.704	204.982
	500.00	344.147	541.813	411.045	−2066.946	65.384	−2337.852	−2132.121	−1428.960	149.282
	600.00	361.660	606.124	438.317	−2031.646	100.684	−2395.320	−2130.176	−1288.494	112.173
	700.00	378.335	663.133	466.436	−1994.642	137.688	−2458.835	−2127.305	−1148.429	85.697
	800.00	394.562	714.716	494.296	−1955.994	176.336	−2527.767	−2124.304	−1008.742	65.864

References

Phase	H / S	C_p
SOL	Nb1	e

CaO CALCIUM OXIDE 56.077

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	42.122	38.074	38.074	−635.089	0.000	−646.441	−635.089	−603.509	105.732
	300.00	42.239	38.335	38.075	−635.011	0.078	−646.512	−635.085	−603.313	105.046
	400.00	46.628	51.163	39.794	−630.541	4.548	−651.007	−634.675	−592.775	77.409
	500.00	48.981	61.844	43.167	−625.751	9.338	−656.673	−634.107	−582.365	60.839
	600.00	50.479	70.915	47.055	−620.773	14.316	−663.322	−633.567	−572.069	49.803
	700.00	51.555	78.781	51.038	−615.669	19.420	−670.816	−633.157	−561.854	41.926
	800.00	52.401	85.722	54.948	−610.470	24.619	−679.048	−633.668	−551.594	36.015
	900.00	53.111	91.936	58.719	−605.193	29.896	−687.936	−633.565	−541.345	31.419
	1000.00	53.735	97.565	62.326	−599.850	35.239	−697.415	−633.837	−531.087	27.741
	1100.00	54.302	102.714	65.767	−594.448	40.641	−707.433	−634.486	−520.784	24.730
	1200.00	54.830	107.461	69.046	−588.991	46.098	−717.945	−642.459	−509.789	22.191
	1300.00	55.330	111.870	72.173	−583.483	51.606	−728.914	−641.672	−498.764	20.041
	1400.00	55.810	115.988	75.157	−577.926	57.163	−740.309	−640.850	−487.802	18.200
	1500.00	56.275	119.854	78.009	−572.321	62.768	−752.103	−639.995	−476.900	16.607
	1600.00	56.729	123.501	80.740	−566.671	68.418	−764.273	−639.107	−466.056	15.215
	1700.00	57.173	126.953	83.358	−560.976	74.113	−776.797	−638.187	−455.268	13.989
	1800.00	57.611	130.234	85.871	−555.237	79.852	−789.658	−790.538	−440.571	12.785
	1900.00	58.043	133.360	88.289	−549.454	85.635	−802.838	−788.712	−421.178	11.579
	2000.00	58.470	136.348	90.618	−543.628	91.461	−816.325	−786.859	−401.882	10.496
	2100.00	58.894	139.211	92.864	−537.760	97.329	−830.104	−784.983	−382.680	9.519
	2200.00	59.315	141.961	95.034	−531.850	103.239	−844.163	−783.085	−363.567	8.632
	2300.00	59.734	144.607	97.132	−525.897	109.192	−858.493	−781.167	−344.541	7.825
	2400.00	60.150	147.158	99.164	−519.903	115.186	−873.082	−779.232	−325.598	7.086
	2500.00	60.564	149.622	101.133	−513.867	121.222	−887.921	−777.283	−306.737	6.409
	2600.00	60.977	152.005	103.044	−507.790	127.299	−903.003	−775.321	−287.954	5.785
	2700.00	61.389	154.314	104.900	−501.672	133.417	−918.320	−773.349	−269.246	5.209
	2800.00	61.799	156.554	106.705	−495.512	139.577	−933.864	−771.370	−250.612	4.675
	2900.00	62.208	158.730	108.462	−489.312	145.777	−949.629	−769.385	−232.048	4.180
	3000.00	62.617	160.846	110.173	−483.071	152.018	−965.608	−767.396	−213.554	3.718
	3100.00	63.025	162.906	111.841	−476.789	158.300	−981.796	−765.407	−195.125	3.288
	3200.00	63.432	164.913	113.468	−470.466	164.623	−998.187	−763.419	−176.760	2.885
			24.843		79.496					
LIQ	3200.00	62.760	189.755	113.468	−390.970	244.119	−998.187	−683.923	−176.760	2.885
	3300.00	62.760	191.687	115.809	−384.694	250.395	−1017.260	−682.027	−160.941	2.547
	3400.00	62.760	193.560	118.069	−378.418	256.671	−1036.523	−680.177	−145.178	2.230
	3500.00	62.760	195.379	120.252	−372.142	262.947	−1055.970	−678.376	−129.470	1.932

References

Phase	H / S	C_p
SOL	Co1	Ja1
LIQ	Ja1	Ja1

56.077 CALCIUM OXIDE (GAS) **CaO**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	32.463	219.711	219.711	43.932	0.000	−21.575	43.932	21.357	−3.742
	300.00	32.489	219.912	219.712	43.992	0.060	−21.981	43.918	21.217	−3.694
	400.00	34.041	229.473	221.005	47.319	3.387	−44.470	43.185	13.762	−1.797
	500.00	35.178	237.201	223.495	50.785	6.853	−67.816	42.428	6.492	−0.678
	600.00	35.880	243.682	226.334	54.340	10.408	−91.869	41.546	−0.616	0.054
	700.00	36.320	249.248	229.220	57.952	14.020	−116.522	40.464	−7.560	0.564
	800.00	36.627	254.119	232.034	61.600	17.668	−141.695	38.402	−14.242	0.930
	900.00	36.890	258.448	234.733	65.276	21.344	−167.328	36.904	−20.737	1.204
	1000.00	37.173	262.349	237.303	68.979	25.047	−193.371	34.992	−27.042	1.413
	1100.00	37.523	265.908	239.744	72.713	28.781	−219.786	32.675	−33.137	1.574
	1200.00	37.981	269.192	242.063	76.487	32.555	−246.543	23.019	−38.387	1.671
	1300.00	38.580	272.254	244.268	80.314	36.382	−273.617	22.125	−43.468	1.747
	1400.00	39.350	275.141	246.372	84.209	40.277	−300.988	21.285	−48.481	1.809
	1500.00	40.320	277.887	248.382	88.190	44.258	−328.641	20.517	−53.437	1.861
	1600.00	41.517	280.526	250.309	92.280	48.348	−356.562	19.844	−58.345	1.905
	1700.00	42.966	283.086	252.162	96.502	52.570	−384.743	19.292	−63.214	1.942
	1800.00	44.692	285.589	253.950	100.883	56.951	−413.177	−134.418	−64.091	1.860
	1900.00	46.720	288.058	255.680	105.451	61.519	−441.860	−133.807	−60.200	1.655
	2000.00	48.632	290.501	257.360	110.213	66.281	−470.788	−133.017	−56.345	1.472
	2100.00	50.696	292.923	258.996	115.179	71.247	−499.959	−132.043	−52.535	1.307
	2200.00	52.754	295.329	260.593	120.352	76.420	−529.372	−130.883	−48.775	1.158
	2300.00	54.740	297.718	262.155	125.728	81.796	−559.025	−129.542	−45.073	1.024
	2400.00	56.598	300.088	263.686	131.296	87.364	−588.915	−128.033	−41.432	0.902
	2500.00	58.283	302.433	265.189	137.042	93.110	−619.041	−126.374	−37.857	0.791
	2600.00	59.765	304.749	266.666	142.946	99.014	−649.401	−124.585	−34.351	0.690
	2700.00	61.024	307.029	268.119	148.987	105.055	−679.990	−122.690	−30.916	0.598
	2800.00	62.048	309.267	269.549	155.143	111.211	−710.805	−120.714	−27.553	0.514
	2900.00	62.839	311.459	270.956	161.389	117.457	−741.842	−118.683	−24.262	0.437
	3000.00	63.402	313.599	272.342	167.703	123.771	−773.095	−116.623	−21.041	0.366
	3100.00	63.752	315.685	273.707	174.062	130.130	−804.560	−114.556	−17.889	0.301
	3200.00	63.911	317.712	275.051	180.447	136.515	−836.230	−112.507	−14.803	0.242
	3300.00	63.902	319.679	276.373	186.839	142.907	−868.100	−110.494	−11.781	0.186
	3400.00	63.759	321.584	277.675	193.223	149.291	−900.164	−108.536	−8.820	0.135
	3500.00	63.514	323.429	278.956	199.587	155.655	−932.415	−106.647	−5.915	0.088

References

Phase	H / S	C_p
GAS	Ja1	Ja1

CaO2 CALCIUM PEROXIDE 72.077

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	82.843	83.680	83.680	−652.704	0.000	−677.653	−652.704	−604.139	105.843
	300.00	82.843	84.192	83.682	−652.551	0.153	−677.808	−652.652	−603.838	105.137
	400.00	82.843	108.025	86.931	−644.266	8.438	−687.476	−649.913	−587.984	76.783

References

Phase	H / S	C_p
SOL	Nb1/Ku1	e

CaAl2O4 CALCIUM 2−ALUMINIUM 4−OXIDE 158.039

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	120.791	114.223	114.223	−2326.304	0.000	−2360.360	−2326.304	−2208.820	386.976
	300.00	121.323	114.972	114.226	−2326.080	0.224	−2360.572	−2326.326	−2208.091	384.463
	400.00	140.800	152.897	119.264	−2312.851	13.453	−2374.010	−2326.626	−2168.596	283.190
	500.00	151.013	185.512	129.336	−2298.216	28.088	−2390.972	−2326.084	−2129.142	222.430
	600.00	157.580	213.661	141.099	−2282.766	43.538	−2410.963	−2325.322	−2089.824	181.935
	700.00	162.425	238.332	153.263	−2266.756	59.548	−2433.588	−2324.621	−2050.632	153.020
	800.00	166.352	260.285	165.294	−2250.312	75.992	−2458.539	−2324.896	−2011.435	131.333
	900.00	169.745	280.078	176.966	−2233.503	92.801	−2485.573	−2324.747	−1972.268	114.467
	1000.00	172.808	298.123	188.193	−2216.374	109.930	−2514.497	−2346.314	−1931.566	100.895
	1100.00	175.653	314.728	198.951	−2198.949	127.355	−2545.150	−2346.555	−1890.081	89.752
	1200.00	178.352	330.129	209.249	−2181.248	145.056	−2577.402	−2353.957	−1847.949	80.439
	1300.00	180.946	344.508	219.106	−2163.282	163.022	−2611.142	−2352.435	−1805.842	72.560
	1400.00	183.466	358.010	228.550	−2145.061	181.243	−2646.275	−2350.719	−1763.859	65.810
	1500.00	185.929	370.752	237.610	−2126.591	199.713	−2682.719	−2348.810	−1722.006	59.966
	1600.00	188.350	382.829	246.312	−2107.877	218.427	−2720.403	−2346.708	−1680.287	54.856
	1700.00	190.738	394.319	254.683	−2088.922	237.382	−2759.265	−2344.416	−1638.705	50.351
	1800.00	193.101	405.289	262.747	−2069.730	256.574	−2799.249	−2495.238	−1593.299	46.236

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	K7,e	Tk1	DPT= 1875. (LIQ + Ca2Al2O5)

260.000 CALCIUM 4-ALUMINIUM 7-OXIDE **CaAl4O7**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	198.174	177.820	177.820	-4025.799	0.000	-4078.816	-4025.799	-3818.669	669.015
	300.00	199.133	179.049	177.824	-4025.431	0.368	-4079.146	-4025.848	-3817.384	664.666
	400.00	234.260	241.788	186.139	-4003.540	22.259	-4100.255	-4026.957	-3747.658	489.394
	500.00	252.672	296.218	202.846	-3979.113	46.686	-4127.222	-4026.493	-3677.870	384.224
	600.00	264.504	343.397	222.429	-3953.219	72.580	-4159.256	-4025.535	-3608.231	314.124
	700.00	273.230	384.853	242.731	-3926.314	99.485	-4195.711	-4024.556	-3538.760	264.066
	800.00	280.300	421.813	262.848	-3898.627	127.172	-4236.078	-4024.598	-3469.322	226.523
	900.00	286.408	455.188	282.395	-3870.285	155.514	-4279.954	-4024.400	-3399.934	197.327
	1000.00	291.918	485.653	301.219	-3841.365	184.434	-4327.018	-4067.260	-3327.485	173.810
	1100.00	297.037	513.719	319.278	-3811.915	213.884	-4377.005	-4067.088	-3253.516	154.497
	1200.00	301.890	539.774	336.580	-3781.967	243.832	-4429.695	-4073.916	-3178.945	138.376
	1300.00	306.556	564.123	353.157	-3751.543	274.256	-4484.903	-4071.661	-3104.453	124.738
	1400.00	311.086	587.008	369.051	-3720.660	305.139	-4542.471	-4069.053	-3030.148	113.056
	1500.00	315.515	608.622	384.309	-3689.329	336.470	-4602.262	-4066.094	-2956.041	102.939
	1600.00	319.868	629.124	398.975	-3657.559	368.240	-4664.158	-4062.787	-2882.144	94.092
	1700.00	324.162	648.645	413.092	-3625.357	400.442	-4728.055	-4059.135	-2808.464	86.294
	1800.00	328.410	667.294	426.700	-3592.728	433.071	-4793.859	-4208.444	-2731.044	79.253
	1900.00	332.620	685.164	439.836	-3559.677	466.122	-4861.488	-4203.266	-2649.106	72.829
	2000.00	336.802	702.331	452.534	-3526.205	499.594	-4930.868	-4197.755	-2567.450	67.055

References

Phase	H / S	C_p	Remarks	
SOL	Nb1/Tk1	K7,e	Tk1	DPT= 2035. (LIQ + Ca6Al2O9)

Ca2Al2O5 — 2–CALCIUM 2–ALUMINIUM 5–OXIDE — 214.116

Phase	T	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	164.349	127.085	127.085	–2958.000	0.000	–2995.890	–2958.000	–2801.419	490.797
	300.00	165.056	128.104	127.088	–2957.695	0.305	–2996.126	–2958.015	–2800.447	487.601
	400.00	190.836	179.592	133.933	–2939.736	18.264	–3011.573	–2957.646	–2747.928	358.843
	500.00	204.250	223.750	147.595	–2919.923	38.077	–3031.797	–2956.148	–2695.660	281.614
	600.00	212.796	261.792	163.532	–2899.044	58.956	–3056.119	–2954.394	–2643.727	230.157
	700.00	219.044	295.085	179.997	–2877.439	80.561	–3083.998	–2952.792	–2592.080	193.423
	800.00	224.067	324.672	196.266	–2855.276	102.724	–3115.013	–2953.059	–2540.455	165.875
	900.00	228.377	351.318	212.038	–2832.649	125.351	–3148.835	–2952.264	–2488.938	144.454
	1000.00	232.245	375.583	227.198	–2809.615	148.385	–3185.198	–2973.543	–2435.939	127.240
	1100.00	235.825	397.888	241.714	–2786.209	171.791	–3223.886	–2973.853	–2382.168	113.120
	1200.00	239.207	418.554	255.600	–2762.456	195.544	–3264.721	–2988.633	–2327.111	101.297
	1300.00	242.451	437.829	268.885	–2738.372	219.628	–3307.550	–2985.714	–2272.101	91.294
	1400.00	245.594	455.912	281.605	–2713.969	244.031	–3352.247	–2982.552	–2217.325	82.729
	1500.00	248.663	472.962	293.799	–2689.256	268.744	–3398.698	–2979.148	–2162.783	75.315
	1600.00	251.675	489.106	305.506	–2664.239	293.761	–3446.809	–2975.506	–2108.476	68.835
	1700.00	254.644	504.453	316.761	–2638.922	319.078	–3496.493	–2971.627	–2054.404	63.124
	1800.00	257.578	519.092	327.598	–2613.311	344.689	–3547.676	–3274.120	–1992.640	57.825

References

Phase	H / S	C_p
SOL	Nb1/e	e

270.193 3–CALCIUM 2–ALUMINIUM 6–OXIDE **Ca3Al2O6**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f [–]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	209.697	205.899	205.899	–3587.801	0.000	–3649.190	–3587.801	–3411.786	597.731
	300.00	210.438	207.198	205.903	–3587.412	0.389	–3649.572	–3587.806	–3410.694	593.855
	400.00	237.572	271.948	214.547	–3564.840	22.961	–3673.620	–3586.884	–3351.743	437.693
	500.00	251.814	326.629	231.646	–3540.309	47.492	–3703.624	–3584.891	–3293.179	344.036
	600.00	260.982	373.400	251.469	–3514.642	73.159	–3738.682	–3582.787	–3235.037	281.635
	700.00	267.754	414.161	271.861	–3488.191	99.610	–3778.104	–3581.033	–3177.225	237.087
	800.00	273.250	450.284	291.949	–3461.133	126.668	–3821.360	–3582.115	–3119.349	203.673
	900.00	278.003	482.748	311.376	–3433.566	154.235	–3868.039	–3581.553	–3061.551	177.688
	1000.00	282.294	512.264	330.011	–3405.548	182.253	–3917.812	–3603.463	–3002.225	156.820
	1100.00	286.285	539.358	347.828	–3377.117	210.684	–3970.411	–3604.799	–2942.044	139.706
	1200.00	290.071	564.432	364.846	–3348.298	239.503	–4025.616	–3627.943	–2879.851	125.357
	1300.00	293.712	587.795	381.108	–3319.108	268.693	–4083.241	–3624.638	–2817.642	113.214
	1400.00	297.248	609.691	396.661	–3289.559	298.242	–4143.126	–3621.066	–2755.697	102.816
	1500.00	300.706	630.317	411.557	–3259.661	328.140	–4205.137	–3617.227	–2694.018	93.814
	1600.00	304.106	649.833	425.845	–3229.420	358.381	–4269.153	–3613.123	–2632.603	85.946
	1700.00	307.460	668.370	439.570	–3198.841	388.960	–4335.071	–3608.756	–2571.453	79.011
	1800.00	310.778	686.038	452.776	–3167.929	419.872	–4402.798	–4064.039	–2498.676	72.510

References

Phase	H / S	C_p	Remarks
SOL	Nb1	K7,e	Tk1 DPT= 1808. (LIQ + CaO)

1386.658 12–CALCIUM 14–ALUMINIUM 33–OXIDE **Ca12Al14O33**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f [–]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	1084.825	1046.837	1046.837	–19429.998	0.000	–19742.112	–19429.998	–18466.676	3235.285
	300.00	1088.533	1053.559	1046.858	–19427.988	2.010	–19744.055	–19430.076	–18460.698	3214.293
	400.00	1228.412	1388.185	1091.532	–19311.337	118.661	–19866.611	–19428.436	–18137.557	2368.522
	500.00	1307.877	1671.480	1179.951	–19184.233	245.765	–20019.973	–19421.094	–17815.627	1861.186
	600.00	1363.561	1915.091	1282.649	–19050.533	379.465	–20199.587	–19412.394	–17495.348	1523.105
	700.00	1408.018	2128.724	1388.568	–18911.888	518.110	–20401.995	–19404.385	–17176.494	1281.726
	800.00	1446.490	2319.299	1493.210	–18769.126	660.872	–20624.566	–19407.211	–16857.567	1100.686
	900.00	1481.483	2491.718	1594.726	–18622.705	807.293	–20865.252	–19403.269	–16539.156	959.908
	1000.00	1514.315	2649.522	1692.425	–18472.901	957.097	–21122.423	–19552.422	–16210.267	846.737
	1100.00	1545.736	2795.334	1786.144	–18319.889	1110.109	–21394.757	–19553.320	–15876.029	753.890
	1200.00	1576.195	2931.143	1875.966	–18163.786	1266.212	–21681.157	–19640.089	–15534.203	676.186
	1300.00	1605.977	3058.486	1962.081	–18004.672	1425.326	–21980.704	–19619.689	–15192.856	610.456
	1400.00	1635.269	3178.576	2044.725	–17842.607	1587.391	–22292.613	–19596.836	–14853.172	554.179
	1500.00	1664.195	3292.386	2124.141	–17677.631	1752.367	–22616.210	–19571.531	–14515.207	505.464
	1600.00	1692.846	3400.707	2200.568	–17509.777	1920.221	–22950.907	–19543.777	–14179.011	462.897
	1700.00	1721.283	3504.189	2274.230	–17339.069	2090.929	–23296.190	–19513.579	–13844.625	425.394

References

Phase	H / S	C_p
SOL	Nb1	M1

Ca3Al2O6*6H2O 3–CALCIUM 2–ALUMINIUM 6–OXIDE 6–HYDRATE 378.285

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	432.589	376.560	376.560	–5547.984	0.000	–5660.255	–5547.984	–5005.585	876.958
	300.00	433.672	379.239	376.568	–5547.183	0.801	–5660.954	–5548.059	–5002.219	870.964
	400.00	492.206	512.015	394.277	–5500.889	47.095	–5705.695	–5549.764	–4819.887	629.413
	500.00	550.740	628.136	429.651	–5448.742	99.242	–5762.809	–5546.868	–4637.658	484.493
	600.00	609.274	733.722	471.650	–5390.741	157.243	–5830.974	–5539.483	–4456.436	387.967
	700.00	667.808	832.037	516.184	–5326.887	221.097	–5909.313	–5527.717	–4276.799	319.139

References

Phase	H / S	C_p
SOL	Nb1/e	M1

CaAl2SiO6 PYROXENE 218.123

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	165.700	141.398	141.398	–3298.201	0.000	–3340.359	–3298.201	–3122.044	546.969
	300.00	166.758	142.427	141.401	–3297.893	0.308	–3340.621	–3298.230	–3120.951	543.406
	400.00	204.708	196.336	148.494	–3279.064	19.137	–3357.598	–3298.025	–3061.807	399.831
	500.00	223.409	244.230	162.960	–3257.566	40.635	–3379.681	–3295.957	–3002.970	313.718
	600.00	234.532	286.020	180.065	–3234.628	63.573	–3406.240	–3293.243	–2944.622	256.352
	700.00	242.078	322.773	197.881	–3210.777	87.424	–3436.717	–3290.404	–2886.744	215.411
	800.00	247.717	355.481	215.574	–3186.275	111.926	–3470.660	–3288.468	–2829.172	184.726
	900.00	252.248	384.928	232.782	–3161.270	136.931	–3507.705	–3286.087	–2771.910	160.877
	1000.00	256.090	411.709	249.356	–3135.848	162.353	–3547.557	–3305.435	–2713.361	141.731
	1100.00	259.482	436.279	265.248	–3110.067	188.134	–3589.973	–3303.483	–2654.250	126.040
	1200.00	262.569	458.991	280.458	–3083.962	214.239	–3634.751	–3308.729	–2594.690	112.944
	1300.00	265.439	480.122	295.014	–3057.560	240.641	–3681.719	–3305.097	–2535.333	101.871
	1400.00	268.153	499.893	308.949	–3030.879	267.322	–3730.730	–3301.318	–2476.261	92.390
	1500.00	270.750	518.483	322.305	–3003.933	294.268	–3781.658	–3297.399	–2417.464	84.184
	1600.00	273.260	536.038	335.120	–2976.732	321.469	–3834.392	–3293.343	–2358.933	77.011
	1700.00	275.702	552.677	347.432	–2949.284	348.917	–3888.835	–3339.332	–2300.213	70.677

References

Phase	H / S	C_p
SOL	Nb1	S5,e

278.207 ANORTHITE **CaAl2Si2O8**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)		] [		kJ / mol		]	[−]
SOL	298.15	211.310	199.280	199.280	−4227.899	0.000	−4287.314	−4227.899	−4002.224	701.173
	300.00	212.394	200.590	199.284	−4227.507	0.392	−4287.684	−4227.935	−4000.823	696.605
	400.00	252.478	267.890	208.187	−4204.018	23.881	−4311.174	−4228.164	−3925.005	512.553
	500.00	274.111	326.750	226.152	−4177.600	50.299	−4340.975	−4226.514	−3849.383	402.142
	600.00	288.480	378.068	247.289	−4149.432	78.467	−4376.272	−4224.105	−3774.175	328.571
	700.00	299.420	423.390	269.272	−4120.017	107.882	−4416.389	−4221.406	−3699.398	276.052
	800.00	308.532	463.982	291.117	−4089.608	138.291	−4460.793	−4219.408	−3624.921	236.683
	900.00	316.582	500.794	312.401	−4058.345	169.554	−4509.060	−4216.737	−3550.775	206.082
	1000.00	323.971	534.536	332.951	−4026.313	201.586	−4560.850	−4235.546	−3475.388	181.536
	1100.00	330.930	565.743	352.713	−3993.565	234.334	−4615.883	−4232.791	−3399.505	161.429
	1200.00	337.595	594.825	371.690	−3960.137	267.762	−4673.928	−4236.962	−3323.258	144.658
	1300.00	344.053	622.104	389.914	−3926.053	301.846	−4734.788	−4231.973	−3247.315	130.479
	1400.00	350.361	647.832	407.427	−3891.331	336.568	−4798.297	−4226.550	−3171.773	118.340
	1500.00	356.558	672.217	424.274	−3855.985	371.914	−4864.310	−4220.696	−3096.633	107.834
	1600.00	362.670	695.424	440.501	−3820.023	407.876	−4932.701	−4214.412	−3021.898	98.655
	1700.00	368.717	717.592	456.153	−3783.453	444.446	−5003.360	−4308.055	−2946.676	90.540
	1800.00	374.714	738.838	471.272	−3746.281	481.618	−5076.188	−4453.769	−2862.847	83.078
	1823.00	376.087	743.604	474.678	−3737.647	490.252	−5093.237	−4451.757	−2842.532	81.447
			44.526		81.170					
LIQ	1823.00	380.744	788.129	474.678	−3656.477	571.422	−5093.237	−4370.587	−2842.532	81.447
	1900.00	380.744	803.881	487.702	−3627.159	600.740	−5154.533	−4363.480	−2778.138	76.376
	2000.00	380.744	823.411	504.004	−3589.085	638.814	−5235.906	−4354.337	−2694.936	70.385
	2100.00	380.744	841.987	519.659	−3551.011	676.888	−5319.184	−4345.293	−2612.189	64.975

References

Phase	H / S	C_p
SOL	Nb1	M1,e
LIQ	Tk1	e

Ca2Al2SiO7 GEHLENITE 274.200

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	205.428	209.995	209.995	−3981.499	0.000	−4044.109	−3981.499	−3782.862	662.742
	300.00	206.561	211.269	209.999	−3981.118	0.381	−4044.499	−3981.529	−3781.629	658.440
	400.00	247.365	277.065	218.692	−3958.150	23.349	−4068.976	−3981.244	−3714.953	485.123
	500.00	267.751	334.671	236.266	−3932.296	49.203	−4099.632	−3979.044	−3648.614	381.168
	600.00	280.099	384.659	256.928	−3904.861	76.638	−4135.656	−3976.269	−3582.785	311.909
	700.00	288.653	428.513	278.372	−3876.401	105.098	−4176.360	−3973.516	−3517.424	262.473
	800.00	295.184	467.500	299.622	−3847.196	134.303	−4221.196	−3972.587	−3452.255	225.409
	900.00	300.539	502.586	320.257	−3817.403	164.096	−4269.730	−3970.592	−3387.344	196.596
	1000.00	305.164	534.495	340.109	−3787.113	194.386	−4321.608	−3990.686	−3321.083	173.476
	1100.00	309.312	563.778	359.130	−3756.386	225.113	−4376.542	−3989.840	−3254.169	154.528
	1200.00	313.135	590.858	377.326	−3725.261	256.238	−4434.290	−4003.497	−3186.073	138.686
	1300.00	316.729	616.065	394.732	−3693.766	287.733	−4494.651	−3999.491	−3118.115	125.287
	1400.00	320.157	639.663	411.393	−3661.921	319.578	−4557.450	−3995.284	−3050.473	113.815
	1500.00	323.462	661.865	427.359	−3629.739	351.760	−4622.537	−3990.878	−2983.139	103.882
	1600.00	326.674	682.844	442.677	−3597.231	384.268	−4689.782	−3986.278	−2916.106	95.201
	1700.00	329.813	702.743	457.395	−3564.407	417.092	−4759.070	−4031.665	−2848.919	87.537
	1800.00	332.896	721.682	471.555	−3531.271	450.228	−4830.299	−4333.070	−2771.567	80.429
	1863.00	334.815	733.167	480.209	−3510.238	471.261	−4876.128	−4328.615	−2716.991	76.179

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	S5,e	S5	MPT= 1863.

Ca3Al2Si3O12 GROSSULAR 450.446

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	323.138	241.417	241.417	−6646.159	0.000	−6718.137	−6646.159	−6280.407	1100.301
	300.00	325.047	243.422	241.423	−6645.559	0.600	−6718.586	−6646.227	−6278.137	1093.121
	400.00	393.851	347.671	255.169	−6609.158	37.001	−6748.227	−6646.756	−6155.218	803.789
	500.00	428.341	439.629	283.079	−6567.884	78.275	−6787.699	−6644.034	−6032.610	630.222
	600.00	449.324	519.713	315.994	−6523.928	122.231	−6835.756	−6640.249	−5910.673	514.570
	700.00	463.929	590.130	350.229	−6478.228	167.931	−6891.319	−6636.357	−5789.388	432.009
	800.00	475.136	652.839	384.208	−6431.254	214.905	−6953.525	−6635.059	−5668.364	370.106
	900.00	484.366	709.350	417.247	−6383.266	262.893	−7021.681	−6631.977	−5547.725	321.982
	1000.00	492.369	760.806	449.068	−6334.421	311.738	−7095.227	−6651.273	−5425.843	283.417
	1100.00	499.570	808.076	479.585	−6284.819	361.340	−7173.703	−6649.932	−5303.373	251.836
	1200.00	506.225	851.833	508.805	−6234.525	411.634	−7256.725	−6670.346	−5179.135	225.442

References

Phase	H / S	C_p	Remarks	
SOL	S5	S5	Tk1	DPT= 1128. (CaSiO3 + Ca2Al2SiO7)

314.238 LAWSONITE **CaAl2Si2O8*2H2O**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	233.048	237.697	237.697	−4858.498	0.000	−4929.367	−4858.498	−4505.188	789.290
	300.00	235.001	239.145	237.702	−4858.065	0.433	−4929.808	−4858.654	−4502.995	784.041
	400.00	305.136	317.711	247.937	−4830.588	27.910	−4957.673	−4863.678	−4383.527	572.430
	500.00	339.929	389.916	269.252	−4798.166	60.332	−4993.124	−4864.928	−4263.296	445.383
	600.00	360.811	453.876	294.802	−4763.054	95.444	−5035.379	−4864.593	−4142.984	360.679
	700.00	375.125	510.629	321.658	−4726.218	132.280	−5083.659	−4863.604	−4022.789	300.184
	800.00	385.938	561.455	348.512	−4688.144	170.354	−5137.308	−4863.183	−3902.661	254.818

References

Phase	H / S	C_p
SOL	Nb1	e

125.698 CALCIUM DIBORATE **CaB2O4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	103.979	104.847	104.847	−2030.960	0.000	−2062.220	−2030.960	−1924.065	337.088
	300.00	104.522	105.492	104.849	−2030.767	0.193	−2062.415	−2030.965	−1923.401	334.894
	400.00	125.019	138.706	109.238	−2019.173	11.787	−2074.655	−2030.617	−1887.574	246.492
	500.00	136.700	167.953	118.122	−2006.045	24.915	−2090.021	−2029.760	−1851.907	193.467
	600.00	144.910	193.636	128.612	−1991.945	39.015	−2108.127	−2028.800	−1816.427	158.134
	700.00	151.482	216.482	139.562	−1977.116	53.844	−2128.654	−2027.856	−1781.106	132.908
	800.00	157.181	237.089	150.486	−1961.678	69.282	−2151.349	−2027.700	−1745.827	113.991
	900.00	162.371	255.906	161.169	−1945.697	85.263	−2176.012	−2026.765	−1710.651	99.284
	1000.00	167.247	273.268	171.522	−1929.214	101.746	−2202.482	−2026.014	−1675.569	87.523
	1100.00	171.917	289.428	181.514	−1912.254	118.706	−2230.626	−2025.430	−1640.554	77.903
	1200.00	176.446	304.582	191.145	−1894.835	136.125	−2260.334	−2031.942	−1604.969	69.862
	1300.00	180.876	318.881	200.426	−1876.968	153.992	−2291.513	−2029.453	−1569.487	63.063
	1400.00	185.235	332.445	209.375	−1858.662	172.298	−2324.085	−2026.682	−1534.207	57.242
	1433.00	186.661	336.777	212.259	−1852.526	178.434	−2335.128	−2025.704	−1522.610	55.501
			51.680		74.057					
LIQ	1433.00	258.153	388.457	212.259	−1778.469	252.491	−2335.128	−1951.647	−1522.610	55.501
	1500.00	258.153	400.253	220.395	−1761.173	269.787	−2361.553	−1944.871	−1502.707	52.329
	1600.00	258.153	416.914	232.162	−1735.358	295.602	−2402.420	−1934.871	−1473.556	48.107
	1700.00	258.153	432.564	243.495	−1709.542	321.418	−2444.902	−1925.001	−1445.027	44.400
	1800.00	258.153	447.320	254.413	−1683.727	347.233	−2488.903	−2068.559	−1413.111	41.007
	1900.00	258.153	461.278	264.936	−1657.912	373.048	−2534.339	−2058.093	−1376.983	37.856
	2000.00	258.153	474.519	275.087	−1632.096	398.864	−2581.135	−2047.750	−1341.403	35.034

References

Phase	H / S	C_p
SOL	Nb1	Ku1,M1
LIQ	Ku1	Ku1

CaB_4O_7 CALCIUM TETRABORATE 195.318

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	157.940	134.700	134.700	−3360.250	0.000	−3400.411	−3360.250	−3167.032	554.851
	300.00	159.081	135.680	134.703	−3359.957	0.293	−3400.661	−3360.278	−3165.833	551.221
	400.00	201.999	188.042	141.551	−3341.653	18.597	−3416.870	−3360.407	−3100.938	404.941
	500.00	226.170	235.914	155.724	−3320.155	40.095	−3438.112	−3359.230	−3036.193	317.189
	600.00	242.962	278.707	172.721	−3296.659	63.591	−3463.883	−3357.573	−2971.736	258.713
	700.00	256.270	317.190	190.657	−3271.677	88.573	−3493.710	−3355.669	−2907.577	216.966
	800.00	267.721	352.173	208.693	−3245.466	114.784	−3527.204	−3354.311	−2843.613	185.669
	900.00	278.092	384.313	226.444	−3218.168	142.082	−3564.050	−3351.932	−2779.918	161.342
	1000.00	287.792	414.120	243.739	−3189.870	170.380	−3603.989	−3349.484	−2716.492	141.895
	1100.00	297.055	441.986	260.509	−3160.624	199.626	−3646.809	−3346.937	−2653.315	125.995
	1200.00	306.019	468.220	276.735	−3130.469	229.781	−3692.332	−3351.214	−2589.759	112.729
	1260.00	311.293	483.278	286.214	−3111.949	248.301	−3720.880	−3348.278	−2551.757	105.786
			89.989		113.386					
LIQ	1260.00	444.759	573.267	286.214	−2998.563	361.687	−3720.880	−3234.892	−2551.757	105.786
	1300.00	444.759	587.167	295.261	−2980.772	379.478	−3744.090	−3227.553	−2530.186	101.664
	1400.00	444.759	620.127	317.303	−2936.297	423.953	−3804.475	−3209.411	−2477.225	92.426
	1500.00	444.759	650.812	338.526	−2891.821	468.429	−3868.039	−3191.544	−2425.551	84.465
	1600.00	444.759	679.517	358.951	−2847.345	512.905	−3934.571	−3173.936	−2375.060	77.538
	1700.00	444.759	706.480	378.609	−2802.869	557.381	−4003.885	−3156.575	−2325.663	71.459
	1800.00	444.759	731.902	397.537	−2758.393	601.857	−4075.816	−3292.756	−2273.317	65.970
	1900.00	444.759	755.949	415.773	−2713.917	646.333	−4150.219	−3275.021	−2217.167	60.954
	2000.00	444.759	778.762	433.357	−2669.441	690.809	−4226.965	−3257.517	−2161.944	56.464

References

Phase	H / S	C_p
SOL	Nb1	Ku1
LIQ	Tk1	Ku1

181.775 DICALCIUM DIBORATE **Ca2B2O5**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	147.081	145.101	145.101	−2734.411	0.000	−2777.673	−2734.411	−2596.585	454.911
	300.00	147.788	146.013	145.104	−2734.138	0.273	−2777.942	−2734.410	−2595.730	451.957
	400.00	174.342	192.614	151.277	−2717.876	16.535	−2794.922	−2733.454	−2549.609	332.945
	500.00	189.217	233.240	163.703	−2699.643	34.768	−2816.263	−2731.715	−2503.842	261.575
	600.00	199.495	268.692	178.311	−2680.182	54.229	−2841.397	−2729.831	−2458.444	214.027
	700.00	207.603	300.073	193.507	−2659.814	74.597	−2869.866	−2728.043	−2413.357	180.087
	800.00	214.554	328.258	208.618	−2638.699	95.712	−2901.306	−2727.920	−2368.330	154.636
	804.00	214.816	329.329	209.216	−2637.841	96.570	−2902.621	−2727.847	−2366.532	153.750
			5.724		4.602					
SOL−B	804.00	226.855	335.053	209.216	−2633.239	101.172	−2902.621	−2723.245	−2366.532	153.750
	900.00	227.819	360.694	224.031	−2611.414	122.997	−2936.039	−2720.854	−2324.087	134.886
	1000.00	228.823	384.749	238.920	−2588.582	145.829	−2973.331	−2719.370	−2280.090	119.100
	1100.00	229.827	406.605	253.186	−2565.650	168.761	−3012.916	−2718.864	−2236.195	106.188
	1200.00	230.831	426.646	266.818	−2542.617	191.794	−3054.592	−2733.192	−2191.071	95.375
	1300.00	231.835	445.162	279.833	−2519.484	214.927	−3098.194	−2730.157	−2146.018	86.228
	1400.00	232.840	462.380	292.264	−2496.250	238.161	−3143.581	−2727.193	−2101.196	78.397
	1500.00	233.844	478.478	304.148	−2472.916	261.495	−3190.633	−2724.287	−2056.584	71.617
	1585.00	234.697	491.391	313.846	−2453.003	281.408	−3231.857	−2721.856	−2018.815	66.531
			63.618		100.834					
LIQ	1585.00	285.349	555.008	313.846	−2352.169	382.242	−3231.857	−2621.022	−2018.815	66.531
	1600.00	285.349	557.696	316.120	−2347.888	386.523	−3240.202	−2619.838	−2013.121	65.722
	1700.00	285.349	574.995	330.844	−2319.354	415.057	−3296.846	−2612.023	−1975.441	60.698
	1800.00	285.349	591.305	344.865	−2290.819	443.592	−3355.168	−2910.952	−1930.290	56.016
	1900.00	285.349	606.733	358.245	−2262.284	472.127	−3415.077	−2901.722	−1876.061	51.577
	2000.00	285.349	621.370	371.039	−2233.749	500.662	−3476.489	−2892.633	−1822.315	47.594

References

Phase	H / S	C_p
SOL−A	Nb1	Ku1
SOL−B	Ku1	Ku1
LIQ	Ku1	Ku1

Ca3B2O6 TRICALCIUM DIBORATE 237.852

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	187.861	183.699	183.699	−3429.081	0.000	−3483.851	−3429.081	−3259.831	571.109
	300.00	188.696	184.863	183.702	−3428.733	0.348	−3484.192	−3429.078	−3258.781	567.404
	400.00	219.537	243.917	191.544	−3408.132	20.949	−3505.699	−3427.843	−3202.154	418.158
	500.00	236.153	294.842	207.239	−3385.279	43.802	−3532.701	−3425.708	−3145.972	328.657
	600.00	247.171	338.927	225.597	−3361.083	67.998	−3564.439	−3423.526	−3090.233	269.029
	700.00	255.546	377.682	244.611	−3335.932	93.149	−3600.309	−3421.648	−3034.838	226.462
	800.00	262.511	412.271	263.445	−3310.020	119.061	−3639.837	−3422.438	−2979.408	194.535
	900.00	268.657	443.552	281.747	−3283.456	145.625	−3682.653	−3421.269	−2924.110	169.711
	1000.00	274.295	472.153	299.377	−3256.305	172.776	−3728.458	−3421.080	−2868.889	149.855
	1100.00	279.600	498.547	316.299	−3228.608	200.473	−3777.010	−3421.861	−2813.640	133.609
	1200.00	284.679	523.094	332.521	−3200.393	228.688	−3828.106	−3444.437	−2756.429	119.984
	1300.00	289.598	546.076	348.074	−3171.678	257.403	−3881.577	−3440.540	−2699.251	108.457
	1400.00	294.402	567.714	362.997	−3142.477	286.604	−3937.277	−3436.345	−2642.384	98.589
	1500.00	299.120	588.187	377.333	−3112.801	316.280	−3995.081	−3431.846	−2585.828	90.047
	1600.00	303.773	607.640	391.124	−3082.655	346.426	−4054.880	−3427.041	−2529.582	82.582
	1700.00	308.375	626.195	404.411	−3052.048	377.033	−4116.579	−3421.927	−2473.646	76.006
	1760.00	311.118	636.938	412.155	−3033.463	395.618	−4154.474	−3879.636	−2438.837	72.382
			84.393		148.532					
LIQ	1760.00	393.296	721.332	412.155	−2884.931	544.150	−4154.474	−3731.104	−2438.837	72.382
	1800.00	393.296	730.170	419.124	−2869.199	559.882	−4183.505	−3724.634	−2409.540	69.923
	1900.00	393.296	751.434	436.060	−2829.869	599.212	−4257.595	−3708.566	−2336.919	64.246
	2000.00	393.296	771.608	452.337	−2790.540	638.541	−4333.756	−3692.655	−2265.139	59.159

References

Phase	H / S	C_p
SOL	Nb1	Ku1
LIQ	Tk1	Ku1

Ca(OCl)Cl CALCIUM CHLORIDE HYPOCHLORITE 126.983

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	100.271	112.968	112.968	−746.400	0.000	−780.081	−746.400	−670.627	117.491
	300.00	100.374	113.589	112.970	−746.214	0.186	−780.291	−746.351	−670.157	116.685
	400.00	105.939	143.227	116.973	−735.899	10.501	−793.189	−743.563	−645.171	84.251
	500.00	111.504	167.464	124.717	−725.027	21.373	−808.759	−740.484	−620.924	64.867

References

Phase	H / S	C_p
SOL	Nb1/e	e

215.770 CALCIUM DIIRON TETRAOXIDE **CaFe2O4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	150.237	145.352	145.352	−1520.340	0.000	−1563.677	−1520.340	−1412.731	247.505
	300.00	150.670	146.283	145.355	−1520.062	0.278	−1563.947	−1520.310	−1412.063	245.862
	400.00	168.380	192.272	151.505	−1504.033	16.307	−1580.942	−1518.050	−1376.292	179.725
	500.00	180.397	231.197	163.651	−1486.567	33.773	−1602.166	−1515.099	−1341.186	140.113
	600.00	190.174	264.973	177.784	−1468.027	52.313	−1627.011	−1511.912	−1306.701	113.758
	700.00	198.894	294.953	192.420	−1448.567	71.773	−1655.034	−1508.687	−1272.754	94.974
	800.00	207.049	322.049	206.957	−1428.266	92.074	−1685.905	−1506.334	−1239.172	80.910
	900.00	214.877	346.890	221.143	−1407.168	113.172	−1719.369	−1503.581	−1205.950	69.992
	1000.00	222.501	369.925	234.883	−1385.298	135.042	−1755.223	−1502.071	−1172.977	61.270
	1100.00	229.992	391.484	248.150	−1362.672	157.668	−1793.305	−1501.860	−1140.048	54.136
	1200.00	237.393	411.814	260.949	−1339.302	181.038	−1833.479	−1507.501	−1106.634	48.171
	1300.00	244.729	431.106	273.302	−1315.196	205.144	−1875.633	−1500.376	−1073.514	43.134
	1400.00	252.020	449.509	285.236	−1290.358	229.982	−1919.671	−1492.748	−1040.961	38.839
	1500.00	259.276	467.144	296.780	−1264.793	255.547	−1965.509	−1484.616	−1008.972	35.136

References

Phase	H / S	C_p	Remarks
SOL	Nb1	Ku1,e	Tk1 DPT= 1493. (LIQ + Ca2Fe2O5)

271.847 DICALCIUM DIIRON PENTAOXIDE **Ca2Fe2O5**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	190.070	188.782	188.782	−2139.279	0.000	−2195.564	−2139.279	−2001.686	350.687
	300.00	190.609	189.959	188.786	−2138.927	0.352	−2195.915	−2139.249	−2000.833	348.376
	400.00	212.239	248.044	196.559	−2118.685	20.594	−2217.902	−2136.835	−1955.021	255.300
	500.00	226.363	297.002	211.881	−2096.719	42.560	−2245.220	−2133.607	−1909.932	199.529
	600.00	237.533	339.289	229.671	−2073.508	65.771	−2277.081	−2130.188	−1865.518	162.408
	700.00	247.308	376.652	248.050	−2049.258	90.021	−2312.914	−2126.866	−1821.672	135.935
	800.00	256.339	410.271	266.260	−2024.071	115.208	−2352.287	−2125.337	−1778.101	116.098
	900.00	264.939	440.963	283.991	−1998.004	141.275	−2394.871	−2122.790	−1734.861	100.689
	1000.00	273.270	469.310	301.123	−1971.092	168.187	−2440.402	−2121.852	−1691.828	88.372
	1100.00	281.425	495.739	317.627	−1943.356	195.923	−2488.669	−2122.582	−1648.763	78.293
	1200.00	289.461	520.571	333.515	−1914.811	224.468	−2539.496	−2136.478	−1604.495	69.842
	1300.00	297.413	544.055	348.815	−1885.467	253.812	−2592.738	−2128.835	−1560.469	62.700
	1400.00	305.304	566.385	363.564	−1855.330	283.949	−2648.269	−2120.644	−1517.053	56.602
	1500.00	313.150	587.716	377.802	−1824.407	314.872	−2705.982	−2111.903	−1474.241	51.338
	1600.00	320.962	608.176	391.565	−1792.701	346.578	−2765.783	−2102.612	−1432.030	46.751
	1700.00	328.746	627.868	404.890	−1760.216	379.063	−2827.592	−2094.671	−1390.379	42.721

References

Phase	H / S	C_p	Remarks
SOL	Nb1	Ku1,e	Tk1 DPT= 1713. (LIQ + CaO)

CaOH[g] CALCIUM MONOHYDROXIDE (GAS) 57.085

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	44.620	235.459	235.459	−193.887	0.000	−264.089	−193.887	−201.676	35.333
	300.00	44.710	235.736	235.460	−193.804	0.083	−264.525	−193.905	−201.724	35.123
	400.00	48.151	249.125	237.262	−189.142	4.745	−288.792	−194.755	−204.197	26.665
	500.00	50.041	260.091	240.765	−184.224	9.663	−314.270	−195.522	−206.469	21.570
	600.00	51.262	269.329	244.776	−179.155	14.732	−340.753	−196.355	−208.582	18.159
	700.00	52.160	277.301	248.866	−173.982	19.905	−368.093	−197.345	−210.544	15.711
	800.00	52.894	284.316	252.868	−168.729	25.158	−396.181	−199.278	−212.259	13.859
	900.00	53.545	290.584	256.716	−163.406	30.481	−424.932	−200.617	−213.806	12.409
	1000.00	54.156	296.257	260.391	−158.021	35.866	−454.278	−202.348	−215.182	11.240
	1100.00	54.751	301.447	263.891	−152.576	41.311	−484.167	−204.473	−216.366	10.274
	1200.00	55.348	306.236	267.223	−147.071	46.816	−514.554	−213.938	−216.722	9.434
	1300.00	55.876	310.687	270.397	−141.510	52.377	−545.403	−214.658	−216.925	8.716
	1400.00	56.379	314.846	273.425	−135.897	57.990	−576.682	−215.362	−217.073	8.099
	1500.00	56.833	318.752	276.318	−130.236	63.651	−608.364	−216.055	−217.171	7.563
	1600.00	57.247	322.433	279.086	−124.532	69.355	−640.425	−216.738	−217.223	7.092
	1700.00	57.625	325.915	281.739	−118.788	75.099	−672.844	−217.416	−217.232	6.675
	1800.00	57.973	329.219	284.286	−113.008	80.879	−705.602	−371.393	−213.238	6.188
	1900.00	58.295	332.362	286.734	−107.194	86.693	−738.682	−371.223	−204.457	5.621
	2000.00	58.595	335.360	289.091	−101.350	92.537	−772.069	−371.056	−195.684	5.111
	2100.00	58.876	338.226	291.363	−95.476	98.411	−805.750	−370.897	−186.919	4.649
	2200.00	59.141	340.971	293.556	−89.575	104.312	−839.710	−370.748	−178.162	4.230
	2300.00	59.392	343.605	295.675	−83.648	110.239	−873.940	−370.611	−169.411	3.847
	2400.00	59.631	346.138	297.725	−77.697	116.190	−908.428	−370.490	−160.666	3.497
	2500.00	59.860	348.577	299.711	−71.722	122.165	−943.165	−370.387	−151.925	3.174
	2600.00	60.080	350.929	301.636	−65.725	128.162	−978.141	−370.304	−143.189	2.877
	2700.00	60.291	353.200	303.504	−59.707	134.180	−1013.348	−370.244	−134.455	2.601
	2800.00	60.496	355.397	305.318	−53.667	140.220	−1048.778	−370.209	−125.722	2.345
	2900.00	60.694	357.523	307.082	−47.608	146.279	−1084.425	−370.202	−116.991	2.107
	3000.00	60.887	359.584	308.798	−41.529	152.358	−1120.281	−370.224	−108.259	1.885

References

Phase	H / S	C_p
GAS	Ja1	Ja1

74.093 CALCIUM HYDROXIDE **Ca(OH)2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	87.487	83.387	83.387	−986.085	0.000	−1010.947	−986.085	−898.470	157.408
	300.00	87.781	83.929	83.389	−985.923	0.162	−1011.102	−986.077	−897.927	156.343
	400.00	98.408	110.840	86.986	−976.543	9.542	−1020.879	−985.149	−868.659	113.435
	500.00	103.763	133.431	94.080	−966.410	19.675	−1033.125	−983.690	−839.700	87.723
	600.00	107.444	152.695	102.283	−955.838	30.247	−1047.455	−982.065	−811.053	70.608
	700.00	110.708	169.505	110.711	−944.929	41.156	−1063.582	−980.415	−782.682	58.404

References

Phase	H / S	C_p	Remarks
SOL	Nb1,Ja1	Ja1,H2	Ja1 NDPT= 794.7

266.566 CALCIUM HAFNIUM TRIOXIDE **CaHfO3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	146.846	113.386	113.386	−1811.701	0.000	−1845.507	−1811.701	−1728.424	302.813
	300.00	146.602	114.294	113.389	−1811.430	0.271	−1845.718	−1811.606	−1727.908	300.856
	400.00	138.500	155.164	119.017	−1797.242	14.459	−1859.308	−1807.062	−1700.723	222.092
	500.00	135.478	185.691	129.424	−1783.567	28.134	−1876.413	−1803.358	−1674.581	174.942
	600.00	134.456	210.281	140.915	−1770.082	41.619	−1896.250	−1800.236	−1649.127	143.569
	700.00	134.377	230.993	152.342	−1756.645	55.056	−1918.341	−1797.589	−1624.158	121.196
	800.00	134.802	248.960	163.321	−1743.190	68.511	−1942.358	−1796.099	−1599.447	104.433
	900.00	135.520	264.877	173.737	−1729.675	82.026	−1968.065	−1794.157	−1574.988	91.410
	1000.00	136.419	279.201	183.579	−1716.080	95.621	−1995.280	−1792.709	−1550.718	81.001
	1100.00	137.437	292.250	192.874	−1702.388	109.313	−2023.862	−1791.724	−1526.570	72.491
	1200.00	138.536	304.255	201.662	−1688.589	123.112	−2053.695	−1798.127	−1501.876	65.375
	1300.00	139.692	315.389	209.987	−1674.678	137.023	−2084.684	−1795.818	−1477.282	59.358
	1400.00	140.889	325.785	217.891	−1660.650	151.051	−2116.749	−1793.513	−1452.866	54.207
	1500.00	142.117	335.547	225.413	−1646.500	165.201	−2149.820	−1791.205	−1428.615	49.749
	1600.00	143.367	344.759	232.587	−1632.226	179.475	−2183.840	−1788.888	−1404.518	45.853
	1700.00	144.636	353.488	239.444	−1617.826	193.875	−2218.756	−1786.558	−1380.566	42.420
	1800.00	145.919	361.792	246.012	−1603.298	208.403	−2254.523	−1937.516	−1352.788	39.257
	1900.00	147.213	369.716	252.316	−1588.641	223.060	−2291.102	−1934.312	−1320.390	36.300
	2000.00	148.516	377.300	258.377	−1573.855	237.846	−2328.455	−1931.093	−1288.161	33.643

References

Phase	H / S	C_p
SOL	Nb1/Tk1	e

CaMgO2 CALCIUM MAGNESIUM DIOXIDE 96.382

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	79.583	66.316	66.316	−1243.903	0.000	−1263.675	−1243.903	−1180.418	206.804
	300.00	79.850	66.810	66.318	−1243.756	0.147	−1263.798	−1243.903	−1180.024	205.460
	400.00	89.483	91.283	69.589	−1235.226	8.677	−1271.739	−1243.469	−1158.778	151.321
	500.00	94.353	111.825	76.040	−1226.011	17.892	−1281.923	−1242.676	−1137.695	118.854
	600.00	97.349	129.311	83.498	−1216.416	27.487	−1294.002	−1241.885	−1116.774	97.224
	700.00	99.459	144.483	91.151	−1206.570	37.333	−1307.708	−1241.265	−1095.975	81.783
	800.00	101.097	157.875	98.671	−1196.539	47.364	−1322.839	−1241.635	−1075.156	70.200
	900.00	102.461	169.863	105.926	−1186.360	57.543	−1339.237	−1241.472	−1054.361	61.194
	1000.00	103.654	180.722	112.872	−1176.053	67.850	−1356.775	−1250.717	−1032.801	53.948
	1100.00	104.737	190.652	119.498	−1165.633	78.270	−1375.350	−1251.366	−1010.981	48.007
	1200.00	105.743	199.809	125.814	−1155.108	88.795	−1394.879	−1259.309	−988.470	43.027
	1300.00	106.696	208.311	131.836	−1144.486	99.417	−1415.290	−1258.462	−965.934	38.812
	1400.00	107.611	216.252	137.586	−1133.770	110.133	−1436.523	−1384.516	−939.837	35.066
	1500.00	108.496	223.707	143.081	−1122.965	120.938	−1458.525	−1382.359	−908.150	31.625
	1600.00	109.360	230.737	148.342	−1112.072	131.831	−1481.250	−1380.141	−876.608	28.618
	1700.00	110.207	237.392	153.386	−1101.093	142.810	−1504.659	−1377.861	−845.206	25.970
	1800.00	111.041	243.715	158.230	−1090.031	153.872	−1528.717	−1528.826	−809.977	23.505

References

Phase	H / S	C_p
SOL	Ku1	K7

156.466 MONTICELLITE **CaMgSiO4**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	123.219	109.621	109.621	−2263.080	0.000	−2295.763	−2263.080	−2145.731	375.923
	300.00	123.733	110.385	109.623	−2262.852	0.228	−2295.967	−2263.090	−2145.003	373.478
	400.00	142.899	148.934	114.749	−2249.406	13.674	−2308.980	−2262.835	−2105.642	274.969
	500.00	153.490	182.051	124.982	−2234.545	28.535	−2325.571	−2261.733	−2066.461	215.882
	600.00	160.705	210.706	136.935	−2218.817	44.263	−2345.241	−2260.345	−2027.535	176.513
	700.00	166.326	235.916	149.311	−2202.457	60.623	−2367.597	−2258.914	−1988.846	148.410
	800.00	171.098	258.444	161.569	−2185.580	77.500	−2392.335	−2258.283	−1950.268	127.339
	900.00	175.376	278.847	173.484	−2168.253	94.827	−2419.216	−2256.939	−1911.850	110.961
	1000.00	179.347	297.532	184.967	−2150.515	112.565	−2448.047	−2264.825	−1872.809	97.825
	1100.00	183.118	314.804	195.995	−2132.390	130.690	−2478.675	−2263.934	−1833.651	87.073
	1200.00	186.752	330.894	206.574	−2113.896	149.184	−2510.969	−2270.156	−1793.952	78.089
	1300.00	190.290	345.983	216.723	−2095.043	168.037	−2544.820	−2267.403	−1754.378	70.492
	1400.00	193.759	360.212	226.469	−2075.840	187.240	−2580.137	−2391.366	−1711.397	63.853
	1500.00	197.176	373.697	235.839	−2056.293	206.787	−2616.838	−2386.934	−1662.981	57.910
	1600.00	200.553	386.530	244.859	−2036.406	226.674	−2654.855	−2382.254	−1614.869	52.720
	1700.00	203.900	398.789	253.556	−2016.183	246.897	−2694.125	−2427.506	−1566.610	48.136
	1763.00	205.997	406.247	258.880	−2003.272	259.808	−2719.485	−2577.755	−1534.039	45.451

References

Phase	H / S	C_p	Remarks
SOL	Nb1/Tk1	S5	Tk1 DPT= 1763. (LIQ + SOLIDS)

CaMgSi2O6 DIOPSIDE 216.550

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	156.133	142.930	142.930	−3206.199	0.000	−3248.813	−3206.199	−3032.005	531.195
	300.00	157.086	143.898	142.933	−3205.909	0.290	−3249.079	−3206.239	−3030.924	527.731
	400.00	193.560	194.665	149.607	−3188.176	18.023	−3266.042	−3206.789	−2972.326	388.146
	500.00	214.560	240.286	163.272	−3167.692	38.507	−3287.835	−3205.403	−2913.844	304.407
	600.00	228.935	280.745	179.545	−3145.479	60.720	−3313.926	−3203.066	−2855.741	248.614
	700.00	239.720	316.881	196.630	−3122.023	84.176	−3343.840	−3200.243	−2798.072	208.795
	800.00	248.180	349.465	213.732	−3097.612	108.587	−3377.184	−3197.923	−2740.734	178.952
	900.00	254.921	379.101	230.485	−3072.444	133.755	−3413.635	−3194.705	−2683.780	155.763
	1000.00	260.262	406.247	246.723	−3046.674	159.525	−3452.922	−3200.630	−2626.417	137.190
	1100.00	264.382	431.255	262.377	−3020.432	185.767	−3494.813	−3197.786	−2569.135	121.998
	1200.00	267.392	454.396	277.426	−2993.835	212.364	−3539.111	−3202.153	−2511.485	109.322
	1300.00	269.360	475.884	291.876	−2966.989	239.210	−3585.638	−3197.732	−2454.109	98.607
	1400.00	270.330	495.887	305.742	−2939.996	266.203	−3634.238	−3320.303	−2393.444	89.300
	1500.00	270.333	514.543	319.047	−2912.955	293.244	−3684.770	−3314.842	−2327.431	81.048
	1600.00	269.392	531.965	331.816	−2885.961	320.238	−3737.105	−3309.588	−2261.776	73.839
	1665.00	268.280	542.672	339.841	−2868.485	337.714	−3772.034	−3306.326	−2219.275	69.623
			77.147		128.449					
LIQ	1665.00	355.556	619.819	339.841	−2740.036	466.163	−3772.034	−3177.877	−2219.275	69.623
	1700.00	355.556	627.215	345.681	−2727.591	478.608	−3793.857	−3273.468	−2198.280	67.545
	1800.00	355.556	647.538	361.892	−2692.035	514.164	−3857.605	−3412.811	−2131.473	61.854
	1900.00	355.556	666.762	377.436	−2656.480	549.719	−3923.328	−3398.078	−2060.690	56.652

References

Phase	H / S	C_p
SOL	Nb1	S5
LIQ	S5	S5

272.628 AKERMANITE **Ca2MgSi2O7**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	212.011	209.200	209.200	−3877.191	0.000	−3939.564	−3877.191	−3679.823	644.690
	300.00	212.762	210.514	209.204	−3876.798	0.393	−3939.952	−3877.202	−3678.599	640.501
	400.00	240.835	276.048	217.949	−3853.951	23.240	−3964.370	−3876.699	−3612.424	471.734
	500.00	256.366	331.591	235.272	−3829.031	48.160	−3994.827	−3875.098	−3546.528	370.503
	600.00	266.961	379.317	255.396	−3802.838	74.353	−4030.429	−3873.220	−3480.990	303.047
	700.00	275.224	421.111	276.146	−3775.715	101.476	−4070.493	−3871.423	−3415.763	254.887
	800.00	282.245	458.331	296.635	−3747.834	129.357	−4114.499	−3871.344	−3350.595	218.771
	900.00	288.544	491.943	316.498	−3719.290	157.901	−4162.039	−3869.923	−3285.593	190.691
	1000.00	294.395	522.650	335.600	−3690.140	187.051	−4212.791	−3878.083	−3219.958	168.193
	1100.00	299.952	550.972	353.908	−3660.421	216.770	−4266.490	−3877.813	−3154.163	149.779
	1200.00	305.310	577.302	371.440	−3630.157	247.034	−4322.919	−3891.943	−3087.137	134.380
	1300.00	310.527	601.947	388.233	−3599.364	277.827	−4381.894	−3888.296	−3020.216	121.354
	1400.00	315.642	625.147	404.335	−3568.055	309.136	−4443.260	−4011.285	−2949.959	110.064
	1500.00	320.682	647.096	419.794	−3536.238	340.953	−4506.882	−4005.798	−2874.340	100.093
	1600.00	325.664	667.952	434.657	−3503.920	373.271	−4572.643	−3999.983	−2799.097	91.381
	1700.00	330.602	687.843	448.970	−3471.106	406.085	−4640.440	−4094.194	−2723.334	83.678
	1727.00	331.929	693.063	452.746	−3462.162	415.029	−4659.083	−4092.364	−2701.576	81.712

References

Phase	H / S	C_p	Remarks	
SOL	S5,Nb1	S5	S5	MPT= 1727.

Ca3MgSi2O8 MERWINITE 328.705

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	252.256	253.098	253.098	−4567.702	0.000	−4643.163	−4567.702	−4340.491	760.436
	300.00	253.182	254.662	253.103	−4567.234	0.468	−4643.633	−4567.713	−4339.081	755.501
	400.00	287.508	332.802	263.524	−4539.991	27.711	−4673.112	−4566.872	−4262.933	556.682
	500.00	306.101	399.124	284.190	−4510.235	57.467	−4709.797	−4564.658	−4187.191	437.433
	600.00	318.503	456.090	308.205	−4478.971	88.731	−4752.625	−4562.147	−4111.933	357.976
	700.00	327.981	505.925	332.965	−4446.630	121.072	−4800.778	−4559.826	−4037.086	301.251
	800.00	335.900	550.251	357.406	−4413.426	154.276	−4853.627	−4560.134	−3962.270	258.710
	900.00	342.913	590.226	381.090	−4379.480	188.222	−4910.683	−4558.485	−3887.646	225.633
	1000.00	349.364	626.693	403.853	−4344.862	222.840	−4971.555	−4566.792	−3812.395	199.139
	1100.00	355.447	660.279	425.658	−4309.619	258.083	−5035.926	−4567.050	−3736.950	177.453
	1200.00	361.280	691.458	446.524	−4273.781	293.921	−5103.531	−4589.036	−3659.594	159.298
	1300.00	366.937	720.600	466.498	−4237.369	330.333	−5174.150	−4584.490	−3582.322	143.939
	1400.00	372.465	747.996	485.636	−4200.398	367.304	−5247.593	−4706.553	−3501.785	130.653
	1500.00	377.899	773.880	503.998	−4162.879	404.823	−5323.699	−4700.113	−3415.953	118.954
	1600.00	383.261	798.440	521.639	−4124.821	442.881	−5402.325	−4693.319	−3330.562	108.732
	1700.00	388.567	821.835	538.615	−4086.229	481.473	−5483.348	−4786.527	−3244.713	99.698
	1800.00	393.830	844.194	554.975	−4047.109	520.593	−5566.657	−5238.486	−3142.354	91.189
	1848.00	396.343	854.591	562.623	−4028.145	539.557	−5607.429	−5233.302	−3086.525	87.242

References

Phase	H / S	C_p	Remarks
SOL	S5,Nb1	S5	S5 DPT= 1848. (LIQ + SOLIDS), L= 123.4 kJ

Ca2Mg5Si8O23*H2O TREMOLITE 812.366

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	655.622	548.899	548.899	−12360.000	0.000	−12523.654	−12360.000	−11632.416	2037.951
	300.00	658.450	552.963	548.912	−12358.784	1.216	−12524.673	−12360.110	−11627.901	2024.597
	400.00	767.325	758.983	576.262	−12286.912	73.088	−12590.505	−12361.681	−11383.388	1486.518
	500.00	832.281	937.655	631.097	−12206.721	153.279	−12675.548	−12358.082	−11139.160	1163.700
	600.00	879.951	1093.782	695.475	−12121.016	238.984	−12777.285	−12351.883	−10895.925	948.575
	700.00	919.459	1232.467	762.464	−12030.998	329.002	−12893.725	−12344.104	−10653.863	795.001
	800.00	954.616	1357.575	829.159	−11937.267	422.733	−13023.327	−12336.631	−10412.815	679.887
	900.00	987.244	1471.915	894.313	−11840.158	519.842	−13164.882	−12326.493	−10172.939	590.422
	1000.00	1018.302	1577.550	957.420	−11739.870	620.130	−13317.420	−12360.426	−9930.440	518.713
	1100.00	1048.333	1676.020	1018.321	−11636.532	723.468	−13480.153	−12348.390	−9688.013	460.045

References

Phase	H / S	C_p
SOL	Nb1	S5

116.162 WOLLASTONITE **CaSiO3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	85.265	81.919	81.919	−1634.940	0.000	−1659.364	−1634.940	−1549.656	271.493
	300.00	85.670	82.447	81.920	−1634.782	0.158	−1659.516	−1634.947	−1549.127	269.727
	400.00	100.437	109.388	85.493	−1625.382	9.558	−1669.137	−1634.701	−1520.528	198.561
	500.00	108.081	132.698	92.661	−1614.922	20.018	−1681.271	−1633.801	−1492.082	155.877
	600.00	112.922	152.859	101.053	−1603.857	31.083	−1695.572	−1632.710	−1463.840	127.439
	700.00	116.438	170.542	109.743	−1592.381	42.559	−1711.760	−1631.631	−1435.781	107.139
	800.00	119.249	186.279	118.344	−1580.592	54.348	−1729.615	−1631.398	−1407.779	91.919
	900.00	121.650	200.466	126.694	−1568.545	66.395	−1748.964	−1630.491	−1379.884	80.086
	1000.00	123.796	213.396	134.727	−1556.271	78.669	−1769.667	−1629.903	−1352.073	70.625
	1100.00	125.776	225.289	142.426	−1543.791	91.149	−1791.609	−1629.639	−1324.306	62.886
	1200.00	127.642	236.314	149.797	−1531.119	103.821	−1814.696	−1636.646	−1295.932	56.410
	1300.00	129.429	246.602	156.852	−1518.265	116.675	−1838.847	−1634.837	−1267.611	50.933
	1398.00	131.123	256.070	163.478	−1505.498	129.442	−1863.483	−1632.979	−1239.996	46.331

References

Phase	H / S	C_p	Remarks	
SOL−A	Nb1	S5	Tk1	TPT= 1398. (WOL. − PSEUDOWOL.), L= 5.4 kJ

CaSiO3[B] PSEUDOWOLLASTONITE 116.162

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−B	298.15	86.478	87.362	87.362	−1628.400	0.000	−1654.447	−1628.400	−1544.739	270.632
	300.00	86.836	87.898	87.364	−1628.240	0.160	−1654.609	−1628.405	−1544.220	268.873
	400.00	99.976	114.915	90.958	−1618.817	9.583	−1664.783	−1628.136	−1516.174	197.992
	500.00	106.943	138.039	98.122	−1608.442	19.958	−1677.461	−1627.321	−1488.272	155.479
	600.00	111.481	157.962	106.474	−1597.507	30.893	−1692.284	−1626.361	−1460.552	127.152
	700.00	114.871	175.412	115.102	−1586.183	42.217	−1708.971	−1625.433	−1432.992	106.931
	800.00	117.651	190.937	123.628	−1574.553	53.847	−1727.303	−1625.359	−1405.466	91.768
	900.00	120.074	204.937	131.898	−1562.665	65.735	−1747.108	−1624.611	−1378.027	79.979
	1000.00	122.277	217.704	139.849	−1550.545	77.855	−1768.249	−1624.178	−1350.655	70.551
	1100.00	124.336	229.455	147.468	−1538.214	90.186	−1790.615	−1624.062	−1323.311	62.839
	1200.00	126.297	240.359	154.760	−1525.681	102.719	−1814.112	−1631.208	−1295.348	56.385
	1300.00	128.188	250.543	161.740	−1512.957	115.443	−1838.663	−1629.529	−1267.427	50.926
	1400.00	130.029	260.110	168.429	−1500.046	128.354	−1864.200	−1627.750	−1239.639	46.251
	1500.00	131.833	269.143	174.845	−1486.952	141.448	−1890.667	−1625.872	−1211.981	42.205
	1600.00	133.609	277.708	181.008	−1473.680	154.720	−1918.013	−1623.895	−1184.453	38.668
	1700.00	135.363	285.861	186.938	−1460.231	168.169	−1946.195	−1671.996	−1156.604	35.538
	1800.00	137.100	293.647	192.652	−1446.608	181.792	−1975.173	−1822.899	−1122.391	32.571
	1817.00	137.394	294.937	193.603	−1444.275	184.125	−1980.176	−1822.334	−1115.778	32.076
			30.856		56.066					
LIQ	1817.00	146.440	325.794	193.603	−1388.209	240.191	−1980.176	−1766.268	−1115.778	32.076
	1900.00	146.440	332.335	199.521	−1376.054	252.346	−2007.490	−1762.761	−1086.143	29.860
	2000.00	146.440	339.846	206.351	−1361.410	266.990	−2041.103	−1758.572	−1050.640	27.440
	2100.00	146.440	346.991	212.880	−1346.766	281.634	−2075.447	−1754.425	−1015.346	25.255
	2200.00	146.440	353.803	219.132	−1332.122	296.278	−2110.490	−1750.321	−980.248	23.274

References

Phase	H / S	C_p
SOL−B	Nb1	S5,e
LIQ	Tk1	S5

172.239 DICALCIUM SILICATE **Ca2SiO4**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−C	298.15	126.652	120.792	120.792	−2315.216	0.000	−2351.230	−2315.216	−2198.590	385.184
	300.00	127.016	121.577	120.795	−2314.981	0.235	−2351.454	−2315.221	−2197.867	382.683
	400.00	141.607	160.310	125.977	−2301.483	13.733	−2365.607	−2314.936	−2158.766	281.906
	500.00	151.130	192.986	136.197	−2286.822	28.394	−2383.314	−2314.057	−2119.818	221.456
	600.00	158.658	221.225	148.067	−2271.321	43.895	−2404.056	−2312.969	−2081.071	181.173
	700.00	165.243	246.185	160.335	−2255.121	60.095	−2427.451	−2311.860	−2042.510	152.414
	800.00	171.326	268.652	172.493	−2238.289	76.927	−2453.211	−2312.294	−2003.920	130.843
	900.00	177.118	289.168	184.333	−2220.865	94.351	−2481.116	−2311.184	−1965.445	114.071
	1000.00	182.728	308.120	195.776	−2202.872	112.344	−2510.992	−2310.491	−1927.070	100.660
	1100.00	188.219	325.795	206.801	−2184.324	130.892	−2542.698	−2310.210	−1888.745	89.689
	1121.00	189.361	329.365	209.064	−2180.359	134.857	−2549.577	−2326.977	−1880.562	87.628
			12.477		13.987					
SOL-A1	1121.00	184.043	341.842	209.064	−2166.372	148.844	−2549.577	−2312.990	−1880.562	87.628
	1200.00	188.090	354.512	218.226	−2151.673	163.543	−2577.087	−2310.668	−1850.166	80.536
	1300.00	193.213	369.769	229.301	−2132.608	182.608	−2613.307	−2307.368	−1811.922	72.804
	1400.00	198.335	384.275	239.857	−2113.030	202.186	−2651.015	−2303.659	−1773.947	66.187
	1500.00	203.457	398.134	249.950	−2092.941	222.275	−2690.141	−2299.534	−1736.252	60.462
	1600.00	208.580	411.428	259.630	−2072.339	242.877	−2730.623	−2294.989	−1698.846	55.462
	1700.00	213.702	424.227	268.938	−2051.225	263.991	−2772.410	−2340.200	−1661.290	51.045
	1712.00	214.317	425.732	270.031	−2048.657	266.559	−2777.510	−2339.551	−1656.500	50.541
			8.287		14.188					
SOL−A	1712.00	205.016	434.019	270.031	−2034.469	280.747	−2777.510	−2325.363	−1656.500	50.541
	1800.00	205.016	444.296	278.302	−2016.427	298.789	−2816.159	−2628.019	−1614.292	46.846
	1900.00	205.016	455.380	287.333	−1995.925	319.291	−2861.148	−2621.890	−1558.141	42.836
	2000.00	205.016	465.896	296.000	−1975.424	339.792	−2907.217	−2615.817	−1502.311	39.236
	2100.00	205.016	475.899	304.331	−1954.922	360.294	−2954.310	−2609.804	−1446.784	35.987
	2200.00	205.016	485.436	312.348	−1934.421	380.795	−3002.381	−2603.855	−1391.542	33.039
	2300.00	205.016	494.550	320.073	−1913.919	401.297	−3051.384	−2597.973	−1336.569	30.354
	2400.00	205.016	503.275	327.526	−1893.417	421.799	−3101.278	−2592.163	−1281.850	27.899
	2403.00	205.016	503.531	327.745	−1892.802	422.414	−3102.788	−2591.990	−1280.212	27.828
			29.600		71.128					
LIQ	2403.00	209.200	533.131	327.745	−1821.674	493.542	−3102.788	−2520.862	−1280.212	27.828
	2500.00	209.200	541.410	335.876	−1801.382	513.834	−3154.906	−2514.894	−1230.251	25.705
	2600.00	209.200	549.615	343.940	−1780.462	534.754	−3209.460	−2508.821	−1178.986	23.686
	2700.00	209.200	557.510	351.705	−1759.542	555.674	−3264.819	−2502.831	−1127.952	21.822
	2800.00	209.200	565.118	359.192	−1738.622	576.594	−3320.952	−2496.928	−1077.139	20.094

References

Phase	H / S	C_p	Remarks
SOL − C	Nb1	S5,e	Irreversible $\gamma - \alpha_1$ transition
SOL − A1	Pa3	Pa3	$\beta - \alpha_1$, TPT = 948 (approx.)
SOL − A	Pa3	S5	
LIQ	e	e	

Ca2SiO4[B] DICALCIUM SILICATE (BETA) 172.239

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−B	298.15	128.779	127.742	127.742	−2304.823	0.000	−2342.909	−2304.823	−2190.269	383.726
	300.00	129.216	128.540	127.744	−2304.584	0.239	−2343.146	−2304.824	−2189.558	381.236
	400.00	146.024	168.277	133.048	−2290.731	14.092	−2358.042	−2304.184	−2151.202	280.918
	500.00	155.992	202.005	143.555	−2275.598	29.225	−2376.601	−2302.834	−2113.105	220.755
	600.00	163.269	231.116	155.778	−2259.620	45.203	−2398.290	−2301.268	−2075.305	180.671
	700.00	169.274	256.746	168.407	−2242.986	61.837	−2422.708	−2299.725	−2037.767	152.060
	800.00	174.602	279.703	180.909	−2225.788	79.035	−2449.550	−2299.792	−2000.260	130.604
	900.00	179.536	300.556	193.062	−2208.078	96.745	−2478.579	−2298.397	−1962.907	113.924

References

Phase	H / S	C_p	Remarks	
SOL−B	Nb1	S5,e		Irreversible $\beta-\gamma$ transition

Ca3SiO5 TRICALCIUM SILICATE 228.317

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	171.878	168.599	168.599	−2929.202	0.000	−2979.470	−2929.202	−2783.898	487.727
	300.00	172.532	169.664	168.602	−2928.883	0.319	−2979.783	−2929.197	−2782.996	484.563
	400.00	196.783	223.045	175.715	−2910.270	18.932	−2999.488	−2927.857	−2734.416	357.078
	500.00	209.945	268.488	189.846	−2889.881	39.321	−3024.125	−2925.473	−2686.321	280.638
	600.00	218.742	307.586	206.288	−2868.423	60.779	−3052.975	−2922.865	−2638.736	229.722
	700.00	225.478	341.830	223.255	−2846.200	83.002	−3085.481	−2920.427	−2591.578	193.386
	800.00	231.116	372.315	240.017	−2823.363	105.839	−3121.216	−2920.566	−2544.472	166.137
	900.00	236.115	399.830	256.270	−2799.998	129.204	−3159.845	−2918.688	−2497.583	144.956
	1000.00	240.718	424.949	271.900	−2776.153	153.049	−3201.102	−2917.760	−2450.852	128.019
	1100.00	245.062	448.097	286.879	−2751.863	177.339	−3244.769	−2917.788	−2404.168	114.164
	1200.00	249.229	469.600	301.221	−2727.147	202.055	−3290.667	−2939.610	−2355.590	102.536
	1300.00	253.272	489.709	314.954	−2702.021	227.181	−3338.643	−2934.970	−2307.108	92.701
	1400.00	257.225	508.624	328.119	−2676.495	252.707	−3388.569	−2930.048	−2258.994	84.284
	1500.00	261.110	526.503	340.754	−2650.578	278.624	−3440.333	−2924.845	−2211.241	77.002
	1600.00	264.946	543.478	352.898	−2624.275	304.927	−3493.839	−2919.362	−2163.845	70.642
	1700.00	268.742	559.654	364.588	−2597.590	331.612	−3549.002	−2963.776	−2116.353	65.028
	1800.00	272.507	575.121	375.858	−2570.528	358.674	−3605.746	−3417.421	−2054.792	59.629

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	S5,e	Tk1	DPT= 2343. (LIQ + CaO)

288.401 TRICALCIUM DISILICATE (RANKINITE) **Ca3Si2O7**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	214.386	210.790	210.790	−3961.001	0.000	−4023.848	−3961.001	−3761.500	658.999
	300.00	215.231	212.119	210.794	−3960.604	0.397	−4024.239	−3961.008	−3760.262	654.720
	400.00	246.887	278.910	219.686	−3937.311	23.690	−4048.875	−3960.083	−3693.426	482.312
	500.00	264.538	336.047	237.391	−3911.673	49.328	−4079.697	−3957.788	−3627.012	378.911
	600.00	276.675	385.405	258.041	−3884.583	76.418	−4115.826	−3955.084	−3561.108	310.022
	700.00	286.209	428.794	279.397	−3856.423	104.578	−4156.579	−3952.413	−3495.659	260.849
	800.00	294.356	467.555	300.537	−3827.386	133.615	−4201.431	−3952.197	−3430.304	223.976
	900.00	301.697	502.655	321.075	−3797.579	163.422	−4249.968	−3949.844	−3365.217	195.312
	1000.00	308.537	534.800	340.862	−3767.064	193.937	−4301.863	−3948.316	−3300.348	172.392
	1100.00	315.049	564.514	359.860	−3735.882	225.119	−4356.848	−3947.617	−3235.592	153.645
	1200.00	321.338	592.198	378.081	−3704.061	256.940	−4414.699	−3968.583	−3169.014	137.944
	1300.00	327.471	618.162	395.561	−3671.620	289.381	−4475.230	−3962.952	−3102.609	124.664
	1400.00	333.490	642.651	412.343	−3638.571	322.430	−4538.282	−3956.904	−3036.653	113.299
	1500.00	339.424	665.862	428.478	−3604.925	356.076	−4603.717	−3950.438	−2971.143	103.464
	1600.00	345.294	687.955	444.010	−3570.688	390.313	−4671.417	−3943.554	−2906.079	94.874
	1700.00	351.115	709.064	458.985	−3535.867	425.134	−4741.276	−4036.608	−2840.565	87.280
	1737.00	353.258	716.647	464.393	−3522.837	438.164	−4767.652	−4033.643	−2814.565	84.639

References

Phase	H / S	C_p	Remarks
SOL	Nb1	S5,e	Tk1 DPT= 1737. (LIQ + Ca2SiO4)

212.277 CALCIUM 2−SILICATE 2−HYDRATE **CaSi2O5*2H2O**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	162.098	171.126	171.126	−3138.000	0.000	−3189.021	−3138.000	−2873.449	503.416
	300.00	162.841	172.131	171.129	−3137.699	0.301	−3189.339	−3138.117	−2871.807	500.026
	400.00	191.716	223.365	177.918	−3119.821	18.179	−3209.167	−3143.269	−2782.204	363.319
	500.00	209.284	268.154	191.588	−3099.717	38.283	−3233.794	−3146.967	−2691.488	281.178
	600.00	222.401	307.514	207.695	−3078.109	59.891	−3262.617	−3149.887	−2600.109	226.360
	700.00	233.416	342.643	224.509	−3055.306	82.694	−3295.156	−3152.315	−2508.281	187.170
	800.00	243.311	374.467	241.295	−3031.462	106.538	−3331.036	−3155.115	−2416.040	157.751
	900.00	252.556	403.664	257.736	−3006.665	131.335	−3369.962	−3156.779	−2323.554	134.856
	1000.00	261.395	430.733	273.698	−2980.965	157.035	−3411.698	−3158.306	−2230.891	116.530

References

Phase	H / S	C_p
SOL	M1,e	M1

$Ca_2Si_3O_8 \cdot 2.5H_2O$ 2–CALCIUM 3–SILICATE 5/2–HYDRATE 337.446

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f [–]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	295.182	271.542	271.542	–4920.384	0.000	–5001.344	–4920.384	–4541.292	795.615
	300.00	296.478	273.372	271.547	–4919.837	0.547	–5001.848	–4920.460	–4538.939	790.300
	400.00	347.361	366.367	283.882	–4887.390	32.994	–5033.937	–4922.392	–4411.370	576.066
	500.00	379.070	447.490	308.675	–4850.976	69.408	–5074.721	–4921.568	–4283.668	447.512
	600.00	403.233	518.813	337.874	–4811.820	108.564	–5123.108	–4919.168	–4156.293	361.837
	700.00	423.832	582.551	368.354	–4770.446	149.938	–5178.232	–4915.705	–4029.408	300.678
	800.00	442.533	640.382	398.798	–4727.116	193.268	–5239.422	–4912.885	–3902.895	254.833
	900.00	460.128	693.529	428.632	–4681.976	238.408	–5306.152	–4907.685	–3776.955	219.209
	1000.00	477.039	742.888	457.618	–4635.113	285.271	–5378.002	–4902.103	–3651.614	190.741

References

Phase	H / S	C_p
SOL	M1,e	M1

$Ca_2SiO_4 \cdot 7/6H_2O$ CALCIUM ORTHOSILICATE 7/6–HYDRATE 193.137

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f [–]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	164.824	160.666	160.666	–2665.208	0.000	–2713.110	–2665.208	–2479.799	434.450
	300.00	165.426	161.687	160.669	–2664.903	0.305	–2713.409	–2665.235	–2478.648	431.571
	400.00	189.849	212.932	167.490	–2647.031	18.177	–2732.204	–2665.672	–2416.337	315.541
	500.00	206.188	257.137	181.103	–2627.191	38.017	–2755.759	–2664.779	–2354.087	245.930
	600.00	219.344	295.924	197.072	–2605.897	59.311	–2783.451	–2663.127	–2292.094	199.544
	700.00	230.998	330.625	213.715	–2583.371	81.837	–2814.808	–2660.988	–2230.418	166.436
	800.00	241.851	362.185	230.330	–2559.724	105.484	–2849.472	–2659.967	–2168.892	141.614
	900.00	252.238	391.275	246.617	–2535.016	130.192	–2887.163	–2656.999	–2107.686	122.327

References

Phase	H / S	C_p
SOL	M1,e	M1

342.447 TRICALCIUM DISILICATE TRIHYDRATE **Ca3Si2O7*3H2O**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	328.376	312.126	312.126	−4782.312	0.000	−4875.372	−4782.312	−4404.391	771.631
	300.00	329.574	314.161	312.133	−4781.703	0.609	−4875.952	−4782.350	−4402.046	766.464
	400.00	378.281	416.259	325.723	−4746.098	36.214	−4912.601	−4782.285	−4275.186	558.282
	500.00	410.961	504.352	352.846	−4706.559	75.753	−4958.735	−4779.446	−4148.697	433.411
	600.00	437.333	581.673	384.669	−4664.110	118.202	−5013.114	−4774.910	−4022.950	350.229
	700.00	460.726	650.871	417.839	−4619.190	163.122	−5074.800	−4769.173	−3898.062	290.877
	800.00	482.532	713.829	450.960	−4572.017	210.295	−5143.080	−4764.686	−3773.790	246.403
	900.00	503.414	771.876	483.433	−4522.714	259.598	−5217.402	−4756.869	−3650.394	211.863

References

Phase	H / S	C_p
SOL	M1,e	M1

431.585 4−CALCIUM 3−SILICATE 3/2−HYDRATE **Ca4Si3O10*1.5H2O**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	353.810	330.327	330.327	−6020.776	0.000	−6119.263	−6020.776	−5642.891	988.611
	300.00	354.896	332.519	330.334	−6020.120	0.656	−6119.876	−6020.811	−5640.546	982.106
	400.00	398.840	441.199	344.854	−5982.238	38.538	−6158.717	−6021.036	−5513.677	720.012
	500.00	428.057	533.494	373.587	−5940.822	79.954	−6207.569	−6019.203	−5387.019	562.778
	600.00	451.477	613.665	407.063	−5896.814	123.962	−6265.014	−6016.318	−5260.841	457.997
	700.00	472.160	684.839	441.754	−5850.617	170.159	−6330.004	−6012.854	−5135.196	383.193
	800.00	491.385	749.154	476.222	−5802.430	218.346	−6401.753	−6011.976	−5009.708	327.100
	900.00	509.761	808.098	509.867	−5752.368	268.408	−6479.656	−6007.524	−4884.695	283.500
	1000.00	527.611	862.734	542.454	−5700.496	320.280	−6563.230	−6003.428	−4760.160	248.645

References

Phase	H / S	C_p
SOL	M1,e	M1

Ca5Si6O17*3H2O 5–CALCIUM 6–SILICATE 3–HYDRATE 694.939

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f [–]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	595.804	513.168	513.168	–9928.632	0.000	–10081.633	–9928.632	–9257.685	1621.908
	300.00	597.587	516.859	513.179	–9927.528	1.104	–10082.586	–9928.688	–9253.521	1611.181
	400.00	671.187	699.726	537.613	–9863.787	64.845	–10143.677	–9928.982	–9028.290	1178.974
	500.00	722.041	855.203	585.973	–9794.017	134.615	–10221.618	–9925.708	–8803.441	919.689
	600.00	763.943	990.639	642.368	–9719.669	208.963	–10314.053	–9920.294	–8579.467	746.909
	700.00	801.617	1111.269	700.889	–9641.366	287.266	–10419.255	–9913.376	–8356.524	623.571
	800.00	837.038	1220.641	759.125	–9559.420	369.212	–10535.932	–9908.916	–8134.201	531.109
	900.00	871.149	1321.209	816.064	–9474.002	454.630	–10663.090	–9899.199	–7912.942	459.255

References

Phase	H / S	C_p
SOL	M1,e	M1

Ca5Si6O17*5.5H2O 5–CALCIUM 6–SILICATE 5.5–HYDRATE 739.977

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f [–]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	698.645	611.492	611.492	–10686.773	0.000	–10869.089	–10686.773	–9871.280	1729.407
	300.00	700.109	615.818	611.505	–10685.479	1.294	–10870.224	–10686.841	–9866.219	1717.861
	400.00	779.228	828.062	639.910	–10611.512	75.261	–10942.737	–10687.888	–9592.378	1252.636
	500.00	858.348	1010.441	696.162	–10529.634	157.139	–11034.854	–10683.636	–9318.882	973.537
	600.00	937.467	1173.930	762.380	–10439.843	246.930	–11144.201	–10674.050	–9046.743	787.589
	700.00	1016.586	1324.383	832.050	–10342.140	344.633	–11269.208	–10659.145	–8776.630	654.920

References

Phase	H / S	C_p
SOL	M1,e	M1

830.053 5–CALCIUM 6–SILICATE 10.5–HYDRATE **Ca5Si6O17*10.5w**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	889.939	808.140	808.140	–12179.624	0.000	–12420.571	–12179.624	–11075.039	1940.301
	300.00	892.029	813.651	808.157	–12177.976	1.648	–12422.071	–12179.740	–11068.184	1927.142
	400.00	1004.997	1085.743	844.494	–12083.124	96.500	–12517.422	–12181.860	–10697.119	1396.900
	500.00	1117.965	1322.137	916.842	–11976.976	202.648	–12638.045	–12175.599	–10326.484	1078.800
	600.00	1230.933	1535.952	1002.464	–11859.531	320.093	–12781.103	–12160.903	–9957.901	866.912
	700.00	1343.901	1734.184	1092.993	–11730.790	448.834	–12944.719	–12137.785	–9592.445	715.797

References

Phase	H / S	C_p
SOL	M1,e	M1

714.985 6–CALCIUM 6–SILICATE HYDRATE **Ca6Si6O18*H2O**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	548.299	507.519	507.519	–10024.864	0.000	–10176.181	–10024.864	–9448.390	1655.319
	300.00	549.866	510.916	507.530	–10023.848	1.016	–10177.123	–10024.921	–9444.812	1644.488
	400.00	614.467	678.719	529.971	–9965.365	59.499	–10236.852	–10025.750	–9251.211	1208.084
	500.00	659.022	820.834	574.295	–9901.595	123.269	–10312.011	–10023.795	–9057.762	946.258
	600.00	695.685	944.306	625.894	–9833.816	191.048	–10400.400	–10020.370	–8864.859	771.755
	700.00	728.623	1054.054	679.361	–9762.579	262.285	–10500.417	–10016.081	–8672.603	647.158
	800.00	759.575	1153.385	732.501	–9688.157	336.707	–10610.865	–10015.613	–8480.456	553.717
	900.00	789.373	1244.579	784.399	–9610.702	414.162	–10730.824	–10009.678	–8288.922	481.077

References

Phase	H / S	C_p
SOL	M1,e	M1

CaTiO3 CALCIUM TITANIUM TRIOXIDE (PEROVSKITE) 135.956

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL-A	298.15	97.649	93.638	93.638	-1660.596	0.000	-1688.514	-1660.596	-1575.247	275.977
	300.00	98.046	94.243	93.640	-1660.415	0.181	-1688.688	-1660.590	-1574.717	274.183
	400.00	112.222	124.671	97.692	-1649.804	10.792	-1699.673	-1659.599	-1546.213	201.915
	500.00	119.089	150.529	105.744	-1638.204	22.392	-1713.468	-1657.981	-1518.047	158.589
	600.00	123.079	172.622	115.095	-1626.080	34.516	-1729.653	-1656.239	-1490.225	129.736
	700.00	125.711	191.805	124.714	-1613.632	46.964	-1747.896	-1654.612	-1462.687	109.147
	800.00	127.619	208.722	134.179	-1600.961	59.635	-1767.939	-1653.960	-1435.276	93.714
	900.00	129.106	223.842	143.316	-1588.122	72.474	-1789.580	-1652.780	-1408.016	81.719
	1000.00	130.332	237.510	152.063	-1575.149	85.447	-1812.659	-1652.078	-1380.862	72.129
	1100.00	131.386	249.983	160.406	-1562.062	98.534	-1837.043	-1651.857	-1353.755	64.284
	1200.00	132.325	261.456	168.355	-1548.875	111.721	-1862.622	-1663.061	-1325.912	57.715
	1300.00	133.181	272.082	175.931	-1535.600	124.996	-1889.306	-1661.075	-1297.897	52.150
	1400.00	133.979	281.981	183.156	-1522.241	138.355	-1917.014	-1659.114	-1270.034	47.386
	1500.00	134.732	291.250	190.057	-1508.805	151.791	-1945.681	-1657.187	-1242.310	43.261
	1530.00	134.951	293.921	192.067	-1504.760	155.836	-1954.459	-1656.616	-1234.018	42.130
			1.504		2.301					
SOL-B	1530.00	134.014	295.425	192.067	-1502.459	158.137	-1954.459	-1654.315	-1234.018	42.130
	1600.00	134.014	301.420	196.721	-1493.078	167.518	-1975.350	-1653.083	-1214.817	39.660
	1700.00	134.014	309.544	203.121	-1479.677	180.919	-2005.902	-1651.426	-1187.476	36.487
	1800.00	134.014	317.204	209.248	-1466.275	194.321	-2037.243	-1803.199	-1156.266	33.554
	1900.00	134.014	324.450	215.123	-1452.874	207.722	-2069.329	-1800.956	-1120.387	30.802
	2000.00	134.014	331.324	220.762	-1439.473	221.123	-2102.121	-1812.982	-1084.178	28.316
	2100.00	134.014	337.863	226.184	-1426.071	234.525	-2135.583	-1810.915	-1047.789	26.062
	2200.00	134.014	344.097	231.403	-1412.670	247.926	-2169.683	-1808.890	-1011.497	24.016
	2233.00	134.014	346.092	233.083	-1408.247	252.349	-2181.071	-1808.232	-999.541	23.381

References

Phase	H / S	C_p	Remarks	
SOL-A	Nb1	Ku1,e		
SOL-B	Tk1	Ku1	Tk1	MPT= 2233.

327.990 3–CALCIUM 2–TITANIUM 7–OXIDE **Ca3Ti2O7**

Phase	T	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[——— J / (K mol) ———]			[——— kJ / mol ———]					[–]
SOL	298.15	239.315	234.701	234.702	–3950.499	0.000	–4020.475	–3950.499	–3751.008	657.161
	300.00	240.136	236.184	234.706	–3950.056	0.443	–4020.911	–3950.479	–3749.770	652.893
	400.00	269.550	309.869	244.553	–3924.372	26.127	–4048.320	–3948.096	–3683.169	480.973
	500.00	284.018	371.731	263.978	–3896.622	53.877	–4082.488	–3944.532	–3617.339	377.901
	600.00	292.604	424.331	286.432	–3867.760	82.739	–4122.358	–3940.872	–3552.248	309.251
	700.00	298.412	469.897	309.460	–3838.193	112.306	–4167.121	–3937.641	–3487.741	260.258
	800.00	302.740	510.039	332.073	–3808.126	142.373	–4216.157	–3937.320	–3423.378	223.524
	900.00	306.207	545.904	353.875	–3777.673	172.826	–4268.986	–3935.361	–3359.266	194.967
	1000.00	309.139	578.321	374.724	–3746.902	203.597	–4325.223	–3934.747	–3295.301	172.129
	1100.00	311.722	607.909	394.598	–3715.857	234.642	–4384.556	–3935.485	–3231.332	153.443
	1200.00	314.068	635.134	413.523	–3684.566	265.933	–4446.727	–3966.405	–3165.149	137.775
	1300.00	316.246	660.360	431.552	–3653.049	297.450	–4511.517	–3962.188	–3098.549	124.501
	1400.00	318.302	683.872	448.745	–3621.321	329.178	–4578.742	–3957.991	–3032.273	113.136
	1500.00	320.268	705.900	465.162	–3589.391	361.108	–4648.242	–3953.828	–2966.296	103.296
	1600.00	322.166	726.631	480.862	–3557.269	393.230	–4719.878	–3949.715	–2900.595	94.695
	1700.00	324.012	746.218	495.900	–3524.960	425.539	–4793.530	–3945.669	–2835.149	87.114
	1800.00	325.816	764.789	510.327	–3492.468	458.031	–4869.088	–4401.617	–2758.048	80.036

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	Nb1,e	Tk1	DPT= 2013. (LIQ + CaTiO3)

Ca4Ti3O10 4–CALCIUM 3–TITANIUM 10–OXIDE 463.946

Phase	T [K]	C_p J / (K mol)	S J / (K mol)	–(G–H298)/T J / (K mol)	H kJ / mol	H–H298 kJ / mol	G kJ / mol	ΔH_f kJ / mol	ΔG_f kJ / mol	log K_f [–]
SOL	298.15	337.809	328.444	328.444	–5671.663	0.000	–5769.589	–5671.663	–5386.854	943.754
	300.00	338.989	330.537	328.450	–5671.037	0.626	–5770.198	–5671.635	–5385.087	937.627
	400.00	381.195	434.664	342.361	–5634.742	36.921	–5808.607	–5668.260	–5289.996	690.803
	500.00	401.890	522.178	369.821	–5595.485	76.178	–5856.574	–5663.171	–5196.004	542.823
	600.00	414.118	596.616	401.575	–5554.638	117.025	–5912.608	–5657.910	–5103.069	444.262
	700.00	422.348	661.106	434.147	–5512.792	158.871	–5975.566	–5653.220	–5010.978	373.924
	800.00	428.448	717.919	466.139	–5470.239	201.424	–6044.574	–5652.432	–4919.131	321.186
	900.00	433.308	768.673	496.984	–5427.143	244.520	–6118.949	–5649.488	–4827.664	280.190
	1000.00	437.400	814.543	526.483	–5383.603	288.060	–6198.146	–5648.376	–4736.427	247.406
	1100.00	440.988	856.404	554.601	–5339.680	331.983	–6281.724	–5649.103	–4645.212	220.583
	1200.00	444.235	894.916	581.377	–5295.416	376.247	–6369.315	–5691.441	–4551.028	198.101
	1300.00	447.240	930.594	606.884	–5250.841	420.822	–6460.613	–5685.455	–4456.236	179.054
	1400.00	450.070	963.842	631.207	–5205.974	465.689	–6555.353	–5679.518	–4361.904	162.745
	1500.00	452.771	994.987	654.432	–5160.831	510.832	–6653.311	–5673.649	–4267.994	148.625
	1600.00	455.373	1024.291	676.641	–5115.423	556.240	–6754.289	–5667.874	–4174.473	136.283
	1700.00	457.900	1051.974	697.913	–5069.759	601.904	–6858.115	–5662.218	–4081.309	125.403
	1800.00	460.367	1078.217	718.318	–5023.845	647.818	–6964.636	–6269.918	–3972.619	115.282

References

Phase	H / S	C_p
SOL	Ku1	e

196.040 SPHENE **CaTiSiO5**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	138.945	129.202	129.202	−2603.302	0.000	−2641.824	−2603.302	−2461.780	431.294
	300.00	139.545	130.063	129.205	−2603.044	0.258	−2642.063	−2603.311	−2460.902	428.481
	400.00	161.449	173.611	134.993	−2587.855	15.447	−2657.299	−2602.834	−2413.462	315.166
	500.00	172.833	210.973	146.550	−2571.090	32.212	−2676.577	−2601.390	−2366.275	247.203
	600.00	180.075	243.165	160.033	−2553.423	49.879	−2699.322	−2599.641	−2319.414	201.923
	700.00	185.362	271.339	173.963	−2535.139	68.163	−2725.076	−2597.882	−2272.850	169.602
	800.00	189.608	296.376	187.729	−2516.384	86.918	−2753.485	−2596.990	−2226.438	145.372
	900.00	193.247	318.923	201.074	−2497.238	106.064	−2784.269	−2595.470	−2180.215	126.536
	1000.00	196.510	339.455	213.901	−2477.747	125.555	−2817.203	−2594.322	−2134.140	111.476
	1100.00	199.527	358.328	226.184	−2457.944	145.358	−2852.104	−2593.549	−2088.162	99.159
	1200.00	202.377	375.812	237.933	−2437.848	165.454	−2888.822	−2604.091	−2041.503	88.864
	1300.00	205.109	392.119	249.174	−2417.472	185.830	−2927.228	−2601.331	−1994.732	80.149
	1400.00	207.755	407.417	259.936	−2396.829	206.473	−2967.212	−2598.482	−1948.177	72.687
	1500.00	210.338	421.839	270.253	−2375.923	227.379	−3008.682	−2595.551	−1901.829	66.228
	1600.00	212.873	435.495	280.158	−2354.763	248.539	−3051.555	−2592.547	−1855.678	60.582
	1673.00	214.699	445.033	287.145	−2339.156	264.146	−3083.696	−2590.311	−1822.109	56.890
			74.026		123.846					
LIQ	1673.00	279.491	519.059	287.145	−2215.310	387.992	−3083.696	−2466.465	−1822.109	56.890
	1700.00	279.491	523.534	290.864	−2207.764	395.538	−3097.771	−2514.068	−1811.283	55.654
	1800.00	279.491	539.509	304.238	−2179.815	423.487	−3150.931	−2657.728	−1766.258	51.255
	1900.00	279.491	554.620	317.022	−2151.866	451.436	−3205.644	−2647.397	−1717.015	47.204
	2000.00	279.491	568.956	329.264	−2123.916	479.386	−3261.829	−2651.357	−1667.866	43.560

References

Phase	H / S	C_p
SOL	Nb1,S5	S5
LIQ	S5	S5

CaUO4 CALCIUM URANATE 342.105

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL−A	298.15	130.449	143.093	143.093	−1997.417	0.000	−2040.080	−1997.417	−1890.407	331.191
	300.00	130.541	143.900	143.095	−1997.176	0.241	−2040.346	−1997.382	−1889.743	329.033
	400.00	135.520	182.136	148.275	−1983.873	13.544	−2056.727	−1995.464	−1854.150	242.127
	500.00	140.499	212.911	158.221	−1970.072	27.345	−2076.527	−1993.556	−1819.044	190.034
	600.00	145.478	238.967	169.560	−1955.773	41.644	−2099.153	−1991.769	−1784.312	155.338
	700.00	150.457	261.767	181.137	−1940.976	56.441	−2124.213	−1990.182	−1749.865	130.577
	800.00	155.436	282.183	192.513	−1925.681	71.736	−2151.427	−1989.589	−1715.536	112.013
	900.00	160.415	300.778	203.524	−1909.889	87.528	−2180.589	−1988.467	−1681.352	97.583
	1000.00	165.394	317.937	214.118	−1893.599	103.818	−2211.535	−1990.237	−1647.103	86.036
	1025.00	166.638	322.036	216.701	−1889.448	107.969	−2219.535	−1989.942	−1638.528	83.500
			0.898		0.920					
SOL−B	1025.00	166.960	322.934	216.701	−1888.528	108.889	−2219.535	−1989.022	−1638.528	83.500
	1100.00	170.908	334.862	224.354	−1875.858	121.559	−2244.206	−1992.620	−1612.685	76.580
	1200.00	176.172	349.958	234.198	−1858.504	138.913	−2278.454	−1997.848	−1577.604	68.671

References

Phase	H / S	C_p	Remarks	
SOL−A	Nb1/e	Ku1		
SOL−B	Ku1	Ku1	Tk1	MPT= 2123.

179.300 CALCIUM ZIRCONIUM TRIOXIDE **CaZrO3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	96.573	100.081	100.081	−1766.903	0.000	−1796.742	−1766.903	−1681.057	294.514
	300.00	96.910	100.680	100.083	−1766.724	0.179	−1796.928	−1766.899	−1680.524	292.605
	400.00	109.134	130.463	104.061	−1756.342	10.561	−1808.527	−1766.108	−1651.826	215.706
	500.00	115.367	155.549	111.920	−1745.088	21.815	−1822.863	−1764.760	−1623.406	169.596
	600.00	119.242	176.949	121.019	−1733.345	33.558	−1839.515	−1763.306	−1595.272	138.881
	700.00	122.003	195.548	130.367	−1721.276	45.627	−1858.160	−1761.951	−1567.376	116.959
	800.00	124.171	211.985	139.562	−1708.964	57.939	−1878.552	−1761.535	−1539.569	100.524
	900.00	125.993	226.718	148.441	−1696.454	70.449	−1900.500	−1760.552	−1511.887	87.748
	1000.00	127.602	240.078	156.947	−1683.773	83.130	−1923.850	−1760.003	−1484.291	77.531
	1100.00	129.070	252.309	165.068	−1670.938	95.965	−1948.478	−1759.901	−1456.728	69.174
	1200.00	130.444	263.599	172.815	−1657.962	108.941	−1974.281	−1770.905	−1428.317	62.173
	1300.00	131.750	274.092	180.206	−1644.851	122.052	−2001.171	−1768.967	−1399.847	56.247
	1400.00	133.007	283.902	187.267	−1631.613	135.290	−2029.076	−1766.988	−1371.527	51.172
	1500.00	134.228	293.121	194.019	−1618.251	148.652	−2057.932	−1764.980	−1343.349	46.780
	1600.00	135.422	301.822	200.488	−1604.769	162.134	−2087.683	−1762.954	−1315.307	42.940
	1700.00	136.594	310.067	206.693	−1591.168	175.735	−2118.281	−1760.921	−1287.391	39.557
	1800.00	137.750	317.907	212.656	−1577.450	189.453	−2149.683	−1912.195	−1255.631	36.437
	1900.00	138.893	325.386	218.394	−1563.618	203.285	−2181.851	−1909.340	−1219.233	33.519
	2000.00	140.026	332.539	223.923	−1549.672	217.231	−2214.749	−1906.516	−1182.985	30.896
	2100.00	141.149	339.398	229.260	−1535.613	231.290	−2248.349	−1903.738	−1146.877	28.527
	2200.00	142.266	345.990	234.417	−1521.442	245.461	−2282.620	−1922.341	−1110.154	26.358
	2300.00	143.376	352.338	239.407	−1507.160	259.743	−2317.538	−1920.109	−1073.287	24.375
	2400.00	144.482	358.464	244.241	−1492.767	274.136	−2353.080	−1917.812	−1036.517	22.559
	2500.00	145.583	364.384	248.929	−1478.264	288.639	−2389.224	−1915.454	−999.845	20.891
	2600.00	146.681	370.115	253.480	−1463.651	303.252	−2425.951	−1913.036	−963.268	19.352
	2623.00	146.933	371.408	254.508	−1460.274	306.629	−2434.478	−1912.472	−954.869	19.015

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	Nb1,e	Tk1	MPT= 2623.

Ca3P2 TRICALCIUM DIPHOSPHIDE 182.182

Phase	T [K]	C_p [J / (K mol)]	S [J / (K mol)]	−(G−H298)/T [J / (K mol)]	H [kJ / mol]	H−H298 [kJ / mol]	G [kJ / mol]	ΔH_f [kJ / mol]	ΔG_f [kJ / mol]	log K_f [−]
SOL	298.15	116.305	123.846	123.846	−506.264	0.000	−543.189	−506.264	−481.649	84.383
	300.00	116.357	124.566	123.849	−506.049	0.215	−543.419	−506.278	−481.496	83.836
	400.00	119.160	158.424	128.446	−494.273	11.991	−557.642	−508.728	−472.734	61.733
	500.00	121.964	185.315	137.220	−482.217	24.047	−574.874	−510.016	−463.589	48.431
	600.00	124.767	207.799	147.159	−469.880	36.384	−594.560	−511.519	−454.167	39.539
	700.00	127.570	227.243	157.242	−457.263	49.001	−616.333	−513.367	−444.468	33.167
	800.00	130.373	244.460	167.088	−444.366	61.898	−639.934	−517.860	−434.201	28.350
	900.00	133.177	259.978	176.561	−431.189	75.075	−665.169	−520.361	−423.603	24.585
	1000.00	135.980	274.154	185.621	−417.731	88.533	−691.885	−523.820	−412.676	21.556
	1100.00	138.783	287.246	194.272	−403.993	102.271	−719.963	−528.237	−401.356	19.059

References

Phase	H / S	C_p
SOL	Nb1/Ku1	e

254.099 CALCIUM PYROPHOSPHATE **Ca2P2O7**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[-]
SOL-C	298.15	187.763	189.238	189.238	-3333.393	0.000	-3389.814	-3333.393	-3126.549	547.758
	300.00	188.523	190.402	189.242	-3333.045	0.348	-3390.166	-3333.417	-3125.265	544.157
	400.00	217.396	249.059	197.043	-3312.587	20.806	-3412.210	-3335.009	-3055.441	399.000
	500.00	234.078	299.492	212.615	-3289.955	43.438	-3439.701	-3333.735	-2985.675	311.911
	600.00	245.961	343.267	230.823	-3265.927	67.466	-3471.887	-3331.747	-2916.242	253.881
	700.00	255.577	381.924	249.701	-3240.837	92.556	-3508.184	-3329.446	-2847.170	212.458
	800.00	263.986	416.611	268.434	-3214.851	118.542	-3548.140	-3328.488	-2778.256	181.401
	900.00	271.693	448.154	286.676	-3188.063	145.330	-3591.402	-3325.826	-2709.639	157.263
	1000.00	278.964	477.159	304.293	-3160.527	172.866	-3637.686	-3323.440	-2641.305	137.968
	1023.00	280.592	483.521	308.252	-3154.092	179.301	-3648.734	-3322.931	-2625.621	134.065
			1.636		1.674					
SOL-B	1023.00	280.592	485.158	308.252	-3152.418	180.975	-3648.734	-3321.257	-2625.621	134.065
	1100.00	285.950	505.713	321.361	-3130.605	202.788	-3686.890	-3319.659	-2573.322	122.197
	1200.00	292.742	530.887	337.784	-3101.669	231.724	-3738.733	-3458.863	-2502.144	108.916
	1300.00	299.397	554.582	353.558	-3072.061	261.332	-3793.018	-3451.369	-2422.718	97.346
	1400.00	305.953	577.010	368.725	-3041.793	291.600	-3849.607	-3443.331	-2343.889	87.452
	1413.00	306.800	579.842	370.654	-3037.810	295.583	-3857.127	-3442.246	-2333.685	86.270
			4.797		6.778					
SOL-A	1413.00	318.444	584.639	370.654	-3031.032	302.361	-3857.127	-3435.468	-2333.685	86.270
	1500.00	318.444	603.666	383.622	-3003.328	330.065	-3908.826	-3427.200	-2266.097	78.912
	1600.00	318.444	624.218	398.024	-2971.483	361.910	-3970.232	-3417.789	-2188.997	71.463
	1631.00	318.444	630.329	402.382	-2961.611	371.782	-3989.678	-3414.891	-2165.217	69.344
			61.823		100.834					
LIQ	1631.00	405.220	692.152	402.382	-2860.777	472.616	-3989.678	-3314.057	-2165.217	69.344
	1700.00	405.220	708.942	414.486	-2832.817	500.576	-4038.019	-3301.650	-2116.874	65.044

References

Phase	H / S	C_p	Remarks	
SOL-C	Tk1/Nb1	Ku1		
SOL-B	Tk1	Ku1		Tetragonal
SOL-A	Tk1	Ku1		monoclinic
LIQ	Tk1	Ku1		

Ca3(PO4)2 CALCIUM PHOSPHATE 310.177

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL−B	298.15	227.799	235.999	235.999	−4120.801	0.000	−4191.164	−4120.801	−3884.966	680.630
	300.00	228.073	237.408	236.003	−4120.379	0.422	−4191.602	−4120.825	−3883.503	676.178
	400.00	242.879	305.049	245.126	−4096.832	23.969	−4218.851	−4123.388	−3803.850	496.732
	500.00	257.684	360.836	262.841	−4071.804	48.997	−4252.222	−4123.940	−3723.889	389.032
	600.00	272.490	409.126	283.283	−4045.295	75.506	−4290.771	−4123.909	−3643.872	317.227
	700.00	287.295	452.242	304.392	−4017.306	103.495	−4333.875	−4123.403	−3563.900	265.942
	800.00	302.101	491.572	325.365	−3987.836	132.965	−4381.093	−4124.671	−3483.756	227.466
	900.00	316.906	528.009	345.881	−3956.886	163.915	−4432.094	−4123.021	−3403.741	197.548
	1000.00	331.712	562.165	365.818	−3924.455	196.346	−4486.619	−4121.355	−3323.910	173.623
	1100.00	346.517	594.474	385.149	−3890.543	230.258	−4544.465	−4119.635	−3244.248	154.056
	1200.00	361.323	625.260	403.885	−3855.151	265.650	−4605.463	−4265.814	−3160.718	137.582
	1300.00	376.128	654.766	422.057	−3818.279	302.522	−4669.475	−4255.775	−3069.025	123.315
	1400.00	390.934	683.182	439.700	−3779.926	340.875	−4736.380	−4244.387	−2978.155	111.116
	1423.00	394.339	689.580	443.687	−3770.895	349.906	−4752.167	−4241.576	−2957.375	108.558
			13.231		18.828					
SOL−A	1423.00	376.560	702.811	443.687	−3752.067	368.734	−4752.167	−4222.748	−2957.375	108.558
	1500.00	376.560	722.655	457.502	−3723.072	397.729	−4807.054	−4214.618	−2889.121	100.608
	1600.00	376.560	746.958	474.842	−3685.416	435.385	−4880.548	−4204.157	−2801.096	91.446
	1700.00	376.560	769.786	491.527	−3647.760	473.041	−4956.397	−4193.803	−2713.723	83.383
	1743.00	376.560	779.193	498.508	−3631.568	489.233	−4989.701	−4189.382	−2676.341	80.205
			0.000		0.000					
SOL−1	1743.00	376.560	779.193	498.508	−3631.568	489.233	−4989.701	−4189.382	−2676.341	80.205
	1800.00	376.560	791.310	507.589	−3610.104	510.697	−5034.462	−4643.461	−2615.064	75.887
	1900.00	376.560	811.670	523.063	−3572.448	548.353	−5114.620	−4630.781	−2502.722	68.805
	2000.00	376.560	830.985	537.980	−3534.792	586.009	−5196.761	−4618.214	−2391.044	62.448
	2083.00	376.560	846.296	549.962	−3503.537	617.264	−5266.372	−4607.872	−2298.828	57.647
			80.346		167.360					
LIQ	2083.00	380.744	926.642	549.962	−3336.177	784.624	−5266.372	−4440.512	−2298.828	57.647
	2100.00	380.744	929.737	553.024	−3329.705	791.096	−5282.152	−4438.333	−2281.358	56.746
	2200.00	380.744	947.449	570.553	−3291.630	829.171	−5376.018	−4425.588	−2178.944	51.735
	2300.00	380.744	964.374	587.311	−3253.556	867.245	−5471.615	−4412.969	−2077.107	47.173
	2400.00	380.744	980.578	603.361	−3215.481	905.320	−5568.869	−4400.484	−1975.816	43.003
	2500.00	380.744	996.121	618.763	−3177.407	943.394	−5667.709	−4388.137	−1875.043	39.177

References

Phase	H / S	C_p	Remarks	
SOL−B	Nb1	Tk1,e	Tk1	hexagonal (WHITLOCKITE)
SOL−A	Tk1	e	Tk1	monoclinic
SOL−1	u	e	Tk1	MPT= 2083.
LIQ	e	e		

247.278 CALCIUM LEAD **CaPb**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	50.250	80.751	80.751	−121.001	0.000	−145.077	−121.001	−113.411	19.869
	300.00	50.292	81.062	80.752	−120.908	0.093	−145.227	−121.004	−113.364	19.738
	400.00	52.551	95.840	82.752	−115.766	5.235	−154.102	−121.167	−110.792	14.468
	500.00	54.810	107.809	86.602	−110.398	10.603	−164.302	−121.305	−108.182	11.302
	600.00	57.070	118.002	91.006	−104.804	16.197	−175.605	−121.466	−105.543	9.188
	700.00	59.329	126.969	95.515	−98.984	22.017	−187.862	−126.532	−102.076	7.617
	800.00	61.588	135.038	99.960	−92.938	28.063	−200.969	−127.545	−98.472	6.430
	900.00	63.848	142.423	104.273	−86.666	34.335	−214.847	−127.730	−94.828	5.504
	1000.00	66.107	149.267	108.434	−80.168	40.833	−229.435	−128.071	−91.155	4.761
	1100.00	68.367	155.674	112.441	−73.445	47.556	−244.686	−128.567	−87.441	4.152
	1200.00	70.626	161.719	116.297	−66.495	54.506	−260.558	−136.166	−83.058	3.615
	1223.00	71.146	163.065	117.164	−64.865	56.136	−264.293	−135.871	−82.043	3.504

References

Phase	H / S	C_p	Remarks	
SOL	Nb1/Ku1	e	Hu1	DPT= 1223. (CaPb2 + LIQ)

287.356 2−CALCIUM LEAD **Ca2Pb**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	68.987	105.437	105.437	−212.999	0.000	−244.435	−212.999	−200.420	35.113
	300.00	69.028	105.864	105.438	−212.871	0.128	−244.630	−213.015	−200.342	34.883
	400.00	71.228	126.023	108.172	−205.859	7.140	−256.268	−213.881	−195.988	25.593
	500.00	73.429	142.154	113.407	−198.626	14.373	−269.702	−214.847	−191.406	19.996
	600.00	75.630	155.736	119.359	−191.173	21.826	−284.614	−216.008	−186.612	16.246
	700.00	77.831	167.560	125.418	−183.500	29.499	−300.791	−222.287	−180.807	13.492
	800.00	80.032	178.096	131.356	−175.607	37.392	−318.083	−225.494	−174.583	11.399
	900.00	82.232	187.650	137.088	−167.493	45.506	−336.378	−227.309	−168.117	9.757
	1000.00	84.433	196.427	142.589	−159.160	53.839	−355.588	−229.698	−161.417	8.432
	1100.00	86.634	204.578	147.858	−150.607	62.392	−375.643	−232.662	−154.450	7.334
	1200.00	88.835	212.211	152.906	−141.833	71.166	−396.486	−250.092	−145.956	6.353
	1300.00	91.035	219.408	157.747	−132.840	80.159	−418.070	−249.828	−137.287	5.516
	1383.00	92.862	225.098	161.620	−125.208	87.791	−436.519	−249.434	−130.113	4.914

References

Phase	H / S	C_p	Remarks	
SOL	Nb1/Ku1	e	Hu1	MPT= 1383.

CaS CALCIUM SULFIDE 72.144

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	47.428	56.601	56.601	−473.210	0.000	−490.086	−473.210	−468.178	82.023
	300.00	47.462	56.895	56.602	−473.122	0.088	−490.191	−473.211	−468.147	81.512
	400.00	49.196	70.794	58.485	−468.287	4.923	−496.604	−475.531	−466.357	60.900
	500.00	50.523	81.922	62.096	−463.297	9.913	−504.258	−477.137	−463.901	48.463
	600.00	51.529	91.226	66.197	−458.193	15.017	−512.928	−478.467	−461.122	40.144
	700.00	52.332	99.231	70.357	−452.998	20.212	−522.460	−479.648	−458.138	34.187
	800.00	53.004	106.264	74.415	−447.731	25.479	−532.742	−481.782	−454.883	29.701
	900.00	53.589	112.542	78.309	−442.400	30.810	−543.688	−536.129	−450.277	26.133
	1000.00	54.108	118.215	82.020	−437.015	36.195	−555.230	−536.463	−440.724	23.021
	1100.00	54.576	123.395	85.550	−431.580	41.630	−567.315	−537.167	−431.119	20.472
	1200.00	54.999	128.162	88.905	−426.101	47.109	−579.896	−545.193	−420.817	18.318
	1300.00	55.382	132.580	92.096	−420.582	52.628	−592.935	−544.456	−410.482	16.493
	1400.00	55.726	136.697	95.137	−415.026	58.184	−606.402	−543.688	−400.205	14.932
	1500.00	56.030	140.552	98.037	−409.438	63.772	−620.266	−542.893	−389.984	13.580
	1600.00	56.295	144.177	100.809	−403.822	69.388	−634.504	−542.073	−379.817	12.400
	1700.00	56.754	147.604	103.462	−398.168	75.042	−649.095	−541.221	−369.701	11.360
	1800.00	57.210	150.861	106.005	−392.470	80.740	−664.019	−693.632	−355.674	10.321
	1900.00	57.635	153.965	108.448	−386.727	86.483	−679.262	−691.857	−336.946	9.263
	2000.00	58.024	156.932	110.799	−380.944	92.266	−694.808	−690.050	−318.314	8.313
	2100.00	58.390	159.772	113.064	−375.123	98.087	−710.644	−688.217	−299.772	7.456
	2200.00	58.751	162.496	115.249	−369.266	103.944	−726.758	−686.360	−281.318	6.679
	2300.00	59.120	165.116	117.361	−363.373	109.837	−743.140	−684.482	−262.949	5.972
	2400.00	59.504	167.640	119.403	−357.442	115.768	−759.778	−682.583	−244.662	5.325
	2500.00	59.900	170.077	121.382	−351.472	121.738	−776.665	−680.665	−226.454	4.732
	2600.00	60.297	172.434	123.300	−345.462	127.748	−793.791	−678.729	−208.324	4.185
	2700.00	60.674	174.717	125.163	−339.413	133.797	−811.149	−676.779	−190.269	3.681
	2723.00	60.755	175.232	125.583	−338.017	135.193	−815.174	−676.328	−186.126	3.570
			24.585		66.944					
LIQ	2723.00	63.000	199.817	125.583	−271.073	202.137	−815.174	−609.384	−186.126	3.570
	2800.00	63.000	201.574	127.649	−266.222	206.988	−830.628	−607.712	−174.181	3.249
	2900.00	63.000	203.784	130.237	−259.922	213.288	−850.896	−605.566	−158.736	2.859
	3000.00	63.000	205.920	132.724	−253.622	219.588	−871.382	−603.451	−143.364	2.496

References

Phase	H / S	C_p
SOL	Ja1	Ja1
LIQ	Tk1	e

72.144 CALCIUM SULFIDE (GAS) **CaS[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	34.809	232.589	232.589	123.595	0.000	54.249	123.595	76.156	−13.342
	300.00	34.829	232.805	232.590	123.659	0.064	53.818	123.570	75.862	−13.209
	400.00	35.877	242.974	233.969	127.197	3.602	30.007	119.952	60.255	−7.868
	500.00	36.522	251.057	236.606	130.820	7.225	5.292	116.980	45.649	−4.769
	600.00	36.865	257.749	239.588	134.491	10.896	−20.158	114.217	31.648	−2.755
	700.00	37.084	263.449	242.600	138.189	14.594	−46.225	111.539	18.097	−1.350
	800.00	37.303	268.414	245.523	141.908	18.313	−72.823	107.857	5.036	−0.329
	900.00	37.614	272.825	248.316	145.653	22.058	−99.889	51.924	−6.479	0.376
	1000.00	38.084	276.810	250.969	149.436	25.841	−127.374	49.988	−12.868	0.672
	1100.00	38.770	280.471	253.487	153.277	29.682	−155.241	47.690	−19.045	0.904
	1200.00	39.721	283.883	255.879	157.199	33.604	−183.460	38.108	−24.382	1.061
	1300.00	40.982	287.110	258.158	161.231	37.636	−212.011	37.357	−29.558	1.188
	1400.00	42.594	290.203	260.338	165.407	41.812	−240.878	36.745	−34.681	1.294
	1500.00	44.598	293.208	262.429	169.763	46.168	−270.049	36.309	−39.767	1.385
	1600.00	46.695	296.151	264.445	174.325	50.730	−299.517	36.073	−44.829	1.464
	1700.00	48.968	299.050	266.396	179.107	55.512	−329.277	36.054	−49.884	1.533
	1800.00	51.265	301.914	268.289	184.119	60.524	−359.326	−117.043	−50.980	1.479
	1900.00	53.479	304.745	270.134	189.357	65.762	−389.659	−115.772	−47.344	1.302
	2000.00	55.522	307.541	271.934	194.809	71.214	−420.274	−114.297	−43.780	1.143
	2100.00	57.329	310.295	273.696	200.454	76.859	−451.166	−112.639	−40.294	1.002
	2200.00	58.854	312.998	275.421	206.265	82.670	−482.331	−110.828	−36.891	0.876
	2300.00	60.072	315.643	277.112	212.214	88.619	−513.764	−108.895	−33.573	0.762
	2400.00	60.977	318.220	278.772	218.269	94.674	−545.457	−106.872	−30.341	0.660
	2500.00	61.574	320.722	280.400	224.399	100.804	−577.405	−104.794	−27.195	0.568
	2600.00	61.885	323.144	281.998	230.575	106.980	−609.599	−102.693	−24.132	0.485
	2700.00	61.938	325.481	283.565	236.768	113.173	−642.031	−100.598	−21.150	0.409
	2800.00	61.773	327.731	285.103	242.955	119.360	−674.692	−98.535	−18.246	0.340
	2900.00	61.438	329.893	286.610	249.117	125.522	−707.574	−96.527	−15.414	0.278
	3000.00	60.987	331.969	288.088	255.239	131.644	−740.668	−94.591	−12.650	0.220

References

Phase	H / S	C_p
GAS	Ja1	Ja1

CaSO3 CALCIUM SULFITE 120.142

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	91.711	101.378	101.378	-1159.386	0.000	-1189.612	-1159.386	-1075.958	188.503
	300.00	91.801	101.946	101.380	-1159.216	0.170	-1189.800	-1159.387	-1075.440	187.251
	400.00	96.655	129.020	105.039	-1149.793	9.593	-1201.402	-1161.576	-1047.370	136.772
	500.00	101.508	151.109	112.108	-1139.885	19.501	-1215.440	-1162.852	-1018.690	106.422
	600.00	106.361	170.045	120.222	-1129.492	29.894	-1231.519	-1163.632	-989.773	86.167
	700.00	111.215	186.806	128.559	-1118.613	40.773	-1249.377	-1164.011	-960.764	71.693
	800.00	116.068	201.973	136.802	-1107.249	52.137	-1268.827	-1165.054	-931.617	60.828
	900.00	120.922	215.924	144.828	-1095.399	63.987	-1289.731	-1217.990	-901.275	52.309
	1000.00	125.775	228.916	152.594	-1083.065	76.321	-1311.980	-1216.567	-866.161	45.244

References

Phase	H / S	C_p
SOL	Tk1	Tk1,e

136.142 CALCIUM SULFATE **CaSO4**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL-2	298.15	99.648	106.692	106.692	-1434.108	0.000	-1465.918	-1434.108	-1321.682	231.553
	300.00	99.830	107.309	106.694	-1433.923	0.185	-1466.116	-1434.121	-1320.984	230.004
	400.00	109.704	137.381	110.728	-1423.447	10.661	-1478.399	-1436.742	-1283.106	167.556
	500.00	119.579	162.921	118.670	-1411.983	22.125	-1493.443	-1437.991	-1244.562	130.018
	600.00	129.453	185.596	127.967	-1399.531	34.577	-1510.888	-1438.293	-1205.829	104.977
	700.00	139.327	206.293	137.698	-1386.092	48.016	-1530.497	-1437.739	-1167.120	87.092
	800.00	149.201	225.542	147.489	-1371.666	62.442	-1552.099	-1437.388	-1128.438	73.679
	900.00	159.076	243.685	157.178	-1356.252	77.856	-1575.568	-1488.463	-1088.764	63.190
	1000.00	168.950	260.957	166.699	-1339.850	94.258	-1600.807	-1484.704	-1044.550	54.562
	1100.00	178.824	277.522	176.026	-1322.462	111.646	-1627.736	-1480.473	-1000.736	47.521
	1200.00	179.912	293.177	185.145	-1304.471	129.637	-1656.283	-1483.084	-956.702	41.644
	1300.00	179.912	307.577	194.017	-1286.479	147.629	-1686.330	-1477.041	-913.082	36.688
	1400.00	179.912	320.910	202.610	-1268.488	165.620	-1717.762	-1471.065	-869.926	32.457
	1500.00	179.912	333.323	210.916	-1250.497	183.611	-1750.481	-1465.148	-827.194	28.805
	1600.00	179.912	344.934	218.933	-1232.506	201.602	-1784.400	-1459.288	-784.855	25.623
	1635.00	179.912	348.827	221.672	-1226.209	207.899	-1796.541	-1457.250	-770.124	24.604
			3.835		6.270					
SOL-1	1635.00	179.912	352.662	221.672	-1219.939	214.169	-1796.541	-1450.980	-770.124	24.604
	1700.00	179.912	359.676	226.815	-1208.245	225.863	-1819.694	-1447.212	-743.130	22.834
	1733.00	179.912	363.135	229.378	-1202.307	231.801	-1831.621	-1445.308	-729.481	21.987
			15.934		27.614					
LIQ	1733.00	182.004	379.069	229.378	-1174.693	259.415	-1831.621	-1417.694	-729.481	21.987
	1800.00	182.004	385.973	235.079	-1162.499	271.609	-1857.251	-1567.008	-698.986	20.284
	1900.00	182.004	395.814	243.282	-1144.299	289.809	-1896.345	-1560.254	-650.947	17.896
	2000.00	182.004	405.149	251.144	-1126.098	308.010	-1936.397	-1553.555	-603.263	15.756

References

Phase	H / S	C_p	Remarks	
SOL-2	Nb1	Ku1,e	Tk1	TPT= 1468. (SOL-2 - SOL-5)
SOL-1	e	e		
LIQ	Tk1	e		

CaSO3*0.5H2O CALCIUM SULFITE HEMIHYDRATE 129.150

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f [-]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	112.376	121.298	121.298	-1311.701	0.000	-1347.866	-1311.701	-1199.440	210.137
	300.00	112.466	121.994	121.300	-1311.493	0.208	-1348.091	-1311.704	-1198.743	208.720
	400.00	117.319	155.013	125.770	-1300.004	11.697	-1362.009	-1314.023	-1160.983	151.609
	500.00	122.173	181.713	134.370	-1288.029	23.672	-1378.886	-1315.458	-1122.576	117.275
	600.00	127.026	204.417	144.197	-1275.569	36.132	-1398.219	-1316.426	-1083.899	94.362
	700.00	131.880	224.363	154.253	-1262.624	49.077	-1419.678	-1317.021	-1045.095	77.986
	800.00	136.733	242.290	164.155	-1249.193	62.508	-1443.025	-1318.308	-1006.120	65.693

References

Phase	H / S	C_p
SOL	Nb1	e

CaSO4*0.5H2O CALCIUM SULFATE HEMIHYDRATE 145.149

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f [-]
		[J / (K mol)]			[kJ / mol]					
SOL-A	298.15	117.980	130.499	130.499	-1576.740	0.000	-1615.648	-1576.740	-1436.640	251.693
	300.00	118.282	131.230	130.501	-1576.521	0.219	-1615.890	-1576.759	-1435.770	249.990
	400.00	134.599	167.492	135.336	-1563.877	12.863	-1630.874	-1579.409	-1388.587	181.331
	500.00	150.917	199.280	145.003	-1549.602	27.138	-1649.242	-1580.072	-1340.801	140.073
	600.00	167.234	228.238	156.494	-1533.694	43.046	-1670.637	-1579.172	-1293.003	112.566
	700.00	183.552	255.242	168.692	-1516.155	60.585	-1694.824	-1576.801	-1245.478	92.939
	800.00	199.870	280.818	181.122	-1496.984	79.756	-1721.638	-1574.016	-1198.282	78.240

References

Phase	H / S	C_p
SOL-A	Nb1	e

172.172 CALCIUM SULFATE DIHYDRATE (GYPSUM) **CaSO4*2H2O**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	186.018	194.100	194.100	−2022.629	0.000	−2080.500	−2022.629	−1797.174	314.857
	300.00	186.606	195.252	194.103	−2022.284	0.345	−2080.860	−2022.643	−1795.775	312.672
	400.00	218.405	253.291	201.803	−2002.034	20.595	−2103.350	−2024.273	−1720.080	224.619
	500.00	250.203	305.442	217.391	−1978.603	44.026	−2131.324	−2022.460	−1644.207	171.769
	600.00	282.002	353.870	236.144	−1951.993	70.636	−2164.315	−2017.621	−1568.959	136.590
	700.00	313.800	399.729	256.263	−1922.203	100.426	−2202.013	−2009.846	−1494.758	111.540
	800.00	345.598	443.707	276.962	−1889.233	133.396	−2244.199	−2000.194	−1421.762	92.832

References

Phase	H / S	C_p
SOL	Nb1	e

363.734 3−CALCIUM 2−ANTIMONY **Ca3Sb2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	113.813	157.318	157.318	−728.016	0.000	−774.920	−728.016	−710.726	124.516
	300.00	113.868	158.023	157.321	−727.805	0.211	−775.212	−728.039	−710.619	123.730
	400.00	116.817	191.184	161.822	−716.271	11.745	−792.745	−729.355	−704.617	92.014
	500.00	119.767	217.568	170.420	−704.442	23.574	−813.226	−730.844	−698.265	72.947
	600.00	122.717	239.665	180.168	−692.318	35.698	−836.117	−732.651	−691.586	60.208
	700.00	125.666	258.803	190.064	−679.899	48.117	−861.061	−734.949	−684.569	51.083
	800.00	128.616	275.776	199.737	−667.184	60.832	−887.806	−740.096	−676.905	44.197
	900.00	131.566	291.095	209.050	−654.175	73.841	−916.161	−743.519	−668.813	38.817
	1000.00	134.516	305.110	217.965	−640.871	87.145	−945.981	−787.887	−656.053	34.269

References

Phase	H / S	C_p	Remarks	
SOL	Nb1/Ku1	e	Tk1	DPT= 1098. (LIQ + CaSb)

CaSe — CALCIUM SELENIDE — 119.038

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	48.101	66.998	66.998	−368.192	0.000	−388.168	−368.192	−363.218	63.634
	300.00	48.116	67.296	66.999	−368.103	0.089	−388.292	−368.197	−363.188	63.237
	400.00	48.953	81.253	68.897	−363.250	4.942	−395.751	−368.585	−361.466	47.203
	500.00	49.790	92.266	72.507	−358.312	9.880	−404.445	−375.152	−359.531	37.560
	600.00	50.626	101.418	76.584	−353.292	14.900	−414.142	−376.504	−356.282	31.017
	700.00	51.463	109.285	80.706	−348.187	20.005	−424.686	−377.980	−352.797	26.326
	800.00	52.300	116.211	84.720	−342.999	25.193	−435.968	−380.348	−348.999	22.787
	900.00	53.137	122.420	88.570	−337.727	30.465	−447.905	−382.062	−344.981	20.022
	1000.00	53.974	128.061	92.241	−332.372	35.820	−460.433	−384.105	−340.754	17.799
	1100.00	54.810	133.245	95.736	−326.932	41.260	−473.502	−439.788	−331.353	15.735
	1200.00	55.647	138.050	99.065	−321.410	46.782	−487.070	−447.989	−320.826	13.965
	1300.00	56.484	142.537	102.238	−315.803	52.389	−501.101	−447.367	−310.253	12.466
	1400.00	57.321	146.754	105.269	−310.113	58.079	−515.568	−446.650	−299.732	11.183
	1500.00	58.158	150.737	108.168	−304.339	63.853	−530.444	−445.836	−289.266	10.073
	1600.00	58.994	154.517	110.948	−298.481	69.711	−545.709	−444.926	−278.857	9.104
	1700.00	59.831	158.119	113.618	−292.540	75.652	−561.342	−443.920	−268.508	8.250
	1800.00	60.668	161.562	116.186	−286.515	81.677	−577.327	−596.121	−254.257	7.378

References

Phase	H / S	C_p
SOL	Nb1,Mi1	e

CaSi — CALCIUM SILICON — 68.163

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	46.419	45.187	45.187	−150.996	0.000	−164.469	−150.996	−146.508	25.668
	300.00	46.442	45.474	45.188	−150.910	0.086	−164.552	−150.994	−146.480	25.504
	400.00	47.698	59.007	47.025	−146.203	4.793	−169.806	−150.984	−144.981	18.933
	500.00	48.953	69.785	50.534	−141.371	9.625	−176.263	−151.123	−143.468	14.988
	600.00	50.208	78.821	54.516	−136.413	14.583	−183.705	−151.400	−141.913	12.355
	700.00	51.463	86.655	58.559	−131.329	19.667	−191.988	−151.832	−140.300	10.469
	800.00	52.718	93.609	62.514	−126.120	24.876	−201.007	−153.173	−138.522	9.045
	900.00	53.974	99.891	66.323	−120.785	30.211	−210.687	−153.870	−136.652	7.931
	1000.00	55.229	105.643	69.972	−115.325	35.671	−220.968	−154.904	−134.687	7.035
	1100.00	56.484	110.965	73.459	−109.740	41.256	−231.801	−156.270	−132.601	6.297
	1200.00	57.739	115.934	76.794	−104.028	46.968	−243.149	−164.914	−129.761	5.648
	1300.00	58.994	120.605	79.986	−98.192	52.804	−254.978	−164.748	−126.838	5.096
	1400.00	60.250	125.023	83.047	−92.230	58.766	−267.262	−164.498	−123.931	4.624
	1500.00	61.505	129.222	85.986	−86.142	64.854	−279.975	−164.164	−121.044	4.215
	1518.00	61.731	129.957	86.503	−85.033	65.963	−282.308	−164.095	−120.527	4.147

References

Phase	H / S	C_p	Remarks	
SOL	Nb1/e	e	Tk1	MPT= 1518.

96.249 CALCIUM 2–SILICON **CaSi2**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	68.153	50.626	50.626	–150.996	0.000	–166.090	–150.996	–142.518	24.969
	300.00	68.199	51.048	50.628	–150.870	0.126	–166.184	–150.991	–142.466	24.805
	400.00	70.710	71.012	53.333	–143.924	7.072	–172.329	–150.865	–139.650	18.236
	500.00	73.220	87.060	58.524	–136.728	14.268	–180.258	–150.919	–136.843	14.296
	600.00	75.730	100.631	64.439	–129.280	21.716	–189.659	–151.083	–134.014	11.667
	700.00	78.241	112.494	70.473	–121.582	29.414	–200.327	–151.348	–131.150	9.787
	800.00	80.751	123.105	76.400	–113.632	37.364	–212.116	–152.457	–128.148	8.367
	900.00	83.262	132.761	82.134	–105.432	45.564	–224.917	–152.850	–125.089	7.260
	1000.00	85.772	141.664	87.647	–96.980	54.016	–238.643	–153.501	–121.972	6.371
	1100.00	88.282	149.956	92.939	–88.277	62.719	–253.229	–154.406	–118.777	5.640
	1200.00	90.793	157.745	98.018	–79.323	71.673	–268.618	–162.506	–114.873	5.000
	1263.00	92.374	162.431	101.115	–73.554	77.442	–278.704	–162.026	–112.384	4.648

References

Phase	H / S	C_p	Remarks	
SOL	Nb1/e	e	Tk1	MPT= 1263.

108.242 2–CALCIUM SILICON **Ca2Si**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	72.726	81.170	81.170	–208.999	0.000	–233.200	–208.999	–202.889	35.545
	300.00	72.760	81.620	81.171	–208.864	0.135	–233.350	–208.995	–202.851	35.320
	400.00	74.559	102.798	84.046	–201.498	7.501	–242.618	–208.900	–200.823	26.225
	500.00	76.358	119.628	89.536	–193.953	15.046	–253.767	–209.020	–198.795	20.768
	600.00	78.157	133.709	95.755	–186.227	22.772	–266.452	–209.387	–196.720	17.126
	700.00	79.956	145.892	102.067	–178.321	30.678	–280.446	–210.063	–194.560	14.518
	800.00	81.755	156.686	108.232	–170.236	38.763	–295.585	–212.569	–192.096	12.543
	900.00	83.554	166.419	114.165	–161.970	47.029	–311.748	–213.807	–189.470	10.997
	1000.00	85.354	175.316	119.842	–153.525	55.474	–328.841	–215.739	–186.669	9.751
	1100.00	87.153	183.535	125.263	–144.899	64.100	–346.788	–218.362	–183.641	8.720
	1183.00	88.646	189.929	129.578	–137.604	71.395	–362.290	–235.619	–179.911	7.944

References

Phase	H / S	C_p	Remarks	
SOL	Nb1/e	e	Tk1	DPT= 1183. (LIQ + CaSi)

CaSn — CALCIUM TIN — 158.788

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	48.129	70.710	70.710	−159.000	0.000	−180.082	−159.000	−152.468	26.712
	300.00	48.158	71.007	70.711	−158.911	0.089	−180.213	−159.008	−152.428	26.540
	400.00	49.706	85.074	72.618	−154.018	4.982	−188.047	−159.482	−150.166	19.610
	500.00	51.254	96.331	76.271	−148.970	10.030	−197.135	−160.100	−147.769	15.437
	600.00	52.802	105.813	80.425	−143.767	15.233	−207.255	−167.711	−143.926	12.530
	700.00	54.350	114.069	84.653	−138.409	20.591	−218.257	−168.280	−139.917	10.441
	800.00	55.898	121.427	88.798	−132.897	26.103	−230.039	−169.654	−135.731	8.862
	900.00	57.446	128.100	92.800	−127.230	31.770	−242.520	−170.303	−131.455	7.629
	1000.00	58.994	134.233	96.641	−121.408	37.592	−255.641	−171.210	−127.092	6.639
	1100.00	60.542	139.929	100.320	−115.431	43.569	−269.352	−172.375	−122.626	5.823
	1200.00	62.091	145.263	103.845	−109.299	49.701	−283.614	−180.744	−117.426	5.111
	1260.00	63.019	148.315	105.891	−105.546	53.454	−292.422	−180.455	−114.267	4.737

References

Phase	H / S	C_p	Remarks
SOL	Nb1/Ku1	e	Hu1

MPT(approx.)= DPT= 1260. (LIQ + Ca2Sn)

Ca2Sn — 2−CALCIUM TIN — 198.866

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	71.596	100.416	100.416	−313.997	0.000	−343.936	−313.997	−303.972	53.255
	300.00	71.630	100.859	100.417	−313.865	0.132	−344.122	−314.008	−303.910	52.915
	400.00	73.471	121.718	103.249	−306.609	7.388	−355.297	−314.695	−300.446	39.234
	500.00	75.312	138.310	108.657	−299.170	14.827	−368.325	−315.615	−296.783	31.005
	600.00	77.153	152.204	114.787	−291.547	22.450	−382.869	−323.664	−291.600	25.386
	700.00	78.994	164.235	121.011	−283.740	30.257	−398.704	−324.849	−286.166	21.354
	800.00	80.835	174.904	127.093	−275.748	38.249	−415.671	−327.786	−280.361	18.306
	900.00	82.676	184.531	132.948	−267.573	46.424	−433.651	−329.398	−274.343	15.922
	1000.00	84.517	193.337	138.553	−259.213	54.784	−452.550	−331.651	−268.111	14.005
	1100.00	86.358	201.479	143.908	−250.669	63.328	−472.296	−334.546	−261.622	12.423
	1200.00	88.199	209.072	149.025	−241.942	72.055	−492.828	−351.974	−253.608	11.039
	1300.00	90.040	216.204	153.921	−233.030	80.967	−514.095	−351.765	−245.419	9.861
	1395.00	91.789	222.615	158.383	−224.393	89.604	−534.941	−351.396	−237.659	8.899

References

Phase	H / S	C_p	Remarks
SOL	Nb1/Ku1	e	Hu1

MPT= 1395.

167.678 CALCIUM TELLURIDE **CaTe**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	41.611	76.567	76.567	−292.880	0.000	−315.709	−292.880	−288.601	50.562
	300.00	41.631	76.825	76.568	−292.803	0.077	−315.850	−292.897	−288.575	50.245
	400.00	42.677	88.944	78.213	−288.588	4.292	−324.165	−293.942	−286.982	37.476
	500.00	43.723	98.580	81.355	−284.268	8.612	−333.558	−295.221	−285.099	29.784
	600.00	44.769	106.644	84.916	−279.843	13.037	−343.829	−296.782	−282.934	24.632
	700.00	45.815	113.624	88.529	−275.314	17.566	−354.850	−298.667	−280.481	20.930
	800.00	46.861	119.810	92.060	−270.680	22.200	−366.528	−319.266	−275.763	18.005
	900.00	47.907	125.389	95.458	−265.942	26.938	−378.792	−321.764	−270.179	15.681
	1000.00	48.953	130.491	98.710	−261.099	31.781	−391.590	−324.570	−264.299	13.806
	1100.00	49.999	135.206	101.816	−256.151	36.729	−404.877	−327.685	−258.124	12.257
	1200.00	51.045	139.601	104.783	−251.099	41.781	−418.620	−338.054	−251.035	10.927
	1300.00	52.091	143.728	107.622	−245.942	46.938	−432.789	−339.592	−243.721	9.793
	1400.00	53.137	147.627	110.342	−240.681	52.199	−447.358	−387.464	−233.800	8.723
	1500.00	54.183	151.328	112.952	−235.315	57.565	−462.307	−387.219	−222.832	7.760

References

Phase	H / S	C_p
SOL	Tk1	e

237.957 CALCIUM METAVANADATE **Ca(VO3)2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	170.755	179.100	179.100	−2329.270	0.000	−2382.669	−2329.270	−2169.585	380.102
	300.00	170.975	180.157	179.104	−2328.954	0.316	−2383.001	−2329.256	−2168.595	377.586
	400.00	182.891	230.976	185.952	−2311.261	18.009	−2403.651	−2328.183	−2115.185	276.215
	500.00	194.807	273.067	199.278	−2292.376	36.894	−2428.909	−2326.491	−2062.119	215.428
	600.00	206.723	309.637	214.686	−2272.299	56.971	−2458.082	−2324.195	−2009.450	174.938
	700.00	218.639	342.399	230.629	−2251.031	78.239	−2490.710	−2321.309	−1957.213	146.049
	800.00	230.555	372.372	246.499	−2228.571	100.699	−2526.469	−2318.569	−1905.338	124.406
	900.00	242.471	400.215	262.049	−2204.920	124.350	−2565.114	−2314.414	−1853.929	107.599
	1000.00	254.387	426.379	277.186	−2180.077	149.193	−2606.456	−2309.838	−1803.005	94.179
	1053.00	260.703	439.678	285.032	−2166.427	162.843	−2629.408	−2307.238	−1776.210	88.110

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	e	Tk1	DPT= 1053. (LIQ + Ca2V2O7)

Ca2V2O7 — CALCIUM PYROVANADATE — 294.035

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	213.897	220.497	220.497	−3083.357	0.000	−3149.098	−3083.357	−2893.083	506.856
	300.00	214.120	221.821	220.501	−3082.961	0.396	−3149.507	−3083.337	−2891.902	503.525
	400.00	226.221	285.076	229.044	−3060.944	22.413	−3174.975	−3082.000	−2828.278	369.335
	500.00	238.321	336.856	245.576	−3037.717	45.640	−3206.145	−3080.189	−2765.047	288.863
	600.00	250.421	381.376	264.581	−3013.280	70.077	−3242.106	−3077.971	−2702.221	235.249
	700.00	262.521	420.888	284.139	−2987.633	95.724	−3282.254	−3075.399	−2639.795	196.984
	800.00	274.621	456.732	303.506	−2960.776	122.581	−3326.162	−3073.972	−2577.577	168.299
	900.00	286.721	489.777	322.390	−2932.709	150.648	−3373.508	−3070.574	−2515.732	146.009
	1000.00	298.821	520.612	340.686	−2903.432	179.925	−3424.043	−3067.179	−2454.265	128.198
	1100.00	310.921	549.660	358.376	−2872.944	210.413	−3477.571	−3063.770	−2393.138	113.641
	1200.00	323.022	577.233	375.474	−2841.247	242.110	−3533.926	−3074.228	−2331.090	101.470
	1285.00	333.307	599.687	389.568	−2813.353	270.004	−3583.951	−3067.606	−2278.677	92.627

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	e	Tk1	TPT= 1248. / DPT= 1285. (LIQ + Ca3(VO4)2)

Ca3(VO4)2 — CALCIUM ORTHOVANADATE — 350.112

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	257.028	274.901	274.901	−3777.939	0.000	−3859.901	−3777.939	−3560.953	623.864
	300.00	257.216	276.492	274.906	−3777.463	0.476	−3860.411	−3777.913	−3559.607	619.783
	400.00	267.349	351.876	285.116	−3751.235	26.704	−3891.986	−3776.425	−3487.057	455.363
	500.00	277.483	412.622	304.731	−3723.993	53.946	−3930.304	−3774.822	−3414.900	356.752
	600.00	287.617	464.109	327.108	−3695.739	82.200	−3974.204	−3773.224	−3343.066	291.040
	700.00	297.750	509.206	349.965	−3666.470	111.469	−4022.914	−3771.724	−3271.494	244.122
	800.00	307.884	549.627	372.438	−3636.188	141.751	−4075.890	−3772.583	−3199.852	208.929
	900.00	318.017	586.475	394.202	−3604.893	173.046	−4132.721	−3771.131	−3128.354	181.565
	1000.00	328.151	620.506	415.152	−3572.585	205.354	−4193.091	−3770.319	−3056.984	159.680
	1100.00	338.285	652.257	435.279	−3539.263	238.676	−4256.746	−3770.127	−2985.665	141.777
	1200.00	348.418	682.127	454.617	−3504.928	273.011	−4323.480	−3791.377	−2912.488	126.777
	1300.00	358.552	710.415	473.215	−3469.579	308.360	−4393.119	−3785.801	−2839.469	114.091
	1400.00	368.686	737.358	491.128	−3433.218	344.721	−4465.518	−3779.579	−2766.903	103.234
	1500.00	378.819	763.140	508.409	−3395.842	382.097	−4540.552	−3772.716	−2694.805	93.841
	1600.00	388.953	787.912	525.108	−3357.454	420.485	−4618.112	−3765.221	−2623.185	85.638
	1663.00	395.337	803.055	535.352	−3332.749	445.190	−4668.230	−3760.179	−2578.314	80.985

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	e	Tk1	DPT= 1663. (LIQ + CaO)

287.926 CALCIUM TUNGSTATE **CaWO4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	124.440	126.399	126.399	−1645.149	0.000	−1682.835	−1645.149	−1538.418	269.524
	300.00	124.524	127.169	126.401	−1644.919	0.230	−1683.069	−1645.119	−1537.756	267.747
	400.00	129.102	163.619	131.340	−1632.237	12.912	−1697.685	−1643.420	−1502.220	196.170
	500.00	133.679	192.919	140.818	−1619.098	26.051	−1715.558	−1641.606	−1467.128	153.270
	600.00	138.256	217.696	151.617	−1605.502	39.647	−1736.119	−1639.745	−1432.407	124.702
	700.00	142.833	239.352	162.635	−1591.447	53.702	−1758.994	−1637.867	−1397.999	104.320
	800.00	147.411	258.723	173.456	−1576.935	68.214	−1783.914	−1636.715	−1363.770	89.045
	900.00	151.988	276.350	183.924	−1561.965	83.184	−1810.680	−1634.716	−1329.773	77.178
	1000.00	156.565	292.601	193.989	−1546.537	98.612	−1839.138	−1632.829	−1295.992	67.696

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	e	Tk1	MPT= 1853.

400.080 CALCIUM ORTHOTUNGSTATE **Ca3WO6**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	202.260	200.832	200.832	−2987.953	0.000	−3047.831	−2987.953	−2817.550	493.623
	300.00	202.845	202.085	200.836	−2987.578	0.375	−3048.204	−2987.927	−2816.493	490.395
	400.00	224.452	263.783	209.101	−2966.080	21.873	−3071.594	−2985.530	−2759.666	360.375
	500.00	236.050	315.221	225.330	−2943.007	44.946	−3100.618	−2982.228	−2703.573	282.440
	600.00	243.707	358.974	244.049	−2918.998	68.955	−3134.382	−2978.830	−2648.164	230.543
	700.00	249.504	396.993	263.242	−2894.327	93.626	−3172.222	−2975.723	−2593.304	193.515
	800.00	254.310	430.632	282.103	−2869.130	118.823	−3213.635	−2975.306	−2538.584	165.753
	900.00	258.540	460.834	300.313	−2843.484	144.469	−3258.234	−2972.978	−2484.145	144.176
	1000.00	262.411	488.277	317.757	−2817.434	170.519	−3305.710	−2971.700	−2429.908	126.925

References

Phase	H / S	C_p	Remarks	
SOL	Tk1	e	Tk1	MPT= 2523.

CaZn — CALCIUM ZINC — 105.468

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	49.277	66.526	66.526	−73.220	0.000	−93.055	−73.220	−68.293	11.965
	300.00	49.329	66.831	66.527	−73.129	0.091	−93.178	−73.223	−68.262	11.885
	400.00	52.174	81.411	68.495	−68.054	5.166	−100.618	−73.303	−66.593	8.696
	500.00	55.020	93.359	72.307	−62.694	10.526	−109.374	−73.314	−64.914	6.782
	600.00	57.865	103.642	76.692	−57.050	16.170	−119.235	−73.318	−63.234	5.505
	700.00	60.710	112.776	81.206	−51.121	22.099	−130.064	−80.697	−61.473	4.587
	712.00	61.051	113.811	81.746	−50.390	22.830	−131.423	−80.727	−61.143	4.486

References

Phase	H / S	C_p	Remarks
SOL	Ku1	e	Hu1 DPT= 712. (CaZn2 + LIQ)

CaZn2 — CALCIUM 2−ZINC — 170.858

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	74.821	101.671	101.671	−94.140	0.000	−124.453	−94.140	−87.279	15.291
	300.00	74.873	102.134	101.673	−94.002	0.138	−124.642	−94.142	−87.236	15.189
	400.00	77.655	124.055	104.643	−86.375	7.765	−135.997	−94.252	−84.917	11.089
	500.00	80.437	141.682	110.343	−78.471	15.669	−149.311	−94.397	−82.569	8.626
	600.00	83.220	156.593	116.839	−70.288	23.852	−164.244	−94.651	−80.181	6.980
	700.00	86.002	169.631	123.469	−61.827	32.313	−180.568	−109.739	−77.584	5.789
	800.00	88.784	181.296	129.980	−53.087	41.053	−198.124	−111.318	−72.841	4.756
	900.00	91.567	191.914	136.280	−44.070	50.070	−216.792	−112.047	−67.989	3.946
	977.00	93.709	199.518	140.968	−36.937	57.203	−231.865	−112.701	−64.193	3.432

References

Phase	H / S	C_p	Remarks
SOL	Ku1	e	Hu1 MPT= 977.

112.411 CADMIUM **Cd**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	25.930	51.798	51.798	0.000	0.000	−15.444	0.000	0.000	0.000
	300.00	25.953	51.958	51.798	0.048	0.048	−15.540	0.000	0.000	0.000
	400.00	27.168	59.591	52.831	2.704	2.704	−21.132	0.000	0.000	0.000
	500.00	28.384	65.784	54.821	5.482	5.482	−27.410	0.000	0.000	0.000
	594.00	29.527	70.769	56.959	8.204	8.204	−33.834	0.000	0.000	0.000
			10.424		6.192					
LIQ	594.00	29.706	81.194	56.959	14.396	14.396	−33.834	0.000	0.000	0.000
	600.00	29.706	81.492	57.203	14.574	14.574	−34.322	0.000	0.000	0.000
	700.00	29.706	86.071	61.008	17.544	17.544	−42.706	0.000	0.000	0.000
	800.00	29.706	90.038	64.394	20.515	20.515	−51.516	0.000	0.000	0.000
	900.00	29.706	93.537	67.442	23.486	23.486	−60.698	0.000	0.000	0.000
	1000.00	29.706	96.667	70.211	26.456	26.456	−70.211	0.000	0.000	0.000
	1039.00	29.706	97.804	71.225	27.615	27.615	−74.003	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks
SOL	Hu1	Hu1	
LIQ	Hu1	Hu1	BPT= 1039., L= 97.40 kJ

112.411 CADMIUM (GAS) **Cd[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.786	167.741	167.741	111.796	0.000	61.784	111.796	77.227	−13.530
	300.00	20.786	167.870	167.742	111.834	0.038	61.473	111.786	77.013	−13.409
	400.00	20.786	173.850	168.557	113.913	2.117	44.373	111.209	65.506	−8.554
	500.00	20.786	178.488	170.097	115.992	4.196	26.748	110.510	54.158	−5.658
	600.00	20.786	182.278	171.821	118.070	6.274	8.704	103.497	43.025	−3.746
	700.00	20.786	185.482	173.549	120.149	8.353	−9.689	102.605	33.017	−2.464
	800.00	20.786	188.258	175.218	122.228	10.432	−28.379	101.712	23.137	−1.511
	900.00	20.786	190.706	176.806	124.306	12.510	−47.329	100.820	13.369	−0.776
	1000.00	20.786	192.896	178.307	126.385	14.589	−66.511	99.928	3.700	−0.193
	1100.00	20.786	194.877	179.725	128.463	16.667	−85.901	0.000	0.000	0.000
	1200.00	20.786	196.686	181.064	130.542	18.746	−105.481	0.000	0.000	0.000
	1300.00	20.786	198.349	182.331	132.621	20.825	−125.234	0.000	0.000	0.000
	1400.00	20.786	199.890	183.530	134.699	22.903	−145.147	0.000	0.000	0.000
	1500.00	20.786	201.324	184.669	136.778	24.982	−165.208	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

Cd3As2 — CADMIUM ARSENIDE — 487.076

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	125.295	206.832	206.832	−41.840	0.000	−103.507	−41.840	−35.885	6.287
	300.00	125.494	207.608	206.834	−41.608	0.232	−103.890	−41.843	−35.848	6.242
	400.00	132.931	244.857	211.863	−28.642	13.198	−126.585	−41.858	−33.840	4.419
	500.00	137.013	274.994	221.572	−15.129	26.711	−152.626	−41.812	−31.843	3.327
	600.00	139.776	300.232	232.636	−1.282	40.558	−181.421	−60.486	−29.656	2.582
	700.00	141.915	321.945	243.879	12.806	54.646	−212.555	−60.665	−24.502	1.828
	800.00	143.722	341.016	254.853	27.090	68.930	−245.723	−60.757	−19.328	1.262
	900.00	145.335	358.038	265.389	41.544	83.384	−280.690	−60.780	−14.148	0.821
	994.00	146.742	372.546	274.847	55.272	97.112	−315.038	−60.711	−9.280	0.488

References

Phase	H / S	C_p	Remarks
SOL	Tk1	e	Tk1 TPT= 503., 738., 868./ MPT= 994., L= 122.6 kJ

Cd3(AsO4)2 — CADMIUM ARSENATE — 615.071

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	258.824	301.708	301.708	−1934.347	0.000	−2024.301	−1934.347	−1712.021	299.939
	300.00	259.454	303.311	301.713	−1933.868	0.479	−2024.861	−1934.320	−1710.641	297.849
	400.00	284.153	381.692	312.232	−1906.563	27.784	−2059.240	−1931.881	−1636.403	213.692
	500.00	299.512	446.849	332.825	−1877.335	57.012	−2100.760	−1928.355	−1562.928	163.278
	600.00	311.193	502.525	356.580	−1846.780	87.567	−2148.295	−1942.959	−1490.024	129.718
	700.00	321.139	551.259	380.982	−1815.153	119.194	−2201.034	−1938.619	−1414.870	105.579
	800.00	330.160	594.737	405.032	−1782.583	151.764	−2258.372	−1933.772	−1340.374	87.517
	900.00	338.642	634.118	428.332	−1749.139	185.208	−2319.845	−1928.427	−1266.515	73.507
	914.00	339.800	639.354	431.524	−1744.390	189.957	−2328.760	−1927.637	−1256.225	71.793

References

Phase	H / S	C_p
SOL	G1	G1

272.219 CADMIUM BROMIDE **CdBr2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	76.567	137.235	137.235	−316.185	0.000	−357.102	−316.185	−296.277	51.906
	300.00	76.626	137.709	137.237	−316.043	0.142	−357.356	−316.231	−296.153	51.565
	400.00	79.810	160.189	140.280	−308.222	7.963	−372.297	−345.548	−283.348	37.001
	500.00	82.994	178.340	146.133	−300.081	16.104	−389.251	−343.877	−267.988	27.997
	600.00	86.178	193.753	152.816	−291.623	24.562	−407.875	−348.229	−252.918	22.018
	700.00	89.362	207.277	159.649	−282.846	33.339	−427.939	−346.158	−237.192	17.699
	800.00	92.546	219.417	166.374	−273.750	42.435	−449.284	−343.781	−221.784	14.481
	841.15	93.856	224.092	169.084	−269.915	46.270	−458.410	−342.713	−215.536	13.385
			39.643		33.346					
LIQ	841.15	101.671	263.735	169.084	−236.569	79.616	−458.410	−309.367	−215.536	13.385
	900.00	101.671	270.610	175.500	−230.586	85.599	−474.135	−307.344	−209.040	12.132
	1000.00	101.671	281.322	185.556	−220.419	95.766	−501.741	−303.914	−198.301	10.358
	1100.00	101.671	291.013	194.710	−210.252	105.933	−530.366	−399.526	−182.026	8.644
	1137.00	101.671	294.376	197.899	−206.490	109.695	−541.196	−397.931	−174.736	8.028

References

Phase	H / S	C_p	Remarks
SOL	Nb1	Pa2,T2	
LIQ	T1	Pa2	Tk1 BPT= 1137., L= 102.5 kJ

172.420 CADMIUM CARBONATE **CdCO3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	82.390	92.466	92.466	−751.865	0.000	−779.434	−751.865	−670.532	117.474
	300.00	82.634	92.977	92.468	−751.712	0.153	−779.605	−751.858	−670.027	116.662
	400.00	95.814	118.554	95.867	−742.790	9.075	−790.212	−751.085	−642.846	83.947
	500.00	108.993	141.350	102.719	−732.550	19.315	−803.225	−749.542	−615.949	64.348
	600.00	122.173	162.387	110.931	−720.991	30.874	−818.423	−753.395	−589.374	51.310

References

Phase	H / S	C_p
SOL	St1	e

CdCl2 CADMIUM CHLORIDE 183.316

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	74.565	115.269	115.269	−391.497	0.000	−425.865	−391.497	−343.899	60.250
	300.00	74.631	115.731	115.271	−391.359	0.138	−426.078	−391.470	−343.603	59.827
	400.00	77.716	137.641	118.237	−383.735	7.762	−438.792	−389.969	−327.873	42.816
	500.00	80.324	155.269	123.937	−375.831	15.666	−453.465	−388.414	−312.527	32.650
	600.00	82.743	170.129	130.428	−367.677	23.820	−469.754	−392.987	−297.439	25.894
	700.00	85.072	183.060	137.043	−359.285	32.212	−487.427	−391.243	−281.649	21.017
	800.00	87.355	194.569	143.527	−350.664	40.833	−506.319	−389.297	−266.123	17.376
	841.00	88.282	198.958	146.123	−347.063	44.434	−514.387	−388.440	−259.832	16.138
			37.810		31.798					
LIQ	841.00	111.294	236.768	146.123	−315.265	76.232	−514.387	−356.642	−259.832	16.138
	900.00	111.294	244.314	152.316	−308.699	82.798	−528.581	−354.028	−253.130	14.691
	1000.00	111.294	256.040	162.112	−297.569	93.928	−553.609	−349.611	−242.156	12.649
	1100.00	111.294	266.647	171.141	−286.440	105.057	−579.752	−444.242	−225.744	10.720
	1200.00	111.294	276.331	179.509	−275.310	116.187	−606.908	−438.955	−206.114	8.972
	1236.00	111.294	279.621	182.377	−271.304	120.193	−616.915	−437.054	−199.157	8.417

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	Pa2		
LIQ	Pa2	Pa2	Tk1	BPT= 1236., L= 121. kJ

150.408 CADMIUM FLUORIDE **CdF2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[	J / (K mol)	]	[		kJ / mol		]	
SOL	298.15	66.901	83.680	83.680	−700.402	0.000	−725.351	−700.402	−649.444	113.780
	300.00	66.944	84.094	83.681	−700.278	0.124	−725.506	−700.384	−649.128	113.023
	400.00	69.245	103.668	86.335	−693.469	6.933	−734.936	−699.444	−632.186	82.555
	500.00	71.546	119.367	91.421	−686.429	13.973	−746.112	−698.546	−615.476	64.298
	600.00	73.848	132.614	97.210	−679.159	21.243	−758.728	−703.841	−598.883	52.137
	700.00	76.149	144.171	103.110	−671.660	28.742	−772.579	−702.862	−581.466	43.390
	800.00	78.450	154.489	108.899	−663.930	36.472	−787.521	−701.709	−564.200	36.838
	900.00	80.751	163.862	114.493	−655.970	44.432	−803.446	−700.367	−547.090	31.752
	1000.00	83.052	172.489	119.867	−647.779	52.623	−820.269	−698.828	−530.140	27.692
	1100.00	85.354	180.513	125.020	−639.359	61.043	−837.923	−796.121	−507.473	24.098
	1200.00	87.655	188.038	129.961	−630.709	69.693	−856.355	−793.277	−481.357	20.953
	1300.00	89.956	195.145	134.704	−621.828	78.574	−875.517	−790.222	−455.486	18.302
	1345.00	90.992	198.224	136.778	−617.757	82.645	−884.368	−788.777	−443.923	17.240
			16.799		22.594					
LIQ	1345.00	92.048	215.023	136.778	−595.163	105.239	−884.368	−766.183	−443.923	17.240
	1400.00	92.048	218.712	139.925	−590.100	110.302	−896.297	−764.335	−430.783	16.073
	1500.00	92.048	225.062	145.391	−580.895	119.507	−918.489	−760.986	−407.074	14.176
	1600.00	92.048	231.003	150.558	−571.691	128.711	−941.296	−757.650	−383.589	12.523
	1700.00	92.048	236.583	155.456	−562.486	137.916	−964.678	−754.325	−360.312	11.071
	1800.00	92.048	241.845	160.111	−553.281	147.121	−988.602	−751.012	−337.231	9.786
	1900.00	92.048	246.822	164.545	−544.076	156.326	−1013.037	−747.708	−314.333	8.642
	2000.00	92.048	251.543	168.778	−534.871	165.531	−1037.957	−744.415	−291.609	7.616
	2024.00	92.048	252.641	169.766	−532.662	167.740	−1044.008	−743.626	−286.180	7.386

References

Phase	H / S	C_p	Remarks	
SOL	Tk1	e		
LIQ	Tk1	e	Tk1	BPT= 2024., L= 201. kJ

CdI2 CADMIUM IODIDE 366.220

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	79.950	161.084	161.084	−203.342	0.000	−251.369	−203.342	−201.298	35.267
	300.00	80.000	161.579	161.086	−203.194	0.148	−251.668	−203.343	−201.285	35.047
	400.00	82.685	184.961	164.255	−195.060	8.282	−269.044	−219.503	−200.026	26.121
	500.00	85.370	203.700	170.330	−186.657	16.685	−288.507	−262.072	−191.073	19.961
	600.00	88.056	219.502	177.242	−177.986	25.356	−309.687	−266.244	−176.998	15.409
	661.15	89.698	228.127	181.555	−172.551	30.791	−323.377	−264.925	−167.967	13.270
			31.326		20.711					
LIQ	661.15	102.090	259.452	181.555	−151.840	51.502	−323.377	−244.214	−167.967	13.270
	700.00	102.090	265.282	186.041	−147.874	55.468	−333.571	−242.865	−163.525	12.202
	800.00	102.090	278.914	196.817	−137.665	65.677	−360.796	−239.399	−152.427	9.952
	900.00	102.090	290.938	206.620	−127.456	75.886	−389.300	−235.941	−141.764	8.228
	1000.00	102.090	301.694	215.599	−117.247	86.095	−418.941	−232.490	−131.485	6.868

References

Phase	H / S	C_p	Remarks
SOL	Nb1	Pa2,T2	
LIQ	T1	Pa2	Tk1 NBPT= 1017.

CdO CADMIUM OXIDE 128.410

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	43.639	54.810	54.810	−258.990	0.000	−275.332	−258.990	−229.306	40.173
	300.00	43.719	55.080	54.811	−258.909	0.081	−275.433	−258.984	−229.122	39.894
	400.00	46.740	68.120	56.568	−254.369	4.621	−281.617	−258.586	−219.223	28.628
	500.00	48.481	78.751	59.975	−249.602	9.388	−288.977	−258.126	−209.436	21.880
	600.00	49.717	87.704	63.870	−244.689	14.301	−297.312	−263.885	−199.677	17.383
	700.00	50.714	95.445	67.840	−239.666	19.324	−306.478	−263.460	−189.009	14.104
	800.00	51.585	102.275	71.726	−234.551	24.439	−316.371	−262.984	−178.405	11.649
	900.00	52.382	108.397	75.466	−229.352	29.638	−326.909	−262.458	−167.863	9.743
	1000.00	53.133	113.955	79.041	−224.076	34.914	−338.031	−261.884	−157.383	8.221
	1100.00	53.854	119.053	82.450	−218.726	40.264	−349.685	−360.296	−141.083	6.699
	1200.00	54.555	123.770	85.699	−213.306	45.684	−361.829	−358.728	−121.223	5.277
	1300.00	55.241	128.163	88.799	−207.816	51.174	−374.428	−357.108	−101.496	4.078
	1400.00	55.917	132.282	91.759	−202.258	56.732	−387.453	−355.436	−81.896	3.056
	1500.00	56.585	136.163	94.591	−196.633	62.357	−400.877	−353.710	−62.417	2.174

References

Phase	H / S	C_p
SOL	Tk1	M4,Tk1

128.410 CADMIUM OXIDE(GAS) **CdO[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	33.892	233.160	233.160	81.069	0.000	11.553	81.069	57.578	−10.087
	300.00	33.943	233.370	233.161	81.132	0.063	11.121	81.057	57.433	−10.000
	400.00	35.769	243.420	234.519	84.630	3.561	−12.738	80.413	49.656	−6.484
	500.00	36.671	251.509	237.134	88.256	7.187	−37.498	79.732	42.043	−4.392
	600.00	37.209	258.246	240.107	91.952	10.883	−62.995	72.757	34.640	−3.016
	700.00	37.575	264.011	243.120	95.693	14.623	−89.115	71.899	28.355	−2.116
	800.00	37.850	269.047	246.053	99.464	18.395	−115.773	71.032	22.193	−1.449
	900.00	38.072	273.518	248.861	103.261	22.192	−142.905	70.155	16.141	−0.937
	1000.00	38.260	277.539	251.531	107.078	26.008	−170.462	69.270	10.187	−0.532
	1100.00	38.427	281.194	254.064	110.912	29.843	−198.401	−30.657	10.201	−0.484
	1200.00	38.579	284.544	256.466	114.763	33.693	−226.690	−30.660	13.916	−0.606
	1300.00	38.721	287.638	258.747	118.628	37.558	−255.301	−30.665	17.631	−0.708
	1400.00	38.855	290.512	260.914	122.506	41.437	−284.211	−30.671	21.346	−0.796
	1500.00	38.984	293.197	262.978	126.398	45.329	−313.398	−30.679	25.062	−0.873
	1600.00	39.108	295.717	264.946	130.303	49.234	−342.845	−30.686	28.778	−0.940
	1700.00	39.230	298.092	266.827	134.220	53.151	−372.536	−30.694	32.495	−0.998
	1800.00	39.348	300.338	268.627	138.149	57.080	−402.459	−30.701	36.212	−1.051
	1900.00	39.465	302.468	270.352	142.090	61.020	−432.600	−30.709	39.930	−1.098
	2000.00	39.580	304.495	272.009	146.042	64.973	−462.949	−30.717	43.648	−1.140

References

Phase	H / S	C_p
GAS	Tk1	Tk1,e

230.372 CADMIUM DIALUMINIUM TETRAOXIDE **CdAl2O4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	129.965	125.102	125.102	−1918.828	0.000	−1956.127	−1918.828	−1801.494	315.614
	300.00	130.466	125.907	125.104	−1918.587	0.241	−1956.359	−1918.834	−1800.766	313.541
	400.00	148.919	166.298	130.486	−1904.503	14.325	−1971.022	−1918.361	−1761.446	230.021
	500.00	158.741	200.676	141.177	−1889.079	29.749	−1989.417	−1917.114	−1722.353	179.933
	600.00	165.166	230.219	153.614	−1872.865	45.963	−2010.997	−1921.822	−1683.476	146.560
	700.00	169.987	256.056	166.442	−1856.098	62.730	−2035.337	−1920.269	−1643.873	122.667
	800.00	173.952	279.021	179.105	−1838.896	79.932	−2062.112	−1918.715	−1604.495	104.763
	900.00	177.421	299.713	191.376	−1821.324	97.504	−2091.066	−1917.301	−1565.305	90.848
	1000.00	180.581	318.572	203.166	−1803.422	115.406	−2121.994	−1937.183	−1524.743	79.644
	1100.00	183.540	335.924	214.457	−1785.214	133.614	−2154.730	−2034.351	−1477.708	70.170
	1200.00	186.361	352.015	225.257	−1766.718	152.110	−2189.137	−2031.381	−1427.233	62.126

References

Phase	H / S	C_p
SOL	Ku1	e

CdGa2O4 — CADMIUM DIGALLIUM TETRAOXIDE — 315.855

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	138.503	139.746	139.746	−1356.871	0.000	−1398.536	−1356.871	−1236.418	216.615
	300.00	138.901	140.604	139.748	−1356.614	0.257	−1398.795	−1356.869	−1235.671	215.149
	400.00	153.675	182.846	145.407	−1341.896	14.975	−1415.034	−1367.449	−1191.739	155.625
	500.00	161.686	218.070	156.519	−1326.095	30.776	−1435.130	−1365.938	−1147.974	119.928
	600.00	167.036	248.048	169.338	−1309.645	47.226	−1458.474	−1370.235	−1104.493	96.155
	700.00	171.129	274.116	182.485	−1292.729	64.142	−1484.610	−1368.123	−1060.366	79.125
	800.00	174.552	297.196	195.408	−1275.441	81.430	−1513.198	−1365.793	−1016.557	66.374
	900.00	177.585	317.933	207.889	−1257.832	99.039	−1543.971	−1363.279	−973.052	56.474
	1000.00	180.376	336.790	219.851	−1239.932	116.939	−1576.722	−1360.587	−929.836	48.570
	1100.00	183.010	354.106	231.279	−1221.762	135.109	−1611.278	−1456.756	−881.018	41.836
	1200.00	185.536	370.139	242.191	−1203.334	153.537	−1647.500	−1452.818	−828.851	36.079

References

Phase	H / S	C_p
SOL	Tk1/Ku1	e

Cd(OH)2 — CADMIUM HYDROXIDE — 146.426

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	−118.816	95.998	95.998	−560.702	0.000	−589.324	−560.702	−473.753	83.000
	300.00	−118.533	95.264	95.995	−560.922	−0.220	−589.501	−561.077	−473.213	82.394
	400.00	−108.167	62.772	91.495	−572.191	−11.489	−597.300	−580.880	−440.918	57.578
	500.00	−102.717	39.273	83.293	−582.712	−22.010	−602.349	−600.160	−403.689	42.173
	600.00	−99.203	20.876	74.368	−592.797	−32.095	−605.323	−625.426	−362.539	31.562
	700.00	−96.602	5.787	65.616	−602.582	−41.880	−606.633	−644.374	−317.225	23.672
	800.00	−94.488	−6.970	57.319	−612.134	−51.432	−606.557	−663.186	−269.204	17.577
	900.00	−92.657	−17.992	49.550	−621.489	−60.787	−605.297	−681.892	−218.832	12.701
	1000.00	−91.002	−27.667	42.302	−630.671	−69.969	−603.004	−700.510	−166.382	8.691

References

Phase	H / S	C_p
SOL	Nb1	e

188.495 CADMIUM METASILICATE **CdSiO3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol	]		[−]
SOL	298.15	88.579	97.500	97.500	−1189.089	0.000	−1218.159	−1189.089	−1105.357	193.654
	300.00	88.802	98.048	97.501	−1188.925	0.164	−1218.339	−1189.091	−1104.838	192.369
	400.00	98.155	124.981	101.110	−1179.541	9.548	−1229.533	−1188.942	−1076.762	140.611
	500.00	104.776	147.624	108.208	−1169.381	19.708	−1243.193	−1188.428	−1048.771	109.564
	600.00	110.322	167.228	116.447	−1158.620	30.469	−1258.957	−1193.875	−1020.843	88.872
	700.00	115.360	184.617	124.966	−1147.333	41.756	−1276.565	−1192.889	−992.078	74.030
	800.00	120.128	200.334	133.420	−1135.557	53.532	−1295.825	−1191.598	−963.475	62.908
	900.00	124.739	214.751	141.666	−1123.313	65.776	−1316.589	−1189.993	−935.053	54.269
	1000.00	129.252	228.128	149.651	−1110.613	78.476	−1338.740	−1188.066	−906.827	47.368
	1100.00	133.701	240.656	157.361	−1097.465	91.624	−1362.186	−1284.844	−872.929	41.452

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	S5,e	Tk1	MPT= 1514.

208.289 CADMIUM TITANIUM TRIOXIDE **CdTiO3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol	]		[−]
SOL−A	298.15	98.501	105.018	105.018	−1230.560	0.000	−1261.871	−1230.560	−1145.510	200.689
	300.00	98.770	105.629	105.020	−1230.378	0.182	−1262.066	−1230.553	−1144.982	199.359
	400.00	108.580	135.569	109.036	−1219.947	10.613	−1274.174	−1229.824	−1116.552	145.807
	500.00	113.637	160.392	116.898	−1208.813	21.747	−1289.009	−1228.757	−1088.354	113.700
	600.00	116.824	181.411	125.944	−1197.280	33.280	−1306.126	−1233.840	−1060.316	92.309
	700.00	119.128	199.600	135.196	−1185.477	45.083	−1325.197	−1232.763	−1031.481	76.970
	800.00	120.961	215.631	144.268	−1173.470	57.090	−1345.975	−1231.703	−1002.799	65.476
	900.00	122.520	229.970	153.008	−1161.294	69.266	−1368.267	−1230.686	−974.247	56.544
	1000.00	123.909	242.952	161.363	−1148.972	81.588	−1391.923	−1229.721	−945.806	49.404
	1100.00	125.187	254.822	169.328	−1136.516	94.044	−1416.821	−1327.842	−911.579	43.287
			13.617		14.979					
SOL−B	1100.00	127.612	268.440	169.328	−1121.537	109.023	−1416.821	−1312.863	−911.579	43.287
	1200.00	127.612	279.543	178.056	−1108.776	121.784	−1444.228	−1314.915	−875.067	38.091
	1300.00	127.612	289.758	186.261	−1096.015	134.545	−1472.700	−1312.594	−838.508	33.692
	1400.00	127.612	299.215	193.996	−1083.253	147.307	−1502.154	−1310.380	−802.124	29.928
	1500.00	127.612	308.019	201.307	−1070.492	160.068	−1532.521	−1308.277	−765.894	26.671
	1600.00	127.612	316.255	208.237	−1057.731	172.829	−1563.739	−1306.289	−729.800	23.826

References

Phase	H / S	C_p
SOL−A	N1,Ku1	e
SOL−B	N1	e

CdS — CADMIUM SULFIDE — 144.477

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	48.676	64.898	64.898	−149.370	0.000	−168.719	−149.370	−143.718	25.179
	300.00	48.702	65.199	64.899	−149.280	0.090	−168.840	−149.370	−143.683	25.017
	400.00	50.082	79.399	66.826	−144.341	5.029	−176.100	−151.668	−141.691	18.503
	500.00	51.463	90.723	70.510	−139.263	10.107	−184.625	−153.271	−139.033	14.525
	600.00	52.844	100.228	74.691	−134.048	15.322	−194.185	−160.723	−135.996	11.840
	700.00	54.225	108.477	78.941	−128.695	20.675	−204.629	−161.650	−131.799	9.835
	800.00	55.605	115.808	83.100	−123.203	26.167	−215.850	−162.489	−127.478	8.323
	900.00	56.986	122.437	87.108	−117.574	31.796	−227.767	−216.037	−121.901	7.075
	1000.00	58.367	128.513	90.949	−111.806	37.564	−240.319	−215.075	−111.492	5.824
	1100.00	59.748	134.140	94.622	−105.900	43.470	−253.455	−313.018	−95.305	4.526
	1200.00	61.128	139.398	98.137	−99.856	49.514	−267.134	−310.902	−75.606	3.291
	1300.00	62.509	144.346	101.503	−93.675	55.695	−281.324	−308.652	−56.088	2.254

References

Phase	H / S	C_p
SOL	Mi1	Mi1

CdS[g] — CADMIUM SULFIDE (GAS) — 144.477

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	35.813	246.673	246.673	188.280	0.000	114.735	188.280	139.736	−24.481
	300.00	35.832	246.894	246.673	188.346	0.066	114.278	188.256	139.434	−24.278
	400.00	36.503	257.308	248.089	191.968	3.688	89.045	184.640	123.454	−16.121
	500.00	36.815	265.491	250.780	195.635	7.355	62.890	181.628	108.481	−11.333
	600.00	36.987	272.220	253.809	199.326	11.046	35.995	172.651	94.183	−8.199
	700.00	37.091	277.930	256.857	203.031	14.751	8.480	170.075	81.309	−6.067
	800.00	37.160	282.887	259.808	206.743	18.463	−19.566	167.457	68.806	−4.493
	900.00	37.209	287.267	262.620	210.462	22.182	−48.078	111.999	57.788	−3.354
	1000.00	37.245	291.189	265.285	214.185	25.905	−77.005	110.916	51.822	−2.707
	1100.00	37.272	294.740	267.804	217.911	29.631	−106.304	10.792	51.845	−2.462
	1200.00	37.294	297.985	270.185	221.639	33.359	−135.942	10.594	55.586	−2.420
	1300.00	37.311	300.970	272.440	225.369	37.089	−165.892	10.391	59.344	−2.384
	1400.00	37.326	303.736	274.578	229.101	40.821	−196.129	10.186	63.117	−2.355
	1500.00	37.339	306.312	276.609	232.834	44.554	−226.633	9.976	66.905	−2.330
	1600.00	37.350	308.722	278.541	236.569	48.289	−257.386	9.764	70.707	−2.308
	1700.00	37.359	310.986	280.384	240.304	52.024	−288.373	9.548	74.523	−2.290
	1800.00	37.368	313.122	282.144	244.041	55.761	−319.579	9.329	78.351	−2.274
	1900.00	37.376	315.143	283.828	247.778	59.498	−350.993	9.107	82.192	−2.260
	2000.00	37.383	317.060	285.442	251.516	63.236	−382.604	8.882	86.044	−2.247

References

Phase	H / S	C_p
GAS	Pa3	Mi1

208.475 CADMIUM SULFATE **CdSO4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	99.620	123.039	123.039	−933.279	0.000	−969.963	−933.279	−822.633	144.122
	300.00	99.763	123.656	123.041	−933.095	0.184	−970.191	−933.293	−821.946	143.114
	400.00	107.504	153.416	127.046	−922.731	10.548	−984.098	−936.110	−784.642	102.464
	500.00	115.244	178.236	134.866	−911.594	21.685	−1000.712	−937.770	−746.596	77.996
	600.00	122.984	199.932	143.937	−899.682	33.597	−1019.641	−944.846	−708.200	61.654
	700.00	130.725	219.471	153.354	−886.997	46.282	−1040.627	−944.950	−668.742	49.902
	800.00	138.465	237.432	162.755	−873.537	59.742	−1063.483	−944.494	−629.309	41.090
	900.00	146.206	254.188	171.993	−859.304	73.975	−1088.073	−996.249	−588.813	34.174
	1000.00	153.946	269.993	181.010	−844.296	88.983	−1114.289	−992.971	−543.712	28.401
	1065.00	158.977	279.844	186.743	−834.126	99.153	−1132.161	−1089.829	−512.051	25.114
			5.854		6.234					
SOL−B	1065.00	158.977	285.698	186.743	−827.892	105.387	−1132.161	−1083.595	−512.051	25.114
	1100.00	161.686	290.882	189.975	−822.281	110.998	−1142.251	−1081.823	−493.297	23.425
	1132.00	164.163	295.554	192.893	−817.067	116.212	−1151.634	−1080.129	−476.200	21.974
			8.834		10.000					
SOL−1	1132.00	164.163	304.388	192.893	−807.067	126.212	−1151.634	−1070.129	−476.200	21.974
	1200.00	164.163	313.964	199.485	−795.904	137.375	−1172.661	−1066.471	−440.631	19.180
	1300.00	164.163	327.105	208.803	−779.488	153.791	−1204.724	−1061.153	−388.693	15.618
	1400.00	164.163	339.270	217.693	−763.071	170.208	−1238.050	−1055.901	−337.163	12.580
	1408.00	164.163	340.206	218.387	−761.758	171.521	−1240.768	−1055.484	−333.057	12.356

References

Phase	H / S	C_p	Remarks	
SOL−A	Nb1	Tk1,e		
SOL−B	Tk1	e		
SOL−1	Tk1	e	Tk1	MPT= 1408.

CdSb CADMIUM ANTIMONY 234.161

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	45.691	94.558	94.558	−25.522	0.000	−53.715	−25.522	−24.699	4.327
	300.00	45.727	94.841	94.559	−25.437	0.085	−53.890	−25.532	−24.694	4.300
	400.00	47.668	108.262	96.376	−20.768	4.754	−64.072	−26.082	−24.331	3.177
	500.00	49.610	119.107	99.871	−15.904	9.618	−75.457	−26.615	−23.831	2.490
	600.00	51.551	128.324	103.863	−10.846	14.676	−87.840	−33.328	−23.163	2.017
	700.00	53.492	136.416	107.947	−5.594	19.928	−101.085	−33.805	−21.430	1.599
	729.00	54.055	138.599	109.123	−4.034	21.488	−105.073	−33.926	−20.915	1.499
			43.963		32.049					
LIQ	729.00	75.312	182.562	109.123	28.015	53.537	−105.073	−1.877	−20.915	1.499
	800.00	75.312	189.561	115.956	33.362	58.884	−118.287	−0.688	−22.825	1.490
	900.00	75.312	198.432	124.637	40.893	66.415	−137.695	0.863	−25.687	1.491

References

Phase	H / S	C_p
SOL	Tk1	Tk1,e
LIQ	Tk1	e

CdSe CADMIUM SELENIDE 191.371

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	49.601	83.262	83.262	−144.766	0.000	−169.590	−144.766	−141.548	24.799
	300.00	49.618	83.568	83.263	−144.674	0.092	−169.745	−144.769	−141.528	24.642
	400.00	50.551	97.970	85.220	−139.666	5.100	−178.854	−145.085	−140.407	18.335
	500.00	51.484	109.351	88.947	−134.564	10.202	−189.239	−151.571	−139.091	14.531
	600.00	52.417	118.820	93.158	−129.369	15.397	−200.661	−158.982	−136.419	11.876
	700.00	53.350	126.970	97.420	−124.081	20.685	−212.960	−160.179	−132.563	9.892
	800.00	54.283	134.155	101.571	−118.699	26.067	−226.023	−161.283	−128.541	8.393
	900.00	55.216	140.603	105.556	−113.224	31.542	−239.766	−162.293	−124.387	7.219
	1000.00	56.149	146.468	109.358	−107.656	37.110	−254.124	−163.210	−120.125	6.275
	1100.00	57.082	151.864	112.980	−101.994	42.772	−269.044	−316.381	−104.941	4.983
	1200.00	58.015	156.871	116.432	−96.239	48.527	−284.484	−314.773	−85.790	3.734
	1300.00	58.948	161.551	119.724	−90.391	54.375	−300.408	−313.059	−66.777	2.683
	1400.00	59.881	165.954	122.871	−84.450	60.316	−316.785	−311.240	−47.899	1.787
	1500.00	60.814	170.117	125.883	−78.415	66.351	−333.590	−309.316	−29.156	1.015
	1537.00	61.160	171.603	126.966	−76.158	68.608	−339.912	−308.577	−22.254	0.756

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1	Mi1,Tk1	MPT= 1537., L= 43.9 kJ

239.369 CADMIUM SELENITE **CdSeO3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	94.667	142.302	142.302	−575.300	0.000	−617.727	−575.300	−497.938	87.237
	300.00	94.768	142.888	142.304	−575.125	0.175	−617.991	−575.301	−497.458	86.615
	400.00	100.207	170.896	146.086	−565.376	9.924	−633.734	−575.333	−471.503	61.572
	500.00	105.646	193.841	153.407	−555.083	20.217	−652.004	−581.217	−445.463	46.537
	600.00	111.085	213.583	161.828	−544.247	31.053	−672.397	−587.726	−418.215	36.409
	700.00	116.524	231.115	170.496	−532.866	42.434	−694.647	−587.713	−389.959	29.099
	800.00	121.964	247.030	179.082	−520.942	54.358	−718.566	−587.279	−361.733	23.619
	900.00	127.403	261.709	187.458	−508.474	66.826	−744.012	−586.404	−333.587	19.361
	953.00	130.286	269.081	191.793	−501.645	73.655	−758.079	−585.755	−318.717	17.469
			61.465		58.576					
LIQ	953.00	142.674	330.546	191.793	−443.069	132.231	−758.079	−527.179	−318.717	17.469
	1000.00	142.674	337.414	198.477	−436.363	138.937	−773.777	−525.972	−308.466	16.113

References

Phase	H / S	C_p
SOL	Nb1	e
LIQ	Tk1	e

240.011 CADMIUM TELLURIDE **CdTe**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−B	298.15	49.889	92.885	92.885	−101.797	0.000	−129.491	−101.797	−99.290	17.395
	300.00	50.026	93.194	92.886	−101.705	0.092	−129.663	−101.800	−99.274	17.285
	400.00	55.505	108.409	94.923	−96.402	5.395	−139.766	−101.839	−98.421	12.852
	500.00	59.061	121.198	98.934	−90.665	11.132	−151.264	−101.786	−97.572	10.193
	600.00	61.861	132.221	103.584	−84.615	17.182	−163.947	−107.955	−96.670	8.416
	700.00	64.303	141.943	108.383	−78.304	23.493	−177.665	−107.963	−94.788	7.073
	800.00	66.555	150.678	113.133	−71.760	30.037	−192.303	−125.580	−91.026	5.943
	900.00	68.696	158.642	117.753	−64.997	36.800	−207.775	−125.553	−86.706	5.032
	1000.00	70.768	165.987	122.214	−58.023	43.774	−224.011	−125.316	−82.400	4.304
	1100.00	72.796	172.828	126.508	−50.845	50.952	−240.955	−223.910	−72.249	3.431
	1200.00	74.792	179.248	130.638	−43.465	58.332	−258.562	−222.375	−58.527	2.548
	1300.00	76.767	185.312	134.612	−35.887	65.910	−276.793	−220.641	−44.942	1.806
	1364.00	78.023	189.031	137.079	−30.934	70.863	−288.773	−266.433	−35.096	1.344

References

Phase	H / S	C_p	Remarks	
SOL−B	Hu1	Hu1,e	Hu1	MPT= 1364., L= 44.4 kJ

Cd11U — 11–CADMIUM URANIUM — 1474.550

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	313.958	583.250	583.250	−45.606	0.000	−219.502	−45.606	−34.628	6.067
	300.00	314.425	585.193	583.256	−45.025	0.581	−220.583	−45.604	−34.560	6.017
	400.00	332.717	678.419	595.842	−12.575	33.031	−283.943	−45.239	−30.926	4.039
	500.00	344.071	753.956	620.150	21.297	66.903	−355.681	−45.003	−27.384	2.861
	600.00	352.695	817.477	647.883	56.150	101.756	−434.336	−113.497	−23.150	2.015
	700.00	360.029	872.408	676.122	91.794	137.400	−518.891	−114.164	−8.034	0.600
	800.00	366.677	920.923	703.748	128.134	173.740	−608.605	−114.487	7.153	−0.467
	900.00	372.924	964.475	730.339	165.116	210.722	−702.911	−114.571	22.365	−1.298

References

Phase	H / S	C_p
SOL	Ku1	e

CdWO4 — CADMIUM TUNGSTATE — 360.259

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	124.497	154.808	154.808	−1180.185	0.000	−1226.341	−1180.185	−1078.831	189.007
	300.00	124.558	155.578	154.810	−1179.955	0.230	−1226.628	−1180.156	−1078.202	187.732
	400.00	127.863	191.864	159.735	−1167.334	12.851	−1244.079	−1178.599	−1044.452	136.391
	500.00	131.168	220.751	169.145	−1154.382	25.803	−1264.757	−1177.057	−1011.094	105.628
	600.00	134.474	244.958	179.816	−1141.100	39.085	−1288.075	−1181.744	−977.981	85.141
	700.00	137.779	265.935	190.653	−1127.487	52.698	−1313.642	−1180.212	−944.140	70.453
	800.00	141.084	284.549	201.248	−1113.544	66.641	−1341.183	−1178.558	−910.526	59.451
	900.00	144.390	301.357	211.452	−1099.270	80.915	−1370.492	−1176.755	−877.129	50.907
	1000.00	147.695	316.741	221.222	−1084.666	95.519	−1401.407	−1174.779	−843.941	44.083
	1100.00	151.001	330.973	230.561	−1069.731	110.454	−1433.802	−1271.649	−805.081	38.230
	1200.00	154.306	344.254	239.488	−1054.466	125.719	−1467.570	−1268.384	−762.808	33.204
	1300.00	157.611	356.735	248.031	−1038.870	141.315	−1502.626	−1264.903	−720.816	28.963

References

Phase	H / S	C_p
SOL	Ku1/e	e

140.115 CERIUM **Ce**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL-C	298.15	26.895	69.454	69.454	0.000	0.000	-20.708	0.000	0.000	0.000
	300.00	26.921	69.621	69.455	0.050	0.050	-20.836	0.000	0.000	0.000
	400.00	28.336	77.559	70.528	2.813	2.813	-28.211	0.000	0.000	0.000
	500.00	29.750	84.034	72.600	5.717	5.717	-36.300	0.000	0.000	0.000
	600.00	31.165	89.583	74.979	8.763	8.763	-44.987	0.000	0.000	0.000
	700.00	32.809	94.511	77.423	11.962	11.962	-54.196	0.000	0.000	0.000
	800.00	34.449	98.999	79.844	15.325	15.325	-63.875	0.000	0.000	0.000
	900.00	36.088	103.152	82.206	18.851	18.851	-73.985	0.000	0.000	0.000
	999.00	37.711	107.001	84.474	22.504	22.504	-84.389	0.000	0.000	0.000
			2.995		2.992					
SOL-D	999.00	37.614	109.996	84.474	25.496	25.496	-84.389	0.000	0.000	0.000
	1000.00	37.614	110.033	84.499	25.534	25.534	-84.499	0.000	0.000	0.000
	1071.00	37.614	112.614	86.279	28.205	28.205	-92.405	0.000	0.000	0.000
			5.098		5.460					
LIQ	1071.00	37.698	117.712	86.279	33.665	33.665	-92.405	0.000	0.000	0.000
	1100.00	37.698	118.719	87.121	34.758	34.758	-95.833	0.000	0.000	0.000
	1200.00	37.698	121.999	89.893	38.528	38.528	-107.871	0.000	0.000	0.000
	1300.00	37.698	125.016	92.480	42.297	42.297	-120.224	0.000	0.000	0.000
	1400.00	37.698	127.810	94.905	46.067	46.067	-132.867	0.000	0.000	0.000
	1500.00	37.698	130.411	97.186	49.837	49.837	-145.779	0.000	0.000	0.000
	1600.00	37.698	132.844	99.340	53.607	53.607	-158.943	0.000	0.000	0.000
	1700.00	37.698	135.129	101.378	57.377	57.377	-172.343	0.000	0.000	0.000
	1800.00	37.698	137.284	103.314	61.146	61.146	-185.965	0.000	0.000	0.000
	1900.00	37.698	139.322	105.156	64.916	64.916	-199.796	0.000	0.000	0.000
	2000.00	37.698	141.256	106.913	68.686	68.686	-213.826	0.000	0.000	0.000
	2100.00	37.698	143.095	108.593	72.456	72.456	-228.044	0.000	0.000	0.000
	2200.00	37.698	144.849	110.201	76.225	76.225	-242.442	0.000	0.000	0.000
	2300.00	37.698	146.525	111.744	79.995	79.995	-257.011	0.000	0.000	0.000
	2400.00	37.698	148.129	113.227	83.765	83.765	-271.745	0.000	0.000	0.000
	2500.00	37.698	149.668	114.654	87.535	87.535	-286.635	0.000	0.000	0.000
	2600.00	37.698	151.147	116.029	91.305	91.305	-301.676	0.000	0.000	0.000
	2700.00	37.698	152.569	117.356	95.074	95.074	-316.863	0.000	0.000	0.000
	2800.00	37.698	153.940	118.639	98.844	98.844	-332.188	0.000	0.000	0.000
	2900.00	37.698	155.263	119.879	102.614	102.614	-347.649	0.000	0.000	0.000
	3000.00	37.698	156.541	121.080	106.384	106.384	-363.240	0.000	0.000	0.000
	3100.00	37.698	157.777	122.244	110.154	110.154	-378.956	0.000	0.000	0.000
	3200.00	37.698	158.974	123.373	113.923	113.923	-394.794	0.000	0.000	0.000
	3300.00	37.698	160.134	124.470	117.693	117.693	-410.749	0.000	0.000	0.000
	3400.00	37.698	161.259	125.535	121.463	121.463	-426.819	0.000	0.000	0.000
	3500.00	37.698	162.352	126.571	125.233	125.233	-443.000	0.000	0.000	0.000
	3600.00	37.698	163.414	127.580	129.002	129.002	-459.289	0.000	0.000	0.000
	3695.00	37.698	164.396	128.514	132.584	132.584	-474.860	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL-C	Hu1	Hu1		fcc TPT($\alpha-\beta$) = 125, TPT($\beta-\gamma$) = 160
SOL-D	Hu1	Hu1		bcc
LIQ	Hu1	Hu1	Hu1	BPT = 3695. / L = 414.2 kJ

Ce[g] CERIUM (GAS) 140.115

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	23.074	191.766	191.766	422.584	0.000	365.409	422.584	386.117	−67.646
	300.00	23.096	191.909	191.766	422.627	0.043	365.054	422.577	385.891	−67.190
	400.00	24.593	198.739	192.688	425.005	2.421	345.509	422.192	373.720	−48.803
	500.00	26.768	204.452	194.482	427.569	4.985	325.343	421.852	361.643	−37.781
	600.00	29.168	209.544	196.575	430.365	7.781	304.639	421.603	349.626	−30.438
	700.00	31.461	214.215	198.766	433.399	10.815	283.448	421.437	337.644	−25.195
	800.00	33.486	218.552	200.971	436.648	14.064	261.807	421.324	325.682	−21.265
	900.00	35.179	222.597	203.152	440.085	17.501	239.747	421.233	313.732	−18.209
	1000.00	36.526	226.376	205.288	443.673	21.089	217.296	418.139	301.796	−15.764
	1100.00	37.545	229.908	207.367	447.379	24.795	194.480	412.621	290.313	−13.786
	1200.00	38.269	233.208	209.385	451.172	28.588	171.322	412.644	279.194	−12.153
	1300.00	38.739	236.291	211.337	455.024	32.440	147.846	412.727	268.070	−10.771
	1400.00	39.004	239.173	213.224	458.913	36.329	124.071	412.846	256.938	−9.586
	1500.00	39.118	241.868	215.044	462.820	40.236	100.017	412.983	245.797	−8.559
	1600.00	39.136	244.394	216.801	466.733	44.149	75.703	413.127	234.646	−7.660
	1700.00	39.093	246.766	218.494	470.646	48.062	51.144	413.269	223.487	−6.867
	1800.00	38.986	248.997	220.128	474.550	51.966	26.354	413.404	212.319	−6.161
	1900.00	38.854	251.102	221.703	478.442	55.858	1.348	413.526	201.145	−5.530
	2000.00	38.718	253.091	223.223	482.321	59.737	−23.862	413.635	189.964	−4.961
	2100.00	38.588	254.977	224.691	486.186	63.602	−49.266	413.730	178.778	−4.447
	2200.00	38.470	256.770	226.108	490.039	67.455	−74.854	413.813	167.588	−3.979
	2300.00	38.365	258.477	227.479	493.880	71.296	−100.617	413.885	156.394	−3.552
	2400.00	38.274	260.108	228.805	497.712	75.128	−126.547	413.947	145.197	−3.160
	2500.00	38.196	261.669	230.088	501.536	78.952	−152.637	414.001	133.998	−2.800
	2600.00	38.127	263.166	231.332	505.352	82.768	−178.879	414.047	122.797	−2.467
	2700.00	38.066	264.603	232.538	509.161	86.577	−205.268	414.087	111.595	−2.159
	2800.00	38.011	265.987	233.708	512.965	90.381	−231.798	414.121	100.391	−1.873
	2900.00	37.958	267.320	234.844	516.764	94.180	−258.464	414.150	89.185	−1.606
	3000.00	37.906	268.606	235.948	520.557	97.973	−285.260	414.173	77.979	−1.358
	3100.00	37.852	269.848	237.022	524.345	101.761	−312.183	414.191	66.773	−1.125
	3200.00	37.793	271.049	238.066	528.127	105.543	−339.228	414.204	55.565	−0.907
	3300.00	37.729	272.210	239.084	531.903	109.319	−366.392	414.210	44.358	−0.702
	3400.00	37.657	273.336	240.074	535.672	113.088	−393.669	414.210	33.150	−0.509
	3500.00	37.576	274.426	241.040	539.434	116.850	−421.058	414.202	21.943	−0.327
	3600.00	37.484	275.484	241.983	543.187	120.603	−448.553	414.185	10.735	−0.156
	3700.00	37.379	276.509	242.902	546.931	124.347	−476.153	0.000	0.000	0.000
	3800.00	37.367	277.506	243.800	550.667	128.083	−503.854	0.000	0.000	0.000
	3900.00	37.367	278.476	244.676	554.404	131.820	−531.654	0.000	0.000	0.000
	4000.00	37.367	279.422	245.533	558.141	135.557	−559.549	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1,e

204.981 CERIUM HEXABORIDE **CeB6**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	103.307	74.057	74.057	−338.904	0.000	−360.984	−338.904	−329.847	57.788
	300.00	103.923	74.698	74.059	−338.712	0.192	−361.122	−338.888	−329.791	57.422
	400.00	126.631	108.111	78.460	−327.044	11.860	−370.288	−338.171	−326.880	42.686
	500.00	138.741	137.782	87.423	−313.724	25.180	−382.615	−338.139	−324.076	33.856
	600.00	146.681	163.821	98.032	−299.431	39.473	−397.723	−338.775	−321.213	27.964
	700.00	152.651	186.898	109.110	−284.453	54.451	−415.281	−339.926	−318.202	23.745
	800.00	157.571	207.611	120.150	−268.935	69.969	−435.024	−341.470	−314.997	20.567
	900.00	161.881	226.424	130.929	−252.959	85.945	−456.740	−343.313	−311.580	18.084
	1000.00	165.812	243.686	141.353	−236.571	102.333	−480.257	−348.383	−307.941	16.085
	1100.00	169.495	259.664	151.391	−219.804	119.100	−505.434	−356.020	−303.644	14.419
	1200.00	173.010	274.563	161.042	−202.678	136.226	−532.154	−358.197	−298.786	13.006
	1300.00	176.406	288.546	170.317	−185.206	153.698	−560.317	−360.344	−293.748	11.803
	1400.00	179.716	301.741	179.238	−167.400	171.504	−589.837	−362.444	−288.546	10.766
	1500.00	182.962	314.251	187.825	−149.265	189.639	−620.642	−364.484	−283.196	9.862
	1600.00	186.159	326.162	196.102	−130.809	208.095	−652.667	−366.454	−277.713	9.066
	1700.00	189.319	337.542	204.090	−112.035	226.869	−685.857	−368.347	−272.108	8.361
	1800.00	192.450	348.452	211.809	−92.946	245.958	−720.160	−370.155	−266.394	7.731
	1900.00	195.557	358.941	219.278	−73.545	265.359	−755.533	−371.874	−260.582	7.164
	2000.00	198.646	369.050	226.516	−53.835	285.069	−791.936	−373.499	−254.682	6.652
	2100.00	201.719	378.817	233.537	−33.817	305.087	−829.332	−375.028	−248.704	6.186
	2200.00	204.780	388.271	240.357	−13.492	325.412	−867.689	−376.455	−242.654	5.761
	2300.00	207.830	397.441	246.988	7.139	346.043	−906.977	−377.779	−236.542	5.372
	2400.00	210.872	406.351	253.443	28.074	366.978	−947.168	−680.554	−223.962	4.874
	2500.00	213.906	415.021	259.734	49.313	388.217	−988.239	−682.135	−204.904	4.281

References

Phase	H / S	C_p
SOL	Nb1/e	e

CeBr3 CERIUM BROMIDE 379.827

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	100.832	207.108	207.108	−882.824	0.000	−944.573	−882.824	−855.793	149.931
	300.00	100.903	207.732	207.110	−882.637	0.187	−944.957	−882.897	−855.625	148.978
	400.00	104.227	237.236	211.110	−872.374	10.450	−967.268	−927.119	−837.332	109.344
	500.00	107.001	260.798	218.769	−861.810	21.014	−992.208	−924.998	−815.129	85.156
	600.00	109.558	280.534	227.462	−850.980	31.844	−1019.301	−922.792	−793.361	69.068
	700.00	112.014	297.608	236.290	−839.901	42.923	−1048.227	−920.515	−771.968	57.605
	800.00	114.415	312.723	244.917	−828.579	54.245	−1078.758	−918.177	−750.906	49.029
	900.00	116.784	326.336	253.220	−817.019	65.805	−1110.722	−915.780	−730.141	42.376
	1000.00	119.134	338.762	261.161	−805.223	77.601	−1143.985	−916.315	−709.642	37.068
	1005.00	119.251	339.357	261.549	−804.627	78.197	−1145.681	−916.190	−708.609	36.830
			51.624		51.882					
LIQ	1005.00	152.674	390.981	261.549	−752.745	130.079	−1145.681	−864.308	−708.609	36.830
	1100.00	152.674	404.770	273.332	−738.241	144.583	−1183.489	−864.216	−693.998	32.955
	1200.00	152.674	418.055	284.846	−722.974	159.850	−1224.640	−858.388	−678.781	29.547

References

Phase	H / S	C_p
SOL	Pa2	Pa2
LIQ	Dw4,Pa2	Dw4

379.827

CERIUM BROMIDE (GAS) **CeBr3[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	80.062	398.368	398.368	−597.057	0.000	−715.830	−597.057	−627.051	109.857
	300.00	80.102	398.863	398.369	−596.909	0.148	−716.568	−597.169	−627.236	109.212
	400.00	81.555	422.127	401.531	−588.819	8.238	−757.670	−643.564	−627.734	81.974
	500.00	82.687	440.448	407.547	−580.606	16.451	−800.830	−643.795	−623.751	65.163
	600.00	83.784	455.621	414.330	−572.282	24.775	−845.655	−644.094	−619.715	53.951
	700.00	84.793	468.614	421.179	−563.852	33.205	−891.882	−644.466	−615.624	45.938
	800.00	85.665	479.995	427.834	−555.328	41.729	−939.324	−644.926	−611.473	39.925
	900.00	86.373	490.128	434.203	−546.725	50.332	−987.840	−645.486	−607.259	35.244
	1000.00	86.913	499.257	440.260	−538.059	58.998	−1037.317	−649.151	−602.974	31.496
	1100.00	87.292	507.560	446.006	−529.348	67.709	−1087.664	−655.323	−598.173	28.405
	1200.00	87.522	515.166	451.457	−520.606	76.451	−1138.805	−656.020	−592.947	25.810
	1300.00	87.623	522.177	456.631	−511.848	85.209	−1190.677	−656.710	−587.663	23.613
	1400.00	87.617	528.671	461.548	−503.085	93.972	−1243.224	−657.404	−582.326	21.727
	1500.00	87.528	534.713	466.226	−494.327	102.730	−1296.396	−658.112	−576.938	20.091
	1600.00	87.381	540.357	470.685	−485.581	111.476	−1350.153	−658.839	−571.503	18.658
	1700.00	87.201	545.650	474.941	−476.852	120.205	−1404.456	−659.592	−566.022	17.392
	1800.00	87.016	550.629	479.009	−468.141	128.916	−1459.272	−660.370	−560.495	16.265
	1900.00	86.853	555.329	482.903	−459.448	137.609	−1514.572	−661.174	−554.925	15.256
	2000.00	86.738	559.780	486.636	−450.769	146.288	−1570.330	−661.999	−549.312	14.347

References

Phase	H / S	C_p
GAS	Pa2	Pa2

164.137

CERIUM DICARBIDE **CeC2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	61.007	84.098	84.098	−63.011	0.000	−88.085	−63.011	−63.954	11.204
	300.00	61.151	84.476	84.100	−62.898	0.113	−88.241	−62.979	−63.960	11.136
	400.00	66.547	102.899	86.575	−56.481	6.530	−97.641	−61.399	−64.532	8.427
	500.00	69.538	118.096	91.405	−49.665	13.346	−108.713	−60.150	−65.468	6.839
	600.00	71.584	130.964	96.953	−42.604	20.407	−121.183	−59.295	−66.618	5.800
	700.00	73.182	142.123	102.626	−35.363	27.648	−134.850	−58.810	−67.882	5.065
	800.00	74.543	151.986	108.192	−27.976	35.035	−149.564	−58.633	−69.194	4.518
	900.00	75.766	160.838	113.558	−20.459	42.552	−165.213	−58.709	−70.512	4.092
	1000.00	76.902	168.880	118.694	−12.825	50.186	−181.705	−61.996	−71.806	3.751
	1100.00	77.982	176.260	123.596	−5.081	57.930	−198.967	−67.853	−72.620	3.448
	1200.00	79.024	183.091	128.273	2.770	65.781	−216.939	−68.264	−73.035	3.179
	1300.00	80.039	189.456	132.737	10.723	73.734	−235.570	−68.663	−73.417	2.950
	1400.00	81.035	195.424	137.004	18.777	81.788	−254.817	−69.037	−73.768	2.752
	1500.00	82.016	201.049	141.088	26.930	89.941	−274.643	−69.373	−74.094	2.580

References

Phase	H / S	C_p
SOL	Nb1	e

Ce2C3 DICERIUM TRICARBIDE 316.263

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	103.345	173.636	173.636	−176.565	0.000	−228.335	−176.565	−181.784	31.848
	300.00	103.645	174.276	173.638	−176.374	0.191	−228.656	−176.521	−181.817	31.657
	400.00	114.600	205.794	177.861	−165.392	11.173	−247.709	−174.175	−183.941	24.020
	500.00	120.311	232.036	186.148	−153.621	22.944	−269.639	−172.207	−186.621	19.496
	600.00	123.958	254.314	195.700	−141.396	35.169	−293.985	−170.814	−189.645	16.510
	700.00	126.630	273.632	205.484	−128.861	47.704	−320.404	−170.012	−192.854	14.391
	800.00	128.784	290.686	215.089	−116.087	60.478	−348.636	−169.736	−196.142	12.807
	900.00	130.635	305.964	224.352	−103.114	73.451	−378.482	−169.914	−199.437	11.575
	1000.00	132.298	319.815	233.216	−89.967	86.598	−409.781	−176.490	−202.683	10.587
	1100.00	133.839	332.497	241.673	−76.659	99.906	−442.406	−188.197	−204.969	9.733
	1200.00	135.297	344.206	249.736	−63.202	113.363	−476.248	−189.016	−206.458	8.987
	1300.00	136.695	355.091	257.427	−49.602	126.963	−511.219	−189.830	−207.878	8.353
	1400.00	138.052	365.271	264.770	−35.864	140.701	−547.243	−190.619	−209.237	7.807
	1500.00	139.376	374.841	271.792	−21.992	154.573	−584.253	−191.365	−210.540	7.332

References

Phase	H / S	C_p
SOL	Ku1	e

CeCl3 CERIUM CHLORIDE 246.473

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	87.864	150.959	150.959	−1053.531	0.000	−1098.539	−1053.531	−978.048	171.350
	300.00	88.333	151.504	150.960	−1053.368	0.163	−1098.819	−1053.512	−977.580	170.212
	400.00	103.876	179.415	154.660	−1043.629	9.902	−1115.395	−1051.737	−952.504	124.384
	500.00	110.173	203.361	162.071	−1032.886	20.645	−1134.567	−1049.255	−927.975	96.945
	600.00	113.491	223.764	170.697	−1021.690	31.841	−1155.949	−1046.557	−903.971	78.698
	700.00	115.975	241.449	179.569	−1010.215	43.316	−1179.229	−1043.796	−880.424	65.698
	800.00	118.521	257.098	188.300	−998.493	55.038	−1204.171	−1040.994	−857.276	55.974
	900.00	121.553	271.227	196.741	−986.494	67.037	−1230.598	−1038.111	−834.483	48.432
	1000.00	125.298	284.221	204.848	−974.158	79.373	−1258.379	−1038.070	−812.016	42.415
	1080.00	128.892	293.996	211.092	−963.994	89.537	−1281.511	−1040.879	−793.987	38.402
			49.201		53.137					
LIQ	1080.00	159.829	343.197	211.092	−910.857	142.674	−1281.511	−987.742	−793.987	38.402
	1100.00	159.829	346.130	213.521	−907.661	145.870	−1288.404	−986.427	−790.411	37.533
	1200.00	159.829	360.037	225.159	−891.678	161.853	−1323.722	−979.859	−772.881	33.643
	1300.00	159.829	372.830	236.033	−875.695	177.836	−1360.374	−973.306	−755.899	30.372

References

Phase	H / S	C_p
SOL	Nb1	Pa2
LIQ	Pa2	Pa2

246.473 CERIUM CHLORIDE (GAS) **CeCl3[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	78.396	370.711	370.711	−722.995	0.000	−833.523	−722.995	−713.031	124.920
	300.00	78.453	371.197	370.713	−722.850	0.145	−834.209	−722.994	−712.970	124.139
	400.00	80.551	394.086	373.820	−714.889	8.106	−872.523	−722.996	−709.631	92.668
	500.00	82.020	412.222	379.748	−706.758	16.237	−912.869	−723.126	−706.278	73.784
	600.00	83.311	427.293	386.451	−698.490	24.505	−954.866	−723.357	−702.888	61.192
	700.00	84.442	440.222	393.231	−690.101	32.894	−998.257	−723.682	−699.452	52.194
	800.00	85.394	451.562	399.828	−681.608	41.387	−1042.858	−724.109	−695.962	45.442
	900.00	86.158	461.666	406.148	−673.029	49.966	−1088.528	−724.646	−692.413	40.187
	1000.00	86.739	470.776	412.163	−664.382	58.613	−1135.158	−728.294	−688.795	35.979
	1100.00	87.147	479.063	417.874	−655.687	67.308	−1182.656	−734.452	−684.663	32.512
	1200.00	87.400	486.658	423.294	−646.958	76.037	−1230.947	−735.140	−680.106	29.604
	1300.00	87.519	493.659	428.441	−638.211	84.784	−1279.968	−735.822	−675.492	27.142
	1400.00	87.527	500.146	433.334	−629.458	93.537	−1329.662	−736.510	−670.826	25.029
	1500.00	87.449	506.182	437.991	−620.709	102.286	−1379.982	−737.214	−666.110	23.196
	1600.00	87.311	511.822	442.431	−611.970	111.025	−1430.885	−737.939	−661.346	21.591
	1700.00	87.139	517.110	446.670	−603.247	119.748	−1482.335	−738.691	−656.536	20.173
	1800.00	86.961	522.086	450.723	−594.542	128.453	−1534.297	−739.471	−651.681	18.911
	1900.00	86.803	526.783	454.604	−585.855	137.140	−1586.742	−740.279	−646.782	17.781
	2000.00	86.693	531.232	458.325	−577.180	145.815	−1639.645	−741.112	−641.840	16.763

References

Phase	H / S	C_p
GAS	Pa2	Pa2

CeF3 CERIUM FLUORIDE 197.110

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	93.096	115.269	115.269	-1688.913	0.000	-1723.281	-1688.913	-1611.878	282.394
	300.00	93.212	115.845	115.271	-1688.741	0.172	-1723.494	-1688.877	-1611.400	280.570
	400.00	97.526	143.325	118.988	-1679.179	9.734	-1736.508	-1686.898	-1585.871	207.094
	500.00	100.133	165.381	126.134	-1669.289	19.624	-1751.980	-1684.958	-1560.840	163.060
	600.00	102.398	183.838	134.254	-1659.162	29.751	-1769.465	-1683.087	-1536.194	133.738
	700.00	104.799	199.800	142.502	-1648.805	40.108	-1788.665	-1681.253	-1511.857	112.816
	800.00	107.541	213.968	150.566	-1638.191	50.722	-1809.366	-1679.412	-1487.782	97.142
	900.00	110.722	226.814	158.335	-1627.282	61.631	-1831.414	-1677.501	-1463.942	84.965
	1000.00	114.392	238.665	165.782	-1616.030	72.883	-1854.695	-1678.452	-1440.318	75.235
	1100.00	118.583	249.760	172.917	-1604.386	84.527	-1879.122	-1681.592	-1416.466	67.262
	1200.00	123.311	260.277	179.763	-1592.296	96.617	-1904.628	-1678.864	-1392.481	60.613
	1300.00	128.587	270.352	186.346	-1579.706	109.207	-1931.163	-1675.663	-1368.742	54.997
	1400.00	134.418	280.091	192.696	-1566.560	122.353	-1958.687	-1671.931	-1345.269	50.193
	1500.00	140.809	289.580	198.840	-1552.803	136.110	-1987.173	-1667.610	-1322.084	46.039
	1600.00	147.763	298.886	204.803	-1538.380	150.533	-2016.597	-1662.641	-1299.207	42.415
	1700.00	155.282	308.067	210.608	-1523.232	165.681	-2046.946	-1656.965	-1276.662	39.227
	1710.00	156.065	308.980	211.180	-1521.675	167.238	-2050.031	-1656.357	-1274.427	38.929
			32.542		55.647					
LIQ	1710.00	133.888	341.522	211.180	-1466.028	222.885	-2050.031	-1600.710	-1274.427	38.929
	1800.00	133.888	348.390	217.870	-1453.978	234.935	-2081.080	-1597.200	-1257.345	36.487
	1900.00	133.888	355.629	224.932	-1440.590	248.323	-2116.284	-1593.315	-1238.570	34.051
	2000.00	133.888	362.496	231.640	-1427.201	261.712	-2152.193	-1589.445	-1219.999	31.863

References

Phase	H / S	C_p
SOL	Pa2/Nb1	Pa2
LIQ	Pa2	Pa2

197.110 CERIUM FLUORIDE (GAS) **CeF3[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	72.571	337.101	337.101	−1248.506	0.000	−1349.013	−1248.506	−1237.610	216.824
	300.00	72.672	337.551	337.103	−1248.372	0.134	−1349.637	−1248.508	−1237.542	215.475
	400.00	76.697	359.062	340.008	−1240.885	7.621	−1384.509	−1248.605	−1233.872	161.127
	500.00	79.344	376.476	345.615	−1233.076	15.430	−1421.314	−1248.745	−1230.174	128.515
	600.00	81.367	391.128	352.012	−1225.036	23.470	−1459.713	−1248.960	−1226.441	106.771
	700.00	82.974	403.796	358.525	−1216.816	31.690	−1499.474	−1249.265	−1222.665	91.236
	800.00	84.249	414.962	364.896	−1208.452	40.054	−1540.422	−1249.673	−1218.839	79.582
	900.00	85.243	424.946	371.023	−1199.976	48.530	−1582.427	−1250.195	−1214.955	70.514
	1000.00	85.990	433.967	376.874	−1191.412	57.094	−1625.380	−1253.834	−1211.003	63.256
	1100.00	86.523	442.190	382.443	−1182.785	65.721	−1669.194	−1259.990	−1206.538	57.294
	1200.00	86.873	449.734	387.741	−1174.114	74.392	−1713.795	−1260.681	−1201.648	52.306
	1300.00	87.068	456.697	392.781	−1165.415	83.091	−1759.121	−1261.373	−1196.700	48.084
	1400.00	87.137	463.152	397.580	−1156.704	91.802	−1805.117	−1262.075	−1191.699	44.463
	1500.00	87.109	469.164	402.154	−1147.991	100.515	−1851.737	−1262.798	−1186.648	41.323
	1600.00	87.012	474.783	406.519	−1139.285	109.221	−1898.937	−1263.546	−1181.547	38.574
	1700.00	86.874	480.054	410.692	−1130.590	117.916	−1946.682	−1264.323	−1176.398	36.146
	1800.00	86.724	485.015	414.684	−1121.910	126.596	−1994.938	−1265.132	−1171.203	33.987
	1900.00	86.591	489.700	418.510	−1113.245	135.261	−2043.675	−1265.971	−1165.962	32.055
	2000.00	86.501	494.139	422.182	−1104.591	143.915	−2092.869	−1266.835	−1160.676	30.314

References

Phase	H / S	C_p
GAS	Pa2	Pa2

142.131 CERIUM DIHYDRIDE **CeH2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	40.884	55.647	55.647	−205.016	0.000	−221.607	−205.016	−161.937	28.371
	300.00	40.920	55.900	55.648	−204.940	0.076	−221.710	−205.043	−161.670	28.149
	400.00	42.844	67.936	57.276	−200.752	4.264	−227.926	−206.524	−146.988	19.195
	500.00	44.769	77.703	60.414	−196.371	8.645	−235.223	−207.970	−131.936	13.783
	600.00	46.693	86.035	64.006	−191.798	13.218	−243.420	−209.372	−116.597	10.151
	700.00	48.618	93.378	67.687	−187.033	17.983	−252.397	−210.743	−101.025	7.539
	800.00	50.543	99.995	71.319	−182.075	22.941	−262.071	−212.101	−85.259	5.567
	900.00	52.467	106.059	74.846	−176.924	28.092	−272.378	−213.452	−69.322	4.023
	1000.00	54.392	111.687	78.252	−171.581	33.435	−283.268	−217.795	−53.232	2.781
	1100.00	56.317	116.961	81.534	−166.046	38.970	−294.703	−224.522	−36.566	1.736
	1200.00	58.241	121.944	84.696	−160.318	44.698	−306.651	−225.643	−19.428	0.846

References

Phase	H / S	C_p
SOL	Nb1/B2	B2,Ku1

CeI3 CERIUM IODIDE 520.828

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	100.419	227.191	227.191	−649.775	0.000	−717.512	−649.775	−644.863	112.977
	300.00	100.487	227.813	227.193	−649.589	0.186	−717.933	−649.790	−644.832	112.275
	400.00	103.816	257.191	231.176	−639.369	10.406	−742.245	−674.791	−642.206	83.863
	500.00	106.775	280.679	238.804	−628.838	20.937	−769.177	−739.455	−627.841	65.590
	600.00	109.589	300.396	247.469	−618.019	31.756	−798.257	−737.308	−605.718	52.732
	700.00	112.334	317.496	256.278	−606.922	42.853	−829.170	−735.055	−583.963	43.576
	800.00	115.042	332.673	264.896	−595.553	54.222	−861.692	−732.707	−562.538	36.730
	900.00	117.730	346.379	273.200	−583.915	65.860	−895.655	−730.265	−541.412	31.423
	1000.00	120.404	358.921	281.154	−572.008	77.767	−930.929	−730.722	−520.561	27.191
	1033.00	121.284	362.845	283.701	−568.020	81.755	−942.838	−729.853	−513.639	25.973
			50.225		51.882					
LIQ	1033.00	152.716	413.069	283.701	−516.138	133.637	−942.838	−677.971	−513.639	25.973
	1100.00	152.716	422.666	291.876	−505.906	143.869	−970.839	−679.536	−502.957	23.883
	1200.00	152.716	435.954	303.337	−490.634	159.141	−1013.780	−673.736	−487.160	21.206
	1300.00	152.716	448.178	314.015	−475.363	174.412	−1057.994	−667.946	−471.847	18.959

References

Phase	H / S	C_p
SOL	Nb1/Pa2	Pa2
LIQ	Dw4	Dw1

520.828 CERIUM IODIDE (GAS) **CeI3[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	81.567	427.342	427.342	−371.958	0.000	−499.370	−371.958	−426.721	74.760
	300.00	81.594	427.847	427.343	−371.807	0.151	−500.161	−372.008	−427.060	74.358
	400.00	82.457	451.453	430.556	−363.599	8.359	−544.181	−399.021	−444.141	57.999
	500.00	83.253	469.935	436.650	−355.315	16.643	−590.283	−465.932	−448.947	46.901
	600.00	84.174	485.194	443.505	−346.945	25.013	−638.061	−466.234	−445.522	38.786
	700.00	85.090	498.239	450.415	−338.481	33.477	−687.248	−466.613	−442.042	32.986
	800.00	85.907	509.656	457.121	−329.930	42.028	−737.655	−467.083	−438.501	28.631
	900.00	86.578	519.815	463.533	−321.304	50.654	−789.138	−467.655	−434.895	25.241
	1000.00	87.085	528.965	469.626	−312.620	59.338	−841.584	−471.334	−431.216	22.524
	1100.00	87.428	537.282	475.404	−303.893	68.065	−894.903	−477.523	−427.021	20.278
	1200.00	87.618	544.898	480.883	−295.139	76.819	−949.017	−478.241	−422.398	18.387
	1300.00	87.673	551.915	486.080	−286.374	85.584	−1003.863	−478.957	−417.715	16.784
	1400.00	87.655	558.412	491.018	−277.606	94.352	−1059.383	−479.680	−412.977	15.408
	1500.00	87.570	564.457	495.715	−268.845	103.113	−1115.530	−480.419	−408.187	14.214
	1600.00	87.439	570.104	500.189	−260.094	111.864	−1172.261	−481.177	−403.347	13.168
	1700.00	87.278	575.401	504.459	−251.358	120.600	−1229.539	−481.959	−398.459	12.243
	1800.00	87.102	580.384	508.540	−242.639	129.319	−1287.331	−482.767	−393.524	11.420
	1900.00	86.919	585.089	512.447	−233.938	138.020	−1345.607	−483.601	−388.544	10.682
	2000.00	86.734	589.543	516.191	−225.255	146.703	−1404.340	−484.463	−383.518	10.016

References

Phase	H / S	C_p
GAS	Pa2	Pa2

164.420 CERIUM MAGNESIUM **CeMg**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	52.269	105.428	105.428	−16.180	0.000	−47.613	−16.180	−17.163	3.007
	300.00	52.317	105.752	105.429	−16.083	0.097	−47.809	−16.179	−17.169	2.989
	400.00	54.902	121.157	107.512	−10.722	5.458	−59.185	−16.132	−17.506	2.286
	500.00	57.488	133.685	111.531	−5.103	11.077	−71.946	−16.086	−17.855	1.865
	600.00	60.074	144.395	116.136	0.775	16.955	−85.862	−16.040	−18.213	1.586
	700.00	62.660	153.850	120.861	6.912	23.092	−100.783	−16.007	−18.578	1.386
	800.00	65.245	162.386	125.527	13.307	29.487	−116.601	−15.997	−18.947	1.237
	900.00	67.831	170.220	130.063	19.961	36.141	−133.237	−16.010	−19.315	1.121
	984.00	70.003	176.368	133.756	25.750	41.930	−147.796	−24.994	−19.020	1.010

References

Phase	H / S	C_p	Remarks	
SOL	Hu1/O1,e	e	Hu1	DPT= 984.

CeN CERIUM NITRIDE 154.122

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	40.358	44.350	44.350	−331.000	0.000	−344.223	−331.000	−294.951	51.674
	300.00	40.471	44.600	44.351	−330.925	0.075	−344.305	−331.002	−294.727	51.317
	400.00	44.680	56.892	45.998	−326.643	4.357	−349.399	−330.941	−282.638	36.909
	500.00	46.999	67.131	49.231	−322.050	8.950	−355.615	−330.722	−270.586	28.268
	600.00	48.574	75.847	52.958	−317.267	13.733	−362.775	−330.477	−258.582	22.512
	700.00	49.798	83.430	56.782	−312.346	18.654	−370.747	−330.276	−246.616	18.403
	800.00	50.834	90.148	60.540	−307.314	23.686	−379.432	−330.161	−234.674	15.323
	900.00	51.762	96.190	64.171	−302.183	28.817	−388.754	−330.146	−222.740	12.927
	1000.00	52.622	101.689	67.652	−296.963	34.037	−398.652	−333.229	−210.799	11.011
	1100.00	53.438	106.743	70.979	−291.660	39.340	−409.077	−338.798	−198.402	9.421
	1200.00	54.224	111.427	74.157	−286.277	44.723	−419.989	−338.859	−185.636	8.081
	1300.00	54.989	115.797	77.194	−280.816	50.184	−431.352	−338.865	−172.867	6.946
	1400.00	55.738	119.900	80.099	−275.279	55.721	−443.139	−338.815	−160.099	5.973
	1500.00	56.476	123.770	82.883	−269.669	61.331	−455.324	−338.708	−147.337	5.131
	1600.00	57.205	127.439	85.554	−263.985	67.015	−467.886	−338.543	−134.584	4.394
	1700.00	57.928	130.928	88.121	−258.228	72.772	−480.806	−338.319	−121.843	3.744
	1800.00	58.645	134.260	90.593	−252.399	78.601	−494.067	−338.035	−109.117	3.167
	1900.00	59.359	137.450	92.975	−246.499	84.501	−507.653	−337.689	−96.409	2.650
	2000.00	60.069	140.513	95.276	−240.527	90.473	−521.552	−337.282	−83.720	2.187

References

Phase	H / S	C_p
SOL	Nb1/e	e

172.114 CERIUM DIOXIDE **CeO2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	61.634	62.300	62.300	−1088.677	0.000	−1107.252	−1088.677	−1025.379	179.642
	300.00	61.789	62.682	62.301	−1088.563	0.114	−1107.367	−1088.667	−1024.987	178.466
	400.00	67.582	81.351	64.807	−1082.060	6.617	−1114.600	−1087.898	−1003.866	131.091
	500.00	70.761	96.801	69.706	−1075.130	13.547	−1123.530	−1086.931	−982.968	102.690
	600.00	72.911	109.902	75.342	−1067.941	20.736	−1133.882	−1085.947	−962.268	83.773
	700.00	74.576	121.271	81.109	−1060.564	28.113	−1145.453	−1085.024	−941.729	70.273
	800.00	75.982	131.323	86.769	−1053.034	35.643	−1158.092	−1084.194	−921.316	60.156
	900.00	77.237	140.346	92.229	−1045.372	43.305	−1171.683	−1083.464	−901.002	52.293
	1000.00	78.399	148.544	97.457	−1037.590	51.087	−1186.134	−1085.827	−880.760	46.006
	1100.00	79.500	156.069	102.448	−1029.694	58.983	−1201.370	−1090.664	−860.135	40.844
	1200.00	80.559	163.032	107.210	−1021.691	66.986	−1217.329	−1089.980	−839.207	36.530
	1300.00	81.589	169.521	111.756	−1013.584	75.093	−1233.960	−1089.225	−818.340	32.881
	1400.00	82.598	175.604	116.102	−1005.374	83.303	−1251.220	−1088.399	−797.533	29.756
	1500.00	83.591	181.337	120.262	−997.065	91.612	−1269.070	−1087.500	−776.788	27.050
	1600.00	84.572	186.763	124.250	−988.656	100.021	−1287.477	−1086.529	−756.105	24.684
	1700.00	85.544	191.919	128.080	−980.150	108.527	−1306.413	−1085.484	−735.485	22.599
	1800.00	86.508	196.836	131.764	−971.548	117.129	−1325.853	−1084.368	−714.928	20.747
	1900.00	87.467	201.539	135.314	−962.849	125.828	−1345.773	−1083.178	−694.436	19.091
	2000.00	88.421	206.050	138.739	−954.055	134.622	−1366.154	−1081.916	−674.008	17.603

References

Phase	H / S	C_p	Remarks
SOL	Nb1	Pa1	Ku1 MPT 2873.

328.228 CERIUM OXIDE **Ce2O3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	117.525	150.582	150.582	−1796.191	0.000	−1841.087	−1796.191	−1707.925	299.221
	300.00	117.800	151.310	150.584	−1795.973	0.218	−1841.366	−1796.154	−1707.377	297.281
	400.00	128.176	186.794	155.352	−1783.614	12.577	−1858.332	−1793.778	−1678.125	219.141
	500.00	134.027	216.072	164.655	−1770.482	25.709	−1878.519	−1791.043	−1649.525	172.325
	600.00	138.096	240.886	175.345	−1756.867	39.324	−1901.398	−1788.258	−1621.484	141.163
	700.00	141.325	262.423	186.280	−1742.891	53.300	−1926.587	−1785.562	−1593.903	118.939
	800.00	144.105	281.480	197.012	−1728.616	67.575	−1953.800	−1783.019	−1566.699	102.295
	900.00	146.625	298.600	207.364	−1714.078	82.113	−1982.819	−1780.642	−1539.803	89.368
	1000.00	148.983	314.172	217.278	−1699.297	96.894	−2013.469	−1784.419	−1513.157	79.039
	1100.00	151.235	328.478	226.745	−1684.285	111.906	−2045.611	−1793.119	−1485.842	70.557
	1200.00	153.415	341.731	235.782	−1669.052	127.139	−2079.129	−1790.749	−1458.011	63.466

References

Phase	H / S	C_p
SOL	Nb1	Pa2

CeAlO3 — CERIUM ALUMINIUM TRIOXIDE — 215.095

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	94.538	109.621	109.621	−1753.514	0.000	−1786.197	−1753.514	−1665.313	291.756
	300.00	94.851	110.207	109.623	−1753.339	0.175	−1786.401	−1753.515	−1664.765	289.861
	400.00	106.849	139.325	113.511	−1743.188	10.326	−1798.919	−1753.091	−1635.224	213.538
	500.00	113.930	163.981	121.205	−1732.126	21.388	−1814.117	−1752.162	−1605.859	167.763
	600.00	119.077	185.227	130.146	−1720.465	33.049	−1831.601	−1751.041	−1576.701	137.264
	700.00	123.309	203.909	139.375	−1708.340	45.174	−1851.077	−1749.864	−1547.738	115.494
	800.00	127.055	220.623	148.505	−1695.819	57.695	−1872.318	−1748.714	−1518.942	99.177
	900.00	130.518	235.790	157.373	−1682.939	70.575	−1895.150	−1747.656	−1490.285	86.494
	1000.00	133.804	249.713	165.921	−1669.722	83.792	−1919.435	−1760.260	−1460.977	76.314
	1100.00	136.976	262.615	174.131	−1656.182	97.332	−1945.059	−1764.382	−1430.964	67.951
	1200.00	140.070	274.667	182.013	−1642.329	111.185	−1971.929	−1762.797	−1400.721	60.972
	1300.00	143.108	285.999	189.580	−1628.170	125.344	−1999.968	−1760.957	−1370.621	55.072
	1400.00	146.107	296.714	196.853	−1613.709	139.805	−2029.108	−1758.861	−1340.672	50.021
	1500.00	149.076	306.896	203.853	−1598.949	154.565	−2059.293	−1756.508	−1310.882	45.649
	1600.00	152.022	316.611	210.599	−1583.894	169.620	−2090.472	−1753.898	−1281.258	41.829
	1700.00	154.951	325.916	217.110	−1568.545	184.969	−2122.602	−1751.032	−1251.804	38.463
	1800.00	157.867	334.855	223.405	−1552.904	200.610	−2155.643	−1747.909	−1222.527	35.477

References

Phase	H / S	C_p
SOL	Nb1/e	e

CeCrO3 — CERIUM CHROMIUM TRIOXIDE — 240.109

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	132.737	105.018	105.018	−1540.130	0.000	−1571.441	−1540.130	−1451.938	254.374
	300.00	132.612	105.839	105.021	−1539.885	0.245	−1571.636	−1540.059	−1451.391	252.710
	400.00	129.103	143.384	110.164	−1526.842	13.288	−1584.196	−1536.665	−1422.369	185.742
	500.00	128.838	172.129	119.790	−1513.960	26.170	−1600.025	−1533.878	−1394.127	145.643
	600.00	129.850	195.696	130.534	−1501.033	39.097	−1618.451	−1531.487	−1366.407	118.956
	700.00	131.466	215.829	141.315	−1487.971	52.159	−1639.051	−1529.380	−1339.063	99.922
	800.00	133.403	233.507	151.756	−1474.729	65.401	−1661.535	−1527.483	−1312.007	85.665
	900.00	135.527	249.341	161.734	−1461.284	78.846	−1685.691	−1525.736	−1285.178	74.590
	1000.00	137.767	263.735	171.225	−1447.620	92.510	−1711.355	−1527.093	−1258.535	65.739
	1100.00	140.082	276.974	180.245	−1433.728	106.402	−1738.399	−1530.969	−1231.609	58.484
	1200.00	142.450	289.264	188.824	−1419.602	120.528	−1766.719	−1529.391	−1204.464	52.429

References

Phase	H / S	C_p
SOL	Nb1	e

172.181 CERIUM MONOSULFIDE **CeS**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[-]
SOL	298.15	49.955	78.241	78.241	-456.474	0.000	-479.801	-456.474	-449.536	78.757
	300.00	50.061	78.550	78.242	-456.381	0.093	-479.947	-456.473	-449.493	78.264
	400.00	54.280	93.589	80.264	-451.144	5.330	-488.579	-458.580	-447.091	58.384
	500.00	56.960	106.005	84.206	-445.575	10.899	-498.577	-459.817	-444.096	46.394
	600.00	59.035	116.580	88.742	-439.772	16.702	-509.719	-460.636	-440.865	38.381
	700.00	60.824	125.817	93.393	-433.777	22.697	-521.849	-461.150	-437.529	32.649
	800.00	62.460	134.047	97.969	-427.612	28.862	-534.849	-461.707	-434.118	28.345
	900.00	64.008	141.494	102.398	-421.288	35.186	-548.632	-515.117	-429.479	24.926
	1000.00	65.501	148.315	106.653	-414.812	41.662	-563.127	-517.159	-420.012	21.939
	1100.00	66.958	154.627	110.731	-408.189	48.285	-578.278	-521.601	-410.197	19.479
	1200.00	68.391	160.514	114.637	-401.421	55.053	-594.038	-520.452	-400.119	17.417
	1300.00	69.806	166.045	118.381	-394.511	61.963	-610.369	-519.166	-390.143	15.676
	1400.00	71.209	171.269	121.974	-387.460	69.014	-627.237	-517.744	-380.271	14.188
	1500.00	72.603	176.230	125.427	-380.270	76.204	-644.614	-516.187	-370.505	12.902
	1600.00	73.989	180.960	128.751	-372.940	83.534	-662.476	-514.495	-360.847	11.780
	1700.00	75.370	185.487	131.956	-365.472	91.002	-680.799	-512.669	-351.299	10.794
	1800.00	76.747	189.834	135.052	-357.866	98.608	-699.567	-510.710	-341.863	9.921
	1900.00	78.120	194.020	138.046	-350.123	106.351	-718.761	-508.617	-332.539	9.142
	2000.00	79.491	198.062	140.946	-342.242	114.232	-738.366	-506.391	-323.328	8.444

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1,e	Mi1	MPT= 2723.

Ce2S3 CERIUM SULFIDE 376.428

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	128.727	180.330	180.330	−1188.256	0.000	−1242.022	−1188.256	−1171.933	205.318
	300.00	128.750	181.127	180.333	−1188.018	0.238	−1242.356	−1188.244	−1171.832	204.034
	400.00	130.022	218.340	185.398	−1175.079	13.177	−1262.415	−1194.575	−1166.161	152.285
	500.00	131.294	247.490	195.005	−1162.013	26.243	−1285.759	−1199.024	−1158.615	121.040
	600.00	132.566	271.540	205.814	−1148.820	39.436	−1311.745	−1202.650	−1150.170	100.131
	700.00	133.838	292.071	216.706	−1135.500	52.756	−1339.950	−1205.657	−1141.185	85.156
	800.00	135.110	310.026	227.272	−1122.053	66.203	−1370.073	−1209.015	−1131.754	73.896
	900.00	136.382	326.013	237.371	−1108.478	79.778	−1401.890	−1371.113	−1118.415	64.911
	1000.00	137.654	340.448	246.968	−1094.777	93.479	−1435.224	−1376.282	−1090.377	56.955
	1100.00	138.926	353.627	256.074	−1080.948	107.308	−1469.937	−1386.428	−1061.528	50.408
	1200.00	140.197	365.770	264.716	−1066.991	121.265	−1505.915	−1385.557	−1032.029	44.923
	1300.00	141.469	377.042	272.928	−1052.908	135.348	−1543.062	−1384.575	−1002.608	40.285
	1400.00	142.741	387.572	280.745	−1038.698	149.558	−1581.299	−1383.481	−973.266	36.313
	1500.00	144.013	397.464	288.200	−1024.360	163.896	−1620.556	−1382.274	−944.006	32.873
	1600.00	145.285	406.799	295.323	−1009.895	178.361	−1660.773	−1380.954	−914.831	29.866
	1700.00	146.557	415.645	302.143	−995.303	192.953	−1701.899	−1379.519	−885.742	27.216
	1800.00	147.829	424.058	308.684	−980.583	207.673	−1743.888	−1377.969	−856.740	24.862
	1900.00	149.101	432.085	314.969	−965.737	222.519	−1786.698	−1376.304	−827.828	22.759
	2000.00	150.373	439.765	321.019	−950.763	237.493	−1830.293	−1374.523	−799.006	20.868
	2100.00	151.645	447.132	326.850	−935.662	252.594	−1874.640	−1372.627	−770.276	19.160
	2160.00	152.408	451.415	330.251	−926.541	261.715	−1901.597	−1371.434	−753.083	18.212

References

Phase	H / S	C_p	Remarks
SOL	Mi1	Mi1	Mi1 MPT= 2160.

Ce3S4 TRICERIUM TETRASULFIDE 548.609

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	179.646	255.224	255.224	−1652.680	0.000	−1728.775	−1652.680	−1628.422	285.293
	300.00	179.720	256.335	255.227	−1652.348	0.332	−1729.248	−1652.665	−1628.271	283.507
	400.00	183.686	308.581	262.324	−1634.177	18.503	−1757.610	−1661.109	−1619.867	211.533
	500.00	187.652	349.995	275.856	−1615.610	37.070	−1790.608	−1666.864	−1608.983	168.089
	600.00	191.619	384.559	291.170	−1596.647	56.033	−1827.382	−1671.341	−1596.954	139.027
	700.00	195.585	414.395	306.690	−1577.287	75.393	−1867.363	−1674.816	−1584.278	118.220
	800.00	199.552	440.771	321.833	−1557.530	95.150	−1910.146	−1678.587	−1571.095	102.582
	900.00	203.518	464.503	336.388	−1537.376	115.304	−1955.429	−1893.840	−1552.802	90.122
	1000.00	207.485	486.152	350.298	−1516.826	135.854	−2002.978	−1900.678	−1515.015	79.136
	1100.00	211.451	506.113	363.567	−1495.879	156.801	−2052.604	−1914.772	−1476.113	70.095
	1200.00	215.417	524.682	376.228	−1474.536	178.144	−2104.154	−1912.132	−1436.349	62.523

References

Phase	H / S	C_p	Remarks
SOL	Mi1	e	Mi1 MPT= 2323.

568.421 CERIUM SULFATE **Ce2(SO4)3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	281.006	287.441	287.441	−3954.298	0.000	−4039.998	−3954.298	−3602.923	631.217
	300.00	281.374	289.180	287.446	−3953.778	0.520	−4040.532	−3954.330	−3600.743	626.945
	400.00	301.248	372.848	298.720	−3924.647	29.651	−4073.786	−3962.295	−3482.394	454.754
	500.00	321.122	442.205	320.665	−3893.528	60.770	−4114.631	−3967.045	−3361.915	351.217
	600.00	340.996	502.509	346.049	−3860.422	93.876	−4161.928	−3969.716	−3240.595	282.119
	700.00	360.870	556.566	372.325	−3825.329	128.969	−4214.925	−3970.477	−3118.996	232.742
	800.00	380.744	606.051	398.489	−3788.248	166.050	−4273.089	−3970.223	−2997.364	195.708
	900.00	400.618	652.044	424.135	−3749.180	205.118	−4336.019	−4127.261	−2872.364	166.708
	1000.00	420.492	695.282	449.108	−3708.125	246.173	−4403.406	−4125.847	−2733.309	142.773

References

Phase	H / S	C_p
SOL	Nb1/e	e

267.715 CERIUM MONOTELLURIDE (GAS) **CeTe[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	36.103	278.680	278.680	289.533	0.000	206.444	289.533	241.910	−42.382
	300.00	36.119	278.904	278.681	289.600	0.067	205.929	289.502	241.614	−42.069
	400.00	36.673	289.382	280.106	293.243	3.710	177.491	287.698	225.915	−29.502
	500.00	36.930	297.596	282.812	296.925	7.392	148.127	285.569	210.709	−22.013
	600.00	37.072	304.343	285.855	300.626	11.093	118.020	283.097	195.963	−17.060
	700.00	37.158	310.064	288.915	304.337	14.804	87.293	280.262	181.660	−13.556
	800.00	37.214	315.030	291.876	308.056	18.523	56.032	259.427	169.669	−11.078
	900.00	37.254	319.415	294.697	311.780	22.247	24.306	255.858	158.662	−9.208
	1000.00	37.283	323.342	297.368	315.507	25.974	−7.835	249.137	148.064	−7.734
	1100.00	37.305	326.897	299.894	319.236	29.703	−40.350	239.877	138.288	−6.567
	1200.00	37.323	330.143	302.281	322.968	33.435	−73.205	236.073	129.221	−5.625
	1300.00	37.337	333.132	304.541	326.701	37.168	−106.370	232.270	120.471	−4.841
	1400.00	37.349	335.899	306.683	330.435	40.902	−139.824	182.030	114.505	−4.272
	1500.00	37.359	338.476	308.718	334.170	44.637	−173.544	179.804	109.759	−3.822
	1600.00	37.367	340.887	310.654	337.907	48.374	−207.513	177.587	105.162	−3.433
	1700.00	37.375	343.153	312.500	341.644	52.111	−241.716	175.375	100.703	−3.094
	1800.00	37.382	345.290	314.263	345.382	55.849	−276.140	173.168	96.374	−2.797
	1900.00	37.388	347.311	315.949	349.120	59.587	−310.770	170.971	92.168	−2.534
	2000.00	37.393	349.229	317.566	352.859	63.326	−345.598	168.786	88.077	−2.300

References

Phase	H / S	C_p
GAS	Mi1	Mi1

Cl[g] CHLORINE (GAS) 35.453

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	21.832	165.181	165.181	121.286	0.000	72.037	121.286	105.298	−18.448
	300.00	21.850	165.316	165.181	121.326	0.040	71.732	121.295	105.199	−18.317
	400.00	22.504	171.705	166.048	123.549	2.263	54.867	121.784	99.760	−13.027
	500.00	22.730	176.757	167.702	125.813	4.527	37.435	122.263	94.199	−9.841
	600.00	22.750	180.905	169.568	128.088	6.802	19.545	122.720	88.542	−7.708
	700.00	22.671	184.407	171.444	130.360	9.074	1.275	123.153	82.811	−6.179
	800.00	22.546	187.426	173.257	132.621	11.335	−17.320	123.562	77.020	−5.029
	900.00	22.402	190.073	174.982	134.868	13.582	−36.198	123.946	71.179	−4.131
	1000.00	22.255	192.426	176.611	137.101	15.815	−55.325	124.309	65.296	−3.411
	1100.00	22.112	194.540	178.146	139.320	18.034	−74.675	124.650	59.379	−2.820
	1200.00	21.978	196.458	179.594	141.524	20.238	−94.226	124.973	53.430	−2.326
	1300.00	21.855	198.213	180.959	143.715	22.429	−113.961	125.278	47.456	−1.907
	1400.00	21.745	199.828	182.250	145.895	24.609	−133.864	125.567	41.459	−1.547
	1500.00	21.647	201.325	183.473	148.065	26.779	−153.923	125.842	35.441	−1.234
	1600.00	21.561	202.719	184.632	150.225	28.939	−174.126	126.104	29.406	−0.960
	1700.00	21.488	204.024	185.735	152.377	31.091	−194.464	126.355	23.355	−0.718
	1800.00	21.425	205.251	186.786	154.523	33.237	−214.928	126.596	17.289	−0.502
	1900.00	21.372	206.407	187.788	156.663	35.377	−235.511	126.827	11.210	−0.308
	2000.00	21.327	207.503	188.747	158.798	37.512	−256.207	127.049	5.119	−0.134
	2100.00	21.289	208.542	189.665	160.928	39.642	−277.010	127.264	−0.983	0.024
	2200.00	21.258	209.532	190.546	163.056	41.770	−297.914	127.471	−7.095	0.168
	2300.00	21.230	210.476	191.392	165.180	43.894	−318.915	127.671	−13.216	0.300
	2400.00	21.206	211.379	192.206	167.302	46.016	−340.008	127.864	−19.345	0.421
	2500.00	21.183	212.244	192.990	169.421	48.135	−361.190	128.051	−25.483	0.532
	2600.00	21.160	213.075	193.747	171.539	50.253	−382.456	128.231	−31.628	0.635
	2700.00	21.136	213.873	194.478	173.653	52.367	−403.803	128.404	−37.780	0.731
	2800.00	21.108	214.641	195.184	175.766	54.480	−425.229	128.570	−43.938	0.820
	2900.00	21.075	215.381	195.868	177.875	56.589	−446.731	128.727	−50.101	0.902
	3000.00	21.037	216.095	196.530	179.980	58.694	−468.305	128.875	−56.270	0.980

References

Phase	H / S	C_p
GAS	Co1	Ja1

70.905 CHLORINE (GAS) **Cl2**[g]

Phase	T [K]	C_p [J / (K mol)]	S [J / (K mol)]	-(G-H298)/T [J / (K mol)]	H [kJ / mol]	H-H298 [kJ / mol]	G [kJ / mol]	ΔH_f [kJ / mol]	ΔG_f [kJ / mol]	log K_f [-]
GAS	298.15	33.942	223.117	223.117	0.000	0.000	-66.522	0.000	0.000	0.000
	300.00	33.972	223.327	223.117	0.063	0.063	-66.935	0.000	0.000	0.000
	400.00	35.273	233.292	224.467	3.530	3.530	-89.787	0.000	0.000	0.000
	500.00	36.080	241.257	227.055	7.101	7.101	-113.528	0.000	0.000	0.000
	600.00	36.588	247.883	229.990	10.736	10.736	-137.994	0.000	0.000	0.000
	700.00	36.927	253.550	232.961	14.413	14.413	-163.072	0.000	0.000	0.000
	800.00	37.165	258.498	235.850	18.118	18.118	-188.680	0.000	0.000	0.000
	900.00	37.341	262.886	238.615	21.844	21.844	-214.753	0.000	0.000	0.000
	1000.00	37.479	266.827	241.242	25.585	25.585	-241.242	0.000	0.000	0.000
	1100.00	37.591	270.405	243.733	29.339	29.339	-268.107	0.000	0.000	0.000
	1200.00	37.687	273.680	246.094	33.103	33.103	-295.313	0.000	0.000	0.000
	1300.00	37.772	276.700	248.334	36.876	36.876	-322.834	0.000	0.000	0.000
	1400.00	37.850	279.502	250.461	40.657	40.657	-350.646	0.000	0.000	0.000
	1500.00	37.924	282.116	252.486	44.445	44.445	-378.728	0.000	0.000	0.000
	1600.00	37.996	284.566	254.415	48.241	48.241	-407.064	0.000	0.000	0.000
	1700.00	38.067	286.871	256.257	52.045	52.045	-435.637	0.000	0.000	0.000
	1800.00	38.139	289.049	258.019	55.855	55.855	-464.434	0.000	0.000	0.000
	1900.00	38.212	291.113	259.707	59.672	59.672	-493.443	0.000	0.000	0.000
	2000.00	38.286	293.075	261.327	63.497	63.497	-522.653	0.000	0.000	0.000
	2100.00	38.363	294.945	262.883	67.330	67.330	-552.055	0.000	0.000	0.000
	2200.00	38.442	296.731	264.381	71.170	71.170	-581.639	0.000	0.000	0.000
	2300.00	38.524	298.442	265.825	75.018	75.018	-611.399	0.000	0.000	0.000
	2400.00	38.610	300.083	267.219	78.875	78.875	-641.325	0.000	0.000	0.000
	2500.00	38.698	301.661	268.565	82.740	82.740	-671.413	0.000	0.000	0.000
	2600.00	38.790	303.181	269.868	86.615	86.615	-701.656	0.000	0.000	0.000
	2700.00	38.886	304.647	271.129	90.499	90.499	-732.047	0.000	0.000	0.000
	2800.00	38.986	306.063	272.351	94.392	94.392	-762.583	0.000	0.000	0.000
	2900.00	39.089	307.433	273.537	98.296	98.296	-793.258	0.000	0.000	0.000
	3000.00	39.196	308.759	274.689	102.210	102.210	-824.068	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Co1	Ja1

ClCN[g] CARBON NITRIDE-CHLORIDE (GAS) 61.471

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[-]
GAS	298.15	44.968	236.141	236.141	134.200	0.000	63.795	134.200	127.331	-22.308
	300.00	45.046	236.419	236.142	134.283	0.083	63.357	134.209	127.289	-22.163
	400.00	48.322	249.864	237.953	138.964	4.764	39.019	134.661	124.912	-16.312
	500.00	50.578	260.901	241.471	143.915	9.715	13.464	135.025	122.430	-12.790
	600.00	52.338	270.284	245.511	149.064	14.864	-13.106	135.284	119.885	-10.437
	700.00	53.790	278.464	249.646	154.372	20.172	-40.553	135.455	117.304	-8.753
	800.00	55.019	285.729	253.711	159.814	25.614	-68.769	135.566	114.703	-7.489
	900.00	56.069	292.272	257.638	165.370	31.170	-97.674	135.638	112.090	-6.506
	1000.00	56.970	298.227	261.404	171.023	36.823	-127.204	135.681	109.471	-5.718
	1100.00	57.742	303.694	265.003	176.760	42.560	-157.303	135.703	106.849	-5.074
	1200.00	58.403	308.747	268.441	182.568	48.368	-187.929	135.709	104.226	-4.537
	1300.00	58.966	313.445	271.724	188.437	54.237	-219.041	135.703	101.602	-4.082
	1400.00	59.444	317.833	274.862	194.358	60.158	-250.607	135.688	98.979	-3.693
	1500.00	59.850	321.948	277.866	200.324	66.124	-282.599	135.665	96.358	-3.355
	1600.00	60.224	325.823	280.743	206.328	72.128	-314.989	135.638	93.739	-3.060
	1700.00	60.549	329.484	283.503	212.367	78.167	-347.756	135.609	91.121	-2.800
	1800.00	60.834	332.953	286.155	218.436	84.236	-380.879	135.578	88.505	-2.568
	1900.00	61.086	336.249	288.706	224.532	90.332	-414.341	135.546	85.890	-2.361
	2000.00	61.311	339.388	291.162	230.652	96.452	-448.124	135.512	83.278	-2.175
	2100.00	61.514	342.384	293.530	236.794	102.594	-482.214	135.475	80.667	-2.006
	2200.00	61.698	345.250	295.817	242.954	108.754	-516.596	135.436	78.058	-1.853
	2300.00	61.868	347.997	298.026	249.133	114.933	-551.260	135.395	75.451	-1.714
	2400.00	62.024	350.633	300.163	255.327	121.127	-586.192	135.351	72.846	-1.585
	2500.00	62.169	353.168	302.233	261.537	127.337	-621.383	135.304	70.242	-1.468
	2600.00	62.305	355.609	304.239	267.761	133.561	-656.823	135.254	67.641	-1.359
	2700.00	62.432	357.963	306.186	273.998	139.798	-692.502	135.200	65.041	-1.258
	2800.00	62.552	360.236	308.076	280.247	146.047	-728.412	135.143	62.444	-1.165
	2900.00	62.665	362.433	309.913	286.508	152.308	-764.546	135.081	59.848	-1.078
	3000.00	62.773	364.559	311.699	292.780	158.580	-800.897	135.015	57.255	-0.997

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

54.451 CHLORINE MONOFLUORIDE (GAS) **ClF[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	32.084	217.937	217.937	−50.292	0.000	−115.270	−50.292	−51.777	9.071
	300.00	32.117	218.135	217.938	−50.233	0.059	−115.673	−50.293	−51.786	9.017
	400.00	33.745	227.608	219.218	−46.936	3.356	−137.979	−50.337	−52.277	6.827
	500.00	34.872	235.268	221.686	−43.501	6.791	−161.135	−50.369	−52.758	5.512
	600.00	35.623	241.697	224.500	−39.974	10.318	−184.992	−50.396	−53.234	4.634
	700.00	36.143	247.230	227.361	−36.384	13.908	−209.445	−50.420	−53.705	4.007
	800.00	36.519	252.082	230.154	−32.750	17.542	−234.415	−50.441	−54.172	3.537
	900.00	36.803	256.400	232.835	−29.083	21.209	−259.843	−50.461	−54.638	3.171
	1000.00	37.026	260.290	235.389	−25.392	24.900	−285.681	−50.480	−55.101	2.878
	1100.00	37.207	263.827	237.816	−21.680	28.612	−311.890	−50.498	−55.562	2.638
	1200.00	37.358	267.071	240.121	−17.951	32.341	−338.437	−50.516	−56.021	2.439
	1300.00	37.487	270.067	242.310	−14.209	36.083	−365.296	−50.533	−56.480	2.269
	1400.00	37.600	272.849	244.394	−10.454	39.838	−392.443	−50.550	−56.936	2.124
	1500.00	37.701	275.447	246.378	−6.689	43.603	−419.859	−50.568	−57.392	1.999
	1600.00	37.792	277.883	248.272	−2.914	47.378	−447.527	−50.586	−57.846	1.888
	1700.00	37.875	280.177	250.082	0.869	51.161	−475.431	−50.605	−58.299	1.791
	1800.00	37.953	282.344	251.815	4.661	54.953	−503.558	−50.625	−58.751	1.705
	1900.00	38.041	284.398	253.476	8.461	58.753	−531.896	−50.646	−59.202	1.628
	2000.00	38.134	286.352	255.071	12.269	62.561	−560.434	−50.666	−59.652	1.558
	2100.00	38.238	288.215	256.605	16.088	66.380	−589.164	−50.684	−60.101	1.495
	2200.00	38.358	289.996	258.083	19.917	70.209	−618.075	−50.700	−60.549	1.438
	2300.00	38.503	291.705	259.508	23.760	74.052	−647.160	−50.711	−60.996	1.385
	2400.00	38.683	293.347	260.884	27.619	77.911	−676.413	−50.714	−61.443	1.337
	2500.00	38.908	294.930	262.214	31.498	81.790	−705.828	−50.705	−61.891	1.293
	2600.00	39.189	296.462	263.502	35.403	85.695	−735.398	−50.680	−62.339	1.252
	2700.00	39.537	297.947	264.751	39.338	89.630	−765.119	−50.632	−62.788	1.215
	2800.00	39.961	299.392	265.962	43.313	93.605	−794.986	−50.553	−63.239	1.180
	2900.00	40.472	300.803	267.139	47.333	97.625	−824.996	−50.437	−63.694	1.147
	3000.00	41.080	302.185	268.285	51.410	101.702	−855.146	−50.275	−64.154	1.117

References

Phase	H / S	C_p
GAS	Ja1	Ja1

ClF3[g] CHLORINE TRIFLUORIDE (GAS) 92.448

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	63.845	281.605	281.605	−158.866	0.000	−242.826	−158.866	−118.870	20.826
	300.00	64.004	282.000	281.606	−158.748	0.118	−243.348	−158.866	−118.622	20.654
	400.00	70.620	301.405	284.207	−151.987	6.879	−272.549	−158.659	−105.229	13.742
	500.00	74.476	317.615	289.313	−144.715	14.151	−303.523	−158.218	−91.920	9.603
	600.00	76.838	331.419	295.210	−137.140	21.726	−335.992	−157.670	−78.710	6.852
	700.00	78.371	343.387	301.256	−129.375	29.491	−369.745	−157.068	−65.597	4.895
	800.00	79.417	353.924	307.194	−121.482	37.384	−404.622	−156.437	−52.573	3.433
	900.00	80.160	363.323	312.918	−113.501	45.365	−440.492	−155.791	−39.629	2.300
	1000.00	80.705	371.799	318.389	−105.457	53.409	−477.255	−155.137	−26.757	1.398
	1100.00	81.117	379.511	323.601	−97.365	61.501	−514.827	−154.482	−13.950	0.662
	1200.00	81.435	386.583	328.559	−89.237	69.629	−553.136	−153.828	−1.204	0.052
	1300.00	81.685	393.112	333.276	−81.080	77.786	−592.125	−153.178	11.489	−0.462
	1400.00	81.885	399.173	337.769	−72.901	85.965	−631.743	−152.534	24.131	−0.900
	1500.00	82.047	404.828	342.054	−64.704	94.162	−671.946	−151.897	36.728	−1.279
	1600.00	82.180	410.128	346.144	−56.493	102.373	−712.697	−151.268	49.282	−1.609
	1700.00	82.291	415.113	350.056	−48.269	110.597	−753.961	−150.648	61.797	−1.899
	1800.00	82.384	419.819	353.802	−40.035	118.831	−795.710	−150.038	74.277	−2.155
	1900.00	82.462	424.276	357.395	−31.793	127.073	−837.917	−149.439	86.722	−2.384
	2000.00	82.528	428.507	360.846	−23.543	135.323	−880.558	−148.851	99.136	−2.589
	2100.00	82.585	432.535	364.165	−15.288	143.578	−923.612	−148.274	111.521	−2.774
	2200.00	82.634	436.378	367.360	−7.026	151.840	−967.059	−147.709	123.879	−2.941
	2300.00	82.677	440.052	370.442	1.239	160.105	−1010.882	−147.156	136.212	−3.093
	2400.00	82.713	443.572	373.416	9.509	168.375	−1055.064	−146.616	148.521	−3.232
	2500.00	82.745	446.949	376.290	17.782	176.648	−1099.591	−146.089	160.807	−3.360
	2600.00	82.773	450.195	379.071	26.058	184.924	−1144.449	−145.575	173.073	−3.477
	2700.00	82.798	453.319	381.763	34.336	193.202	−1189.626	−145.075	185.319	−3.585
	2800.00	82.820	456.331	384.373	42.617	201.483	−1235.110	−144.589	197.547	−3.685
	2900.00	82.838	459.238	386.904	50.900	209.766	−1280.889	−144.117	209.757	−3.778
	3000.00	82.855	462.046	389.363	59.185	218.051	−1326.954	−143.659	221.952	−3.865

References

Phase	H / S	C_p
GAS	Ja1	Ja1

51.452 CHLORINE MONOXIDE (GAS) **ClO[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	31.552	226.652	226.652	101.211	0.000	33.635	101.211	97.478	−17.078
	300.00	31.581	226.847	226.653	101.269	0.058	33.215	101.211	97.455	−16.968
	400.00	33.208	236.160	227.911	104.510	3.299	10.046	101.233	96.201	−12.563
	500.00	34.438	243.710	230.339	107.896	6.685	−13.959	101.304	94.936	−9.918
	600.00	35.281	250.069	233.112	111.385	10.174	−38.656	101.395	93.654	−8.153
	700.00	35.872	255.554	235.935	114.944	13.733	−63.943	101.489	92.356	−6.892
	800.00	36.301	260.373	238.695	118.554	17.343	−89.745	101.577	91.046	−5.945
	900.00	36.626	264.669	241.346	122.201	20.990	−116.001	101.659	89.724	−5.207
	1000.00	36.881	268.541	243.875	125.877	24.666	−142.664	101.733	88.394	−4.617
	1100.00	37.087	272.066	246.280	129.576	28.365	−169.697	101.800	87.057	−4.134
	1200.00	37.258	275.301	248.566	133.293	32.082	−197.068	101.861	85.714	−3.731
	1300.00	37.404	278.289	250.739	137.026	35.815	−224.749	101.917	84.366	−3.390
	1400.00	37.532	281.066	252.807	140.773	39.562	−252.719	101.966	83.014	−3.097
	1500.00	37.645	283.659	254.778	144.532	43.321	−280.957	102.010	81.659	−2.844
	1600.00	37.746	286.092	256.660	148.302	47.091	−309.445	102.048	80.301	−2.622
	1700.00	37.839	288.383	258.460	152.081	50.870	−338.170	102.080	78.941	−2.426
	1800.00	37.925	290.548	260.183	155.870	54.659	−367.118	102.105	77.579	−2.251
	1900.00	38.006	292.601	261.835	159.666	58.455	−396.276	102.123	76.216	−2.095
	2000.00	38.082	294.553	263.423	163.471	62.260	−425.635	102.134	74.852	−1.955

References

Phase	H / S	C_p
GAS	Ja1	Ja1

Cl2O[g] DICHLORINE MONOXIDE (GAS) 86.905

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	47.571	267.965	267.965	87.864	0.000	7.970	87.864	105.075	−18.409
	300.00	47.688	268.260	267.966	87.952	0.088	7.474	87.862	105.182	−18.314
	400.00	51.839	282.631	269.897	92.958	5.094	−20.095	87.915	110.954	−14.489
	500.00	53.800	294.433	273.661	98.250	10.386	−48.966	88.107	116.692	−12.191
	600.00	54.898	304.347	277.971	103.690	15.826	−78.919	88.332	122.388	−10.655
	700.00	55.590	312.865	282.362	109.216	21.352	−109.789	88.554	128.047	−9.555
	800.00	56.064	320.321	286.651	114.800	26.936	−141.456	88.765	133.674	−8.728
	900.00	56.413	326.946	290.767	120.425	32.561	−173.826	88.961	139.276	−8.083
	1000.00	56.683	332.904	294.687	126.080	38.216	−206.823	89.144	144.856	−7.567
	1100.00	56.902	338.317	298.411	131.760	43.896	−240.389	89.315	150.419	−7.143
	1200.00	57.086	343.276	301.946	137.460	49.596	−274.472	89.476	155.967	−6.789
	1300.00	57.245	347.852	305.304	143.176	55.312	−309.031	89.629	161.502	−6.489
	1400.00	57.387	352.099	308.497	148.908	61.044	−344.031	89.773	167.025	−6.232
	1500.00	57.515	356.063	311.537	154.653	66.789	−379.442	89.908	172.538	−6.008
	1600.00	57.633	359.779	314.437	160.411	72.547	−415.236	90.036	178.043	−5.812
	1700.00	57.744	363.276	317.208	166.180	78.316	−451.390	90.156	183.539	−5.639
	1800.00	57.848	366.580	319.860	171.959	84.095	−487.884	90.268	189.029	−5.485
	1900.00	57.948	369.710	322.402	177.749	89.885	−524.700	90.370	194.513	−5.348
	2000.00	58.044	372.685	324.843	183.549	95.685	−561.821	90.464	199.992	−5.223

References

Phase	H / S	C_p
GAS	Ja1	Ja1

58.933 COBALT **Co**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	24.811	30.041	30.041	0.000	0.000	−8.957	0.000	0.000	0.000
	300.00	24.833	30.195	30.042	0.046	0.046	−9.012	0.000	0.000	0.000
	400.00	26.526	37.559	31.034	2.610	2.610	−12.414	0.000	0.000	0.000
	500.00	28.200	43.663	32.966	5.348	5.348	−16.483	0.000	0.000	0.000
	600.00	29.664	48.936	35.198	8.243	8.243	−21.119	0.000	0.000	0.000
	700.00	31.045	53.613	37.500	11.278	11.278	−26.250	0.000	0.000	0.000
			0.646		0.452					
SOL−B	700.00	30.589	54.258	37.500	11.730	11.730	−26.250	0.000	0.000	0.000
	800.00	32.389	58.450	39.860	14.871	14.871	−31.888	0.000	0.000	0.000
	900.00	34.601	62.391	42.147	18.220	18.220	−37.932	0.000	0.000	0.000
	1000.00	36.940	66.156	44.361	21.795	21.795	−44.361	0.000	0.000	0.000
	1100.00	39.723	69.802	46.508	25.623	25.623	−51.159	0.000	0.000	0.000
	1200.00	43.423	73.408	48.600	29.770	29.770	−58.320	0.000	0.000	0.000
	1300.00	48.525	77.075	50.648	34.354	34.354	−65.843	0.000	0.000	0.000
	1400.00	44.228	80.888	52.672	39.504	39.504	−73.740	0.000	0.000	0.000
	1500.00	40.039	83.774	54.652	43.683	43.683	−81.978	0.000	0.000	0.000
	1600.00	38.777	86.311	56.552	47.614	47.614	−90.484	0.000	0.000	0.000
	1700.00	38.128	88.640	58.372	51.456	51.456	−99.233	0.000	0.000	0.000
	1768.00	38.156	90.134	59.565	54.046	54.046	−105.312	0.000	0.000	0.000
			9.158		16.192					
LIQ	1768.00	40.501	99.293	59.565	70.238	70.238	−105.312	0.000	0.000	0.000
	1800.00	40.501	100.019	60.278	71.534	71.534	−108.501	0.000	0.000	0.000
	1900.00	40.501	102.209	62.428	75.584	75.584	−118.613	0.000	0.000	0.000
	2000.00	40.501	104.286	64.469	79.634	79.634	−128.939	0.000	0.000	0.000
	2100.00	40.501	106.262	66.413	83.684	83.684	−139.467	0.000	0.000	0.000
	2200.00	40.501	108.146	68.267	87.734	87.734	−150.188	0.000	0.000	0.000
	2300.00	40.501	109.947	70.041	91.784	91.784	−161.093	0.000	0.000	0.000
	2400.00	40.501	111.671	71.740	95.834	95.834	−172.175	0.000	0.000	0.000
	2500.00	40.501	113.324	73.370	99.885	99.885	−183.425	0.000	0.000	0.000
	2600.00	40.501	114.912	74.938	103.935	103.935	−194.838	0.000	0.000	0.000
	2700.00	40.501	116.441	76.447	107.985	107.985	−206.406	0.000	0.000	0.000
	2800.00	40.501	117.914	77.901	112.035	112.035	−218.124	0.000	0.000	0.000
	2900.00	40.501	119.335	79.306	116.085	116.085	−229.987	0.000	0.000	0.000
	3000.00	40.501	120.708	80.663	120.135	120.135	−241.989	0.000	0.000	0.000
	3100.00	40.501	122.036	81.976	124.185	124.185	−254.127	0.000	0.000	0.000
	3198.00	40.501	123.297	83.223	128.154	128.154	−266.148	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL − A	Hu1	Hu1		hcp
SOL − B	Hu1	Hu1	Hu1	fcc CURIE − PT = 1394.
LIQ	Hu1	Hu1	Hu1	BPT = 3198., L = 376.6 kJ

Co[g] COBALT (GAS) 58.933

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	23.036	179.515	179.515	428.442	0.000	374.920	428.442	383.876	−67.254
	300.00	23.063	179.658	179.516	428.485	0.043	374.587	428.439	383.600	−66.791
	400.00	24.525	186.501	180.439	430.867	2.425	356.267	428.257	368.680	−48.145
	500.00	25.434	192.082	182.226	433.370	4.928	337.329	428.021	353.812	−36.962
	600.00	25.890	196.764	184.270	435.939	7.497	317.880	427.696	338.999	−29.512
	700.00	26.106	200.773	186.348	438.540	10.098	297.998	427.261	324.249	−24.196
	800.00	26.212	204.267	188.374	441.156	12.714	277.742	426.285	309.631	−20.217
	900.00	26.277	207.358	190.315	443.781	15.339	257.158	425.561	295.090	−17.127
	1000.00	26.335	210.130	192.161	446.411	17.969	236.281	424.616	280.642	−14.659
	1100.00	26.401	212.643	193.910	449.048	20.606	215.141	423.425	266.300	−12.646
	1200.00	26.477	214.943	195.568	451.692	23.250	193.760	421.922	252.080	−10.973
	1300.00	26.558	217.066	197.141	454.344	25.902	172.158	419.990	238.001	−9.563
	1400.00	26.636	219.037	198.636	457.003	28.561	150.352	417.500	224.092	−8.361
	1500.00	26.698	220.877	200.058	459.670	31.228	128.355	415.987	210.333	−7.324
	1600.00	26.731	222.601	201.414	462.342	33.900	106.180	414.728	196.664	−6.420
	1700.00	26.719	224.222	202.708	465.015	36.573	83.838	413.559	183.071	−5.625
	1800.00	26.714	225.749	203.946	467.687	39.245	61.339	396.153	169.840	−4.929
	1900.00	26.696	227.193	205.132	470.357	41.915	38.691	394.774	157.304	−4.325
	2000.00	26.665	228.561	206.269	473.026	44.584	15.903	393.392	144.842	−3.783
	2100.00	26.625	229.861	207.362	475.690	47.248	−7.019	392.006	132.448	−3.294
	2200.00	26.579	231.099	208.413	478.350	49.908	−30.067	390.616	120.121	−2.852
	2300.00	26.528	232.279	209.425	481.006	52.564	−53.236	389.221	107.857	−2.450
	2400.00	26.475	233.407	210.401	483.656	55.214	−76.521	387.821	95.654	−2.082
	2500.00	26.424	234.487	211.343	486.301	57.859	−99.916	386.416	83.509	−1.745
	2600.00	26.375	235.522	212.254	488.941	60.499	−123.417	385.006	71.420	−1.435
	2700.00	26.331	236.517	213.134	491.576	63.134	−147.019	383.591	59.386	−1.149
	2800.00	26.293	237.474	213.986	494.207	65.765	−170.719	382.172	47.405	−0.884
	2900.00	26.263	238.396	214.812	496.835	68.393	−194.513	380.750	35.474	−0.639
	3000.00	26.243	239.286	215.613	499.460	71.018	−218.397	379.325	23.592	−0.411
	3100.00	26.232	240.146	216.391	502.084	73.642	−242.369	377.898	11.758	−0.198
	3200.00	26.233	240.979	217.146	504.707	76.265	−266.426	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

454.638

COBALT ARSENATE **Co3(AsO4)2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	264.310	337.021	337.021	−1864.265	0.000	−1964.748	−1864.265	−1671.928	292.915
	300.00	264.891	338.658	337.026	−1863.775	0.490	−1965.373	−1864.222	−1670.734	290.901
	400.00	288.170	418.362	347.736	−1836.015	28.250	−2003.359	−1861.050	−1606.679	209.811
	500.00	303.332	484.381	368.652	−1806.401	57.864	−2048.591	−1857.021	−1543.542	161.253
	600.00	315.298	540.774	392.752	−1775.452	88.813	−2099.916	−1852.638	−1481.254	128.955
	700.00	325.757	590.176	417.498	−1743.390	120.875	−2156.514	−1848.058	−1419.716	105.941
	800.00	335.411	634.312	441.889	−1710.327	153.938	−2217.776	−1844.585	−1358.660	88.711
	818.00	337.092	641.794	446.206	−1704.274	159.991	−2229.262	−1843.720	−1347.736	86.062

References

Phase	H / S	C_p
SOL	G1	G1

69.744

COBALT MONOBORIDE **CoB**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	34.633	30.543	30.543	−94.140	0.000	−103.246	−94.140	−92.551	16.215
	300.00	34.816	30.758	30.544	−94.076	0.064	−103.303	−94.143	−92.542	16.113
	400.00	41.751	41.836	32.007	−90.208	3.932	−106.943	−94.204	−91.996	12.013
	500.00	45.748	51.614	34.972	−85.819	8.321	−111.626	−94.284	−91.437	9.552
	600.00	48.588	60.217	38.477	−81.096	13.044	−117.226	−94.436	−90.854	7.910
	700.00	50.882	67.884	42.141	−76.120	18.020	−123.638	−94.650	−90.241	6.734
	800.00	52.884	74.811	45.798	−70.930	23.210	−130.779	−95.336	−89.532	5.846
	900.00	54.718	81.147	49.379	−65.548	28.592	−138.581	−95.686	−88.786	5.153
	1000.00	56.446	87.003	52.852	−59.989	34.151	−146.992	−96.164	−87.995	4.596
	1100.00	58.106	92.461	56.208	−54.261	39.879	−155.968	−96.794	−87.150	4.138
	1200.00	59.719	97.586	59.444	−48.370	45.770	−165.473	−97.639	−86.237	3.754
	1300.00	61.299	102.429	62.566	−42.319	51.821	−175.476	−98.813	−85.243	3.425

References

Phase	H / S	C_p	Remarks	
SOL	Ku1/e	e	Tk1	MPT= 1733.

Co2B — DICOBALT BORIDE — 128.677

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	58.978	59.831	59.831	−125.520	0.000	−143.359	−125.520	−123.707	21.673
	300.00	59.217	60.197	59.832	−125.411	0.109	−143.470	−125.524	−123.696	21.537
	400.00	68.386	78.631	62.284	−118.981	6.539	−150.433	−125.587	−123.073	16.072
	500.00	73.831	94.516	67.180	−111.852	13.668	−159.110	−125.665	−122.438	12.791
	600.00	77.809	108.343	72.913	−104.262	21.258	−169.268	−125.845	−121.777	10.602
	700.00	81.095	120.590	78.866	−96.313	29.207	−180.726	−126.122	−121.078	9.035
	800.00	84.011	131.612	84.782	−88.056	37.464	−193.345	−127.333	−120.210	7.849
	900.00	86.713	141.665	90.552	−79.518	46.002	−207.016	−127.875	−119.290	6.923
	1000.00	89.282	150.935	96.132	−70.717	54.803	−221.652	−128.687	−118.295	6.179
	1100.00	91.764	159.562	101.511	−61.664	63.856	−237.182	−129.819	−117.204	5.566
	1200.00	94.187	167.650	106.689	−52.366	73.154	−253.547	−131.406	−115.991	5.049
	1300.00	96.568	175.284	111.675	−42.828	82.692	−270.697	−133.677	−114.620	4.606
	1400.00	98.918	182.526	116.479	−33.054	92.466	−288.590	−136.891	−113.039	4.218
	1500.00	101.246	189.430	121.114	−23.045	102.475	−307.191	−137.975	−111.291	3.876
	1553.00	102.473	192.967	123.506	−17.647	107.873	−317.325	−138.240	−110.343	3.711

References

Phase	H / S	C_p	Remarks	
SOL	Ku1/e	e	Tk1	MPT= 1553.

CoBr2 — COBALT DIBROMIDE — 218.741

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL-21	298.15	74.312	133.888	133.888	−220.915	0.000	−260.834	−220.915	−206.496	36.177
	300.00	74.350	134.348	133.889	−220.777	0.138	−261.082	−220.963	−206.406	35.938
	400.00	76.400	156.018	136.830	−213.240	7.675	−275.647	−250.472	−195.417	25.519
	500.00	78.450	173.286	142.451	−205.498	15.417	−292.141	−249.160	−181.805	18.993
	600.00	80.500	187.770	148.829	−197.550	23.365	−310.212	−247.825	−168.458	14.666
	648.00	81.484	194.003	151.947	−193.662	27.253	−319.376	−247.169	−162.135	13.070
			0.258		0.167					
SOL−1	648.00	68.199	194.261	151.947	−193.495	27.420	−319.376	−247.002	−162.135	13.070
	700.00	68.199	199.525	155.288	−189.949	30.966	−329.617	−246.995	−155.325	11.590
	800.00	68.199	208.632	161.399	−183.129	37.786	−350.035	−247.516	−142.162	9.282
	900.00	68.199	216.665	167.103	−176.309	44.606	−371.307	−247.802	−128.978	7.486
	951.00	68.199	220.424	169.862	−172.831	48.084	−382.454	−248.038	−122.238	6.714

References

Phase	H / S	C_p	Remarks	
SOL−21	Nb1/e	e		
SOL−1	Tk1	e	Tk1	MPT= 951.

118.942 COBALT CARBONATE **CoCO3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	80.063	87.864	87.864	−713.000	0.000	−739.197	−713.000	−636.782	111.561
	300.00	80.384	88.360	87.866	−712.852	0.148	−739.360	−712.995	−636.309	110.791
	400.00	93.021	113.396	91.193	−704.119	8.881	−749.477	−712.320	−610.830	79.766
	500.00	100.960	135.056	97.851	−694.397	18.603	−761.925	−711.256	−585.577	61.175
	600.00	107.050	154.020	105.665	−683.987	29.013	−776.399	−710.060	−560.552	48.800
	700.00	112.267	170.921	113.801	−673.016	39.984	−792.661	−708.785	−535.734	39.977
	800.00	117.019	186.227	121.913	−661.549	51.451	−810.530	−707.840	−511.042	33.368

References

Phase	H / S	C_p
SOL	Nb1/Tk1	e

94.386 COBALT MONOCHLORIDE (GAS) **CoCl[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	35.124	245.710	245.710	192.882	0.000	119.624	192.882	161.841	−28.354
	300.00	35.151	245.928	245.711	192.947	0.065	119.169	192.870	161.649	−28.146
	400.00	36.124	256.192	247.104	196.517	3.635	94.040	192.142	151.348	−19.764
	500.00	36.600	264.309	249.762	200.156	7.274	68.001	191.257	141.248	−14.756
	600.00	36.879	271.009	252.761	203.831	10.949	41.226	190.220	131.341	−11.434
	700.00	37.067	276.709	255.785	207.529	14.647	13.833	189.044	121.619	−9.075
	800.00	37.205	281.668	258.717	211.243	18.361	−14.092	187.312	112.137	−7.322
	900.00	37.315	286.057	261.516	214.969	22.087	−42.482	185.827	102.827	−5.968
	1000.00	37.407	289.993	264.170	218.705	25.823	−71.288	184.118	93.694	−4.894
	1100.00	37.487	293.562	266.682	222.450	29.568	−100.468	182.158	84.744	−4.024
	1200.00	37.560	296.827	269.060	226.202	33.320	−129.990	179.881	75.986	−3.308
	1300.00	37.627	299.836	271.313	229.962	37.080	−159.825	177.170	67.435	−2.710
	1400.00	37.689	302.627	273.452	233.728	40.846	−189.950	173.896	59.113	−2.206
	1500.00	37.749	305.229	275.484	237.500	44.618	−220.345	171.594	50.997	−1.776
	1600.00	37.807	307.668	277.420	241.277	48.395	−250.991	169.543	43.025	−1.405
	1700.00	37.863	309.961	279.268	245.061	52.179	−281.873	167.583	35.178	−1.081
	1800.00	37.917	312.127	281.034	248.850	55.968	−312.979	149.389	27.739	−0.805
	1900.00	37.970	314.178	282.725	252.644	59.762	−344.295	147.224	21.040	−0.578
	2000.00	38.023	316.127	284.346	256.444	63.562	−375.811	145.061	14.454	−0.378

References

Phase	H / S	C_p
GAS	Ja1	Ja1

CoCl2 COBALT DICHLORIDE 129.839

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)		] [		kJ / mol			] [-]
SOL	298.15	78.501	109.286	109.286	-312.545	0.000	-345.129	-312.545	-269.650	47.242
	300.00	78.582	109.772	109.288	-312.400	0.145	-345.331	-312.508	-269.384	46.904
	400.00	81.662	132.850	112.413	-304.370	8.175	-357.510	-310.510	-255.310	33.340
	500.00	83.449	151.278	118.405	-296.108	16.437	-371.748	-308.558	-241.737	25.254
	600.00	84.727	166.611	125.197	-287.697	24.848	-387.663	-306.676	-228.551	19.897
	700.00	85.765	179.752	132.074	-279.171	33.374	-404.997	-304.862	-215.674	16.094
	800.00	86.674	191.264	138.768	-270.548	41.997	-423.560	-303.538	-202.991	13.254
	900.00	87.509	201.522	145.181	-261.839	50.706	-443.208	-301.902	-190.523	11.058
	1000.00	88.297	210.783	151.286	-253.048	59.497	-463.831	-300.428	-178.228	9.310
	1013.00	88.398	211.924	152.057	-251.899	60.646	-466.579	-300.249	-176.641	9.108
			44.194		44.769					
LIQ	1013.00	99.161	256.119	152.057	-207.130	105.415	-466.579	-255.480	-176.641	9.108
	1100.00	99.161	264.289	160.615	-198.503	114.042	-489.221	-253.465	-169.955	8.071
	1200.00	99.161	272.917	169.619	-188.587	123.958	-516.088	-251.460	-162.455	7.071
	1300.00	99.161	280.854	177.874	-178.671	133.874	-543.782	-249.901	-155.105	6.232
	1342.00	99.161	284.007	181.147	-174.506	138.039	-555.644	-249.416	-152.050	5.918

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	NBPT= 1342., GAS (CoCl2 + Co2Cl4 + CoCl3)

129.839 COBALT DICHLORIDE (GAS) **CoCl2**[g]

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	59.635	298.429	298.429	-93.722	0.000	-182.698	-93.722	-107.220	18.784
	300.00	59.657	298.798	298.430	-93.612	0.110	-183.251	-93.720	-107.303	18.683
	400.00	60.610	316.099	300.782	-87.595	6.127	-214.035	-93.735	-111.834	14.604
	500.00	61.330	329.703	305.254	-81.497	12.225	-246.349	-93.946	-116.338	12.154
	600.00	61.932	340.940	310.292	-75.333	18.389	-279.897	-94.312	-120.785	10.515
	700.00	62.456	350.527	315.372	-69.113	24.609	-314.482	-94.805	-125.159	9.340
	800.00	62.919	358.898	320.300	-62.844	30.878	-349.962	-95.834	-129.394	8.449
	900.00	63.328	366.333	325.010	-56.531	37.191	-386.231	-96.595	-133.545	7.751
	1000.00	63.687	373.024	329.482	-50.180	43.542	-423.204	-97.560	-137.601	7.188
	1100.00	63.999	379.109	333.721	-43.796	49.926	-460.815	-98.757	-141.549	6.722
	1200.00	64.266	384.689	337.739	-37.382	56.340	-499.009	-100.255	-145.376	6.328
	1300.00	64.487	389.842	341.551	-30.944	62.778	-537.739	-102.174	-149.062	5.989
	1400.00	64.664	394.628	345.174	-24.486	69.236	-576.965	-104.646	-152.579	5.693
	1500.00	64.798	399.094	348.621	-18.012	75.710	-616.654	-106.141	-155.948	5.431
	1600.00	64.887	403.279	351.908	-11.528	82.194	-656.775	-107.383	-159.227	5.198
	1700.00	64.934	407.215	355.047	-5.036	88.686	-697.301	-108.537	-162.432	4.991
	1800.00	64.936	410.926	358.049	1.457	95.179	-738.210	-125.931	-165.276	4.796
	1900.00	64.896	414.436	360.925	7.949	101.671	-779.480	-127.307	-167.424	4.603
	2000.00	64.813	417.763	363.685	14.435	108.157	-821.091	-128.696	-169.500	4.427

References

Phase	H / S	C_p
GAS	Ja1	Ja1

CoCl3[g] COBALT TRICHLORIDE (GAS) 165.291

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	76.280	333.993	333.993	−163.594	0.000	−263.174	−163.594	−154.434	27.056
	300.00	76.415	334.465	333.994	−163.453	0.141	−263.792	−163.593	−154.377	26.879
	400.00	80.998	357.180	337.060	−155.546	8.048	−298.418	−163.451	−151.324	19.761
	500.00	82.891	375.485	342.975	−147.339	16.255	−335.082	−163.339	−148.307	15.494
	600.00	83.750	390.684	349.697	−139.001	24.593	−373.412	−163.348	−145.303	12.650
	700.00	84.144	403.628	356.500	−130.604	32.990	−413.144	−163.502	−142.285	10.617
	800.00	84.307	414.876	363.109	−122.180	41.414	−454.081	−164.229	−139.173	9.087
	900.00	84.355	424.810	369.424	−113.746	49.848	−496.075	−164.732	−136.013	7.894
	1000.00	84.346	433.697	375.414	−105.311	58.283	−539.008	−165.484	−132.784	6.936
	1100.00	84.314	441.735	381.084	−96.878	66.716	−582.786	−166.509	−129.467	6.148
	1200.00	84.279	449.070	386.448	−88.448	75.146	−627.332	−167.873	−126.042	5.486
	1300.00	84.255	455.815	391.528	−80.022	83.572	−672.581	−169.689	−122.486	4.922
	1400.00	84.250	462.058	396.346	−71.597	91.997	−718.478	−172.086	−118.769	4.431
	1500.00	84.270	467.871	400.923	−63.171	100.423	−764.978	−173.522	−114.908	4.001
	1600.00	84.318	473.311	405.279	−54.742	108.852	−812.040	−174.718	−110.961	3.622
	1700.00	84.397	478.425	409.433	−46.306	117.288	−859.629	−175.829	−106.941	3.286
	1800.00	84.510	483.252	413.401	−37.861	125.733	−907.716	−193.178	−102.564	2.976
	1900.00	84.657	487.825	417.199	−29.403	134.191	−956.271	−194.496	−97.494	2.680
	2000.00	84.841	492.172	420.840	−20.929	142.665	−1005.273	−195.809	−92.355	2.412

References

Phase	H / S	C_p
GAS	Ja1	Ja1

259.677 DICOBALT TETRACHLORIDE (GAS) **Co2Cl4[g]**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	127.181	450.308	450.308	-350.619	0.000	-484.878	-350.619	-333.920	58.501
	300.00	127.260	451.095	450.310	-350.384	0.235	-485.712	-350.601	-333.817	58.123
	400.00	130.081	488.146	455.343	-337.498	13.121	-532.756	-349.777	-328.355	42.879
	500.00	131.473	517.338	464.926	-324.413	26.206	-583.082	-349.311	-323.061	33.750
	600.00	132.303	541.387	475.724	-311.221	39.398	-636.054	-349.179	-317.828	27.669
	700.00	132.867	561.826	486.601	-297.961	52.658	-691.240	-349.344	-312.594	23.326
	800.00	133.289	579.597	497.139	-284.653	65.966	-748.330	-350.631	-307.193	20.058
	900.00	133.629	595.316	507.191	-271.306	79.313	-807.091	-351.434	-301.720	17.511
	1000.00	133.918	609.411	516.720	-257.928	92.691	-867.339	-352.689	-296.133	15.468
	1100.00	134.174	622.187	525.737	-244.524	106.095	-928.929	-354.446	-290.397	13.790
	1200.00	134.407	633.872	534.268	-231.094	119.525	-991.741	-356.840	-284.475	12.383
	1300.00	134.624	644.639	542.349	-217.643	132.976	-1055.673	-360.102	-278.319	11.183
	1400.00	134.829	654.623	550.017	-204.170	146.449	-1120.642	-364.491	-271.870	10.144
	1500.00	135.025	663.932	557.304	-190.677	159.942	-1186.575	-366.934	-265.163	9.234
	1600.00	135.216	672.652	564.244	-177.165	173.454	-1253.409	-368.876	-258.314	8.433
	1700.00	135.401	680.855	570.864	-163.634	186.985	-1321.088	-370.635	-251.349	7.723
	1800.00	135.582	688.600	577.192	-150.085	200.534	-1389.565	-404.863	-243.696	7.072
	1900.00	135.760	695.935	583.250	-136.518	214.101	-1458.795	-407.031	-234.683	6.452
	2000.00	135.935	702.903	589.060	-122.933	227.686	-1528.740	-409.196	-225.556	5.891

References

Phase	H / S	C_p
GAS	Ja1	Ja1

CoF2 COBALT DIFLUORIDE 96.930

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	68.784	82.006	82.006	−671.532	0.000	−695.982	−671.532	−626.562	109.771
	300.00	68.967	82.432	82.008	−671.405	0.127	−696.134	−671.508	−626.283	109.046
	400.00	75.614	103.308	84.809	−664.132	7.400	−705.455	−670.014	−611.424	79.844
	500.00	79.022	120.581	90.287	−656.385	15.147	−716.676	−668.368	−596.967	62.365
	600.00	81.153	135.190	96.585	−648.369	23.163	−729.483	−666.720	−582.842	50.741
	700.00	82.683	147.820	103.023	−640.174	31.358	−743.648	−665.111	−568.990	42.459
	800.00	83.892	158.942	109.331	−631.843	39.689	−758.997	−663.979	−555.303	36.258
	900.00	84.914	168.883	115.406	−623.402	48.130	−775.397	−662.534	−541.807	31.446
	1000.00	85.820	177.878	121.210	−614.865	56.667	−792.742	−661.252	−528.463	27.604
	1100.00	86.650	186.097	126.741	−606.241	65.291	−810.947	−660.162	−515.239	24.467
	1200.00	87.429	193.670	132.007	−597.536	73.996	−829.940	−659.333	−502.103	21.856
	1300.00	88.172	200.697	137.024	−588.756	82.776	−849.663	−658.883	−489.022	19.649
	1400.00	88.888	207.258	141.809	−579.903	91.629	−870.064	−658.942	−475.956	17.758
			42.014		58.819					
LIQ	1400.00	104.600	249.272	141.809	−521.084	150.448	−870.064	−600.123	−475.956	17.758
	1500.00	104.600	256.488	149.216	−510.624	160.908	−895.356	−597.620	−467.172	16.268
	1600.00	104.600	263.239	156.134	−500.164	171.368	−921.346	−594.881	−458.564	14.971
	1700.00	104.600	269.580	162.623	−489.704	181.828	−947.990	−592.064	−450.130	13.831
	1800.00	104.600	275.559	168.732	−479.244	192.288	−975.250	−605.495	−441.570	12.814
	1900.00	104.600	281.214	174.505	−468.784	202.748	−1003.091	−602.908	−432.533	11.891
	2000.00	104.600	286.580	179.976	−458.324	213.208	−1031.483	−600.330	−423.633	11.064
	2012.00	104.600	287.205	180.613	−457.069	214.463	−1034.926	−600.022	−422.574	10.971

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Pa2		
LIQ	Ja1	Ja1	Ja1	NBPT = 2012.

96.930 COBALT DIFLUORIDE (GAS) **CoF2[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	51.209	278.015	278.015	−356.477	0.000	−439.367	−356.477	−369.947	64.813
	300.00	51.275	278.332	278.016	−356.382	0.095	−439.882	−356.486	−370.031	64.428
	400.00	53.703	293.460	280.062	−351.118	5.359	−468.502	−356.999	−374.471	48.901
	500.00	54.970	305.592	283.995	−345.679	10.798	−498.475	−357.662	−378.765	39.569
	600.00	55.781	315.690	288.460	−340.139	16.338	−529.553	−358.489	−382.911	33.335
	700.00	56.376	324.336	292.982	−334.530	21.947	−561.564	−359.466	−386.906	28.871
	800.00	56.857	331.896	297.384	−328.867	27.610	−594.384	−361.002	−390.690	25.509
	900.00	57.270	338.617	301.599	−323.160	33.317	−627.916	−362.292	−394.326	22.886
	1000.00	57.642	344.670	305.608	−317.415	39.062	−662.085	−363.802	−397.806	20.779
	1100.00	57.987	350.181	309.413	−311.633	44.844	−696.832	−365.554	−401.124	19.048
	1200.00	58.313	355.240	313.024	−305.818	50.659	−732.106	−367.615	−404.269	17.597
	1300.00	58.627	359.920	316.454	−299.971	56.506	−767.867	−370.098	−407.226	16.363
	1400.00	58.931	364.276	319.716	−294.093	62.384	−804.079	−373.132	−409.972	15.296
	1500.00	59.228	368.352	322.824	−288.185	68.292	−840.713	−375.181	−412.529	14.366
	1600.00	59.520	372.184	325.790	−282.247	74.230	−877.742	−376.964	−414.960	13.547
	1700.00	59.807	375.801	328.627	−276.281	80.196	−915.143	−378.641	−417.283	12.822
	1800.00	60.092	379.228	331.344	−270.286	86.191	−952.896	−396.537	−419.215	12.165
	1900.00	60.373	382.484	333.950	−264.263	92.214	−990.983	−398.386	−420.425	11.558
	2000.00	60.653	385.588	336.455	−258.211	98.266	−1029.387	−400.218	−421.537	11.009

References

Phase	H / S	C_p
GAS	Ja1	Ja1

115.928 COBALT TRIFLUORIDE **CoF3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	91.801	94.558	94.558	−790.358	0.000	−818.551	−790.358	−718.899	125.948
	300.00	91.932	95.127	94.560	−790.188	0.170	−818.726	−790.321	−718.456	125.094
	400.00	96.713	122.317	98.235	−780.725	9.633	−829.652	−788.242	−694.812	90.733
	500.00	99.188	144.189	105.311	−770.919	19.439	−843.013	−786.219	−671.691	70.171
	600.00	100.756	162.420	113.352	−760.917	29.441	−858.369	−784.321	−648.966	56.498
	700.00	101.895	178.041	121.504	−750.782	39.576	−875.411	−782.547	−626.549	46.754
	800.00	102.805	191.709	129.443	−740.545	49.813	−893.912	−781.313	−604.316	39.458
	900.00	103.582	203.863	137.049	−730.225	60.133	−913.702	−779.813	−582.283	33.795
	1000.00	104.277	214.813	144.287	−719.832	70.526	−934.645	−778.515	−560.407	29.273
	1100.00	104.919	224.782	151.158	−709.372	80.986	−956.632	−777.442	−538.650	25.578
	1200.00	105.523	233.938	157.680	−698.849	91.509	−979.574	−776.660	−516.979	22.504

References

Phase	H / S	C_p	Remarks
SOL	Ja1	Pa2	Ja1 MPT= 1200.(approx.)

CoI2 COBALT DIIODIDE 312.742

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	75.713	153.134	153.134	−88.701	0.000	−134.358	−88.701	−90.774	15.903
	300.00	75.772	153.603	153.136	−88.561	0.140	−134.642	−88.708	−90.786	15.807
	400.00	78.994	175.842	156.146	−80.823	7.878	−151.160	−105.172	−90.860	11.865
	500.00	82.216	193.816	161.938	−72.762	15.939	−169.670	−148.044	−83.163	8.688
	600.00	85.437	209.090	168.554	−64.379	24.322	−189.833	−146.307	−70.347	6.124
	700.00	88.659	222.502	175.322	−55.675	33.026	−211.426	−144.400	−57.836	4.316
	789.00	91.526	233.282	181.260	−47.656	41.045	−231.716	−142.977	−46.886	3.104

References

Phase	H / S	C_p	Remarks
SOL	Nb1/e	e	Tk1 MPT= 789.

Co3N TRICOBALT NITRIDE 190.806

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	91.932	98.742	98.742	8.368	0.000	−21.072	8.368	34.362	−6.020
	300.00	92.048	99.311	98.744	8.538	0.170	−21.255	8.373	34.524	−6.011
	400.00	98.324	126.652	102.430	18.057	9.689	−32.604	8.741	43.188	−5.640
	500.00	104.600	149.266	109.596	28.203	19.835	−46.430	9.203	51.748	−5.406
	600.00	110.876	168.892	117.877	38.977	30.609	−62.358	9.801	60.204	−5.241

References

Phase	H / S	C_p
SOL	Ku1	e

74.933 COBALT MONOXIDE **CoO**

Phase	T [K]	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	55.064	52.969	52.969	−237.944	0.000	−253.737	−237.944	−214.198	37.527
	300.00	55.050	53.310	52.970	−237.842	0.102	−253.835	−237.915	−214.051	37.270
	400.00	52.926	68.869	55.107	−232.439	5.505	−259.987	−236.562	−206.312	26.942
	500.00	53.933	80.681	59.081	−227.144	10.800	−267.485	−235.534	−198.871	20.776
	600.00	54.331	90.559	63.528	−221.726	16.218	−276.061	−234.590	−191.629	16.683
	700.00	54.506	98.947	68.004	−216.284	21.660	−285.547	−233.812	−184.533	13.770
	800.00	54.812	106.243	72.338	−210.820	27.124	−295.814	−233.609	−177.475	11.588
	900.00	55.320	112.726	76.472	−205.315	32.629	−306.769	−233.155	−170.488	9.895
	1000.00	56.023	118.589	80.395	−199.749	38.195	−318.339	−232.896	−163.541	8.542
	1100.00	56.898	123.969	84.115	−194.105	43.839	−330.470	−232.833	−156.610	7.437
	1200.00	57.922	128.962	87.646	−188.365	49.579	−343.120	−233.016	−149.675	6.515
	1300.00	59.070	133.643	91.006	−182.516	55.428	−356.252	−233.542	−142.711	5.734
	1400.00	60.325	138.066	94.211	−176.547	61.397	−369.840	−234.530	−135.689	5.063
	1500.00	61.668	142.273	97.276	−170.448	67.496	−383.858	−234.431	−128.630	4.479
	1600.00	63.084	146.298	100.215	−164.211	73.733	−398.288	−233.958	−121.590	3.970
	1700.00	64.562	150.167	103.041	−157.829	80.115	−413.113	−233.264	−114.587	3.521
	1800.00	66.088	153.900	105.763	−151.297	86.647	−428.317	−248.668	−107.337	3.115
	1900.00	67.651	157.515	108.392	−144.611	93.333	−443.889	−247.901	−99.505	2.736
	2000.00	69.243	161.025	110.936	−137.766	100.178	−459.817	−246.988	−91.718	2.395
	2078.00	70.497	163.698	112.867	−132.316	105.628	−472.481	−246.173	−85.678	2.154
			26.175		54.392					
LIQ	2078.00	60.668	189.873	112.867	−77.924	160.020	−472.481	−191.781	−85.678	2.154
	2100.00	60.668	190.512	113.677	−76.590	161.354	−476.666	−191.754	−84.555	2.103
	2200.00	60.668	193.335	117.234	−70.523	167.421	−495.859	−191.642	−79.453	1.886
	2300.00	60.668	196.031	120.602	−64.456	173.488	−515.328	−191.540	−74.356	1.689
	2400.00	60.668	198.613	123.799	−58.389	179.555	−535.062	−191.450	−69.263	1.507
	2500.00	60.668	201.090	126.841	−52.322	185.622	−555.048	−191.371	−64.173	1.341

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	Ja1	Ja1	MPT= 2078.
LIQ	e	e		

Co3O4 TRICOBALT TETRAOXIDE 240.797

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	123.035	114.307	114.307	−910.020	0.000	−944.101	−910.020	−794.901	139.263
	300.00	123.528	115.069	114.309	−909.792	0.228	−944.313	−910.038	−794.187	138.280
	400.00	142.656	153.545	119.425	−896.372	13.648	−957.790	−910.253	−755.503	98.659
	500.00	152.850	186.558	129.635	−881.559	28.461	−974.838	−909.772	−716.865	74.890
	600.00	162.807	215.244	141.561	−865.810	44.210	−994.956	−909.026	−678.348	59.055
	700.00	173.621	241.140	153.964	−848.997	61.023	−1017.795	−907.829	−639.989	47.757
	800.00	185.280	265.077	166.374	−831.058	78.962	−1043.119	−907.343	−601.653	39.284
	900.00	197.552	287.603	178.604	−811.920	98.100	−1070.764	−905.062	−563.574	32.709
	1000.00	210.290	309.073	190.585	−791.532	118.488	−1100.605	−902.323	−525.773	27.464
	1100.00	223.382	329.728	202.301	−769.851	140.169	−1132.551	−899.143	−488.269	23.186
	1200.00	236.733	349.735	213.758	−746.847	163.173	−1166.529	−895.680	−451.068	19.634
	1220.00	239.427	353.671	216.019	−742.085	167.935	−1173.563	−894.978	−443.664	18.996

References

Phase	H / S	C_p	Remarks
SOL	Ja1	Ja1	Ja1 NDPT= 1220. (CoO + O2)

CoCr2O4 COBALT DICHROMIUM TETRAOXIDE 226.923

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	157.222	126.357	126.357	−1437.497	0.000	−1475.170	−1437.497	−1329.788	232.973
	300.00	157.448	127.330	126.360	−1437.206	0.291	−1475.405	−1437.447	−1329.120	231.420
	400.00	166.015	173.938	132.656	−1420.984	16.513	−1490.560	−1434.589	−1293.437	168.906
	500.00	170.933	211.551	144.796	−1404.119	33.378	−1509.895	−1431.785	−1258.478	131.472
	600.00	174.415	243.037	158.616	−1386.844	50.653	−1532.667	−1429.226	−1224.061	106.564
	700.00	177.219	270.140	172.657	−1369.259	68.238	−1558.357	−1426.934	−1190.051	88.803
	800.00	179.661	293.967	186.361	−1351.412	86.085	−1586.586	−1425.306	−1156.292	75.498
	900.00	181.894	315.259	199.521	−1333.333	104.164	−1617.066	−1423.513	−1122.776	65.164
	1000.00	183.996	334.533	212.074	−1315.038	122.459	−1649.571	−1422.008	−1089.444	56.907
	1100.00	186.012	352.165	224.019	−1296.537	140.960	−1683.918	−1420.913	−1056.245	50.157
	1200.00	187.971	368.434	235.384	−1277.837	159.660	−1719.958	−1420.369	−1023.122	44.535
	1300.00	189.888	383.556	246.207	−1258.944	178.553	−1757.566	−1420.487	−990.018	39.779
	1400.00	191.776	397.697	256.528	−1239.861	197.636	−1796.637	−1421.368	−956.876	35.701
	1500.00	193.642	410.992	266.387	−1220.590	216.907	−1837.078	−1421.471	−923.693	32.166
	1600.00	195.491	423.549	275.821	−1201.133	236.364	−1878.810	−1421.576	−890.506	29.072
	1700.00	197.328	435.455	284.864	−1181.492	256.005	−1921.766	−1421.816	−857.307	26.342
	1800.00	199.154	446.786	293.547	−1161.668	275.829	−1965.882	−1438.480	−823.796	23.906

References

Phase	H / S	C_p
SOL	K7	e

234.625 COBALT DIIRON TETRAOXIDE **CoFe2O4**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f [-]
		[J / (K mol)]			[kJ / mol]					
SOL-1	298.15	152.843	134.725	134.725	-1087.840	0.000	-1128.008	-1087.840	-980.455	171.772
	300.00	153.185	135.671	134.728	-1087.557	0.283	-1128.258	-1087.804	-979.789	170.596
	400.00	168.227	181.932	140.933	-1071.441	16.399	-1144.213	-1085.446	-944.120	123.289
	500.00	179.828	220.754	153.116	-1054.021	33.819	-1164.398	-1082.587	-909.112	94.974
	600.00	190.075	254.459	167.258	-1035.519	52.321	-1188.195	-1079.475	-874.706	76.150
	700.00	199.682	284.487	181.897	-1016.027	71.813	-1215.168	-1076.186	-840.836	62.744
	783.00	207.390	307.287	193.995	-999.133	88.707	-1239.738	-1073.820	-813.038	54.238
			0.000		0.000					
SOL-11	783.00	209.200	307.287	193.995	-999.133	88.707	-1239.738	-1073.820	-813.038	54.238
	800.00	209.200	311.781	196.451	-995.576	92.264	-1245.001	-1073.234	-807.382	52.717
	900.00	209.200	336.421	210.661	-974.656	113.184	-1277.435	-1070.538	-774.327	44.941
	1000.00	209.200	358.462	224.358	-953.736	134.104	-1312.198	-1069.669	-741.483	38.731
	1100.00	209.200	378.401	237.470	-932.816	155.024	-1349.057	-1070.694	-708.589	33.648
	1200.00	209.200	396.604	249.984	-911.896	175.944	-1387.821	-1071.278	-675.687	29.412
	1300.00	209.200	413.349	261.915	-890.976	196.864	-1428.330	-1068.994	-642.818	25.829
	1400.00	209.200	428.852	273.292	-870.056	217.784	-1470.449	-1067.504	-610.096	22.763
	1500.00	209.200	443.286	284.150	-849.136	238.704	-1514.064	-1065.268	-577.501	20.110
	1600.00	209.200	456.787	294.522	-828.216	259.624	-1559.075	-1063.001	-545.058	17.794
	1700.00	209.200	469.470	304.444	-807.296	280.544	-1605.395	-1062.765	-512.715	15.754
	1800.00	209.200	481.427	313.947	-786.376	301.464	-1652.945	-1077.748	-480.104	13.932
	1873.00	209.200	489.744	320.638	-771.105	316.735	-1688.395	-1105.158	-454.894	12.686

References

Phase	H / S	C_p	Remarks
SOL-1	Tk1	e	
SOL-11	u	e	Tk1 MPT= 1873. (pO2= 0.21 bar)

92.948 COBALT HYDROXIDE (PRECIPITATED) **Co(OH)2**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f [-]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	97.064	78.998	78.998	-539.698	0.000	-563.251	-539.698	-454.168	79.568
	300.00	97.152	79.599	79.000	-539.518	0.180	-563.398	-539.672	-453.637	78.985
	400.00	101.922	108.201	82.868	-529.565	10.133	-572.845	-538.159	-425.181	55.523
	500.00	106.692	131.457	90.329	-519.134	20.564	-584.862	-536.449	-397.131	41.488

References

Phase	H / S	C_p
SOL	Nb1	e

Co2SiO4 DICOBALT SILICATE 209.950

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	133.947	158.574	158.574	-1408.836	0.000	-1456.115	-1408.836	-1310.261	229.552
	300.00	134.357	159.403	158.576	-1408.588	0.248	-1456.409	-1408.825	-1309.649	228.030
	400.00	149.538	200.402	164.063	-1394.300	14.536	-1474.461	-1407.731	-1276.733	166.724
	500.00	157.749	234.727	174.860	-1378.903	29.933	-1496.266	-1406.206	-1244.157	129.976
	600.00	163.217	263.999	187.338	-1362.839	45.997	-1521.239	-1404.628	-1211.896	105.505
	700.00	167.389	289.484	200.149	-1346.302	62.534	-1548.940	-1403.119	-1179.895	88.045
	800.00	170.871	312.068	212.754	-1329.384	79.452	-1579.039	-1402.570	-1147.978	74.955
	900.00	173.951	332.375	224.936	-1312.141	96.695	-1611.278	-1401.396	-1116.228	64.784
	1000.00	176.782	350.851	236.617	-1294.602	114.234	-1645.453	-1400.541	-1084.591	56.653
	1100.00	179.451	367.826	247.784	-1276.790	132.046	-1681.398	-1400.057	-1053.023	50.004
	1200.00	182.008	383.551	258.451	-1258.716	150.120	-1718.977	-1400.076	-1021.478	44.464
	1300.00	184.487	398.217	268.644	-1240.391	168.445	-1758.073	-1400.826	-989.904	39.775
	1400.00	186.910	411.978	278.396	-1221.820	187.016	-1798.590	-1402.565	-958.235	35.752
	1500.00	189.290	424.955	287.738	-1203.010	205.826	-1840.443	-1402.221	-926.503	32.264
	1600.00	191.639	437.247	296.701	-1183.963	224.873	-1883.558	-1401.236	-894.819	29.213
	1690.00	193.731	447.791	304.469	-1166.622	242.214	-1923.388	-1450.269	-866.215	26.773
			59.418		100.416					
LIQ	1690.00	242.672	507.209	304.469	-1066.206	342.630	-1923.388	-1349.853	-866.215	26.773
	1700.00	242.672	508.640	305.666	-1063.779	345.057	-1928.468	-1349.202	-863.355	26.528
	1800.00	242.672	522.511	317.331	-1039.512	369.324	-1980.032	-1375.242	-834.376	24.213
	1900.00	242.672	535.632	328.478	-1015.244	393.592	-2032.945	-1369.274	-804.491	22.117
	2000.00	242.672	548.079	339.150	-990.977	417.859	-2087.136	-1363.352	-774.919	20.239

References

Phase	H / S	C_p
SOL	Tk1	S5
LIQ	S5	S5

154.811 COBALT TITANIUM TRIOXIDE **CoTiO3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	107.772	97.069	97.069	−1210.431	0.000	−1239.372	−1210.431	−1129.498	197.883
	300.00	108.019	97.736	97.071	−1210.231	0.200	−1239.552	−1210.405	−1128.996	196.576
	400.00	117.023	130.210	101.437	−1198.922	11.509	−1251.006	−1208.705	−1102.102	143.920
	500.00	121.713	156.873	109.940	−1186.964	23.467	−1265.401	−1206.775	−1075.674	112.375
	600.00	124.703	179.345	119.684	−1174.634	35.797	−1282.241	−1204.864	−1049.634	91.379
	700.00	126.892	198.740	129.624	−1162.050	48.381	−1301.168	−1203.070	−1023.906	76.405
	800.00	128.653	215.802	139.351	−1149.270	61.161	−1321.912	−1201.859	−998.363	65.186
	900.00	130.166	231.044	148.707	−1136.328	74.103	−1344.268	−1200.454	−973.013	56.472
	1000.00	131.524	244.830	157.641	−1123.242	87.189	−1368.072	−1199.331	−947.805	49.508
	1100.00	132.782	257.425	166.148	−1110.026	100.405	−1393.194	−1198.512	−922.695	43.815
	1200.00	133.970	269.030	174.244	−1096.688	113.743	−1419.524	−1202.056	−897.525	39.068
	1300.00	135.111	279.799	181.955	−1083.234	127.197	−1446.972	−1201.546	−872.171	35.044
	1400.00	136.216	289.852	189.307	−1069.667	140.764	−1475.460	−1201.598	−846.836	31.596
	1500.00	137.296	299.287	196.327	−1055.991	154.440	−1504.922	−1200.682	−821.525	28.608
	1600.00	138.355	308.182	203.043	−1042.209	168.222	−1535.300	−1199.525	−796.285	25.996
	1700.00	139.400	316.601	209.477	−1028.321	182.110	−1566.543	−1198.294	−771.120	23.694
	1736.00	139.773	319.526	211.729	−1023.296	187.135	−1577.993	−1197.844	−762.079	22.930

References

Phase	H / S	C_p	Remarks	
SOL	Tk1	e	Tk1	MPT= 1736.

Co2TiO4 DICOBALT TITANIUM TETRAOXIDE 229.744

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	149.370	165.268	165.268	−1445.949	0.000	−1495.224	−1445.949	−1345.810	235.780
	300.00	149.610	166.193	165.271	−1445.672	0.277	−1495.530	−1445.919	−1345.189	234.218
	400.00	158.654	210.620	171.267	−1430.208	15.741	−1514.456	−1444.114	−1311.877	171.314
	500.00	163.820	246.619	182.852	−1414.065	31.884	−1537.375	−1442.267	−1279.034	133.620
	600.00	167.460	276.824	196.064	−1397.493	48.456	−1563.588	−1440.587	−1246.548	108.522
	700.00	170.379	302.864	209.504	−1380.597	65.352	−1592.602	−1439.144	−1214.326	90.614
	800.00	172.913	325.783	222.635	−1363.430	82.519	−1624.057	−1438.808	−1182.169	77.188
	900.00	175.225	346.285	235.254	−1346.022	99.927	−1657.678	−1437.988	−1150.143	66.753
	1000.00	177.397	364.860	247.301	−1328.390	117.559	−1693.250	−1437.625	−1118.184	58.408
	1100.00	179.479	381.866	258.772	−1310.545	135.404	−1730.598	−1437.759	−1086.238	51.581
	1200.00	181.500	397.570	269.692	−1292.496	153.453	−1769.579	−1442.514	−1054.135	45.885
	1300.00	183.477	412.176	280.097	−1274.247	171.702	−1810.075	−1443.585	−1021.733	41.054
	1400.00	185.422	425.844	290.025	−1255.802	190.147	−1851.983	−1445.715	−989.209	36.908
	1500.00	187.344	438.703	299.512	−1237.163	208.786	−1895.217	−1445.836	−956.591	33.311
	1600.00	189.248	450.854	308.595	−1218.333	227.616	−1939.700	−1445.396	−923.988	30.165
	1700.00	191.138	462.384	317.305	−1199.314	246.635	−1985.367	−1444.722	−891.419	27.390
	1800.00	193.018	473.363	325.672	−1180.106	265.843	−2032.159	−1476.470	−858.307	24.907
	1835.00	193.674	477.086	328.525	−1173.339	272.610	−2048.792	−1476.351	−846.289	24.090

References

Phase	H / S	C_p	Remarks
SOL	Tk1,e	e	Tk1 MPT= 1835.

CoP COBALT MONOPHOSPHIDE 89.907

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	45.286	50.208	50.208	−146.440	0.000	−161.410	−146.440	−140.208	24.564
	300.00	45.313	50.488	50.209	−146.356	0.084	−161.503	−146.446	−140.169	24.406
	400.00	46.777	63.724	52.004	−141.752	4.688	−167.241	−147.657	−137.828	17.999
	500.00	48.242	74.320	55.441	−137.001	9.439	−174.161	−148.277	−135.300	14.135
	600.00	49.706	83.245	59.350	−132.103	14.337	−182.050	−148.907	−132.645	11.548
	700.00	51.170	91.017	63.331	−127.060	19.380	−190.771	−149.531	−129.885	9.692
	800.00	52.635	97.945	67.232	−121.869	24.571	−200.226	−150.567	−126.975	8.291
	900.00	54.099	104.229	70.999	−116.533	29.907	−210.339	−151.211	−123.988	7.196
	1000.00	55.564	110.005	74.615	−111.050	35.390	−221.055	−151.936	−120.925	6.316
	1100.00	57.028	115.369	78.078	−105.420	41.020	−232.326	−152.766	−117.785	5.593
	1200.00	58.492	120.394	81.398	−99.644	46.796	−244.117	−217.342	−113.473	4.939
	1300.00	59.957	125.134	84.581	−93.721	52.719	−256.396	−217.861	−104.799	4.211
	1400.00	61.421	129.631	87.640	−87.653	58.787	−269.136	−218.804	−96.068	3.584
	1500.00	62.886	133.918	90.583	−81.437	65.003	−282.315	−218.635	−87.304	3.040

References

Phase	H / S	C_p
SOL	Tk1/Ku1	e

151.854

COBALT TRIPHOSPHIDE

CoP3

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	101.206	98.324	98.324	−280.328	0.000	−309.643	−280.328	−263.951	46.243
	300.00	101.253	98.950	98.326	−280.141	0.187	−309.826	−280.319	−263.850	45.940
	400.00	103.763	128.423	102.327	−269.890	10.438	−321.259	−282.386	−257.847	33.671
	500.00	106.274	151.846	109.967	−259.388	20.940	−335.311	−282.521	−251.695	26.294
	600.00	108.784	171.444	118.623	−248.635	31.693	−351.502	−282.560	−245.524	21.375
	700.00	111.294	188.402	127.407	−237.631	42.697	−369.513	−282.490	−239.355	17.861
	800.00	113.805	203.427	135.987	−226.376	53.952	−389.118	−282.725	−233.142	15.223
	900.00	116.315	216.976	144.246	−214.870	65.458	−410.149	−282.466	−226.960	13.172
	1000.00	118.826	229.361	152.147	−203.113	77.215	−432.475	−282.182	−220.808	11.534
	1100.00	121.336	240.804	159.693	−191.105	89.223	−455.990	−281.899	−214.684	10.194
	1200.00	123.846	251.470	166.901	−178.846	101.482	−480.609	−472.399	−205.316	8.937
	1300.00	126.357	261.482	173.795	−166.336	113.992	−506.262	−470.046	−183.156	7.359
	1400.00	128.867	270.938	180.400	−153.575	126.753	−532.887	−468.022	−161.166	6.013

References

Phase	H / S	C_p
SOL	Tk1/Ku1	e

148.840

DICOBALT PHOSPHIDE

Co2P

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	64.809	77.404	77.404	−187.987	0.000	−211.065	−187.987	−180.906	31.694
	300.00	64.852	77.805	77.405	−187.867	0.120	−211.209	−188.003	−180.862	31.491
	400.00	67.153	96.777	79.976	−181.267	6.720	−219.978	−189.782	−178.151	23.264
	500.00	69.454	112.009	84.908	−174.436	13.551	−230.441	−191.061	−175.097	18.292
	600.00	71.756	124.875	90.524	−167.376	20.611	−242.301	−192.422	−171.777	14.955
	700.00	74.057	136.109	96.250	−160.085	27.902	−255.362	−193.836	−168.226	12.553
	800.00	76.358	146.149	101.870	−152.565	35.422	−269.483	−196.133	−164.344	10.731
	900.00	78.659	155.275	107.305	−144.814	43.173	−284.561	−197.712	−160.278	9.302
	1000.00	80.960	163.682	112.527	−136.833	51.154	−300.514	−199.514	−156.024	8.150
	1100.00	83.262	171.506	117.537	−128.622	59.365	−317.278	−201.591	−151.578	7.198
	1200.00	85.563	178.849	122.344	−120.180	67.807	−334.800	−267.649	−145.836	6.348
	1300.00	87.864	185.789	126.960	−111.509	76.478	−353.035	−270.003	−135.595	5.448
	1400.00	90.165	192.385	131.399	−102.608	85.379	−371.946	−273.263	−125.138	4.669
	1500.00	92.466	198.684	135.676	−93.476	94.511	−391.502	−274.357	−114.513	3.988
	1600.00	94.768	204.725	139.804	−84.114	103.873	−411.674	−274.728	−103.842	3.390

References

Phase	H / S	C_p
SOL	Nb1/Ku1	e

CoS0.89 COBALT 0.89–SULFIDE 87.472

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	44.878	52.300	52.300	–94.558	0.000	–110.151	–94.558	–92.688	16.239
	300.00	44.907	52.578	52.301	–94.475	0.083	–110.248	–94.558	–92.677	16.136
	400.00	46.459	65.709	54.081	–89.907	4.651	–116.190	–96.631	–91.960	12.009
	500.00	48.011	76.243	57.493	–85.183	9.375	–123.305	–98.119	–90.641	9.469
	600.00	49.564	85.134	61.378	–80.304	14.254	–131.385	–99.318	–89.025	7.750
	700.00	51.116	92.891	65.337	–75.270	19.288	–140.294	–100.265	–87.233	6.509
	800.00	52.668	99.817	69.221	–70.081	24.477	–149.935	–101.659	–85.245	5.566
	900.00	54.220	106.111	72.976	–64.737	29.821	–160.236	–149.687	–82.105	4.765
	1000.00	55.773	111.904	76.583	–59.237	35.321	–171.141	–149.395	–74.612	3.897

References

Phase	H / S	C_p
SOL	Mi1	Mi1

CoS2 COBALT DISULFIDE 123.065

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	68.215	69.036	69.036	–153.134	0.000	–173.717	–153.134	–145.645	25.516
	300.00	68.262	69.458	69.037	–153.008	0.126	–173.845	–153.138	–145.599	25.351
	400.00	70.793	89.443	71.745	–146.055	7.079	–181.832	–157.912	–142.864	18.656
	500.00	73.325	105.512	76.942	–138.849	14.285	–191.605	–161.249	–138.760	14.496
	600.00	75.856	119.104	82.864	–131.390	21.744	–202.852	–163.836	–134.001	11.666
	700.00	78.387	130.987	88.907	–123.678	29.456	–215.369	–165.779	–128.871	9.616
	800.00	80.919	141.620	94.843	–115.713	37.421	–229.008	–168.126	–123.407	8.058
	900.00	83.450	151.297	100.586	–107.494	45.640	–243.661	–275.669	–115.393	6.697
	1000.00	85.981	160.220	106.109	–99.023	54.111	–259.243	–274.443	–97.650	5.101

References

Phase	H / S	C_p
SOL	Mi1	Mi1

305.064 TRICOBALT TETRASULFIDE **Co3S4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	221.563	246.019	246.019	−478.650	0.000	−552.001	−478.650	−486.900	85.303
	300.00	221.752	247.390	246.023	−478.240	0.410	−552.457	−478.546	−486.952	84.786
	400.00	231.961	312.583	254.843	−455.554	23.096	−580.587	−481.878	−490.237	64.018
	500.00	242.170	365.440	271.835	−431.848	46.802	−614.568	−481.995	−492.395	51.440
	600.00	252.379	410.495	291.279	−407.120	71.530	−653.417	−480.255	−494.595	43.058
	700.00	262.588	450.166	311.197	−381.372	97.278	−696.488	−476.852	−497.241	37.105
	800.00	272.797	485.896	330.837	−354.603	124.047	−743.320	−474.301	−500.229	32.662
	900.00	283.006	518.616	349.908	−326.813	151.837	−793.567	−681.383	−499.099	28.967

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1	Mi1	NDPT= 900.

154.997 COBALT SULFATE **CoSO4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	103.217	117.361	117.361	−888.263	0.000	−923.254	−888.263	−782.411	137.075
	300.00	103.543	118.001	117.363	−888.072	0.191	−923.472	−888.269	−781.754	136.115
	400.00	119.298	150.034	121.624	−876.899	11.364	−936.913	−890.183	−746.176	97.441
	500.00	131.522	178.030	130.164	−864.330	23.933	−953.345	−890.373	−710.157	74.190
	600.00	140.670	202.860	140.250	−850.697	37.566	−972.413	−889.529	−674.175	58.692
	700.00	147.306	225.071	150.810	−836.280	51.983	−993.830	−887.967	−638.400	47.638
	800.00	152.017	245.067	161.363	−821.300	66.963	−1017.354	−886.614	−602.807	39.359
	900.00	155.402	263.177	171.686	−805.921	82.342	−1042.780	−937.600	−566.286	32.866
	964.00	157.149	273.914	178.120	−795.918	92.345	−1059.971	−935.451	−539.957	29.258
			2.214		2.134					
SOL−B	964.00	157.187	276.127	178.120	−793.784	94.479	−1059.971	−933.317	−539.957	29.258
	1000.00	158.109	281.907	181.753	−788.108	100.155	−1070.016	−932.122	−525.289	27.438
	1100.00	160.423	297.088	191.557	−772.179	116.084	−1098.976	−928.881	−484.764	23.020
	1200.00	162.460	311.136	200.944	−756.033	132.230	−1129.396	−925.829	−444.526	19.350
	1300.00	164.298	324.213	209.929	−739.694	148.569	−1161.171	−923.093	−404.531	16.254
	1400.00	165.989	336.451	218.534	−723.178	165.085	−1194.210	−920.813	−364.730	13.608
	1413.00	166.200	337.987	219.626	−721.019	167.244	−1198.594	−920.412	−359.568	13.292

References

Phase	H / S	C_p	Remarks	
SOL−A	Ja1	Ja1		
SOL−B	Ja1	Ja1	Ja1	NDPT= 1413.

CoSb0.98 COBALT 0.98–ANTIMONY 178.248

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	49.993	70.710	70.710	−41.840	0.000	−62.922	−41.840	−40.664	7.124
	300.00	50.041	71.019	70.711	−41.747	0.093	−63.053	−41.839	−40.657	7.079
	400.00	52.635	85.770	72.704	−36.614	5.226	−70.922	−41.781	−40.271	5.259
	500.00	55.229	97.794	76.555	−31.221	10.619	−80.117	−41.694	−39.903	4.169
	600.00	57.823	108.093	80.972	−25.568	16.272	−90.423	−41.561	−39.557	3.444
	700.00	60.417	117.201	85.509	−19.656	22.184	−101.696	−41.388	−39.236	2.928
	800.00	63.011	125.438	89.993	−13.485	28.355	−113.835	−41.620	−38.879	2.539
	900.00	65.605	133.009	94.358	−7.054	34.786	−126.762	−41.487	−38.546	2.237
	1000.00	68.199	140.056	98.579	−0.364	41.476	−140.419	−60.922	−36.153	1.888
	1100.00	70.793	146.677	102.654	6.586	48.426	−154.759	−60.875	−33.678	1.599
	1200.00	73.387	152.948	106.586	13.795	55.635	−169.743	−60.889	−31.206	1.358
	1300.00	75.981	158.925	110.384	21.264	63.104	−185.339	−61.080	−28.726	1.154
	1400.00	78.576	164.651	114.057	28.991	70.831	−201.519	−61.577	−26.221	0.978
	1475.00	80.521	168.801	116.735	34.958	76.798	−214.025	−61.088	−24.338	0.862

References

Phase	H / S	C_p	Remarks	
SOL	Hu1	e	Hu1	CoSb(0.84−0.98), MPT= 1475.

CoSb2 COBALT 2–ANTIMONY 302.433

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	74.744	120.290	120.290	−50.208	0.000	−86.072	−50.208	−49.971	8.755
	300.00	74.806	120.753	120.291	−50.070	0.138	−86.295	−50.209	−49.970	8.700
	400.00	78.124	142.727	123.265	−42.423	7.785	−99.514	−50.253	−49.882	6.514
	500.00	81.442	160.516	128.990	−34.445	15.763	−114.703	−50.252	−49.789	5.201
	600.00	84.759	175.658	135.536	−26.135	24.073	−131.530	−50.194	−49.700	4.327
	700.00	88.077	188.973	142.237	−17.493	32.715	−149.774	−50.106	−49.625	3.703
	800.00	91.395	200.951	148.840	−8.519	41.689	−169.280	−50.461	−49.500	3.232
	900.00	94.713	211.907	155.247	0.786	50.994	−189.930	−50.523	−49.378	2.866
	1000.00	98.031	222.058	161.427	10.423	60.631	−211.635	−90.481	−45.018	2.351
	1100.00	101.349	231.557	167.375	20.392	70.600	−234.320	−90.616	−40.464	1.921
	1200.00	104.667	240.518	173.100	30.693	80.901	−257.928	−90.738	−35.900	1.563

References

Phase	H / S	C_p	Remarks	
SOL	Hu1	e	Hu1	DPT= 1192. (CoSb + LIQ)

424.183 COBALT 3–ANTIMONY **CoSb3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	99.902	161.921	161.921	−62.760	0.000	−111.037	−62.760	−61.363	10.751
	300.00	99.977	162.539	161.923	−62.575	0.185	−111.337	−62.761	−61.354	10.683
	400.00	104.014	191.853	165.892	−52.376	10.384	−129.117	−62.815	−60.876	7.950
	500.00	108.052	215.497	173.522	−41.772	20.988	−149.521	−62.809	−60.390	6.309
	600.00	112.089	235.554	182.230	−30.765	31.995	−172.098	−62.732	−59.913	5.216
	700.00	116.127	253.136	191.128	−19.354	43.406	−196.550	−62.634	−59.451	4.436
	800.00	120.164	268.906	199.881	−7.540	55.220	−222.665	−63.016	−58.938	3.848
	900.00	124.202	283.293	208.361	4.679	67.439	−250.285	−63.174	−58.422	3.391
	1000.00	128.240	296.588	216.527	17.301	80.061	−279.287	−123.158	−51.542	2.692
	1100.00	132.277	309.000	224.376	30.326	93.086	−309.573	−123.374	−44.369	2.107
	1132.00	133.569	312.811	226.822	34.580	97.340	−319.522	−123.421	−42.070	1.941

References

Phase	H / S	C_p	Remarks
SOL	Hu1	e	Hu1 DPT= 1132. (CoSb2 + LIQ)

185.891 COBALT SELENITE **CoSeO3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	97.753	113.805	113.805	−581.994	0.000	−615.925	−581.994	−502.622	88.057
	300.00	97.864	114.410	113.807	−581.813	0.181	−616.136	−581.987	−502.129	87.429
	400.00	103.847	143.383	117.717	−571.728	10.266	−629.081	−581.590	−475.568	62.103
	500.00	109.830	167.198	125.298	−561.044	20.950	−644.643	−587.044	−449.029	46.910
	600.00	115.813	187.752	134.031	−549.762	32.232	−662.412	−586.910	−421.434	36.689
	700.00	121.796	206.054	143.035	−537.881	44.113	−682.119	−586.461	−393.886	29.392
	800.00	127.779	222.708	151.968	−525.402	56.592	−703.569	−586.096	−366.362	23.921
	900.00	133.762	238.103	160.694	−512.325	69.669	−726.618	−584.990	−338.959	19.673
	932.00	135.677	242.810	163.433	−508.014	73.980	−734.313	−584.576	−330.219	18.507
			17.509		16.318					
LIQ	932.00	144.348	260.319	163.433	−491.696	90.298	−734.313	−568.258	−330.219	18.507
	1000.00	144.348	270.484	170.371	−481.880	100.114	−752.365	−566.828	−312.903	16.344
	1100.00	144.348	284.242	180.107	−467.446	114.548	−780.112	−618.310	−282.647	13.422

References

Phase	H / S	C_p
SOL	Tk1	e
LIQ	Tk1	e

CoSn — COBALT TIN — 177.643

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−D	298.15	51.219	71.546	71.546	−29.288	0.000	−50.620	−29.288	−26.399	4.625
	300.00	51.254	71.863	71.547	−29.193	0.095	−50.752	−29.289	−26.381	4.593
	400.00	53.137	86.866	73.580	−23.974	5.314	−58.720	−29.426	−25.395	3.316
	500.00	55.020	98.925	77.481	−18.566	10.722	−68.029	−29.731	−24.356	2.544
	600.00	56.902	109.123	81.926	−12.970	16.318	−78.444	−36.984	−21.936	1.910
	700.00	58.785	118.036	86.461	−7.185	22.103	−89.811	−37.096	−19.418	1.449
	800.00	60.668	126.009	90.915	−1.213	28.075	−102.020	−37.561	−16.827	1.099
	900.00	62.551	133.263	95.223	4.948	34.236	−114.988	−37.594	−14.233	0.826
	1000.00	64.434	139.951	99.365	11.297	40.585	−128.653	−37.665	−11.634	0.608
	1100.00	66.316	146.180	103.341	17.835	47.123	−142.963	−37.800	−9.026	0.429
	1200.00	68.199	152.031	107.157	24.561	53.849	−157.877	−38.067	−6.399	0.279
	1209.00	68.369	152.542	107.493	25.175	54.463	−159.247	−38.101	−6.162	0.266

References

Phase	H / S	C_p	Remarks
SOL−D	Ku1	e	Hu1 DPT= 1209. (Co3Sn2 + LIQ)

CoWO4 — COBALT TUNGSTATE — 306.781

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	129.702	133.888	133.888	−1136.918	0.000	−1176.837	−1136.918	−1035.813	181.470
	300.00	129.792	134.691	133.890	−1136.678	0.240	−1177.085	−1136.878	−1035.186	180.242
	400.00	134.641	172.693	139.039	−1123.456	13.462	−1192.534	−1134.627	−1001.625	130.799
	500.00	139.490	203.259	148.922	−1109.750	27.168	−1211.379	−1132.292	−968.643	101.193
	600.00	144.340	229.119	160.187	−1095.558	41.360	−1233.030	−1129.872	−936.139	81.498
	700.00	149.189	251.734	171.682	−1080.882	56.036	−1257.095	−1127.341	−904.048	67.461
	800.00	154.038	271.972	182.975	−1065.720	71.198	−1283.298	−1125.091	−872.268	56.953
	900.00	158.887	290.395	193.902	−1050.074	86.844	−1311.429	−1122.293	−840.832	48.801
	986.00	163.058	305.082	202.965	−1036.231	100.687	−1337.042	−1119.807	−814.052	43.125
			1.888		1.862					
SOL−B	986.00	163.719	306.971	202.965	−1034.369	102.549	−1337.042	−1117.945	−814.052	43.125
	1000.00	164.306	309.283	204.438	−1032.072	104.846	−1341.356	−1117.524	−809.740	42.296
	1100.00	168.498	325.140	214.698	−1015.432	121.486	−1373.086	−1114.509	−779.107	36.997
	1200.00	172.690	339.981	224.526	−998.373	138.545	−1406.350	−1111.519	−748.749	32.592
	1300.00	176.883	353.969	233.951	−980.894	156.024	−1441.054	−1108.661	−718.635	28.875
	1400.00	181.075	367.231	243.001	−962.996	173.922	−1477.119	−1106.055	−688.732	25.697
	1500.00	185.268	379.867	251.707	−944.679	192.239	−1514.479	−1102.162	−659.055	22.950

References

Phase	H / S	C_p
SOL−A	Tk1	Ku1,e
SOL−B	Tk1	Ku1

51.996 CHROMIUM **Cr**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	23.347	23.640	23.640	0.000	0.000	−7.048	0.000	0.000	0.000
	300.00	23.379	23.784	23.640	0.043	0.043	−7.092	0.000	0.000	0.000
	400.00	25.189	30.758	24.579	2.472	2.472	−9.831	0.000	0.000	0.000
	500.00	26.815	36.559	26.410	5.074	5.074	−13.205	0.000	0.000	0.000
	600.00	28.167	41.571	28.529	7.826	7.826	−17.117	0.000	0.000	0.000
	700.00	29.279	46.000	30.714	10.700	10.700	−21.500	0.000	0.000	0.000
	800.00	30.214	49.972	32.877	13.676	13.676	−26.302	0.000	0.000	0.000
	900.00	31.044	53.579	34.980	16.739	16.739	−31.482	0.000	0.000	0.000
	1000.00	32.024	56.892	37.008	19.885	19.885	−37.008	0.000	0.000	0.000
	1100.00	33.647	60.018	38.959	23.165	23.165	−42.855	0.000	0.000	0.000
	1200.00	35.446	63.022	40.840	26.620	26.620	−49.007	0.000	0.000	0.000
	1300.00	37.146	65.928	42.658	30.250	30.250	−55.456	0.000	0.000	0.000
	1400.00	38.734	68.739	44.421	34.045	34.045	−62.190	0.000	0.000	0.000
	1500.00	40.439	71.468	46.134	38.001	38.001	−69.201	0.000	0.000	0.000
	1600.00	42.419	74.144	47.801	42.149	42.149	−76.482	0.000	0.000	0.000
	1700.00	44.106	76.767	49.428	46.477	46.477	−84.028	0.000	0.000	0.000
	1800.00	45.662	79.333	51.018	50.966	50.966	−91.833	0.000	0.000	0.000
	1900.00	47.186	81.842	52.575	55.608	55.608	−99.893	0.000	0.000	0.000
	2000.00	48.712	84.302	54.100	60.403	60.403	−108.200	0.000	0.000	0.000
	2100.00	50.193	86.714	55.596	65.349	65.349	−116.751	0.000	0.000	0.000
	2130.00	50.611	87.429	56.039	66.861	66.861	−119.363	0.000	0.000	0.000
			7.950		16.933					
LIQ	2130.00	39.330	95.379	56.039	83.794	83.794	−119.363	0.000	0.000	0.000
	2200.00	39.330	96.651	57.311	86.547	86.547	−126.085	0.000	0.000	0.000
	2300.00	39.330	98.399	59.060	90.480	90.480	−135.838	0.000	0.000	0.000
	2400.00	39.330	100.073	60.734	94.413	94.413	−145.762	0.000	0.000	0.000
	2500.00	39.330	101.679	62.340	98.346	98.346	−155.850	0.000	0.000	0.000
	2600.00	39.330	103.221	63.883	102.279	102.279	−166.096	0.000	0.000	0.000
	2700.00	39.330	104.705	65.368	106.212	106.212	−176.493	0.000	0.000	0.000
	2800.00	39.330	106.136	66.798	110.145	110.145	−187.035	0.000	0.000	0.000
	2900.00	39.330	107.516	68.179	114.078	114.078	−197.718	0.000	0.000	0.000
	2942.00	39.330	108.081	68.744	115.730	115.730	−202.246	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL	Hu1	Hu1		
LIQ	Hu1	Hu1	Hu1	BPT= 2942., L= 344.3 kJ

Cr[g] CHROMIUM (GAS) 51.996

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	20.786	174.306	174.306	397.480	0.000	345.511	397.480	352.559	-61.767
	300.00	20.786	174.435	174.306	397.518	0.038	345.188	397.475	352.280	-61.337
	400.00	20.786	180.414	175.122	399.597	2.117	327.431	397.125	337.263	-44.042
	500.00	20.786	185.053	176.661	401.676	4.196	309.149	396.601	322.354	-33.676
	600.00	20.786	188.843	178.385	403.754	6.274	290.449	395.929	307.566	-26.776
	700.00	20.786	192.047	180.114	405.833	8.353	271.400	395.133	292.900	-21.856
	800.00	20.830	194.826	181.783	407.914	10.434	252.054	394.239	278.355	-18.175
	900.00	20.827	197.280	183.371	409.997	12.517	232.446	393.258	263.928	-15.318
	1000.00	20.835	199.474	184.874	412.080	14.600	212.606	392.196	249.614	-13.039
	1100.00	20.887	201.462	186.293	414.166	16.686	192.558	391.001	235.412	-11.179
	1200.00	21.004	203.284	187.634	416.260	18.780	172.319	389.640	221.327	-9.634
	1300.00	21.194	204.972	188.903	418.369	20.889	151.906	388.119	207.361	-8.332
	1400.00	21.461	206.552	190.108	420.501	23.021	131.329	386.457	193.518	-7.220
	1500.00	21.802	208.044	191.255	422.664	25.184	110.598	384.663	179.799	-6.261
	1600.00	22.215	209.464	192.349	424.864	27.384	89.722	382.715	166.204	-5.426
	1700.00	22.693	210.825	193.396	427.109	29.629	68.707	380.632	152.735	-4.693
	1800.00	23.228	212.137	194.401	429.405	31.925	47.559	378.439	139.392	-4.045
	1900.00	23.814	213.408	195.368	431.756	34.276	26.281	376.148	126.174	-3.469
	2000.00	24.440	214.645	196.301	434.169	36.689	4.878	373.766	113.079	-2.953
	2100.00	25.098	215.853	197.203	436.645	39.165	-16.647	371.296	100.105	-2.490
	2200.00	25.778	217.037	198.078	439.189	41.709	-38.291	352.642	87.793	-2.084
	2300.00	26.470	218.198	198.928	441.802	44.322	-60.053	351.321	75.785	-1.721
	2400.00	27.163	219.339	199.754	444.483	47.003	-81.930	350.070	63.832	-1.389
	2500.00	27.846	220.462	200.560	447.234	49.754	-103.920	348.888	51.930	-1.085
	2600.00	28.510	221.567	201.347	450.052	52.572	-126.022	347.773	40.074	-0.805
	2700.00	29.144	222.655	202.116	452.935	55.455	-148.233	346.723	28.259	-0.547
	2800.00	29.736	223.726	202.869	455.879	58.399	-170.552	345.734	16.483	-0.307
	2900.00	30.276	224.779	203.606	458.880	61.400	-192.978	344.802	4.740	-0.085
	3000.00	30.753	225.813	204.329	461.932	64.452	-215.508	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

190.915 CHROMIUM ARSENATE **CrAsO4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	119.104	155.352	155.352	−1062.067	0.000	−1108.385	−1062.067	−968.362	169.653
	300.00	119.420	156.090	155.354	−1061.846	0.221	−1108.673	−1062.044	−967.781	168.506
	400.00	131.814	192.323	160.210	−1049.222	12.845	−1126.151	−1060.297	−936.600	122.307
	500.00	139.499	222.612	169.746	−1035.634	26.433	−1146.940	−1057.996	−905.935	94.642
	600.00	145.330	248.579	180.772	−1021.382	40.685	−1170.530	−1055.437	−875.760	76.242
	700.00	150.287	271.362	192.119	−1006.596	55.471	−1196.550	−1052.712	−846.027	63.131
	800.00	154.777	291.727	203.319	−991.340	70.727	−1224.722	−1049.838	−816.694	53.325
	820.00	155.638	295.560	205.522	−988.236	73.831	−1230.595	−1049.245	−810.873	51.653

References

Phase	H / S	C_p
SOL	G1	G1

433.827 TRICHROMIUM ARSENATE **Cr3(AsO4)2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	261.829	321.415	321.415	−2218.231	0.000	−2314.061	−2218.231	−2026.966	355.116
	300.00	262.429	323.036	321.420	−2217.746	0.485	−2314.657	−2218.184	−2025.780	352.720
	400.00	286.245	402.126	332.042	−2190.197	28.034	−2351.048	−2214.819	−1962.114	256.226
	500.00	301.420	467.722	352.806	−2160.773	57.458	−2394.634	−2210.571	−1899.418	198.431
	600.00	313.192	523.752	376.740	−2130.024	88.207	−2444.275	−2205.959	−1837.617	159.979
	700.00	323.359	572.808	401.317	−2098.187	120.044	−2499.153	−2201.119	−1776.606	132.572
	800.00	332.670	616.602	425.538	−2065.380	152.851	−2558.662	−2196.051	−1716.304	112.063
	859.00	337.915	640.459	439.488	−2045.597	172.634	−2595.751	−2192.939	−1681.034	102.221

References

Phase	H / S	C_p
SOL	G1	G1

CrB — CHROMIUM MONOBORIDE — 62.807

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	35.824	35.146	35.146	−75.312	0.000	−85.791	−75.312	−77.004	13.491
	300.00	35.992	35.368	35.146	−75.246	0.066	−85.856	−75.310	−77.015	13.409
	400.00	42.476	46.711	36.649	−71.287	4.025	−89.972	−75.145	−77.607	10.134
	500.00	46.338	56.632	39.676	−66.834	8.478	−95.150	−75.025	−78.238	8.173
	600.00	49.168	65.340	43.242	−62.053	13.259	−101.257	−74.976	−78.887	6.868
	700.00	51.510	73.100	46.963	−57.016	18.296	−108.186	−74.968	−79.539	5.935
	800.00	53.593	80.116	50.676	−51.760	23.552	−115.853	−74.970	−80.192	5.236
	900.00	55.525	86.541	54.309	−46.303	29.009	−124.190	−74.959	−80.845	4.692
	1000.00	57.363	92.487	57.833	−40.658	34.654	−133.145	−74.922	−81.501	4.257
	1100.00	59.139	98.038	61.238	−34.832	40.480	−142.674	−74.907	−82.160	3.901
	1200.00	60.874	103.259	64.525	−28.831	46.481	−152.742	−74.950	−82.818	3.605

References

Phase	H / S	C_p	Remarks
SOL	Ku1/Tk1	Ku1	Tk1 MPT= 2343.

CrB2 — CHROMIUM DIBORIDE — 73.618

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	53.640	38.911	38.911	−94.140	0.000	−105.741	−94.140	−95.217	16.682
	300.00	53.723	39.243	38.912	−94.041	0.099	−105.814	−94.126	−95.224	16.580
	400.00	58.199	55.311	41.073	−88.445	5.695	−110.569	−93.688	−95.672	12.493
	500.00	62.676	68.779	45.301	−82.401	11.739	−116.790	−93.708	−96.172	10.047
	600.00	67.153	80.602	50.218	−75.909	18.231	−124.271	−93.929	−96.646	8.414
	700.00	71.630	91.290	55.333	−68.970	25.170	−132.873	−94.174	−97.079	7.244
	800.00	76.107	101.147	60.451	−61.583	32.557	−142.501	−94.329	−97.482	6.365
	900.00	80.584	110.370	65.491	−53.749	40.391	−153.082	−94.322	−97.874	5.680
	1000.00	85.061	119.092	70.418	−45.467	48.673	−164.558	−94.110	−98.278	5.134
	1100.00	89.538	127.409	75.224	−36.737	57.403	−176.886	−93.721	−98.713	4.687
	1200.00	94.014	135.392	79.907	−27.559	66.581	−190.029	−93.176	−99.189	4.318

References

Phase	H / S	C_p	Remarks
SOL	Ku1/Tk1	Ku1	Tk1 MPT= 2437.

211.804 CHROMIUM DIBROMIDE **CrBr2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	72.510	133.888	133.888	−302.085	0.000	−342.004	−302.085	−289.574	50.732
	300.00	72.551	134.337	133.889	−301.951	0.134	−342.252	−302.134	−289.496	50.406
	400.00	74.768	155.512	136.762	−294.585	7.500	−356.790	−331.679	−279.142	36.452
	500.00	76.986	172.434	142.258	−286.997	15.088	−373.214	−330.386	−266.156	27.805
	600.00	79.203	186.666	148.504	−279.188	22.897	−391.188	−329.046	−253.435	22.063
	700.00	81.421	199.042	154.859	−271.157	30.928	−410.486	−327.624	−240.944	17.979
	800.00	83.638	210.059	161.082	−262.904	39.181	−430.951	−326.095	−228.665	14.930
	900.00	85.856	220.038	167.087	−254.429	47.656	−452.463	−324.441	−216.584	12.570
	1000.00	88.073	229.199	172.846	−245.733	56.352	−474.931	−322.656	−204.694	10.692
	1100.00	90.291	237.697	178.360	−236.814	65.271	−498.281	−320.791	−192.988	9.164
	1115.00	90.623	238.922	179.166	−235.457	66.628	−501.856	−320.507	−191.247	8.959

References

Phase	H / S	C_p	Remarks
SOL	Nb1/Tk1	e	Tk1 MPT= 1115.

291.708 CHROMIUM TRIBROMIDE **CrBr3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	96.440	159.670	159.670	−432.626	0.000	−480.232	−432.626	−405.111	70.974
	300.00	96.524	160.267	159.672	−432.448	0.178	−480.527	−432.701	−404.940	70.506
	400.00	99.771	188.528	163.503	−422.616	10.010	−498.027	−477.021	−386.471	50.468
	500.00	101.741	211.017	170.833	−412.534	20.092	−518.043	−475.080	−364.058	38.033
	600.00	103.210	229.701	179.131	−402.284	30.342	−540.105	−473.158	−342.035	29.777
	700.00	104.441	245.706	187.526	−391.900	40.726	−563.894	−471.251	−320.332	23.903
	800.00	105.546	259.725	195.692	−381.400	51.226	−589.180	−469.349	−298.902	19.516
	900.00	106.577	272.217	203.514	−370.793	61.833	−615.788	−467.442	−277.710	16.118
	1000.00	107.563	283.497	210.957	−360.086	72.540	−643.583	−465.528	−256.732	13.410
	1100.00	108.519	293.794	218.026	−349.281	83.345	−672.455	−463.664	−235.943	11.204

References

Phase	H / S	C_p
SOL	Pa2	Pa2

CrBr4[g] CHROMIUM TETRABROMIDE (GAS) 371.612

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	101.329	417.417	417.417	−258.571	0.000	−383.024	−258.571	−285.213	49.968
	300.00	101.408	418.044	417.419	−258.383	0.188	−383.797	−258.707	−285.378	49.689
	400.00	104.215	447.659	421.438	−248.083	10.488	−427.146	−319.799	−281.682	36.784
	500.00	105.532	471.072	429.106	−237.588	20.983	−473.124	−319.291	−272.213	28.438
	600.00	106.264	490.383	437.756	−226.995	31.576	−521.225	−318.886	−262.837	22.882
	700.00	106.718	506.800	446.476	−216.344	42.227	−571.104	−318.580	−253.521	18.918
	800.00	107.025	521.071	454.928	−205.656	52.915	−622.514	−318.363	−244.243	15.947
	900.00	107.246	533.691	462.992	−194.942	63.629	−675.264	−318.227	−234.987	13.638
	1000.00	107.415	544.999	470.637	−184.209	74.362	−729.208	−318.171	−225.742	11.792
	1100.00	107.548	555.243	477.870	−173.460	85.111	−784.228	−318.248	−216.497	10.281
	1200.00	107.657	564.606	484.714	−162.700	95.871	−840.227	−318.502	−207.237	9.021
	1300.00	107.750	573.227	491.195	−151.929	106.642	−897.125	−318.933	−197.949	7.954

References

Phase	H / S	C_p
GAS	Pa2	Pa2

Cr3C2 3−CHROMIUM 2−CARBIDE 180.010

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	99.326	85.437	85.437	−85.354	0.000	−110.827	−85.354	−86.260	15.112
	300.00	99.634	86.053	85.439	−85.170	0.184	−110.986	−85.331	−86.265	15.020
	400.00	115.482	116.990	89.549	−74.378	10.976	−121.173	−83.899	−86.782	11.333
	500.00	125.543	143.942	97.795	−62.280	23.074	−134.251	−82.271	−87.691	9.161
	600.00	131.490	167.400	107.485	−49.405	35.949	−149.845	−80.811	−88.917	7.741
	700.00	135.656	187.993	117.546	−36.041	49.313	−167.636	−79.625	−90.365	6.743
	800.00	139.118	206.339	127.519	−22.298	63.056	−187.369	−78.657	−91.967	6.005
	900.00	142.265	222.908	137.212	−8.227	77.127	−208.845	−77.843	−93.681	5.437
	1000.00	145.319	238.056	146.550	6.152	91.506	−231.904	−77.138	−95.480	4.987
	1100.00	148.367	252.049	155.512	20.836	106.190	−256.417	−76.673	−97.340	4.622
	1200.00	151.440	265.090	164.106	35.826	121.180	−282.282	−76.538	−99.227	4.319
	1300.00	154.550	277.334	172.350	51.126	136.480	−309.409	−76.715	−101.113	4.063
	1400.00	157.697	288.903	180.266	66.738	152.092	−337.726	−77.144	−102.975	3.842
	1500.00	160.878	299.891	187.877	82.666	168.020	−367.170	−77.803	−104.798	3.649
	1600.00	164.090	310.376	195.208	98.914	184.268	−397.687	−78.766	−106.568	3.479
	1700.00	167.329	320.421	202.280	115.485	200.839	−429.231	−79.987	−108.270	3.327
	1800.00	170.590	330.077	209.114	132.381	217.735	−461.759	−81.400	−109.893	3.189
	1900.00	173.872	339.389	215.727	149.604	234.958	−495.235	−82.973	−111.434	3.064
	2000.00	177.170	348.391	222.136	167.156	252.510	−529.626	−84.700	−112.888	2.948
	2100.00	180.483	357.115	228.357	185.038	270.392	−564.904	−86.574	−114.252	2.842
	2168.00	182.744	362.903	232.487	197.388	282.742	−589.385	−137.400	−114.232	2.752

References

Phase	H / S	C_p	Remarks	
SOL	Ja1,A1	Ja1	Ja1,Hu1	MPT= 2168./2190. (peritec.)

400.006 7–CHROMIUM 3–CARBIDE **Cr7C3**

Phase	T	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	209.764	200.999	200.999	–160.666	0.000	–220.594	–160.666	–166.122	29.104
	300.00	210.355	202.299	201.003	–160.277	0.389	–220.967	–160.627	–166.156	28.930
	400.00	236.717	266.708	209.605	–137.825	22.841	–244.508	–158.287	–168.341	21.983
	500.00	252.869	321.410	226.639	–113.281	47.385	–273.986	–155.953	–171.132	17.878
	600.00	263.506	368.507	246.452	–87.433	73.233	–308.537	–154.105	–174.351	15.179
	700.00	271.955	409.775	266.896	–60.651	100.015	–347.493	–152.776	–177.837	13.270
	800.00	279.637	446.597	287.098	–33.067	127.599	–390.344	–151.795	–181.487	11.850
	900.00	287.019	479.961	306.702	–4.733	155.933	–436.698	–151.003	–185.247	10.751
	1000.00	294.368	510.581	325.579	24.336	185.002	–486.245	–150.311	–189.091	9.877
	1100.00	301.776	538.984	343.704	54.143	214.809	–538.740	–150.033	–192.987	9.164
	1200.00	309.269	565.563	361.096	84.694	245.360	–593.981	–150.401	–196.881	8.570
	1300.00	316.847	590.616	377.797	115.999	276.665	–651.802	–151.387	–200.718	8.065
	1400.00	324.504	614.377	393.854	148.066	308.732	–712.062	–152.868	–204.460	7.629
	1500.00	332.228	637.029	409.316	180.902	341.568	–774.640	–154.803	–208.081	7.246
	1600.00	340.011	658.718	424.231	214.514	375.180	–839.435	–157.379	–211.552	6.906
	1700.00	347.842	679.566	438.641	248.906	409.572	–906.356	–160.494	–214.845	6.601
	1800.00	355.716	699.671	452.588	284.084	444.750	–975.324	–164.001	–217.943	6.325
	1900.00	363.625	719.115	466.106	320.051	480.717	–1046.268	–167.835	–220.836	6.071
	2000.00	371.564	737.968	479.231	356.810	517.476	–1119.127	–171.982	–223.520	5.838
	2053.00	375.782	747.742	486.037	376.614	537.280	–1158.499	–174.304	–224.855	5.721

References

Phase	H / S	C_p	Remarks	
SOL	Ja1,A1	Ja1	Ja1,Hu1	MPT= 2053. (peritec.)

Cr23C6 — 23–CHROMIUM 6–CARBIDE — 1267.976

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	628.117	612.119	612.119	−328.444	0.000	−510.947	−328.444	−338.571	59.316
	300.00	629.728	616.010	612.131	−327.280	1.164	−512.083	−328.370	−338.634	58.961
	400.00	704.387	808.051	637.806	−260.346	68.098	−583.566	−323.516	−342.750	44.759
	500.00	753.502	970.905	688.563	−187.273	141.171	−672.726	−318.287	−348.173	36.373
	600.00	785.791	1111.333	747.596	−110.202	218.242	−777.002	−313.979	−354.575	30.869
	700.00	808.099	1234.236	808.522	−30.444	298.000	−894.409	−310.993	−361.596	26.983
	800.00	829.084	1343.518	868.689	51.419	379.863	−1023.395	−309.118	−368.963	24.091
	900.00	850.238	1442.386	927.025	135.380	463.824	−1162.767	−307.812	−376.526	21.853
	1000.00	872.135	1533.093	983.157	221.492	549.936	−1311.601	−306.763	−384.222	20.070
	1100.00	894.857	1617.276	1037.022	309.835	638.279	−1469.169	−307.001	−391.972	18.613
	1200.00	918.337	1696.140	1088.696	400.489	728.933	−1634.879	−309.279	−399.612	17.395
	1300.00	942.477	1770.595	1138.312	493.524	821.968	−1808.250	−313.503	−406.981	16.353
	1400.00	967.178	1841.341	1186.022	589.003	917.447	−1988.875	−319.268	−413.964	15.445
	1500.00	992.355	1908.926	1231.979	686.976	1015.420	−2176.413	−326.442	−420.487	14.643
	1600.00	1017.937	1973.785	1276.328	787.487	1115.931	−2370.569	−335.639	−426.467	13.923
	1700.00	1043.869	2036.274	1319.204	890.575	1219.019	−2571.091	−346.516	−431.818	13.268
	1793.00	1068.257	2092.515	1357.863	988.787	1317.231	−2763.093	−357.713	−436.188	12.707

References

Phase	H / S	C_p	Remarks
SOL	Ja1	Ja1	Ja1/Hu1 DPT= 1793./1791. (peritec.)

Cr(CO)6 — CHROMIUM HEXACARBONYL — 220.058

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	240.160	314.218	314.218	−1076.962	0.000	−1170.646	−1076.962	−969.835	169.911
	300.00	240.300	315.704	314.223	−1076.518	0.444	−1171.229	−1076.819	−969.171	168.748
	400.00	247.831	385.866	323.738	−1052.111	24.851	−1206.457	−1069.976	−934.364	122.015
	425.00	249.714	400.947	327.840	−1045.892	31.070	−1216.294	−1068.501	−925.934	113.802

References

Phase	H / S	C_p	Remarks
SOL	Nb1/Tk1	Tk1,e	Tk1 MPT= 425.

122.901 CHROMIUM DICHLORIDE **CrCl2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	71.170	115.311	115.311	−395.388	0.000	−429.768	−395.388	−356.198	62.404
	300.00	71.268	115.752	115.312	−395.256	0.132	−429.982	−395.362	−355.955	61.977
	400.00	75.138	136.837	118.161	−387.918	7.470	−442.652	−393.919	−343.034	44.796
	500.00	77.627	153.886	123.655	−380.273	15.115	−457.216	−392.448	−330.483	34.525
	600.00	79.573	168.216	129.919	−372.410	22.978	−473.340	−390.972	−318.228	27.704
	700.00	81.263	180.612	136.295	−364.366	31.022	−490.795	−389.479	−306.222	22.851
	800.00	82.815	191.565	142.532	−356.162	39.226	−509.414	−387.955	−294.432	19.224
	900.00	84.288	201.405	148.536	−347.806	47.582	−529.071	−386.389	−282.835	16.415
	1000.00	85.712	210.360	154.278	−339.306	56.082	−549.666	−384.775	−271.415	14.177
	1088.00	86.937	217.640	159.111	−331.709	63.679	−568.501	−383.359	−261.500	12.555
			29.611		32.217					
LIQ	1088.00	100.416	247.251	159.111	−299.492	95.896	−568.501	−351.142	−261.500	12.555
	1100.00	100.416	248.353	160.079	−298.287	97.101	−571.475	−350.791	−260.514	12.371
	1200.00	100.416	257.090	167.804	−288.245	107.143	−596.753	−347.968	−252.433	10.988
	1300.00	100.416	265.128	174.986	−278.204	117.184	−622.870	−345.330	−244.580	9.827
	1400.00	100.416	272.569	181.694	−268.162	127.226	−649.759	−342.864	−236.923	8.840
	1500.00	100.416	279.497	187.986	−258.121	137.267	−677.366	−340.567	−229.437	7.990

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	Pa2		
LIQ	Pa2	e	Tk1	BPT= 1600.

158.354 CHROMIUM TRICHLORIDE **CrCl3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	91.799	123.010	123.010	−556.472	0.000	−593.147	−556.472	−486.316	85.201
	300.00	91.963	123.578	123.011	−556.302	0.170	−593.375	−556.439	−485.881	84.599
	400.00	98.195	150.987	126.706	−546.760	9.712	−607.154	−554.526	−462.643	60.415
	500.00	101.829	173.317	133.865	−536.746	19.726	−623.404	−552.472	−439.908	45.957
	600.00	104.441	192.124	142.048	−526.427	30.045	−641.701	−550.357	−417.593	36.355
	700.00	106.570	208.387	150.390	−515.874	40.598	−661.745	−548.193	−395.636	29.523
	800.00	108.442	222.742	158.554	−505.121	51.351	−683.315	−545.974	−373.993	24.419
	900.00	110.164	235.615	166.413	−494.190	62.282	−706.244	−543.695	−352.632	20.466
	1000.00	111.793	247.307	173.927	−483.092	73.380	−730.399	−541.354	−331.528	17.317
	1100.00	113.362	258.036	181.092	−471.833	84.639	−755.673	−539.006	−310.659	14.752
	1200.00	114.889	267.966	187.923	−460.421	96.051	−781.980	−536.694	−290.002	12.623

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	Pa2	Pa2	NSPT= 1280.

CrCl4[g] CHROMIUM TETRACHLORIDE (GAS) 193.807

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	96.121	364.402	364.402	−426.768	0.000	−535.414	−426.768	−395.322	69.259
	300.00	96.255	364.997	364.404	−426.590	0.178	−536.089	−426.759	−395.127	68.798
	400.00	101.012	393.435	368.249	−416.694	10.074	−574.068	−426.225	−384.662	50.232
	500.00	103.284	416.245	375.643	−406.467	20.301	−614.590	−425.743	−374.329	39.106
	600.00	104.578	435.200	384.035	−396.069	30.699	−657.189	−425.367	−364.084	31.696
	700.00	105.411	451.388	392.528	−385.567	41.201	−701.538	−425.092	−353.893	26.408
	800.00	105.997	465.504	400.787	−374.995	51.773	−747.398	−424.906	−343.735	22.444
	900.00	106.440	478.015	408.686	−364.372	62.396	−794.585	−424.799	−333.596	19.361
	1000.00	106.795	489.249	416.190	−353.709	73.059	−842.958	−424.764	−323.465	16.896
	1100.00	107.091	499.441	423.302	−343.015	83.753	−892.400	−424.857	−313.332	14.879
	1200.00	107.348	508.771	430.041	−332.293	94.475	−942.818	−425.117	−303.184	13.197
	1300.00	107.578	517.373	436.433	−321.546	105.222	−994.130	−425.548	−293.006	11.773

References

Phase	H / S	C_p
GAS	Pa2	Pa2

CrF2 CHROMIUM DIFLUORIDE 89.993

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	64.764	86.868	86.868	−778.224	0.000	−804.124	−778.224	−736.612	129.051
	300.00	64.882	87.269	86.869	−778.104	0.120	−804.285	−778.205	−736.354	128.211
	400.00	69.640	106.648	89.479	−771.356	6.868	−814.016	−777.100	−722.567	94.358
	500.00	72.782	122.543	94.550	−764.228	13.996	−825.499	−775.937	−709.068	74.076
	600.00	75.288	136.040	100.368	−756.821	21.403	−838.445	−774.754	−695.805	60.575
	700.00	77.494	147.815	106.323	−749.180	29.044	−852.650	−773.537	−682.742	50.947
	800.00	79.540	158.297	112.176	−741.327	36.897	−867.965	−772.267	−669.857	43.737
	900.00	81.493	167.779	117.836	−733.275	44.949	−884.276	−770.926	−657.136	38.139
	1000.00	83.388	176.464	123.270	−725.030	53.194	−901.494	−769.507	−644.568	33.669
	1100.00	85.245	184.499	128.476	−716.599	61.625	−919.547	−768.062	−632.144	30.018
	1200.00	87.076	191.995	133.460	−707.982	70.242	−938.376	−766.629	−619.851	26.981

References

Phase	H / S	C_p
SOL	Pa2	Pa2

108.991 CHROMIUM TRIFLUORIDE **CrF3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	78.744	93.881	93.881	−1173.194	0.000	−1201.185	−1173.194	−1103.441	193.318
	300.00	78.987	94.368	93.882	−1173.048	0.146	−1201.359	−1173.178	−1103.009	192.051
	400.00	87.912	118.477	97.108	−1164.647	8.547	−1212.037	−1172.026	−1079.780	141.005
	500.00	92.594	138.642	103.456	−1155.601	17.593	−1224.922	−1170.627	−1056.878	110.411
	600.00	95.605	155.807	110.787	−1146.182	27.012	−1239.666	−1169.169	−1034.264	90.041
	700.00	97.828	170.718	118.307	−1136.506	36.688	−1256.009	−1167.693	−1011.897	75.509
	800.00	99.630	183.902	125.698	−1126.630	46.564	−1273.752	−1166.202	−989.742	64.624
	900.00	101.188	195.729	132.833	−1116.588	56.606	−1292.744	−1164.695	−967.775	56.168
	1000.00	102.594	206.464	139.668	−1106.398	66.796	−1312.862	−1163.170	−945.976	49.413
	1100.00	103.901	216.304	146.194	−1096.072	77.122	−1334.007	−1161.685	−924.329	43.893
	1200.00	105.141	225.398	152.420	−1085.620	87.574	−1356.098	−1160.279	−902.814	39.298

References

Phase	H / S	C_p
SOL	Pa2	Pa2

127.990 CHROMIUM TETRAFLUORIDE **CrF4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	100.292	128.867	128.867	−1246.832	0.000	−1285.254	−1246.832	−1157.279	202.750
	300.00	100.416	129.488	128.869	−1246.646	0.186	−1285.493	−1246.805	−1156.723	201.403
	400.00	107.110	159.293	132.888	−1236.270	10.562	−1299.987	−1245.285	−1126.921	147.161
	500.00	113.805	183.913	140.697	−1225.224	21.608	−1317.181	−1243.568	−1097.523	114.657
	600.00	120.499	205.254	149.715	−1213.509	33.323	−1336.661	−1241.550	−1068.498	93.021

References

Phase	H / S	C_p
SOL	Nb1/e	e

CrI2 CHROMIUM DIIODIDE 305.805

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	73.680	169.034	169.034	−156.900	0.000	−207.297	−156.900	−165.621	29.016
	300.00	73.722	169.489	169.035	−156.764	0.136	−207.611	−156.908	−165.676	28.847
	400.00	75.981	191.007	171.954	−149.278	7.622	−225.681	−173.490	−167.964	21.934
	500.00	78.241	208.205	177.540	−141.567	15.333	−245.670	−216.575	−162.441	16.970
	600.00	80.500	222.670	183.887	−133.630	23.270	−267.232	−215.140	−151.747	13.211
	700.00	82.760	235.248	190.345	−125.467	31.433	−290.141	−213.614	−141.301	10.544
	800.00	85.019	246.447	196.670	−117.078	39.822	−314.236	−211.973	−131.081	8.559
	900.00	87.278	256.591	202.773	−108.464	48.436	−339.396	−210.202	−121.075	7.027
	1000.00	89.538	265.904	208.627	−99.623	57.277	−365.527	−208.294	−111.273	5.812
	1066.00	91.029	271.674	212.353	−93.664	63.236	−383.268	−206.986	−104.912	5.141

References

Phase	H / S	C_p	Remarks
SOL	Nb1/e	e	Ku1 MPT= 1066.

CrI3 CHROMIUM TRIIODIDE 432.710

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	111.674	199.577	199.577	−205.016	0.000	−264.520	−205.016	−205.530	36.008
	300.00	111.713	200.268	199.579	−204.809	0.207	−264.890	−205.004	−205.533	35.787
	400.00	113.805	232.692	203.986	−193.533	11.483	−286.610	−228.614	−204.950	26.764
	500.00	115.897	258.312	212.376	−182.048	22.968	−311.204	−292.023	−192.963	20.159
	600.00	117.989	279.627	221.857	−170.354	34.662	−338.130	−288.706	−173.462	15.101
	700.00	120.081	297.972	231.450	−158.451	46.565	−367.031	−285.321	−154.521	11.530
	800.00	122.173	314.143	240.796	−146.338	58.678	−397.653	−281.842	−136.071	8.885
	900.00	124.265	328.654	249.765	−134.016	71.000	−429.805	−278.254	−118.064	6.852

References

Phase	H / S	C_p
SOL	Nb1/e	e

66.003 CHROMIUM NITRIDE **CrN**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	52.347	37.443	37.443	-117.152	0.000	-128.316	-117.152	-92.703	16.241
	300.00	51.392	37.760	37.444	-117.057	0.095	-128.385	-117.127	-92.552	16.115
	400.00	49.083	51.781	39.355	-112.182	4.970	-132.894	-116.139	-84.512	11.036
	500.00	49.746	62.805	42.981	-107.240	9.912	-138.643	-115.270	-76.708	8.014
	600.00	50.408	71.933	47.067	-102.233	14.919	-145.392	-114.506	-69.069	6.013
	700.00	51.070	79.753	51.191	-97.159	19.993	-152.986	-113.827	-61.551	4.593
	800.00	51.732	86.616	55.199	-92.019	25.133	-161.311	-113.217	-54.125	3.534
	900.00	52.393	92.747	59.036	-86.812	30.340	-170.285	-112.663	-46.773	2.715
	1000.00	53.055	98.301	62.689	-81.540	35.612	-179.841	-112.156	-39.480	2.062
	1100.00	53.717	103.389	66.161	-76.201	40.951	-189.929	-111.746	-32.233	1.531
	1200.00	54.378	108.091	69.462	-70.797	46.355	-200.506	-111.470	-25.017	1.089
	1300.00	55.040	112.470	72.604	-65.326	51.826	-211.537	-111.327	-17.820	0.716
	1400.00	55.702	116.573	75.599	-59.789	57.363	-222.991	-111.302	-10.628	0.397
	1500.00	56.363	120.439	78.461	-54.185	62.967	-234.844	-111.389	-3.435	0.120
	1555.00	56.727	122.475	79.982	-51.075	66.077	-241.524	-111.497	0.525	-0.018

References

Phase	H / S	C_p	Remarks
SOL	Ja1,e	Ja1	Ja1 NDPT= 1555. (Cr + N2)

117.999 DICHROMIUM NITRIDE **Cr2N**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	66.026	64.852	64.852	-125.520	0.000	-144.856	-125.520	-102.195	17.904
	300.00	66.231	65.261	64.853	-125.398	0.122	-144.976	-125.511	-102.051	17.769
	400.00	73.428	85.449	67.557	-118.363	7.157	-152.543	-124.793	-94.329	12.318
	500.00	76.694	102.200	72.860	-110.850	14.670	-161.950	-123.954	-86.811	9.069
	600.00	79.520	116.435	78.965	-103.038	22.482	-172.899	-123.137	-79.459	6.918
	700.00	82.255	128.899	85.226	-94.949	30.571	-185.178	-122.317	-72.244	5.391
	800.00	84.982	140.061	91.395	-86.587	38.933	-198.636	-121.461	-65.148	4.254
	900.00	87.720	150.228	97.375	-77.952	47.568	-213.158	-120.542	-58.163	3.376
	1000.00	90.468	159.612	103.135	-69.043	56.477	-228.655	-119.543	-51.286	2.679
	1100.00	93.225	168.364	108.672	-59.858	65.662	-245.059	-118.568	-44.508	2.113
	1200.00	95.986	176.594	113.992	-50.398	75.122	-262.311	-117.691	-37.815	1.646
	1300.00	98.748	184.386	119.110	-40.661	84.859	-280.363	-116.913	-31.190	1.253
	1400.00	101.509	191.805	124.040	-30.648	94.872	-299.176	-116.206	-24.623	0.919
	1500.00	104.266	198.903	128.796	-20.360	105.160	-318.714	-115.564	-18.104	0.630
	1600.00	107.018	205.720	133.392	-9.795	115.725	-338.947	-115.045	-11.625	0.380
	1700.00	109.764	212.290	137.841	1.044	126.564	-359.849	-114.624	-5.174	0.159
	1800.00	112.502	218.642	142.154	12.157	137.677	-381.398	-114.264	1.253	-0.036
	1810.00	112.775	219.266	142.579	13.284	138.804	-383.587	-114.230	1.895	-0.055

References

Phase	H / S	C_p	Remarks
SOL	Ja1	Ja1	Ja1 NDPT= 1810. (Cr + N2)

Cr2Nb — 2–CHROMIUM NIOBIUM — 196.899

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[–]
SOL–B	298.15	73.068	83.680	83.680	–20.920	0.000	–45.869	–20.920	–20.920	3.665
	300.00	73.213	84.132	83.681	–20.785	0.135	–46.024	–20.917	–20.920	3.642
	400.00	79.170	106.084	86.634	–13.140	7.780	–55.574	–20.640	–20.959	2.737
	500.00	83.203	124.204	92.388	–5.012	15.908	–67.114	–20.285	–21.079	2.202
	600.00	86.480	139.671	99.011	3.476	24.396	–80.326	–19.909	–21.273	1.852
	700.00	89.399	153.224	105.807	12.272	33.192	–94.985	–19.510	–21.531	1.607
	800.00	92.127	165.342	112.505	21.350	42.270	–110.924	–19.073	–21.849	1.427
	900.00	94.745	176.345	118.996	30.694	51.614	–128.016	–18.587	–22.225	1.290
	1000.00	97.295	186.459	125.243	40.296	61.216	–146.163	–18.049	–22.657	1.184
	1100.00	99.799	195.850	131.240	50.151	71.071	–165.284	–17.571	–23.142	1.099
	1200.00	102.273	204.640	136.994	60.255	81.175	–185.313	–17.236	–23.665	1.030
	1300.00	104.725	212.923	142.519	70.605	91.525	–206.195	–17.050	–24.209	0.973
	1400.00	107.161	220.774	147.831	81.200	102.120	–227.883	–16.989	–24.763	0.924
	1500.00	109.586	228.250	152.945	92.037	112.957	–250.337	–17.051	–25.317	0.882

References

Phase	H / S	C_p	Remarks	
SOL–B	M2,Ku1	M2	Tk1	TPT= 1890., L= 9.87.kJ / MPT= 1995., L= 115.5 kJ

67.995 CHROMIUM MONOXIDE (GAS) **CrO[g]**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol	]		[-]
GAS	298.15	31.330	239.267	239.267	188.280	0.000	116.943	188.280	154.573	-27.081
	300.00	31.356	239.461	239.267	188.338	0.058	116.500	188.268	154.364	-26.877
	400.00	32.945	248.699	240.516	191.553	3.273	92.074	187.568	143.167	-18.696
	500.00	34.211	256.194	242.925	194.914	6.634	66.817	186.798	132.153	-13.806
	600.00	35.085	262.514	245.677	198.382	10.102	40.874	185.934	121.304	-10.560
	700.00	35.696	267.971	248.481	201.923	13.643	14.343	184.974	110.607	-8.254
	800.00	36.136	272.768	251.223	205.516	17.236	-12.699	183.922	100.054	-6.533
	900.00	36.466	277.044	253.859	209.146	20.866	-40.193	182.787	89.638	-5.202
	1000.00	36.722	280.900	256.373	212.806	24.526	-68.093	181.570	79.352	-4.145
	1100.00	36.926	284.410	258.765	216.489	28.209	-96.361	180.218	69.194	-3.286
	1200.00	37.094	287.630	261.038	220.190	31.910	-124.966	178.690	59.167	-2.575
	1300.00	37.235	290.605	263.199	223.907	35.627	-153.879	176.984	49.275	-1.980
	1400.00	37.358	293.369	265.257	227.637	39.357	-183.080	175.113	39.520	-1.475
	1500.00	37.466	295.950	267.218	231.378	43.098	-212.547	173.078	29.905	-1.041
	1600.00	37.564	298.371	269.090	235.130	46.850	-242.264	170.848	20.432	-0.667
	1700.00	37.653	300.651	270.880	238.890	50.610	-272.216	168.435	11.104	-0.341
	1800.00	37.736	302.806	272.595	242.660	54.380	-302.390	165.857	1.923	-0.056
	1900.00	37.815	304.848	274.239	246.438	58.158	-332.774	163.123	-7.111	0.195
	2000.00	37.889	306.790	275.818	250.223	61.943	-363.356	160.232	-15.996	0.418
	2100.00	37.961	308.640	277.337	254.015	65.735	-394.129	157.186	-24.734	0.615
	2200.00	38.031	310.408	278.801	257.815	69.535	-425.082	137.883	-32.779	0.778
	2300.00	38.100	312.100	280.212	261.622	73.342	-456.208	135.841	-40.490	0.920
	2400.00	38.168	313.723	281.575	265.435	77.155	-487.499	133.795	-48.113	1.047
	2500.00	38.234	315.282	282.892	269.255	80.975	-518.950	131.745	-55.651	1.163
	2600.00	38.301	316.783	284.167	273.082	84.802	-550.554	129.691	-63.106	1.268
	2700.00	38.367	318.230	285.402	276.915	88.635	-582.305	127.633	-70.482	1.364
	2800.00	38.434	319.626	286.599	280.755	92.475	-614.198	125.571	-77.782	1.451
	2900.00	38.501	320.976	287.762	284.602	96.322	-646.229	123.506	-85.008	1.531
	3000.00	38.568	322.282	288.891	288.455	100.175	-678.392	-222.484	-85.192	1.483

References

Phase	H / S	C_p
GAS	Ja1	Ja1

CrO2 — CHROMIUM DIOXIDE — 83.995

Phase	T [K]	C_p J/(K mol)	S J/(K mol)	−(G−H298)/T J/(K mol)	H kJ/mol	H−H298 kJ/mol	G kJ/mol	ΔH_f kJ/mol	ΔG_f kJ/mol	log K_f [−]
SOL	298.15	99.673	51.045	51.045	−597.894	0.000	−613.113	−597.894	−544.900	95.464
	300.00	99.705	51.661	51.047	−597.710	0.184	−613.208	−597.807	−544.572	94.818
	400.00	101.420	80.580	54.978	−587.653	10.241	−619.885	−593.151	−527.531	68.888
	500.00	103.136	103.395	62.458	−577.426	20.468	−629.123	−588.584	−511.656	53.452
	600.00	104.851	122.351	70.904	−567.026	30.868	−640.437	−584.096	−496.693	43.241

References

Phase	H / S	C_p
SOL	Nb1/e	e

CrO2[g] — CHROMIUM DIOXIDE (GAS) — 83.995

Phase	T [K]	C_p J/(K mol)	S J/(K mol)	−(G−H298)/T J/(K mol)	H kJ/mol	H−H298 kJ/mol	G kJ/mol	ΔH_f kJ/mol	ΔG_f kJ/mol	log K_f [−]
GAS	298.15	43.411	269.224	269.224	−75.312	0.000	−155.581	−75.312	−87.369	15.307
	300.00	43.462	269.493	269.225	−75.232	0.080	−156.080	−75.329	−87.443	15.225
	400.00	46.901	282.457	270.969	−70.717	4.595	−183.700	−76.214	−91.345	11.928
	500.00	49.779	293.250	274.376	−65.875	9.437	−212.500	−77.033	−95.033	9.928
	600.00	51.781	302.514	278.312	−60.790	14.522	−242.299	−77.860	−98.555	8.580
	700.00	53.172	310.607	282.360	−55.539	19.773	−272.964	−78.737	−101.936	7.607
	800.00	54.165	317.776	286.347	−50.169	25.143	−304.390	−79.680	−105.187	6.868
	900.00	54.895	324.200	290.202	−44.714	30.598	−336.494	−80.694	−108.315	6.286
	1000.00	55.447	330.013	293.897	−39.196	36.116	−369.209	−81.783	−111.327	5.815
	1100.00	55.874	335.319	297.425	−33.629	41.683	−402.480	−83.006	−114.223	5.424
	1200.00	56.212	340.196	300.789	−28.024	47.288	−436.259	−84.405	−117.001	5.093
	1300.00	56.485	344.706	303.996	−22.389	52.923	−470.507	−85.983	−119.654	4.808
	1400.00	56.710	348.901	307.055	−16.729	58.583	−505.190	−87.731	−122.180	4.559
	1500.00	56.897	352.820	309.977	−11.048	64.264	−540.278	−89.647	−124.574	4.338
	1600.00	57.055	356.497	312.771	−5.350	69.962	−575.746	−91.765	−126.835	4.141
	1700.00	57.190	359.960	315.446	0.362	75.674	−611.570	−94.072	−128.957	3.962
	1800.00	57.308	363.232	318.011	6.087	81.399	−647.731	−96.552	−130.939	3.800
	1900.00	57.410	366.334	320.473	11.823	87.135	−684.211	−99.198	−132.777	3.650
	2000.00	57.501	369.281	322.840	17.569	92.881	−720.993	−102.010	−134.473	3.512

References

Phase	H / S	C_p
GAS	Ja1	Ja1

99.994 CHROMIUM TRIOXIDE **CrO3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	69.338	73.220	73.220	−589.526	0.000	−611.357	−589.526	−512.562	89.799
	300.00	69.620	73.650	73.221	−589.397	0.129	−611.492	−589.522	−512.084	89.162
	400.00	80.289	95.315	76.103	−581.841	7.685	−619.967	−588.851	−486.351	63.511
	471.00	84.875	108.818	80.035	−575.969	13.557	−627.222	−588.053	−468.222	51.927
			30.204		14.226					
LIQ	471.00	125.520	139.022	80.035	−561.743	27.783	−627.222	−573.827	−468.222	51.927
	500.00	125.520	146.522	83.676	−558.103	31.423	−631.364	−572.304	−461.766	48.240
	600.00	125.520	169.407	96.115	−545.551	43.975	−647.195	−567.243	−440.138	38.317

References

Phase	H / S	C_p
SOL	Nb1/Tk1	Ku1
LIQ	Ku1	Ku1

CrO3[g] CHROMIUM TRIOXIDE (GAS) 99.994

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	56.030	266.170	266.170	−292.880	0.000	−372.239	−292.880	−273.444	47.906
	300.00	56.187	266.517	266.171	−292.776	0.104	−372.731	−292.901	−273.323	47.590
	400.00	63.827	283.781	268.473	−286.757	6.123	−400.269	−293.767	−266.653	34.821
	500.00	69.061	298.626	273.055	−280.094	12.786	−429.407	−294.295	−259.809	27.142
	600.00	72.535	311.545	278.417	−273.003	19.877	−459.930	−294.695	−252.873	22.015
	700.00	74.933	322.917	283.978	−265.623	27.257	−491.665	−295.070	−245.874	18.347
	800.00	76.667	333.042	289.490	−258.038	34.842	−524.472	−295.467	−238.819	15.593
	900.00	77.896	342.146	294.844	−250.308	42.572	−558.239	−295.908	−231.712	13.448
	1000.00	78.819	350.404	299.993	−242.470	50.410	−592.873	−296.408	−224.553	11.729
	1100.00	79.522	357.950	304.924	−234.551	58.329	−628.296	−297.034	−217.338	10.321
	1200.00	80.069	364.894	309.636	−226.570	66.310	−664.443	−297.831	−210.059	9.144
	1300.00	80.502	371.321	314.137	−218.541	74.339	−701.258	−298.807	−202.707	8.145
	1400.00	80.852	377.300	318.438	−210.473	82.407	−738.693	−299.953	−195.272	7.286
	1500.00	81.137	382.888	322.550	−202.373	90.507	−776.705	−301.271	−187.750	6.538
	1600.00	81.373	388.132	326.487	−194.247	98.633	−815.259	−302.794	−180.134	5.881
	1700.00	81.570	393.072	330.260	−186.100	106.780	−854.321	−304.512	−172.416	5.298
	1800.00	81.736	397.739	333.880	−177.934	114.946	−893.864	−306.410	−164.592	4.776
	1900.00	81.878	402.162	337.358	−169.753	123.127	−933.861	−308.481	−156.657	4.307
	2000.00	81.999	406.365	340.705	−161.559	131.321	−974.289	−310.726	−148.609	3.881
	2100.00	82.104	410.368	343.927	−153.354	139.526	−1015.127	−313.145	−140.444	3.493
	2200.00	82.195	414.190	347.035	−145.139	147.741	−1056.357	−331.840	−131.617	3.125
	2300.00	82.275	417.845	350.035	−136.915	155.965	−1097.960	−333.295	−122.484	2.782
	2400.00	82.345	421.349	352.934	−128.684	164.196	−1139.921	−334.776	−113.287	2.466
	2500.00	82.407	424.711	355.738	−120.447	172.433	−1182.225	−336.284	−104.027	2.174
	2600.00	82.461	427.944	358.453	−112.203	180.677	−1224.859	−337.818	−94.706	1.903
	2700.00	82.510	431.057	361.085	−103.954	188.926	−1267.810	−339.378	−85.326	1.651
	2800.00	82.553	434.059	363.638	−95.701	197.179	−1311.066	−340.964	−75.888	1.416
	2900.00	82.592	436.957	366.117	−87.444	205.436	−1354.618	−342.577	−66.393	1.196
	3000.00	82.627	439.757	368.525	−79.183	213.697	−1398.454	−688.135	−49.871	0.868

References

Phase	H / S	C_p
GAS	Ja1	Ja1

151.990 DICHROMIUM TRIOXIDE **Cr2O3**

Phase	T [K]	C_p [J / (K mol)]	S [J / (K mol)]	−(G−H298)/T [J / (K mol)]	H [kJ / mol]	H−H298 [kJ / mol]	G [kJ / mol]	ΔH_f [kJ / mol]	ΔG_f [kJ / mol]	log K_f [−]
SOL	298.15	120.361	81.199	81.199	−1139.701	0.000	−1163.910	−1139.701	−1058.067	185.369
	300.00	121.922	81.948	81.201	−1139.477	0.224	−1164.061	−1139.645	−1057.561	184.138
	400.00	112.675	116.458	85.988	−1127.513	12.188	−1174.096	−1136.995	−1030.649	134.589
	500.00	117.701	142.205	94.734	−1115.965	23.736	−1187.068	−1135.241	−1004.265	104.915
	600.00	120.580	163.938	104.505	−1104.041	35.660	−1202.404	−1133.559	−978.230	85.162
	700.00	122.626	182.686	114.365	−1091.877	47.824	−1219.757	−1132.024	−952.465	71.074
	800.00	124.278	199.171	123.956	−1079.529	60.172	−1238.866	−1130.633	−926.911	60.521
	900.00	125.711	213.893	133.146	−1067.028	72.673	−1259.532	−1129.368	−901.522	52.323
	1000.00	127.007	227.206	141.897	−1054.391	85.310	−1281.598	−1128.215	−876.269	45.772
	1100.00	128.208	239.368	150.213	−1041.630	98.071	−1304.935	−1127.278	−851.122	40.416
	1200.00	129.339	250.573	158.115	−1028.752	110.949	−1329.439	−1126.633	−826.048	35.957
	1300.00	130.419	260.968	165.632	−1015.764	123.937	−1355.023	−1126.281	−801.016	32.185
	1400.00	131.462	270.672	172.792	−1002.670	137.031	−1381.610	−1126.195	−776.000	28.953
	1500.00	132.478	279.777	179.624	−989.472	150.229	−1409.137	−1126.372	−750.982	26.152
	1600.00	133.478	288.358	186.154	−976.175	163.526	−1437.548	−1126.870	−725.941	23.700
	1700.00	134.471	296.480	192.407	−962.777	176.924	−1466.794	−1127.667	−700.860	21.535
	1800.00	135.466	304.195	198.405	−949.280	190.421	−1496.830	−1128.722	−675.725	19.609
	1900.00	136.868	311.556	204.168	−935.665	204.036	−1527.621	−1130.000	−650.524	17.884
	2000.00	138.068	318.608	209.715	−921.916	217.785	−1559.131	−1131.485	−625.251	16.330
	2100.00	139.046	325.369	215.063	−908.058	231.643	−1591.333	−1133.198	−599.898	14.922
	2200.00	139.911	331.857	220.225	−894.110	245.591	−1624.196	−1167.359	−573.372	13.614
	2300.00	140.767	338.095	225.215	−880.076	259.625	−1657.696	−1166.937	−546.382	12.409
	2400.00	141.667	344.105	230.044	−865.955	273.746	−1691.807	−1166.460	−519.411	11.305
	2500.00	142.597	349.907	234.723	−851.742	287.959	−1726.510	−1165.925	−492.462	10.289
	2600.00	143.466	355.517	239.262	−837.438	302.263	−1761.782	−1165.331	−465.535	9.353
	2603.00	143.490	355.683	239.396	−837.007	302.694	−1762.849	−1165.313	−464.727	9.326
			49.829		129.704					
LIQ	2603.00	156.900	405.511	239.396	−707.303	432.398	−1762.849	−1135.609	−464.727	9.326
	2700.00	156.900	411.252	245.468	−692.084	447.617	−1802.464	−1033.719	−443.488	8.580
	2800.00	156.900	416.958	251.491	−676.394	463.307	−1843.876	−1031.802	−421.663	7.866
	2900.00	156.900	422.464	257.292	−660.704	478.997	−1885.849	−1029.915	−399.906	7.203
	3000.00	156.900	427.783	262.887	−645.014	494.687	−1928.363	−1715.899	−364.271	6.343

References

Phase	H / S	C_p
SOL	Nb1	Ja1
LIQ	Ja1	Ja1

CrO2Cl2[g] CHROMIUM DICHLORIDE DIOXIDE (GAS) 154.900

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	84.251	329.809	329.809	−538.062	0.000	−636.394	−538.062	−501.659	87.889
	300.00	84.526	330.331	329.810	−537.906	0.156	−637.005	−538.066	−501.434	87.307
	400.00	94.187	356.169	333.267	−528.901	9.161	−671.369	−537.929	−489.228	63.887
	500.00	98.659	377.723	340.067	−519.234	18.828	−708.095	−537.494	−477.101	49.842
	600.00	101.088	395.945	347.901	−509.236	28.826	−746.803	−537.041	−465.065	40.488
	700.00	102.552	411.646	355.912	−499.048	39.014	−787.201	−536.659	−453.101	33.811
	800.00	103.503	425.407	363.757	−488.742	49.320	−829.068	−536.371	−441.185	28.806
	900.00	104.155	437.637	371.299	−478.357	59.705	−872.231	−536.181	−429.299	24.916
	1000.00	104.621	448.637	378.492	−467.917	70.145	−916.554	−536.090	−417.429	21.804
	1100.00	104.966	458.625	385.330	−457.437	80.625	−961.925	−536.153	−405.561	19.258
	1200.00	105.228	467.770	391.824	−446.927	91.135	−1008.251	−536.410	−393.679	17.136
	1300.00	105.432	476.201	397.995	−436.393	101.669	−1055.455	−536.864	−381.768	15.340
	1400.00	105.594	484.021	403.863	−425.842	112.220	−1103.471	−537.501	−369.815	13.798
	1500.00	105.725	491.311	409.453	−415.276	122.786	−1152.242	−538.320	−357.810	12.460

References

Phase	H / S	C_p
GAS	Nb1	Nb1,e

223.837 DICHROMIUM IRON TETRAOXIDE **Cr2FeO4**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	133.679	141.963	141.963	−1458.124	0.000	−1500.450	−1458.124	−1355.891	237.547
	300.00	134.161	142.792	141.966	−1457.876	0.248	−1500.714	−1458.118	−1355.257	235.971
	400.00	151.894	184.135	147.482	−1443.463	14.661	−1517.117	−1457.130	−1321.091	172.517
	500.00	161.302	219.129	158.407	−1427.763	30.361	−1537.328	−1455.605	−1287.254	134.478
	600.00	167.433	249.112	171.087	−1411.309	46.815	−1560.776	−1454.061	−1253.730	109.147
	700.00	172.016	275.280	184.142	−1394.327	63.797	−1587.023	−1452.666	−1220.455	91.071
	800.00	175.776	298.502	197.013	−1376.933	81.191	−1615.734	−1451.513	−1187.364	77.527
	900.00	179.055	319.398	209.469	−1359.188	98.936	−1646.646	−1450.738	−1154.397	66.999
	1000.00	182.037	338.420	221.427	−1341.131	116.993	−1679.551	−1450.672	−1121.483	58.580
	1100.00	184.825	355.902	232.868	−1322.787	135.337	−1714.279	−1451.456	−1088.513	51.689
	1200.00	187.480	372.099	243.804	−1304.171	153.953	−1750.689	−1451.976	−1055.516	45.945
	1300.00	190.042	387.207	254.260	−1285.294	172.830	−1788.663	−1450.971	−1022.520	41.085
	1400.00	192.536	401.382	264.268	−1266.165	191.959	−1828.099	−1450.184	−989.593	36.922
	1500.00	194.980	414.749	273.859	−1246.788	211.336	−1868.912	−1449.613	−956.715	33.316
	1600.00	197.386	427.410	283.063	−1227.170	230.954	−1911.025	−1449.319	−923.866	30.161
	1700.00	199.762	439.448	291.911	−1207.312	250.812	−1954.373	−1450.229	−891.009	27.377
	1800.00	202.116	450.932	300.429	−1187.218	270.906	−1998.897	−1450.742	−858.100	24.901
	1900.00	204.451	461.923	308.642	−1166.890	291.234	−2044.543	−1465.555	−824.455	22.666
	2000.00	206.771	472.469	316.571	−1146.328	311.796	−2091.266	−1466.712	−790.683	20.651
	2100.00	209.080	482.613	324.238	−1125.536	332.588	−2139.024	−1467.984	−756.851	18.826
	2123.00	209.609	484.894	325.966	−1120.721	337.403	−2150.150	−1468.292	−749.061	18.430

References

Phase	H / S	C_p	Remarks	
SOL	Tk1	e	Tk1	MPT= 2123.

Cr2MgO4 DICHROMIUM MAGNESIUM TETRAOXIDE 192.295

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	126.772	106.018	106.018	−1784.058	0.000	−1815.667	−1784.058	−1669.499	292.489
	300.00	127.354	106.804	106.021	−1783.823	0.235	−1815.864	−1784.064	−1668.788	290.562
	400.00	148.332	146.716	111.320	−1769.899	14.159	−1828.586	−1783.491	−1630.409	212.910
	500.00	158.842	181.057	121.922	−1754.491	29.567	−1845.019	−1782.074	−1592.295	166.346
	600.00	165.232	210.623	134.300	−1738.265	45.793	−1864.638	−1780.457	−1554.490	135.330
	700.00	169.676	236.445	147.087	−1721.508	62.550	−1887.019	−1778.862	−1516.956	113.197
	800.00	173.083	259.333	159.714	−1704.364	79.694	−1911.830	−1777.365	−1479.644	96.611
	900.00	175.887	279.885	171.944	−1686.911	97.147	−1938.808	−1775.990	−1442.513	83.721
	1000.00	178.317	298.545	183.686	−1669.198	114.860	−1967.744	−1783.699	−1404.770	73.378
	1100.00	180.502	315.645	194.915	−1651.256	132.802	−1998.465	−1782.599	−1366.932	64.910
	1200.00	182.521	331.438	205.643	−1633.104	150.954	−2030.829	−1781.717	−1329.185	57.858
	1300.00	184.422	346.123	215.891	−1614.756	169.302	−2064.716	−1781.060	−1291.502	51.893
	1400.00	186.239	359.857	225.689	−1596.222	187.836	−2100.022	−1907.569	−1250.234	46.647
	1500.00	187.992	372.767	235.068	−1577.510	206.548	−2136.660	−1906.130	−1203.333	41.904
	1600.00	189.697	384.954	244.058	−1558.625	225.433	−2174.551	−1904.954	−1156.519	37.756
	1700.00	191.365	396.504	252.689	−1539.572	244.486	−2213.629	−1904.019	−1109.772	34.099
	1800.00	193.005	407.489	260.986	−1520.353	263.705	−2253.833	−1903.289	−1063.073	30.850
	1900.00	194.621	417.968	268.975	−1500.971	283.087	−2295.110	−1902.750	−1016.410	27.943
	2000.00	196.219	427.991	276.677	−1481.429	302.629	−2337.412	−1902.402	−969.771	25.328
	2100.00	197.802	437.603	284.113	−1461.728	322.330	−2380.695	−1902.242	−923.144	22.962
	2200.00	199.372	446.841	291.301	−1441.869	342.189	−2424.920	−1934.475	−875.434	20.785
	2300.00	200.932	455.738	298.258	−1421.854	362.204	−2470.052	−1932.065	−827.349	18.790
	2400.00	202.483	464.322	305.000	−1401.683	382.375	−2516.057	−1929.544	−779.372	16.963
	2500.00	204.027	472.619	311.539	−1381.358	402.700	−2562.907	−1926.913	−731.502	15.284
	2600.00	205.565	480.652	317.890	−1360.878	423.180	−2610.572	−1924.170	−683.739	13.736
	2623.00	205.918	482.464	319.325	−1356.146	427.912	−2621.648	−1923.524	−672.769	13.398

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	Ku1,e	Ku1	MPT = 2623.

106.985 CHROMIUM SODIUM DIOXIDE **CrNaO2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	89.400	77.404	77.404	−818.662	0.000	−841.740	−818.662	−758.186	132.831
	300.00	89.547	77.957	77.406	−818.496	0.166	−841.884	−818.646	−757.811	131.947
	400.00	95.223	104.582	80.997	−809.228	9.434	−851.061	−820.399	−737.460	96.302
	500.00	98.659	126.223	87.946	−799.523	19.139	−862.635	−819.457	−716.831	74.887
	600.00	101.213	144.445	95.884	−789.525	29.137	−876.192	−818.386	−696.404	60.627
	700.00	103.352	160.212	103.972	−779.294	39.368	−891.443	−817.236	−676.164	50.456
	800.00	105.268	174.139	111.889	−768.862	49.800	−908.173	−816.025	−656.093	42.838
	900.00	107.056	186.642	119.512	−758.245	60.417	−926.223	−814.764	−636.177	36.923
	1000.00	108.763	198.011	126.802	−747.454	71.208	−945.464	−813.468	−616.403	32.198
	1100.00	110.418	208.455	133.757	−736.494	82.168	−965.794	−812.206	−596.758	28.338

References

Phase	H / S	C_p
SOL	Tk1	e

226.680 DICHROMIUM NICKEL TETRAOXIDE **Cr2NiO4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	148.802	119.244	119.244	−1381.557	0.000	−1417.110	−1381.557	−1271.777	222.810
	300.00	149.127	120.165	119.247	−1381.281	0.276	−1417.331	−1381.525	−1271.096	221.318
	400.00	161.144	164.923	125.268	−1365.695	15.862	−1431.664	−1379.470	−1234.584	161.220
	500.00	167.665	201.641	136.983	−1349.228	32.329	−1450.048	−1377.282	−1198.618	125.219
	600.00	172.024	232.616	150.408	−1332.232	49.325	−1471.802	−1375.380	−1163.071	101.254
	700.00	175.362	259.394	164.108	−1314.857	66.700	−1496.432	−1373.579	−1127.820	84.159
	800.00	178.155	282.997	177.522	−1297.177	84.380	−1523.575	−1371.618	−1092.847	71.356
	900.00	180.632	304.126	190.436	−1279.236	102.321	−1552.949	−1369.765	−1058.113	61.411
	1000.00	182.912	323.277	202.777	−1261.058	120.499	−1584.334	−1368.049	−1023.579	53.466
	1100.00	185.064	340.812	214.540	−1242.658	138.899	−1617.551	−1366.573	−989.206	46.973
	1200.00	187.128	357.004	225.746	−1224.048	157.509	−1652.452	−1365.411	−954.953	41.568
	1300.00	189.131	372.061	236.428	−1205.234	176.323	−1688.914	−1364.558	−920.785	36.998
	1400.00	191.089	386.149	246.625	−1186.223	195.334	−1726.832	−1363.962	−886.673	33.082
	1500.00	193.014	399.399	256.373	−1167.018	214.539	−1766.116	−1363.570	−852.595	29.690

References

Phase	H / S	C_p	Remarks	
SOL	Tk1	e	Tk1	TPT= 300.65

CrS CHROMIUM MONOSULFIDE 84.062

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−1	298.15	46.775	64.015	64.015	−155.645	0.000	−174.731	−155.645	−158.125	27.703
	300.00	46.861	64.305	64.016	−155.558	0.087	−174.850	−155.644	−158.141	27.535
	400.00	51.533	78.426	65.910	−150.639	5.006	−182.009	−157.734	−158.900	20.750
	450.00	53.870	84.630	67.650	−148.004	7.641	−186.087	−158.218	−159.026	18.459
			0.529		0.238					
SOL−2	450.00	53.850	85.159	67.650	−147.766	7.879	−186.087	−157.980	−159.026	18.459
	500.00	54.095	90.846	69.690	−145.067	10.578	−190.490	−158.667	−159.104	16.621
	600.00	54.585	100.752	74.065	−139.633	16.012	−200.084	−159.560	−159.100	13.851
	700.00	55.076	109.203	78.496	−134.150	21.495	−210.592	−160.261	−158.968	11.862
	800.00	55.566	116.589	82.805	−128.618	27.027	−221.889	−161.064	−158.731	10.364
	900.00	56.056	123.162	86.931	−123.037	32.608	−233.883	−214.753	−157.232	9.126
	1000.00	56.547	129.094	90.855	−117.407	38.238	−246.500	−214.104	−150.877	7.881
	1100.00	57.037	134.506	94.581	−111.727	43.918	−259.684	−213.547	−144.582	6.866
	1200.00	57.527	139.490	98.119	−105.999	49.646	−273.387	−213.122	−138.332	6.021
	1300.00	58.018	144.114	101.481	−100.222	55.423	−287.570	−212.830	−132.112	5.308
	1400.00	58.508	148.432	104.682	−94.396	61.249	−302.200	−212.657	−125.910	4.698
	1500.00	58.999	152.485	107.735	−88.520	67.125	−317.248	−212.601	−119.717	4.169
	1600.00	59.489	156.308	110.653	−82.596	73.049	−332.689	−212.693	−113.522	3.706
	1700.00	59.979	159.930	113.446	−76.622	79.023	−348.503	−212.920	−107.318	3.297
	1800.00	60.470	163.372	116.125	−70.600	85.045	−364.669	−213.263	−101.097	2.934
	1840.00	60.666	164.703	117.166	−68.177	87.468	−371.231	−213.431	−98.602	2.799

References

Phase	H / S	C_p	Remarks	
SOL−1	Ku1/Mi1	Mi1,e	Mi1	TPT= 450. (lamda−tr.), L= 0.24 kJ
SOL−2	Mi1,e	Mi1	Mi1	MPT= 1840.

89.513 CHROMIUM 1.17–SULFIDE **CrS1.17**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f [–]
		[	J / (K mol)	]	[		kJ / mol		]	
SOL–A	298.15	60.501	69.873	69.873	–165.268	0.000	–186.101	–165.268	–167.870	29.410
	300.00	60.501	70.247	69.874	–165.156	0.112	–186.230	–165.249	–167.886	29.232
	301.00	60.501	70.448	69.876	–165.096	0.172	–186.301	–165.238	–167.895	29.136
			0.249		0.075					
SOL–B	301.00	54.483	70.698	69.876	–165.021	0.247	–186.301	–165.163	–167.895	29.136
	400.00	55.229	86.291	72.096	–159.590	5.678	–194.106	–167.471	–168.740	22.035
	500.00	55.982	98.696	76.219	–154.029	11.239	–203.377	–169.079	–168.900	17.645
	590.00	56.660	108.016	80.376	–148.960	16.308	–212.690	–170.268	–168.760	14.941
			0.461		0.272					
SOL–C	590.00	56.660	108.477	80.376	–148.688	16.580	–212.690	–169.996	–168.760	14.941
	600.00	56.735	109.430	80.853	–148.121	17.147	–213.780	–170.106	–168.738	14.690
	700.00	57.488	118.233	85.579	–142.410	22.858	–225.173	–171.141	–168.428	12.568
	800.00	58.241	125.958	90.153	–136.624	28.644	–237.390	–172.261	–167.966	10.967
	900.00	58.994	132.861	94.522	–130.762	34.506	–250.337	–235.225	–166.008	9.635
	1000.00	59.748	139.116	98.673	–124.825	40.443	–263.941	–234.580	–158.353	8.271
	1100.00	60.501	144.846	102.614	–118.813	46.455	–278.143	–234.004	–150.758	7.159
	1200.00	61.254	150.143	106.357	–112.725	52.543	–292.896	–233.533	–143.212	6.234
	1300.00	62.007	155.075	109.917	–106.562	58.706	–308.160	–233.170	–135.701	5.453
	1400.00	62.760	159.698	113.309	–100.323	64.945	–323.901	–232.901	–128.214	4.784
	1500.00	63.513	164.054	116.548	–94.010	71.258	–340.090	–232.724	–120.743	4.205

References

Phase	H / S	C_p
SOL–A	Mi1	Mi1
SOL–B	Mi1	Mi1
SOL–C	Mi1	Mi1

392.183 CHROMIUM SULFATE **Cr2(SO4)3**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f [–]
		[	J / (K mol)	]	[		kJ / mol		]	
SOL	298.15	281.374	258.780	258.780	–2949.720	0.000	–3026.875	–2949.720	–2617.119	458.508
	300.00	282.243	260.524	258.786	–2949.199	0.521	–3027.356	–2949.738	–2615.055	455.322
	400.00	325.781	347.845	270.397	–2918.741	30.979	–3057.879	–2955.707	–2503.246	326.890
	500.00	362.514	424.614	293.712	–2884.269	65.451	–3096.576	–2956.501	–2390.051	249.687
	600.00	392.441	493.456	321.364	–2846.465	103.255	–3142.539	–2953.884	–2276.946	198.226
	700.00	415.562	555.775	350.472	–2806.008	143.712	–3195.050	–2948.632	–2164.513	161.518
	800.00	431.879	612.407	379.730	–2763.579	186.141	–3253.504	–2942.256	–2052.925	134.042
	900.00	441.389	663.890	408.489	–2719.859	229.861	–3317.360	–3093.715	–1938.710	112.520

References

Phase	H / S	C_p
SOL	Pa3	Pa3

CrSi — CHROMIUM SILICON — 80.082

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	45.154	44.794	44.794	−71.128	0.000	−84.483	−71.128	−71.824	12.583
	300.00	45.286	45.074	44.795	−71.044	0.084	−84.566	−71.125	−71.828	12.506
	400.00	50.249	58.866	46.642	−66.238	4.890	−89.785	−70.870	−72.099	9.415
	500.00	53.015	70.399	50.272	−61.065	10.063	−96.264	−70.577	−72.440	7.568
	600.00	54.918	80.241	54.467	−55.663	15.465	−103.808	−70.304	−72.838	6.341
	700.00	56.412	88.823	58.775	−50.094	21.034	−112.271	−70.058	−73.281	5.468
	800.00	57.689	96.441	63.016	−44.388	26.740	−121.541	−69.836	−73.756	4.816
	900.00	58.839	103.303	67.117	−38.561	32.567	−131.534	−69.633	−74.259	4.310
	1000.00	59.911	109.558	71.053	−32.623	38.505	−142.181	−69.450	−74.783	3.906
	1100.00	60.931	115.317	74.819	−26.580	44.548	−153.429	−69.344	−75.322	3.577
	1200.00	61.917	120.661	78.419	−20.438	50.690	−165.231	−69.355	−75.866	3.302
	1300.00	62.877	125.655	81.862	−14.198	56.930	−177.549	−69.488	−76.404	3.070
	1400.00	63.820	130.349	85.160	−7.863	63.265	−190.352	−69.731	−76.928	2.870
	1500.00	64.750	134.784	88.322	−1.434	69.694	−203.610	−70.083	−77.430	2.696
	1600.00	65.670	138.992	91.358	5.087	76.215	−217.301	−70.575	−77.905	2.543
	1700.00	66.582	143.001	94.279	11.699	82.827	−231.402	−121.374	−77.898	2.394

References

Phase	H / S	C_p	Remarks	
SOL	Tk1	Tk1,C1	Tk1	DPT= 1723. (peritec.)

CrSi2 — CHROMIUM 2−SILICON — 108.167

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	55.696	55.647	55.647	−100.416	0.000	−117.007	−100.416	−98.737	17.298
	300.00	55.845	55.992	55.648	−100.313	0.103	−117.110	−100.430	−98.726	17.190
	400.00	61.879	72.962	57.921	−94.400	6.016	−123.584	−101.190	−98.044	12.803
	500.00	65.881	87.222	62.393	−88.002	12.414	−131.613	−101.953	−97.169	10.151
	600.00	69.083	99.524	67.580	−81.249	19.167	−140.964	−102.705	−96.141	8.370
	700.00	71.908	110.389	72.934	−74.197	26.219	−151.470	−103.425	−94.990	7.088
	800.00	74.531	120.164	78.237	−66.874	33.542	−163.005	−104.095	−93.739	6.121
	900.00	77.037	129.088	83.398	−59.295	41.121	−175.474	−104.701	−92.407	5.363
	1000.00	79.471	137.331	88.384	−51.469	48.947	−188.800	−105.240	−91.012	4.754
	1100.00	81.857	145.018	93.187	−43.403	57.013	−202.922	−105.764	−89.564	4.253
	1200.00	84.211	152.241	97.810	−35.099	65.317	−217.789	−106.313	−88.067	3.833
	1300.00	86.542	159.074	102.263	−26.561	73.855	−233.357	−106.890	−86.523	3.477
	1400.00	88.856	165.572	106.554	−17.791	82.625	−249.592	−107.482	−84.934	3.169
	1500.00	91.158	171.781	110.697	−8.790	91.626	−266.462	−108.087	−83.303	2.901
	1600.00	93.451	177.738	114.703	0.440	100.856	−283.940	−108.735	−81.629	2.665
	1700.00	95.737	183.472	118.580	9.900	110.316	−302.002	−209.771	−79.021	2.428
	1733.00	96.490	185.320	119.833	13.071	113.487	−308.087	−209.858	−76.482	2.305

References

Phase	H / S	C_p	Remarks	
SOL	Tk1	Tk1,e	Tk1	MPT= 1733.

184.074 3–CHROMIUM SILICON **Cr3Si**

Phase	T	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	90.625	86.609	86.609	–138.072	0.000	–163.894	–138.072	–137.139	24.026
	300.00	90.763	87.170	86.611	–137.904	0.168	–164.055	–138.071	–137.133	23.877
	400.00	97.101	114.192	90.252	–128.496	9.576	–174.173	–138.071	–136.824	17.867
	500.00	102.312	136.431	97.327	–118.520	19.552	–186.736	–138.181	–136.501	14.260
	600.00	107.079	155.511	105.471	–108.048	30.024	–201.354	–138.340	–136.150	11.853
	700.00	111.637	172.361	113.846	–97.111	40.961	–217.764	–138.474	–135.774	10.132
	800.00	116.082	187.559	122.125	–85.724	52.348	–235.772	–138.523	–135.384	8.840
	900.00	120.463	201.485	130.179	–73.897	64.175	–255.234	–138.447	–134.994	7.835
	1000.00	124.804	214.402	137.963	–61.633	76.439	–276.035	–138.230	–134.621	7.032
	1100.00	129.118	226.500	145.468	–48.937	89.135	–298.087	–138.030	–134.271	6.376
	1200.00	133.414	237.919	152.701	–35.810	102.262	–321.313	–137.966	–133.933	5.830
	1300.00	137.698	248.767	159.677	–22.254	115.818	–345.652	–138.045	–133.595	5.368
	1400.00	141.972	259.128	166.413	–8.271	129.801	–371.050	–138.228	–133.246	4.971
	1500.00	146.240	269.069	172.927	6.140	144.212	–397.463	–138.511	–132.881	4.627
	1600.00	150.502	278.643	179.237	20.977	159.049	–424.852	–138.983	–132.492	4.325
	1700.00	154.761	287.895	185.358	36.240	174.312	–453.181	–189.787	–131.621	4.044
	1800.00	159.016	296.861	191.305	51.929	190.001	–482.421	–190.285	–128.185	3.720
	1900.00	163.269	305.573	197.091	68.043	206.115	–512.545	–190.817	–124.721	3.429
	2000.00	167.520	314.055	202.728	84.583	222.655	–543.528	–191.382	–121.228	3.166
	2023.00	168.497	315.976	204.005	88.447	226.519	–550.773	–191.517	–120.420	3.109

References

Phase	H / S	C_p	Remarks	
SOL	Tk1	Tk1,e	Tk1	MPT= 2023.

Cr5Si3 — 5–CHROMIUM 3–SILICON — 344.237

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[–]
SOL	298.15	184.421	182.422	182.422	–326.352	0.000	–380.741	–326.352	–328.667	57.581
	300.00	184.866	183.565	182.426	–326.010	0.342	–381.080	–326.338	–328.682	57.229
	400.00	202.242	239.383	189.919	–306.566	19.786	–402.319	–325.404	–329.599	43.041
	500.00	212.932	285.732	204.579	–285.775	40.577	–428.642	–324.462	–330.758	34.554
	600.00	220.991	325.293	221.481	–264.065	62.287	–459.241	–323.639	–332.097	28.912
	700.00	227.806	359.882	238.833	–241.618	84.734	–493.535	–322.908	–333.565	24.891
	800.00	233.960	390.708	255.925	–218.526	107.826	–531.092	–322.220	–335.135	21.882
	900.00	239.728	418.600	272.475	–194.839	131.513	–571.579	–321.534	–336.790	19.547
	1000.00	245.258	444.146	288.382	–170.588	155.764	–614.734	–320.839	–338.523	17.683
	1100.00	250.631	467.775	303.630	–145.792	180.560	–660.345	–320.411	–340.316	16.160
	1200.00	255.898	489.809	318.237	–120.465	205.887	–708.236	–320.455	–342.127	14.892
	1300.00	261.089	510.497	332.238	–94.615	231.737	–758.262	–320.985	–343.915	13.819
	1400.00	268.671	530.133	345.678	–68.115	258.237	–810.301	–321.807	–345.650	12.896
	1500.00	279.763	549.022	358.608	–40.731	285.621	–864.263	–322.678	–347.321	12.095
	1600.00	295.365	567.551	371.088	–12.012	314.340	–920.094	–323.296	–348.941	11.392
	1700.00	315.478	586.038	383.188	18.493	344.845	–977.772	–473.681	–349.203	10.730
	1800.00	340.101	604.746	394.976	51.234	377.586	–1037.309	–471.544	–341.934	9.923
	1900.00	369.234	623.894	406.518	86.663	413.015	–1098.736	–467.486	–334.834	9.205
	1923.00	376.572	628.381	409.145	95.240	421.592	–1113.137	–466.232	–333.236	9.052

References

Phase	H / S	C_p	Remarks	
SOL	Tk1	Tk1,C1	Tk1,C1	MPT= 1923.

284.940 **2–CHROMIUM TANTALUM** **Cr2Ta**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	72.551	88.073	88.073	−26.987	0.000	−53.246	−26.987	−26.775	4.691
	300.00	72.692	88.522	88.075	−26.853	0.134	−53.409	−26.986	−26.774	4.662
	400.00	78.471	110.298	91.004	−19.269	7.718	−63.389	−26.836	−26.721	3.489
	500.00	82.370	128.247	96.710	−11.218	15.769	−75.342	−26.606	−26.719	2.791
	600.00	85.530	143.552	103.273	−2.819	24.168	−88.951	−26.348	−26.765	2.330
	700.00	88.341	156.951	110.003	5.876	32.863	−103.989	−26.063	−26.857	2.004
	800.00	90.965	168.920	116.633	14.843	41.830	−120.293	−25.735	−26.992	1.762
	900.00	93.482	179.780	123.055	24.066	51.053	−137.736	−25.351	−27.171	1.577
	1000.00	95.931	189.757	129.233	33.537	60.524	−156.220	−24.907	−27.397	1.431
	1100.00	98.336	199.013	135.161	43.250	70.237	−175.664	−24.516	−27.666	1.314
	1200.00	100.711	207.671	140.846	53.203	80.190	−196.003	−24.258	−27.965	1.217
	1300.00	103.065	215.826	146.303	63.392	90.379	−217.181	−24.150	−28.279	1.136
	1400.00	105.404	223.549	151.547	73.816	100.803	−239.153	−24.168	−28.597	1.067
	1500.00	107.732	230.901	156.594	84.472	111.459	−261.879	−24.311	−28.909	1.007
	1600.00	110.051	237.928	161.460	95.362	122.349	−285.323	−24.642	−29.206	0.953
	1700.00	112.363	244.669	166.158	106.482	133.469	−309.455	−25.137	−29.477	0.906

References

Phase	H / S	C_p	Remarks	
SOL	M2	M2	Hu1	MPT= 2300. (approx.)

132.905 **CESIUM** **Cs**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	32.196	85.147	85.147	0.000	0.000	−25.387	0.000	0.000	0.000
	300.00	32.355	85.347	85.148	0.060	0.060	−25.544	0.000	0.000	0.000
	301.55	32.489	85.514	85.149	0.110	0.110	−25.677	0.000	0.000	0.000
			6.921		2.087					
LIQ	301.55	32.390	92.435	85.149	2.197	2.197	−25.677	0.000	0.000	0.000
	400.00	31.518	101.449	88.109	5.336	5.336	−35.244	0.000	0.000	0.000
	500.00	31.152	108.437	91.503	8.467	8.467	−45.751	0.000	0.000	0.000
	600.00	30.995	114.101	94.812	11.573	11.573	−56.887	0.000	0.000	0.000
	700.00	30.936	118.874	97.917	14.669	14.669	−68.542	0.000	0.000	0.000
	800.00	30.945	123.006	100.801	17.764	17.764	−80.641	0.000	0.000	0.000
	900.00	30.945	126.651	103.475	20.858	20.858	−93.127	0.000	0.000	0.000
	947.97	30.945	128.257	104.688	22.343	22.343	−99.241	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL	Ja2	Ja1		
LIQ	Ja2	Ja1	Ja2	BPT= 947.967, L= 67.659 kJ, GAS (Cs)

Cs[g] CESIUM (GAS) 132.905

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.786	175.599	175.599	76.500	0.000	24.145	76.500	49.532	−8.678
	300.00	20.786	175.728	175.599	76.538	0.038	23.820	76.479	49.364	−8.595
	400.00	20.786	181.707	176.415	78.617	2.117	5.934	73.281	41.178	−5.377
	500.00	20.786	186.346	177.954	80.696	4.196	−12.477	72.229	33.274	−3.476
	600.00	20.786	190.135	179.678	82.774	6.274	−31.307	71.201	25.580	−2.227
	700.00	20.786	193.340	181.407	84.853	8.353	−50.485	70.183	18.057	−1.347
	800.00	20.786	196.115	183.076	86.932	10.432	−69.961	69.168	10.680	−0.697
	900.00	20.786	198.563	184.663	89.010	12.510	−89.697	68.152	3.430	−0.199
	1000.00	20.786	200.753	186.165	91.089	14.589	−109.665	0.000	0.000	0.000
	1100.00	20.786	202.735	187.582	93.167	16.667	−129.841	0.000	0.000	0.000
	1200.00	20.800	204.544	188.922	95.247	18.747	−150.206	0.000	0.000	0.000
	1300.00	20.805	206.209	190.188	97.327	20.827	−170.745	0.000	0.000	0.000
	1400.00	20.816	207.751	191.388	99.408	22.908	−191.444	0.000	0.000	0.000
	1500.00	20.842	209.188	192.528	101.491	24.991	−212.291	0.000	0.000	0.000
	1600.00	20.888	210.535	193.611	103.577	27.077	−233.278	0.000	0.000	0.000
	1700.00	20.959	211.803	194.645	105.669	29.169	−254.396	0.000	0.000	0.000
	1800.00	21.058	213.004	195.631	107.770	31.270	−275.637	0.000	0.000	0.000
	1900.00	21.187	214.145	196.576	109.882	33.382	−296.995	0.000	0.000	0.000
	2000.00	21.347	215.236	197.482	112.008	35.508	−318.464	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Ja2	Ja1

265.811 CESIUM (GAS) **Cs2[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	38.129	284.077	284.077	106.274	0.000	21.576	106.274	72.349	−12.675
	300.00	38.132	284.313	284.078	106.345	0.071	21.051	106.225	72.139	−12.561
	400.00	38.377	295.314	285.576	110.169	3.895	−7.957	99.497	62.530	−8.166
	500.00	38.652	303.908	288.414	114.021	7.747	−37.933	97.086	53.570	−5.596
	600.00	38.912	310.978	291.603	117.899	11.625	−68.688	94.752	45.087	−3.925
	700.00	39.160	316.995	294.811	121.803	15.529	−100.094	92.464	36.991	−2.760
	800.00	39.401	322.240	297.919	125.731	19.457	−132.061	90.203	29.220	−1.908
	900.00	39.643	326.895	300.885	129.683	23.409	−164.522	87.966	21.732	−1.261
	1000.00	39.888	331.084	303.699	133.659	27.385	−197.425	−48.518	21.905	−1.144
	1100.00	40.141	334.898	306.364	137.661	31.387	−230.726	−48.674	28.955	−1.375
	1200.00	40.403	338.401	308.890	141.688	35.414	−264.394	−48.806	36.018	−1.568
	1300.00	40.677	341.646	311.286	145.742	39.468	−298.398	−48.912	43.091	−1.731
	1400.00	40.964	344.671	313.564	149.824	43.550	−332.716	−48.992	50.172	−1.872
	1500.00	41.266	347.508	315.733	153.935	47.661	−367.326	−49.046	57.257	−1.994
	1600.00	41.585	350.181	317.804	158.078	51.804	−402.212	−49.077	64.345	−2.101
	1700.00	41.923	352.712	319.783	162.253	55.979	−437.357	−49.086	71.434	−2.195
	1800.00	42.279	355.118	321.680	166.463	60.189	−472.750	−49.077	78.523	−2.279
	1900.00	42.656	357.414	323.501	170.709	64.435	−508.377	−49.054	85.612	−2.354
	2000.00	43.055	359.612	325.252	174.995	68.721	−544.230	−49.022	92.699	−2.421

References

Phase	H / S	C_p
GAS	Ja1	Ja1

537.635 CESIUM ARSENATE **Cs3AsO4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	176.221	283.592	283.592	−1668.496	0.000	−1753.049	−1668.496	−1543.914	270.487
	300.00	176.414	284.682	283.595	−1668.170	0.326	−1753.574	−1668.503	−1543.141	268.685
	400.00	185.749	336.754	290.632	−1650.047	18.449	−1784.749	−1674.659	−1499.298	195.788
	500.00	193.991	379.099	304.217	−1631.055	37.441	−1820.605	−1673.744	−1455.550	152.060
	600.00	201.804	415.163	319.774	−1611.263	57.233	−1860.361	−1672.212	−1412.046	122.929

References

Phase	H / S	C_p
SOL	G1	G1

CsBr CESIUM BROMIDE 212.809

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	52.183	112.968	112.968	−405.430	0.000	−439.111	−405.430	−391.034	68.508
	300.00	52.173	113.291	112.969	−405.333	0.097	−439.321	−405.463	−390.945	68.070
	400.00	53.024	128.364	115.019	−400.092	5.338	−451.437	−422.739	−382.286	49.921
	500.00	55.246	140.420	118.930	−394.685	10.745	−464.895	−422.309	−372.217	38.885
	600.00	58.007	150.731	123.390	−389.025	16.405	−479.464	−421.615	−362.259	31.537
	700.00	61.023	159.897	127.962	−383.075	22.355	−495.003	−420.629	−352.440	26.299
	800.00	64.175	168.250	132.483	−376.816	28.614	−511.416	−419.338	−342.783	22.381
	900.00	67.406	175.995	136.892	−370.238	35.192	−528.633	−417.732	−333.307	19.345
	909.00	67.700	176.667	137.283	−369.630	35.800	−530.220	−417.572	−332.464	19.105
			25.960		23.598					
LIQ	909.00	77.822	202.628	137.283	−346.032	59.398	−530.220	−393.974	−332.464	19.105
	1000.00	77.822	210.053	143.572	−338.950	66.480	−549.002	−458.558	−322.723	16.857
	1100.00	77.822	217.470	149.958	−331.167	74.263	−570.384	−454.741	−309.324	14.689
	1200.00	77.822	224.241	155.871	−323.385	82.045	−592.475	−450.928	−296.273	12.896
	1300.00	77.822	230.470	161.373	−315.603	89.827	−615.215	−447.118	−283.540	11.393
	1400.00	77.822	236.238	166.517	−307.821	97.609	−638.554	−443.313	−271.100	10.115

References

Phase	H / S	C_p
SOL	Nb1	Pa2
LIQ	Pa2	Pa2

212.809

CESIUM BROMIDE (GAS) **CsBr[g]**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	37.070	267.429	267.429	-209.200	0.000	-288.934	-209.200	-240.857	42.197
	300.00	37.080	267.659	267.430	-209.131	0.069	-289.429	-209.261	-241.053	41.971
	400.00	37.462	278.384	268.890	-205.402	3.798	-316.756	-228.049	-247.604	32.334
	500.00	37.686	286.770	271.658	-201.644	7.556	-345.029	-229.268	-252.351	26.363
	600.00	37.846	293.655	274.767	-197.867	11.333	-374.060	-230.457	-256.855	22.361
	700.00	37.977	299.499	277.893	-194.076	15.124	-403.725	-231.629	-261.162	19.488
	800.00	38.092	304.578	280.918	-190.272	18.928	-433.935	-232.794	-265.302	17.322
	900.00	38.198	309.071	283.802	-186.458	22.742	-464.622	-233.953	-269.296	15.630
	1000.00	38.298	313.101	286.534	-182.633	26.567	-495.734	-302.241	-269.454	14.075
	1100.00	38.394	316.755	289.117	-178.798	30.402	-527.229	-302.371	-266.169	12.639
	1200.00	38.488	320.100	291.562	-174.954	34.246	-559.074	-302.496	-262.873	11.443
	1300.00	38.580	323.185	293.877	-171.101	38.099	-591.241	-302.616	-259.566	10.429
	1400.00	38.671	326.047	296.074	-167.238	41.962	-623.704	-302.730	-256.250	9.561
	1500.00	38.761	328.718	298.162	-163.367	45.833	-656.444	-302.840	-252.926	8.808
	1600.00	38.850	331.222	300.151	-159.486	49.714	-689.442	-302.947	-249.595	8.148
	1700.00	38.938	333.580	302.049	-155.597	53.603	-722.683	-303.054	-246.257	7.567
	1800.00	39.026	335.808	303.863	-151.698	57.502	-756.154	-303.162	-242.913	7.049
	1900.00	39.114	337.921	305.601	-147.791	61.409	-789.841	-303.276	-239.563	6.586
	2000.00	39.201	339.929	307.267	-143.876	65.324	-823.734	-303.399	-236.206	6.169

References

Phase	H / S	C_p
GAS	Nb1	Nb1,e

325.820

CESIUM CARBONATE **Cs2CO3**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	123.830	204.472	204.472	-1147.253	0.000	-1208.216	-1147.253	-1063.985	186.406
	300.00	124.110	205.239	204.474	-1147.024	0.229	-1208.595	-1147.240	-1063.468	185.166
	400.00	136.371	242.732	209.504	-1133.962	13.291	-1231.054	-1150.225	-1034.334	135.070
	500.00	145.771	274.203	219.378	-1119.841	27.412	-1256.942	-1148.286	-1005.574	105.052
	600.00	154.043	301.522	230.841	-1104.844	42.409	-1285.757	-1145.821	-977.255	85.078
	700.00	161.784	325.854	242.706	-1089.050	58.203	-1317.148	-1142.879	-949.386	70.844
	800.00	169.241	347.947	254.501	-1072.497	74.756	-1350.854	-1139.444	-921.973	60.199
	900.00	176.534	368.303	266.029	-1055.207	92.046	-1386.679	-1135.484	-895.021	51.946
	1000.00	183.724	387.275	277.215	-1037.193	110.060	-1424.468	-1265.243	-861.126	44.981
	1065.00	188.360	398.990	284.292	-1025.100	122.153	-1450.024	-1260.683	-835.003	40.954

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	Tk1,e	St1	MPT= 1065.

CsCl CESIUM CHLORIDE 168.358

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	52.444	101.182	101.182	−442.835	0.000	−473.002	−442.835	−414.355	72.593
	300.00	52.485	101.506	101.183	−442.738	0.097	−473.190	−442.829	−414.178	72.115
	400.00	54.695	116.908	103.268	−437.379	5.456	−484.142	−444.480	−404.005	52.758
	500.00	56.904	129.350	107.278	−431.799	11.036	−496.474	−443.817	−393.959	41.157
	600.00	59.114	139.920	111.859	−425.998	16.837	−509.950	−442.939	−384.066	33.436
	700.00	61.324	149.199	116.543	−419.976	22.859	−524.415	−441.852	−374.337	27.933
	743.00	62.274	152.883	118.541	−417.319	25.516	−530.911	−441.320	−370.205	26.026
			5.069		3.766					
SOL−B	743.00	63.399	157.951	118.541	−413.553	29.282	−530.911	−437.554	−370.205	26.026
	800.00	63.680	162.648	121.518	−409.931	32.904	−540.049	−436.754	−365.068	23.837
	900.00	64.174	170.177	126.514	−403.538	39.297	−556.697	−435.319	−356.194	20.673
	918.00	64.263	171.448	127.382	−402.382	40.453	−559.772	−435.056	−354.614	20.178
			17.319		15.899					
LIQ	918.00	77.404	188.768	127.382	−386.483	56.352	−559.772	−419.157	−354.614	20.178
	1000.00	77.404	195.390	132.691	−380.136	62.699	−575.526	−484.017	−345.240	18.034
	1100.00	77.404	202.768	138.732	−372.396	70.439	−595.440	−480.233	−331.546	15.744
	1200.00	77.404	209.503	144.353	−364.655	78.180	−616.058	−476.454	−318.196	13.851
	1300.00	77.404	215.698	149.606	−356.915	85.920	−637.323	−472.680	−305.161	12.262
	1400.00	77.404	221.434	154.534	−349.175	93.660	−659.183	−468.911	−292.416	10.910
	1500.00	77.404	226.775	159.174	−341.434	101.401	−681.596	−465.148	−279.941	9.748
	1597.45	77.404	231.647	163.448	−333.891	108.944	−703.935	−461.487	−268.025	8.764

References

Phase	H / S	C_p	Remarks	
SOL−A	Ja1	Ja1		
SOL−B	Ja1	Ja1		
LIQ	Ja1	Ku1,Ja1	Ja1	NBPT= 1597.3 GAS (CsCl + Cs2Cl2)

168.358 CESIUM CHLORIDE (GAS) **CsCl**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	37.250	256.066	256.066	−240.162	0.000	−316.508	−240.162	−257.860	45.176
	300.00	37.252	256.296	256.066	−240.093	0.069	−316.982	−240.184	−257.970	44.917
	400.00	37.359	267.027	257.529	−236.363	3.799	−343.174	−243.464	−263.037	34.349
	500.00	37.466	275.375	260.294	−232.621	7.541	−370.309	−244.639	−267.794	27.976
	600.00	37.572	282.216	263.395	−228.869	11.293	−398.199	−245.811	−272.315	23.707
	700.00	37.679	288.015	266.508	−225.107	15.055	−426.718	−246.983	−276.639	20.643
	800.00	37.786	293.054	269.518	−221.334	18.828	−455.777	−248.157	−280.796	18.334
	900.00	37.892	297.510	272.386	−217.550	22.612	−485.309	−249.330	−284.805	16.530
	1000.00	37.999	301.508	275.101	−213.755	26.407	−515.263	−317.636	−284.977	14.886
	1100.00	38.106	305.135	277.669	−209.950	30.212	−545.598	−317.787	−281.704	13.377
	1200.00	38.212	308.455	280.098	−206.134	34.028	−576.280	−317.932	−278.417	12.119
	1300.00	38.319	311.518	282.399	−202.307	37.855	−607.281	−318.072	−275.119	11.054
	1400.00	38.426	314.362	284.582	−198.470	41.692	−638.576	−318.207	−271.810	10.141
	1500.00	38.533	317.016	286.657	−194.622	45.540	−670.147	−318.336	−268.491	9.350
	1600.00	38.639	319.507	288.633	−190.764	49.398	−701.974	−318.461	−265.164	8.657
	1700.00	38.746	321.852	290.518	−186.894	53.268	−734.043	−318.586	−261.829	8.045
	1800.00	38.853	324.070	292.321	−183.014	57.148	−766.340	−318.712	−258.487	7.501
	1900.00	38.959	326.173	294.048	−179.124	61.038	−798.853	−318.842	−255.138	7.014
	2000.00	39.066	328.175	295.705	−175.223	64.939	−831.572	−318.979	−251.781	6.576
	2100.00	39.173	330.083	297.297	−171.311	68.851	−864.485	−319.128	−248.418	6.179
	2200.00	39.279	331.908	298.829	−167.388	72.774	−897.586	−319.291	−245.047	5.818

References

Phase	H / S	C_p
GAS	Ja1	Ja1

Cs2Cl2[g] DICESIUM DICHLORIDE (GAS) 336.716

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	81.613	383.364	383.364	−659.817	0.000	−774.117	−659.817	−656.822	115.072
	300.00	81.632	383.869	383.365	−659.666	0.151	−774.827	−659.848	−656.803	114.360
	400.00	82.287	407.456	386.577	−651.465	8.352	−814.448	−665.668	−654.174	85.426
	500.00	82.590	425.854	392.660	−643.220	16.597	−856.147	−667.255	−651.116	68.022
	600.00	82.756	440.928	399.486	−634.952	24.865	−899.509	−668.835	−647.740	56.391
	700.00	82.857	453.693	406.341	−626.671	33.146	−944.256	−670.422	−644.099	48.063
	800.00	82.923	464.762	412.967	−618.382	41.435	−990.191	−672.027	−640.229	41.803
	900.00	82.969	474.531	419.276	−610.087	49.730	−1037.165	−673.647	−636.157	36.922
	1000.00	83.002	483.275	425.246	−601.788	58.029	−1085.063	−809.551	−624.491	32.620
	1100.00	83.027	491.187	430.887	−593.487	66.330	−1133.792	−809.160	−606.004	28.777
	1200.00	83.046	498.412	436.217	−585.183	74.634	−1183.278	−808.779	−587.552	25.575
	1300.00	83.062	505.060	441.260	−576.878	82.939	−1233.456	−808.407	−569.132	22.868
	1400.00	83.074	511.216	446.040	−568.571	91.246	−1284.273	−808.044	−550.740	20.548
	1500.00	83.085	516.948	450.578	−560.263	99.554	−1335.685	−807.690	−532.373	18.539
	1600.00	83.094	522.310	454.896	−551.954	107.863	−1387.651	−807.350	−514.030	16.781
	1700.00	83.101	527.348	459.011	−543.644	116.173	−1440.136	−807.027	−495.708	15.231
	1800.00	83.108	532.098	462.941	−535.334	124.483	−1493.111	−806.728	−477.404	13.854
	1900.00	83.114	536.592	466.700	−527.023	132.794	−1546.547	−806.459	−459.115	12.622
	2000.00	83.119	540.855	470.302	−518.711	141.106	−1600.421	−806.225	−440.840	11.514

References

Phase	H / S	C_p
GAS	Ja1	Ja1

151.904 CESIUM FLUORIDE **CsF**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	51.976	88.282	88.282	−554.673	0.000	−580.994	−554.673	−525.376	92.044
	300.00	52.008	88.604	88.283	−554.577	0.096	−581.158	−554.665	−525.194	91.444
	400.00	53.783	103.809	90.345	−549.287	5.386	−590.811	−556.259	−514.759	67.221
	500.00	55.557	116.001	94.295	−543.820	10.853	−601.821	−555.605	−504.456	52.700
	600.00	57.332	126.287	98.792	−538.176	16.497	−613.948	−554.803	−494.299	43.033
	700.00	59.106	135.258	103.374	−532.354	22.319	−627.034	−553.852	−484.288	36.138
	800.00	60.881	143.266	107.868	−526.355	28.318	−640.968	−552.750	−474.424	30.977
	900.00	62.655	150.539	112.211	−520.178	34.495	−655.663	−551.492	−464.707	26.971
	976.00	64.004	155.673	115.398	−515.365	39.308	−667.301	−617.808	−455.418	24.374
			22.249		21.715					
LIQ	976.00	74.057	177.922	115.398	−493.650	61.023	−667.301	−596.093	−455.418	24.374
	1000.00	74.057	179.721	116.920	−491.872	62.801	−671.593	−595.257	−451.969	23.608
	1100.00	74.057	186.779	122.955	−484.467	70.206	−689.924	−591.783	−437.809	20.790
	1200.00	74.057	193.223	128.546	−477.061	77.612	−708.928	−588.321	−423.964	18.455
	1300.00	74.057	199.151	133.752	−469.655	85.018	−728.551	−584.869	−410.407	16.490
	1400.00	74.057	204.639	138.622	−462.250	92.423	−748.744	−581.426	−397.117	14.817
	1500.00	74.057	209.748	143.195	−454.844	99.829	−769.466	−577.991	−384.071	13.375
	1504.00	74.057	209.945	143.373	−454.548	100.125	−770.306	−577.854	−383.555	13.321

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	NBPT= 1504., GAS (CsF + Cs2F2)

CsF[g] CESIUM FLUORIDE (GAS) 151.904

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	35.824	243.200	243.200	−356.477	0.000	−428.987	−356.477	−373.369	65.413
	300.00	35.846	243.421	243.200	−356.411	0.066	−429.437	−356.499	−373.474	65.028
	400.00	36.639	253.858	244.618	−352.781	3.696	−454.324	−359.753	−378.272	49.397
	500.00	37.039	262.080	247.317	−349.095	7.382	−480.136	−360.880	−382.771	39.988
	600.00	37.284	268.857	250.359	−345.378	11.099	−506.692	−362.006	−387.044	33.695
	700.00	37.455	274.617	253.423	−341.641	14.836	−533.873	−363.139	−391.127	29.186
	800.00	37.588	279.628	256.392	−337.889	18.588	−561.591	−364.285	−395.047	25.794
	900.00	37.698	284.062	259.225	−334.124	22.353	−589.780	−365.438	−398.824	23.147
	1000.00	37.794	288.039	261.911	−330.350	26.127	−618.388	−433.734	−398.764	20.829
	1100.00	37.881	291.645	264.453	−326.566	29.911	−647.375	−433.882	−395.260	18.769
	1200.00	37.961	294.944	266.858	−322.774	33.703	−676.707	−434.034	−391.742	17.052
	1300.00	38.038	297.986	269.137	−318.974	37.503	−706.355	−434.187	−388.212	15.599
	1400.00	38.111	300.808	271.300	−315.166	41.311	−736.297	−434.342	−384.669	14.352
	1500.00	38.181	303.439	273.356	−311.352	45.125	−766.511	−434.499	−381.116	13.272
	1600.00	38.250	305.906	275.314	−307.530	48.947	−796.979	−434.658	−377.552	12.326
	1700.00	38.317	308.227	277.182	−303.702	52.775	−827.687	−434.823	−373.978	11.491
	1800.00	38.384	310.419	278.968	−299.867	56.610	−858.620	−434.995	−370.394	10.749
	1900.00	38.449	312.496	280.679	−296.025	60.452	−889.767	−435.177	−366.800	10.084
	2000.00	38.514	314.470	282.319	−292.177	64.300	−921.116	−435.371	−363.196	9.486

References

Phase	H / S	C_p
GAS	Ja1	Ja1

303.808 DICESIUM DIFLUORIDE (GAS) **Cs2F2[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	79.885	351.565	351.565	−890.104	0.000	−994.923	−890.104	−883.687	154.818
	300.00	79.924	352.060	351.567	−889.956	0.148	−995.574	−890.134	−883.647	153.857
	400.00	81.313	375.271	354.722	−881.884	8.220	−1031.993	−895.828	−879.888	114.902
	500.00	81.959	393.493	360.720	−873.717	16.387	−1070.464	−897.286	−875.735	91.487
	600.00	82.311	408.470	367.467	−865.502	24.602	−1110.584	−898.757	−871.287	75.852
	700.00	82.525	421.176	374.255	−857.260	32.844	−1152.082	−900.256	−866.590	64.666
	800.00	82.666	432.205	380.824	−849.000	41.104	−1194.764	−901.791	−861.676	56.262
	900.00	82.763	441.948	387.085	−840.728	49.376	−1238.481	−903.356	−856.568	49.714
	1000.00	82.834	450.672	393.015	−832.448	57.656	−1283.119	−1039.217	−843.871	44.079
	1100.00	82.888	458.569	398.621	−824.161	65.943	−1328.588	−1038.795	−824.357	39.145
	1200.00	82.930	465.783	403.922	−815.871	74.233	−1374.810	−1038.391	−804.881	35.036
	1300.00	82.963	472.422	408.939	−807.576	82.528	−1421.725	−1038.003	−785.438	31.559
	1400.00	82.991	478.572	413.696	−799.278	90.826	−1469.279	−1037.630	−766.024	28.581
	1500.00	83.014	484.298	418.214	−790.978	99.126	−1517.425	−1037.272	−746.636	26.000
	1600.00	83.033	489.657	422.514	−782.675	107.429	−1566.126	−1036.932	−727.271	23.743
	1700.00	83.050	494.691	426.613	−774.371	115.733	−1615.346	−1036.614	−707.927	21.752
	1800.00	83.065	499.438	430.528	−766.065	124.039	−1665.055	−1036.322	−688.601	19.983
	1900.00	83.078	503.930	434.274	−757.758	132.346	−1715.225	−1036.062	−669.291	18.400
	2000.00	83.090	508.191	437.864	−749.450	140.654	−1765.833	−1035.839	−649.993	16.976

References

Phase	H / S	C_p
GAS	Ja1	Ja1

CsI CESIUM IODIDE 259.810

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	52.593	123.051	123.051	-346.603	0.000	-383.291	-346.603	-340.590	59.670
	300.00	52.580	123.377	123.052	-346.506	0.097	-383.519	-346.616	-340.553	59.296
	400.00	53.184	138.535	125.115	-341.235	5.368	-396.649	-357.441	-337.463	44.068
	500.00	55.125	150.596	129.043	-335.826	10.777	-411.124	-379.260	-330.361	34.513
	600.00	57.592	160.860	133.510	-330.193	16.410	-426.709	-378.609	-320.638	27.914
	700.00	60.306	169.939	138.077	-324.300	22.303	-443.257	-377.693	-311.045	23.210
	800.00	63.154	178.177	142.582	-318.128	28.475	-460.669	-376.501	-301.602	19.693
	900.00	66.078	185.783	146.965	-311.666	34.937	-478.872	-375.025	-292.325	16.966
			28.451		25.606					
LIQ	900.00	70.082	214.235	146.965	-286.060	60.543	-478.872	-349.419	-292.325	16.966
	1000.00	70.082	221.618	154.068	-279.052	67.551	-500.671	-414.535	-282.383	14.750
	1100.00	70.082	228.298	160.517	-272.044	74.559	-523.172	-411.502	-269.315	12.789
	1200.00	70.082	234.396	166.423	-265.036	81.567	-546.311	-408.474	-256.522	11.166
	1300.00	70.082	240.005	171.871	-258.028	88.575	-570.035	-405.450	-243.982	9.803
	1400.00	70.082	245.199	176.925	-251.019	95.584	-594.298	-402.430	-231.675	8.644

References

Phase	H / S	C_p
SOL	Nb1	Pa2
LIQ	Pa2	Pa2

259.810 CESIUM IODIDE (GAS) **CsI[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	37.451	275.291	275.291	−151.900	0.000	−233.978	−151.900	−191.278	33.511
	300.00	37.458	275.523	275.292	−151.831	0.069	−234.488	−151.941	−191.522	33.347
	400.00	37.747	286.343	276.765	−148.069	3.831	−262.606	−164.275	−203.420	26.564
	500.00	37.928	294.786	279.556	−144.285	7.615	−291.678	−187.719	−210.914	22.034
	600.00	38.066	301.714	282.689	−140.485	11.415	−321.513	−188.900	−215.442	18.756
	700.00	38.184	307.591	285.837	−136.672	15.228	−351.986	−190.065	−219.773	16.400
	800.00	38.291	312.696	288.882	−132.849	19.051	−383.006	−191.222	−223.938	14.622
	900.00	38.392	317.212	291.784	−129.014	22.886	−414.505	−192.372	−227.959	13.230
	1000.00	38.489	321.262	294.533	−125.170	26.730	−446.433	−260.653	−228.145	11.917
	1100.00	38.584	324.935	297.132	−121.317	30.583	−478.745	−260.775	−224.888	10.679
	1200.00	38.677	328.296	299.591	−117.454	34.446	−511.409	−260.892	−221.621	9.647
	1300.00	38.768	331.396	301.920	−113.581	38.319	−544.396	−261.004	−218.343	8.773
	1400.00	38.859	334.272	304.129	−109.700	42.200	−577.681	−261.110	−215.058	8.024
	1500.00	38.949	336.956	306.229	−105.810	46.090	−611.244	−261.213	−211.765	7.374
	1600.00	39.039	339.473	308.229	−101.910	49.990	−645.067	−261.313	−208.465	6.806
	1700.00	39.128	341.842	310.137	−98.002	53.898	−679.134	−261.412	−205.159	6.304
	1800.00	39.217	344.081	311.962	−94.085	57.815	−713.431	−261.515	−201.847	5.857
	1900.00	39.306	346.204	313.708	−90.158	61.742	−747.946	−261.622	−198.529	5.458
	2000.00	39.395	348.222	315.384	−86.223	65.677	−782.668	−261.739	−195.205	5.098

References

Phase	H / S	C_p
GAS	Nb1	Nb1,e

CsO[g] CESIUM MONOXIDE (GAS) 148.905

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	36.475	255.539	255.539	62.760	0.000	−13.429	62.760	42.540	−7.453
	300.00	36.490	255.764	255.539	62.827	0.067	−13.902	62.741	42.415	−7.385
	400.00	37.057	266.349	256.979	66.508	3.748	−40.031	59.659	36.474	−4.763
	500.00	37.360	274.654	259.713	70.230	7.470	−67.096	58.721	30.786	−3.216
	600.00	37.559	281.484	262.789	73.977	11.217	−94.913	57.782	25.287	−2.201
	700.00	37.709	287.285	265.884	77.741	14.981	−123.359	56.822	19.947	−1.488
	800.00	37.833	292.329	268.882	81.518	18.758	−152.345	55.836	14.746	−0.963
	900.00	37.942	296.791	271.740	85.307	22.547	−181.806	54.828	9.670	−0.561
	1000.00	38.041	300.794	274.448	89.106	26.346	−211.688	−13.334	8.414	−0.440
	1100.00	38.135	304.424	277.011	92.915	30.155	−241.952	−13.359	10.590	−0.503
	1200.00	38.224	307.746	279.436	96.733	33.973	−272.563	−13.395	12.769	−0.556
	1300.00	38.310	310.809	281.733	100.559	37.799	−303.493	−13.440	14.951	−0.601
	1400.00	38.394	313.651	283.912	104.395	41.635	−334.717	−13.492	17.136	−0.639
	1500.00	38.477	316.303	285.984	108.238	45.478	−366.217	−13.552	19.326	−0.673
	1600.00	38.558	318.789	287.958	112.090	49.330	−397.973	−13.620	21.520	−0.703
	1700.00	38.638	321.129	289.841	115.950	53.190	−429.970	−13.698	23.719	−0.729
	1800.00	38.718	323.340	291.641	119.818	57.058	−462.194	−13.789	25.922	−0.752
	1900.00	38.797	325.435	293.365	123.693	60.933	−494.634	−13.895	28.131	−0.773
	2000.00	38.875	327.427	295.019	127.577	64.817	−527.278	−14.019	30.346	−0.793

References

Phase	H / S	C_p
GAS	Ja1	Ja1

CsO2 CESIUM DIOXIDE 164.904

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	79.079	142.256	142.256	−286.186	0.000	−328.600	−286.186	−242.048	42.406
	300.00	79.136	142.745	142.258	−286.040	0.146	−328.863	−286.154	−241.775	42.097
	400.00	82.232	165.935	145.398	−277.971	8.215	−344.345	−286.333	−226.579	29.588
	500.00	85.328	184.618	151.432	−269.593	16.593	−361.902	−284.145	−211.889	22.136
	600.00	88.425	200.449	158.314	−260.906	25.280	−381.175	−281.723	−197.661	17.208
	700.00	91.521	214.312	165.344	−251.908	34.278	−401.927	−279.076	−183.857	13.720
	800.00	94.617	226.735	172.254	−242.601	43.585	−423.989	−276.201	−170.447	11.129
	830.00	95.546	230.235	174.287	−239.749	46.437	−430.844	−275.292	−166.498	10.478

References

Phase	H / S	C_p	Remarks	
SOL	Tk1	Tk1,e	Tk1	MPT= 830., L= 21. kJ

281.810 CESIUM OXIDE **Cs2O**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	75.985	146.858	146.858	-345.975	0.000	-389.761	-345.975	-308.405	54.031
	300.00	76.048	147.329	146.860	-345.834	0.141	-390.033	-345.981	-308.172	53.658
	400.00	79.430	169.671	149.883	-338.060	7.915	-405.928	-350.245	-294.180	38.416
	500.00	82.768	187.754	155.704	-329.950	16.025	-423.827	-349.926	-280.193	29.272
	600.00	86.089	203.139	162.358	-321.507	24.468	-443.390	-349.276	-266.302	23.184
	700.00	89.401	216.658	169.168	-312.732	33.243	-464.393	-348.320	-252.545	18.845
	763.00	91.486	224.451	173.415	-307.034	38.941	-478.290	-347.568	-243.957	16.701

References

Phase	H / S	C_p	Remarks
SOL	Nb1,Tk1	Pa1	Pa1 MPT= 763.

281.810 CESIUM OXIDE (GAS) **Cs2O[g]**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	59.414	326.880	326.880	-144.285	0.000	-241.744	-144.285	-160.389	28.099
	300.00	59.447	327.247	326.881	-144.175	0.110	-242.349	-144.322	-160.489	27.944
	400.00	60.623	344.534	329.230	-138.163	6.122	-275.977	-150.348	-164.228	21.446
	500.00	61.172	358.128	333.699	-132.070	12.215	-311.134	-152.047	-167.500	17.499
	600.00	61.474	369.310	338.730	-125.937	18.348	-347.523	-153.706	-170.435	14.838
	700.00	61.659	378.801	343.793	-119.780	24.505	-384.940	-155.368	-173.092	12.916
	800.00	61.782	387.043	348.696	-113.607	30.678	-423.241	-157.053	-175.509	11.460
	900.00	61.869	394.325	353.369	-107.424	36.861	-462.317	-158.762	-177.714	10.314
	1000.00	61.934	400.847	357.796	-101.234	43.051	-502.081	-294.763	-172.314	9.001
	1100.00	61.984	406.753	361.983	-95.038	49.247	-542.466	-294.479	-160.083	7.602
	1200.00	62.024	412.148	365.941	-88.837	55.448	-583.415	-294.212	-147.877	6.437
	1300.00	62.057	417.114	369.689	-82.633	61.652	-624.881	-293.959	-135.693	5.452
	1400.00	62.085	421.714	373.243	-76.426	67.859	-666.825	-293.721	-123.528	4.609
	1500.00	62.109	425.998	376.619	-70.216	74.069	-709.213	-293.497	-111.379	3.879
	1600.00	62.131	430.007	379.832	-64.004	80.281	-752.016	-293.291	-99.245	3.240
	1700.00	62.150	433.774	382.895	-57.790	86.495	-795.207	-293.108	-87.122	2.677
	1800.00	62.167	437.327	385.821	-51.575	92.710	-838.763	-292.951	-75.010	2.177
	1900.00	62.183	440.689	388.621	-45.357	98.928	-882.666	-292.827	-62.906	1.729
	2000.00	62.198	443.879	391.305	-39.138	105.147	-926.895	-292.742	-50.807	1.327

References

Phase	H / S	C_p
GAS	Tk1	Pa1,e

Cs2O3 DICESIUM TRIOXIDE 313.809

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	125.515	230.120	230.120	−520.071	0.000	−588.681	−520.071	−446.161	78.166
	300.00	125.604	230.897	230.122	−519.839	0.232	−589.108	−520.040	−445.703	77.604
	400.00	130.415	267.690	235.106	−507.038	13.033	−614.114	−522.248	−419.842	54.826
	500.00	135.227	297.308	244.677	−493.756	26.315	−642.410	−519.817	−394.514	41.215
	600.00	140.038	322.388	255.590	−479.992	40.079	−673.425	−517.005	−369.711	32.186
	700.00	144.850	344.336	266.732	−465.748	54.323	−706.783	−513.835	−345.408	25.775

References

Phase	H / S	C_p
SOL	Tk1	e

CsOH CESIUM HYDROXIDE 149.913

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	67.875	98.742	98.742	−416.726	0.000	−446.166	−416.726	−370.716	64.948
	300.00	67.979	99.163	98.744	−416.600	0.126	−446.349	−416.714	−370.431	64.498
	400.00	74.392	119.558	101.482	−409.495	7.231	−457.319	−417.824	−354.450	46.286
	410.00	75.122	121.404	101.945	−408.748	7.978	−458.524	−417.688	−352.867	44.956
			3.163		1.297					
SOL−B	410.00	75.122	124.568	101.945	−407.451	9.275	−458.524	−416.391	−352.867	44.956
	493.00	81.810	138.997	106.988	−400.946	15.780	−469.471	−414.967	−340.134	36.038
			12.306		6.067					
SOL−C	493.00	81.810	151.303	106.988	−394.879	21.847	−469.471	−408.900	−340.134	36.038
	500.00	82.425	152.461	107.617	−394.304	22.422	−470.535	−408.754	−339.159	35.432
			9.122		4.561					
LIQ	500.00	81.588	161.583	107.617	−389.743	26.983	−470.535	−404.193	−339.159	35.432
	600.00	81.588	176.458	117.889	−381.584	35.142	−487.459	−402.185	−326.341	28.411
	700.00	81.588	189.035	127.177	−373.425	43.301	−505.750	−400.218	−313.856	23.420
	800.00	81.588	199.930	135.605	−365.267	51.459	−525.210	−398.299	−301.650	19.696
	900.00	81.588	209.539	143.297	−357.108	59.618	−545.693	−396.425	−289.682	16.813
	1000.00	81.588	218.136	150.359	−348.949	67.777	−567.085	−461.729	−274.214	14.323
	1100.00	81.588	225.912	156.879	−340.790	75.936	−589.293	−458.923	−255.599	12.137
	1200.00	81.588	233.011	162.932	−332.631	84.095	−612.244	−456.157	−237.237	10.327
	1263.00	81.588	237.186	166.533	−327.491	89.235	−627.057	−454.435	−225.788	9.338

References

Phase	H / S	C_p	Remarks
SOL−A	Ja1	Ja1	
SOL−B	Ja1	Ja1	
SOL−C	Ja1	Ja1	
LIQ	Ja1	Ja1	Ja1 NBPT= 1263.0, GAS (CsOH)

149.913 CESIUM HYDROXIDE (GAS) **CsOH[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	49.716	254.790	254.790	−259.408	0.000	−335.373	−259.408	−259.924	45.538
	300.00	49.771	255.097	254.790	−259.316	0.092	−335.845	−259.430	−259.927	45.257
	400.00	51.558	269.702	256.770	−254.235	5.173	−362.116	−262.564	−259.247	33.854
	500.00	52.388	281.304	260.556	−249.034	10.374	−389.686	−263.484	−258.310	26.985
	600.00	52.963	290.908	264.838	−243.765	15.643	−418.311	−264.366	−257.192	22.391
	700.00	53.463	299.111	269.162	−238.444	20.964	−447.821	−265.237	−255.928	19.098
	800.00	53.941	306.281	273.363	−233.074	26.334	−478.098	−266.106	−254.539	16.620
	900.00	54.417	312.662	277.382	−227.656	31.752	−509.051	−266.973	−253.041	14.686
	1000.00	54.892	318.420	281.202	−222.190	37.218	−540.610	−334.970	−247.740	12.941
	1100.00	55.368	323.674	284.828	−216.677	42.731	−572.719	−334.810	−239.024	11.350
	1200.00	55.839	328.512	288.269	−211.117	48.291	−605.331	−334.643	−230.324	10.026
	1300.00	56.300	333.000	291.539	−205.510	53.898	−638.409	−334.468	−221.638	8.906
	1400.00	56.747	337.188	294.652	−199.857	59.551	−671.921	−334.285	−212.965	7.946
	1500.00	57.174	341.118	297.620	−194.161	65.247	−705.838	−334.096	−204.306	7.115
	1600.00	57.574	344.821	300.456	−188.423	70.985	−740.137	−333.904	−195.660	6.388
	1700.00	57.942	348.323	303.169	−182.647	76.761	−774.796	−333.713	−187.025	5.747
	1800.00	58.271	351.644	305.771	−176.836	82.572	−809.796	−333.527	−178.402	5.177
	1900.00	58.555	354.802	308.269	−170.995	88.413	−845.119	−333.353	−169.789	4.668
	2000.00	58.788	357.812	310.672	−165.127	94.281	−880.751	−333.199	−161.184	4.210

References

Phase	H / S	C_p
GAS	Ja1	Ja1

Cs2(OH)2[g] DICESIUM DIHYDROXIDE (GAS) 299.826

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	82.819	360.770	360.770	−687.850	0.000	−795.414	−687.850	−644.514	112.916
	300.00	82.915	361.283	360.772	−687.697	0.153	−796.082	−687.924	−644.245	112.173
	400.00	88.976	385.951	364.094	−679.107	8.743	−833.488	−695.764	−627.750	81.976
	500.00	94.499	406.419	370.568	−669.924	17.926	−873.134	−698.825	−610.382	63.766
	600.00	99.002	424.060	378.046	−660.242	27.608	−914.678	−701.443	−592.441	51.577
	700.00	102.709	439.608	385.752	−650.151	37.699	−957.876	−703.737	−574.089	42.839
	800.00	105.820	453.532	393.369	−639.720	48.130	−1002.545	−705.785	−555.426	36.266
	900.00	108.466	466.153	400.766	−629.002	58.848	−1048.539	−707.636	−536.518	31.139
	1000.00	110.730	477.701	407.890	−618.039	69.811	−1095.740	−843.599	−509.999	26.640
	1100.00	112.779	488.353	414.727	−606.861	80.989	−1144.050	−843.127	−476.661	22.635
	1200.00	114.582	498.245	421.280	−595.492	92.358	−1193.385	−842.543	−443.371	19.299
	1300.00	116.188	507.481	427.559	−583.952	103.898	−1243.677	−841.867	−410.133	16.479
	1400.00	117.629	516.145	433.580	−572.260	115.590	−1294.863	−841.115	−376.951	14.064
	1500.00	118.927	524.306	439.359	−560.431	127.419	−1346.889	−840.301	−343.824	11.973
	1600.00	120.096	532.019	444.912	−548.478	139.372	−1399.709	−839.440	−310.754	10.145
	1700.00	121.148	539.332	450.253	−536.415	151.435	−1453.280	−838.546	−277.738	8.534
	1800.00	122.091	546.284	455.396	−524.252	163.598	−1507.563	−837.634	−244.776	7.103
	1900.00	122.929	552.908	460.355	−512.001	175.849	−1562.525	−836.718	−211.864	5.825
	2000.00	123.668	559.233	465.142	−499.670	188.180	−1618.135	−835.813	−179.001	4.675

References

Phase	H / S	C_p
GAS	Ja1	Ja1

361.874 CESIUM SULFATE **Cs2SO4**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	135.143	211.920	211.920	−1443.020	0.000	−1506.204	−1443.020	−1323.544	231.879
	300.00	135.762	212.757	211.922	−1442.769	0.251	−1506.597	−1443.040	−1322.803	230.320
	400.00	151.294	254.443	217.503	−1428.244	14.776	−1530.021	−1449.591	−1281.211	167.309
	500.00	162.048	289.292	228.466	−1412.607	30.413	−1557.253	−1450.236	−1239.045	129.442
	600.00	176.816	320.086	241.210	−1395.695	47.325	−1587.746	−1449.431	−1196.852	104.195
	700.00	194.253	348.630	254.538	−1377.155	65.865	−1621.196	−1446.902	−1154.933	86.182
	800.00	212.464	375.759	268.007	−1356.819	86.201	−1657.426	−1442.789	−1113.486	72.703
	900.00	229.965	401.807	281.436	−1334.686	108.334	−1696.312	−1489.862	−1071.496	62.188
	940.00	236.509	411.949	286.774	−1325.356	117.664	−1712.588	−1486.498	−1052.975	58.513
			4.585		4.310					
SOL−B	940.00	184.889	416.534	286.774	−1321.046	121.974	−1712.588	−1482.188	−1052.975	58.513
	1000.00	194.179	428.259	294.912	−1309.674	133.346	−1737.932	−1614.069	−1018.237	53.187
	1100.00	209.664	447.492	307.912	−1289.482	153.538	−1781.723	−1606.895	−958.989	45.539
	1200.00	225.149	466.399	320.333	−1267.741	175.279	−1827.420	−1598.260	−900.458	39.196
	1278.00	237.227	480.954	329.693	−1249.708	193.312	−1864.368	−1590.502	−855.343	34.960
			27.926		35.690					
LIQ	1278.00	206.690	508.881	329.693	−1214.018	229.002	−1864.368	−1554.812	−855.343	34.960
	1300.00	206.690	512.408	332.755	−1209.471	233.549	−1875.602	−1553.170	−843.316	33.885
	1400.00	206.690	527.726	346.142	−1188.802	254.218	−1927.618	−1545.749	−788.991	29.438
	1500.00	206.690	541.986	358.728	−1168.133	274.887	−1981.112	−1538.392	−735.194	25.602
	1600.00	206.690	555.325	370.603	−1147.464	295.556	−2035.985	−1531.098	−681.885	22.261
	1700.00	206.690	567.856	381.841	−1126.795	316.225	−2092.150	−1523.870	−629.031	19.328
	1800.00	206.690	579.670	392.507	−1106.126	336.894	−2149.532	−1516.710	−576.601	16.733
	1900.00	206.690	590.845	402.654	−1085.457	357.563	−2208.063	−1509.625	−524.566	14.421
	2000.00	206.690	601.447	412.331	−1064.788	378.232	−2267.682	−1502.619	−472.902	12.351

References

Phase	H / S	C_p
SOL−A	Nb1	Pa3
SOL−B	Pa3	Pa3
LIQ	Pa3	Pa3

Cu COPPER 63.546

Phase	T [K]	C_p J/(K mol)	S J/(K mol)	−(G−H298)/T J/(K mol)	H kJ/mol	H−H298 kJ/mol	G kJ/mol	ΔH_f kJ/mol	ΔG_f kJ/mol	log K_f [−]
SOL	298.15	24.443	33.164	33.164	0.000	0.000	−9.888	0.000	0.000	0.000
	300.00	24.464	33.315	33.164	0.045	0.045	−9.949	0.000	0.000	0.000
	400.00	25.318	40.481	34.136	2.538	2.538	−13.654	0.000	0.000	0.000
	500.00	25.912	46.196	35.995	5.100	5.100	−17.998	0.000	0.000	0.000
	600.00	26.477	50.971	38.104	7.720	7.720	−22.862	0.000	0.000	0.000
	700.00	26.995	55.092	40.243	10.394	10.394	−28.170	0.000	0.000	0.000
	800.00	27.494	58.731	42.331	13.120	13.120	−33.865	0.000	0.000	0.000
	900.00	28.032	61.999	44.338	15.895	15.895	−39.904	0.000	0.000	0.000
	1000.00	28.676	64.985	46.255	18.730	18.730	−46.255	0.000	0.000	0.000
	1100.00	29.456	67.753	48.085	21.635	21.635	−52.894	0.000	0.000	0.000
	1200.00	30.519	70.359	49.834	24.630	24.630	−59.800	0.000	0.000	0.000
	1300.00	32.136	72.861	51.509	27.757	27.757	−66.962	0.000	0.000	0.000
	1358.00	33.473	74.291	52.452	29.658	29.658	−71.229	0.000	0.000	0.000
			9.675		13.138					
LIQ	1358.00	32.844	83.966	52.452	42.796	42.796	−71.229	0.000	0.000	0.000
	1400.00	32.844	84.966	53.412	44.175	44.175	−74.777	0.000	0.000	0.000
	1500.00	32.844	87.232	55.592	47.460	47.460	−83.388	0.000	0.000	0.000
	1600.00	32.844	89.352	57.637	50.744	50.744	−92.219	0.000	0.000	0.000
	1700.00	32.844	91.343	59.561	54.029	54.029	−101.254	0.000	0.000	0.000
	1800.00	32.844	93.220	61.380	57.313	57.313	−110.483	0.000	0.000	0.000
	1900.00	32.844	94.996	63.103	60.598	60.598	−119.895	0.000	0.000	0.000
	2000.00	32.844	96.681	64.740	63.882	63.882	−129.480	0.000	0.000	0.000
	2100.00	32.844	98.283	66.299	67.166	67.166	−139.228	0.000	0.000	0.000
	2200.00	32.844	99.811	67.788	70.451	70.451	−149.134	0.000	0.000	0.000
	2300.00	32.844	101.271	69.212	73.735	73.735	−159.188	0.000	0.000	0.000
	2400.00	32.844	102.669	70.577	77.020	77.020	−169.386	0.000	0.000	0.000
	2500.00	32.844	104.010	71.888	80.304	80.304	−179.720	0.000	0.000	0.000
	2600.00	32.844	105.298	73.149	83.589	83.589	−190.186	0.000	0.000	0.000
	2700.00	32.844	106.538	74.362	86.873	86.873	−200.778	0.000	0.000	0.000
	2800.00	32.844	107.732	75.533	90.158	90.158	−211.492	0.000	0.000	0.000
	2843.26	32.844	108.236	76.027	91.578	91.578	−216.164	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL	Ja2	Ja1		
LIQ	Ja2	Ja1	Ja2	BPT= 2843.261, L= 300.677 kJ

63.546 COPPER (GAS) **Cu**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	20.786	166.397	166.397	337.600	0.000	287.989	337.600	297.877	−52.187
	300.00	20.786	166.526	166.397	337.638	0.038	287.681	337.593	297.630	−51.822
	400.00	20.786	172.505	167.213	339.717	2.117	270.715	337.179	284.369	−37.135
	500.00	20.786	177.144	168.752	341.796	4.196	253.224	336.695	271.222	−28.334
	600.00	20.786	180.933	170.476	343.874	6.274	235.314	336.154	258.177	−22.476
	700.00	20.786	184.138	172.205	345.953	8.353	217.057	335.559	245.227	−18.299
	800.00	20.786	186.913	173.874	348.032	10.432	198.501	334.912	232.366	−15.172
	900.00	20.786	189.361	175.461	350.110	12.510	179.685	334.215	219.589	−12.745
	1000.00	20.786	191.551	176.963	352.189	14.589	160.637	333.459	206.892	−10.807
	1100.00	20.789	193.533	178.380	354.267	16.667	141.381	332.633	194.275	−9.225
	1200.00	20.795	195.342	179.720	356.347	18.747	121.936	331.716	181.737	−7.911
	1300.00	20.805	197.007	180.986	358.427	20.827	102.318	330.670	169.280	−6.802
	1400.00	20.823	198.549	182.186	360.508	22.908	82.539	316.333	157.316	−5.870
	1500.00	20.856	199.987	183.326	362.592	24.992	62.612	315.132	146.000	−5.084
	1600.00	20.909	201.334	184.409	364.680	27.080	42.545	313.935	134.763	−4.400
	1700.00	20.986	202.604	185.443	366.774	29.174	22.347	312.746	123.602	−3.798
	1800.00	21.092	203.806	186.430	368.878	31.278	2.026	311.565	112.510	−3.265
	1900.00	21.231	204.950	187.375	370.994	33.394	−18.412	310.396	101.483	−2.790
	2000.00	21.405	206.044	188.281	373.125	35.525	−38.962	309.243	90.517	−2.364
	2100.00	21.623	207.093	189.152	375.276	37.676	−59.619	308.110	79.609	−1.980
	2200.00	21.879	208.105	189.991	377.451	39.851	−80.380	307.000	68.754	−1.632
	2300.00	22.174	209.084	190.800	379.653	42.053	−101.239	305.918	57.949	−1.316
	2400.00	22.509	210.034	191.581	381.887	44.287	−122.195	304.867	47.191	−1.027
	2500.00	22.880	210.961	192.338	384.156	46.556	−143.245	303.852	36.475	−0.762
	2600.00	23.284	211.866	193.072	386.464	48.864	−164.387	302.876	25.799	−0.518
	2700.00	23.716	212.753	193.784	388.814	51.214	−185.618	301.941	15.161	−0.293
	2800.00	24.174	213.623	194.477	391.208	53.608	−206.937	301.051	4.555	−0.085
	2900.00	24.652	214.480	195.152	393.649	56.049	−228.342	0.000	0.000	0.000
	3000.00	25.146	215.324	195.811	396.139	58.539	−249.832	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Ja2	Ja1

Cu3As — TRICOPPER ARSENIDE — 265.560

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	93.080	137.235	137.235	−11.715	0.000	−52.632	−11.715	−12.322	2.159
	300.00	93.136	137.811	137.237	−11.543	0.172	−52.886	−11.724	−12.326	2.146
	400.00	96.148	165.017	140.926	−2.079	9.636	−68.085	−12.245	−12.449	1.626
	500.00	99.161	186.796	147.992	7.687	19.402	−85.711	−12.733	−12.442	1.300
	600.00	102.173	205.141	156.027	17.754	29.469	−105.331	−13.147	−12.343	1.075
	700.00	105.186	221.117	164.208	28.122	39.837	−126.661	−13.481	−12.182	0.909
	800.00	108.198	235.360	172.228	38.791	50.506	−149.497	−13.719	−11.979	0.782
	900.00	111.211	248.278	179.971	49.761	61.476	−173.689	−13.858	−11.752	0.682
	1000.00	114.223	260.151	187.403	61.033	72.748	−199.118	−13.900	−11.515	0.601
	1100.00	117.236	271.179	194.523	72.606	84.321	−225.691	−13.879	−11.277	0.536

References

Phase	H / S	C_p	Remarks
SOL	Nb1/e	e	Hu1 MPT= 1100.

Cu3AsO4 — TRICOPPER ARSENATE — 329.557

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	176.361	255.977	255.977	−710.360	0.000	−786.680	−710.360	−624.041	109.329
	300.00	176.547	257.069	255.980	−710.034	0.326	−787.154	−710.324	−623.506	108.562
	400.00	185.091	309.086	263.015	−691.932	18.428	−815.566	−708.149	−594.883	77.684
	500.00	192.138	351.160	276.567	−673.063	37.297	−848.643	−705.652	−566.850	59.218
	600.00	198.595	386.768	292.040	−653.523	56.837	−885.584	−702.912	−539.343	46.954
	663.00	202.511	406.790	302.005	−640.888	69.472	−910.590	−701.074	−522.261	41.147

References

Phase	H / S	C_p
SOL	G1	G1

468.476 TRICOPPER DIARSENATE **Cu3(AsO4)2**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	258.210	298.612	298.612	−1522.558	0.000	−1611.589	−1522.558	−1315.976	230.553
	300.00	258.845	300.211	298.617	−1522.080	0.478	−1612.143	−1522.524	−1314.694	228.909
	400.00	283.696	378.444	309.115	−1494.827	27.731	−1646.204	−1519.647	−1245.802	162.685
	500.00	299.064	443.501	329.671	−1465.643	56.915	−1687.394	−1515.520	−1177.800	123.044
	600.00	310.699	499.092	353.387	−1435.135	87.423	−1734.590	−1510.753	−1110.696	96.695
	700.00	320.572	547.744	377.748	−1403.561	118.997	−1786.982	−1505.576	−1044.424	77.936
	800.00	329.506	591.141	401.758	−1371.051	151.507	−1843.964	−1500.054	−978.918	63.917
	900.00	337.893	630.440	425.017	−1337.678	184.880	−1905.074	−1494.194	−914.125	53.054
	924.00	339.850	639.358	430.469	−1329.545	193.013	−1920.312	−1492.735	−898.675	50.803

References

Phase	H / S	C_p
SOL	G1	G1

CuBr COPPER MONOBROMIDE 143.450

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL−A	298.15	54.744	96.102	96.102	−105.604	0.000	−134.257	−105.604	−101.678	17.814
	300.00	54.810	96.441	96.103	−105.503	0.101	−134.435	−105.618	−101.654	17.700
	400.00	57.513	112.605	98.289	−99.878	5.726	−144.920	−119.727	−97.357	12.714
	500.00	60.308	125.722	102.503	−93.994	11.610	−156.855	−118.252	−91.931	9.604
	600.00	79.155	136.897	107.287	−87.838	17.766	−169.976	−116.574	−86.796	7.556
	657.00	139.275	146.460	110.238	−81.806	23.798	−178.030	−113.124	−84.100	6.686
			7.005		4.602					
SOL−B	657.00	73.220	153.465	110.238	−77.204	28.400	−178.030	−108.522	−84.100	6.686
	700.00	73.220	158.107	113.037	−74.056	31.548	−184.730	−107.334	−82.539	6.159
	741.00	73.220	162.274	115.648	−71.054	34.550	−191.299	−106.211	−81.119	5.718
			2.880		2.134					
SOL−C	741.00	58.158	165.154	115.648	−68.920	36.684	−191.299	−104.077	−81.119	5.718
	759.00	58.158	166.550	116.838	−67.873	37.731	−194.284	−103.858	−80.564	5.544
			6.725		5.104					
LIQ	759.00	63.329	173.275	116.838	−62.769	42.835	−194.284	−98.754	−80.564	5.544
	800.00	62.182	176.576	119.816	−60.196	45.408	−201.457	−98.073	−79.600	5.197
	900.00	59.760	183.755	126.532	−54.103	51.501	−219.483	−96.635	−77.380	4.491
	1000.00	57.869	189.949	132.571	−48.226	57.378	−238.175	−95.475	−75.305	3.934
	1100.00	56.509	195.396	138.040	−42.512	63.092	−257.448	−94.552	−73.335	3.482
	1200.00	55.680	200.274	143.026	−36.907	68.697	−277.236	−93.833	−71.439	3.110
	1300.00	55.383	204.715	147.603	−31.358	74.246	−297.488	−93.303	−69.596	2.796
	1400.00	55.619	208.825	151.831	−25.812	79.792	−318.168	−106.072	−67.380	2.514
	1500.00	56.387	212.686	155.761	−20.217	85.387	−339.245	−105.659	−64.630	2.251

References

Phase	H / S	C_p
SOL−A	Pa2	Pa2
SOL−B	Pa2	Pa2
SOL−C	Pa2	Pa2
LIQ	Pa2	Pa2

143.450 COPPER MONOBROMIDE (GAS) **CuBr[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	36.154	248.300	248.300	122.591	0.000	48.560	122.591	81.139	−14.215
	300.00	36.171	248.524	248.301	122.658	0.067	48.101	122.543	80.882	−14.083
	400.00	36.806	259.028	249.729	126.311	3.720	22.700	106.462	70.262	−9.175
	500.00	37.132	267.280	252.443	130.009	7.418	−3.631	105.752	61.293	−6.403
	600.00	37.336	274.069	255.498	133.733	11.142	−30.708	104.997	52.472	−4.568
	700.00	37.483	279.836	258.574	137.475	14.884	−58.411	104.196	43.780	−3.267
	800.00	37.599	284.849	261.552	141.229	18.638	−86.650	103.352	35.207	−2.299
	900.00	37.697	289.283	264.391	144.994	22.403	−115.361	102.462	26.741	−1.552
	1000.00	37.784	293.260	267.083	148.768	26.177	−144.492	101.519	18.378	−0.960
	1100.00	37.864	296.865	269.629	152.551	29.960	−174.001	100.510	10.112	−0.480
	1200.00	37.939	300.163	272.038	156.341	33.750	−203.854	99.415	1.942	−0.085
	1300.00	38.011	303.202	274.320	160.138	37.547	−234.025	98.193	−6.133	0.246
	1400.00	38.080	306.022	276.485	163.943	41.352	−264.488	83.683	−13.700	0.511
	1500.00	38.147	308.651	278.542	167.754	45.163	−295.223	82.312	−20.608	0.718
	1600.00	38.213	311.115	280.502	171.572	48.981	−326.212	80.944	−27.425	0.895
	1700.00	38.278	313.434	282.372	175.397	52.806	−357.441	79.580	−34.156	1.049
	1800.00	38.342	315.624	284.159	179.228	56.637	−388.895	78.220	−40.807	1.184
	1900.00	38.405	317.698	285.870	183.065	60.474	−420.562	76.864	−47.383	1.303
	2000.00	38.467	319.670	287.511	186.909	64.318	−452.431	75.512	−53.887	1.407

References

Phase	H / S	C_p
GAS	Pa2	Pa2

223.354 COPPER DIBROMIDE **CuBr2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	75.740	128.867	128.867	−138.490	0.000	−176.912	−138.490	−121.643	21.311
	300.00	75.776	129.336	128.869	−138.350	0.140	−177.151	−138.535	−121.538	21.162
	400.00	77.230	151.354	131.861	−130.693	7.797	−191.234	−167.853	−109.763	14.334
	500.00	78.182	168.695	137.554	−122.920	15.570	−207.267	−166.335	−95.417	9.968
	600.00	78.936	183.018	143.972	−115.063	23.427	−224.873	−164.815	−81.376	7.084

References

Phase	H / S	C_p
SOL	Pa2	Pa2

Cu3Br3[g] TRICOPPER TRIBROMIDE (GAS) 430.350

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	127.853	451.981	451.981	−151.461	0.000	−286.219	−151.461	−188.484	33.022
	300.00	127.917	452.772	451.984	−151.224	0.237	−287.056	−151.570	−188.713	32.858
	400.00	130.167	489.926	457.034	−138.304	13.157	−334.275	−197.852	−191.587	25.019
	500.00	131.227	519.098	466.634	−125.229	26.232	−384.778	−198.002	−190.006	19.850
	600.00	131.818	543.081	477.436	−112.074	39.387	−437.923	−198.283	−188.383	16.400
	700.00	132.187	563.430	488.304	−98.873	52.588	−493.274	−198.708	−186.701	13.932
	800.00	132.439	581.099	498.823	−85.641	65.820	−550.520	−199.273	−184.949	12.076
	900.00	132.622	596.709	508.849	−72.387	79.074	−609.425	−199.982	−183.117	10.628
	1000.00	132.763	610.690	518.346	−59.118	92.343	−669.807	−200.864	−181.198	9.465
	1100.00	132.875	623.349	527.326	−45.835	105.626	−731.519	−201.957	−179.180	8.509
	1200.00	132.969	634.915	535.816	−32.543	118.918	−794.441	−203.320	−177.052	7.707
	1300.00	133.049	645.561	543.854	−19.242	132.219	−858.471	−205.078	−174.795	7.023

References

Phase	H / S	C_p
GAS	Pa2	Pa2

CuCN COPPER CYANIDE 89.564

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	61.024	89.998	89.998	94.977	0.000	68.144	94.977	108.308	−18.975
	300.00	62.196	90.379	89.999	95.091	0.114	67.977	95.003	108.390	−18.872
	400.00	66.740	110.629	92.737	102.134	7.157	57.882	97.057	112.536	−14.696
	500.00	70.252	124.987	97.796	108.572	13.595	46.079	98.133	116.278	−12.148
	600.00	73.113	138.053	103.443	115.743	20.766	32.911	99.612	119.768	−10.427
	700.00	75.703	149.521	109.223	123.186	28.209	18.521	101.081	123.012	−9.179
	746.00	76.803	154.374	111.858	126.694	31.717	11.531	101.761	124.431	−8.713
			16.826		12.552					
LIQ	746.00	83.680	171.200	111.858	139.246	44.269	11.531	114.313	124.431	−8.713
	800.00	83.680	177.048	116.064	143.765	48.788	2.126	115.456	125.123	−8.170
	900.00	83.680	186.904	123.398	152.133	57.156	−16.081	117.427	126.211	−7.325
	1000.00	83.680	195.721	130.197	160.501	65.524	−35.220	119.221	127.089	−6.638
	1100.00	83.680	203.696	136.522	168.869	73.892	−55.197	120.847	127.796	−6.069
	1200.00	83.680	210.977	142.428	177.237	82.260	−75.936	122.299	128.362	−5.587
	1300.00	83.680	217.675	147.962	185.605	90.628	−97.373	123.552	128.815	−5.176
	1400.00	83.680	223.877	153.166	193.973	98.996	−119.455	111.455	129.586	−4.835
	1500.00	83.680	229.650	158.074	202.341	107.364	−142.134	112.445	130.846	−4.556

References

Phase	H / S	C_p
SOL	Ja1	Ja1
LIQ	Ja1	e

98.999 COPPER MONOCHLORIDE **CuCl**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[-]
SOL-A	298.15	52.528	87.743	87.743	-155.645	0.000	-181.805	-155.645	-138.657	24.292
	300.00	52.586	88.068	87.744	-155.548	0.097	-181.968	-155.624	-138.551	24.124
	400.00	55.016	103.352	89.814	-150.230	5.415	-191.571	-154.533	-133.023	17.371
	500.00	57.978	116.072	93.830	-144.524	11.121	-202.560	-153.175	-127.798	13.351
	600.00	65.271	126.942	98.454	-138.552	17.093	-214.718	-151.640	-122.858	10.696
	685.00	113.287	137.994	102.626	-131.418	24.227	-225.944	-148.338	-118.958	9.071
			7.115		4.874					
SOL-B	685.00	79.496	145.109	102.626	-126.544	29.101	-225.944	-149.464	-118.958	9.071
	696.00	79.496	146.376	103.307	-125.670	29.975	-227.547	-143.089	-118.568	8.898
			10.178		7.084					
LIQ	696.00	62.044	156.554	103.307	-118.586	37.059	-227.547	-136.005	-118.568	8.898
	700.00	61.894	156.909	103.613	-118.338	37.307	-228.174	-135.939	-118.468	8.840
	800.00	58.995	164.968	110.794	-112.306	43.339	-244.280	-134.485	-116.075	7.579
	900.00	57.277	171.808	117.202	-106.500	49.145	-261.127	-133.317	-113.846	6.607
	1000.00	56.293	177.787	122.968	-100.826	54.819	-278.613	-132.348	-111.737	5.837
	1100.00	55.788	183.125	128.198	-95.225	60.420	-296.663	-131.529	-109.716	5.210
	1200.00	55.610	187.970	132.981	-89.658	65.987	-315.222	-130.839	-107.765	4.691
	1300.00	55.661	192.422	137.384	-84.096	71.549	-334.244	-130.290	-105.865	4.254
	1400.00	55.881	196.554	141.465	-78.520	77.125	-353.695	-143.023	-103.595	3.865
	1500.00	56.224	200.420	145.267	-72.915	82.730	-373.546	-142.598	-100.794	3.510
	1600.00	56.661	204.063	148.829	-67.272	88.373	-393.772	-142.137	-98.021	3.200
	1700.00	57.170	207.513	152.181	-61.581	94.064	-414.352	-141.632	-95.279	2.928

References

Phase	H / S	C_p
SOL-A	Pa2	Pa2
SOL-B	Pa2	Pa2
LIQ	Pa2	Pa2

CuCl[g] COPPER MONOCHLORIDE (GAS) 98.999

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	35.065	237.192	237.192	91.211	0.000	20.492	91.211	63.641	−11.150
	300.00	35.096	237.409	237.192	91.276	0.065	20.053	91.199	63.470	−11.051
	400.00	36.204	247.679	238.585	94.848	3.637	−4.223	90.545	54.325	−7.094
	500.00	36.744	255.821	241.246	98.499	7.288	−29.412	89.848	45.349	−4.738
	600.00	37.060	262.551	244.252	102.190	10.979	−55.340	89.102	36.519	−3.179
	700.00	37.271	268.280	247.286	105.907	14.696	−81.889	88.306	27.817	−2.076
	800.00	37.425	273.268	250.229	109.642	18.431	−108.972	87.464	19.233	−1.256
	900.00	37.546	277.683	253.039	113.391	22.180	−136.524	86.574	10.757	−0.624
	1000.00	37.648	281.644	255.704	117.151	25.940	−164.493	85.629	2.383	−0.124
	1100.00	37.736	285.237	258.228	120.920	29.709	−192.840	84.616	−5.893	0.280
	1200.00	37.815	288.524	260.618	124.698	33.487	−221.531	83.516	−14.074	0.613
	1300.00	37.887	291.553	262.883	128.483	37.272	−250.536	82.288	−22.157	0.890
	1400.00	37.955	294.364	265.032	132.275	41.064	−279.834	67.771	−29.734	1.109
	1500.00	38.020	296.984	267.076	136.074	44.863	−309.403	66.391	−36.650	1.276
	1600.00	38.081	299.440	269.023	139.879	48.668	−339.225	65.014	−43.475	1.419
	1700.00	38.141	301.751	270.881	143.690	52.479	−369.286	63.639	−50.213	1.543
	1800.00	38.200	303.932	272.657	147.507	56.296	−399.571	62.266	−56.871	1.650
	1900.00	38.257	305.999	274.358	151.330	60.119	−430.069	60.896	−63.452	1.744
	2000.00	38.313	307.963	275.989	155.158	63.947	−460.768	59.528	−69.961	1.827

References

Phase	H / S	C_p
GAS	Pa2	Pa2

CuCl2 COPPER DICHLORIDE 134.451

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	71.865	108.073	108.073	−217.986	0.000	−250.208	−217.986	−173.798	30.449
	300.00	71.982	108.518	108.074	−217.853	0.133	−250.408	−217.961	−173.524	30.213
	400.00	76.322	129.898	110.960	−210.411	7.575	−262.370	−216.479	−158.929	20.754
	500.00	78.639	147.199	116.533	−202.653	15.333	−276.253	−214.854	−144.727	15.120
	600.00	80.159	161.679	122.884	−194.709	23.277	−291.716	−213.165	−130.860	11.392
	675.00	81.041	171.173	127.731	−188.663	29.323	−304.204	−211.874	−120.649	9.336
			1.047		0.707					
SOL−B	675.00	82.425	172.220	127.731	−187.956	30.030	−304.204	−211.167	−120.649	9.336
	700.00	82.425	175.218	129.374	−185.895	32.091	−308.548	−210.702	−117.305	8.753
	800.00	82.425	186.224	135.807	−177.653	40.333	−326.632	−208.890	−104.087	6.796
	900.00	82.425	195.932	141.959	−169.410	48.576	−345.749	−207.149	−91.092	5.287

References

Phase	H / S	C_p
SOL−A	Pa2	Pa2
SOL−B	Pa2	Pa2

296.996

TRICOPPER TRICHLORIDE (GAS) **Cu3Cl3[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	124.439	429.518	429.518	−246.438	0.000	−374.499	−246.438	−245.052	42.932
	300.00	124.541	430.288	429.520	−246.208	0.230	−375.294	−246.438	−245.043	42.666
	400.00	128.130	466.681	434.457	−233.549	12.889	−420.221	−246.458	−244.578	31.939
	500.00	129.805	495.473	443.882	−220.643	25.795	−468.379	−246.595	−244.095	25.500
	600.00	130.727	519.228	454.518	−207.612	38.826	−519.149	−246.876	−243.571	21.205
	700.00	131.293	539.425	465.241	−194.509	51.929	−572.107	−247.311	−242.987	18.132
	800.00	131.670	556.983	475.635	−181.360	65.078	−626.946	−247.896	−242.332	15.823
	900.00	131.936	572.508	485.553	−168.179	78.259	−683.436	−248.630	−241.594	14.022
	1000.00	132.134	586.419	494.956	−154.975	91.463	−741.394	−249.541	−240.765	12.576
	1100.00	132.287	599.020	503.853	−141.753	104.685	−800.676	−250.666	−239.835	11.389
	1200.00	132.410	610.536	512.270	−128.518	117.920	−861.162	−252.063	−238.791	10.394
	1300.00	132.511	621.139	520.242	−115.272	131.166	−922.753	−253.856	−237.615	9.548
	1400.00	132.597	630.962	527.804	−102.017	144.421	−985.364	−295.528	−235.064	8.770
	1500.00	132.671	640.113	534.990	−88.753	157.685	−1048.923	−297.801	−230.665	8.032
	1600.00	132.736	648.678	541.831	−75.483	170.955	−1113.367	−300.078	−226.115	7.382
	1700.00	132.795	656.727	548.355	−62.206	184.232	−1178.641	−302.359	−221.423	6.804
	1800.00	132.848	664.318	554.588	−48.924	197.514	−1244.697	−304.646	−216.596	6.285
	1900.00	132.898	671.503	560.554	−35.636	210.802	−1311.491	−306.938	−211.642	5.818
	2000.00	132.943	678.320	566.274	−22.344	224.094	−1378.985	−309.236	−206.567	5.395

References

Phase	H / S	C_p
GAS	Pa2	Pa2

82.544

COPPER MONOFLUORIDE **CuF**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	49.909	64.852	64.852	−280.328	0.000	−299.664	−280.328	−259.544	45.471
	300.00	50.057	65.161	64.853	−280.236	0.092	−299.784	−280.310	−259.415	45.168
	400.00	55.410	80.397	66.894	−274.927	5.401	−307.086	−279.101	−252.623	32.989
	500.00	58.107	93.079	70.900	−269.238	11.090	−315.778	−277.656	−246.167	25.717
	600.00	59.760	103.830	75.515	−263.339	16.989	−325.637	−276.113	−240.013	20.895
	700.00	60.919	113.133	80.240	−257.302	23.026	−336.496	−274.526	−234.122	17.470
	800.00	61.816	121.329	84.874	−251.164	29.164	−348.227	−272.916	−228.459	14.917
	900.00	62.559	128.654	89.338	−244.944	35.384	−360.733	−271.295	−223.000	12.943
	1000.00	63.208	135.279	93.606	−238.655	41.673	−373.934	−269.681	−217.720	11.373
	1100.00	63.794	141.331	97.674	−232.305	48.023	−387.769	−268.089	−212.601	10.096
	1200.00	64.338	146.906	101.547	−225.898	54.430	−402.185	−266.541	−207.626	9.038
	1300.00	64.853	152.076	105.238	−219.438	60.890	−417.137	−265.082	−202.776	8.148
	1400.00	65.346	156.900	108.758	−212.928	67.400	−432.589	−276.871	−197.628	7.374
	1500.00	65.823	161.425	112.119	−206.370	73.958	−448.507	−275.486	−192.016	6.687

References

Phase	H / S	C_p
SOL	Ja1	K2

CuF[g] COPPER MONOFLUORIDE (GAS) 82.544

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	33.379	226.464	226.464	−12.552	0.000	−80.072	−12.552	−39.953	7.000
	300.00	33.414	226.670	226.464	−12.490	0.062	−80.491	−12.564	−40.123	6.986
	400.00	34.878	236.501	227.795	−9.069	3.483	−103.670	−13.243	−49.207	6.426
	500.00	35.763	244.387	230.351	−5.534	7.018	−127.727	−13.952	−58.117	6.071
	600.00	36.327	250.961	233.253	−1.927	10.625	−152.504	−14.701	−66.880	5.822
	700.00	36.711	256.591	236.195	1.726	14.278	−177.888	−15.498	−75.514	5.635
	800.00	36.989	261.512	239.058	5.411	17.963	−203.799	−16.340	−84.031	5.487
	900.00	37.201	265.882	241.800	9.121	21.673	−230.172	−17.230	−92.439	5.365
	1000.00	37.370	269.810	244.408	12.850	25.402	−256.960	−18.176	−100.746	5.262
	1100.00	37.509	273.379	246.882	16.594	29.146	−284.122	−19.190	−108.954	5.174
	1200.00	37.628	276.648	249.228	20.351	32.903	−311.626	−20.292	−117.067	5.096
	1300.00	37.732	279.664	251.455	24.119	36.671	−339.444	−21.524	−125.083	5.026
	1400.00	37.825	282.463	253.571	27.897	40.449	−367.552	−36.046	−132.591	4.947
	1500.00	37.910	285.076	255.585	31.684	44.236	−395.930	−37.432	−139.439	4.856
	1600.00	37.988	287.525	257.506	35.479	48.031	−424.561	−38.817	−146.194	4.773
	1700.00	38.061	289.830	259.340	39.281	51.833	−453.430	−40.199	−152.863	4.697
	1800.00	38.131	292.008	261.095	43.091	55.643	−482.523	−41.581	−159.450	4.627
	1900.00	38.197	294.071	262.777	46.907	59.459	−511.828	−42.960	−165.961	4.563
	2000.00	38.260	296.032	264.391	50.730	63.282	−541.334	−44.338	−172.399	4.503

References

Phase	H / S	C_p
GAS	Ja1	Ja1

101.543 COPPER DIFLUORIDE **CuF2**

Phase	T	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[–]
SOL	298.15	65.557	77.446	77.446	−538.899	0.000	−561.989	−538.899	−491.638	86.133
	300.00	65.683	77.852	77.447	−538.778	0.121	−562.133	−538.881	−491.345	85.551
	400.00	72.384	97.686	80.106	−531.867	7.032	−570.941	−537.677	−475.670	62.116
	500.00	77.738	114.440	85.340	−524.349	14.550	−581.569	−536.084	−460.345	48.092
	600.00	81.923	128.997	91.429	−516.358	22.541	−593.756	−534.186	−445.371	38.773
	700.00	84.787	141.849	97.732	−508.017	30.882	−607.312	−532.069	−430.733	32.142
	800.00	87.050	153.324	103.977	−499.421	39.478	−622.080	−529.804	−416.410	27.189
	900.00	88.863	163.686	110.045	−490.622	48.277	−637.939	−527.429	−402.377	23.353
	1000.00	90.348	173.128	115.888	−481.659	57.240	−654.787	−524.981	−388.613	20.299
	1100.00	91.595	181.799	121.491	−472.560	66.339	−672.539	−522.494	−375.097	17.812
	1109.00	91.697	182.546	121.984	−471.736	67.163	−674.179	−522.269	−373.892	17.611
			49.801		55.229					
LIQ	1109.00	100.416	232.347	121.984	−416.507	122.392	−674.179	−467.040	−373.892	17.611
	1200.00	100.416	240.266	130.657	−407.369	131.530	−695.687	−464.026	−366.370	15.948
	1300.00	100.416	248.303	139.402	−397.327	141.572	−720.121	−460.857	−358.361	14.399
	1400.00	100.416	255.745	147.449	−387.285	151.614	−745.328	−470.997	−350.184	13.066
	1500.00	100.416	262.673	154.903	−377.244	161.655	−771.253	−468.017	−341.658	11.898
	1600.00	100.416	269.154	161.843	−367.202	171.697	−797.848	−465.049	−333.331	10.882
	1700.00	100.416	275.241	168.336	−357.161	181.738	−825.071	−462.094	−325.189	9.992
	1800.00	100.416	280.981	174.436	−347.119	191.780	−852.885	−459.149	−317.221	9.206
	1900.00	100.416	286.410	180.188	−337.077	201.822	−881.257	−456.215	−309.416	8.506
	1943.80	100.416	288.699	182.608	−332.679	206.220	−893.852	−454.933	−306.047	8.224

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	BPT= 1943.8, L= 81.132 kJ

CuF2[g] COPPER DIFLUORIDE (GAS) 101.543

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	47.994	267.090	267.090	-266.939	0.000	-346.572	-266.939	-276.221	48.393
	300.00	48.061	267.388	267.091	-266.850	0.089	-347.066	-266.953	-276.278	48.104
	400.00	51.253	281.677	269.018	-261.875	5.064	-374.546	-267.685	-279.274	36.470
	500.00	53.334	293.356	272.753	-256.638	10.301	-403.316	-268.373	-282.092	29.470
	600.00	54.639	303.204	277.029	-251.234	15.705	-433.157	-269.062	-284.771	24.792
	700.00	55.484	311.694	281.389	-245.725	21.214	-463.911	-269.777	-287.333	21.441
	800.00	56.057	319.143	285.652	-240.146	26.793	-495.461	-270.530	-289.790	18.921
	900.00	56.465	325.770	289.748	-234.519	32.420	-527.713	-271.326	-292.151	16.956
	1000.00	56.773	331.736	293.654	-228.857	38.082	-560.593	-272.178	-294.419	15.379
	1100.00	57.019	337.159	297.366	-223.167	43.772	-594.042	-273.100	-296.599	14.084
	1200.00	57.230	342.130	300.892	-217.454	49.485	-628.010	-274.111	-298.692	13.002
	1300.00	57.423	346.718	304.243	-211.721	55.218	-662.455	-275.251	-300.695	12.082
	1400.00	57.608	350.981	307.431	-205.970	60.969	-697.342	-289.681	-302.198	11.275
	1500.00	57.793	354.961	310.469	-200.200	66.739	-732.642	-290.973	-303.047	10.553
	1600.00	57.985	358.697	313.367	-194.411	72.528	-768.327	-292.258	-303.810	9.918
	1700.00	58.188	362.219	316.138	-188.602	78.337	-804.374	-293.536	-304.493	9.356
	1800.00	58.405	365.551	318.792	-182.773	84.166	-840.764	-294.803	-305.101	8.854
	1900.00	58.637	368.715	321.337	-176.921	90.018	-877.479	-296.058	-305.639	8.403
	2000.00	58.888	371.729	323.781	-171.045	95.894	-914.502	-297.299	-306.111	7.995

References

Phase	H / S	C_p
GAS	Ja1	Ja1

183.525 COPPER IRON DISULFIDE **CuFeS2**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)		] [		kJ / mol		]	[−]
SOL−A	298.15	96.646	124.976	124.976	−190.372	0.000	−227.634	−190.372	−190.497	33.374
	300.00	96.822	125.574	124.978	−190.193	0.179	−227.865	−190.369	−190.498	33.169
	400.00	104.903	154.591	128.880	−180.087	10.285	−241.924	−194.545	−190.398	24.863
	500.00	111.520	178.726	136.501	−169.259	21.113	−258.622	−196.935	−189.123	19.758
	600.00	117.561	199.599	145.315	−157.802	32.570	−277.561	−198.337	−187.407	16.315
	700.00	123.330	218.156	154.419	−145.756	44.616	−298.465	−198.914	−185.534	13.845
	800.00	128.953	234.993	163.454	−133.141	57.231	−321.135	−199.360	−183.593	11.987
	830.00	130.622	239.771	166.126	−129.247	61.125	−328.257	−199.544	−182.999	11.517
			12.148		10.083					
SOL−B	830.00	89.357	251.919	166.126	−119.164	71.208	−328.257	−189.461	−182.999	11.517
	900.00	218.505	264.312	173.220	−108.389	81.983	−346.270	−293.829	−180.138	10.455
	930.00	273.855	272.379	176.284	−101.003	89.369	−354.316	−289.722	−176.412	9.908
			0.000		0.000					
SOL−C	930.00	172.464	272.379	176.284	−101.003	89.369	−354.316	−289.722	−176.412	9.908
	1000.00	172.464	284.895	183.454	−88.931	101.441	−373.826	−285.652	−168.037	8.777
	1100.00	172.464	301.333	193.435	−71.685	118.687	−403.151	−280.545	−156.509	7.432
	1200.00	172.464	316.339	203.061	−54.438	135.934	−434.045	−275.119	−145.493	6.333

References

Phase	H / S	C_p
SOL−A	K2	K2
SOL−B	K2	K2
SOL−C	K2	K2

Cu5FeS4 PENTACOPPER IRON TETRASULFIDE 501.841

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL-A	298.15	245.603	362.334	362.334	-380.326	0.000	-488.356	-380.326	-392.553	68.774
	300.00	245.952	363.855	362.339	-379.871	0.455	-489.028	-380.312	-392.629	68.363
	400.00	263.375	437.054	372.202	-354.385	25.941	-529.207	-388.242	-396.509	51.779
	485.00	276.980	489.081	388.235	-331.416	48.910	-568.620	-391.795	-397.985	42.863
			12.336		5.983					
SOL-B	485.00	357.669	501.417	388.235	-325.433	54.893	-568.620	-385.812	-397.985	42.863
	500.00	373.171	512.546	391.797	-319.951	60.375	-576.224	-385.080	-398.372	41.618
	540.00	414.509	542.836	401.858	-304.198	76.128	-597.329	-381.708	-399.553	38.649
			0.000		0.000					
SOL-C	540.00	341.953	542.836	401.858	-304.198	76.128	-597.329	-381.708	-399.553	38.649
	600.00	332.001	578.302	417.769	-284.006	96.320	-630.987	-379.624	-401.650	34.967
	700.00	324.522	628.805	444.416	-251.254	129.072	-691.417	-376.812	-405.557	30.263
	800.00	323.790	672.035	470.227	-218.880	161.446	-756.508	-375.120	-409.794	26.757
	900.00	326.983	710.327	494.816	-186.366	193.960	-825.660	-585.342	-409.577	23.771
	1000.00	332.611	745.052	518.129	-153.403	226.923	-898.455	-578.667	-390.413	20.393
	1100.00	339.832	777.082	540.232	-119.791	260.535	-974.581	-572.500	-371.869	17.659
	1200.00	348.136	807.001	561.229	-85.400	294.926	-1053.801	-565.609	-353.951	15.407

References

Phase	H / S	C_p
SOL-A	K2	K2
SOL-B	K2	K2
SOL-C	K2	K2

190.450 COPPER MONOIODIDE **CuI**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	54.056	96.596	96.596	−67.781	0.000	−96.581	−67.781	−69.379	12.155
	300.00	54.140	96.931	96.597	−67.681	0.100	−96.760	−67.777	−69.389	12.082
	400.00	57.185	113.023	98.770	−62.080	5.701	−107.289	−75.488	−69.692	9.101
	500.00	60.570	126.027	102.958	−56.246	11.535	−119.260	−96.314	−66.250	6.921
	600.00	76.984	138.232	107.810	−49.528	18.253	−132.467	−94.090	−60.421	5.260
	642.00	128.815	145.174	110.010	−45.206	22.575	−138.408	−91.674	−58.134	4.730
			4.822		3.096					
SOL−B	642.00	138.490	149.997	110.010	−42.110	25.671	−138.408	−88.578	−58.134	4.730
	680.00	138.490	157.960	112.470	−36.847	30.934	−144.260	−85.049	−56.434	4.335
			3.894		2.648					
SOL−C	680.00	68.618	161.855	112.470	−34.199	33.582	−144.260	−82.401	−56.434	4.335
	700.00	68.618	163.844	113.909	−32.827	34.954	−147.517	−81.945	−55.677	4.155
	800.00	68.618	173.006	120.736	−25.965	41.816	−164.370	−79.694	−52.079	3.400
	868.00	68.618	178.604	125.053	−21.299	46.482	−176.327	−78.195	−49.794	2.996
			9.139		7.933					
LIQ	868.00	66.538	187.743	125.053	−13.366	54.415	−176.327	−70.262	−49.794	2.996
	900.00	65.748	190.138	127.325	−11.250	56.531	−182.374	−69.644	−49.051	2.847
	1000.00	63.450	196.944	133.955	−4.792	62.989	−201.736	−67.915	−46.858	2.448
	1100.00	61.426	202.894	139.957	1.450	69.231	−221.734	−66.476	−44.824	2.129
	1200.00	59.676	208.162	145.426	7.502	75.283	−242.292	−65.319	−42.909	1.868
	1300.00	58.199	212.879	150.436	13.394	81.175	−263.348	−64.458	−41.078	1.651
	1400.00	56.991	217.146	155.051	19.151	86.932	−284.853	−77.026	−38.896	1.451
	1500.00	56.057	221.044	159.323	24.801	92.582	−306.765	−76.571	−36.189	1.260
	1600.00	55.401	224.640	163.294	30.372	98.153	−329.052	−76.198	−33.510	1.094

References

Phase	H / S	C_p
SOL−A	K2	Pa2
SOL−B	Pa2	Pa2
SOL−C	Pa2	Pa2
LIQ	Pa2	Pa2

CuI[g] COPPER MONOIODIDE (GAS) 190.450

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	36.425	255.702	255.702	142.256	0.000	66.019	142.256	93.220	−16.331
	300.00	36.440	255.927	255.702	142.323	0.067	65.545	142.228	92.916	−16.178
	400.00	36.978	266.494	257.139	145.998	3.742	39.400	132.590	76.997	−10.055
	500.00	37.254	274.778	259.868	149.711	7.455	12.322	109.644	65.331	−6.825
	600.00	37.427	281.586	262.937	153.445	11.189	−15.506	108.883	56.540	−4.992
	700.00	37.551	287.366	266.025	157.195	14.939	−43.961	108.077	47.879	−3.573
	800.00	37.650	292.386	269.013	160.955	18.699	−72.954	107.226	39.337	−2.568
	900.00	37.733	296.826	271.861	164.724	22.468	−102.419	106.329	30.904	−1.794
	1000.00	37.807	300.805	274.560	168.501	26.245	−132.304	105.378	22.574	−1.179
	1100.00	37.874	304.412	277.113	172.285	30.029	−162.568	104.359	14.342	−0.681
	1200.00	37.938	307.710	279.527	176.076	33.820	−193.176	103.254	6.207	−0.270
	1300.00	37.998	310.749	281.813	179.873	37.617	−224.101	102.020	−1.832	0.074
	1400.00	38.057	313.567	283.982	183.675	41.419	−255.319	87.498	−9.362	0.349
	1500.00	38.113	316.195	286.043	187.484	45.228	−286.808	86.112	−16.232	0.565
	1600.00	38.169	318.656	288.005	191.298	49.042	−318.552	84.728	−23.010	0.751
	1700.00	38.224	320.972	289.877	195.118	52.862	−350.535	83.348	−29.702	0.913
	1800.00	38.278	323.158	291.666	198.943	56.687	−382.742	81.969	−36.312	1.054
	1900.00	38.331	325.229	293.378	202.773	60.517	−415.163	80.593	−42.845	1.178
	2000.00	38.384	327.197	295.020	206.609	64.353	−447.785	79.220	−49.307	1.288

References

Phase	H / S	C_p
GAS	Pa2	Pa2

Cu3I3[g] TRICOPPER TRIIODIDE (GAS) 571.351

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	129.104	464.533	464.533	−16.736	0.000	−155.237	−16.736	−73.631	12.900
	300.00	129.154	465.332	464.536	−16.497	0.239	−156.097	−16.784	−73.984	12.882
	400.00	130.894	502.762	469.627	−3.482	13.254	−204.587	−43.706	−91.795	11.987
	500.00	131.696	532.066	479.291	9.652	26.388	−256.381	−110.549	−97.352	10.170
	600.00	132.127	556.119	490.151	22.845	39.581	−310.826	−110.841	−94.688	8.243
	700.00	132.384	576.507	501.068	36.071	52.807	−367.484	−111.282	−91.963	6.862
	800.00	132.548	594.196	511.628	49.319	66.055	−426.038	−111.869	−89.165	5.822
	900.00	132.657	609.815	521.687	62.579	79.315	−486.254	−112.605	−86.284	5.008
	1000.00	132.733	623.796	531.211	75.849	92.585	−547.947	−113.521	−83.312	4.352
	1100.00	132.787	636.449	540.212	89.125	105.861	−610.969	−114.652	−80.239	3.810
	1200.00	132.826	648.005	548.720	102.406	119.142	−675.200	−116.059	−77.051	3.354
	1300.00	132.855	658.638	556.772	115.690	132.426	−740.539	−117.867	−73.730	2.963

References

Phase	H / S	C_p
GAS	K2	K2

112.156 **1–COPPER 2–MAGNESIUM** **CuMg2**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	74.307	92.257	92.257	–28.619	0.000	–56.125	–28.619	–26.752	4.687
	300.00	74.354	92.717	92.259	–28.481	0.138	–56.297	–28.619	–26.741	4.656
	400.00	76.864	114.451	95.205	–20.921	7.698	–66.701	–28.653	–26.111	3.410
	500.00	79.375	131.873	100.852	–13.109	15.510	–79.045	–28.741	–25.467	2.660
	600.00	81.885	146.566	107.277	–5.046	23.573	–92.985	–28.871	–24.800	2.159
	700.00	84.395	159.377	113.824	3.268	31.887	–108.296	–29.040	–24.109	1.799
	800.00	86.906	170.811	120.245	11.833	40.452	–124.815	–29.245	–23.391	1.527
	841.00	87.935	175.180	122.817	15.418	44.037	–131.908	–29.338	–23.089	1.434

References

Phase	H / S	C_p	Remarks	
SOL	Tk1/Ku1	Tk1,e	Tk1	MPT= 841.

151.397 **2–COPPER 1–MAGNESIUM** **Cu2Mg**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	73.932	102.926	102.926	–33.514	0.000	–64.202	–33.514	–34.683	6.076
	300.00	73.974	103.384	102.928	–33.377	0.137	–64.392	–33.514	–34.690	6.040
	400.00	76.256	124.977	105.857	–25.866	7.648	–75.857	–33.539	–35.080	4.581
	500.00	78.538	142.239	111.463	–18.126	15.388	–89.245	–33.593	–35.460	3.704
	600.00	80.820	156.759	117.833	–10.158	23.356	–104.214	–33.651	–35.828	3.119
	700.00	83.102	169.389	124.315	–1.962	31.552	–120.534	–33.708	–36.186	2.700
	800.00	85.384	180.635	130.665	6.462	39.976	–138.046	–33.756	–36.536	2.386
	900.00	87.666	190.823	136.791	15.115	48.629	–156.626	–33.795	–36.882	2.141
	1000.00	89.948	200.178	142.669	23.995	57.509	–176.183	–42.789	–36.464	1.905
	1092.00	92.047	208.185	147.855	32.367	65.881	–194.971	–42.760	–35.883	1.716

References

Phase	H / S	C_p	Remarks	
SOL	Tk1	e	Tk1	MPT= 1092.

CuMoO4 — COPPER MOLYBDATE — 223.484

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f [-]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	117.281	131.796	131.796	-911.694	0.000	-950.989	-911.694	-810.247	141.952
	300.00	117.575	132.522	131.798	-911.477	0.217	-951.233	-911.675	-809.617	140.967
	400.00	129.631	168.144	136.573	-899.066	12.628	-966.323	-910.153	-775.804	101.310
	500.00	137.863	197.996	145.953	-885.673	26.021	-984.671	-907.990	-742.457	77.564
	600.00	144.590	223.741	156.820	-871.542	40.152	-1005.786	-905.415	-709.587	61.775
	700.00	150.606	246.488	168.036	-856.778	54.916	-1029.319	-902.507	-677.174	50.531
	800.00	156.244	266.969	179.143	-841.433	70.261	-1055.009	-899.281	-645.200	42.127
	900.00	161.661	285.687	189.956	-825.536	86.158	-1082.654	-895.738	-613.649	35.615
	1000.00	166.942	302.994	200.405	-809.105	102.589	-1112.099	-891.879	-582.510	30.427
	1100.00	172.133	319.149	210.473	-792.151	119.543	-1143.215	-887.712	-551.772	26.201
	1123.00	173.317	322.723	212.736	-788.178	123.516	-1150.596	-886.711	-544.759	25.339

References

Phase	H / S	C_p	Remarks	
SOL	Tk1	e	Tk1	DPT= 1123. (LIQ + Cu3Mo2O9)

CuO — COPPER MONOXIDE — 79.545

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f [-]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	42.244	42.593	42.593	-156.063	0.000	-168.762	-156.063	-128.292	22.476
	300.00	42.363	42.855	42.594	-155.985	0.078	-168.841	-156.057	-128.120	22.308
	400.00	46.808	55.727	44.319	-151.500	4.563	-173.791	-155.551	-118.875	15.523
	500.00	49.264	66.457	47.704	-146.687	9.376	-179.915	-154.829	-109.786	11.469
	600.00	50.937	75.595	51.610	-141.672	14.391	-187.029	-154.014	-100.853	8.780
	700.00	52.241	83.548	55.617	-136.511	19.552	-194.995	-153.155	-92.061	6.870
	800.00	53.348	90.598	59.557	-131.231	24.832	-203.709	-152.268	-83.393	5.445
	900.00	54.340	96.939	63.364	-125.845	30.218	-213.091	-151.361	-74.838	4.343
	1000.00	55.260	102.713	67.014	-120.365	35.698	-223.077	-150.446	-66.385	3.468
	1100.00	56.135	108.021	70.504	-114.795	41.268	-233.618	-149.536	-58.023	2.755
	1200.00	56.978	112.941	73.838	-109.139	46.924	-244.669	-148.650	-49.743	2.165
	1300.00	57.798	117.535	77.025	-103.400	52.663	-256.195	-147.829	-41.535	1.669
	1397.00	58.578	121.722	79.984	-97.756	58.307	-267.801	-160.257	-33.252	1.243

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	NDPT= 1397. (Cu2O + O2)

79.545 COPPER MONOXIDE (GAS) **CuO**[g]

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	35.694	234.623	234.623	306.269	0.000	236.316	306.269	276.786	-48.492
	300.00	35.710	234.843	234.623	306.335	0.066	235.882	306.263	276.603	-48.161
	400.00	36.401	245.219	236.033	309.943	3.674	211.856	305.892	266.771	-34.837
	500.00	36.830	253.392	238.716	313.607	7.338	186.911	305.464	257.039	-26.853
	600.00	37.114	260.133	241.740	317.305	11.036	161.225	304.963	247.400	-21.538
	700.00	37.319	265.870	244.788	321.027	14.758	134.917	304.383	237.851	-17.749
	800.00	37.476	270.864	247.742	324.767	18.498	108.075	303.729	228.391	-14.912
	900.00	37.604	275.286	250.562	328.521	22.252	80.764	303.005	219.016	-12.711
	1000.00	37.713	279.254	253.236	332.287	26.018	53.033	302.206	209.726	-10.955
	1100.00	37.809	282.853	255.767	336.063	29.794	24.925	301.322	200.520	-9.522
	1200.00	37.896	286.146	258.164	339.849	33.580	-3.527	300.338	191.399	-8.331
	1300.00	37.976	289.183	260.434	343.642	37.373	-32.296	299.213	182.365	-7.328
	1400.00	38.051	292.000	262.590	347.444	41.175	-61.357	284.789	173.831	-6.486
	1500.00	38.123	294.628	264.639	351.252	44.983	-90.689	283.493	165.950	-5.779
	1600.00	38.191	297.090	266.591	355.068	48.799	-120.277	282.191	158.156	-5.163
	1700.00	38.258	299.408	268.454	358.890	52.621	-150.103	280.883	150.444	-4.623
	1800.00	38.323	301.596	270.235	362.719	56.450	-180.154	279.570	142.809	-4.144
	1900.00	38.386	303.670	271.941	366.555	60.286	-210.418	278.251	135.247	-3.718
	2000.00	38.448	305.641	273.577	370.397	64.128	-240.884	276.927	127.755	-3.337

References

Phase	H / S	C_p
GAS	Ja1	Ja1

Cu2O DICOPPER OXIDE 143.091

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	62.544	92.341	92.341	−170.707	0.000	−198.238	−170.707	−147.880	25.908
	300.00	62.666	92.728	92.342	−170.591	0.116	−198.410	−170.709	−147.739	25.724
	400.00	67.668	111.505	94.868	−164.052	6.655	−208.654	−170.641	−140.084	18.293
	500.00	70.939	126.976	99.788	−157.113	13.594	−220.601	−170.356	−132.475	13.840
	600.00	73.475	140.141	105.443	−149.888	20.819	−233.973	−169.950	−124.935	10.877
	700.00	75.650	151.634	111.238	−142.430	28.277	−248.574	−169.468	−117.470	8.766
	800.00	77.626	161.866	116.939	−134.765	35.942	−264.258	−168.922	−110.078	7.187
	900.00	79.484	171.117	122.453	−126.909	43.798	−280.914	−168.319	−102.758	5.964
	1000.00	81.267	179.585	127.748	−118.871	51.836	−298.455	−167.681	−95.507	4.989
	1100.00	83.414	187.425	132.821	−110.643	60.064	−316.810	−167.018	−88.322	4.194
	1200.00	86.123	194.796	137.681	−102.169	68.538	−335.925	−166.310	−81.198	3.534
	1300.00	89.197	201.809	142.347	−93.406	77.301	−355.758	−165.592	−74.135	2.979
	1400.00	92.516	208.540	146.836	−84.322	86.385	−376.277	−191.151	−66.313	2.474
	1500.00	96.004	215.041	151.167	−74.897	95.810	−397.458	−190.116	−57.430	2.000
	1516.70	96.600	216.107	151.876	−73.289	97.418	−401.058	−189.910	−55.954	1.927
			42.703		64.768					
LIQ	1516.70	99.914	258.810	151.876	−8.521	162.186	−401.058	−125.142	−55.954	1.927
	1600.00	99.914	264.152	157.584	−0.198	170.509	−422.841	−123.819	−52.190	1.704
	1700.00	99.914	270.209	164.033	9.793	180.500	−449.563	−122.243	−47.761	1.468
	1800.00	99.914	275.920	170.092	19.785	190.492	−476.872	−120.678	−43.425	1.260
	1900.00	99.914	281.322	175.805	29.776	200.483	−504.736	−119.125	−39.176	1.077
	2000.00	99.914	286.447	181.210	39.768	210.475	−533.127	−117.584	−35.008	0.914

References

Phase	H / S	C_p
SOL	Ja1	Ja1
LIQ	Ja1	Ja1

151.392 COPPER IRON DIOXIDE **CuFeO2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	79.996	88.868	88.868	−512.958	0.000	−539.454	−512.958	−460.268	80.637
	300.00	80.258	89.364	88.870	−512.810	0.148	−539.619	−512.956	−459.941	80.083
	400.00	89.757	113.934	92.155	−504.247	8.711	−549.820	−512.483	−442.326	57.762
	500.00	94.558	134.529	98.629	−495.008	17.950	−562.273	−511.717	−424.873	44.386
	600.00	97.510	152.048	106.109	−485.395	27.563	−576.624	−510.971	−407.576	35.483
	700.00	99.589	167.243	113.781	−475.535	37.423	−592.605	−510.369	−390.394	29.132
	800.00	101.203	180.651	121.318	−465.492	47.466	−610.013	−510.005	−373.283	24.373
	900.00	102.546	192.650	128.589	−455.303	57.655	−628.688	−510.029	−356.196	20.673
	1000.00	103.721	203.517	135.547	−444.989	67.969	−648.505	−510.787	−339.072	17.711
	1091.00	104.694	212.592	141.600	−435.505	77.453	−667.443	−512.264	−323.371	15.482
			0.346		0.377					
SOL−B	1091.00	107.937	212.938	141.600	−435.128	77.830	−667.443	−511.887	−323.371	15.482
	1100.00	108.073	213.825	142.187	−434.156	78.802	−669.364	−511.919	−321.816	15.282
	1200.00	109.579	223.293	148.556	−423.273	89.685	−691.226	−512.709	−304.518	13.255
	1300.00	111.085	232.124	154.649	−412.240	100.718	−714.001	−511.829	−287.205	11.540
	1400.00	112.591	240.411	160.482	−401.056	111.902	−737.632	−524.204	−269.549	10.057
	1470.00	113.646	245.930	164.420	−393.138	119.820	−754.655	−523.650	−256.830	9.126
			43.776		64.350					
LIQ	1470.00	126.708	289.706	164.420	−328.788	184.170	−754.655	−459.300	−256.830	9.126
	1500.00	126.708	292.266	166.951	−324.987	187.971	−763.385	−458.671	−252.704	8.800
	1600.00	126.708	300.443	175.042	−312.316	200.642	−793.025	−456.646	−239.039	7.804

References

Phase	H / S	C_p
SOL−A	K2	K2
SOL−B	K2	K2
LIQ	K2	K2

CuFe2O4 COPPER DIIRON TETRAOXIDE 239.238

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL-A	298.15	148.378	146.758	146.758	-967.968	0.000	-1011.724	-967.968	-863.240	151.236
	300.00	148.920	147.678	146.761	-967.693	0.275	-1011.996	-967.939	-862.590	150.190
	400.00	172.088	193.927	152.910	-951.561	16.407	-1029.132	-965.495	-827.797	108.099
	500.00	189.138	234.224	165.229	-933.471	34.497	-1050.583	-961.788	-793.782	82.926
	600.00	203.779	270.026	179.766	-913.812	54.156	-1075.827	-957.245	-760.595	66.216
	675.00	213.979	294.621	191.177	-898.143	69.825	-1097.012	-953.388	-736.242	56.974
			1.116		0.753					
SOL-B	675.00	227.191	295.737	191.177	-897.390	70.578	-1097.012	-952.635	-736.242	56.974
	700.00	227.191	303.999	195.059	-891.710	76.258	-1104.510	-950.985	-728.257	54.343
	795.00	227.191	332.912	209.842	-870.127	97.841	-1134.792	-945.180	-698.416	45.889
			0.000		0.000					
SOL-C	795.00	198.619	332.912	209.842	-870.127	97.841	-1134.792	-945.180	-698.416	45.889
	800.00	198.824	334.158	210.615	-869.133	98.835	-1136.460	-945.040	-696.865	45.501
	900.00	202.924	357.813	225.677	-849.046	118.922	-1171.077	-942.603	-665.997	38.653
	1000.00	207.024	379.405	239.986	-828.548	139.420	-1207.954	-941.416	-635.343	33.187
	1100.00	211.125	399.329	253.577	-807.641	160.327	-1246.903	-941.531	-604.701	28.715
	1200.00	215.225	417.875	266.505	-786.324	181.644	-1287.774	-940.565	-574.159	24.992
	1300.00	219.325	435.264	278.824	-764.596	203.372	-1330.439	-936.016	-543.809	21.851
	1358.00	221.703	444.889	285.712	-751.806	216.162	-1355.965	-933.383	-526.369	20.246
			9.613		13.054					
LIQ	1358.00	225.936	454.502	285.712	-738.752	229.216	-1355.965	-920.329	-526.369	20.246
	1400.00	225.936	461.383	290.880	-729.263	238.705	-1375.200	-931.383	-513.810	19.170
	1500.00	225.936	476.971	302.772	-706.669	261.299	-1422.126	-926.577	-484.152	16.860

References

Phase	H / S	C_p
SOL-A	K2	K2
SOL-B	K2	K2
SOL-C	K2	K2
LIQ	K2	K2

Cu(OH)2 COPPER HYDROXIDE 97.561

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	87.850	87.027	87.027	-443.086	0.000	-469.033	-443.086	-359.018	62.899
	300.00	87.967	87.571	87.029	-442.923	0.163	-469.195	-443.076	-358.497	62.420
	400.00	92.917	113.610	90.546	-433.860	9.226	-479.304	-442.383	-330.400	43.146
	500.00	96.458	134.739	97.337	-424.385	18.701	-491.754	-441.452	-302.508	31.603
	600.00	99.444	152.595	105.096	-414.587	28.499	-506.144	-440.362	-274.819	23.925
	700.00	102.168	168.131	113.015	-404.505	38.581	-522.196	-439.146	-247.323	18.455

References

Phase	H / S	C_p
SOL	K2	K2

239.155 DICOPPER OXIDE SULFATE **Cu2OSO4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	140.210	157.318	157.318	−927.593	0.000	−974.497	−927.593	−792.253	138.799
	300.00	140.837	158.188	157.321	−927.333	0.260	−974.789	−927.602	−791.413	137.797
	400.00	164.456	202.332	163.180	−911.932	15.661	−992.865	−929.196	−745.971	97.414
	500.00	177.825	240.575	174.927	−894.769	32.824	−1015.056	−928.706	−700.225	73.152
	600.00	187.160	273.861	188.703	−876.498	51.095	−1040.815	−927.149	−654.657	56.993
	700.00	194.590	303.287	203.010	−857.399	70.194	−1069.700	−924.846	−609.417	45.475
	800.00	201.005	329.698	217.223	−837.613	89.980	−1101.372	−922.212	−564.533	36.860
	900.00	206.829	353.714	231.075	−817.218	110.375	−1135.560	−972.088	−518.842	30.113
	1000.00	212.287	375.790	244.457	−796.260	131.333	−1172.050	−967.289	−468.736	24.484
	1100.00	217.505	396.270	257.338	−774.768	152.825	−1210.665	−962.223	−419.124	19.903
	1138.00	219.443	403.689	262.102	−766.466	161.127	−1225.865	−960.235	−400.396	18.378

References

Phase	H / S	C_p	Remarks
SOL	Ja1	Ja1	Ja1 NDPT= 1138.4 (CuO + SO3 + SO2 + O2)

125.494 COPPER DIPHOSPHIDE **CuP2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	71.083	81.588	81.588	−121.001	0.000	−145.326	−121.001	−110.949	19.438
	300.00	71.124	82.028	81.589	−120.869	0.132	−145.478	−121.003	−110.886	19.307
	400.00	73.354	102.794	84.406	−113.646	7.355	−154.763	−122.775	−107.110	13.987
	500.00	75.584	119.402	89.798	−106.199	14.802	−165.900	−123.155	−103.146	10.776
	600.00	77.814	133.380	95.926	−98.529	22.472	−178.557	−123.370	−99.122	8.629
	700.00	80.044	145.543	102.164	−90.636	30.365	−192.516	−123.417	−95.074	7.095
	800.00	82.274	156.377	108.275	−82.520	38.481	−207.621	−123.291	−91.032	5.944
	900.00	84.504	166.196	114.174	−74.181	46.820	−223.757	−122.993	−87.015	5.050
	1000.00	86.734	175.215	119.833	−65.619	55.382	−240.834	−122.531	−83.041	4.338
	1100.00	88.964	183.586	125.252	−56.834	64.167	−258.779	−121.916	−79.121	3.757

References

Phase	H / S	C_p
SOL	Nb1/Ku1	e

Cu3P TRICOPPER PHOSPHIDE 221.612

Phase	T [K]	C_p J/(K mol)	S J/(K mol)	−(G−H298)/T J/(K mol)	H kJ/mol	H−H298 kJ/mol	G kJ/mol	ΔH_f kJ/mol	ΔG_f kJ/mol	log K_f [−]
SOL	298.15	87.802	119.244	119.244	−151.461	0.000	−187.014	−151.461	−145.105	25.422
	300.00	87.864	119.787	119.246	−151.299	0.162	−187.235	−151.478	−145.066	25.258
	400.00	91.211	145.523	122.732	−142.345	9.116	−200.554	−153.255	−142.591	18.621
	500.00	94.558	166.235	129.426	−133.056	18.405	−216.174	−154.286	−139.803	14.605
	600.00	97.906	183.771	137.058	−123.433	28.028	−233.696	−155.153	−136.822	11.911
	700.00	101.253	199.115	144.849	−113.475	37.986	−252.856	−155.852	−133.709	9.978
	800.00	104.600	212.854	152.506	−103.183	48.278	−273.466	−156.367	−130.509	8.521
	900.00	107.947	225.367	159.916	−92.555	58.906	−295.386	−156.699	−127.255	7.386
	1000.00	111.294	236.914	167.046	−81.593	69.868	−318.507	−156.873	−123.972	6.476
	1100.00	114.642	247.678	173.892	−70.296	81.165	−342.742	−156.924	−120.679	5.731
	1200.00	117.989	257.797	180.467	−58.665	92.796	−368.021	−220.483	−116.295	5.062
	1300.00	121.336	267.373	186.787	−46.699	104.762	−394.284	−219.755	−107.643	4.325

References

Phase	H / S	C_p	Remarks	
SOL	Nb1/Ku1	e	Tk1	MPT= 1295.

CuS COPPER SULFIDE 95.612

Phase	T [K]	C_p J/(K mol)	S J/(K mol)	−(G−H298)/T J/(K mol)	H kJ/mol	H−H298 kJ/mol	G kJ/mol	ΔH_f kJ/mol	ΔG_f kJ/mol	log K_f [−]
SOL	298.15	47.824	66.484	66.484	−53.095	0.000	−72.917	−53.095	−53.472	9.368
	300.00	47.844	66.780	66.485	−53.007	0.088	−73.040	−53.094	−53.474	9.311
	400.00	48.949	80.695	68.375	−48.167	4.928	−80.445	−55.328	−53.513	6.988
	500.00	50.053	91.736	71.980	−43.217	9.878	−89.085	−56.843	−52.906	5.527
	600.00	51.158	100.959	76.062	−38.156	14.939	−98.732	−57.978	−52.003	4.527
	700.00	52.262	108.928	80.200	−32.985	20.110	−109.235	−58.791	−50.941	3.801
	800.00	53.367	115.979	84.240	−27.704	25.391	−120.487	−59.594	−49.766	3.249
	900.00	54.471	122.329	88.125	−22.312	30.783	−132.408	−113.184	−47.336	2.747
	1000.00	55.576	128.125	91.839	−16.809	36.286	−144.934	−112.352	−40.063	2.093
	1100.00	56.681	133.474	95.384	−11.197	41.898	−158.018	−111.486	−32.876	1.561
	1200.00	57.785	138.453	98.768	−5.473	47.622	−171.617	−110.607	−25.769	1.122
	1300.00	58.890	143.122	102.002	0.360	53.455	−185.698	−109.754	−18.734	0.753

References

Phase	H / S	C_p
SOL	Nb1	Ku1,e

95.612 COPPER SULFIDE (GAS) **CuS[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	35.119	252.614	252.614	320.494	0.000	245.177	320.494	264.623	−46.361
	300.00	35.146	252.831	252.614	320.559	0.065	244.710	320.472	264.276	−46.015
	400.00	36.094	263.091	254.007	324.128	3.634	218.891	316.966	245.823	−32.101
	500.00	36.536	271.198	256.663	327.762	7.268	192.163	314.136	228.341	−23.855
	600.00	36.780	277.883	259.659	331.428	10.934	164.699	311.607	211.428	−18.406
	700.00	36.930	283.565	262.678	335.115	14.621	136.619	309.309	194.913	−14.545
	800.00	37.030	288.503	265.604	338.813	18.319	108.010	306.922	178.732	−11.670
	900.00	37.101	292.869	268.396	342.520	22.026	78.938	251.647	164.010	−9.519
	1000.00	37.154	296.781	271.042	346.233	25.739	49.452	250.690	154.323	−8.061
	1100.00	37.196	300.324	273.546	349.950	29.456	19.594	249.661	144.735	−6.873
	1200.00	37.229	303.562	275.914	353.671	33.177	−10.603	248.538	135.245	−5.887
	1300.00	37.256	306.543	278.157	357.396	36.902	−41.110	247.281	125.854	−5.057
	1400.00	37.280	309.305	280.284	361.123	40.629	−71.904	232.731	116.973	−4.364
	1500.00	37.300	311.878	282.306	364.852	44.358	−102.965	231.312	108.754	−3.787
	1600.00	37.318	314.285	284.230	368.582	48.088	−134.274	229.890	100.629	−3.285
	1700.00	37.334	316.548	286.065	372.315	51.821	−165.817	228.465	92.594	−2.845
	1800.00	37.349	318.683	287.819	376.049	55.555	−197.580	227.039	84.643	−2.456
	1900.00	37.363	320.702	289.497	379.785	59.291	−229.550	225.609	76.771	−2.111
	2000.00	37.376	322.619	291.105	383.522	63.028	−261.717	224.177	68.975	−1.801

References

Phase	H / S	C_p
GAS	Mi1	Mi1

Cu2S DICOPPER SULFIDE 159.158

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	76.910	116.152	116.152	−81.170	0.000	−115.801	−81.170	−86.468	15.149
	300.00	77.090	116.628	116.153	−81.028	0.142	−116.016	−81.160	−86.500	15.061
	376.00	84.475	134.838	118.131	−74.888	6.282	−125.587	−80.988	−87.905	12.212
			9.625		3.619					
SOL−B	376.00	100.249	144.463	118.131	−71.269	9.901	−125.587	−80.988	−87.905	12.212
	400.00	99.203	150.634	119.898	−68.876	12.294	−129.129	−78.576	−88.543	11.563
	500.00	95.215	172.331	128.311	−59.160	22.010	−145.325	−77.886	−91.149	9.522
	600.00	91.755	189.378	137.120	−49.815	31.355	−163.442	−77.356	−93.850	8.170
	700.00	88.779	203.292	145.610	−40.792	40.378	−183.097	−76.992	−96.633	7.211
	720.00	88.241	205.786	147.247	−39.022	42.148	−187.188	−76.965	−97.194	7.051
			1.628		1.172					
SOL−C	720.00	82.969	207.414	147.247	−37.850	43.320	−187.188	−76.965	−97.194	7.051
	800.00	82.718	216.142	153.708	−31.223	49.947	−204.137	−76.233	−99.550	6.500
	900.00	82.398	225.867	161.197	−22.967	58.203	−226.247	−129.735	−101.271	5.878
	1000.00	82.090	234.532	168.105	−14.743	66.427	−249.275	−129.015	−98.148	5.127
	1100.00	81.795	242.342	174.504	−6.549	74.621	−273.125	−128.473	−95.089	4.515
	1200.00	81.504	249.447	180.458	1.616	82.786	−297.720	−128.147	−92.071	4.008
	1300.00	81.204	255.959	186.019	9.752	90.922	−322.994	−128.119	−89.068	3.579
	1400.00	80.877	261.965	191.232	17.856	99.026	−348.895	−154.711	−85.241	3.180
			9.175		12.845					
LIQ	1400.00	89.663	271.140	191.232	30.701	111.871	−348.895	−154.711	−85.241	3.180
	1500.00	89.663	277.326	196.768	39.668	120.838	−376.321	−141.332	−81.215	2.828
	1600.00	89.663	283.113	201.985	48.634	129.804	−404.346	−140.803	−77.224	2.521
	1700.00	89.663	288.549	206.919	57.600	138.770	−432.932	−140.278	−73.266	2.251
	1800.00	89.663	293.674	211.598	66.567	147.737	−462.046	−139.757	−69.340	2.012
	1900.00	89.663	298.521	216.046	75.533	156.703	−491.658	−139.240	−65.442	1.799
	2000.00	89.663	303.121	220.286	84.499	165.669	−521.742	−138.728	−61.571	1.608

References

Phase	H / S	C_p
SOL−A	Pa3	Pa3
SOL−B	Pa3	Pa3
SOL−C	Pa3	Pa3
LIQ	Pa3	Pa3

159.610 COPPER SULFATE **CuSO4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	98.769	109.002	109.002	−771.358	0.000	−803.857	−771.358	−662.082	115.994
	300.00	99.143	109.614	109.003	−771.175	0.183	−804.059	−771.371	−661.404	115.161
	400.00	115.401	140.520	113.107	−760.393	10.965	−816.601	−773.606	−624.623	81.567
	500.00	127.012	167.579	121.353	−748.245	23.113	−832.034	−774.040	−587.332	61.358
	600.00	135.927	191.558	131.094	−735.079	36.279	−850.014	−773.389	−550.032	47.885
	700.00	142.813	213.052	141.294	−721.127	50.231	−870.263	−771.929	−512.914	38.274
	800.00	147.948	232.476	151.497	−706.575	64.783	−892.556	−770.137	−476.033	31.082
	900.00	151.467	250.120	161.491	−691.591	79.767	−916.699	−820.945	−438.234	25.434
	1000.00	153.439	266.195	171.170	−676.333	95.025	−942.528	−817.281	−395.906	20.680
	1078.00	153.930	277.743	178.468	−664.340	107.018	−963.747	−814.450	−363.147	17.596

References

Phase	H / S	C_p	Remarks
SOL	Co1,Nb1	Ja1	Ja1 NDPT= 1078.

223.156 DICOPPER SULFATE **Cu2SO4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	120.287	182.422	182.422	−751.400	0.000	−805.789	−751.400	−654.127	114.600
	300.00	120.416	183.167	182.425	−751.177	0.223	−806.127	−751.419	−653.523	113.789
	400.00	127.361	218.759	187.231	−738.789	12.611	−826.292	−754.539	−620.660	81.050
	500.00	134.306	247.925	196.536	−725.705	25.695	−849.668	−756.600	−586.967	61.320
	600.00	141.252	273.026	207.238	−711.927	39.473	−875.743	−757.956	−552.899	48.134
	700.00	148.197	295.322	218.257	−697.455	53.945	−904.180	−758.652	−518.661	38.703
	800.00	155.143	315.564	229.174	−682.288	69.112	−934.739	−758.969	−484.351	31.625
	900.00	162.088	334.238	239.823	−666.426	84.974	−967.241	−811.676	−448.871	26.052
	1000.00	169.034	351.676	250.146	−649.870	101.530	−1001.546	−809.548	−408.669	21.347

References

Phase	H / S	C_p
SOL	Nb1	e

CuSO4*H2O COPPER SULFATE MONOHYDRATE 177.625

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	133.991	145.997	145.997	−1085.832	0.000	−1129.361	−1085.832	−918.042	160.837
	300.00	134.380	146.827	145.999	−1085.584	0.248	−1129.632	−1085.860	−917.001	159.664
	400.00	150.518	187.882	151.487	−1071.274	14.558	−1146.427	−1088.959	−860.461	112.365
	500.00	161.795	222.733	162.339	−1055.635	30.197	−1167.002	−1090.354	−803.181	83.908
	600.00	171.159	253.078	174.987	−1038.977	46.855	−1190.824	−1090.719	−745.693	64.918

References

Phase	H / S	C_p
SOL−A	Nb1	K2

CuSO4*3H2O COPPER SULFATE TRIHYDRATE 213.655

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	205.001	221.300	221.300	−1684.311	0.000	−1750.292	−1684.311	−1399.884	245.254
	300.00	205.389	222.569	221.304	−1683.931	0.380	−1750.702	−1684.369	−1398.118	243.434
	400.00	221.518	284.049	229.577	−1662.522	21.789	−1776.142	−1689.151	−1302.198	170.050
	500.00	232.840	334.747	245.688	−1639.781	44.530	−1807.155	−1692.348	−1205.099	125.896
	600.00	242.269	378.051	264.226	−1616.016	68.295	−1842.846	−1694.624	−1107.418	96.409

References

Phase	H / S	C_p
SOL−A	Nb1	K2

249.686 COPPER SULFATE PENTAHYDRATE **CuSO4*5H2O**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	281.190	300.399	300.399	-2279.648	0.000	-2369.212	-2279.648	-1879.715	329.318
	300.00	281.578	302.139	300.404	-2279.127	0.521	-2369.769	-2279.726	-1877.233	326.855
	400.00	297.696	385.538	311.666	-2250.099	29.549	-2404.314	-2285.672	-1742.394	227.533
	500.00	308.963	453.229	333.419	-2219.743	59.905	-2446.357	-2290.159	-1606.066	167.785
	600.00	318.322	510.405	358.273	-2188.369	91.279	-2494.612	-2293.842	-1468.886	127.878

References

Phase	H / S	C_p
SOL	Nb1	K2

248.842 2-COPPER ANTIMONY **Cu2Sb**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL-I	298.15	76.566	126.482	126.482	-12.134	0.000	-49.845	-12.134	-16.497	2.890
	300.00	76.617	126.956	126.484	-11.992	0.142	-50.079	-12.129	-16.524	2.877
	374.00	78.661	144.065	128.325	-6.247	5.887	-60.127	-11.949	-17.628	2.462
			5.930		2.218					
SOL-II	374.00	78.611	149.996	128.325	-4.029	8.105	-60.127	-9.731	-17.628	2.462
	400.00	79.329	155.303	129.907	-1.976	10.158	-64.097	-9.662	-18.179	2.374
	500.00	82.090	173.301	136.843	6.095	18.229	-80.555	-9.335	-20.344	2.125
	600.00	84.852	188.512	144.218	14.442	26.576	-98.665	-8.906	-22.585	1.966
	700.00	87.613	201.799	151.514	23.065	35.199	-118.194	-8.390	-24.904	1.858
	800.00	90.374	213.679	158.555	31.965	44.099	-138.978	-7.810	-27.302	1.783

References

Phase	H / S	C_p
SOL-I	Tk1/Ku1	Ku1,e
SOL-II	Tk1	e

CuSe — COPPER SELENIDE — 142.506

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol	]		[−]
SOL−B	298.15	81.424	78.241	78.241	−41.840	0.000	−65.167	−41.840	−42.680	7.477
	300.00	81.563	78.745	78.242	−41.689	0.151	−65.313	−41.781	−42.686	7.432
	326.40	83.543	85.706	78.567	−39.510	2.330	−67.484	−40.932	−42.801	6.850
			4.231		1.381					
SOL−O	326.40	83.595	89.937	78.567	−38.129	3.711	−67.484	−39.551	−42.801	6.850
	400.00	83.442	106.921	82.275	−31.982	9.858	−74.750	−37.235	−43.781	5.717
	500.00	83.232	125.518	89.134	−23.648	18.192	−86.407	−40.274	−45.672	4.771
	600.00	83.023	140.674	96.500	−15.335	26.505	−99.740	−38.095	−46.957	4.088
	700.00	82.814	153.456	103.747	−7.044	34.796	−114.463	−35.992	−48.601	3.627
	800.00	82.605	164.501	110.667	1.227	43.067	−130.373	−33.961	−50.542	3.300
	900.00	82.396	174.218	117.199	9.477	51.317	−147.319	−32.001	−52.733	3.061
	1000.00	82.186	182.889	123.342	17.706	59.546	−165.182	−30.121	−55.139	2.880
	1100.00	81.977	190.712	129.117	25.915	67.755	−183.869	−81.644	−52.774	2.506
	1200.00	81.768	197.836	134.551	34.102	75.942	−203.302	−78.520	−50.288	2.189
	1300.00	81.559	204.373	139.674	42.268	84.108	−223.417	−75.536	−48.057	1.931

References

Phase	H / S	C_p
SOL−B	Mi1	e
SOL−O	Mi1	e

Cu2Se[B] — DICOPPER SELENIDE — 206.052

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol	]		[−]
SOL−B	298.15	81.424	129.704	129.704	−65.270	0.000	−103.941	−65.270	−71.566	12.538
	300.00	81.563	130.208	129.706	−65.119	0.151	−104.182	−65.257	−71.605	12.468
	395.40	88.720	153.672	132.748	−56.997	8.273	−117.758	−64.427	−73.736	9.741
			17.248		6.820					
SOL−A	395.40	83.451	170.920	132.748	−50.177	15.093	−117.758	−57.607	−73.736	9.741
	400.00	83.442	171.885	133.192	−49.793	15.477	−118.547	−57.584	−73.924	9.653
	500.00	83.232	190.482	142.860	−41.459	23.811	−136.700	−63.185	−77.967	8.145
	600.00	83.023	205.639	152.099	−33.146	32.124	−156.530	−63.626	−80.884	7.042
	700.00	82.814	218.421	160.685	−24.855	40.415	−177.749	−64.197	−83.717	6.247
	800.00	82.605	229.466	168.608	−16.584	48.686	−200.156	−64.892	−86.460	5.645
	900.00	82.396	239.183	175.920	−8.334	56.936	−223.598	−65.707	−89.108	5.172
	1000.00	82.186	247.853	182.688	−0.105	65.165	−247.958	−66.662	−91.659	4.788

References

Phase	H / S	C_p	Remarks	
SOL−B	Mi1	Mi1		
SOL−A	Mi1	Mi1	Mi1	MPT= 1390.

190.504 COPPER SELENITE **CuSeO3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	97.834	103.345	103.345	−431.454	0.000	−462.266	−431.454	−348.032	60.974
	300.00	97.947	103.950	103.347	−431.273	0.181	−462.458	−431.447	−347.515	60.508
	400.00	104.098	132.970	107.262	−421.171	10.283	−474.359	−430.962	−319.606	41.736
	500.00	110.248	156.860	114.859	−410.453	21.001	−488.883	−436.205	−291.755	30.479
	600.00	116.399	177.504	123.616	−399.121	32.333	−505.623	−435.746	−262.901	22.888
	700.00	122.549	195.909	132.651	−387.174	44.280	−524.310	−434.870	−234.157	17.473
	800.00	128.700	212.675	141.621	−374.611	56.843	−544.751	−433.553	−205.568	13.422

References

Phase	H / S	C_p
SOL	Nb1,e	e

191.146 COPPER TELLURIDE **CuTe**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	54.444	86.609	86.609	−25.104	0.000	−50.926	−25.104	−26.281	4.604
	300.00	54.506	86.946	86.610	−25.003	0.101	−51.087	−25.096	−26.288	4.577
	400.00	58.082	103.106	88.789	−19.377	5.727	−60.620	−24.648	−26.752	3.493
	500.00	61.906	116.475	93.025	−13.379	11.725	−71.616	−24.118	−27.337	2.856
	600.00	65.827	128.107	97.922	−6.993	18.111	−83.857	−23.479	−28.039	2.441
	613.00	66.341	129.524	98.577	−6.134	18.970	−85.532	−23.387	−28.139	2.398

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1	Mi1	NDPT= 613.

Cu2Te DICOPPER TELLURIDE 254.692

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	75.799	134.725	134.725	−41.840	0.000	−82.008	−41.840	−47.475	8.317
	300.00	75.898	135.194	134.726	−41.700	0.140	−82.258	−41.838	−47.510	8.272
	400.00	81.253	157.762	137.767	−33.842	7.998	−96.947	−41.651	−49.425	6.454
	433.00	83.021	164.272	139.541	−31.132	10.708	−102.261	−41.553	−50.070	6.040
			0.513		0.222					
SOL−B	433.00	83.648	164.785	139.541	−30.910	10.930	−102.261	−41.331	−50.070	6.040
	500.00	87.236	177.071	143.761	−25.185	16.655	−113.721	−41.025	−51.444	5.374
	531.00	88.897	182.368	145.862	−22.455	19.385	−119.293	−40.853	−52.095	5.125
			3.586		1.904					
SOL−C	531.00	112.968	185.954	145.862	−20.551	21.289	−119.293	−38.949	−52.095	5.125
	590.00	112.968	197.856	150.476	−13.886	27.954	−130.621	−37.240	−53.648	4.750
			1.631		0.962					
SOL−D	590.00	133.888	199.487	150.476	−12.924	28.916	−130.621	−36.278	−53.648	4.750
	600.00	133.888	201.737	151.312	−11.585	30.255	−132.627	−35.791	−53.946	4.696
	633.00	133.888	208.906	154.129	−7.167	34.673	−139.404	−34.207	−54.988	4.538
			3.867		2.448					
SOL−E	633.00	98.427	212.773	154.129	−4.719	37.121	−139.404	−31.759	−54.988	4.538
	700.00	97.278	222.619	160.222	1.838	43.678	−153.996	−31.065	−57.484	4.290
	800.00	95.563	235.497	168.847	11.480	53.320	−176.918	−48.065	−59.427	3.880
	841.00	94.859	240.255	172.214	15.383	57.223	−186.672	−47.968	−60.011	3.727
			2.373		1.996					
SOL−Z	841.00	87.446	242.629	172.214	17.379	59.219	−186.672	−45.972	−60.011	3.727
	900.00	87.446	248.558	177.026	22.538	64.378	−201.164	−46.322	−60.985	3.539
	1000.00	87.446	257.771	184.648	31.283	73.123	−226.488	−47.012	−62.578	3.269
	1100.00	87.446	266.106	191.680	40.028	81.868	−252.689	−47.844	−64.096	3.044
	1128.00	87.446	268.304	193.555	42.476	84.316	−260.170	−48.106	−64.506	2.987

References

Phase	H / S	C_p	Remarks	
SOL−A	Mi1	K8		
SOL−B	K8	K8		
SOL−C	K8	K8		
SOL−D	K8	K8		
SOL−E	K8	K8		
SOL−Z	K8	K8	Tk1	MPT= 1128.

2.014 **DEUTERIUM (GAS)** **D[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.786	123.350	123.350	221.720	0.000	184.943	221.720	206.553	−36.187
	300.00	20.786	123.479	123.350	221.758	0.038	184.715	221.731	206.459	−35.948
	400.00	20.786	129.458	124.166	223.837	2.117	172.054	222.349	201.275	−26.284
	500.00	20.786	134.097	125.705	225.916	4.196	158.867	222.963	195.935	−20.469
	600.00	20.786	137.886	127.429	227.994	6.274	145.262	223.568	190.473	−16.582
	700.00	20.786	141.091	129.158	230.073	8.353	131.309	224.156	184.910	−13.798
	800.00	20.786	143.866	130.827	232.151	10.431	117.059	224.722	179.264	−11.705
	900.00	20.786	146.314	132.414	234.230	12.510	102.547	225.262	173.549	−10.073
	1000.00	20.786	148.504	133.916	236.309	14.589	87.804	225.773	167.776	−8.764
	1100.00	20.786	150.485	135.333	238.387	16.667	72.853	226.256	161.953	−7.690
	1200.00	20.786	152.294	136.673	240.466	18.746	57.713	226.710	156.087	−6.794
	1300.00	20.786	153.958	137.939	242.544	20.824	42.399	227.137	150.184	−6.034
	1400.00	20.786	155.498	139.139	244.623	22.903	26.925	227.540	144.249	−5.382
	1500.00	20.786	156.932	140.278	246.702	24.982	11.303	227.919	138.286	−4.816
	1600.00	20.786	158.274	141.361	248.780	27.060	−4.458	228.276	132.299	−4.319
	1700.00	20.786	159.534	142.393	250.859	29.139	−20.349	228.614	126.290	−3.880
	1800.00	20.786	160.722	143.379	252.937	31.217	−36.362	228.933	120.262	−3.490
	1900.00	20.786	161.846	144.322	255.016	33.296	−52.491	229.236	114.216	−3.140
	2000.00	20.786	162.912	145.225	257.095	35.375	−68.730	229.523	108.155	−2.825
	2100.00	20.786	163.926	146.091	259.173	37.453	−85.072	229.796	102.080	−2.539
	2200.00	20.786	164.893	146.924	261.252	39.532	−101.513	230.056	95.992	−2.279
	2300.00	20.786	165.817	147.726	263.330	41.610	−118.049	230.302	89.893	−2.042
	2400.00	20.786	166.702	148.498	265.409	43.689	−134.675	230.538	83.783	−1.823
	2500.00	20.786	167.550	149.243	267.488	45.768	−151.388	230.762	77.663	−1.623
	2600.00	20.786	168.366	149.963	269.566	47.846	−168.184	230.975	71.535	−1.437
	2700.00	20.786	169.150	150.659	271.645	49.925	−185.060	231.178	65.399	−1.265
	2800.00	20.786	169.906	151.333	273.723	52.003	−202.013	231.372	59.255	−1.105
	2900.00	20.786	170.635	151.986	275.802	54.082	−219.041	231.556	53.105	−0.957
	3000.00	20.786	171.340	152.620	277.881	56.161	−236.140	231.731	46.949	−0.817
	3100.00	20.786	172.022	153.235	279.959	58.239	−253.308	231.898	40.786	−0.687
	3200.00	20.786	172.682	153.832	282.038	60.318	−270.543	232.056	34.619	−0.565
	3300.00	20.786	173.321	154.413	284.116	62.396	−287.844	232.205	28.447	−0.450
	3400.00	20.786	173.942	154.979	286.195	64.475	−305.207	232.346	22.270	−0.342
	3500.00	20.786	174.544	155.529	288.274	66.554	−322.631	232.479	16.089	−0.240
	3600.00	20.786	175.130	156.065	290.352	68.632	−340.115	232.604	9.905	−0.144
	3700.00	20.786	175.699	156.588	292.431	70.711	−357.657	232.721	3.717	−0.052
	3800.00	20.786	176.254	157.099	294.509	72.789	−375.255	232.830	−2.473	0.034
	3900.00	20.786	176.794	157.597	296.588	74.868	−392.907	232.932	−8.667	0.116
	4000.00	20.786	177.320	158.083	298.667	76.947	−410.613	233.025	−14.863	0.194
	4100.00	20.786	177.833	158.559	300.745	79.025	−428.371	233.110	−21.061	0.268
	4200.00	20.786	178.334	159.024	302.824	81.104	−446.179	233.188	−27.261	0.339
	4300.00	20.786	178.823	159.478	304.902	83.182	−464.037	233.258	−33.463	0.407
	4400.00	20.786	179.301	159.923	306.981	85.261	−481.943	233.320	−39.667	0.471
	4500.00	20.786	179.768	160.359	309.060	87.340	−499.897	233.375	−45.872	0.532
	4600.00	20.786	180.225	160.786	311.138	89.418	−517.897	233.422	−52.078	0.591
	4700.00	20.786	180.672	161.205	313.217	91.497	−535.941	233.462	−58.285	0.648
	4800.00	20.786	181.110	161.615	315.295	93.575	−554.031	233.495	−64.493	0.702
	4900.00	20.786	181.538	162.017	317.374	95.654	−572.163	233.520	−70.701	0.754
	5000.00	20.786	181.958	162.412	319.453	97.733	−590.338	233.539	−76.910	0.803

References

Phase	H / S	C_p
GAS	Ja2	Ja2

D2[g] DEUTERIUM (GAS) 4.028

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	29.194	144.960	144.960	0.000	0.000	−43.220	0.000	0.000	0.000
	300.00	29.195	145.141	144.961	0.054	0.054	−43.488	0.000	0.000	0.000
	400.00	29.242	153.545	146.106	2.976	2.976	−58.442	0.000	0.000	0.000
	500.00	29.366	160.081	148.271	5.905	5.905	−74.136	0.000	0.000	0.000
	600.00	29.621	165.456	150.701	8.853	8.853	−90.420	0.000	0.000	0.000
	700.00	30.007	170.049	153.144	11.833	11.833	−107.201	0.000	0.000	0.000
	800.00	30.500	174.087	155.515	14.858	14.858	−124.412	0.000	0.000	0.000
	900.00	31.059	177.712	157.783	17.936	17.936	−142.005	0.000	0.000	0.000
	1000.00	31.635	181.014	159.943	21.071	21.071	−159.943	0.000	0.000	0.000
	1100.00	32.209	184.056	161.999	24.263	24.263	−178.199	0.000	0.000	0.000
	1200.00	32.762	186.883	163.956	27.512	27.512	−196.747	0.000	0.000	0.000
	1300.00	33.283	189.526	165.822	30.814	30.814	−215.569	0.000	0.000	0.000
	1400.00	33.766	192.010	167.605	34.167	34.167	−234.647	0.000	0.000	0.000
	1500.00	34.213	194.355	169.311	37.566	37.566	−253.967	0.000	0.000	0.000
	1600.00	34.624	196.577	170.946	41.008	41.008	−273.514	0.000	0.000	0.000
	1700.00	35.004	198.687	172.517	44.490	44.490	−293.278	0.000	0.000	0.000
	1800.00	35.353	200.698	174.027	48.008	48.008	−313.248	0.000	0.000	0.000
	1900.00	35.676	202.618	175.481	51.560	51.560	−333.415	0.000	0.000	0.000
	2000.00	35.975	204.456	176.885	55.143	55.143	−353.769	0.000	0.000	0.000
	2100.00	36.253	206.218	178.240	58.754	58.754	−374.303	0.000	0.000	0.000
	2200.00	36.512	207.910	179.550	62.392	62.392	−395.010	0.000	0.000	0.000
	2300.00	36.755	209.539	180.819	66.056	66.056	−415.883	0.000	0.000	0.000
	2400.00	36.984	211.108	182.048	69.743	69.743	−436.916	0.000	0.000	0.000
	2500.00	37.201	212.622	183.241	73.452	73.452	−458.103	0.000	0.000	0.000
	2600.00	37.407	214.085	184.400	77.183	77.183	−479.439	0.000	0.000	0.000
	2700.00	37.605	215.501	185.525	80.933	80.933	−500.919	0.000	0.000	0.000
	2800.00	37.795	216.872	186.621	84.703	84.703	−522.538	0.000	0.000	0.000
	2900.00	37.978	218.201	187.687	88.492	88.492	−544.292	0.000	0.000	0.000
	3000.00	38.156	219.492	188.726	92.299	92.299	−566.177	0.000	0.000	0.000
	3100.00	38.329	220.746	189.738	96.123	96.123	−588.189	0.000	0.000	0.000
	3200.00	38.498	221.965	190.726	99.965	99.965	−610.325	0.000	0.000	0.000
	3300.00	38.665	223.153	191.691	103.823	103.823	−632.581	0.000	0.000	0.000
	3400.00	38.829	224.309	192.634	107.697	107.697	−654.954	0.000	0.000	0.000
	3500.00	38.991	225.437	193.555	111.589	111.589	−677.442	0.000	0.000	0.000
	3600.00	39.152	226.538	194.456	115.496	115.496	−700.041	0.000	0.000	0.000
	3700.00	39.311	227.613	195.337	119.419	119.419	−722.748	0.000	0.000	0.000
	3800.00	39.470	228.663	196.201	123.358	123.358	−745.562	0.000	0.000	0.000
	3900.00	39.628	229.691	197.046	127.313	127.313	−768.480	0.000	0.000	0.000
	4000.00	39.785	230.696	197.875	131.283	131.283	−791.500	0.000	0.000	0.000
	4100.00	39.941	231.680	198.687	135.270	135.270	−814.619	0.000	0.000	0.000
	4200.00	40.096	232.644	199.485	139.272	139.272	−837.835	0.000	0.000	0.000
	4300.00	40.250	233.590	200.267	143.289	143.289	−861.147	0.000	0.000	0.000
	4400.00	40.402	234.517	201.035	147.322	147.322	−884.552	0.000	0.000	0.000
	4500.00	40.553	235.426	201.789	151.369	151.369	−908.050	0.000	0.000	0.000
	4600.00	40.701	236.319	202.530	155.432	155.432	−931.637	0.000	0.000	0.000
	4700.00	40.846	237.196	203.258	159.510	159.510	−955.313	0.000	0.000	0.000
	4800.00	40.989	238.058	203.974	163.601	163.601	−979.076	0.000	0.000	0.000
	4900.00	41.127	238.904	204.678	167.707	167.707	−1002.924	0.000	0.000	0.000
	5000.00	41.262	239.737	205.371	171.827	171.827	−1026.856	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Ja2	Ja2

37.467 HYDROGEN CHLORIDE–D1 (GAS) **DCl[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	29.169	192.741	192.741	−93.345	0.000	−150.811	−93.345	−95.940	16.808
	300.00	29.172	192.921	192.742	−93.291	0.054	−151.167	−93.349	−95.956	16.707
	400.00	29.403	201.340	193.888	−90.364	2.981	−170.900	−93.617	−96.786	12.639
	500.00	29.913	207.951	196.062	−87.400	5.945	−191.376	−93.903	−97.544	10.190
	600.00	30.613	213.465	198.515	−84.375	8.970	−212.454	−94.170	−98.247	8.553
	700.00	31.380	218.241	201.000	−81.276	12.069	−234.045	−94.399	−98.908	7.381
	800.00	32.140	222.482	203.425	−78.099	15.246	−256.085	−94.588	−99.539	6.499
	900.00	32.846	226.309	205.758	−74.849	18.496	−278.527	−94.739	−100.148	5.812
	1000.00	33.466	229.802	207.990	−71.533	21.812	−301.335	−94.861	−100.742	5.262
	1100.00	34.013	233.018	210.121	−68.158	25.187	−324.478	−94.959	−101.326	4.812
	1200.00	34.490	235.999	212.155	−64.733	28.612	−347.931	−95.040	−101.901	4.436
	1300.00	34.905	238.776	214.097	−61.263	32.082	−371.671	−95.107	−102.470	4.117
	1400.00	35.266	241.376	215.954	−57.753	35.592	−395.680	−95.165	−103.034	3.844
	1500.00	35.581	243.820	217.731	−54.211	39.134	−419.941	−95.217	−103.594	3.607
	1600.00	35.858	246.126	219.434	−50.639	42.706	−444.440	−95.263	−104.151	3.400
	1700.00	36.102	248.307	221.069	−47.040	46.305	−469.162	−95.308	−104.705	3.217
	1800.00	36.318	250.377	222.640	−43.419	49.926	−494.098	−95.351	−105.257	3.054
	1900.00	36.512	252.346	224.152	−39.777	53.568	−519.235	−95.394	−105.806	2.909
	2000.00	36.686	254.223	225.609	−36.117	57.228	−544.564	−95.437	−106.353	2.778
	2100.00	36.844	256.017	227.015	−32.441	60.904	−570.076	−95.483	−106.897	2.659
	2200.00	36.988	257.734	228.373	−28.749	64.596	−595.765	−95.530	−107.440	2.551
	2300.00	37.120	259.382	229.685	−25.043	68.302	−621.621	−95.581	−107.980	2.452
	2400.00	37.242	260.964	230.956	−21.325	72.020	−647.639	−95.634	−108.518	2.362
	2500.00	37.355	262.487	232.187	−17.595	75.750	−673.812	−95.692	−109.054	2.279
	2600.00	37.460	263.954	233.380	−13.855	79.490	−700.134	−95.753	−109.587	2.202
	2700.00	37.558	265.369	234.539	−10.104	83.241	−726.601	−95.820	−110.118	2.130
	2800.00	37.650	266.737	235.665	−6.343	87.002	−753.206	−95.891	−110.646	2.064
	2900.00	37.737	268.060	236.759	−2.574	90.771	−779.947	−95.968	−111.172	2.002
	3000.00	37.819	269.340	237.824	1.204	94.549	−806.817	−96.051	−111.694	1.945
	3100.00	37.897	270.582	238.861	4.990	98.335	−833.813	−96.139	−112.214	1.891
	3200.00	37.972	271.786	239.871	8.783	102.128	−860.932	−96.235	−112.731	1.840
	3300.00	38.043	272.956	240.856	12.584	105.929	−888.169	−96.337	−113.245	1.793
	3400.00	38.112	274.092	241.817	16.392	109.737	−915.522	−96.447	−113.756	1.748
	3500.00	38.178	275.198	242.755	20.206	113.551	−942.987	−96.564	−114.264	1.705
	3600.00	38.241	276.274	243.671	24.027	117.372	−970.561	−96.690	−114.768	1.665
	3700.00	38.303	277.323	244.566	27.854	121.199	−998.241	−96.824	−115.268	1.627
	3800.00	38.362	278.345	245.442	31.688	125.033	−1026.024	−96.966	−115.764	1.591
	3900.00	38.420	279.343	246.298	35.527	128.872	−1053.909	−97.118	−116.257	1.557
	4000.00	38.477	280.316	247.137	39.372	132.717	−1081.892	−97.279	−116.746	1.525
	4100.00	38.532	281.267	247.958	43.222	136.567	−1109.971	−97.450	−117.230	1.494
	4200.00	38.585	282.196	248.762	47.078	140.423	−1138.145	−97.631	−117.711	1.464
	4300.00	38.638	283.104	249.550	50.939	144.284	−1166.410	−97.823	−118.187	1.436
	4400.00	38.690	283.993	250.323	54.805	148.150	−1194.765	−98.025	−118.658	1.409
	4500.00	38.740	284.863	251.081	58.677	152.022	−1223.208	−98.238	−119.124	1.383
	4600.00	38.790	285.715	251.824	62.554	155.899	−1251.737	−98.462	−119.586	1.358
	4700.00	38.839	286.550	252.554	66.435	159.780	−1280.350	−98.697	−120.043	1.334
	4800.00	38.888	287.368	253.271	70.321	163.666	−1309.046	−98.943	−120.494	1.311
	4900.00	38.935	288.171	253.975	74.212	167.557	−1337.824	−99.201	−120.941	1.289
	5000.00	38.983	288.958	254.667	78.108	171.453	−1366.680	−99.470	−121.382	1.268

References

Phase	H / S	C_p
GAS	Ja2	Ja2

DF[g] HYDROGEN FLUORIDE-D1 (GAS) 21.012

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	29.137	179.702	179.702	-275.516	0.000	-329.094	-275.516	-277.253	48.573
	300.00	29.137	179.882	179.703	-275.462	0.054	-329.427	-275.518	-277.263	48.276
	400.00	29.174	188.269	180.846	-272.547	2.969	-347.854	-275.670	-277.824	36.280
	500.00	29.298	194.790	183.006	-269.624	5.892	-367.019	-275.894	-278.338	29.078
	600.00	29.563	200.152	185.430	-266.682	8.834	-386.774	-276.163	-278.802	24.272
	700.00	29.961	204.738	187.868	-263.707	11.809	-407.024	-276.453	-279.219	20.836
	800.00	30.461	208.770	190.234	-260.687	14.829	-427.703	-276.748	-279.594	18.256
	900.00	31.018	212.390	192.498	-257.613	17.903	-448.764	-277.037	-279.933	16.247
	1000.00	31.582	215.688	194.655	-254.483	21.033	-470.171	-277.314	-280.240	14.638
	1100.00	32.136	218.724	196.706	-251.297	24.219	-491.893	-277.577	-280.519	13.321
	1200.00	32.661	221.543	198.660	-248.057	27.459	-513.908	-277.826	-280.776	12.222
	1300.00	33.148	224.177	200.523	-244.766	30.750	-536.195	-278.060	-281.012	11.291
	1400.00	33.594	226.650	202.301	-241.428	34.088	-558.738	-278.280	-281.231	10.493
	1500.00	34.001	228.982	204.003	-238.048	37.468	-581.521	-278.488	-281.434	9.800
	1600.00	34.370	231.188	205.634	-234.629	40.887	-604.530	-278.685	-281.624	9.194
	1700.00	34.705	233.282	207.199	-231.175	44.341	-627.755	-278.873	-281.802	8.659
	1800.00	35.008	235.274	208.704	-227.690	47.826	-651.183	-279.052	-281.969	8.183
	1900.00	35.284	237.174	210.153	-224.175	51.341	-674.806	-279.225	-282.126	7.756
	2000.00	35.534	238.991	211.550	-220.634	54.882	-698.615	-279.391	-282.275	7.372
	2100.00	35.762	240.730	212.898	-217.069	58.447	-722.602	-279.553	-282.415	7.025
	2200.00	35.971	242.399	214.201	-213.482	62.034	-746.759	-279.710	-282.548	6.709
	2300.00	36.162	244.002	215.462	-209.875	65.641	-771.079	-279.865	-282.673	6.420
	2400.00	36.338	245.545	216.684	-206.250	69.266	-795.557	-280.017	-282.792	6.155
	2500.00	36.502	247.031	217.868	-202.608	72.908	-820.187	-280.167	-282.904	5.911
	2600.00	36.652	248.466	219.018	-198.950	76.566	-844.962	-280.317	-283.011	5.686
	2700.00	36.792	249.852	220.134	-195.278	80.238	-869.878	-280.465	-283.112	5.477
	2800.00	36.923	251.192	221.220	-191.592	83.924	-894.931	-280.614	-283.207	5.283
	2900.00	37.045	252.490	222.276	-187.894	87.622	-920.115	-280.763	-283.297	5.103
	3000.00	37.160	253.748	223.304	-184.183	91.333	-945.427	-280.912	-283.382	4.934
	3100.00	37.269	254.968	224.306	-180.462	95.054	-970.864	-281.063	-283.462	4.776
	3200.00	37.371	256.153	225.282	-176.730	98.786	-996.420	-281.216	-283.537	4.628
	3300.00	37.468	257.305	226.235	-172.988	102.528	-1022.093	-281.370	-283.607	4.489
	3400.00	37.560	258.425	227.166	-169.236	106.280	-1047.880	-281.527	-283.672	4.358
	3500.00	37.647	259.515	228.075	-165.476	110.040	-1073.777	-281.687	-283.733	4.234
	3600.00	37.731	260.576	228.963	-161.707	113.809	-1099.782	-281.849	-283.789	4.118
	3700.00	37.811	261.611	229.831	-157.930	117.586	-1125.891	-282.015	-283.841	4.007
	3800.00	37.888	262.621	230.681	-154.145	121.371	-1152.103	-282.184	-283.888	3.902
	3900.00	37.962	263.606	231.512	-150.352	125.164	-1178.415	-282.358	-283.930	3.803
	4000.00	38.033	264.568	232.327	-146.553	128.963	-1204.824	-282.535	-283.968	3.708
	4100.00	38.101	265.508	233.125	-142.746	132.770	-1231.327	-282.716	-284.002	3.618
	4200.00	38.168	266.427	233.907	-138.932	136.584	-1257.924	-282.902	-284.031	3.532
	4300.00	38.232	267.326	234.674	-135.112	140.404	-1284.612	-283.092	-284.056	3.451
	4400.00	38.294	268.205	235.426	-131.286	144.230	-1311.389	-283.287	-284.076	3.372
	4500.00	38.355	269.066	236.164	-127.454	148.062	-1338.253	-283.486	-284.092	3.298
	4600.00	38.414	269.910	236.888	-123.615	151.901	-1365.202	-283.691	-284.103	3.226
	4700.00	38.472	270.737	237.600	-119.771	155.745	-1392.234	-283.900	-284.110	3.158
	4800.00	38.528	271.547	238.298	-115.921	159.595	-1419.348	-284.114	-284.112	3.092
	4900.00	38.583	272.342	238.985	-112.065	163.451	-1446.543	-284.333	-284.110	3.029
	5000.00	38.637	273.122	239.660	-108.204	167.312	-1473.816	-284.556	-284.103	2.968

References

Phase	H / S	C_p
GAS	Ja2	Ja2

3.022 HYDROGEN–D1 (GAS) **DH[g]**

Phase	T	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[–]
GAS	298.15	29.201	143.803	143.803	0.320	0.000	–42.555	0.320	–1.464	0.256
	300.00	29.201	143.984	143.804	0.374	0.054	–42.821	0.320	–1.475	0.257
	400.00	29.231	152.387	144.949	3.295	2.975	–57.660	0.328	–2.075	0.271
	500.00	29.283	158.915	147.114	6.221	5.901	–73.237	0.327	–2.676	0.280
	600.00	29.394	164.263	149.539	9.154	8.834	–89.404	0.322	–3.276	0.285
	700.00	29.595	168.807	151.975	12.103	11.783	–106.063	0.311	–3.875	0.289
	800.00	29.890	172.778	154.333	15.076	14.756	–123.146	0.296	–4.472	0.292
	900.00	30.269	176.319	156.582	18.083	17.763	–140.604	0.277	–5.066	0.294
	1000.00	30.708	179.531	158.719	21.132	20.812	–158.399	0.257	–5.659	0.296
	1100.00	31.183	182.480	160.747	24.226	23.906	–176.501	0.235	–6.250	0.297
	1200.00	31.674	185.214	162.673	27.369	27.049	–194.888	0.215	–6.838	0.298
	1300.00	32.164	187.768	164.506	30.561	30.241	–213.538	0.195	–7.425	0.298
	1400.00	32.642	190.170	166.254	33.801	33.481	–232.436	0.177	–8.011	0.299
	1500.00	33.101	192.437	167.925	37.089	36.769	–251.568	0.160	–8.595	0.299
	1600.00	33.538	194.588	169.525	40.421	40.101	–270.920	0.146	–9.178	0.300
	1700.00	33.951	196.634	171.060	43.795	43.475	–290.482	0.133	–9.760	0.300
	1800.00	34.341	198.585	172.535	47.210	46.890	–310.243	0.122	–10.342	0.300
	1900.00	34.706	200.452	173.956	50.663	50.343	–330.196	0.112	–10.923	0.300
	2000.00	35.050	202.241	175.326	54.151	53.831	–350.331	0.104	–11.504	0.300
	2100.00	35.372	203.959	176.648	57.672	57.352	–370.642	0.097	–12.084	0.301
	2200.00	35.676	205.612	177.928	61.224	60.904	–391.121	0.091	–12.664	0.301
	2300.00	35.962	207.204	179.166	64.806	64.486	–411.762	0.085	–13.243	0.301
	2400.00	36.233	208.740	180.367	68.416	68.096	–432.560	0.081	–13.823	0.301
	2500.00	36.492	210.224	181.531	72.053	71.733	–453.508	0.078	–14.402	0.301
	2600.00	36.737	211.660	182.663	75.714	75.394	–474.603	0.075	–14.981	0.301
	2700.00	36.972	213.051	183.763	79.400	79.080	–495.839	0.073	–15.560	0.301
	2800.00	37.198	214.400	184.833	83.108	82.788	–517.212	0.072	–16.139	0.301
	2900.00	37.415	215.709	185.875	86.839	86.519	–538.718	0.071	–16.718	0.301
	3000.00	37.625	216.981	186.891	90.591	90.271	–560.352	0.072	–17.297	0.301
	3100.00	37.829	218.218	187.882	94.364	94.044	–582.113	0.072	–17.876	0.301
	3200.00	38.028	219.422	188.848	98.157	97.837	–603.995	0.073	–18.455	0.301
	3300.00	38.223	220.596	189.793	101.969	101.649	–625.996	0.075	–19.034	0.301
	3400.00	38.414	221.739	190.716	105.801	105.481	–648.113	0.077	–19.613	0.301
	3500.00	38.602	222.856	191.618	109.652	109.332	–670.343	0.080	–20.192	0.301
	3600.00	38.787	223.946	192.501	113.521	113.201	–692.683	0.084	–20.772	0.301
	3700.00	38.971	225.011	193.365	117.409	117.089	–715.131	0.088	–21.351	0.301
	3800.00	39.153	226.053	194.212	121.316	120.996	–737.685	0.093	–21.930	0.301
	3900.00	39.334	227.072	195.041	125.240	124.920	–760.341	0.098	–22.510	0.301
	4000.00	39.513	228.070	195.855	129.182	128.862	–783.099	0.104	–23.090	0.302
	4100.00	39.691	229.048	196.652	133.142	132.822	–805.955	0.110	–23.670	0.302
	4200.00	39.867	230.007	197.435	137.120	136.800	–828.908	0.118	–24.250	0.302
	4300.00	40.041	230.947	198.204	141.116	140.796	–851.955	0.126	–24.830	0.302
	4400.00	40.213	231.869	198.958	145.128	144.808	–875.096	0.134	–25.410	0.302
	4500.00	40.383	232.775	199.700	149.158	148.838	–898.329	0.144	–25.991	0.302
	4600.00	40.551	233.664	200.428	153.205	152.885	–921.651	0.154	–26.572	0.302
	4700.00	40.715	234.538	201.145	157.268	156.948	–945.061	0.165	–27.153	0.302
	4800.00	40.876	235.397	201.850	161.348	161.028	–968.558	0.177	–27.735	0.302
	4900.00	41.033	236.242	202.543	165.443	165.123	–992.140	0.189	–28.316	0.302
	5000.00	41.185	237.072	203.225	169.554	169.234	–1015.806	0.203	–28.898	0.302

References

Phase	H / S	C_p
GAS	Ja2	Ja2

D2O WATER–D2 20.027

Phase	T	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[–]
LIQ	298.15	84.350	75.940	75.940	–294.559	0.000	–317.201	–294.559	–243.398	42.642
	300.00	84.342	76.462	75.942	–294.403	0.156	–317.341	–294.484	–243.081	42.324
	374.58	85.039	95.229	77.980	–288.098	6.461	–323.769	–291.462	–230.650	32.164

References

Phase	H / S	C_p	Remarks
LIQ	Nb1,e	La1,e	NBPT= 374.58; BPT= 374.213, L= 41.569 kJ

20.027 WATER–D2 (GAS) **D2O**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	34.255	198.339	198.339	−249.203	0.000	−308.338	−249.203	−234.536	41.090
	300.00	34.278	198.551	198.340	−249.140	0.063	−308.705	−249.221	−234.445	40.820
	400.00	35.636	208.592	199.700	−245.646	3.557	−329.083	−250.134	−229.379	29.954
	500.00	37.182	216.707	202.314	−242.006	7.197	−350.360	−250.953	−224.093	23.411
	600.00	38.837	223.631	205.303	−238.206	10.997	−372.385	−251.681	−218.651	19.035
	700.00	40.545	229.746	208.366	−234.237	14.966	−395.059	−252.320	−213.095	15.901
	800.00	42.249	235.272	211.390	−230.097	19.106	−418.315	−252.873	−207.452	13.545
	900.00	43.894	240.344	214.329	−225.789	23.414	−442.099	−253.346	−201.746	11.709
	1000.00	45.423	245.049	217.168	−221.322	27.881	−466.371	−253.744	−195.990	10.237
	1100.00	46.825	249.445	219.905	−216.709	32.494	−491.098	−254.078	−190.198	9.032
	1200.00	48.092	253.575	222.540	−211.962	37.241	−516.251	−254.354	−184.378	8.026
	1300.00	49.226	257.470	225.079	−207.095	42.108	−541.805	−254.581	−178.538	7.174
	1400.00	50.236	261.155	227.525	−202.121	47.082	−567.738	−254.766	−172.681	6.443
	1500.00	51.136	264.653	229.885	−197.051	52.152	−594.030	−254.917	−166.812	5.809
	1600.00	51.937	267.979	232.163	−191.897	57.306	−620.663	−255.038	−160.934	5.254
	1700.00	52.653	271.149	234.363	−186.667	62.536	−647.621	−255.136	−155.050	4.764
	1800.00	53.293	274.177	236.492	−181.369	67.834	−674.888	−255.214	−149.160	4.329
	1900.00	53.866	277.074	238.552	−176.010	73.193	−702.452	−255.277	−143.267	3.939
	2000.00	54.383	279.851	240.548	−170.598	78.605	−730.299	−255.328	−137.370	3.588
	2100.00	54.848	282.516	242.483	−165.136	84.067	−758.418	−255.370	−131.471	3.270
	2200.00	55.270	285.077	244.362	−159.629	89.574	−786.799	−255.406	−125.570	2.981
	2300.00	55.653	287.542	246.186	−154.083	95.120	−815.430	−255.439	−119.668	2.718
	2400.00	56.004	289.918	247.959	−148.500	100.703	−844.304	−255.469	−113.764	2.476
	2500.00	56.326	292.211	249.683	−142.883	106.320	−873.411	−255.499	−107.859	2.254
	2600.00	56.621	294.426	251.362	−137.236	111.967	−902.744	−255.530	−101.953	2.048
	2700.00	56.894	296.568	252.997	−131.560	117.643	−932.294	−255.563	−96.045	1.858
	2800.00	57.146	298.642	254.590	−125.857	123.346	−962.055	−255.600	−90.137	1.682
	2900.00	57.380	300.652	256.144	−120.131	129.072	−992.020	−255.641	−84.226	1.517
	3000.00	57.598	302.601	257.660	−114.382	134.821	−1022.184	−255.688	−78.315	1.364
	3100.00	57.802	304.493	259.141	−108.612	140.591	−1052.539	−255.740	−72.402	1.220
	3200.00	57.993	306.331	260.587	−102.822	146.381	−1083.080	−255.798	−66.487	1.085
	3300.00	58.172	308.118	262.000	−97.014	152.189	−1113.803	−255.863	−60.570	0.959
	3400.00	58.341	309.857	263.382	−91.188	158.015	−1144.702	−255.936	−54.650	0.840
	3500.00	58.501	311.551	264.734	−85.346	163.857	−1175.773	−256.017	−48.729	0.727
	3600.00	58.652	313.201	266.058	−79.488	169.715	−1207.011	−256.106	−42.805	0.621
	3700.00	58.795	314.810	267.354	−73.616	175.587	−1238.412	−256.204	−36.879	0.521
	3800.00	58.931	316.380	268.623	−67.729	181.474	−1269.972	−256.311	−30.950	0.425
	3900.00	59.060	317.912	269.868	−61.830	187.373	−1301.687	−256.427	−25.018	0.335
	4000.00	59.184	319.409	271.087	−55.917	193.286	−1333.553	−256.553	−19.083	0.249
	4100.00	59.301	320.872	272.284	−49.993	199.210	−1365.567	−256.690	−13.144	0.167
	4200.00	59.414	322.302	273.458	−44.057	205.146	−1397.726	−256.836	−7.202	0.090
	4300.00	59.522	323.701	274.610	−38.110	211.093	−1430.027	−256.993	−1.257	0.015
	4400.00	59.626	325.071	275.741	−32.153	217.050	−1462.465	−257.162	4.692	−0.056
	4500.00	59.726	326.412	276.853	−26.185	223.018	−1495.040	−257.341	10.646	−0.124
	4600.00	59.822	327.726	277.944	−20.208	228.995	−1527.747	−257.531	16.603	−0.189
	4700.00	59.914	329.013	279.017	−14.221	234.982	−1560.584	−257.733	22.564	−0.251
	4800.00	60.003	330.276	280.072	−8.225	240.978	−1593.549	−257.946	28.530	−0.310
	4900.00	60.089	331.514	281.109	−2.221	246.982	−1626.638	−258.172	34.501	−0.368
	5000.00	60.172	332.729	282.130	3.792	252.995	−1659.851	−258.408	40.476	−0.423

References

Phase	H / S	C_p
GAS	Ja2	Ja2

DS[g] HYDROGEN MONOSULFIDE-D1 (GAS) 34.080

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[-]
GAS	298.15	32.519	201.484	201.484	138.490	0.000	78.418	138.490	109.585	-19.199
	300.00	32.510	201.685	201.485	138.550	0.060	78.045	138.481	109.406	-19.049
	400.00	32.085	210.971	202.754	141.777	3.287	57.389	135.666	99.887	-13.044
	500.00	32.126	218.126	205.139	144.984	6.494	35.920	133.506	91.169	-9.524
	600.00	32.509	224.014	207.808	148.213	9.723	13.805	131.685	82.882	-7.216
	700.00	33.048	229.064	210.492	151.491	13.001	-8.855	130.163	74.870	-5.587
	800.00	33.613	233.514	213.097	154.824	16.334	-31.988	128.624	67.074	-4.380
	900.00	34.147	237.505	215.591	158.212	19.722	-55.542	74.267	60.628	-3.519
	1000.00	34.631	241.128	217.967	161.651	23.161	-79.477	74.304	59.111	-3.088
	1100.00	35.055	244.449	220.225	165.136	26.646	-103.758	74.350	57.590	-2.735
	1200.00	35.425	247.516	222.373	168.661	30.171	-128.358	74.402	56.064	-2.440
	1300.00	35.747	250.364	224.418	172.220	33.730	-153.254	74.455	54.533	-2.191
	1400.00	36.028	253.024	226.367	175.809	37.319	-178.424	74.509	52.999	-1.977
	1500.00	36.275	255.518	228.229	179.424	40.934	-203.853	74.561	51.461	-1.792
	1600.00	36.493	257.866	230.008	183.063	44.573	-229.523	74.610	49.919	-1.630
	1700.00	36.687	260.085	231.713	186.722	48.232	-255.422	74.656	48.374	-1.486
	1800.00	36.860	262.187	233.348	190.400	51.910	-281.536	74.698	46.827	-1.359
	1900.00	37.016	264.184	234.919	194.094	55.604	-307.856	74.735	45.278	-1.245
	2000.00	37.157	266.086	236.430	197.802	59.312	-334.370	74.768	43.726	-1.142
	2100.00	37.286	267.902	237.886	201.525	63.035	-361.070	74.796	42.174	-1.049
	2200.00	37.404	269.639	239.290	205.259	66.769	-387.948	74.820	40.620	-0.964
	2300.00	37.514	271.305	240.646	209.005	70.515	-414.995	74.838	39.065	-0.887
	2400.00	37.616	272.903	241.957	212.762	74.272	-442.206	74.852	37.509	-0.816
	2500.00	37.712	274.441	243.226	216.528	78.038	-469.574	74.860	35.953	-0.751
	2600.00	37.802	275.922	244.455	220.304	81.814	-497.093	74.864	34.396	-0.691
	2700.00	37.886	277.350	245.647	224.088	85.598	-524.757	74.863	32.840	-0.635
	2800.00	37.967	278.729	246.804	227.881	89.391	-552.561	74.857	31.284	-0.584
	2900.00	38.044	280.063	247.928	231.682	93.192	-580.501	74.846	29.728	-0.535
	3000.00	38.117	281.354	249.021	235.490	97.000	-608.572	74.830	28.172	-0.491
	3100.00	38.188	282.605	250.084	239.305	100.815	-636.770	74.809	26.617	-0.448
	3200.00	38.256	283.818	251.119	243.127	104.637	-665.092	74.782	25.063	-0.409
	3300.00	38.322	284.997	252.128	246.956	108.466	-693.533	74.751	23.510	-0.372
	3400.00	38.386	286.142	253.112	250.791	112.301	-722.090	74.714	21.958	-0.337
	3500.00	38.448	287.255	254.071	254.633	116.143	-750.760	74.672	20.406	-0.305
	3600.00	38.509	288.339	255.008	258.481	119.991	-779.540	74.625	18.857	-0.274
	3700.00	38.569	289.395	255.924	262.335	123.845	-808.427	74.573	17.308	-0.244
	3800.00	38.628	290.425	256.818	266.195	127.705	-837.418	74.514	15.761	-0.217
	3900.00	38.686	291.429	257.693	270.061	131.571	-866.511	74.451	14.216	-0.190
	4000.00	38.744	292.409	258.548	273.932	135.442	-895.703	74.382	12.672	-0.165
	4100.00	38.801	293.366	259.386	277.809	139.319	-924.992	74.307	11.131	-0.142
	4200.00	38.858	294.302	260.206	281.692	143.202	-954.376	74.227	9.591	-0.119
	4300.00	38.915	295.217	261.010	285.581	147.091	-983.852	74.142	8.053	-0.098
	4400.00	38.972	296.112	261.797	289.475	150.985	-1013.419	74.051	6.517	-0.077
	4500.00	39.029	296.989	262.570	293.375	154.885	-1043.074	73.955	4.983	-0.058
	4600.00	39.087	297.847	263.327	297.281	158.791	-1072.816	73.854	3.451	-0.039
	4700.00	39.145	298.688	264.071	301.193	162.703	-1102.643	73.748	1.922	-0.021
	4800.00	39.204	299.513	264.801	305.110	166.620	-1132.553	73.637	0.395	-0.004
	4900.00	39.264	300.322	265.517	309.034	170.544	-1162.545	73.522	-1.130	0.012
	5000.00	39.324	301.116	266.221	312.963	174.473	-1192.617	73.402	-2.652	0.028

References

Phase	H / S	C_p
GAS	Ja2	Ja2

36.094 HYDROGEN SULFIDE–D2 (GAS) **D2S**[g]

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
GAS	298.15	35.761	215.284	215.284	–23.891	0.000	–88.078	–23.891	–35.301	6.185
	300.00	35.794	215.505	215.285	–23.825	0.066	–88.476	–23.921	–35.371	6.159
	400.00	37.999	226.094	216.713	–20.139	3.752	–110.576	–27.738	–38.857	5.074
	500.00	40.342	234.824	219.486	–16.222	7.669	–133.634	–30.652	–41.317	4.316
	600.00	42.673	242.387	222.686	–12.071	11.820	–157.503	–33.025	–43.216	3.762
	700.00	44.836	249.131	225.991	–7.693	16.198	–182.084	–34.937	–44.759	3.340
	800.00	46.748	255.236	229.270	–3.118	20.773	–207.307	–36.747	–46.039	3.006
	900.00	48.488	260.848	232.472	1.648	25.539	–233.115	–91.265	–45.943	2.666
	1000.00	49.827	266.028	235.572	6.566	30.457	–259.463	–91.318	–40.903	2.137
	1100.00	51.028	270.834	238.561	11.609	35.500	–286.309	–91.309	–35.862	1.703
	1200.00	52.049	275.320	241.440	16.766	40.657	–313.619	–91.249	–30.823	1.342
	1300.00	52.923	279.522	244.209	22.015	45.906	–341.363	–91.156	–25.792	1.036
	1400.00	53.672	283.472	246.874	27.346	51.237	–369.515	–91.037	–20.768	0.775
	1500.00	54.320	287.198	249.439	32.747	56.638	–398.050	–90.900	–15.753	0.549
	1600.00	54.886	290.722	251.910	38.207	62.098	–426.948	–90.749	–10.748	0.351
	1700.00	55.382	294.065	254.293	43.721	67.612	–456.188	–90.590	–5.753	0.177
	1800.00	55.819	297.243	256.591	49.282	73.173	–485.755	–90.424	–0.767	0.022
	1900.00	56.210	300.271	258.811	54.884	78.775	–515.632	–90.254	4.209	–0.116
	2000.00	56.567	303.164	260.957	60.523	84.414	–545.805	–90.083	9.176	–0.240
	2100.00	56.882	305.931	263.033	66.195	90.086	–576.260	–89.910	14.135	–0.352
	2200.00	57.169	308.584	265.044	71.898	95.789	–606.987	–89.738	19.085	–0.453
	2300.00	57.432	311.131	266.993	77.628	101.519	–637.974	–89.567	24.028	–0.546
	2400.00	57.674	313.581	268.883	83.384	107.275	–669.210	–89.398	28.963	–0.630
	2500.00	57.898	315.940	270.718	89.163	113.054	–700.687	–89.231	33.891	–0.708
	2600.00	58.106	318.215	272.502	94.963	118.854	–732.395	–89.068	38.813	–0.780
	2700.00	58.299	320.411	274.236	100.783	124.674	–764.327	–88.909	43.729	–0.846
	2800.00	58.481	322.535	275.923	106.622	130.513	–796.475	–88.753	48.638	–0.907
	2900.00	58.651	324.590	277.566	112.479	136.370	–828.832	–88.603	53.542	–0.964
	3000.00	58.812	326.581	279.167	118.352	142.243	–861.391	–88.457	58.441	–1.018
	3100.00	58.964	328.512	280.727	124.241	148.132	–894.146	–88.317	63.336	–1.067
	3200.00	59.109	330.386	282.250	130.145	154.036	–927.092	–88.182	68.226	–1.114
	3300.00	59.247	332.207	283.737	136.063	159.954	–960.222	–88.054	73.111	–1.157
	3400.00	59.380	333.978	285.188	141.994	165.885	–993.531	–87.932	77.993	–1.198
	3500.00	59.507	335.701	286.607	147.939	171.830	–1027.016	–87.816	82.872	–1.237
	3600.00	59.629	337.379	287.994	153.895	177.786	–1060.670	–87.708	87.747	–1.273
	3700.00	59.748	339.015	289.351	159.864	183.755	–1094.490	–87.608	92.619	–1.308
	3800.00	59.862	340.610	290.679	165.845	189.736	–1128.472	–87.515	97.489	–1.340
	3900.00	59.973	342.166	291.979	171.837	195.728	–1162.611	–87.429	102.356	–1.371
	4000.00	60.081	343.686	293.253	177.839	201.730	–1196.904	–87.353	107.222	–1.400
	4100.00	60.187	345.171	294.501	183.853	207.744	–1231.347	–87.284	112.085	–1.428
	4200.00	60.289	346.622	295.725	189.877	213.768	–1265.937	–87.224	116.947	–1.454
	4300.00	60.390	348.042	296.925	195.911	219.802	–1300.670	–87.173	121.808	–1.480
	4400.00	60.488	349.432	298.103	201.955	225.846	–1335.544	–87.131	126.667	–1.504
	4500.00	60.585	350.792	299.259	208.008	231.899	–1370.556	–87.097	131.526	–1.527
	4600.00	60.679	352.125	300.394	214.071	237.962	–1405.702	–87.072	136.384	–1.549
	4700.00	60.772	353.431	301.508	220.144	244.035	–1440.980	–87.056	141.242	–1.570
	4800.00	60.864	354.711	302.603	226.226	250.117	–1476.387	–87.048	146.099	–1.590
	4900.00	60.954	355.967	303.680	232.317	256.208	–1511.921	–87.049	150.956	–1.609
	5000.00	61.043	357.199	304.738	238.417	262.308	–1547.579	–87.058	155.813	–1.628

References

Phase	H / S	C_p
GAS	Ja2	Ja2

Dy DYSPROSIUM 162.500

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	28.116	74.894	74.894	0.000	0.000	−22.330	0.000	0.000	0.000
	300.00	28.115	75.068	74.894	0.052	0.052	−22.468	0.000	0.000	0.000
	400.00	28.074	83.150	75.996	2.861	2.861	−30.399	0.000	0.000	0.000
	500.00	28.090	89.410	78.076	5.667	5.667	−39.038	0.000	0.000	0.000
	600.00	28.432	94.558	80.406	8.491	8.491	−48.244	0.000	0.000	0.000
	700.00	28.939	98.977	82.751	11.358	11.358	−57.926	0.000	0.000	0.000
	800.00	29.534	102.880	85.028	14.282	14.282	−68.022	0.000	0.000	0.000
	900.00	30.410	106.409	87.210	17.279	17.279	−78.489	0.000	0.000	0.000
	1000.00	31.760	109.678	89.295	20.383	20.383	−89.295	0.000	0.000	0.000
	1100.00	33.578	112.787	91.290	23.646	23.646	−100.420	0.000	0.000	0.000
	1200.00	35.801	115.801	93.208	27.112	27.112	−111.850	0.000	0.000	0.000
	1300.00	38.385	118.766	95.060	30.818	30.818	−123.578	0.000	0.000	0.000
	1400.00	41.305	121.716	96.859	34.800	34.800	−135.602	0.000	0.000	0.000
	1500.00	44.542	124.674	98.614	39.090	39.090	−147.922	0.000	0.000	0.000
	1600.00	48.083	127.660	100.336	43.719	43.719	−160.538	0.000	0.000	0.000
	1657.00	50.234	129.381	101.306	46.520	46.520	−167.864	0.000	0.000	0.000
			2.512		4.163					
SOL−B	1657.00	28.033	131.893	101.306	50.683	50.683	−167.864	0.000	0.000	0.000
	1682.00	28.033	132.313	101.764	51.384	51.384	−171.166	0.000	0.000	0.000
			6.574		11.058					
LIQ	1682.00	49.915	138.887	101.764	62.442	62.442	−171.166	0.000	0.000	0.000
	1700.00	49.915	139.419	102.159	63.341	63.341	−173.671	0.000	0.000	0.000
	1800.00	49.915	142.272	104.309	68.332	68.332	−187.757	0.000	0.000	0.000
	1900.00	49.915	144.970	106.379	73.324	73.324	−202.120	0.000	0.000	0.000
	2000.00	49.915	147.531	108.373	78.315	78.315	−216.746	0.000	0.000	0.000
	2100.00	49.915	149.966	110.296	83.307	83.307	−231.622	0.000	0.000	0.000
	2200.00	49.915	152.288	112.153	88.298	88.298	−246.736	0.000	0.000	0.000
	2300.00	49.915	154.507	113.946	93.290	93.290	−262.076	0.000	0.000	0.000
	2400.00	49.915	156.631	115.681	98.281	98.281	−277.634	0.000	0.000	0.000
	2500.00	49.915	158.669	117.360	103.273	103.273	−293.400	0.000	0.000	0.000
	2600.00	49.915	160.627	118.987	108.264	108.264	−309.365	0.000	0.000	0.000
	2700.00	49.915	162.510	120.564	113.256	113.256	−325.523	0.000	0.000	0.000
	2800.00	49.915	164.326	122.095	118.247	118.247	−341.865	0.000	0.000	0.000
	2831.00	49.915	164.875	122.560	119.795	119.795	−346.968	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL − A	Hu1	Hu1		hcp
SOL − B	Hu1	Hu1		bcc
LIQ	Hu1	Hu1	Hu1	BPT = 2831., L = 230. kJ

162.500 DYSPROSIUM (GAS) **Dy**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.786	195.896	195.896	290.370	0.000	231.964	290.370	254.293	−44.551
	300.00	20.786	196.024	195.896	290.408	0.038	231.601	290.356	254.069	−44.237
	400.00	20.786	202.004	196.711	292.487	2.117	211.686	289.626	242.084	−31.613
	500.00	20.786	206.642	198.251	294.566	4.196	191.245	288.899	230.283	−24.057
	600.00	20.786	210.432	199.975	296.644	6.274	170.385	288.153	218.629	−19.033
	700.00	20.786	213.636	201.703	298.723	8.353	149.178	287.364	207.103	−15.454
	800.00	20.786	216.412	203.372	300.802	10.432	127.672	286.520	195.694	−12.778
	900.00	21.202	218.897	204.962	302.912	12.542	105.904	285.633	184.394	−10.702
	1000.00	21.458	221.144	206.469	305.044	14.674	83.901	284.662	173.196	−9.047
	1100.00	21.768	223.203	207.898	307.205	16.835	61.682	283.559	162.101	−7.698
	1200.00	22.114	225.112	209.254	309.399	19.029	39.265	282.287	151.115	−6.578
	1300.00	22.482	226.896	210.543	311.629	21.259	16.664	280.811	140.242	−5.635
	1400.00	22.861	228.576	211.772	313.896	23.526	−6.111	279.096	129.492	−4.831
	1500.00	23.243	230.167	212.946	316.201	25.831	−29.049	277.111	118.873	−4.140
	1600.00	23.622	231.679	214.070	318.545	28.175	−52.141	274.826	108.397	−3.539
	1700.00	23.991	233.122	215.148	320.925	30.555	−75.382	257.585	98.289	−3.020
	1800.00	24.349	234.503	216.185	323.342	32.972	−98.764	255.010	88.993	−2.583
	1900.00	24.691	235.829	217.185	325.795	35.425	−122.281	252.471	79.839	−2.195
	2000.00	25.016	237.104	218.149	328.280	37.910	−145.928	249.965	70.818	−1.850
	2100.00	25.322	238.332	219.081	330.797	40.427	−169.700	247.491	61.922	−1.540
	2200.00	25.606	239.517	219.983	333.344	42.974	−193.593	245.046	53.143	−1.262
	2300.00	25.869	240.661	220.857	335.918	45.548	−217.602	242.628	44.474	−1.010
	2400.00	26.108	241.767	221.706	338.517	48.147	−241.724	240.236	35.910	−0.782
	2500.00	26.324	242.837	222.530	341.139	50.769	−265.954	237.866	27.445	−0.573
	2600.00	26.515	243.873	223.331	343.781	53.411	−290.290	235.516	19.075	−0.383
	2700.00	26.681	244.877	224.110	346.441	56.071	−314.728	233.185	10.795	−0.209
	2800.00	26.821	245.850	224.869	349.116	58.746	−339.264	230.869	2.601	−0.049
	2900.00	26.935	246.793	225.609	351.804	61.434	−363.897	0.000	0.000	0.000
	3000.00	27.023	247.708	226.331	354.502	64.132	−388.622	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

DyBr3[g] DYSPROSIUM BROMIDE (GAS) 402.212

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	79.886	404.096	404.096	−540.154	0.000	−660.635	−540.154	−570.234	99.903
	300.00	79.920	404.590	404.097	−540.006	0.148	−661.383	−540.268	−570.420	99.319
	400.00	81.207	427.778	407.250	−531.943	8.211	−703.054	−586.737	−570.931	74.556
	500.00	81.955	445.985	413.241	−523.782	16.372	−746.775	−586.920	−566.957	59.230
	600.00	82.492	460.977	419.984	−515.559	24.595	−792.145	−587.098	−562.948	49.009
	700.00	82.929	473.727	426.774	−507.287	32.867	−838.896	−587.297	−558.908	41.706
	800.00	83.312	484.826	433.352	−498.975	41.179	−886.835	−587.529	−554.837	36.227
	900.00	83.664	494.659	439.628	−490.626	49.528	−935.819	−587.814	−550.734	31.964
	1000.00	83.997	503.491	445.580	−482.242	57.912	−985.734	−588.183	−546.595	28.551
	1100.00	84.317	511.512	451.215	−473.827	66.327	−1036.490	−588.690	−542.413	25.757
	1200.00	84.629	518.862	456.550	−465.379	74.775	−1088.014	−589.378	−538.177	23.426
	1300.00	84.934	525.648	461.607	−456.901	83.253	−1140.244	−590.284	−533.875	21.451
	1400.00	85.236	531.954	466.410	−448.393	91.761	−1193.127	−591.445	−529.494	19.756
	1500.00	85.534	537.844	470.978	−439.854	100.300	−1246.621	−592.892	−525.020	18.283
	1600.00	85.829	543.374	475.331	−431.286	108.868	−1300.684	−594.656	−520.440	16.991
	1700.00	86.123	548.586	479.489	−422.688	117.466	−1355.285	−611.392	−515.523	15.840
	1800.00	86.415	553.517	483.466	−414.061	126.093	−1410.392	−613.476	−509.823	14.795
	1900.00	86.706	558.197	487.277	−405.405	134.749	−1465.980	−615.538	−504.008	13.856
	2000.00	86.997	562.652	490.935	−396.720	143.434	−1522.024	−617.579	−498.086	13.009

References

Phase	H / S	C_p
GAS	Pa2	Pa2

DyCl3 DYSPROSIUM CHLORIDE 268.858

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−B	298.15	97.068	153.971	153.971	−989.934	0.000	−1035.841	−989.934	−913.728	160.081
	300.00	97.161	154.572	153.973	−989.754	0.180	−1036.126	−989.901	−913.255	159.012
	400.00	100.912	183.087	157.835	−979.833	10.101	−1053.068	−987.990	−887.989	115.960
	500.00	103.363	205.882	165.241	−969.613	20.321	−1072.554	−985.931	−863.225	90.180
	600.00	105.303	224.904	173.643	−959.177	30.757	−1094.120	−983.772	−838.885	73.031
	700.00	107.002	241.266	182.161	−948.561	41.373	−1117.447	−981.538	−814.913	60.810
	800.00	108.572	255.658	190.467	−937.781	52.153	−1142.307	−979.240	−791.265	51.664
	900.00	110.068	268.533	198.438	−926.849	63.085	−1168.528	−976.893	−767.909	44.568
	924.00	110.419	271.434	200.296	−924.203	65.731	−1175.008	−976.325	−762.343	43.096
			27.621		25.522					
LIQ	924.00	144.766	299.055	200.296	−898.681	91.253	−1175.008	−950.803	−762.343	43.096
	1000.00	144.766	310.498	208.243	−887.679	102.255	−1198.177	−946.439	−747.018	39.020

References

Phase	H / S	C_p
SOL−B	Pa2	Pa2
LIQ	Dw4	Dw4

268.858 DYSPROSIUM CHLORIDE (GAS) **DyCl3[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	78.144	376.485	376.485	−677.390	0.000	−789.639	−677.390	−667.526	116.948
	300.00	78.198	376.969	376.487	−677.245	0.145	−790.336	−677.392	−667.465	116.216
	400.00	80.204	399.775	379.583	−669.313	8.077	−829.223	−677.469	−664.144	86.728
	500.00	81.288	417.799	385.486	−661.234	16.156	−870.133	−677.552	−660.804	69.034
	600.00	82.010	432.687	392.148	−653.067	24.323	−912.679	−677.662	−657.444	57.236
	700.00	82.559	445.371	398.868	−644.838	32.552	−956.597	−677.815	−654.063	48.807
	800.00	83.018	456.426	405.386	−636.558	40.832	−1001.699	−678.017	−650.657	42.484
	900.00	83.423	466.228	411.612	−628.236	49.154	−1047.841	−678.280	−647.222	37.564
	1000.00	83.795	475.037	417.522	−619.875	57.515	−1094.912	−678.635	−643.753	33.626
	1100.00	84.146	483.040	423.120	−611.477	65.913	−1142.822	−679.132	−640.242	30.403
	1200.00	84.482	490.376	428.423	−603.046	74.344	−1191.498	−679.812	−636.678	27.714
	1300.00	84.808	497.152	433.453	−594.581	82.809	−1240.878	−680.713	−633.049	25.436
	1400.00	85.127	503.448	438.230	−586.085	91.305	−1290.912	−681.870	−629.341	23.481
	1500.00	85.439	509.332	442.776	−577.556	99.834	−1341.554	−683.314	−625.540	21.783
	1600.00	85.748	514.856	447.110	−568.997	108.393	−1392.766	−685.078	−621.633	20.294
	1700.00	86.053	520.064	451.250	−560.407	116.983	−1444.515	−701.814	−617.389	18.970
	1800.00	86.356	524.991	455.211	−551.786	125.604	−1496.770	−703.901	−612.362	17.770
	1900.00	86.657	529.668	459.008	−543.136	134.254	−1549.505	−705.968	−607.220	16.694
	2000.00	86.956	534.120	462.653	−534.455	142.935	−1602.696	−708.016	−601.970	15.722

References

Phase	H / S	C_p
GAS	Pa2	Pa2

376.950 DYSPROSIUM CHLORIDE HEXAHYDRATE **DyCl3*6H2O**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	346.015	401.664	401.664	−2869.998	0.000	−2989.754	−2869.998	−2450.374	429.295
	300.00	346.068	403.805	401.671	−2869.358	0.640	−2990.499	−2869.987	−2447.770	426.195
	400.00	348.559	503.717	415.276	−2834.622	35.376	−3036.109	−2869.610	−2307.098	301.276
	500.00	350.678	581.728	441.048	−2799.658	70.340	−3090.522	−2869.521	−2166.486	226.331
	600.00	352.651	645.840	469.994	−2764.491	105.507	−3151.995	−2869.683	−2025.867	176.367

References

Phase	H / S	C_p
SOL	Nb1	e

DyF3 DYSPROSIUM FLUORIDE 219.495

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	94.151	118.826	118.826	−1692.010	0.000	−1727.438	−1692.010	−1614.413	282.839
	300.00	94.257	119.408	118.827	−1691.836	0.174	−1727.658	−1691.975	−1613.932	281.011
	400.00	98.739	147.185	122.584	−1682.170	9.840	−1741.044	−1689.938	−1588.219	207.400
	500.00	101.992	169.581	129.815	−1672.127	19.883	−1756.918	−1687.746	−1563.040	163.290
	600.00	104.760	188.426	138.054	−1661.787	30.223	−1774.842	−1685.439	−1538.314	133.922
	700.00	107.300	204.767	146.442	−1651.183	40.827	−1794.520	−1683.028	−1513.982	112.975
	800.00	109.717	219.254	154.655	−1640.331	51.679	−1815.734	−1680.508	−1490.004	97.287
	900.00	112.064	232.313	162.570	−1629.242	62.768	−1838.323	−1677.888	−1466.347	85.105
	1000.00	114.367	244.240	170.149	−1617.920	74.090	−1862.159	−1675.190	−1442.986	75.374
	1100.00	116.641	255.247	177.391	−1606.369	85.641	−1887.140	−1672.463	−1419.898	67.425
	1200.00	118.896	265.493	184.311	−1594.592	97.418	−1913.183	−1669.744	−1397.058	60.812
	1300.00	121.137	275.098	190.929	−1582.590	109.420	−1940.218	−1667.068	−1374.443	55.226
	1400.00	123.368	284.157	197.268	−1570.365	121.645	−1968.185	−1664.469	−1352.031	50.445
	1430.00	124.035	286.780	199.118	−1566.654	125.356	−1976.749	−1663.709	−1345.344	49.142
			40.962		58.576					
LIQ	1430.00	156.900	327.742	199.118	−1508.078	183.932	−1976.749	−1605.133	−1345.344	49.142
	1500.00	156.900	335.240	205.297	−1497.095	194.915	−1999.955	−1601.154	−1332.724	46.410
	1600.00	156.900	345.366	213.738	−1481.405	210.605	−2033.991	−1595.778	−1315.006	42.931
	1700.00	156.900	354.878	221.763	−1465.715	226.295	−2069.008	−1605.412	−1297.397	39.864
	1800.00	156.900	363.846	229.410	−1450.025	241.985	−2104.948	−1600.433	−1279.422	37.128
	1900.00	156.900	372.330	236.711	−1434.335	257.675	−2141.761	−1595.468	−1261.723	34.687
	2000.00	156.900	380.377	243.695	−1418.645	273.365	−2179.400	−1590.519	−1244.286	32.497

References

Phase	H / S	C_p
SOL	Pa2	Pa2
LIQ	Pa2	Pa2

219.495 DYSPROSIUM FLUORIDE (GAS) **DyF3**[g]

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	71.315	341.110	341.110	-1245.577	0.000	-1347.279	-1245.577	-1234.254	216.236
	300.00	71.439	341.551	341.111	-1245.445	0.132	-1347.910	-1245.584	-1234.184	214.891
	400.00	75.932	362.803	343.978	-1238.047	7.530	-1383.168	-1245.816	-1230.343	160.666
	500.00	78.218	380.016	349.520	-1230.329	15.248	-1420.337	-1245.948	-1226.459	128.127
	600.00	79.635	394.411	355.835	-1222.432	23.145	-1459.078	-1246.084	-1222.550	106.432
	700.00	80.641	406.766	362.249	-1214.415	31.162	-1499.151	-1246.261	-1218.614	90.934
	800.00	81.429	417.587	368.504	-1206.311	39.266	-1540.380	-1246.488	-1214.649	79.308
	900.00	82.090	427.217	374.502	-1198.134	47.443	-1582.629	-1246.780	-1210.653	70.264
	1000.00	82.671	435.897	380.215	-1189.895	55.682	-1625.792	-1247.166	-1206.619	63.027
	1100.00	83.201	443.801	385.641	-1181.601	63.976	-1669.783	-1247.695	-1202.540	57.104
	1200.00	83.696	451.062	390.795	-1173.256	72.321	-1714.531	-1248.408	-1198.405	52.165
	1300.00	84.166	457.780	395.692	-1164.863	80.714	-1759.977	-1249.341	-1194.202	47.984
	1400.00	84.618	464.034	400.353	-1156.423	89.154	-1806.071	-1250.528	-1189.918	44.396
	1500.00	85.057	469.887	404.796	-1147.940	97.637	-1852.770	-1251.999	-1185.539	41.284
	1600.00	85.486	475.390	409.038	-1139.412	106.165	-1900.037	-1253.785	-1181.052	38.557
	1700.00	85.907	480.586	413.095	-1130.843	114.734	-1947.838	-1270.540	-1176.227	36.141
	1800.00	86.322	485.508	416.982	-1122.231	123.346	-1996.145	-1272.639	-1170.618	33.970
	1900.00	86.732	490.186	420.713	-1113.578	131.999	-2044.932	-1274.712	-1164.894	32.025
	2000.00	87.138	494.645	424.299	-1104.885	140.692	-2094.175	-1276.759	-1159.061	30.272

References

Phase	H / S	C_p
GAS	Pa2	Pa2

DyI3[g] DYSPROSIUM IODIDE (GAS) 543.213

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	81.477	432.488	432.488	−332.210	0.000	−461.156	−332.210	−386.885	67.781
	300.00	81.493	432.992	432.490	−332.059	0.151	−461.957	−332.262	−387.224	67.422
	400.00	82.167	456.537	435.695	−323.873	8.337	−506.488	−359.344	−404.261	52.791
	500.00	82.619	474.923	441.769	−315.633	16.577	−553.095	−426.199	−409.020	42.730
	600.00	82.983	490.020	448.590	−307.352	24.858	−601.364	−426.370	−405.569	35.308
	700.00	83.305	502.836	455.447	−299.038	33.172	−651.023	−426.567	−402.087	30.004
	800.00	83.605	513.980	462.082	−290.692	41.518	−701.876	−426.802	−398.574	26.024
	900.00	83.893	523.844	468.407	−282.317	49.893	−753.776	−427.095	−395.029	22.927
	1000.00	84.172	532.697	474.401	−273.914	58.296	−806.611	−427.477	−391.447	20.447
	1100.00	84.446	540.732	480.071	−265.483	66.727	−860.288	−428.002	−387.820	18.416
	1200.00	84.717	548.092	485.437	−257.025	75.185	−914.735	−428.711	−384.137	16.721
	1300.00	84.985	554.883	490.521	−248.540	83.670	−969.888	−429.644	−380.386	15.284
	1400.00	85.251	561.191	495.347	−240.028	92.182	−1025.695	−430.835	−376.554	14.049
	1500.00	85.516	567.082	499.935	−231.489	100.721	−1082.112	−432.316	−372.627	12.976
	1600.00	85.780	572.609	504.306	−222.924	109.286	−1139.100	−434.119	−368.591	12.033
	1700.00	86.044	577.818	508.479	−214.333	117.877	−1196.623	−450.898	−364.216	11.191
	1800.00	86.306	582.743	512.469	−205.716	126.494	−1254.654	−453.029	−359.055	10.420
	1900.00	86.568	587.417	516.291	−197.072	135.138	−1313.164	−455.143	−353.777	9.726
	2000.00	86.830	591.864	519.960	−188.402	143.808	−1372.130	−457.239	−348.387	9.099

References

Phase	H / S	C_p
GAS	Pa2	Pa2

372.998 DYSPROSIUM OXIDE **Dy2O3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	115.360	149.800	149.800	−1863.102	0.000	−1907.765	−1863.102	−1771.359	310.335
	300.00	115.627	150.514	149.802	−1862.888	0.214	−1908.043	−1863.074	−1770.790	308.322
	400.00	125.687	185.323	154.480	−1850.764	12.338	−1924.894	−1861.026	−1740.312	227.261
	500.00	131.378	214.028	163.605	−1837.890	25.212	−1944.904	−1858.350	−1710.435	178.688
	600.00	135.348	238.349	174.087	−1824.545	38.557	−1967.554	−1855.392	−1681.127	146.355
	700.00	138.506	259.457	184.808	−1810.847	52.255	−1992.467	−1852.312	−1652.325	123.298
	800.00	141.231	278.133	195.328	−1796.858	66.244	−2019.365	−1849.174	−1623.969	106.034
	900.00	143.704	294.913	205.477	−1782.609	80.493	−2048.031	−1846.028	−1596.007	92.630
	1000.00	146.022	310.175	215.195	−1768.122	94.980	−2078.297	−1842.942	−1568.394	81.924
	1100.00	148.237	324.196	224.475	−1753.409	109.693	−2110.025	−1840.019	−1541.082	73.180
	1200.00	150.382	337.187	233.333	−1738.477	124.625	−2143.102	−1837.342	−1514.026	65.904
	1300.00	152.479	349.307	241.793	−1723.334	139.768	−2177.433	−1834.986	−1487.181	59.756
	1400.00	154.540	360.683	249.883	−1707.983	155.119	−2212.938	−1833.019	−1460.503	54.492
	1500.00	156.575	371.414	257.631	−1692.427	170.675	−2249.548	−1831.504	−1433.951	49.935
	1600.00	158.589	381.584	265.063	−1676.668	186.434	−2287.202	−1830.504	−1407.483	45.950
	1700.00	160.589	391.258	272.204	−1660.709	202.393	−2325.848	−1859.326	−1380.629	42.422
	1800.00	162.576	400.494	279.076	−1644.551	218.551	−2365.440	−1858.725	−1352.487	39.248
	1900.00	164.553	409.337	285.701	−1628.194	234.908	−2405.934	−1857.961	−1324.382	36.410
	2000.00	166.523	417.827	292.097	−1611.641	251.461	−2447.295	−1857.034	−1296.322	33.856

References

Phase	H / S	C_p
SOL	Nb1,H7	e

Er ERBIUM 167.260

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	28.085	73.178	73.178	0.000	0.000	−21.818	0.000	0.000	0.000
	300.00	28.090	73.352	73.179	0.052	0.052	−21.954	0.000	0.000	0.000
	400.00	28.382	81.472	74.284	2.875	2.875	−29.714	0.000	0.000	0.000
	500.00	28.740	87.842	76.381	5.731	5.731	−38.190	0.000	0.000	0.000
	600.00	29.193	93.121	78.743	8.626	8.626	−47.246	0.000	0.000	0.000
	700.00	29.750	97.661	81.129	11.573	11.573	−56.790	0.000	0.000	0.000
	800.00	30.418	101.676	83.451	14.580	14.580	−66.761	0.000	0.000	0.000
	900.00	31.197	105.303	85.681	17.660	17.660	−77.112	0.000	0.000	0.000
	1000.00	32.089	108.635	87.812	20.823	20.823	−87.812	0.000	0.000	0.000
	1100.00	33.094	111.740	89.847	24.082	24.082	−98.832	0.000	0.000	0.000
	1200.00	34.213	114.666	91.795	27.446	27.446	−110.154	0.000	0.000	0.000
	1300.00	35.446	117.453	93.662	30.928	30.928	−121.761	0.000	0.000	0.000
	1400.00	36.793	120.128	95.457	34.539	34.539	−133.640	0.000	0.000	0.000
	1500.00	38.254	122.716	97.189	38.291	38.291	−145.783	0.000	0.000	0.000
	1600.00	39.830	125.234	98.863	42.194	42.194	−158.181	0.000	0.000	0.000
	1700.00	41.519	127.699	100.487	46.260	46.260	−170.828	0.000	0.000	0.000
	1795.00	43.230	130.003	101.989	50.285	50.285	−183.069	0.000	0.000	0.000
			11.088		19.903					
LIQ	1795.00	38.702	141.091	101.989	70.188	70.188	−183.069	0.000	0.000	0.000
	1800.00	38.702	141.198	102.097	70.382	70.382	−183.775	0.000	0.000	0.000
	1900.00	38.702	143.291	104.211	74.252	74.252	−198.001	0.000	0.000	0.000
	2000.00	38.702	145.276	106.215	78.122	78.122	−212.430	0.000	0.000	0.000
	2100.00	38.702	147.164	108.120	81.992	81.992	−227.053	0.000	0.000	0.000
	2200.00	38.702	148.965	109.936	85.862	85.862	−241.860	0.000	0.000	0.000
	2300.00	38.702	150.685	111.671	89.733	89.733	−256.843	0.000	0.000	0.000
	2400.00	38.702	152.332	113.331	93.603	93.603	−271.994	0.000	0.000	0.000
	2500.00	38.702	153.912	114.923	97.473	97.473	−287.307	0.000	0.000	0.000
	2600.00	38.702	155.430	116.452	101.343	101.343	−302.775	0.000	0.000	0.000
	2700.00	38.702	156.891	117.923	105.213	105.213	−318.391	0.000	0.000	0.000
	2800.00	38.702	158.298	119.340	109.084	109.084	−334.151	0.000	0.000	0.000
	2900.00	38.702	159.656	120.707	112.954	112.954	−350.049	0.000	0.000	0.000
	3000.00	38.702	160.968	122.027	116.824	116.824	−366.081	0.000	0.000	0.000
	3100.00	38.702	162.237	123.304	120.694	120.694	−382.241	0.000	0.000	0.000
	3132.00	38.702	162.635	123.703	121.933	121.933	−387.439	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL	Hu1	Hu1		
LIQ	Hu1	Hu1	Hu1	BPT= 3132., L= 261.4 kJ

167.260 ERBIUM (GAS) **Er**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	20.786	194.025	194.025	317.147	0.000	259.298	317.147	281.116	−49.250
	300.00	20.786	194.154	194.026	317.185	0.038	258.939	317.133	280.893	−48.908
	400.00	20.787	200.134	194.841	319.264	2.117	239.211	316.389	268.924	−35.118
	500.00	20.785	204.772	196.381	321.343	4.196	218.957	315.612	257.147	−26.864
	600.00	20.792	208.562	198.105	323.422	6.275	198.284	314.795	245.530	−21.375
	700.00	20.806	211.768	199.834	325.501	8.354	177.263	313.929	234.054	−17.465
	800.00	20.883	214.552	201.503	327.586	10.439	155.944	313.006	222.705	−14.541
	900.00	20.929	217.014	203.092	329.677	12.530	134.364	312.017	211.476	−12.274
	1000.00	21.018	219.223	204.597	331.773	14.626	112.550	310.950	200.362	−10.466
	1100.00	21.171	221.233	206.019	333.882	16.735	90.526	309.801	189.358	−8.992
	1200.00	21.384	223.084	207.365	336.010	18.863	68.309	308.564	178.462	−7.768
	1300.00	21.646	224.806	208.641	338.161	21.014	45.913	307.233	167.674	−6.737
	1400.00	21.946	226.421	209.854	340.340	23.193	23.351	305.801	156.991	−5.857
	1500.00	22.272	227.946	211.010	342.551	25.404	0.632	304.260	146.415	−5.099
	1600.00	22.617	229.394	212.114	344.795	27.648	−22.236	302.601	135.946	−4.438
	1700.00	22.972	230.776	213.172	347.075	29.928	−45.245	300.814	125.584	−3.859
	1800.00	23.333	232.099	214.187	349.390	32.243	−68.389	279.008	115.386	−3.348
	1900.00	23.694	233.370	215.163	351.741	34.594	−91.663	277.489	106.338	−2.923
	2000.00	24.051	234.595	216.104	354.128	36.981	−115.061	276.006	97.368	−2.543
	2100.00	24.402	235.777	217.013	356.551	39.404	−138.580	274.559	88.472	−2.201
	2200.00	24.743	236.920	217.892	359.008	41.861	−162.215	273.146	79.644	−1.891
	2300.00	25.073	238.027	218.744	361.499	44.352	−185.963	271.767	70.880	−1.610
	2400.00	25.389	239.101	219.569	364.023	46.876	−209.820	270.420	62.174	−1.353
	2500.00	25.691	240.144	220.372	366.577	49.430	−233.782	269.104	53.525	−1.118
	2600.00	25.976	241.157	221.152	369.160	52.013	−257.848	267.817	44.927	−0.903
	2700.00	26.245	242.142	221.911	371.771	54.624	−282.013	266.558	36.378	−0.704
	2800.00	26.495	243.101	222.651	374.409	57.262	−306.275	265.325	27.876	−0.520
	2900.00	26.727	244.035	223.372	377.070	59.923	−330.632	264.116	19.417	−0.350
	3000.00	26.939	244.945	224.076	379.753	62.606	−355.081	262.929	10.999	−0.192
	3100.00	27.132	245.831	224.764	382.457	65.310	−379.620	261.763	2.621	−0.044
	3200.00	27.304	246.696	225.436	385.179	68.032	−404.247	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

ErBr3[g] ERBIUM BROMIDE (GAS) 406.972

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	79.844	403.485	403.485	−546.012	0.000	−666.311	−546.012	−576.421	100.987
	300.00	79.883	403.979	403.486	−545.864	0.148	−667.058	−546.126	−576.609	100.397
	400.00	81.273	427.178	406.640	−537.797	8.215	−708.668	−592.605	−577.230	75.378
	500.00	81.920	445.391	412.634	−529.633	16.379	−752.329	−592.835	−573.359	59.898
	600.00	82.276	460.362	419.378	−521.422	24.590	−797.639	−593.097	−569.440	49.574
	700.00	82.494	473.062	426.163	−513.183	32.829	−844.326	−593.407	−565.474	42.196
	800.00	82.638	484.087	432.730	−504.926	41.086	−892.196	−593.779	−561.459	36.659
	900.00	82.739	493.827	438.988	−496.657	49.355	−941.101	−594.226	−557.393	32.350
	1000.00	82.814	502.549	444.915	−488.379	57.633	−990.927	−594.760	−553.272	28.900
	1100.00	82.872	510.444	450.519	−480.094	65.918	−1041.583	−595.393	−549.094	26.074
	1200.00	82.918	517.657	455.818	−471.805	74.207	−1092.993	−596.137	−544.853	23.717
	1300.00	82.955	524.296	460.833	−463.511	82.501	−1145.095	−597.004	−540.545	21.719
	1400.00	82.987	530.445	465.589	−455.214	90.798	−1197.836	−598.005	−536.165	20.005
	1500.00	83.014	536.171	470.106	−446.914	99.098	−1251.170	−599.152	−531.709	18.516
	1600.00	83.038	541.529	474.404	−438.611	107.401	−1305.058	−600.457	−527.171	17.210
	1700.00	83.059	546.564	478.502	−430.306	115.706	−1359.465	−601.930	−522.546	16.056
	1800.00	83.078	551.312	482.416	−421.999	124.013	−1414.362	−623.464	−517.774	15.025
	1900.00	83.095	555.804	486.162	−413.691	132.321	−1469.719	−624.752	−511.868	14.072
	2000.00	83.111	560.067	489.751	−405.381	140.631	−1525.515	−626.047	−505.893	13.213

References

Phase	H / S	C_p
GAS	Pa2	Pa2

273.618 ERBIUM CHLORIDE **ErCl3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	98.062	152.716	152.716	−994.537	0.000	−1040.069	−994.537	−918.468	160.912
	300.00	98.129	153.323	152.718	−994.356	0.181	−1040.352	−994.502	−917.996	159.837
	400.00	101.143	181.989	156.606	−984.384	10.153	−1057.179	−992.554	−892.786	116.586
	500.00	103.546	204.823	164.042	−974.146	20.391	−1076.558	−990.528	−868.076	90.687
	600.00	105.707	223.895	172.471	−963.682	30.855	−1098.020	−988.413	−843.783	73.458
	700.00	107.755	240.345	181.019	−953.009	41.528	−1121.250	−986.201	−819.851	61.178
	800.00	109.743	254.864	189.359	−942.133	52.404	−1146.024	−983.891	−796.244	51.989
	900.00	111.695	267.903	197.374	−931.061	63.476	−1172.174	−981.487	−772.931	44.860
	1000.00	113.625	279.771	205.029	−919.795	74.742	−1199.566	−978.996	−749.891	39.170
	1049.00	114.565	285.229	208.649	−914.205	80.332	−1213.409	−977.746	−738.695	36.783
			31.111		32.635					
LIQ	1049.00	141.001	316.339	208.649	−881.570	112.967	−1213.409	−945.111	−738.695	36.783
	1100.00	141.001	323.033	213.798	−874.378	120.159	−1229.715	−942.468	−728.723	34.604
	1200.00	141.001	335.302	223.419	−860.278	134.259	−1262.640	−937.379	−709.517	30.884

References

Phase	H / S	C_p
SOL	Pa2	Pa2
LIQ	Dw2	Dw2

ErCl3[g] ERBIUM CHLORIDE (GAS) 273.618

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	78.117	376.226	376.226	−674.042	0.000	−786.214	−674.042	−664.612	116.437
	300.00	78.177	376.709	376.227	−673.897	0.145	−786.910	−674.044	−664.554	115.709
	400.00	80.268	399.528	379.324	−665.960	8.082	−825.772	−674.131	−661.378	86.367
	500.00	81.245	417.557	385.231	−657.879	16.163	−866.658	−674.261	−658.176	68.759
	600.00	81.783	432.421	391.894	−649.726	24.316	−909.178	−674.456	−654.942	57.018
	700.00	82.115	445.055	398.609	−641.530	32.512	−953.068	−674.722	−651.669	48.628
	800.00	82.335	456.035	405.116	−633.306	40.736	−998.134	−675.064	−648.354	42.333
	900.00	82.492	465.742	411.323	−625.065	48.977	−1044.233	−675.490	−644.990	37.434
	1000.00	82.609	474.440	417.207	−616.809	57.233	−1091.249	−676.010	−641.574	33.512
	1100.00	82.700	482.318	422.774	−608.544	65.498	−1139.093	−676.633	−638.101	30.301
	1200.00	82.773	489.517	428.040	−600.270	73.772	−1187.690	−677.370	−634.567	27.622
	1300.00	82.833	496.145	433.028	−591.990	82.052	−1236.978	−678.231	−630.966	25.353
	1400.00	82.885	502.285	437.758	−583.704	90.338	−1286.903	−679.228	−627.294	23.405
	1500.00	82.930	508.005	442.253	−575.413	98.629	−1337.421	−680.372	−623.545	21.714
	1600.00	82.969	513.359	446.531	−567.118	106.924	−1388.492	−681.674	−619.715	20.232
	1700.00	83.005	518.390	450.612	−558.819	115.223	−1440.082	−683.146	−615.799	18.921
	1800.00	83.038	523.135	454.510	−550.517	123.525	−1492.160	−704.681	−611.735	17.752
	1900.00	83.068	527.626	458.241	−542.212	131.830	−1544.701	−705.972	−606.536	16.675
	2000.00	83.096	531.887	461.818	−533.903	140.139	−1597.678	−707.271	−601.269	15.704

References

Phase	H / S	C_p
GAS	Pa2	Pa2

ErCl3*6H2O ERBIUM CHLORIDE HEXAHYDRATE 381.710

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	343.092	398.702	398.702	−2874.408	0.000	−2993.281	−2874.408	−2454.412	430.003
	300.00	343.139	400.824	398.708	−2873.773	0.635	−2994.020	−2874.403	−2451.806	426.897
	400.00	345.405	499.860	412.196	−2839.342	35.066	−3039.286	−2874.345	−2310.961	301.781
	500.00	347.398	577.152	437.738	−2804.701	69.707	−3093.277	−2874.628	−2170.088	226.708
	600.00	349.283	640.657	466.421	−2769.866	104.542	−3154.261	−2875.195	−2029.132	176.652

References

Phase	H / S	C_p
SOL	Nb1	e

224.255 ERBIUM FLUORIDE **ErF3**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	96.231	117.570	117.570	−1693.683	0.000	−1728.737	−1693.683	−1616.224	283.156
	300.00	96.329	118.166	117.572	−1693.505	0.178	−1728.955	−1693.644	−1615.743	281.326
	400.00	100.068	146.448	121.403	−1683.665	10.018	−1742.244	−1691.447	−1590.104	207.646
	500.00	102.379	169.040	128.747	−1673.536	20.147	−1758.056	−1689.219	−1565.027	163.497
	600.00	104.253	187.875	137.075	−1663.203	30.480	−1775.928	−1686.991	−1540.397	134.104
	700.00	106.022	204.078	145.516	−1652.689	40.994	−1795.544	−1684.749	−1516.142	113.136
	800.00	107.826	218.352	153.745	−1641.997	51.686	−1816.679	−1682.473	−1492.210	97.431
	900.00	109.729	231.161	161.648	−1631.121	62.562	−1839.166	−1680.148	−1468.566	85.233
	1000.00	111.765	242.826	169.191	−1620.047	73.636	−1862.874	−1677.759	−1445.185	75.489
	1100.00	113.955	253.580	176.380	−1608.762	84.921	−1887.701	−1675.292	−1422.046	67.527
	1200.00	116.310	263.595	183.235	−1597.251	96.432	−1913.565	−1672.737	−1399.136	60.903
	1300.00	118.838	273.004	189.782	−1585.495	108.188	−1940.400	−1670.083	−1376.442	55.306
	1390.00	121.265	281.038	195.433	−1574.691	118.992	−1965.334	−1667.602	−1356.197	50.964
			21.251		29.539					
SOL−B	1390.00	134.892	302.289	195.433	−1545.152	148.531	−1965.334	−1638.063	−1356.197	50.964
	1400.00	134.892	303.256	196.199	−1543.803	149.880	−1968.362	−1637.646	−1354.171	50.525
	1419.00	134.892	305.075	197.645	−1541.240	152.443	−1974.141	−1636.860	−1350.329	49.707
			19.903		28.242					
LIQ	1419.00	139.118	324.977	197.645	−1512.998	180.685	−1974.141	−1608.618	−1350.329	49.707
	1500.00	139.118	332.700	204.731	−1501.730	191.953	−2000.780	−1604.990	−1335.687	46.513
	1600.00	139.118	341.679	213.013	−1487.818	205.865	−2034.504	−1600.666	−1317.876	43.024
	1700.00	139.118	350.113	220.832	−1473.906	219.777	−2069.098	−1596.523	−1300.329	39.954
	1800.00	139.118	358.065	228.237	−1459.994	233.689	−2104.510	−1612.451	−1282.965	37.231
	1900.00	139.118	365.586	235.270	−1446.082	247.601	−2140.696	−1608.144	−1264.778	34.771
	2000.00	139.118	372.722	241.966	−1432.171	261.512	−2177.615	−1603.851	−1246.817	32.564

References

Phase	H / S	C_p
SOL−A	Pa2	Pa2
SOL−B	Pa2	Pa2
LIQ	Pa2	Pa2

ErF3[g] ERBIUM FLUORIDE (GAS) 224.255

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	71.009	340.110	340.110	−1244.740	0.000	−1346.144	−1244.740	−1233.631	216.127
	300.00	71.115	340.549	340.111	−1244.609	0.131	−1346.773	−1244.747	−1233.562	214.782
	400.00	75.418	361.658	342.960	−1237.261	7.479	−1381.924	−1245.043	−1229.784	160.593
	500.00	77.852	378.773	348.465	−1229.586	15.154	−1418.973	−1245.269	−1225.943	128.073
	600.00	79.322	393.107	354.744	−1221.722	23.018	−1457.586	−1245.510	−1222.056	106.389
	700.00	80.268	405.411	361.124	−1213.739	31.001	−1497.527	−1245.799	−1218.125	90.898
	800.00	80.908	416.173	367.346	−1205.679	39.061	−1538.617	−1246.155	−1214.148	79.276
	900.00	81.361	425.731	373.313	−1197.564	47.176	−1580.721	−1246.591	−1210.122	70.234
	1000.00	81.691	434.321	378.991	−1189.410	55.330	−1623.731	−1247.122	−1206.042	62.997
	1100.00	81.939	442.119	384.381	−1181.228	63.512	−1667.559	−1247.758	−1201.904	57.074
	1200.00	82.129	449.257	389.494	−1173.024	71.716	−1712.133	−1248.510	−1197.703	52.135
	1300.00	82.278	455.837	394.348	−1164.804	79.936	−1757.392	−1249.392	−1193.435	47.953
	1400.00	82.396	461.939	398.960	−1156.570	88.170	−1803.284	−1250.413	−1189.093	44.366
	1500.00	82.491	467.627	403.351	−1148.325	96.415	−1849.766	−1251.585	−1184.673	41.254
	1600.00	82.568	472.953	407.536	−1140.072	104.668	−1896.798	−1252.920	−1180.169	38.529
	1700.00	82.632	477.961	411.533	−1131.812	112.928	−1944.346	−1254.429	−1175.577	36.121
	1800.00	82.684	482.686	415.356	−1123.546	121.194	−1992.381	−1276.003	−1170.836	33.977
	1900.00	82.728	487.157	419.018	−1115.276	129.464	−2040.875	−1277.337	−1164.957	32.027
	2000.00	82.764	491.402	422.532	−1107.001	137.739	−2089.804	−1278.682	−1159.007	30.270

References

Phase	H / S	C_p
GAS	Pa2	Pa2

547.973 ERBIUM IODIDE (GAS) **ErI3**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	81.445	431.610	431.610	−339.741	0.000	−468.425	−339.741	−394.666	69.144
	300.00	81.465	432.113	431.611	−339.590	0.151	−469.224	−339.793	−395.006	68.777
	400.00	82.184	455.663	434.817	−331.403	8.338	−513.668	−366.887	−412.126	53.818
	500.00	82.519	474.041	440.891	−323.166	16.575	−560.187	−433.796	−416.960	43.560
	600.00	82.704	489.104	447.709	−314.904	24.837	−608.366	−434.057	−413.569	36.004
	700.00	82.817	501.862	454.557	−306.627	33.114	−657.931	−434.371	−410.131	30.604
	800.00	82.892	512.926	461.177	−298.342	41.399	−708.683	−434.751	−406.643	26.551
	900.00	82.946	522.693	467.480	−290.050	49.691	−760.473	−435.209	−403.103	23.395
	1000.00	82.985	531.434	473.446	−281.753	57.988	−813.187	−435.757	−399.507	20.868
	1100.00	83.016	539.345	479.083	−273.453	66.288	−866.732	−436.407	−395.851	18.797
	1200.00	83.040	546.569	484.410	−265.150	74.591	−921.033	−437.171	−392.132	17.069
	1300.00	83.060	553.217	489.451	−256.845	82.896	−976.027	−438.059	−388.343	15.604
	1400.00	83.077	559.373	494.228	−248.538	91.203	−1031.660	−439.084	−384.481	14.345
	1500.00	83.092	565.105	498.764	−240.230	99.511	−1087.887	−440.257	−380.541	13.252
	1600.00	83.105	570.468	503.080	−231.920	107.821	−1144.669	−441.590	−376.517	12.292
	1700.00	83.116	575.507	507.194	−223.609	116.132	−1201.970	−443.093	−372.405	11.443
	1800.00	83.127	580.258	511.122	−215.297	124.444	−1259.761	−464.660	−368.144	10.683
	1900.00	83.136	584.753	514.880	−206.983	132.758	−1318.013	−465.983	−362.746	9.973
	2000.00	83.145	589.017	518.481	−198.669	141.072	−1376.704	−467.313	−357.278	9.331

References

Phase	H / S	C_p
GAS	Pa2	Pa2

Er2O3 ERBIUM OXIDE (CUBIC) 382.518

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	108.490	155.645	155.645	−1897.862	0.000	−1944.267	−1897.862	−1808.884	316.909
	300.00	108.700	156.317	155.647	−1897.661	0.201	−1944.556	−1897.847	−1808.332	314.859
	400.00	116.439	188.785	160.021	−1886.356	11.506	−1961.870	−1896.645	−1778.659	232.269
	500.00	120.592	215.252	168.504	−1874.488	23.374	−1982.114	−1895.076	−1749.340	182.752
	600.00	123.334	237.495	178.198	−1862.284	35.578	−2004.781	−1893.403	−1720.349	149.770
	700.00	125.410	256.669	188.070	−1849.843	48.019	−2029.511	−1891.736	−1691.639	126.232
	800.00	127.130	273.530	197.720	−1837.214	60.648	−2056.038	−1890.127	−1663.165	108.594
	900.00	128.644	288.593	206.995	−1824.424	73.438	−2084.157	−1888.605	−1634.887	94.886
	1000.00	130.030	302.219	215.847	−1811.489	86.373	−2113.709	−1887.190	−1606.773	83.929
	1100.00	131.331	314.674	224.273	−1798.420	99.442	−2144.562	−1885.902	−1578.795	74.971
	1200.00	132.576	326.155	232.291	−1785.225	112.637	−2176.611	−1884.758	−1550.927	67.510
	1300.00	133.781	336.815	239.926	−1771.907	125.955	−2209.766	−1883.779	−1523.149	61.201
	1400.00	134.956	346.772	247.206	−1758.469	139.393	−2243.951	−1882.984	−1495.439	55.796
	1500.00	136.110	356.123	254.159	−1744.916	152.946	−2279.100	−1882.395	−1467.780	51.113
	1600.00	137.248	364.943	260.810	−1731.248	166.614	−2315.157	−1882.034	−1440.152	47.016
	1700.00	138.373	373.298	267.183	−1717.467	180.395	−2352.073	−1881.924	−1412.539	43.402
	1800.00	139.487	381.239	273.301	−1703.574	194.288	−2389.803	−1921.847	−1384.814	40.186
	1900.00	140.594	388.810	279.182	−1689.570	208.292	−2428.309	−1921.193	−1354.996	37.251
	2000.00	141.695	396.050	284.846	−1675.455	222.407	−2467.554	−1920.462	−1325.215	34.611

References

Phase	H / S	C_p
SOL	Nb1	Pa1

151.965 EUROPIUM **Eu**

Phase	T	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	27.656	77.822	77.822	0.000	0.000	–23.203	0.000	0.000	0.000
	300.00	27.656	77.993	77.823	0.051	0.051	–23.347	0.000	0.000	0.000
	400.00	27.949	85.973	78.909	2.825	2.825	–31.564	0.000	0.000	0.000
	500.00	28.953	92.306	80.975	5.666	5.666	–40.487	0.000	0.000	0.000
	600.00	30.292	97.702	83.323	8.627	8.627	–49.994	0.000	0.000	0.000
	700.00	31.464	102.465	85.724	11.719	11.719	–60.007	0.000	0.000	0.000
	800.00	32.970	106.753	88.089	14.931	14.931	–70.471	0.000	0.000	0.000
	900.00	35.313	110.766	90.387	18.341	18.341	–81.349	0.000	0.000	0.000
	1000.00	38.032	114.625	92.619	22.006	22.006	–92.619	0.000	0.000	0.000
	1090.00	40.919	118.020	94.577	25.553	25.553	–103.088	0.000	0.000	0.000
			8.452		9.213					
LIQ	1090.00	38.116	126.472	94.577	34.766	34.766	–103.088	0.000	0.000	0.000
	1100.00	38.116	126.820	94.868	35.147	35.147	–104.355	0.000	0.000	0.000
	1200.00	38.116	130.137	97.671	38.959	38.959	–117.205	0.000	0.000	0.000
	1300.00	38.116	133.188	100.287	42.771	42.771	–130.373	0.000	0.000	0.000
	1400.00	38.116	136.013	102.739	46.582	46.582	–143.835	0.000	0.000	0.000
	1500.00	38.116	138.642	105.046	50.394	50.394	–157.569	0.000	0.000	0.000
	1600.00	38.116	141.102	107.224	54.206	54.206	–171.558	0.000	0.000	0.000
	1700.00	38.116	143.413	109.285	58.017	58.017	–185.785	0.000	0.000	0.000
	1798.00	38.116	145.549	111.204	61.753	61.753	–199.945	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL	Pa1	Pa1		
LIQ	Pa1	Pa1	Pa1	BPT= 1798., L= 144.7 kJ

Eu[g] EUROPIUM (GAS) 151.965

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.786	188.716	188.716	175.310	0.000	119.044	175.310	142.247	−24.921
	300.00	20.786	188.844	188.716	175.348	0.038	118.695	175.297	142.042	−24.732
	400.00	20.786	194.824	189.532	177.427	2.117	99.497	174.602	131.061	−17.115
	500.00	20.786	199.462	191.071	179.506	4.196	79.774	173.840	120.262	−12.564
	600.00	20.786	203.252	192.795	181.584	6.274	59.633	172.957	109.627	−9.544
	700.00	20.786	206.456	194.524	183.663	8.353	39.143	171.944	99.150	−7.399
	800.00	20.786	209.232	196.193	185.742	10.432	18.356	170.810	88.827	−5.800
	900.00	20.786	211.680	197.780	187.820	12.510	−2.692	169.479	78.656	−4.565
	1000.00	20.786	213.870	199.282	189.899	14.589	−23.972	167.893	68.648	−3.586
	1100.00	20.786	215.851	200.699	191.977	16.667	−45.459	156.830	58.896	−2.797
	1200.00	20.786	217.660	202.038	194.056	18.746	−67.136	155.097	50.069	−2.179
	1300.00	20.790	219.324	203.305	196.135	20.825	−88.986	153.364	41.387	−1.663
	1400.00	20.800	220.865	204.505	198.214	22.904	−110.997	151.632	32.838	−1.225
	1500.00	20.819	222.301	205.644	200.295	24.985	−133.156	149.901	24.414	−0.850
	1600.00	20.853	223.645	206.727	202.378	27.068	−155.454	148.173	16.104	−0.526
	1700.00	20.909	224.911	207.760	204.466	29.156	−177.882	146.449	7.903	−0.243
	1800.00	20.998	226.108	208.747	206.561	31.251	−200.434	0.000	0.000	0.000
	1900.00	21.130	227.247	209.691	208.667	33.357	−223.102	0.000	0.000	0.000
	2000.00	21.317	228.335	210.596	210.789	35.479	−245.882	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Pa1,e	Pa1

311.773 EUROPIUM DIBROMIDE **EuBr2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[	J / (K mol)	]	[		kJ / mol		]	
SOL	298.15	82.394	136.817	136.817	−719.648	0.000	−760.440	−719.648	−691.856	121.210
	300.00	82.425	137.327	136.818	−719.496	0.152	−760.694	−719.687	−691.683	120.433
	400.00	84.098	161.268	140.071	−711.169	8.479	−775.677	−748.617	−676.296	88.315
	500.00	85.772	180.214	146.269	−702.676	16.972	−792.783	−746.656	−658.442	68.787
	600.00	87.446	196.000	153.278	−694.015	25.633	−811.615	−744.675	−640.986	55.803
	700.00	89.119	209.605	160.375	−685.187	34.461	−831.910	−742.673	−623.862	46.553
	800.00	90.793	221.615	167.294	−676.191	43.457	−853.483	−740.638	−607.028	39.635
	900.00	92.466	232.405	173.939	−667.028	52.620	−876.193	−738.642	−590.447	34.269
	956.00	93.404	238.015	177.529	−661.824	57.824	−889.366	−737.564	−581.259	31.759
			26.303		25.146					
LIQ	956.00	108.784	264.318	177.529	−636.678	82.970	−889.366	−712.418	−581.259	31.759
	1000.00	108.784	269.213	181.456	−631.891	87.757	−901.104	−710.935	−575.256	30.048
	1100.00	108.784	279.581	189.913	−621.013	98.635	−928.552	−716.972	−561.759	26.676
	1200.00	108.784	289.047	197.785	−610.135	109.513	−956.991	−713.685	−547.794	23.845
	1300.00	108.784	297.754	205.145	−599.256	120.392	−986.336	−710.404	−534.103	21.461
	1400.00	108.784	305.816	212.051	−588.378	131.270	−1016.520	−707.128	−520.664	19.426
	1500.00	108.784	313.321	218.555	−577.499	142.149	−1047.481	−703.859	−507.459	17.671

References

Phase	H / S	C_p
SOL	Pa2	Pa2
LIQ	Pa2	Pa2

311.773 EUROPIUM DIBROMIDE (GAS) **EuBr2**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[	J / (K mol)	]	[		kJ / mol		]	
GAS	298.15	60.666	337.340	337.340	−372.376	0.000	−472.954	−372.376	−404.370	70.844
	300.00	60.680	337.715	337.341	−372.264	0.112	−473.578	−372.455	−404.568	70.442
	400.00	61.256	355.258	339.729	−366.164	6.212	−508.268	−403.612	−408.887	53.395
	500.00	61.636	368.970	344.255	−360.019	12.357	−544.504	−403.999	−410.163	42.849
	600.00	61.939	380.235	349.341	−353.840	18.536	−581.981	−404.499	−411.351	35.811
	700.00	62.206	389.803	354.455	−347.632	24.744	−620.495	−405.119	−412.446	30.777
	800.00	62.454	398.126	359.405	−341.399	30.977	−659.900	−405.846	−413.445	26.995
	900.00	62.690	405.496	364.125	−335.142	37.234	−700.088	−406.756	−414.342	24.048
	1000.00	62.919	412.113	368.598	−328.861	43.515	−740.974	−407.905	−415.126	21.684
	1100.00	63.144	418.120	372.831	−322.558	49.818	−782.490	−418.517	−415.697	19.740
	1200.00	63.366	423.624	376.838	−316.232	56.144	−824.581	−419.783	−415.385	18.081
	1300.00	63.585	428.705	380.635	−309.885	62.491	−867.201	−421.032	−414.967	16.674
	1400.00	63.803	433.425	384.239	−303.515	68.861	−910.310	−422.266	−414.455	15.463
	1500.00	64.020	437.834	387.667	−297.124	75.252	−953.876	−423.484	−413.854	14.412

References

Phase	H / S	C_p
GAS	Pa2	Pa2

EuBr3 EUROPIUM BROMIDE 391.677

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	110.627	182.841	182.841	−753.120	0.000	−807.634	−753.120	−716.359	125.503
	300.00	110.695	183.525	182.843	−752.915	0.205	−807.973	−753.176	−716.131	124.689
	400.00	113.935	215.830	187.226	−741.678	11.442	−828.010	−796.437	−694.722	90.721
	500.00	116.749	241.561	195.605	−730.142	22.978	−850.922	−793.279	−669.656	69.958
	600.00	119.394	263.082	205.105	−718.334	34.786	−876.183	−790.010	−645.237	56.173
	700.00	121.959	281.680	214.746	−706.266	46.854	−903.442	−786.636	−621.373	46.367

References

Phase	H / S	C_p	Remarks
SOL	Pa2	Pa2	Pa2 NDPT= 667. (to EuBr2(SOL) + Br2(GAS))

EuCl3 EUROPIUM CHLORIDE 258.323

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	107.013	144.055	144.055	−935.961	0.000	−978.911	−935.961	−855.925	149.954
	300.00	107.106	144.717	144.057	−935.763	0.198	−979.178	−935.908	−855.429	148.943
	400.00	111.282	176.134	148.312	−924.832	11.129	−995.286	−932.953	−829.042	108.262
	500.00	114.616	201.333	156.478	−913.533	22.428	−1014.200	−929.850	−803.421	83.933
	600.00	117.620	222.499	165.763	−901.920	34.041	−1035.419	−926.651	−778.434	67.769
	700.00	120.468	240.845	175.207	−890.015	45.946	−1058.606	−923.352	−753.991	56.263
	800.00	123.232	257.113	184.448	−877.829	58.132	−1083.519	−919.937	−730.028	47.666
	897.00	125.866	271.364	193.088	−865.748	70.213	−1109.161	−916.580	−707.197	41.182
			56.906		51.045					
LIQ	897.00	142.256	328.270	193.088	−814.703	121.258	−1109.161	−865.535	−707.197	41.182
	900.00	142.256	328.745	193.539	−814.276	121.685	−1110.146	−865.382	−706.668	41.014
	1000.00	142.256	343.733	207.823	−800.050	135.911	−1143.784	−860.433	−689.301	36.005
	1100.00	142.256	357.292	220.804	−785.825	150.136	−1178.846	−864.980	−672.331	31.926
	1200.00	142.256	369.670	232.701	−771.599	164.362	−1215.203	−860.212	−655.028	28.513
	1300.00	142.256	381.056	243.681	−757.373	178.588	−1252.747	−855.458	−638.122	25.640

References

Phase	H / S	C_p
SOL	Pa2	Pa2
LIQ	Pa2	Pa2

258.323 EUROPIUM CHLORIDE (GAS) **EuCl3[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	87.986	363.674	363.674	−658.143	0.000	−766.572	−658.143	−643.586	112.754
	300.00	88.044	364.218	363.676	−657.980	0.163	−767.246	−658.126	−643.496	112.043
	400.00	90.073	389.866	367.159	−649.060	9.083	−805.006	−657.181	−638.763	83.414
	500.00	91.141	410.089	373.794	−639.995	18.148	−845.040	−656.312	−634.261	66.261
	600.00	91.864	426.773	381.274	−630.843	27.300	−886.907	−655.575	−629.922	54.840
	700.00	92.382	440.975	388.813	−621.629	36.514	−930.312	−654.967	−625.697	46.690
	800.00	92.742	453.336	396.123	−612.372	45.771	−975.041	−654.480	−621.550	40.583
	900.00	92.965	464.274	403.099	−603.086	55.057	−1020.932	−654.192	−617.454	35.836
	1000.00	93.065	474.075	409.715	−593.783	64.360	−1067.858	−654.166	−613.375	32.039
	1100.00	93.058	482.945	415.976	−584.476	73.667	−1115.716	−663.632	−609.201	28.929
	1200.00	92.955	491.039	421.899	−575.175	82.968	−1164.421	−663.788	−604.246	26.302
	1300.00	92.770	498.472	427.507	−565.888	92.255	−1213.902	−663.972	−599.277	24.079
	1400.00	92.515	505.338	432.824	−556.623	101.520	−1264.097	−664.191	−594.293	22.173
	1500.00	92.205	511.711	437.873	−547.387	110.756	−1314.953	−664.449	−589.291	20.521
	1600.00	91.853	517.651	442.676	−538.183	119.960	−1366.425	−664.751	−584.271	19.074
	1700.00	91.472	523.208	447.252	−529.017	129.126	−1418.471	−665.101	−579.231	17.798
	1800.00	91.076	528.425	451.618	−519.890	138.253	−1471.055	−810.233	−573.971	16.656
	1900.00	90.679	533.339	455.791	−510.802	147.341	−1524.146	−808.978	−560.879	15.420
	2000.00	90.294	537.980	459.785	−501.753	156.390	−1577.714	−807.789	−547.853	14.308

References

Phase	H / S	C_p
GAS	Pa2	Pa2

366.415 EUROPIUM CHLORIDE HEXAHYDRATE **EuCl3*6H2O**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	366.909	407.103	407.103	−2784.900	0.000	−2906.278	−2784.900	−2366.025	414.518
	300.00	366.958	409.373	407.110	−2784.221	0.679	−2907.033	−2784.850	−2363.426	411.509
	400.00	369.573	515.298	421.535	−2747.395	37.505	−2953.514	−2782.347	−2223.338	290.338
	500.00	372.188	598.047	448.860	−2710.307	74.593	−3009.330	−2780.168	−2083.845	217.698
	600.00	374.803	666.136	479.564	−2672.957	111.943	−3072.639	−2778.286	−1944.761	169.307

References

Phase	H / S	C_p
SOL	Nb1	e

EuF3 EUROPIUM FLUORIDE 208.960

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[	J / (K mol)	]	[		kJ / mol	]		
SOL−A	298.15	99.576	107.110	107.110	−1584.062	0.000	−1615.997	−1584.062	−1502.099	263.162
	300.00	99.675	107.727	107.112	−1583.878	0.184	−1616.196	−1584.016	−1501.591	261.450
	400.00	104.297	137.063	111.081	−1573.669	10.393	−1628.494	−1581.402	−1474.505	192.551
	500.00	108.180	160.761	118.721	−1563.042	21.020	−1643.422	−1578.660	−1448.096	151.282
	600.00	111.772	180.805	127.439	−1552.043	32.019	−1660.526	−1575.832	−1422.247	123.818
	700.00	115.228	198.295	136.338	−1540.692	43.370	−1679.499	−1572.897	−1396.880	104.236
	800.00	118.610	213.903	145.075	−1529.000	55.062	−1700.122	−1569.827	−1371.943	89.579
	900.00	121.949	228.066	153.521	−1516.971	67.091	−1722.231	−1566.680	−1347.396	78.201
	920.00	122.614	230.754	155.171	−1514.526	69.536	−1726.820	−1566.046	−1342.530	76.225
			6.959		6.402					
SOL−B	920.00	150.624	237.713	155.171	−1508.124	75.938	−1726.820	−1559.644	−1342.530	76.225
	1000.00	150.624	250.272	162.284	−1496.074	87.988	−1746.346	−1554.967	−1323.849	69.151
	1100.00	150.624	264.628	170.946	−1481.011	103.051	−1772.102	−1558.607	−1300.924	61.776
	1200.00	150.624	277.734	179.307	−1465.949	118.113	−1799.230	−1552.948	−1277.749	55.619
	1300.00	150.624	289.790	187.348	−1450.887	133.175	−1827.614	−1547.317	−1255.044	50.428
	1400.00	150.624	300.953	195.069	−1435.824	148.238	−1857.158	−1541.711	−1232.772	45.995
	1500.00	150.624	311.345	202.478	−1420.762	163.300	−1887.779	−1536.125	−1210.900	42.167

References

Phase	H / S	C_p
SOL−A	Pa2	Pa2
SOL−B	Pa2	Pa2

208.960

EUROPIUM FLUORIDE (GAS) — EuF3[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[——— J / (K mol) ———]			[——— kJ / mol ———]					[−]
GAS	298.15	81.508	328.382	328.382	−1147.671	0.000	−1245.578	−1147.671	−1131.680	198.266
	300.00	81.614	328.886	328.383	−1147.520	0.151	−1246.186	−1147.658	−1131.581	197.026
	400.00	85.746	352.994	331.642	−1139.130	8.541	−1280.328	−1146.863	−1126.338	147.085
	500.00	88.121	372.404	337.917	−1130.427	17.244	−1316.630	−1146.045	−1121.303	117.142
	600.00	89.662	388.616	345.053	−1121.533	26.138	−1354.703	−1145.322	−1116.424	97.193
	700.00	90.716	402.521	352.293	−1112.511	35.160	−1394.276	−1144.717	−1111.657	82.953
	800.00	91.441	414.685	359.348	−1103.401	44.270	−1435.149	−1144.228	−1106.970	72.278
	900.00	91.923	425.485	366.108	−1094.231	53.440	−1477.168	−1143.939	−1102.332	63.978
	1000.00	92.214	435.187	372.539	−1085.023	62.648	−1520.210	−1143.916	−1097.713	57.339
	1100.00	92.350	443.984	378.640	−1075.793	71.878	−1564.175	−1153.388	−1092.997	51.902
	1200.00	92.357	452.020	384.425	−1066.557	81.114	−1608.981	−1153.556	−1087.500	47.338
	1300.00	92.258	459.409	389.913	−1057.325	90.346	−1654.558	−1153.756	−1081.988	43.475
	1400.00	92.073	466.240	395.124	−1048.108	99.563	−1700.844	−1153.995	−1076.458	40.163
	1500.00	91.819	472.584	400.079	−1038.913	108.758	−1747.789	−1154.277	−1070.910	37.292
	1600.00	91.513	478.501	404.798	−1029.746	117.925	−1795.347	−1154.606	−1065.342	34.780
	1700.00	91.171	484.038	409.298	−1020.612	127.059	−1843.477	−1154.986	−1059.752	32.562
	1800.00	90.807	489.239	413.596	−1011.513	136.158	−1892.144	−1300.150	−1053.940	30.585
	1900.00	90.437	494.139	417.707	−1002.451	145.220	−1941.315	−1298.928	−1040.295	28.600
	2000.00	90.075	498.769	421.646	−993.425	154.246	−1990.962	−1297.773	−1026.713	26.815

References

Phase	H / S	C_p
GAS	Pa2	Pa2

351.928

EUROPIUM OXIDE (CUBIC) — Eu2O3

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[——— J / (K mol) ———]			[——— kJ / mol ———]					[−]
SOL−C	298.15	124.682	140.164	140.164	−1662.722	0.000	−1704.512	−1662.722	−1566.360	274.420
	300.00	124.891	140.936	140.166	−1662.491	0.231	−1704.772	−1662.675	−1565.762	272.623
	400.00	132.865	178.083	145.177	−1649.560	13.162	−1720.793	−1659.749	−1533.881	200.304
	500.00	137.552	208.269	154.872	−1636.023	26.699	−1740.158	−1656.481	−1502.790	156.995
	600.00	140.947	233.661	165.943	−1622.091	40.631	−1762.288	−1653.212	−1472.360	128.180
	700.00	143.730	255.603	177.219	−1607.854	54.868	−1786.776	−1650.039	−1442.470	107.638
	800.00	146.188	274.958	188.250	−1593.356	69.366	−1813.322	−1646.972	−1413.029	92.261
	900.00	148.457	292.309	198.865	−1578.622	84.100	−1841.701	−1644.165	−1383.958	80.323
	1000.00	150.608	308.063	209.009	−1563.668	99.054	−1871.731	−1641.734	−1355.180	70.787
	1100.00	152.683	322.515	218.680	−1548.503	114.219	−1903.270	−1658.116	−1326.456	62.988
	1200.00	154.705	335.887	227.897	−1533.134	129.588	−1936.198	−1655.693	−1296.411	56.431
	1300.00	156.690	348.349	236.688	−1517.564	145.158	−1970.417	−1653.121	−1266.574	50.892
	1350.00	157.672	354.281	240.934	−1509.705	153.017	−1987.983	−1651.778	−1251.733	48.432

References

Phase	H / S	C_p	Remarks
SOL−C	Fi3/Pa1	Pa1	TPT (cubic − monoclinic): uncertain

Eu2O3[M] EUROPIUM OXIDE (MONOCLINIC) 351.928

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL-M1	298.15	121.754	146.022	146.022	−1651.425	0.000	−1694.961	−1651.425	−1556.809	272.746
	300.00	121.938	146.775	146.024	−1651.200	0.225	−1695.232	−1651.383	−1556.222	270.962
	400.00	129.314	182.965	150.908	−1638.602	12.823	−1711.788	−1648.791	−1524.877	199.128
	500.00	134.081	212.361	160.351	−1625.420	26.005	−1731.600	−1645.878	−1494.232	156.101
	600.00	137.822	237.147	171.138	−1611.819	39.606	−1754.108	−1642.940	−1464.180	127.468
	700.00	141.079	258.642	182.136	−1597.871	53.554	−1778.921	−1640.056	−1434.615	107.052
	800.00	144.077	277.678	192.912	−1583.612	67.813	−1805.754	−1637.228	−1405.461	91.767
	895.00	146.785	293.995	202.789	−1569.795	81.630	−1832.921	−1634.728	−1378.084	80.429
			0.608		0.544					
SOL-M2	895.00	143.511	294.603	202.789	−1569.251	82.174	−1832.921	−1634.184	−1378.084	80.429
	900.00	143.702	295.403	203.301	−1568.533	82.892	−1834.396	−1634.076	−1376.653	79.899
	1000.00	147.010	310.723	213.288	−1553.990	97.435	−1864.713	−1632.055	−1348.162	70.421
	1100.00	149.574	324.859	222.796	−1539.156	112.269	−1896.501	−1648.769	−1319.688	62.667
	1200.00	151.632	337.965	231.854	−1524.092	127.333	−1929.650	−1646.652	−1289.863	56.146
	1300.00	153.332	350.171	240.492	−1508.841	142.584	−1964.064	−1644.399	−1260.222	50.636
	1400.00	154.773	361.589	248.738	−1493.434	157.991	−1999.658	−1642.035	−1230.758	45.920
	1500.00	156.022	372.310	256.622	−1477.893	173.532	−2036.359	−1639.579	−1201.466	41.839
	1600.00	157.125	382.416	264.172	−1462.235	189.190	−2074.100	−1637.044	−1172.341	38.273
	1700.00	158.116	391.972	271.411	−1446.472	204.953	−2112.823	−1634.442	−1143.376	35.132
	1800.00	159.019	401.035	278.363	−1430.614	220.811	−2152.478	−1921.247	−1114.171	32.332
	1900.00	159.852	409.655	285.048	−1414.670	236.755	−2193.016	−1915.124	−1069.500	29.403
	2000.00	160.628	417.875	291.485	−1398.646	252.779	−2234.395	−1908.987	−1025.153	26.774

References

Phase	H / S	C_p
SOL−M1	Fi3/Nb1	Pa1
SOL−M2	Pa1	Pa1

184.031 EUROPIUM MONOSULFIDE **EuS**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	46.025	77.404	77.404	−418.400	0.000	−441.478	−418.400	−408.718	71.606
	300.00	46.041	77.689	77.405	−418.315	0.085	−441.621	−418.408	−408.658	71.154
	400.00	46.902	91.052	79.221	−413.668	4.732	−450.088	−421.116	−405.247	52.920
	500.00	47.762	101.610	82.679	−408.934	9.466	−459.740	−423.126	−401.071	41.900
	600.00	48.623	110.394	86.586	−404.115	14.285	−470.352	−424.844	−396.491	34.518
	700.00	49.484	117.954	90.540	−399.210	19.190	−481.778	−426.340	−391.647	29.225
	800.00	50.344	124.618	94.391	−394.218	24.182	−493.913	−427.921	−386.585	25.241
	900.00	51.205	130.597	98.087	−389.141	29.259	−506.679	−482.459	−380.162	22.064
	1000.00	52.066	136.037	101.614	−383.977	34.423	−520.014	−482.796	−368.779	19.263
	1100.00	52.926	141.040	104.974	−378.728	39.672	−533.872	−492.530	−357.269	16.965
	1200.00	53.787	145.682	108.175	−373.392	45.008	−548.210	−492.855	−344.957	15.016
	1300.00	54.648	150.021	111.229	−367.970	50.430	−562.998	−493.098	−332.622	13.365
	1400.00	55.508	154.102	114.147	−362.463	55.937	−578.206	−493.261	−320.271	11.949
	1500.00	56.369	157.961	116.941	−356.869	61.531	−593.811	−493.343	−307.911	10.722
	1600.00	57.230	161.627	119.620	−351.189	67.211	−609.792	−493.343	−295.549	9.649
	1700.00	58.090	165.122	122.194	−345.423	72.977	−626.131	−493.261	−283.189	8.701
	1800.00	58.951	168.467	124.673	−339.571	78.829	−642.811	−637.830	−270.638	7.854
	1900.00	59.812	171.677	127.063	−333.633	84.767	−659.820	−635.878	−250.292	6.881
	2000.00	60.672	174.767	129.371	−327.609	90.791	−677.143	−633.860	−230.050	6.008
	2100.00	61.533	177.748	131.604	−321.498	96.902	−694.769	−631.782	−209.910	5.221
	2200.00	62.393	180.631	133.768	−315.302	103.098	−712.689	−629.652	−189.870	4.508
	2300.00	63.254	183.423	135.866	−309.020	109.380	−730.892	−627.477	−169.929	3.859
	2400.00	64.115	186.133	137.905	−302.651	115.749	−749.371	−625.270	−150.083	3.266

References

Phase	H / S	C_p
SOL	Mi1	e

EuS[g] EUROPIUM MONOSULFIDE (GAS) 184.031

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	35.155	272.069	272.069	88.282	0.000	7.165	88.282	39.925	−6.995
	300.00	35.181	272.287	272.070	88.347	0.065	6.661	88.254	39.625	−6.899
	400.00	36.116	282.555	273.464	91.919	3.637	−21.103	84.470	23.738	−3.100
	500.00	36.552	290.666	276.122	95.554	7.272	−49.779	81.363	8.890	−0.929
	600.00	36.793	297.354	279.119	99.223	10.941	−79.190	78.494	−5.329	0.464
	700.00	36.941	303.037	282.140	102.910	14.628	−109.216	75.780	−19.085	1.424
	800.00	37.039	307.977	285.068	106.609	18.327	−139.772	72.907	−32.445	2.118
	900.00	37.109	312.344	287.861	110.317	22.035	−170.793	16.998	−44.276	2.570
	1000.00	37.161	316.256	290.508	114.030	25.748	−202.226	15.212	−50.991	2.663
	1100.00	37.201	319.800	293.012	117.749	29.467	−234.032	3.946	−57.429	2.727
	1200.00	37.234	323.039	295.382	121.470	33.188	−266.176	2.008	−62.923	2.739
	1300.00	37.261	326.020	297.625	125.195	36.913	−298.631	0.067	−68.255	2.743
	1400.00	37.283	328.782	299.753	128.922	40.640	−331.373	−1.876	−73.438	2.740
	1500.00	37.303	331.355	301.775	132.652	44.370	−364.381	−3.822	−78.481	2.733
	1600.00	37.321	333.763	303.700	136.383	48.101	−397.638	−5.771	−83.395	2.723
	1700.00	37.336	336.026	305.536	140.116	51.834	−431.129	−7.722	−88.187	2.710
	1800.00	37.351	338.161	307.290	143.850	55.568	−464.839	−154.409	−92.666	2.689
	1900.00	37.364	340.181	308.968	147.586	59.304	−498.757	−154.659	−89.229	2.453
	2000.00	37.377	342.097	310.577	151.323	63.041	−532.872	−154.929	−85.779	2.240

References

Phase	H / S	C_p
GAS	Mi1	Mi1

18.998 FLUORINE (GAS) **F[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	22.740	158.754	158.754	78.910	0.000	31.577	78.910	61.809	−10.829
	300.00	22.742	158.895	158.755	78.952	0.042	31.284	78.923	61.703	−10.743
	400.00	22.468	165.409	159.645	81.216	2.306	15.052	79.580	55.861	−7.295
	500.00	22.099	170.382	161.315	83.444	4.534	−1.747	80.126	49.866	−5.209
	600.00	21.815	174.385	163.170	85.639	6.729	−18.992	80.585	43.769	−3.810
	700.00	21.609	177.731	165.018	87.809	8.899	−36.603	80.980	37.601	−2.806
	800.00	21.459	180.606	166.791	89.962	11.052	−54.523	81.330	31.380	−2.049
	900.00	21.347	183.127	168.469	92.102	13.192	−72.712	81.646	25.117	−1.458
	1000.00	21.261	185.372	170.049	94.233	15.323	−91.139	81.937	18.820	−0.983
	1100.00	21.194	187.395	171.535	96.355	17.445	−109.779	82.206	12.495	−0.593
	1200.00	21.141	189.236	172.935	98.472	19.562	−128.612	82.458	6.147	−0.268
	1300.00	21.097	190.927	174.255	100.584	21.674	−147.621	82.697	−0.222	0.009
	1400.00	21.061	192.489	175.502	102.691	23.781	−166.793	82.923	−6.609	0.247
	1500.00	21.031	193.941	176.684	104.796	25.886	−186.115	83.140	−13.012	0.453
	1600.00	21.006	195.297	177.805	106.898	27.988	−205.578	83.346	−19.429	0.634
	1700.00	20.984	196.570	178.872	108.997	30.087	−225.172	83.545	−25.859	0.795
	1800.00	20.965	197.769	179.889	111.095	32.185	−244.890	83.736	−32.300	0.937
	1900.00	20.948	198.902	180.860	113.190	34.280	−264.724	83.920	−38.751	1.065
	2000.00	20.933	199.976	181.789	115.284	36.374	−284.668	84.098	−45.212	1.181
	2100.00	20.920	200.997	182.680	117.377	38.467	−304.717	84.270	−51.682	1.286
	2200.00	20.908	201.970	183.535	119.469	40.559	−324.866	84.436	−58.160	1.381
	2300.00	20.897	202.899	184.356	121.559	42.649	−345.110	84.597	−64.645	1.468
	2400.00	20.887	203.789	185.148	123.648	44.738	−365.445	84.752	−71.137	1.548
	2500.00	20.878	204.641	185.911	125.736	46.826	−385.866	84.903	−77.636	1.622
	2600.00	20.870	205.460	186.647	127.824	48.914	−406.372	85.049	−84.140	1.690
	2700.00	20.862	206.247	187.358	129.910	51.000	−426.957	85.190	−90.650	1.754
	2800.00	20.855	207.006	188.046	131.996	53.086	−447.620	85.326	−97.165	1.813
	2900.00	20.848	207.737	188.713	134.081	55.171	−468.357	85.458	−103.685	1.868
	3000.00	20.841	208.444	189.359	136.166	57.256	−489.167	85.586	−110.209	1.919

References

Phase	H / S	C_p
GAS	Ja1	Ja1

F2[g] FLUORINE (GAS) 37.997

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	31.309	202.795	202.795	0.000	0.000	−60.463	0.000	0.000	0.000
	300.00	31.335	202.989	202.796	0.058	0.058	−60.839	0.000	0.000	0.000
	400.00	32.943	212.222	204.044	3.272	3.272	−81.617	0.000	0.000	0.000
	500.00	34.246	219.722	206.452	6.635	6.635	−103.226	0.000	0.000	0.000
	600.00	35.160	226.051	209.205	10.108	10.108	−125.523	0.000	0.000	0.000
	700.00	35.809	231.523	212.011	13.658	13.658	−148.408	0.000	0.000	0.000
	800.00	36.287	236.337	214.757	17.264	17.264	−171.806	0.000	0.000	0.000
	900.00	36.653	240.633	217.398	20.912	20.912	−195.658	0.000	0.000	0.000
	1000.00	36.943	244.510	219.918	24.592	24.592	−219.918	0.000	0.000	0.000
	1100.00	37.180	248.043	222.317	28.298	28.298	−244.549	0.000	0.000	0.000
	1200.00	37.379	251.287	224.598	32.027	32.027	−269.517	0.000	0.000	0.000
	1300.00	37.550	254.285	226.768	35.773	35.773	−294.798	0.000	0.000	0.000
	1400.00	37.701	257.074	228.834	39.536	39.536	−320.367	0.000	0.000	0.000
	1500.00	37.836	259.680	230.804	43.313	43.313	−346.206	0.000	0.000	0.000
	1600.00	37.959	262.126	232.686	47.103	47.103	−372.298	0.000	0.000	0.000
	1700.00	38.072	264.430	234.486	50.904	50.904	−398.627	0.000	0.000	0.000
	1800.00	38.178	266.609	236.211	54.717	54.717	−425.180	0.000	0.000	0.000
	1900.00	38.278	268.676	237.866	58.540	58.540	−451.945	0.000	0.000	0.000
	2000.00	38.372	270.642	239.456	62.372	62.372	−478.912	0.000	0.000	0.000
	2100.00	38.463	272.516	240.986	66.214	66.214	−506.070	0.000	0.000	0.000
	2200.00	38.549	274.308	242.460	70.065	70.065	−533.412	0.000	0.000	0.000
	2300.00	38.633	276.023	243.882	73.924	73.924	−560.929	0.000	0.000	0.000
	2400.00	38.715	277.669	245.256	77.791	77.791	−588.615	0.000	0.000	0.000
	2500.00	38.795	279.251	246.584	81.667	81.667	−616.461	0.000	0.000	0.000
	2600.00	38.872	280.774	247.870	85.550	85.550	−644.463	0.000	0.000	0.000
	2700.00	38.949	282.243	249.116	89.441	89.441	−672.614	0.000	0.000	0.000
	2800.00	39.024	283.661	250.325	93.340	93.340	−700.910	0.000	0.000	0.000
	2900.00	39.097	285.031	251.498	97.246	97.246	−729.345	0.000	0.000	0.000
	3000.00	39.170	286.358	252.638	101.159	101.159	−757.915	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Ja1	Ja1

45.016 CARBON NITRIDE-FLUORIDE (GAS) **FCN[g]**

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[-]
GAS	298.15	41.758	224.604	224.604	34.332	0.000	-32.634	34.332	27.874	-4.883
	300.00	41.838	224.863	224.605	34.409	0.077	-33.049	34.338	27.834	-4.846
	400.00	45.401	237.418	226.293	38.782	4.450	-56.185	34.608	25.623	-3.346
	500.00	48.045	247.845	229.589	43.460	9.128	-80.463	34.803	23.352	-2.440
	600.00	50.178	256.799	233.395	48.374	14.042	-105.705	34.909	21.051	-1.833
	700.00	51.955	264.672	237.312	53.484	19.152	-131.787	34.944	18.738	-1.398
	800.00	53.452	271.710	241.180	58.756	24.424	-158.612	34.935	16.423	-1.072
	900.00	54.718	278.081	244.931	64.166	29.834	-186.106	34.900	14.111	-0.819
	1000.00	55.788	283.903	248.542	69.693	35.361	-214.210	34.847	11.803	-0.617
	1100.00	56.694	289.264	252.003	75.318	40.986	-242.872	34.782	9.502	-0.451
	1200.00	57.461	294.230	255.318	81.027	46.695	-272.049	34.707	7.207	-0.314
	1300.00	58.115	298.856	258.491	86.807	52.475	-301.706	34.624	4.919	-0.198
	1400.00	58.679	303.184	261.530	92.647	58.315	-331.811	34.537	2.637	-0.098
	1500.00	59.177	307.250	264.444	98.540	64.208	-362.334	34.448	0.361	-0.013
	1600.00	59.598	311.082	267.241	104.479	70.147	-393.253	34.359	-1.908	0.062
	1700.00	59.975	314.707	269.927	110.458	76.126	-424.544	34.270	-4.172	0.128
	1800.00	60.303	318.145	272.511	116.472	82.140	-456.188	34.183	-6.431	0.187
	1900.00	60.591	321.413	275.000	122.517	88.185	-488.167	34.097	-8.685	0.239
	2000.00	60.848	324.527	277.399	128.589	94.257	-520.465	34.012	-10.934	0.286
	2100.00	61.078	327.502	279.714	134.686	100.354	-553.068	33.925	-13.179	0.328
	2200.00	61.287	330.348	281.952	140.804	106.472	-585.962	33.839	-15.421	0.366
	2300.00	61.477	333.077	284.116	146.943	112.611	-619.134	33.752	-17.658	0.401
	2400.00	61.651	335.697	286.211	153.099	118.767	-652.573	33.664	-19.891	0.433
	2500.00	61.812	338.217	288.241	159.272	124.940	-686.270	33.576	-22.121	0.462
	2600.00	61.961	340.644	290.210	165.461	131.129	-720.214	33.486	-24.347	0.489
	2700.00	62.101	342.985	292.121	171.664	137.332	-754.396	33.395	-26.569	0.514
	2800.00	62.231	345.246	293.979	177.881	143.549	-788.808	33.303	-28.789	0.537
	2900.00	62.354	347.432	295.784	184.110	149.778	-823.442	33.208	-31.004	0.558
	3000.00	62.470	349.548	297.541	190.352	156.020	-858.292	33.112	-33.217	0.578

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

FCICO[g] CARBON OXIDE-FLUORIDE-CHLORIDE (GAS) 82.462

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J/(K mol)		]	[		kJ/mol		]	[−]
GAS	298.15	52.369	276.700	276.700	−429.489	0.000	−511.987	−429.489	−416.201	72.917
	300.00	52.531	277.024	276.701	−429.392	0.097	−512.499	−429.495	−416.118	72.453
	400.00	59.505	293.164	278.854	−423.765	5.724	−541.031	−429.731	−411.618	53.752
	500.00	64.349	306.990	283.132	−417.560	11.929	−571.055	−429.854	−407.075	42.527
	600.00	68.001	319.060	288.136	−410.934	18.555	−602.370	−429.943	−402.510	35.042
	700.00	70.831	329.764	293.333	−403.987	25.502	−634.822	−430.014	−397.932	29.694
	800.00	73.034	339.372	298.497	−396.789	32.700	−668.287	−430.064	−393.346	25.683
	900.00	74.740	348.077	303.530	−389.397	40.092	−702.666	−430.094	−388.754	22.563
	1000.00	76.054	356.023	308.388	−381.854	47.635	−737.877	−430.112	−384.159	20.066
	1100.00	77.063	363.321	313.055	−374.196	55.293	−773.849	−430.128	−379.563	18.024
	1200.00	77.851	370.062	317.528	−366.449	63.040	−810.523	−430.147	−374.966	16.322
	1300.00	78.495	376.319	321.813	−358.631	70.858	−847.845	−430.172	−370.366	14.882
	1400.00	79.072	382.157	325.917	−350.752	78.737	−885.772	−430.201	−365.765	13.647
	1500.00	79.656	387.633	329.851	−342.816	86.673	−924.265	−430.227	−361.161	12.577
	1600.00	79.988	392.782	333.624	−334.837	94.652	−963.288	−430.259	−356.556	11.640
	1700.00	80.325	397.642	337.249	−326.820	102.669	−1002.812	−430.295	−351.948	10.814
	1800.00	80.609	402.241	340.733	−318.773	110.716	−1042.808	−430.338	−347.339	10.080
	1900.00	80.852	406.606	344.086	−310.700	118.789	−1083.252	−430.389	−342.726	9.422
	2000.00	81.062	410.759	347.316	−302.604	126.885	−1124.122	−430.450	−338.111	8.831
	2100.00	81.245	414.719	350.433	−294.488	135.001	−1165.397	−430.524	−333.492	8.295
	2200.00	81.404	418.502	353.441	−286.356	143.133	−1207.060	−430.610	−328.870	7.808
	2300.00	81.545	422.124	356.349	−278.208	151.281	−1249.092	−430.711	−324.243	7.364
	2400.00	81.669	425.597	359.163	−270.047	159.442	−1291.480	−430.826	−319.611	6.956
	2500.00	81.780	428.933	361.887	−261.875	167.614	−1334.207	−430.957	−314.975	6.581
	2600.00	81.879	432.142	364.528	−253.692	175.797	−1377.262	−431.105	−310.333	6.235
	2700.00	81.968	435.234	367.090	−245.499	183.990	−1420.632	−431.269	−305.684	5.914
	2800.00	82.048	438.217	369.577	−237.299	192.190	−1464.305	−431.451	−301.030	5.616
	2900.00	82.121	441.097	371.994	−229.090	200.399	−1508.272	−431.651	−296.369	5.338
	3000.00	82.187	443.882	374.344	−220.875	208.614	−1552.521	−431.868	−291.700	5.079

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

55.847 IRON **Fe**

Phase	T [K]	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL–A	298.15	24.978	27.280	27.280	0.000	0.000	–8.133	0.000	0.000	0.000
	300.00	25.039	27.434	27.280	0.046	0.046	–8.184	0.000	0.000	0.000
	400.00	27.365	34.974	28.293	2.672	2.672	–11.317	0.000	0.000	0.000
	500.00	29.699	41.328	30.279	5.524	5.524	–15.140	0.000	0.000	0.000
	600.00	32.063	46.952	32.598	8.613	8.613	–19.559	0.000	0.000	0.000
	700.00	34.592	52.079	35.019	11.942	11.942	–24.513	0.000	0.000	0.000
	800.00	37.943	56.903	37.455	15.558	15.558	–29.964	0.000	0.000	0.000
	900.00	43.089	61.646	39.879	19.590	19.590	–35.891	0.000	0.000	0.000
	1000.00	54.434	66.668	42.302	24.366	24.366	–42.302	0.000	0.000	0.000
	1042.00	83.680	69.213	43.333	26.967	26.967	–45.153	0.000	0.000	0.000
			0.000		0.000					
	1042.00	83.680	69.213	43.333	26.967	26.967	–45.153	0.000	0.000	0.000
	1100.00	46.401	71.971	44.775	29.916	29.916	–49.252	0.000	0.000	0.000
	1184.00	41.422	75.202	46.822	33.601	33.601	–55.437	0.000	0.000	0.000
			0.760		0.900					
SOL–C	1184.00	33.890	75.962	46.822	34.501	34.501	–55.437	0.000	0.000	0.000
	1200.00	34.017	76.417	47.214	35.045	35.045	–56.656	0.000	0.000	0.000
	1300.00	34.852	79.173	49.567	38.488	38.488	–64.437	0.000	0.000	0.000
	1400.00	35.691	81.787	51.776	42.015	42.015	–72.486	0.000	0.000	0.000
	1500.00	36.525	84.277	53.860	45.626	45.626	–80.790	0.000	0.000	0.000
	1600.00	37.364	86.661	55.836	49.320	49.320	–89.338	0.000	0.000	0.000
	1665.00	37.907	88.160	57.069	51.766	51.766	–95.020	0.000	0.000	0.000
			0.503		0.837					
SOL–D	1665.00	41.123	88.663	57.069	52.603	52.603	–95.020	0.000	0.000	0.000
	1700.00	41.471	89.522	57.728	54.049	54.049	–98.138	0.000	0.000	0.000
	1800.00	42.464	91.920	59.562	58.246	58.246	–107.211	0.000	0.000	0.000
	1809.00	42.553	92.132	59.723	58.628	58.628	–108.039	0.000	0.000	0.000
			7.632		13.807					
LIQ	1809.00	46.024	99.765	59.723	72.435	72.435	–108.039	0.000	0.000	0.000
	1900.00	46.024	102.024	61.696	76.623	76.623	–117.221	0.000	0.000	0.000
	2000.00	46.024	104.384	63.771	81.226	81.226	–127.543	0.000	0.000	0.000
	2100.00	46.024	106.630	65.759	85.828	85.828	–138.094	0.000	0.000	0.000
	2200.00	46.024	108.771	67.666	90.431	90.431	–148.865	0.000	0.000	0.000
	2300.00	46.024	110.817	69.498	95.033	95.033	–159.845	0.000	0.000	0.000
	2400.00	46.024	112.775	71.261	99.635	99.635	–171.026	0.000	0.000	0.000
	2500.00	46.024	114.654	72.959	104.238	104.238	–182.398	0.000	0.000	0.000
	2600.00	46.024	116.459	74.598	108.840	108.840	–193.954	0.000	0.000	0.000
	2700.00	46.024	118.196	76.181	113.443	113.443	–205.688	0.000	0.000	0.000
	2800.00	46.024	119.870	77.711	118.045	118.045	–217.591	0.000	0.000	0.000
	2900.00	46.024	121.485	79.193	122.647	122.647	–229.660	0.000	0.000	0.000
	3000.00	46.024	123.045	80.629	127.250	127.250	–241.887	0.000	0.000	0.000
	3100.00	46.024	124.555	82.022	131.852	131.852	–254.267	0.000	0.000	0.000
	3132.00	46.024	125.027	82.459	133.325	133.325	–258.260	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL – A	Hu1	Hu1		bcc, Curie Temperature = 1042.
SOL – C	Hu1	Hu1		fcc
SOL – D	Hu1	Hu1		bcc
LIQ	Hu1	Hu1	Hu1	BPT = 3132., L = 349.6 kJ

Fe[g] IRON (GAS) 55.847

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	25.671	180.486	180.486	415.471	0.000	361.659	415.471	369.793	−64.786
	300.00	25.685	180.645	180.486	415.519	0.048	361.325	415.472	369.509	−64.337
	400.00	25.546	188.045	181.496	418.090	2.619	342.872	415.418	354.190	−46.252
	500.00	24.868	193.674	183.392	420.612	5.141	323.775	415.088	338.914	−35.406
	600.00	24.197	198.148	185.492	423.065	7.594	304.176	414.452	323.734	−28.184
	700.00	23.620	201.833	187.571	425.455	9.984	284.171	413.513	308.685	−23.034
	800.00	23.146	204.955	189.554	427.792	12.321	263.828	412.234	293.792	−19.183
	900.00	22.771	207.659	191.419	430.087	14.616	243.194	410.497	279.085	−16.198
	1000.00	22.488	210.043	193.164	432.349	16.878	222.307	407.983	264.609	−13.822
	1100.00	22.292	212.176	194.797	434.588	19.117	201.194	404.672	250.446	−11.893
	1200.00	22.180	214.110	196.327	436.811	21.340	179.878	401.766	236.535	−10.296
	1300.00	22.149	215.884	197.764	439.026	23.555	158.377	400.539	222.814	−8.953
	1400.00	22.158	217.525	199.118	441.241	25.770	136.706	399.226	209.192	−7.805
	1500.00	22.234	219.056	200.397	443.460	27.989	114.876	397.834	195.666	−6.814
	1600.00	22.363	220.495	201.608	445.690	30.219	92.898	396.370	182.236	−5.949
	1700.00	22.534	221.856	202.760	447.934	32.463	70.780	393.885	168.918	−5.190
	1800.00	22.738	223.149	203.857	450.198	34.727	48.529	391.952	155.740	−4.519
	1900.00	22.969	224.385	204.905	452.483	37.012	26.152	375.859	143.373	−3.942
	2000.00	23.222	225.569	205.909	454.792	39.321	3.654	373.566	131.196	−3.426
	2100.00	23.491	226.709	206.872	457.128	41.657	−18.961	371.299	119.134	−2.963
	2200.00	23.773	227.808	207.799	459.491	44.020	−41.687	369.060	107.179	−2.545
	2300.00	24.066	228.871	208.692	461.883	46.412	−64.521	366.850	95.324	−2.165
	2400.00	24.365	229.902	209.555	464.304	48.833	−87.460	364.669	83.566	−1.819
	2500.00	24.671	230.903	210.389	466.756	51.285	−110.500	362.518	71.897	−1.502
	2600.00	24.980	231.876	211.196	469.238	53.767	−133.640	360.398	60.315	−1.212
	2700.00	25.291	232.825	211.980	471.752	56.281	−156.875	358.309	48.813	−0.944
	2800.00	25.603	233.750	212.741	474.297	58.826	−180.204	356.252	37.388	−0.697
	2900.00	25.916	234.654	213.481	476.873	61.402	−203.624	354.225	26.035	−0.469
	3000.00	26.228	235.538	214.202	479.480	64.009	−227.134	352.230	14.753	−0.257
	3100.00	26.538	236.403	214.904	482.118	66.647	−250.731	350.266	3.536	−0.060
	3200.00	26.846	237.250	215.589	484.787	69.316	−274.414	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

194.766

IRON ARSENATE **FeAsO4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	117.054	161.544	161.544	−865.335	0.000	−913.499	−865.335	−772.391	135.320
	300.00	117.144	162.269	161.546	−865.118	0.217	−913.799	−865.319	−771.814	134.385
	400.00	121.980	196.631	166.199	−853.162	12.173	−931.815	−864.438	−740.778	96.736
	473.00	125.511	217.366	172.533	−844.129	21.206	−946.943	−863.778	−718.267	79.320
			0.000		0.000					
SOL−B	473.00	134.960	217.366	172.533	−844.129	21.206	−946.943	−863.778	−718.267	79.320
	500.00	136.984	224.914	175.159	−840.457	24.878	−952.915	−863.269	−709.975	74.171
	600.00	144.482	250.552	185.634	−826.384	38.951	−976.715	−861.226	−679.503	59.156
	700.00	151.980	273.387	196.567	−811.561	53.774	−1002.932	−858.919	−649.395	48.458
	800.00	159.477	294.171	207.487	−795.988	69.347	−1031.325	−856.368	−619.635	40.458
	893.00	166.450	312.085	217.458	−780.833	84.502	−1059.525	−853.861	−592.254	34.643
			0.000		0.000					
SOL−C	893.00	156.640	312.085	217.458	−780.833	84.502	−1059.525	−853.861	−592.254	34.643
	900.00	156.908	313.310	218.199	−779.735	85.600	−1061.714	−853.741	−590.204	34.255
	1000.00	160.749	330.040	228.558	−763.852	101.483	−1093.893	−852.367	−561.003	29.304
	1100.00	164.590	345.541	238.496	−747.585	117.750	−1127.681	−851.506	−531.892	25.257
	1200.00	168.431	360.027	248.027	−730.934	134.401	−1162.967	−850.032	−502.919	21.892

References

Phase	H / S	C_p	Remarks	
SOL−A	G1	e	G1	TPT= 473.
SOL−B	u	G1	G1	TPT= 893.
SOL−C	u	G1		

445.379

TRIIRON DIARSENATE **Fe3(AsO4)2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	264.642	339.908	339.908	−1954.974	0.000	−2056.318	−1954.974	−1765.967	309.390
	300.00	265.220	341.547	339.913	−1954.484	0.490	−2056.948	−1954.931	−1764.795	307.278
	400.00	288.394	421.329	350.634	−1926.696	28.278	−2095.228	−1951.919	−1701.837	222.237
	500.00	303.516	487.392	371.569	−1897.062	57.912	−2140.758	−1948.210	−1639.739	171.302
	600.00	315.468	543.818	395.687	−1866.096	88.878	−2192.386	−1944.391	−1578.404	137.412
	700.00	325.925	593.246	420.451	−1834.017	120.957	−2249.290	−1940.675	−1517.702	113.252
	800.00	335.584	637.404	444.858	−1800.937	154.037	−2310.861	−1937.255	−1457.516	95.166
	811.00	336.614	641.994	447.501	−1797.240	157.734	−2317.897	−1936.911	−1450.922	93.451

References

Phase	H / S	C_p
SOL	G1	G1

FeB IRON MONOBORIDE 66.658

Phase	T [K]	C_p J / (K mol)	S J / (K mol)	−(G−H298)/T J / (K mol)	H kJ / mol	H−H298 kJ / mol	G kJ / mol	ΔH_f kJ / mol	ΔG_f kJ / mol	log K_f [−]
SOL	298.15	50.207	27.698	27.698	−71.128	0.000	−79.386	−71.128	−69.515	12.179
	300.00	50.219	28.009	27.699	−71.035	0.093	−79.438	−71.102	−69.505	12.102
	400.00	50.863	42.544	29.677	−65.981	5.147	−82.999	−70.039	−69.149	9.030
	500.00	51.507	53.963	33.432	−60.862	10.266	−87.844	−69.503	−68.998	7.208
	600.00	52.151	63.411	37.663	−55.680	15.448	−93.726	−69.389	−68.914	5.999
	700.00	52.795	71.498	41.933	−50.432	20.696	−100.481	−69.626	−68.820	5.135
	800.00	53.439	78.590	46.081	−45.121	26.007	−107.993	−70.214	−68.670	4.484
	900.00	54.083	84.922	50.051	−39.744	31.384	−116.174	−71.252	−68.420	3.971
	1000.00	54.727	90.653	53.829	−34.304	36.824	−124.957	−73.050	−68.018	3.553
	1100.00	55.371	95.899	57.418	−28.799	42.329	−134.288	−75.625	−67.377	3.199
	1200.00	56.015	100.745	60.830	−23.230	47.898	−144.124	−77.773	−66.551	2.897
	1300.00	56.658	105.254	64.075	−17.596	53.532	−154.426	−78.224	−65.598	2.636
	1400.00	57.302	109.476	67.169	−11.898	59.230	−165.165	−78.743	−64.608	2.411
	1500.00	57.946	113.452	70.123	−6.136	64.992	−176.313	−79.325	−63.578	2.214
	1600.00	58.590	117.212	72.950	−0.309	70.819	−187.848	−79.969	−62.508	2.041
	1700.00	59.234	120.783	75.659	5.582	76.710	−199.749	−81.622	−61.377	1.886
	1800.00	59.878	124.187	78.262	11.538	82.666	−211.999	−82.718	−60.154	1.746
	1900.00	60.522	127.442	80.765	17.558	88.686	−224.582	−97.967	−58.168	1.599
	1923.00	60.670	128.171	81.328	18.952	90.080	−227.521	−98.303	−57.684	1.567

References

Phase	H / S	C_p	Remarks	
SOL	Ku1	e	Tk1	MPT= 1923.

122.505 DIIRON BORIDE **Fe2B**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	75.328	56.651	56.651	−71.128	0.000	−88.019	−71.128	−70.014	12.266
	300.00	75.354	57.117	56.653	−70.989	0.139	−88.124	−71.102	−70.007	12.189
	400.00	76.735	78.984	59.625	−63.384	7.744	−94.978	−70.115	−69.811	9.116
	500.00	78.115	96.256	65.283	−55.642	15.486	−103.770	−69.807	−69.784	7.290
	600.00	79.496	110.620	71.675	−47.761	23.367	−114.133	−70.083	−69.762	6.073
	700.00	80.877	122.978	78.141	−39.743	31.385	−125.827	−70.878	−69.653	5.198
	800.00	82.257	133.868	84.440	−31.586	39.542	−138.680	−72.237	−69.393	4.531
	900.00	83.638	143.636	90.484	−23.291	47.837	−152.563	−74.388	−68.918	4.000
	1000.00	85.019	152.519	96.250	−14.858	56.270	−167.378	−77.970	−68.137	3.559
	1100.00	86.400	160.687	101.741	−6.287	64.841	−183.043	−83.028	−66.880	3.176
	1200.00	87.780	168.264	106.973	2.422	73.550	−199.495	−87.166	−65.267	2.841
	1300.00	89.161	175.345	111.963	11.269	82.397	−216.680	−87.847	−63.415	2.548
	1400.00	90.542	182.003	116.730	20.254	91.382	−234.550	−88.605	−61.507	2.295
	1500.00	91.922	188.297	121.293	29.377	100.505	−253.068	−89.438	−59.543	2.073
	1600.00	93.303	194.273	125.669	38.638	109.766	−272.199	−90.342	−57.521	1.878
	1662.00	94.159	197.837	128.295	44.450	115.578	−284.355	−90.937	−56.238	1.767

References

Phase	H / S	C_p	Remarks	
SOL	Ku1	e	Tk1	DPT= 1662. (peritec.)

FeBr2 IRON DIBROMIDE 215.655

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−1	298.15	80.235	140.666	140.666	−248.948	0.000	−290.888	−248.948	−237.373	41.587
	300.00	80.276	141.163	140.668	−248.800	0.148	−291.148	−248.986	−237.301	41.318
	400.00	82.501	164.561	143.843	−240.661	8.287	−306.485	−277.955	−227.351	29.689
	500.00	84.726	183.210	149.912	−232.299	16.649	−323.904	−276.138	−214.912	22.452
	600.00	86.951	198.854	156.800	−223.715	25.233	−343.028	−274.361	−202.834	17.658
	650.00	88.064	205.858	160.307	−219.340	29.608	−353.148	−273.484	−196.909	15.824
			0.643		0.418					
SOL−2	650.00	88.064	206.501	160.307	−218.922	30.026	−353.148	−273.066	−196.909	15.824
	700.00	89.176	213.068	163.843	−214.491	34.457	−363.638	−272.201	−191.083	14.259
	800.00	91.401	225.121	170.763	−205.462	43.486	−385.559	−270.536	−179.610	11.727
	900.00	93.626	236.015	177.418	−196.211	52.737	−408.624	−269.074	−168.336	9.770
	964.00	95.050	242.495	181.525	−190.173	58.775	−423.938	−268.380	−161.197	8.735
			52.083		50.208					
LIQ	964.00	106.692	294.578	181.525	−139.965	108.983	−423.938	−218.172	−161.197	8.735
	1000.00	106.692	298.489	185.666	−136.124	112.824	−434.614	−217.529	−159.082	8.310
	1100.00	106.692	308.658	196.392	−125.455	123.493	−464.979	−216.182	−153.289	7.279
	1200.00	106.692	317.942	206.140	−114.786	134.162	−496.316	−214.422	−147.668	6.428
	1207.00	106.692	318.562	206.790	−114.039	134.909	−498.544	−214.178	−147.280	6.374

References

Phase	H / S	C_p	Remarks	
SOL−1	Ja1	Ja1		
SOL−2	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	NBPT= 1207. GAS (FeBr2 + Fe2Br4)

215.655 IRON DIBROMIDE (GAS) **FeBr2[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	60.798	337.340	337.340	−41.422	0.000	−142.000	−41.422	−88.485	15.502
	300.00	60.804	337.716	337.341	−41.310	0.112	−142.624	−41.496	−88.777	15.457
	400.00	61.117	355.251	339.730	−35.214	6.208	−177.314	−72.508	−98.180	12.821
	500.00	61.429	368.922	344.251	−29.086	12.336	−213.547	−72.925	−104.555	10.923
	600.00	61.742	380.150	349.326	−22.928	18.494	−251.018	−73.573	−110.824	9.648
	700.00	62.055	389.691	354.428	−16.738	24.684	−289.521	−74.447	−116.966	8.728
	800.00	62.368	397.998	359.366	−10.517	30.905	−328.915	−75.590	−122.966	8.029
	900.00	62.681	405.362	364.075	−4.264	37.158	−369.090	−77.127	−128.801	7.475
	1000.00	62.994	411.982	368.540	2.020	43.442	−409.962	−79.385	−134.431	7.022
	1100.00	63.307	418.001	372.767	8.335	49.757	−451.466	−82.392	−139.776	6.637
	1200.00	63.620	423.523	376.770	14.681	56.103	−493.546	−84.954	−144.898	6.307
	1300.00	63.933	428.627	380.565	21.059	62.481	−536.157	−85.806	−149.859	6.021
	1400.00	64.246	433.377	384.170	27.468	68.890	−579.260	−86.715	−154.753	5.774
	1500.00	64.559	437.820	387.600	33.908	75.330	−622.822	−87.683	−159.579	5.557
	1600.00	64.872	441.996	390.870	40.380	81.802	−666.815	−88.708	−164.339	5.365
	1700.00	65.185	445.939	393.995	46.883	88.305	−711.213	−90.742	−169.014	5.193
	1800.00	65.498	449.673	396.985	53.417	94.839	−755.996	−92.217	−173.577	5.037
	1900.00	65.811	453.223	399.853	59.982	101.404	−801.142	−107.848	−177.353	4.876
	2000.00	66.124	456.607	402.606	66.579	108.001	−846.635	−109.676	−180.964	4.726

References

Phase	H / S	C_p
GAS	Ja1	Ja1

295.559 IRON TRIBROMIDE **FeBr3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	96.929	173.636	173.636	−268.199	0.000	−319.969	−268.199	−243.763	42.706
	300.00	97.069	174.236	173.638	−268.020	0.179	−320.290	−268.276	−243.611	42.416
	400.00	104.600	203.192	177.535	−257.936	10.263	−339.213	−312.542	−226.171	29.535
	500.00	112.131	227.342	185.143	−247.100	21.099	−360.771	−310.095	−204.852	21.401
	600.00	119.662	248.452	193.970	−235.510	32.689	−384.581	−307.171	−184.070	16.025

References

Phase	H / S	C_p
SOL	Nb1/e	e

Fe2Br4[g] DIIRON TETRABROMIDE (GAS) 431.310

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	130.892	515.997	515.997	−253.132	0.000	−406.976	−253.132	−299.947	52.549
	300.00	130.902	516.806	515.999	−252.890	0.242	−407.932	−253.262	−300.237	52.276
	400.00	131.377	554.532	521.140	−239.775	13.357	−461.588	−314.364	−303.320	39.610
	500.00	131.792	583.893	530.862	−226.616	26.516	−518.563	−314.293	−300.578	31.401
	600.00	132.183	607.956	541.765	−213.418	39.714	−578.191	−314.708	−297.804	25.926
	700.00	132.563	628.361	552.715	−200.180	52.952	−640.033	−315.599	−294.923	22.007
	800.00	132.937	646.087	563.303	−186.905	66.227	−703.774	−317.052	−291.878	19.058
	900.00	133.308	661.766	573.389	−173.593	79.539	−769.182	−319.319	−288.605	16.750
	1000.00	133.677	675.831	582.942	−160.244	92.888	−836.074	−323.053	−285.011	14.887
	1100.00	134.044	688.588	591.975	−146.857	106.275	−904.305	−328.312	−280.924	13.340
	1200.00	134.410	700.268	600.520	−133.435	119.697	−973.756	−332.706	−276.460	12.034
	1300.00	134.776	711.041	608.612	−119.975	133.157	−1044.328	−333.704	−271.734	10.918
	1400.00	135.141	721.042	616.290	−106.480	146.652	−1115.938	−334.846	−266.925	9.959
	1500.00	135.505	730.378	623.588	−92.947	160.185	−1188.514	−336.129	−262.029	9.125
	1600.00	135.870	739.135	630.539	−79.379	173.753	−1261.995	−337.554	−257.043	8.392
	1700.00	136.234	747.383	637.172	−65.773	187.359	−1336.324	−341.022	−251.927	7.741
	1800.00	136.598	755.180	643.513	−52.132	201.000	−1411.456	−343.400	−246.618	7.157
	1900.00	136.962	762.575	649.587	−38.454	214.678	−1487.347	−374.113	−239.769	6.592
	2000.00	137.326	769.610	655.414	−24.739	228.393	−1563.959	−377.250	−232.617	6.075

References

Phase	H / S	C_p
GAS	Ja1	Ja1

179.552

TRIIRON CARBIDE

Fe3C

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL−A	298.15	105.868	104.600	104.600	25.104	0.000	−6.082	25.104	20.029	−3.509
	300.00	106.023	105.255	104.602	25.300	0.196	−6.277	25.145	19.998	−3.482
	400.00	114.391	136.902	108.861	36.321	11.217	−18.440	27.251	17.960	−2.345
	485.00	121.503	159.607	115.808	46.346	21.242	−31.063	28.934	15.816	−1.703
			14.493		7.029					
SOL−B	485.00	113.282	174.099	115.808	53.375	28.271	−31.063	35.963	15.816	−1.703
	500.00	113.470	177.553	117.609	55.076	29.972	−33.701	36.119	15.191	−1.587
	600.00	114.725	198.352	129.383	66.486	41.382	−52.526	36.684	10.939	−0.952
	700.00	115.980	216.131	140.536	78.021	52.917	−73.271	36.453	6.655	−0.497
	800.00	117.236	231.700	150.978	89.682	64.578	−95.678	35.341	2.462	−0.161
	900.00	118.491	245.581	160.732	101.468	76.364	−119.555	32.999	−1.523	0.088
	1000.00	119.746	258.130	169.854	113.380	88.276	−144.750	28.464	−5.143	0.269
	1100.00	121.001	269.602	178.408	125.417	100.313	−171.145	21.663	−8.132	0.386
	1200.00	122.256	280.184	186.454	137.580	112.476	−198.641	16.193	−10.656	0.464
	1300.00	123.512	290.020	194.047	149.868	124.764	−227.157	15.861	−12.881	0.518
	1400.00	124.767	299.219	201.234	162.282	137.178	−256.624	15.364	−15.074	0.562
	1500.00	126.022	307.870	208.058	174.822	149.718	−286.982	14.712	−17.227	0.600
			34.309		51.463					
LIQ	1500.00	121.336	342.178	208.058	226.285	201.181	−286.982	66.175	−17.227	0.600
	1600.00	121.336	350.009	216.688	238.418	213.314	−321.596	64.841	−22.745	0.743
	1700.00	121.336	357.365	224.749	250.552	225.448	−356.968	60.384	−28.115	0.864
	1800.00	121.336	364.300	232.311	262.686	237.582	−393.055	57.507	−33.239	0.965
	1900.00	121.336	370.861	239.432	274.819	249.715	−429.816	12.073	−36.090	0.992
	2000.00	121.336	377.084	246.160	286.953	261.849	−467.216	7.952	−38.519	1.006

References

Phase	H / S	C_p
SOL−A	Nb1	Ku1,e
SOL−B	Tk1	Ku1
LIQ	Ku1	e

115.856

IRON CARBONATE

FeCO3

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	82.082	92.885	92.885	−740.568	0.000	−768.262	−740.568	−666.670	116.798
	300.00	82.289	93.393	92.886	−740.416	0.152	−768.434	−740.560	−666.211	115.998
	400.00	93.499	118.602	96.248	−731.627	8.941	−779.067	−739.890	−641.517	83.774
	500.00	104.709	140.669	102.966	−721.716	18.852	−792.051	−738.751	−617.046	64.462
	600.00	115.919	160.751	110.946	−710.685	29.883	−807.135	−737.127	−592.849	51.612
	700.00	127.128	179.462	119.411	−698.532	42.036	−824.156	−734.964	−568.965	42.457
	800.00	138.338	197.169	128.033	−685.259	55.309	−842.994	−732.237	−545.431	35.613

References

Phase	H / S	C_p
SOL	Nb1	La1

Fe(CO)5 IRON PENTACARBONYL 195.899

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
LIQ	298.15	240.580	337.649	337.649	−763.998	0.000	−864.668	−763.998	−695.066	121.773
	300.00	240.580	339.137	337.653	−763.553	0.445	−865.294	−763.814	−694.638	120.947
	379.39	240.580	395.622	344.105	−744.453	19.545	−894.548	−756.649	−677.235	93.242

References

Phase	H / S	C_p	Remarks
LIQ	Tk1	Tk1	Tk1 BPT= 379.391 L= 34.96 kJ

Fe(CO)5[g] IRON PENTACARBONYL (GAS) 195.899

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	167.572	444.990	444.990	−723.460	0.000	−856.134	−723.460	−686.531	120.277
	300.00	168.160	446.028	444.993	−723.149	0.311	−856.958	−723.411	−686.302	119.496
	400.00	190.194	497.796	451.902	−705.102	18.358	−904.221	−720.603	−674.352	88.061
	500.00	202.506	541.663	465.585	−685.421	38.039	−956.252	−718.076	−663.095	69.273
	600.00	210.990	579.372	481.481	−664.725	58.735	−1012.348	−716.269	−652.281	56.786
	700.00	217.667	612.414	497.874	−643.282	80.178	−1071.972	−715.182	−641.712	47.885
	800.00	223.381	641.860	514.065	−621.224	102.236	−1134.712	−714.702	−631.255	41.217
	900.00	228.535	668.472	529.766	−598.624	124.836	−1200.249	−714.812	−620.825	36.032
	1000.00	233.342	692.802	544.870	−575.528	147.932	−1268.330	−715.743	−610.341	31.881

References

Phase	H / S	C_p
GAS	Tk1,e	Tk1,La1

91.300 IRON MONOCHLORIDE (GAS) **FeCl[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	38.310	257.580	257.580	251.040	0.000	174.242	251.040	215.637	−37.779
	300.00	38.332	257.817	257.581	251.111	0.071	173.766	251.033	215.417	−37.507
	400.00	39.081	268.962	259.096	254.987	3.947	147.402	250.549	203.612	−26.589
	500.00	39.433	277.725	261.976	258.914	7.874	120.052	249.840	191.955	−20.053
	600.00	39.630	284.934	265.220	262.868	11.828	91.908	248.888	180.464	−15.711
	700.00	39.753	291.053	268.484	266.838	15.798	63.101	247.690	169.151	−12.622
	800.00	39.836	296.367	271.644	270.818	19.778	33.724	246.201	158.029	−10.318
	900.00	39.897	301.062	274.657	274.804	23.764	3.848	244.293	147.116	−8.538
	1000.00	39.943	305.268	277.512	278.797	27.757	−26.472	241.638	136.452	−7.128
	1100.00	39.981	309.077	280.211	282.793	31.753	−57.192	238.208	126.113	−5.989
	1200.00	40.012	312.557	282.764	286.792	35.752	−88.276	235.197	116.037	−5.051
	1300.00	40.038	315.761	285.180	290.795	39.755	−119.694	233.869	106.160	−4.266
	1400.00	40.061	318.729	287.472	294.800	43.760	−151.421	232.457	96.389	−3.596
	1500.00	40.082	321.494	289.649	298.807	47.767	−183.433	230.959	86.721	−3.020
	1600.00	40.101	324.081	291.721	302.816	51.776	−215.713	229.375	77.157	−2.519
	1700.00	40.119	326.513	293.697	306.827	55.787	−248.244	226.756	67.712	−2.081
	1800.00	40.135	328.806	295.584	310.840	59.800	−281.011	224.667	58.417	−1.695
	1900.00	40.151	330.977	297.390	314.854	63.814	−314.001	208.395	49.941	−1.373
	2000.00	40.166	333.037	299.122	318.870	67.830	−347.203	205.896	41.666	−1.088

References

Phase	H / S	C_p
GAS	Ja1	Ja1

FeCl2 IRON DICHLORIDE 126.752

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	76.663	117.947	117.947	-341.833	0.000	-376.999	-341.833	-302.343	52.969
	300.00	76.735	118.421	117.948	-341.691	0.142	-377.218	-341.800	-302.098	52.600
	400.00	79.673	140.936	120.998	-333.858	7.975	-390.232	-340.060	-289.128	37.756
	500.00	81.615	158.935	126.845	-325.788	16.045	-405.256	-338.414	-276.588	28.895
	600.00	83.124	173.953	133.479	-317.549	24.284	-421.921	-336.898	-264.368	23.015
	700.00	84.392	186.864	140.205	-309.172	32.661	-439.976	-335.526	-252.391	18.834
	800.00	85.499	198.207	146.760	-300.676	41.157	-459.241	-334.352	-240.597	15.709
	900.00	86.484	208.335	153.049	-292.076	49.757	-479.577	-333.510	-228.933	13.287
	950.00	86.937	213.023	156.083	-287.740	54.093	-490.112	-333.308	-223.129	12.269
			45.276		43.012					
LIQ	950.00	102.173	258.299	156.083	-244.728	97.105	-490.112	-290.296	-223.129	12.269
	1000.00	102.173	263.540	161.326	-239.619	102.214	-503.159	-289.570	-219.615	11.471
	1100.00	102.173	273.278	171.068	-229.402	112.431	-530.008	-288.657	-212.649	10.098
	1200.00	102.173	282.168	179.961	-219.185	122.648	-557.787	-287.332	-205.817	8.959
	1297.00	102.173	290.110	187.906	-209.274	132.559	-585.547	-284.420	-199.343	8.028

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	NBPT= 1297., GAS (FeCl2 + Fe2Cl4)

126.752 IRON DICHLORIDE (GAS) **FeCl2[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	57.569	299.265	299.265	−141.001	0.000	−230.227	−141.001	−155.571	27.255
	300.00	57.616	299.622	299.266	−140.894	0.107	−230.781	−141.004	−155.662	27.103
	400.00	59.459	316.479	301.552	−135.030	5.971	−261.622	−141.233	−160.518	20.961
	500.00	60.425	329.861	305.922	−129.031	11.970	−293.962	−141.657	−165.295	17.268
	600.00	60.991	340.932	310.861	−122.959	18.042	−327.518	−142.307	−169.965	14.797
	700.00	61.385	350.365	315.847	−116.839	24.162	−362.094	−143.193	−174.508	13.022
	800.00	61.715	358.583	320.686	−110.684	30.317	−397.550	−144.360	−178.906	11.681
	900.00	62.030	365.870	325.310	−104.496	36.505	−433.780	−145.930	−183.135	10.629
	1000.00	62.355	372.423	329.699	−98.277	42.724	−470.700	−148.228	−187.155	9.776
	1100.00	62.699	378.382	333.858	−92.025	48.976	−508.244	−151.279	−190.886	9.064
	1200.00	63.064	383.853	337.799	−85.737	55.264	−546.360	−153.884	−194.390	8.462
	1300.00	63.446	388.916	341.539	−79.411	61.590	−585.001	−154.775	−197.730	7.945
	1400.00	63.839	393.632	345.093	−73.047	67.954	−624.131	−155.719	−200.999	7.499
	1500.00	64.233	398.050	348.478	−66.643	74.358	−663.718	−156.715	−204.199	7.111
	1600.00	64.621	402.208	351.707	−60.201	80.800	−703.733	−157.762	−207.331	6.769
	1700.00	64.992	406.136	354.795	−53.720	87.281	−744.152	−159.813	−210.377	6.464
	1800.00	65.335	409.861	357.751	−47.203	93.798	−784.953	−161.304	−213.308	6.190
	1900.00	65.639	413.402	360.588	−40.654	100.347	−826.118	−176.950	−215.454	5.923
	2000.00	65.893	416.776	363.314	−34.077	106.924	−867.628	−178.800	−217.432	5.679

References

Phase	H / S	C_p
GAS	Ja1	Ja1

162.205 IRON TRICHLORIDE **FeCl3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	96.649	142.336	142.336	−399.405	0.000	−441.842	−399.405	−333.926	58.502
	300.00	96.859	142.934	142.337	−399.226	0.179	−442.106	−399.367	−333.519	58.071
	400.00	106.691	172.048	146.244	−389.083	10.322	−457.903	−397.050	−311.905	40.731
	500.00	119.871	197.311	153.975	−377.737	21.668	−476.392	−393.913	−290.961	30.397
	577.00	124.145	214.885	160.951	−368.285	31.120	−492.274	−391.010	−275.318	24.924
			74.688		43.095					
LIQ	577.00	133.888	289.573	160.951	−325.190	74.215	−492.274	−347.915	−275.318	24.924
	600.00	133.888	294.807	165.983	−322.111	77.294	−498.995	−346.827	−272.445	23.718
	603.20	133.888	295.519	166.668	−321.682	77.723	−499.939	−346.677	−272.049	23.558

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	BPT= 603.2 GAS (Fe2Cl6)

FeCl3[g] IRON TRICHLORIDE (GAS) 162.205

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	77.671	344.214	344.214	−253.132	0.000	−355.759	−253.132	−247.843	43.421
	300.00	77.737	344.695	344.216	−252.988	0.144	−356.397	−253.129	−247.810	43.148
	400.00	80.048	367.422	347.299	−245.083	8.049	−392.051	−253.050	−246.054	32.131
	500.00	81.122	385.413	353.185	−237.018	16.114	−429.725	−253.194	−244.294	25.521
	600.00	81.710	400.260	359.830	−228.874	24.258	−469.030	−253.591	−242.481	21.110
	700.00	82.068	412.885	366.530	−220.684	32.448	−509.703	−254.245	−240.581	17.952
	800.00	82.303	423.860	373.025	−212.464	40.668	−551.552	−255.199	−238.568	15.577
	900.00	82.467	433.564	379.223	−204.225	48.907	−594.433	−256.581	−236.411	13.721
	1000.00	82.587	442.259	385.099	−195.972	57.160	−638.231	−258.716	−234.065	12.226
	1100.00	82.678	450.135	390.659	−187.709	65.423	−682.857	−261.633	−231.445	10.990
	1200.00	82.749	457.332	395.920	−179.437	73.695	−728.236	−264.136	−228.610	9.951
	1300.00	82.807	463.958	400.902	−171.159	81.973	−774.305	−264.961	−225.616	9.065
	1400.00	82.854	470.096	405.628	−162.876	90.256	−821.011	−265.876	−222.556	8.304
	1500.00	82.894	475.814	410.119	−154.589	98.543	−868.310	−266.883	−219.427	7.641
	1600.00	82.928	481.165	414.394	−146.298	106.834	−916.162	−267.980	−216.228	7.059
	1700.00	82.958	486.193	418.471	−138.003	115.129	−964.532	−270.119	−212.939	6.543
	1800.00	82.985	490.936	422.366	−129.706	123.426	−1013.391	−271.734	−209.529	6.080
	1900.00	83.009	495.423	426.094	−121.406	131.726	−1062.711	−287.539	−205.325	5.645
	2000.00	83.030	499.682	429.668	−113.104	140.028	−1112.468	−289.576	−200.946	5.248

References

Phase	H / S	C_p
GAS	Ja1	Ja1

253.505 DIIRON TETRACHLORIDE (GAS) **Fe2Cl4**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	125.872	464.533	464.533	−431.370	0.000	−569.871	−431.370	−420.559	73.680
	300.00	125.950	465.312	464.536	−431.137	0.233	−570.731	−431.355	−420.492	73.214
	400.00	128.851	501.995	469.518	−418.379	12.991	−619.177	−430.784	−416.969	54.451
	500.00	130.290	530.919	479.008	−405.414	25.956	−670.874	−430.665	−413.539	43.202
	600.00	131.108	554.752	489.704	−392.341	39.029	−725.192	−431.038	−410.087	35.701
	700.00	131.652	575.005	500.479	−379.202	52.168	−781.705	−431.911	−406.534	30.336
	800.00	132.077	592.613	510.919	−366.015	65.355	−840.106	−433.367	−402.817	26.301
	900.00	132.458	608.192	520.879	−352.788	78.582	−900.161	−435.655	−398.871	23.150
	1000.00	132.830	622.167	530.321	−339.523	91.847	−961.691	−439.425	−394.601	20.612
	1100.00	133.209	634.845	539.255	−326.222	105.148	−1024.551	−444.730	−389.834	18.512
	1200.00	133.600	646.452	547.712	−312.881	118.489	−1088.624	−449.176	−384.685	16.745
	1300.00	134.003	657.162	555.724	−299.501	131.869	−1153.812	−450.228	−379.269	15.239
	1400.00	134.412	667.107	563.329	−286.080	145.290	−1220.031	−451.424	−373.767	13.945
	1500.00	134.820	676.395	570.561	−272.619	158.751	−1287.211	−452.761	−368.174	12.821
	1600.00	135.218	685.109	577.450	−259.117	172.253	−1355.291	−454.240	−362.487	11.834
	1700.00	135.597	693.318	584.027	−245.576	185.794	−1424.216	−457.763	−356.666	10.959
	1800.00	135.947	701.078	590.316	−231.998	199.372	−1493.939	−460.199	−350.650	10.176
	1900.00	136.257	708.437	596.341	−218.388	212.982	−1564.418	−490.979	−343.090	9.432
	2000.00	136.515	715.433	602.122	−204.749	226.621	−1635.615	−494.195	−335.223	8.755

References

Phase	H / S	C_p
GAS	Ja1	Ja1

Fe2Cl6[g] DIIRON HEXACHLORIDE (GAS) 324.410

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	173.633	537.126	537.126	−654.378	0.000	−814.522	−654.378	−598.689	104.888
	300.00	173.745	538.200	537.129	−654.057	0.321	−815.517	−654.338	−598.343	104.181
	400.00	177.687	588.804	544.002	−636.457	17.921	−871.979	−652.392	−579.984	75.738
	500.00	179.517	628.673	557.091	−618.587	35.791	−932.923	−650.938	−562.061	58.718
	600.00	180.518	661.500	571.837	−600.580	53.798	−997.480	−650.014	−544.382	47.393
	700.00	181.125	689.376	586.687	−582.496	71.882	−1065.059	−649.618	−526.815	39.311
	800.00	181.524	713.589	601.070	−564.362	90.016	−1135.234	−649.832	−509.265	33.252
	900.00	181.801	734.987	614.784	−546.195	108.183	−1207.683	−650.907	−491.641	28.534
	1000.00	182.003	754.152	627.779	−528.004	126.374	−1282.157	−653.491	−473.825	24.750
	1100.00	182.156	771.507	640.069	−509.796	144.582	−1358.454	−657.644	−455.629	21.636
	1200.00	182.274	787.362	651.692	−491.574	162.804	−1436.408	−660.972	−437.156	19.029
	1300.00	182.370	801.955	662.697	−473.342	181.036	−1515.884	−660.945	−418.507	16.816
	1400.00	182.448	815.473	673.133	−455.101	199.277	−1596.764	−661.101	−399.853	14.919
	1500.00	182.513	828.063	683.046	−436.853	217.525	−1678.948	−661.441	−381.182	13.274
	1600.00	182.569	839.844	692.482	−418.599	235.779	−1762.349	−661.964	−362.482	11.834
	1700.00	182.617	850.914	701.479	−400.340	254.038	−1846.893	−664.571	−343.706	10.561
	1800.00	182.659	861.353	710.074	−382.076	272.302	−1932.511	−666.132	−324.788	9.425
	1900.00	182.697	871.230	718.298	−363.808	290.570	−2019.145	−696.072	−304.373	8.368
	2000.00	182.731	880.602	726.181	−345.536	308.842	−2106.740	−698.480	−283.695	7.409
	2100.00	182.762	889.518	733.748	−327.262	327.116	−2195.250	−700.907	−262.897	6.539
	2200.00	182.790	898.021	741.024	−308.984	345.394	−2284.630	−703.355	−241.982	5.745
	2273.00	182.810	903.988	746.162	−295.640	358.738	−2350.405	−705.156	−226.643	5.208

References

Phase	H / S	C_p
GAS	Ja1	Ja1

93.844 IRON DIFLUORIDE **FeF2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	68.118	86.985	86.985	−705.841	0.000	−731.776	−705.841	−663.179	116.186
	300.00	68.196	87.407	86.987	−705.715	0.126	−731.937	−705.819	−662.914	115.424
	400.00	71.971	107.564	89.709	−698.699	7.142	−741.725	−704.643	−648.790	84.723
	500.00	74.886	123.952	94.969	−691.350	14.491	−753.326	−703.509	−634.960	66.334
	600.00	77.139	137.813	100.984	−683.744	22.097	−766.431	−702.464	−621.350	54.093
	700.00	78.893	149.841	107.123	−675.939	29.902	−780.827	−701.538	−607.906	45.363
	800.00	80.260	160.469	113.140	−667.978	37.863	−796.353	−700.800	−594.583	38.822
	900.00	81.317	169.986	118.937	−659.897	45.944	−812.884	−700.398	−581.335	33.740
	1000.00	82.122	178.597	124.479	−651.723	54.118	−830.320	−700.681	−568.099	29.674
	1100.00	82.726	186.454	129.761	−643.479	62.362	−848.579	−701.693	−554.778	26.344
	1200.00	83.173	193.672	134.791	−635.183	70.658	−867.590	−702.254	−541.416	23.567
	1300.00	83.504	200.343	139.580	−626.849	78.992	−887.295	−701.110	−528.060	21.218
	1373.00	83.694	204.911	142.933	−620.746	85.095	−902.088	−700.318	−518.364	19.721
			37.787		51.882					
LIQ	1373.00	98.324	242.698	142.933	−568.864	136.977	−902.088	−648.436	−518.364	19.721
	1400.00	98.324	244.613	144.876	−566.209	139.632	−908.667	−647.760	−515.813	19.245
	1500.00	98.324	251.396	151.753	−556.376	149.465	−933.471	−645.315	−506.474	17.637
	1600.00	98.324	257.742	158.182	−546.544	159.297	−958.932	−642.967	−497.295	16.235
	1700.00	98.324	263.703	164.215	−536.712	169.129	−985.007	−641.665	−488.242	15.002
	1800.00	98.324	269.323	169.900	−526.879	178.962	−1011.661	−639.842	−479.270	13.908
	1900.00	98.324	274.639	175.274	−517.047	188.794	−1038.861	−652.210	−469.695	12.913
	2000.00	98.324	279.683	180.369	−507.214	198.627	−1066.580	−650.813	−460.125	12.017
	2100.00	98.324	284.480	185.214	−497.382	208.459	−1094.790	−649.424	−450.625	11.209
	2108.00	98.324	284.854	185.591	−496.595	209.246	−1097.067	−649.314	−449.868	11.147

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	BPT= 2108., L= 223.4 kJ

FeF2[g] IRON DIFLUORIDE (GAS) 93.844

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	56.039	265.375	265.375	−389.530	0.000	−468.652	−389.530	−400.055	70.088
	300.00	56.183	265.722	265.376	−389.426	0.104	−469.143	−389.530	−400.120	69.667
	400.00	61.188	282.677	267.654	−383.521	6.009	−496.591	−389.465	−403.657	52.712
	500.00	63.422	296.600	272.094	−377.277	12.253	−525.577	−389.436	−407.211	42.541
	600.00	64.564	308.275	277.178	−370.872	18.658	−555.837	−389.592	−410.755	35.759
	700.00	65.192	318.280	282.352	−364.381	25.149	−587.177	−389.981	−414.255	30.912
	800.00	65.545	327.010	287.401	−357.842	31.688	−619.450	−390.664	−417.681	27.272
	900.00	65.738	334.742	292.239	−351.277	38.253	−652.545	−391.779	−420.996	24.434
	1000.00	65.832	341.674	296.842	−344.698	44.832	−686.372	−393.656	−424.151	22.155
	1100.00	65.862	347.951	301.208	−338.113	51.417	−720.858	−396.327	−427.058	20.279
	1200.00	65.847	353.681	305.345	−331.527	58.003	−755.944	−398.598	−429.771	18.707
	1300.00	65.801	358.950	309.269	−324.945	64.585	−791.579	−399.206	−432.344	17.372
	1400.00	65.733	363.824	312.994	−318.368	71.162	−827.721	−399.919	−434.867	16.225
	1500.00	65.648	368.356	316.535	−311.798	77.732	−864.333	−400.737	−437.336	15.229
	1600.00	65.550	372.590	319.908	−305.238	84.292	−901.382	−401.661	−439.746	14.356
	1700.00	65.443	376.561	323.125	−298.689	90.841	−938.842	−403.642	−442.077	13.583
	1800.00	65.328	380.298	326.198	−292.150	97.380	−976.687	−405.113	−444.296	12.893
	1900.00	65.206	383.827	329.139	−285.623	103.907	−1014.895	−420.787	−445.728	12.254
	2000.00	65.080	387.168	331.958	−279.109	110.421	−1053.446	−422.707	−446.991	11.674
	2100.00	64.950	390.341	334.663	−272.607	116.923	−1092.323	−424.650	−448.158	11.147
	2200.00	64.817	393.359	337.263	−266.119	123.411	−1131.509	−426.614	−449.231	10.666

References

Phase	H / S	C_p
GAS	Ja1	Ja1

FeF3 IRON TRIFLUORIDE 112.842

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	91.003	98.324	98.324	−1041.816	0.000	−1071.131	−1041.816	−972.303	170.343
	300.00	91.631	98.889	98.326	−1041.647	0.169	−1071.314	−1041.780	−971.872	169.218
	400.00	96.372	129.722	102.402	−1030.888	10.928	−1082.777	−1038.468	−949.034	123.931
	500.00	95.669	149.281	109.895	−1022.123	19.693	−1096.763	−1037.599	−926.785	96.821
	600.00	96.821	166.821	117.962	−1012.500	29.316	−1112.593	−1036.275	−904.750	78.766
	700.00	98.074	181.840	126.040	−1002.756	39.060	−1130.044	−1035.185	−882.919	65.884
	800.00	99.332	195.018	133.855	−992.885	48.931	−1148.900	−1034.339	−861.228	56.232
	900.00	100.586	206.790	141.317	−982.890	58.926	−1169.001	−1033.847	−839.623	48.730
	1000.00	101.840	217.453	148.406	−972.768	69.048	−1190.222	−1034.022	−818.041	42.730
	1100.00	103.097	227.219	155.133	−962.521	79.295	−1212.462	−1034.885	−796.387	37.817
	1199.00	104.339	236.156	161.458	−952.253	89.563	−1235.404	−1035.248	−774.925	33.760

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	SPT= 1199., L= 202.1 kJ

112.842 IRON TRIFLUORIDE (GAS) **FeF3**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	65.552	304.286	304.286	−820.901	0.000	−911.624	−820.901	−812.795	142.398
	300.00	65.675	304.692	304.287	−820.780	0.121	−912.187	−820.913	−812.745	141.512
	400.00	71.222	324.400	306.937	−813.916	6.985	−943.676	−821.495	−809.932	105.766
	500.00	74.730	340.701	312.107	−806.604	14.297	−976.955	−822.080	−806.976	84.304
	600.00	76.952	354.537	318.055	−799.012	21.889	−1011.734	−822.786	−803.891	69.985
	700.00	78.421	366.517	324.142	−791.239	29.662	−1047.800	−823.667	−800.675	59.747
	800.00	79.435	377.058	330.111	−783.343	37.558	−1084.990	−824.797	−797.317	52.059
	900.00	80.161	386.459	335.859	−775.361	45.540	−1123.174	−826.319	−793.796	46.071
	1000.00	80.697	394.933	341.349	−767.317	53.584	−1162.250	−828.571	−790.070	41.269
	1100.00	81.103	402.645	346.577	−759.226	61.675	−1202.135	−831.590	−786.060	37.327
	1200.00	81.418	409.715	351.548	−751.099	69.802	−1242.758	−834.184	−781.826	34.032
	1300.00	81.666	416.243	356.276	−742.945	77.956	−1284.060	−835.092	−777.426	31.237
	1400.00	81.865	422.302	360.779	−734.768	86.133	−1325.991	−836.087	−772.954	28.839
	1500.00	82.027	427.956	365.071	−726.573	94.328	−1368.507	−837.168	−768.407	26.758
	1600.00	82.161	433.254	369.168	−718.363	102.538	−1411.570	−838.338	−763.785	24.935
	1700.00	82.271	438.239	373.086	−710.142	110.759	−1455.148	−840.547	−759.069	23.323
	1800.00	82.364	442.944	376.838	−701.910	118.991	−1499.209	−842.231	−754.228	21.887
	1900.00	82.442	447.399	380.435	−693.669	127.232	−1543.728	−858.102	−748.589	20.580
	2000.00	82.509	451.630	383.890	−685.422	135.479	−1588.681	−860.206	−742.771	19.399

References

Phase	H / S	C_p
GAS	Ja1	Ja1

FeI2 IRON DIIODIDE 309.656

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL-1	298.15	83.678	167.360	167.360	-104.600	0.000	-154.498	-104.600	-111.737	19.576
	300.00	83.683	167.878	167.362	-104.445	0.155	-154.808	-104.592	-111.782	19.463
	400.00	83.929	191.985	170.647	-96.065	8.535	-172.859	-120.476	-113.656	14.842
	500.00	84.176	210.740	176.859	-87.659	16.941	-193.029	-163.117	-107.866	11.269
	600.00	84.422	226.109	183.825	-79.229	25.371	-214.895	-161.526	-96.969	8.442
	650.00	84.545	232.871	187.341	-75.005	29.595	-226.372	-160.815	-91.618	7.363
			1.288		0.837					
SOL-2	650.00	87.655	234.159	187.341	-74.168	30.432	-226.372	-159.978	-91.618	7.363
	700.00	95.395	240.938	190.927	-69.592	35.008	-238.249	-158.981	-86.395	6.447
	800.00	110.876	254.687	198.035	-59.278	45.322	-263.028	-156.056	-76.211	4.976
	860.00	120.164	263.038	202.278	-52.347	52.253	-278.559	-153.748	-70.305	4.270
			52.057		44.769					
LIQ	860.00	112.968	315.094	202.278	-7.578	97.022	-278.559	-108.979	-70.305	4.270
	900.00	112.968	320.230	207.407	-3.059	101.541	-291.267	-107.649	-68.537	3.978
	1000.00	112.968	332.133	219.295	8.237	112.837	-323.895	-104.916	-64.347	3.361
	1100.00	112.968	342.900	230.050	19.534	124.134	-357.655	-102.963	-60.371	2.867
	1200.00	112.968	352.729	239.870	30.831	135.431	-392.444	-100.597	-56.622	2.465
	1300.00	112.968	361.771	248.904	42.128	146.728	-428.175	-96.551	-53.122	2.134
	1366.00	112.968	367.366	254.494	49.584	154.184	-452.238	-93.930	-50.983	1.950

References

Phase	H / S	C_p	Remarks	
SOL-1	Ja1	Ja1		
SOL-2	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	NBPT= 1366. GAS (Fe2J4 + FeJ2)

309.656 IRON DIIODIDE (GAS) **FeI2**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	60.853	349.473	349.473	87.864	0.000	−16.331	87.864	26.430	−4.630
	300.00	60.872	349.850	349.475	87.977	0.113	−16.978	87.830	26.049	−4.535
	400.00	61.519	367.466	351.872	94.102	6.238	−52.885	69.690	6.318	−0.825
	500.00	61.793	381.226	356.417	100.269	12.405	−90.344	24.811	−5.181	0.541
	600.00	61.981	392.509	361.520	106.458	18.594	−129.048	24.161	−11.122	0.968
	700.00	62.172	402.078	366.648	112.665	24.801	−168.790	23.276	−16.936	1.264
	800.00	62.397	410.394	371.608	118.893	31.029	−209.422	22.116	−22.605	1.476
	900.00	62.664	417.758	376.334	125.146	37.282	−250.837	20.556	−28.107	1.631
	1000.00	62.971	424.376	380.813	131.427	43.563	−292.949	18.274	−33.401	1.745
	1100.00	63.314	430.394	385.051	137.741	49.877	−335.692	15.244	−38.407	1.824
	1200.00	63.683	435.918	389.063	144.091	56.227	−379.011	12.663	−43.190	1.880
	1300.00	64.068	441.031	392.866	150.478	62.614	−422.862	11.800	−47.809	1.921
	1400.00	64.460	445.793	396.478	156.905	69.041	−467.206	10.885	−52.361	1.954
	1500.00	64.848	450.254	399.916	163.370	75.506	−512.011	9.920	−56.845	1.980
	1600.00	65.220	454.451	403.195	169.874	82.010	−557.248	8.903	−61.263	2.000
	1700.00	65.565	458.415	406.328	176.413	88.549	−602.893	6.882	−65.597	2.016
	1800.00	65.870	462.172	409.327	182.985	95.121	−648.924	5.419	−69.819	2.026
	1900.00	66.126	465.740	412.203	189.586	101.722	−695.321	−10.203	−73.255	2.014
	2000.00	66.319	469.137	414.965	196.208	108.344	−742.066	−12.032	−76.526	1.999

References

Phase	H / S	C_p
GAS	Ja1	Ja1

Fe2I4[g] DIIRON TETRAIODIDE (GAS) 619.312

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	131.469	543.611	543.611	8.368	0.000	−153.710	8.368	−68.187	11.946
	300.00	131.473	544.424	543.614	8.611	0.243	−154.716	8.317	−68.662	11.955
	400.00	131.739	582.281	548.773	21.771	13.403	−211.141	−27.053	−92.736	12.110
	500.00	132.064	611.712	558.526	34.961	26.593	−270.895	−115.954	−100.568	10.506
	600.00	132.413	635.820	569.459	48.185	39.817	−333.308	−116.409	−97.456	8.484
	700.00	132.772	656.259	580.436	61.444	53.076	−397.937	−117.334	−94.230	7.032
	800.00	133.138	674.012	591.048	74.739	66.371	−464.470	−118.815	−90.836	5.931
	900.00	133.506	689.715	601.155	88.071	79.703	−532.672	−121.107	−87.212	5.062
	1000.00	133.877	703.800	610.727	101.441	93.073	−602.359	−124.866	−83.263	4.349
	1100.00	134.249	716.577	619.778	114.847	106.479	−673.388	−130.148	−78.819	3.743
	1200.00	134.623	728.275	628.339	128.290	119.922	−745.639	−134.565	−73.995	3.221
	1300.00	134.996	739.065	636.447	141.771	133.403	−819.013	−135.585	−68.908	2.769
	1400.00	135.371	749.083	644.139	155.290	146.922	−893.426	−136.749	−63.736	2.378
	1500.00	135.745	758.435	651.450	168.846	160.478	−968.807	−138.055	−58.476	2.036
	1600.00	136.120	767.208	658.414	182.439	174.071	−1045.094	−139.503	−53.124	1.734
	1700.00	136.495	775.471	665.059	196.070	187.702	−1122.232	−142.994	−47.640	1.464
	1800.00	136.871	783.284	671.412	209.738	201.370	−1200.173	−145.395	−41.962	1.218
	1900.00	137.246	790.694	677.496	223.444	215.076	−1278.875	−176.133	−34.743	0.955
	2000.00	137.622	797.744	683.334	237.187	228.819	−1358.300	−179.294	−27.220	0.711

References

Phase	H / S	C_p
GAS	Ja1	Ja1

359.421 3–IRON 2–MOLYBDENUM **Fe3Mo2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	123.229	146.440	146.440	−4.184	0.000	−47.845	−4.184	−6.394	1.120
	300.00	123.236	147.202	146.442	−3.956	0.228	−48.117	−4.183	−6.408	1.116
	400.00	125.228	182.867	151.292	8.446	12.630	−64.701	−4.566	−7.112	0.929
	500.00	128.804	211.178	160.530	21.140	25.324	−84.449	−5.528	−7.647	0.799
	600.00	133.004	235.027	171.008	34.227	38.411	−106.789	−6.942	−7.945	0.692
	700.00	137.498	255.865	181.672	47.751	51.935	−131.355	−8.750	−7.974	0.595
	800.00	142.150	274.527	192.132	61.732	65.916	−157.890	−11.057	−7.714	0.504
	900.00	146.892	291.543	202.246	76.184	80.368	−186.205	−14.235	−7.117	0.413
	1000.00	151.691	307.268	211.972	91.112	95.296	−216.156	−19.262	−6.081	0.318
	1100.00	156.527	321.952	221.309	106.523	110.707	−247.624	−26.228	−4.381	0.208
	1200.00	161.388	335.780	230.278	122.419	126.603	−280.517	−31.555	−2.214	0.096
	1300.00	166.267	348.891	238.902	138.801	142.985	−314.756	−31.462	0.228	−0.009
	1400.00	171.159	361.391	247.208	155.672	159.856	−350.275	−31.269	2.659	−0.099
	1500.00	176.060	373.367	255.222	173.033	177.217	−387.017	−30.989	5.073	−0.177
	1600.00	180.969	384.886	262.968	190.885	195.069	−424.933	−30.635	7.466	−0.244

References

Phase	H / S	C_p
SOL	Ku1	e

215.785 IRON MOLYBDATE **FeMoO4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	118.449	129.286	129.286	−1065.832	0.000	−1104.379	−1065.832	−965.391	169.132
	300.00	118.761	130.019	129.288	−1065.613	0.219	−1104.618	−1065.812	−964.768	167.981
	400.00	130.914	166.031	134.115	−1053.066	12.766	−1119.478	−1064.287	−931.296	121.615
	500.00	138.315	196.090	143.589	−1039.581	26.251	−1137.626	−1062.322	−898.271	93.842
	600.00	143.845	221.815	154.534	−1025.463	40.369	−1158.552	−1060.230	−865.657	75.362
	700.00	148.491	244.346	165.788	−1010.841	54.991	−1181.883	−1058.118	−833.395	62.189
	800.00	152.667	264.450	176.886	−995.781	70.051	−1207.341	−1056.067	−801.433	52.328
	900.00	156.569	282.659	187.643	−980.317	85.515	−1234.710	−1054.213	−769.718	44.673
	1000.00	160.302	299.350	197.990	−964.472	101.360	−1263.822	−1052.882	−738.186	38.559
	1100.00	163.923	314.799	207.915	−948.260	117.572	−1294.539	−1052.102	−706.738	33.560
	1200.00	167.468	329.214	217.430	−931.690	134.142	−1326.748	−1050.677	−675.422	29.400
	1300.00	170.961	342.757	226.555	−914.768	151.064	−1360.353	−1047.344	−644.285	25.888
	1400.00	174.414	355.553	235.316	−897.499	168.333	−1395.274	−1043.877	−613.410	22.887
	1500.00	177.840	367.704	243.740	−879.886	185.946	−1431.442	−1040.282	−582.787	20.294

References

Phase	H / S	C_p
SOL	Tk1	Tk1,e

Fe4N TETRAIRON NITRIDE 237.395

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	122.591	155.252	155.252	−11.088	0.000	−57.376	−11.088	3.722	−0.652
	300.00	122.654	156.010	155.254	−10.861	0.227	−57.664	−11.073	3.813	−0.664
	400.00	126.068	191.763	160.106	1.575	12.663	−75.130	−10.600	8.689	−1.135
	500.00	129.482	220.261	169.380	14.352	25.440	−95.778	−10.700	13.510	−1.411
	600.00	132.896	244.170	179.905	27.471	38.559	−119.031	−11.426	18.410	−1.603
	700.00	136.311	264.913	190.599	40.932	52.020	−144.507	−12.804	23.481	−1.752
	753.00	138.120	274.926	196.185	48.204	59.292	−158.815	−13.851	26.266	−1.822
			11.113		8.368					
SOL−B	753.00	138.072	286.039	196.185	56.572	67.660	−158.815	−13.851	26.266	−1.822
	800.00	138.072	294.399	201.712	63.062	74.150	−172.458	−6.693	28.283	−1.847
	900.00	138.072	310.662	212.932	76.869	87.957	−202.727	−10.602	32.868	−1.908
	953.00	138.072	318.562	218.589	84.187	95.275	−219.403	−13.767	35.515	−1.947

References

Phase	H / S	C_p	Remarks	
SOL−A	Tk1	Ku1,e		
SOL−B	Tk1	e	Tk1	TPT= 953.

68.887 WUESTITE **Fe0.947O**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	48.127	57.589	57.589	−266.270	0.000	−283.440	−266.270	−245.155	42.950
	300.00	48.181	57.886	57.590	−266.181	0.089	−283.547	−266.252	−245.024	42.663
	400.00	50.381	72.077	59.509	−261.243	5.027	−290.074	−265.287	−238.095	31.092
	500.00	51.848	83.484	63.201	−256.128	10.142	−297.870	−264.402	−231.402	24.174
	600.00	53.028	93.044	67.399	−250.883	15.387	−306.709	−263.661	−224.874	19.577
	700.00	54.071	101.298	71.665	−245.527	20.743	−316.436	−263.085	−218.458	16.302
	800.00	55.042	108.582	75.834	−240.071	26.199	−326.937	−262.722	−212.110	13.849
	900.00	55.971	115.119	79.842	−234.520	31.750	−338.127	−262.692	−205.790	11.944
	1000.00	56.873	121.063	83.671	−228.878	37.392	−349.941	−263.304	−199.443	10.418
	1100.00	57.759	126.525	87.322	−223.146	43.124	−362.324	−264.582	−192.981	9.164
	1200.00	58.632	131.589	90.802	−217.326	48.944	−375.233	−265.394	−186.454	8.116
	1300.00	59.498	136.316	94.124	−211.420	54.850	−388.631	−264.540	−179.910	7.229
	1400.00	60.358	140.757	97.297	−205.427	60.843	−402.486	−263.694	−173.432	6.471
	1500.00	61.213	144.950	100.336	−199.348	66.922	−416.774	−262.855	−167.014	5.816
	1600.00	62.065	148.928	103.250	−193.185	73.085	−431.469	−262.024	−160.652	5.245
	1650.00	62.490	150.844	104.663	−190.071	76.199	−438.964	−261.610	−157.490	4.986
			18.994		31.340					
LIQ	1650.00	65.840	169.838	104.663	−158.731	107.539	−438.964	−261.610	−157.490	4.986
	1700.00	65.840	171.804	106.609	−155.439	110.831	−447.505	−230.602	−155.276	4.771
	1800.00	65.840	175.567	110.336	−148.855	117.415	−464.875	−229.850	−150.867	4.378
	1900.00	65.840	179.127	113.864	−142.271	123.999	−482.612	−242.540	−145.832	4.009
	2000.00	65.840	182.504	117.212	−135.687	130.583	−500.695	−242.195	−140.752	3.676

References

Phase	H / S	C_p	Remarks	
SOL	Ja1,e	Ja1	Ja1	MPT= 1650., L= 31.34 kJ
LIQ	Ja1	e		

FeO IRON MONOXIDE 71.846

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	49.942	60.752	60.752	−272.044	0.000	−290.157	−272.044	−251.441	44.051
	300.00	49.975	61.061	60.753	−271.952	0.092	−290.270	−272.025	−251.314	43.758
	400.00	51.812	75.690	62.735	−266.862	5.182	−297.138	−271.047	−244.559	31.936
	500.00	53.452	87.432	66.538	−261.597	10.447	−305.313	−270.163	−238.042	24.868
	600.00	54.870	97.306	70.864	−256.179	15.865	−314.563	−269.413	−231.691	20.170
	700.00	56.131	105.861	75.266	−250.628	21.416	−324.730	−268.819	−225.453	16.824
	800.00	57.279	113.432	79.573	−244.957	27.087	−335.702	−268.432	−219.287	14.318
	900.00	58.342	120.241	83.719	−239.175	32.869	−347.391	−268.385	−213.152	12.371
	1000.00	59.334	126.439	87.686	−233.290	38.754	−359.730	−269.008	−206.990	10.812
	1100.00	60.263	132.139	91.471	−227.310	44.734	−372.663	−270.332	−200.709	9.531
	1200.00	61.134	137.420	95.083	−221.240	50.804	−386.144	−271.165	−194.362	8.460
	1300.00	61.948	142.346	98.531	−215.085	56.959	−400.135	−270.245	−187.999	7.554
	1400.00	62.706	146.965	101.828	−208.852	63.192	−414.603	−269.346	−181.706	6.780
	1500.00	63.406	151.315	104.983	−202.546	69.498	−429.519	−268.471	−175.477	6.111
	1600.00	64.047	155.428	108.009	−196.173	75.871	−444.858	−267.626	−169.305	5.527
	1650.00	64.345	157.403	109.476	−192.963	79.081	−452.679	−267.216	−166.239	5.263
			14.581		24.058					
LIQ	1650.00	68.199	171.984	109.476	−168.905	103.139	−452.679	−243.158	−166.239	5.263
	1700.00	68.199	174.020	111.344	−165.495	106.549	−461.329	−243.523	−163.898	5.036
	1800.00	68.199	177.918	114.935	−158.675	113.369	−478.928	−242.758	−159.237	4.621
	1900.00	68.199	181.605	118.348	−151.855	120.189	−496.906	−256.185	−153.914	4.231
	2000.00	68.199	185.104	121.599	−145.035	127.009	−515.243	−255.849	−148.540	3.879
	2100.00	68.199	188.431	124.703	−138.215	133.829	−533.921	−255.524	−143.182	3.561
	2200.00	68.199	191.604	127.673	−131.396	140.648	−552.924	−255.211	−137.840	3.273
	2300.00	68.199	194.635	130.519	−124.576	147.468	−572.237	−254.909	−132.512	3.009
	2400.00	68.199	197.538	133.251	−117.756	154.288	−591.846	−254.617	−127.197	2.768
	2500.00	68.199	200.322	135.879	−110.936	161.108	−611.740	−254.337	−121.893	2.547
	2600.00	68.199	202.997	138.409	−104.116	167.928	−631.907	−254.068	−116.601	2.343
	2700.00	68.199	205.570	140.849	−97.296	174.748	−652.336	−253.809	−111.319	2.154
	2800.00	68.199	208.051	143.205	−90.476	181.568	−673.018	−253.560	−106.046	1.978
	2900.00	68.199	210.444	145.483	−83.656	188.388	−693.944	−253.322	−100.782	1.815
	3000.00	68.199	212.756	147.687	−76.836	195.208	−715.104	−253.093	−95.525	1.663
	3100.00	68.199	214.992	149.822	−70.016	202.028	−736.492	−252.873	−90.277	1.521
	3200.00	68.199	217.157	151.893	−63.196	208.848	−758.100	−600.995	−77.417	1.264
	3300.00	68.199	219.256	153.902	−56.376	215.668	−779.922	−598.890	−61.088	0.967
	3400.00	68.199	221.292	155.855	−49.557	222.487	−801.949	−596.825	−44.822	0.689
	3500.00	68.199	223.269	157.753	−42.737	229.307	−824.178	−594.797	−28.616	0.427
	3600.00	68.199	225.190	159.599	−35.917	236.127	−846.601	−592.807	−12.468	0.181
	3687.00	68.199	226.819	161.166	−29.983	242.061	−866.264	−591.105	1.536	−0.022

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	NDPT= 3687.

71.846 IRON MONOXIDE (GAS) **FeO**[g]

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	31.408	241.924	241.924	251.040	0.000	178.910	251.040	217.626	-38.127
	300.00	31.440	242.118	241.925	251.098	0.058	178.463	251.025	217.419	-37.856
	400.00	33.067	251.393	243.178	254.326	3.286	153.769	250.141	206.347	-26.946
	500.00	34.265	258.909	245.596	257.696	6.656	128.242	249.130	195.513	-20.425
	600.00	35.095	265.234	248.356	261.167	10.127	102.026	247.932	184.898	-16.097
	700.00	35.684	270.691	251.166	264.707	13.667	75.224	246.516	174.501	-13.021
	800.00	36.115	275.485	253.912	268.298	17.258	47.910	244.823	164.325	-10.729
	900.00	36.439	279.758	256.551	271.927	20.887	20.144	242.716	154.384	-8.960
	1000.00	36.689	283.611	259.067	275.584	24.544	-8.027	239.866	144.713	-7.559
	1100.00	36.888	287.118	261.460	279.263	28.223	-36.566	236.241	135.387	-6.429
	1200.00	37.050	290.334	263.734	282.960	31.920	-65.441	233.035	126.341	-5.499
	1300.00	37.189	293.306	265.896	286.672	35.632	-94.625	231.512	117.511	-4.722
	1400.00	37.313	296.066	267.954	290.397	39.357	-124.095	229.904	108.801	-4.059
	1500.00	37.430	298.645	269.915	294.135	43.095	-153.832	228.210	100.209	-3.490
	1600.00	37.548	301.064	271.787	297.883	46.843	-183.819	226.431	91.734	-2.995
	1700.00	37.672	303.344	273.577	301.644	50.604	-214.040	223.617	83.390	-2.562
	1800.00	37.798	305.501	275.291	305.417	54.377	-244.484	221.335	75.207	-2.182
	1900.00	37.929	307.548	276.935	309.204	58.164	-275.137	204.874	67.855	-1.865
	2000.00	38.064	309.497	278.515	313.003	61.963	-305.990	202.190	60.713	-1.586
	2100.00	38.207	311.357	280.035	316.817	65.777	-337.033	199.508	53.705	-1.336
	2200.00	38.359	313.138	281.499	320.645	69.605	-368.259	196.830	46.825	-1.112
	2300.00	38.522	314.847	282.912	324.489	73.449	-399.658	194.156	40.066	-0.910
	2400.00	38.694	316.490	284.277	328.350	77.310	-431.226	191.488	33.424	-0.727
	2500.00	38.874	318.073	285.598	332.228	81.188	-462.954	188.827	26.893	-0.562
	2600.00	39.060	319.601	286.876	336.125	85.085	-494.839	186.173	20.468	-0.411
	2700.00	39.252	321.079	288.116	340.040	89.000	-526.873	183.527	14.145	-0.274
	2800.00	39.448	322.510	289.319	343.975	92.935	-559.053	180.891	7.920	-0.148
	2900.00	39.646	323.898	290.487	347.930	96.890	-591.373	178.264	1.789	-0.032
	3000.00	39.845	325.245	291.624	351.904	100.864	-623.831	175.648	-4.252	0.074
	3100.00	40.045	326.555	292.729	355.899	104.859	-656.421	173.042	-10.206	0.172
	3200.00	40.244	327.829	293.806	359.913	108.873	-689.141	-177.885	-8.458	0.138
	3300.00	40.441	329.071	294.856	363.948	112.908	-721.986	-178.566	-3.153	0.050
	3400.00	40.636	330.281	295.881	368.001	116.961	-754.954	-179.267	2.173	-0.033
	3500.00	40.827	331.462	296.880	372.075	121.035	-788.041	-179.986	7.520	-0.112
	3600.00	41.015	332.614	297.857	376.167	125.127	-821.245	-180.723	12.888	-0.187
	3700.00	41.199	333.741	298.812	380.278	129.238	-854.563	-181.479	18.276	-0.258
	3800.00	41.378	334.842	299.745	384.406	133.366	-887.993	-182.252	23.686	-0.326
	3900.00	41.551	335.919	300.659	388.553	137.513	-921.531	-183.043	29.115	-0.390
	4000.00	41.720	336.973	301.554	392.716	141.676	-955.176	-183.851	34.565	-0.451
	4100.00	41.883	338.005	302.430	396.897	145.857	-988.925	-184.677	40.036	-0.510
	4200.00	42.039	339.016	303.290	401.093	150.053	-1022.776	-185.519	45.527	-0.566
	4300.00	42.190	340.007	304.132	405.304	154.264	-1056.727	-186.379	51.038	-0.620
	4400.00	42.335	340.979	304.958	409.531	158.491	-1090.777	-187.256	56.570	-0.672
	4500.00	42.474	341.932	305.769	413.771	162.731	-1124.922	-188.149	62.121	-0.721
	4600.00	42.606	342.867	306.566	418.025	166.985	-1159.163	-189.060	67.693	-0.769
	4700.00	42.732	343.785	307.348	422.292	171.252	-1193.495	-189.988	73.284	-0.814
	4800.00	42.852	344.685	308.116	426.571	175.531	-1227.919	-190.933	78.896	-0.859
	4900.00	42.966	345.570	308.872	430.862	179.822	-1262.432	-191.895	84.527	-0.901
	5000.00	43.073	346.439	309.614	435.164	184.124	-1297.032	-192.875	90.178	-0.942

Phase	H / S	C_p	Remarks
GAS	Ja1	Ja1	
LIQ	Ja1	Ja1	Ja1 NDPT= 3687.

FeO[g] IRON MONOXIDE (GAS) [continued] 71.846

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	5100.00	43.174	347.293	310.345	439.477	188.437	−1331.719	−193.873	95.849	−0.982
	5200.00	43.270	348.133	311.064	443.799	192.759	−1366.491	−194.888	101.540	−1.020
	5300.00	43.359	348.958	311.771	448.131	197.091	−1401.345	−195.922	107.250	−1.057
	5400.00	43.442	349.769	312.467	452.471	201.431	−1436.282	−196.974	112.981	−1.093
	5500.00	43.520	350.567	313.152	456.819	205.779	−1471.299	−198.045	118.730	−1.128
	5600.00	43.592	351.352	313.828	461.174	210.134	−1506.395	−199.135	124.500	−1.161
	5700.00	43.659	352.124	314.493	465.537	214.497	−1541.568	−200.245	130.289	−1.194
	5800.00	43.721	352.884	315.148	469.906	218.866	−1576.819	−201.374	136.097	−1.226
	5900.00	43.777	353.632	315.794	474.281	223.241	−1612.145	−202.523	141.926	−1.257
	6000.00	43.829	354.368	316.431	478.661	227.621	−1647.545	−203.692	147.774	−1.286

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	NDPT= 3687.

Fe2O3 HEMATITE 159.692

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL−A	298.15	103.866	87.404	87.404	−824.248	0.000	−850.307	−824.248	−742.294	130.047
	300.00	104.182	88.047	87.406	−824.056	0.192	−850.470	−824.230	−741.785	129.156
	400.00	120.120	120.295	91.694	−812.808	11.440	−860.926	−822.691	−714.507	93.305
	500.00	131.806	148.420	100.288	−800.182	24.066	−874.392	−820.357	−687.720	71.846
	600.00	141.147	173.297	110.422	−786.523	37.725	−890.501	−817.614	−661.445	57.584
	700.00	149.751	195.704	121.030	−771.976	52.272	−908.969	−814.607	−635.651	47.433
	800.00	158.206	216.254	131.665	−756.577	67.671	−929.580	−811.447	−610.301	39.849
	900.00	166.492	235.369	142.138	−740.340	83.908	−952.172	−808.381	−585.344	33.973
	960.00	171.244	246.267	148.308	−730.207	94.041	−966.623	−806.838	−570.527	31.043
			0.000		0.000					
SOL−B	960.00	171.372	246.267	148.308	−730.207	94.041	−966.623	−806.838	−570.527	31.043
	1000.00	150.750	252.786	152.360	−723.821	100.427	−976.608	−806.608	−560.690	29.287
	1100.00	140.891	266.442	162.127	−709.501	114.747	−1002.587	−808.651	−535.980	25.452
	1200.00	141.458	278.716	171.338	−695.394	128.854	−1029.853	−810.124	−511.164	22.250
	1300.00	142.203	290.069	180.040	−681.210	143.038	−1058.300	−808.201	−486.330	19.541
	1400.00	142.908	300.633	188.281	−666.955	157.293	−1087.841	−806.420	−461.638	17.224
	1500.00	143.671	310.518	196.104	−652.626	171.622	−1118.404	−804.775	−437.069	15.220
	1600.00	144.490	319.817	203.548	−638.218	186.030	−1149.925	−803.257	−412.606	13.470
	1700.00	145.193	328.599	210.648	−623.732	200.516	−1182.350	−803.766	−388.196	11.928

References

Phase	H / S	C_p	Remarks	
SOL−A	Pa1	Ja1	Pa1	CURIE − PT= 960.
SOL−B	Pa1	Ja1	Ja1	NDPT= 1735.

231.539 MAGNETITE **Fe3O4**

Phase	T [K]	C_p [J / (K mol)]	S	−(G−H298)/T	H [kJ / mol]	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
SOL−A	298.15	150.730	146.147	146.147	−1118.383	0.000	−1161.957	−1118.383	−1015.227	177.864
	300.00	151.544	147.082	146.150	−1118.103	0.280	−1162.228	−1118.351	−1014.587	176.655
	400.00	175.652	194.497	152.455	−1101.566	16.817	−1179.365	−1115.634	−980.368	128.023
	500.00	192.629	235.548	165.058	−1083.138	35.245	−1200.912	−1111.880	−946.969	98.929
	600.00	208.442	272.062	179.902	−1063.087	55.296	−1226.324	−1107.412	−914.396	79.605
	700.00	228.936	305.605	195.488	−1041.301	77.082	−1255.225	−1102.124	−882.629	65.863
	800.00	266.769	338.365	211.294	−1016.726	101.657	−1287.418	−1095.071	−851.723	55.612
	850.00	297.361	355.406	219.266	−1002.663	115.720	−1304.759	−1090.254	−836.656	51.415
			0.000		0.000					
SOL−B	850.00	229.894	355.406	219.266	−1002.663	115.720	−1304.759	−1090.254	−836.656	51.415
	900.00	220.730	368.277	227.192	−991.407	126.976	−1322.856	−1088.659	−821.789	47.695
	1000.00	207.916	390.814	242.459	−970.027	148.356	−1360.842	−1088.531	−792.184	41.379
	1100.00	200.321	410.241	256.848	−949.651	168.732	−1400.916	−1091.822	−762.355	36.201
	1200.00	196.280	427.477	270.362	−929.845	188.538	−1442.817	−1094.501	−732.346	31.878
	1300.00	194.744	443.113	283.058	−910.312	208.071	−1486.358	−1092.463	−702.253	28.217
	1400.00	195.024	457.545	295.012	−890.836	227.547	−1531.400	−1090.796	−672.301	25.084
	1500.00	196.652	471.049	306.302	−871.262	247.121	−1577.836	−1089.336	−642.460	22.372
	1600.00	199.302	483.821	317.001	−851.472	266.911	−1625.585	−1087.963	−612.713	20.003
	1700.00	202.739	496.003	327.175	−831.376	287.007	−1674.581	−1089.437	−582.996	17.913
	1800.00	206.794	507.704	336.882	−810.903	307.480	−1724.770	−1088.987	−553.218	16.054
	1870.00	209.931	515.652	343.425	−796.319	322.064	−1760.588	−1130.625	−530.983	14.832
			73.835		138.072					
LIQ	1870.00	213.384	589.487	343.425	−658.247	460.136	−1760.588	−992.553	−530.983	14.832
	1900.00	213.384	592.883	347.337	−651.846	466.537	−1778.324	−992.542	−523.578	14.394
	2000.00	213.384	603.828	359.891	−630.507	487.876	−1838.164	−992.536	−498.896	13.030

References

Phase	H / S	C_p	Remarks	
SOL−A	Pa1	Pa1	Pa1	CURIE−PT.= 850.
SOL−B	Pa1	Pa1		
LIQ	Pa1	e		

FeAl2O4 IRON DIALUMINIUM TETRAOXIDE 173.808

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	123.544	106.299	106.299	−1995.299	0.000	−2026.992	−1995.299	−1879.669	329.310
	300.00	124.025	107.064	106.301	−1995.070	0.229	−2027.189	−1995.315	−1878.951	327.155
	400.00	141.874	145.503	111.421	−1981.666	13.633	−2039.867	−1995.493	−1840.106	240.293
	500.00	151.540	178.287	121.602	−1966.956	28.343	−2056.100	−1995.035	−1801.307	188.181
	600.00	157.986	206.517	133.457	−1951.463	43.836	−2075.373	−1994.458	−1762.615	153.449
	700.00	162.910	231.255	145.697	−1935.409	59.890	−2097.287	−1993.977	−1724.015	128.648
	800.00	167.024	253.283	157.794	−1918.907	76.392	−2121.534	−1993.769	−1685.468	110.050
	900.00	170.667	273.170	169.526	−1902.020	93.279	−2147.873	−1994.101	−1646.918	95.585
	1000.00	174.017	291.327	180.811	−1884.784	110.515	−2176.110	−2016.455	−1606.768	83.929
	1100.00	177.176	308.062	191.629	−1867.223	128.076	−2206.091	−2017.812	−1565.717	74.350
	1200.00	180.204	323.609	201.987	−1849.353	145.946	−2237.683	−2018.518	−1524.604	66.364
	1300.00	183.141	338.149	211.908	−1831.185	164.114	−2270.779	−2017.309	−1483.493	59.607
	1400.00	186.012	351.827	221.418	−1812.727	182.572	−2305.284	−2015.955	−1442.480	53.820
	1500.00	188.833	364.757	230.547	−1793.984	201.315	−2341.119	−2014.455	−1401.569	48.807
	1600.00	191.616	377.033	239.322	−1774.961	220.338	−2378.214	−2012.810	−1360.763	44.424
	1700.00	194.371	388.732	247.769	−1755.662	239.637	−2416.507	−2011.973	−1320.045	40.560
	1800.00	197.103	399.920	255.913	−1736.088	259.211	−2455.943	−2010.377	−1279.389	37.127
	1900.00	199.817	410.649	263.777	−1716.242	279.057	−2496.475	−2022.737	−1238.123	34.038
	2000.00	202.517	420.967	271.380	−1696.125	299.174	−2538.059	−2021.098	−1196.869	31.259
	2073.00	204.480	428.262	276.777	−1681.270	314.029	−2569.057	−2019.760	−1166.808	29.401

References

Phase	H / S	C_p	Remarks
SOL	Nb1	Nb1,e	Tk1 MPT= 2073.

FeOCl IRON CHLORIDE OXIDE 107.299

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	77.032	80.751	80.751	−376.999	0.000	−401.075	−376.999	−329.098	57.657
	300.00	77.082	81.228	80.753	−376.856	0.143	−401.225	−376.961	−328.801	57.249
	400.00	79.764	103.770	83.808	−369.014	7.985	−410.522	−374.964	−313.050	40.880
	500.00	82.446	121.857	89.666	−360.904	16.095	−421.832	−373.021	−297.798	31.111
	600.00	85.128	137.126	96.336	−352.525	24.474	−434.800	−371.128	−282.932	24.631
	700.00	87.810	150.450	103.134	−343.878	33.121	−449.193	−369.276	−268.380	20.027
	800.00	90.492	162.350	109.805	−334.963	42.036	−464.843	−367.498	−254.088	16.590

References

Phase	H / S	C_p
SOL	Nb1/Sc1	e

89.862

IRON DIHYDROXIDE **Fe(OH)2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	97.036	87.998	87.998	−568.999	0.000	−595.236	−568.999	−486.975	85.316
	300.00	97.126	88.598	88.000	−568.819	0.180	−595.399	−568.973	−486.466	84.701
	400.00	102.156	117.226	91.869	−558.856	10.143	−605.747	−567.513	−459.179	59.963
	500.00	107.027	140.551	99.341	−548.394	20.605	−618.670	−565.885	−432.281	45.160
	600.00	111.447	160.463	107.908	−537.466	31.533	−633.744	−564.134	−405.723	35.321
	700.00	115.319	177.941	116.689	−526.123	42.876	−650.682	−562.312	−379.465	28.316
	800.00	118.601	193.560	125.339	−514.422	54.577	−669.270	−560.517	−353.468	23.079
	900.00	121.272	207.690	133.717	−502.423	66.576	−689.344	−558.930	−327.685	19.018
	1000.00	123.323	220.579	141.768	−490.188	78.811	−710.767	−557.937	−302.053	15.778

References

Phase	H / S	C_p
SOL	Nb1	Ja1

106.869

IRON TRIHYDROXIDE **Fe(OH)3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	101.489	106.700	106.700	−822.997	0.000	−854.810	−822.997	−696.486	122.021
	300.00	101.880	107.329	106.702	−822.809	0.188	−855.008	−823.017	−695.701	121.132
	400.00	118.596	139.099	110.921	−811.726	11.271	−867.365	−823.375	−653.173	85.296
	500.00	130.518	166.902	119.396	−799.244	23.753	−882.695	−822.718	−610.682	63.798
	600.00	140.042	191.568	129.407	−785.700	37.297	−900.641	−821.395	−568.390	49.483
	700.00	147.986	213.770	139.899	−771.288	51.709	−920.927	−819.601	−526.359	39.277
	800.00	154.694	233.981	150.415	−756.144	66.853	−943.329	−817.508	−484.608	31.642
	900.00	160.329	252.537	160.745	−740.385	82.612	−967.668	−815.350	−443.125	25.718
	1000.00	164.978	269.678	170.792	−724.111	98.886	−993.789	−813.551	−401.870	20.992

References

Phase	H / S	C_p
SOL	Nb1	Ja1

Fe2O3*H2O IRON TRIOXIDE HYDRATE (GOETHITE) 177.707

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[-]
SOL	298.15	175.728	118.826	118.826	-1117.998	0.000	-1153.426	-1117.998	-975.868	170.968
	300.00	176.412	119.915	118.829	-1117.672	0.326	-1153.647	-1117.927	-974.986	169.760
	400.00	213.384	175.729	126.190	-1098.182	19.816	-1168.474	-1112.537	-928.067	121.193

References

Phase	H / S	C_p
SOL	Nb1/e	e

Fe2MgO4 DIIRON MAGNESIUM TETRAOXIDE 199.997

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[-]
SOL	298.15	143.718	123.800	123.800	-1428.857	0.000	-1465.768	-1428.857	-1317.429	230.808
	300.00	143.779	124.690	123.803	-1428.591	0.266	-1465.998	-1428.838	-1316.738	229.264
	400.00	147.051	166.500	129.482	-1414.050	14.807	-1480.650	-1428.042	-1279.502	167.086
	500.00	150.323	199.665	140.313	-1399.181	29.676	-1499.014	-1427.664	-1242.420	129.795
	600.00	153.595	227.362	152.575	-1383.985	44.872	-1520.402	-1427.751	-1205.371	104.937
	700.00	156.867	251.284	165.005	-1368.462	60.395	-1544.361	-1428.300	-1168.271	87.177
	800.00	160.138	272.444	177.138	-1352.612	76.245	-1570.567	-1429.378	-1131.057	73.850
	900.00	163.410	291.495	188.803	-1336.434	92.423	-1598.779	-1431.215	-1093.666	63.475
	1000.00	166.682	308.881	199.954	-1319.930	108.927	-1628.811	-1443.393	-1055.248	55.120
	1100.00	169.954	324.921	210.594	-1303.098	125.759	-1660.511	-1447.942	-1016.183	48.255
	1200.00	173.226	339.849	220.751	-1285.939	142.918	-1693.758	-1451.402	-976.816	42.520
	1300.00	176.498	353.844	230.456	-1268.453	160.404	-1728.450	-1451.232	-937.273	37.660
	1400.00	179.770	367.043	239.745	-1250.639	178.218	-1764.500	-1577.927	-894.119	33.360
	1500.00	183.042	379.558	248.652	-1232.499	196.358	-1801.836	-1576.369	-845.329	29.437
	1600.00	186.314	391.476	257.209	-1214.031	214.826	-1840.392	-1574.703	-796.647	26.008
	1700.00	189.585	402.869	265.445	-1195.236	233.621	-1880.113	-1574.828	-748.035	22.984
	1800.00	192.857	413.798	273.385	-1176.114	252.743	-1920.950	-1573.610	-699.435	20.297
	1900.00	196.129	424.313	281.054	-1156.665	272.192	-1962.859	-1600.473	-649.501	17.856
	2000.00	199.401	434.456	288.472	-1136.888	291.969	-2005.800	-1599.505	-599.474	15.657

References

Phase	H / S	C_p
SOL	Nb1	e

230.630 DIIRON MANGANESE TETRAOXIDE **Fe2MnO4**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL−1	298.15	149.538	153.971	153.971	−1226.000	0.000	−1271.907	−1226.000	−1123.767	196.879
	300.00	149.954	154.897	153.974	−1225.723	0.277	−1272.192	−1225.973	−1123.133	195.555
	400.00	167.558	200.633	160.091	−1209.783	16.217	−1290.036	−1223.957	−1089.130	142.226
	500.00	180.322	239.445	172.177	−1192.366	33.634	−1312.089	−1221.279	−1055.725	110.291
	560.00	186.982	260.256	180.514	−1181.344	44.656	−1327.088	−1219.514	−1035.959	96.630
			0.000		0.000					
SOL−2	560.00	192.464	260.256	180.514	−1181.344	44.656	−1327.088	−1219.514	−1035.959	96.630
	600.00	192.464	273.535	186.278	−1173.646	52.354	−1337.767	−1218.159	−1022.896	89.051
	700.00	192.464	303.203	200.917	−1154.399	71.601	−1366.642	−1215.356	−990.585	73.918
	800.00	192.464	328.903	215.344	−1135.153	90.847	−1398.276	−1213.426	−958.618	62.591
	900.00	192.464	351.572	229.246	−1115.906	110.094	−1432.322	−1212.599	−926.830	53.792
	1000.00	192.464	371.850	242.510	−1096.660	129.340	−1468.510	−1215.740	−895.005	46.750
	1100.00	192.464	390.194	255.116	−1077.414	148.586	−1506.627	−1218.401	−862.776	40.970
	1200.00	192.464	406.941	267.080	−1058.167	167.833	−1546.496	−1220.342	−830.400	36.146
	1300.00	192.464	422.346	278.439	−1038.921	187.079	−1587.971	−1219.022	−797.960	32.062
	1400.00	192.464	436.609	289.234	−1019.674	206.326	−1630.927	−1220.254	−765.547	28.563
	1500.00	192.464	449.888	299.507	−1000.428	225.572	−1675.260	−1221.929	−732.957	25.524
	1600.00	192.464	462.309	309.298	−981.182	244.818	−1720.876	−1234.066	−699.698	22.843
	1700.00	192.464	473.977	318.645	−961.935	264.065	−1767.697	−1236.264	−666.254	20.472
	1800.00	192.464	484.978	327.583	−942.689	283.311	−1815.650	−1237.445	−632.692	18.360
	1843.00	192.464	489.522	331.309	−934.413	291.587	−1836.602	−1265.867	−617.717	17.507

References

Phase	H / S	C_p	Remarks	
SOL−1	Tk1	e		
SOL−2	u	e	Tk1	MPT= 1843.

FeNaO2 IRON SODIUM DIOXIDE 110.836

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−B	298.15	84.517	88.299	88.299	−698.787	0.000	−725.113	−698.787	−640.474	112.208
	300.00	84.542	88.822	88.301	−698.631	0.156	−725.277	−698.783	−640.112	111.453
	400.00	85.872	113.325	91.633	−690.110	8.677	−735.440	−701.481	−620.354	81.010
	500.00	87.203	132.630	97.968	−681.456	17.331	−747.771	−701.840	−600.032	62.685
	600.00	88.533	148.647	105.117	−672.669	26.118	−761.857	−702.317	−579.628	50.461
	700.00	89.864	162.394	112.341	−663.749	35.038	−777.425	−702.933	−559.133	41.723
	800.00	91.194	174.481	119.368	−654.697	44.090	−794.281	−703.742	−538.538	35.163
	900.00	92.525	185.299	126.103	−645.511	53.276	−812.279	−704.881	−517.824	30.054
	1000.00	93.855	195.116	132.521	−636.192	62.595	−831.308	−706.687	−496.952	25.958
	1100.00	95.186	204.124	138.626	−626.739	72.048	−851.276	−709.202	−475.842	22.596
	1200.00	96.517	212.463	144.436	−617.154	81.633	−872.110	−808.006	−452.115	19.680
	1300.00	97.847	220.241	149.971	−607.436	91.351	−893.750	−807.392	−422.483	16.976
	1400.00	99.178	227.541	155.254	−597.585	101.202	−916.142	−806.760	−392.898	14.659
	1500.00	100.508	234.429	160.305	−587.601	111.186	−939.244	−806.107	−363.359	12.653
	1600.00	101.839	240.958	165.143	−577.483	121.304	−963.016	−805.430	−333.864	10.900
	1620.00	102.105	242.225	166.087	−575.444	123.343	−967.848	−805.291	−327.970	10.575
			30.476		49.371					
LIQ	1620.00	125.520	272.701	166.087	−526.073	172.714	−967.848	−755.920	−327.970	10.575
	1700.00	125.520	278.751	171.248	−516.031	182.756	−989.908	−754.477	−306.877	9.429
	1800.00	125.520	285.926	177.421	−503.479	195.308	−1018.145	−751.917	−280.622	8.143
	1900.00	125.520	292.712	183.312	−490.927	207.860	−1047.080	−763.561	−253.804	6.978
	2000.00	125.520	299.150	188.945	−478.375	220.412	−1076.676	−761.454	−227.029	5.929

References

Phase	H / S	C_p	Remarks	
SOL−B	Nb1,Tk1	e	Tk1	TPT= 870., 1270.
LIQ	Tk1	e		

234.382 DIIRON NICKEL TETRAOXIDE **Fe2NiO4**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[-]
SOL-A	298.15	145.599	131.800	131.800	-1081.100	0.000	-1120.396	-1081.100	-972.893	170.447
	300.00	145.949	132.702	131.803	-1080.830	0.270	-1120.641	-1081.080	-972.222	169.279
	400.00	160.951	176.892	137.727	-1065.434	15.666	-1136.191	-1079.610	-936.140	122.247
	500.00	172.075	214.044	149.372	-1048.764	32.336	-1155.786	-1077.718	-900.487	94.073
	600.00	181.673	246.280	162.894	-1031.068	50.032	-1178.836	-1075.789	-865.223	75.324
	700.00	190.550	274.958	176.891	-1012.453	68.647	-1204.924	-1073.659	-830.285	61.957
	800.00	199.043	300.960	190.799	-992.971	88.129	-1233.739	-1071.176	-795.687	51.953
	863.00	204.272	316.245	199.403	-980.266	100.834	-1253.185	-1069.681	-774.050	46.851
			0.994		0.858					
SOL-B	863.00	213.384	317.239	199.403	-979.408	101.692	-1253.185	-1068.823	-774.050	46.851
	900.00	213.384	326.197	204.433	-971.513	109.587	-1265.090	-1067.744	-761.436	44.193
	1000.00	213.384	348.679	217.753	-950.174	130.926	-1298.853	-1066.129	-727.509	38.001
	1100.00	213.384	369.017	230.595	-928.836	152.264	-1334.754	-1066.253	-693.614	32.937
	1200.00	213.384	387.583	242.915	-907.498	173.602	-1372.598	-1065.711	-659.801	28.720

References

Phase	H / S	C_p
SOL-A	Nb1	e
SOL-B	Tk1	e

FePO4[g] IRON PHOSPHATE 150.818

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[−]
SOL−A	298.15	93.500	100.000	100.000	−1297.500	0.000	−1327.315	−1297.500	−1184.607	207.538
	300.00	94.160	100.580	100.002	−1297.326	0.174	−1327.501	−1297.526	−1183.907	206.136
	400.00	119.298	131.516	104.049	−1286.513	10.987	−1339.120	−1298.532	−1145.757	149.621
	500.00	133.893	159.817	112.424	−1273.803	23.697	−1353.712	−1297.425	−1107.670	115.718
	600.00	144.338	185.193	122.475	−1259.869	37.631	−1370.985	−1295.530	−1069.887	93.142
	700.00	152.824	208.097	133.097	−1245.000	52.500	−1390.668	−1293.132	−1032.464	77.043
	800.00	160.265	228.998	143.797	−1229.339	68.161	−1412.538	−1290.394	−995.409	64.994
	900.00	167.100	248.274	154.348	−1212.967	84.533	−1436.414	−1287.497	−958.710	55.642
	1000.00	173.557	266.217	164.648	−1195.932	101.568	−1462.148	−1284.794	−922.327	48.177
	1057.00	177.122	275.936	170.389	−1185.937	111.563	−1477.601	−1283.740	−901.696	44.560
			0.000		0.000					
SOL−B	1057.00	177.122	275.936	170.389	−1185.937	111.563	−1477.601	−1283.740	−901.696	44.560
	1100.00	179.768	283.051	174.655	−1178.264	119.236	−1489.620	−1282.327	−886.181	42.081
	1162.00	183.531	293.011	180.705	−1167.001	130.499	−1507.480	−1279.847	−863.920	38.835
			0.000		0.000					
SOL−C	1162.00	183.531	293.011	180.705	−1167.001	130.499	−1507.480	−1279.847	−863.920	38.835
	1200.00	185.811	298.953	184.356	−1159.984	137.516	−1518.727	−1342.477	−849.245	36.967
	1300.00	191.736	314.061	193.757	−1141.105	156.395	−1549.384	−1336.066	−808.399	32.482
	1400.00	197.576	328.484	202.869	−1121.639	175.861	−1581.517	−1329.217	−768.063	28.657
	1500.00	203.352	342.313	211.708	−1101.592	195.908	−1615.061	−1321.930	−728.232	25.359
	1513.00	204.099	344.071	212.837	−1098.944	198.556	−1619.523	−1320.950	−723.091	24.964
			44.085		66.700					
LIQ	1513.00	177.000	388.155	212.837	−1032.244	265.256	−1619.523	−1254.250	−723.091	24.964
	1600.00	177.000	398.051	222.642	−1016.845	280.655	−1653.727	−1250.081	−692.667	22.613
	1700.00	177.000	408.782	233.279	−999.145	298.355	−1694.074	−1246.367	−657.953	20.216
	1800.00	177.000	418.899	243.313	−981.445	316.055	−1735.463	−1242.172	−623.462	18.092
	1900.00	177.000	428.469	252.808	−963.745	333.755	−1777.835	−1252.208	−588.499	16.179
	2000.00	177.000	437.548	261.820	−946.045	351.455	−1821.140	−1248.517	−553.663	14.460

Referenzen

Phase	H/S	Cp	Bemerkungen	
SOL−A	Nb1/e	e	GP	cpaufBasisvonCaHPO4
SOL−B		e		
SOL−C		e		
LIQ	e	e		

186.849 IRON PHOSPHATE DIHYDRATE (STRENGITE) **FePO4*2H2O**

Phase	T	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[−]
SOL	298.15	180.540	171.250	171.250	−1888.200	0.000	−1939.258	−1888.200	−1657.462	290.380
	300.00	181.200	172.369	171.253	−1887.865	0.335	−1939.576	−1888.226	−1656.030	288.340
	400.00	206.338	228.344	178.715	−1868.348	19.852	−1959.686	−1889.311	−1578.346	206.111
	500.00	220.933	276.068	193.536	−1846.934	41.266	−1984.968	−1888.404	−1500.691	156.776
	600.00	231.378	317.313	210.807	−1824.296	63.904	−2014.684	−1886.823	−1423.289	123.908
	700.00	239.864	353.635	228.667	−1800.723	87.477	−2048.267	−1884.851	−1346.185	100.454
	800.00	247.305	386.158	246.356	−1776.358	111.842	−2085.285	−1882.651	−1269.381	82.882

Referenzen

Phase	H/S	Cp	Bemerkungen	
SOL	Nb1	Nb1,e	e	NDPT = 596.3

FeSiO3 IRON METASILICATE 131.931

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	89.454	93.927	93.927	−1194.950	0.000	−1222.954	−1194.950	−1117.463	195.775
	300.00	89.728	94.481	93.928	−1194.784	0.166	−1223.128	−1194.949	−1116.982	194.484
	400.00	100.850	121.958	97.599	−1185.206	9.744	−1233.990	−1194.576	−1091.034	142.474
	500.00	108.290	145.301	104.865	−1174.732	20.218	−1247.382	−1193.821	−1065.230	111.284
	600.00	114.281	165.589	113.331	−1163.595	31.355	−1262.949	−1192.889	−1039.598	90.505
	700.00	119.588	183.610	122.107	−1151.898	43.052	−1280.425	−1191.851	−1014.130	75.675
	800.00	124.530	199.904	130.829	−1139.690	55.260	−1299.613	−1190.773	−988.815	64.563
	900.00	129.260	214.846	139.345	−1126.999	67.951	−1320.361	−1189.784	−963.632	55.928
	1000.00	133.859	228.704	147.596	−1113.842	81.108	−1342.546	−1189.205	−938.541	49.024
	1100.00	138.371	241.675	155.565	−1100.230	94.720	−1366.072	−1189.062	−913.464	43.377
	1200.00	142.825	253.906	163.256	−1086.170	108.780	−1390.857	−1188.153	−888.467	38.674
	1300.00	147.237	265.512	170.679	−1071.666	123.284	−1416.832	−1185.209	−863.610	34.700
	1400.00	151.620	276.584	177.851	−1056.723	138.227	−1443.941	−1181.997	−838.991	31.303
	1413.00	152.188	277.988	178.766	−1054.748	140.202	−1447.546	−1181.560	−835.808	30.897

References

Phase	H / S	C_p	Remarks	
SOL	Tk1	e	La1	MPT= 1413.

203.777 IRON ORTHOSILICATE (FAYALITE) **Fe2SiO4**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol	]		[−]
SOL	298.15	132.899	145.197	145.197	−1479.902	0.000	−1523.193	−1479.902	−1378.985	241.593
	300.00	133.359	146.021	145.200	−1479.656	0.246	−1523.462	−1479.894	−1378.359	239.994
	400.00	150.902	187.069	150.678	−1465.345	14.557	−1540.173	−1478.900	−1344.638	175.592
	500.00	161.126	221.919	161.532	−1449.709	30.193	−1560.668	−1477.365	−1311.246	136.985
	600.00	168.468	251.973	174.159	−1433.214	46.688	−1584.397	−1475.741	−1278.175	111.275
	700.00	174.450	278.404	187.201	−1416.060	63.842	−1610.942	−1474.204	−1245.371	92.931
	800.00	179.708	302.048	200.104	−1398.347	81.555	−1639.985	−1472.907	−1212.773	79.186
	900.00	184.543	323.497	212.641	−1380.132	99.770	−1671.279	−1472.127	−1180.310	68.503
	1000.00	189.117	343.179	224.724	−1361.447	118.455	−1704.626	−1472.528	−1147.880	59.959
	1100.00	193.520	361.411	236.331	−1342.314	137.588	−1739.866	−1474.168	−1115.306	52.961
	1200.00	197.806	378.434	247.472	−1322.747	157.155	−1776.868	−1474.656	−1082.696	47.129
	1300.00	202.010	394.433	258.167	−1302.756	177.146	−1815.519	−1471.459	−1050.162	42.196
	1400.00	206.155	409.556	268.445	−1282.347	197.555	−1855.725	−1468.115	−1017.879	37.978
	1490.00	209.847	422.514	277.363	−1263.627	216.275	−1893.173	−1464.979	−989.033	34.672
			61.862		92.174					
LIQ	1490.00	240.580	484.376	277.363	−1171.453	308.449	−1893.173	−1372.805	−989.033	34.672
	1500.00	240.580	485.985	278.748	−1169.047	310.855	−1898.025	−1372.143	−986.459	34.352
	1600.00	240.580	501.512	292.191	−1144.989	334.913	−1947.408	−1365.674	−960.960	31.372
	1700.00	240.580	516.097	304.937	−1120.931	358.971	−1998.296	−1411.541	−935.372	28.740

References

Phase	H / S	C_p
SOL	Nb1	S5
LIQ	Tk1	S5

FeTiO3 IRON TITANIUM TRIOXIDE (ILMENITE) 151.725

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)		] [		kJ / mol		]	[−]
SOL	298.15	99.502	105.855	105.855	−1235.535	0.000	−1267.096	−1235.535	−1158.045	202.885
	300.00	99.813	106.472	105.857	−1235.351	0.184	−1267.292	−1235.525	−1157.564	201.550
	400.00	111.379	136.971	109.937	−1224.721	10.814	−1279.510	−1234.567	−1131.703	147.785
	500.00	117.713	162.561	117.974	−1213.242	22.293	−1294.522	−1233.229	−1106.138	115.557
	600.00	121.986	184.420	127.272	−1201.246	34.289	−1311.898	−1231.845	−1080.851	94.096
	700.00	125.288	203.481	136.826	−1188.876	46.659	−1331.313	−1230.559	−1055.789	78.784
	800.00	128.070	220.397	146.235	−1176.205	59.330	−1352.523	−1229.481	−1030.898	67.311
	900.00	130.552	235.627	155.335	−1163.272	72.263	−1375.337	−1228.768	−1006.123	58.394
	1000.00	132.846	249.502	164.068	−1150.101	85.434	−1399.603	−1228.760	−981.394	51.263
	1100.00	135.018	262.266	172.423	−1136.707	98.828	−1425.200	−1229.486	−956.608	45.426
	1200.00	137.107	274.105	180.409	−1123.100	112.435	−1452.026	−1233.742	−931.690	40.555
	1300.00	139.137	285.159	188.046	−1109.288	126.247	−1479.995	−1231.734	−906.600	36.428
	1400.00	141.125	295.544	195.357	−1095.274	140.261	−1509.035	−1229.717	−881.665	32.895
	1500.00	143.081	305.347	202.366	−1081.064	154.471	−1539.084	−1227.697	−856.875	29.839
	1600.00	145.013	314.643	209.095	−1066.659	168.876	−1570.088	−1225.681	−832.219	27.169
	1658.00	146.125	319.826	212.879	−1058.216	177.319	−1588.488	−1224.517	−817.977	25.770
			54.761		90.793					
LIQ	1658.00	199.158	374.587	212.879	−967.423	268.112	−1588.488	−1133.724	−817.977	25.770
	1700.00	199.158	379.569	216.936	−959.058	276.477	−1604.326	−1131.625	−809.998	24.888
	1800.00	199.158	390.953	226.290	−939.142	296.393	−1642.857	−1124.847	−791.276	22.962
	1900.00	199.158	401.721	235.243	−919.226	316.309	−1682.496	−1132.381	−772.222	21.230
	2000.00	199.158	411.936	243.824	−899.311	336.224	−1723.183	−1140.403	−752.980	19.666

References

Phase	H / S	C_p
SOL	Tk1	Ku1
LIQ	Tk1	Ku1

223.572 DIIRON TITANIUM TETROXIDE **Fe2TiO4**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	142.303	169.034	169.034	-1515.236	0.000	-1565.633	-1515.236	-1417.867	248.404
	300.00	142.617	169.915	169.036	-1514.972	0.264	-1565.947	-1515.220	-1417.262	246.767
	400.00	155.841	212.897	174.807	-1500.000	15.236	-1585.159	-1514.031	-1384.773	180.833
	500.00	165.352	248.733	186.107	-1483.923	31.313	-1608.289	-1512.476	-1352.635	141.309
	600.00	173.400	279.606	199.175	-1466.977	48.259	-1634.741	-1510.811	-1320.822	114.988
	700.00	180.758	306.895	212.651	-1449.265	65.971	-1664.092	-1509.139	-1289.290	96.208
	800.00	187.748	331.491	225.993	-1430.838	84.398	-1696.030	-1507.589	-1257.991	82.138
	900.00	194.524	353.997	238.983	-1411.723	103.513	-1730.320	-1506.429	-1226.867	71.206
	1000.00	201.167	374.837	251.538	-1391.937	123.299	-1766.774	-1506.314	-1195.825	62.464
	1100.00	207.723	394.318	263.642	-1371.492	143.744	-1805.242	-1507.293	-1164.697	55.307
	1200.00	214.220	412.671	275.304	-1350.395	164.841	-1845.601	-1510.962	-1133.483	49.339
	1300.00	220.676	430.073	286.545	-1328.650	186.586	-1887.745	-1506.256	-1102.214	44.288
	1400.00	227.101	446.663	297.394	-1306.261	208.975	-1931.588	-1501.197	-1071.322	39.972
	1500.00	233.504	462.549	307.879	-1283.230	232.006	-1977.054	-1495.788	-1040.803	36.244
	1600.00	239.890	477.823	318.026	-1259.560	255.676	-2024.078	-1490.035	-1010.657	32.995
	1663.00	243.907	487.165	324.257	-1244.321	270.915	-2054.476	-1486.238	-991.854	31.154

References

Phase	H / S	C_p	Remarks	
SOL	Tk1	Ku1	Tk1	MPT= 1663.

FeV2O4 IRON DIVANADIUM TETRAOXIDE 221.728

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	152.962	156.900	156.900	−1505.989	0.000	−1552.769	−1505.989	−1405.066	246.162
	300.00	153.373	157.847	156.903	−1505.706	0.283	−1553.060	−1505.953	−1404.440	244.535
	400.00	168.837	204.348	163.138	−1489.505	16.484	−1571.244	−1503.453	−1370.954	179.028
	500.00	177.527	243.029	175.360	−1472.154	33.835	−1593.669	−1500.395	−1338.177	139.798
	600.00	183.551	275.955	189.450	−1454.086	51.903	−1619.659	−1497.179	−1306.035	113.700
	700.00	188.316	304.618	203.899	−1435.485	70.504	−1648.718	−1493.968	−1274.433	95.099
	800.00	192.411	330.037	218.107	−1416.445	89.544	−1680.475	−1490.884	−1243.283	81.178
	900.00	196.115	352.917	231.836	−1397.016	108.973	−1714.641	−1488.107	−1212.504	70.372
	1000.00	199.577	373.760	245.001	−1377.230	128.759	−1750.990	−1486.018	−1182.003	61.741
	1100.00	202.881	392.938	257.590	−1357.106	148.883	−1789.338	−1484.665	−1151.653	54.687
	1200.00	206.076	410.729	269.619	−1336.657	169.332	−1829.532	−1482.865	−1121.477	48.817
	1300.00	209.196	427.347	281.120	−1315.893	190.096	−1871.445	−1479.364	−1091.504	43.857
	1400.00	212.261	442.963	292.128	−1294.820	211.169	−1914.968	−1475.945	−1061.797	39.616
	1500.00	215.285	457.711	302.679	−1273.442	232.547	−1960.008	−1472.622	−1032.332	35.949
	1600.00	218.278	471.700	312.810	−1251.764	254.225	−2006.485	−1469.411	−1003.085	32.747
	1700.00	221.248	485.023	322.551	−1229.787	276.202	−2054.326	−1467.278	−974.016	29.928
	1800.00	224.198	497.752	331.934	−1207.515	298.474	−2103.469	−1464.672	−945.076	27.425
	1900.00	227.134	509.953	340.984	−1184.948	321.041	−2153.859	−1476.321	−915.575	25.171
	2000.00	230.057	521.678	349.728	−1162.089	343.900	−2205.444	−1474.280	−886.115	23.143

References

Phase	H / S	C_p
SOL	K7	e

Fe2ZnO4 DIIRON ZINC TETRAOXIDE 241.082

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	142.972	151.670	151.670	−1171.579	0.000	−1216.799	−1171.579	−1065.791	186.722
	300.00	143.275	152.555	151.673	−1171.314	0.265	−1217.081	−1171.562	−1065.135	185.456
	400.00	155.500	195.607	157.460	−1156.320	15.259	−1234.563	−1170.343	−1029.828	134.482
	500.00	163.553	231.216	168.753	−1140.347	31.232	−1255.955	−1168.871	−994.869	103.933
	600.00	169.962	261.618	181.757	−1123.663	47.916	−1280.633	−1167.471	−960.202	83.593
	700.00	175.596	288.248	195.107	−1106.380	65.199	−1308.154	−1173.598	−925.679	69.075
	800.00	180.816	312.039	208.262	−1088.557	83.022	−1338.189	−1172.819	−890.318	58.132
	900.00	185.796	333.626	221.010	−1070.225	101.354	−1370.488	−1172.500	−855.032	49.625
	1000.00	190.627	353.453	233.276	−1051.403	120.176	−1404.855	−1173.291	−819.730	42.818

References

Phase	H / S	C_p
SOL	Nb1	e

81.044 PYRRHOTITE **Fe0.877S**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	49.876	60.794	60.794	−105.437	0.000	−123.563	−105.437	−106.872	18.724
	300.00	49.990	61.102	60.794	−105.345	0.092	−123.675	−105.427	−106.881	18.610
	400.00	56.179	76.331	62.829	−100.036	5.401	−130.569	−107.003	−107.366	14.021
	500.00	62.368	89.532	66.876	−94.109	11.328	−138.875	−107.479	−107.416	11.222
	598.00	68.434	101.222	71.560	−87.699	17.738	−148.230	−107.230	−107.413	9.382
			0.664		0.397					
SOL−B	598.00	58.170	101.886	71.560	−87.302	18.135	−148.230	−106.833	−107.413	9.382
	600.00	58.112	102.080	71.662	−87.186	18.251	−148.434	−106.841	−107.414	9.351
	700.00	55.576	110.837	76.653	−81.508	23.929	−159.094	−107.392	−107.472	8.020
	800.00	53.836	118.136	81.395	−76.044	29.393	−170.553	−108.460	−107.418	7.014
	900.00	52.914	124.423	85.834	−70.707	34.730	−182.688	−162.865	−106.043	6.155
	1000.00	51.993	129.951	89.975	−65.462	39.975	−195.412	−163.643	−99.697	5.208
	1100.00	55.396	135.063	93.843	−60.095	45.342	−208.664	−164.986	−93.222	4.427
	1200.00	59.112	140.040	97.486	−54.372	51.065	−222.421	−165.609	−86.685	3.773
	1300.00	62.676	144.907	100.947	−48.290	57.147	−236.669	−164.401	−80.155	3.221
	1400.00	67.195	149.711	104.259	−41.805	63.632	−251.400	−162.868	−73.730	2.751
	1500.00	72.676	154.528	107.450	−34.819	70.618	−266.611	−160.913	−67.428	2.348

References

Phase	H / S	C_p
SOL−A	Ja1	Ja1
SOL−B	Ja1	Ja1

FeS IRON MONOSULFIDE 87.913

Phase	T [K]	C_p J/(K mol)	S J/(K mol)	-(G-H298)/T J/(K mol)	H kJ/mol	H-H298 kJ/mol	G kJ/mol	ΔH_f kJ/mol	ΔG_f kJ/mol	log K_f [-]
SOL-A	298.15	50.517	60.321	60.321	-101.671	0.000	-119.656	-101.671	-101.965	17.864
	300.00	50.671	60.634	60.322	-101.577	0.094	-119.768	-101.666	-101.967	17.754
	400.00	89.203	79.068	62.578	-95.075	6.596	-126.702	-102.371	-102.108	13.334
	411.00	95.051	81.568	63.052	-94.061	7.610	-127.586	-101.987	-102.106	12.977
			4.051		1.665					
SOL-B	411.00	72.358	85.619	63.052	-92.396	9.275	-127.586	-100.322	-102.106	12.977
	500.00	72.358	99.803	68.373	-85.956	15.715	-135.857	-100.006	-102.537	10.712
	598.00	72.358	112.753	74.616	-78.865	22.806	-146.292	-99.447	-103.080	9.004
			0.664		0.397					
SOL-C	598.00	62.085	113.417	74.616	-78.468	23.203	-146.292	-99.050	-103.080	9.004
	600.00	62.030	113.625	74.746	-78.344	23.327	-146.519	-99.058	-103.093	8.975
	700.00	59.808	123.007	80.992	-72.260	29.411	-158.365	-99.613	-103.728	7.740
	800.00	58.560	130.901	86.750	-66.350	35.321	-171.071	-100.679	-104.250	6.807
	900.00	58.286	137.773	92.045	-60.516	41.155	-184.511	-155.083	-103.452	6.004
	1000.00	58.986	143.942	96.931	-54.660	47.011	-198.602	-155.839	-97.684	5.102
	1100.00	60.662	149.635	101.466	-48.686	52.985	-213.284	-157.256	-91.784	4.358
	1200.00	63.311	155.019	105.706	-42.495	59.176	-228.519	-158.043	-85.815	3.735
	1300.00	66.935	160.224	109.701	-35.991	65.680	-244.282	-156.836	-79.843	3.208
	1400.00	71.533	165.346	113.493	-29.076	72.595	-260.561	-155.307	-73.975	2.760
	1463.00	74.930	168.568	115.795	-24.464	77.207	-271.079	-154.134	-70.340	2.511
			21.506		31.464					
LIQ	1463.00	62.551	190.074	115.795	7.000	108.671	-271.079	-122.670	-70.340	2.511
	1500.00	62.551	191.637	117.647	9.314	110.985	-278.141	-122.392	-69.020	2.404
	1600.00	62.551	195.674	122.398	15.569	117.240	-297.508	-121.699	-65.485	2.138
	1700.00	62.551	199.466	126.821	21.824	123.495	-317.267	-122.046	-61.972	1.904
	1800.00	62.551	203.041	130.957	28.079	129.750	-337.394	-121.864	-58.444	1.696
	1900.00	62.551	206.423	134.841	34.334	136.005	-357.869	-135.867	-54.222	1.491
	2000.00	62.551	209.631	138.501	40.590	142.261	-378.673	-136.099	-49.919	1.304
	2100.00	62.551	212.683	141.962	46.845	148.516	-399.790	-136.335	-45.604	1.134
	2200.00	62.551	215.593	145.243	53.100	154.771	-421.205	-136.574	-41.278	0.980
	2300.00	62.551	218.374	148.362	59.355	161.026	-442.904	-136.817	-36.941	0.839
	2400.00	62.551	221.036	151.335	65.610	167.281	-464.876	-137.064	-32.593	0.709
	2500.00	62.551	223.589	154.175	71.865	173.536	-487.108	-137.314	-28.235	0.590
	2600.00	62.551	226.043	156.892	78.120	179.791	-509.590	-137.568	-23.867	0.479
	2700.00	62.551	228.403	159.497	84.375	186.046	-532.313	-137.826	-19.489	0.377
	2800.00	62.551	230.678	161.999	90.630	192.301	-555.268	-138.087	-15.101	0.282
	2900.00	62.551	232.873	164.405	96.885	198.556	-578.446	-138.352	-10.704	0.193
	3000.00	62.551	234.994	166.723	103.141	204.812	-601.840	-138.620	-6.298	0.110

References

Phase	H / S	C_p
SOL-A	Ja2	Ja2
SOL-B	Ja2	Ja2
SOL-C	Ja2	Ja2
LIQ	Ja2	Ja2

87.913 IRON MONOSULFIDE (GAS) **FeS**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	34.002	252.344	252.344	370.767	0.000	295.531	370.767	313.222	−54.875
	300.00	34.033	252.554	252.345	370.830	0.063	295.064	370.742	312.865	−54.475
	400.00	35.332	262.541	253.697	374.304	3.537	269.288	367.009	293.883	−38.377
	500.00	36.085	270.513	256.290	377.878	7.111	242.622	363.828	275.943	−28.828
	600.00	36.554	277.136	259.228	381.512	10.745	215.230	360.798	258.655	−22.518
	700.00	36.870	282.797	262.201	385.184	14.417	187.227	357.831	241.864	−18.048
	800.00	37.095	287.735	265.090	388.883	18.116	158.695	354.554	225.515	−14.725
	900.00	37.266	292.115	267.854	392.601	21.834	129.698	298.034	210.758	−12.232
	1000.00	37.402	296.048	270.480	396.335	25.568	100.287	295.157	201.205	−10.510
	1100.00	37.515	299.619	272.969	400.081	29.314	70.501	291.510	192.001	−9.117
	1200.00	37.615	302.887	275.328	403.838	33.071	40.373	288.290	183.077	−7.969
	1300.00	37.707	305.902	277.566	407.604	36.837	9.932	286.759	174.371	−7.006
	1400.00	37.796	308.699	279.691	411.379	40.612	−20.800	285.148	165.786	−6.186
	1500.00	37.886	311.310	281.713	415.163	44.396	−51.802	283.457	157.318	−5.478
	1600.00	37.981	313.758	283.640	418.956	48.189	−83.057	281.688	148.966	−4.863
	1700.00	38.083	316.064	285.480	422.759	51.992	−114.549	278.890	140.746	−4.325
	1800.00	38.194	318.244	287.240	426.573	55.806	−146.265	276.630	132.685	−3.850
	1900.00	38.315	320.312	288.927	430.399	59.632	−178.194	260.197	125.453	−3.449
	2000.00	38.448	322.280	290.546	434.237	63.470	−210.324	257.548	118.430	−3.093
	2100.00	38.591	324.160	292.102	438.088	67.321	−242.647	254.909	111.539	−2.774
	2200.00	38.744	325.959	293.600	441.955	71.188	−275.154	252.281	104.774	−2.488
	2300.00	38.908	327.684	295.045	445.838	75.071	−307.836	249.666	98.127	−2.229
	2400.00	39.081	329.344	296.440	449.737	78.970	−340.688	247.063	91.595	−1.994
	2500.00	39.262	330.943	297.788	453.654	82.887	−373.703	244.475	85.170	−1.780
	2600.00	39.451	332.486	299.093	457.590	86.823	−406.875	241.901	78.849	−1.584
	2700.00	39.645	333.979	300.358	461.544	90.777	−440.199	239.343	72.626	−1.405
	2800.00	39.844	335.424	301.584	465.519	94.752	−473.669	236.802	66.498	−1.241
	2900.00	40.047	336.826	302.776	469.513	98.746	−507.282	234.276	60.460	−1.089
	3000.00	40.251	338.187	303.933	473.528	102.761	−541.033	231.768	54.509	−0.949

References

Phase	H / S	C_p
GAS	Ja2	Ja2

FeS2 IRON DISULFIDE 119.979

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	62.112	52.928	52.928	−171.544	0.000	−187.324	−171.544	−160.076	28.045
	300.00	62.300	53.312	52.929	−171.429	0.115	−187.423	−171.559	−160.005	27.859
	400.00	68.844	72.268	55.469	−164.824	6.720	−193.732	−176.743	−155.860	20.353
	500.00	72.049	88.006	60.449	−157.766	13.778	−201.769	−180.341	−150.267	15.698
	600.00	74.293	101.347	66.182	−150.445	21.099	−211.253	−183.260	−143.961	12.533
	700.00	76.315	112.952	72.052	−142.914	28.630	−221.980	−185.678	−137.219	10.239
	800.00	78.344	123.274	77.821	−135.182	36.362	−233.801	−188.281	−130.124	8.496
	900.00	80.407	132.621	83.399	−127.244	44.300	−246.603	−296.789	−120.375	6.986
	1000.00	82.449	141.199	88.755	−119.101	52.443	−260.299	−297.092	−100.765	5.263

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	NDPT= 906.

FeSO4 IRON SULFATE 151.911

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	100.549	120.959	120.959	−928.848	0.000	−964.912	−928.848	−824.892	144.518
	300.00	100.828	121.582	120.961	−928.662	0.186	−965.136	−928.859	−824.247	143.514
	400.00	116.846	152.808	125.109	−917.769	11.079	−978.892	−931.115	−789.251	103.066
	500.00	129.289	180.299	133.454	−905.425	23.423	−995.575	−931.644	−753.730	78.742
	600.00	137.993	204.687	143.334	−892.036	36.812	−1014.848	−931.238	−718.170	62.522
	700.00	144.233	226.452	153.682	−877.908	50.940	−1036.425	−930.258	−682.733	50.946
	800.00	148.898	246.031	164.022	−863.241	65.607	−1060.066	−929.241	−647.443	42.274
	900.00	152.536	263.786	174.136	−848.163	80.685	−1085.571	−981.212	−611.117	35.468
	1000.00	155.482	280.015	183.924	−832.757	96.091	−1112.772	−979.341	−570.104	29.779

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	NDPT= 944.

399.885 DIIRON TRISULFATE **Fe2(SO4)3**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	264.954	307.524	307.524	-2582.992	0.000	-2674.680	-2582.992	-2262.753	396.425
	300.00	265.649	309.165	307.529	-2582.501	0.491	-2675.251	-2583.046	-2260.766	393.634
	400.00	306.743	391.236	318.439	-2553.873	29.119	-2710.368	-2591.241	-2152.763	281.122
	500.00	339.795	463.434	340.363	-2521.457	61.535	-2753.174	-2594.588	-2042.779	213.408
	600.00	363.376	527.592	366.324	-2486.231	96.761	-2802.787	-2595.224	-1932.311	168.223
	700.00	380.321	584.949	393.534	-2449.002	133.990	-2858.466	-2594.110	-1821.902	135.952
	800.00	392.797	636.588	420.742	-2410.315	172.677	-2919.586	-2592.757	-1711.682	111.761
	900.00	402.232	683.422	447.368	-2370.543	212.449	-2985.623	-2750.101	-1598.155	92.755
	1000.00	409.588	726.197	473.143	-2329.938	253.054	-3056.135	-2745.324	-1470.432	76.807
	1100.00	415.546	765.524	497.960	-2288.672	294.320	-3130.748	-2741.740	-1343.086	63.778
	1200.00	420.620	801.903	521.792	-2246.858	336.134	-3209.142	-2737.023	-1216.180	52.939
	1300.00	425.218	835.754	544.656	-2204.564	378.428	-3291.044	-2728.675	-1089.781	43.788
	1400.00	429.683	867.430	566.592	-2161.819	421.173	-3376.220	-2720.242	-964.028	35.968
	1500.00	434.314	897.231	587.651	-2118.621	464.371	-3464.468	-2711.704	-838.881	29.212

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	NDPT= 1451.

131.649 IRON 0.96-SELENIDE **FeSe0.96**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL-A	298.15	54.762	69.203	69.203	-66.944	0.000	-87.577	-66.944	-67.348	11.799
	300.00	54.873	69.542	69.204	-66.843	0.101	-87.705	-66.934	-67.351	11.727
	400.00	59.512	86.016	71.419	-61.105	5.839	-95.512	-66.384	-67.573	8.824
	500.00	62.794	99.663	75.742	-54.983	11.961	-104.815	-71.572	-67.847	7.088
	600.00	65.542	111.360	80.726	-48.564	18.380	-115.380	-71.614	-67.098	5.841
	700.00	68.038	121.653	85.852	-41.883	25.061	-127.040	-71.637	-66.343	4.951
	730.80	68.777	124.598	87.423	-39.776	27.168	-130.833	-71.648	-66.110	4.725
			13.110		9.581					
SOL-B	730.80	59.039	137.709	87.423	-30.195	36.749	-130.833	-62.067	-66.110	4.725
	800.00	58.204	143.013	92.006	-26.139	40.805	-140.549	-62.883	-66.457	4.339
	900.00	60.835	149.985	98.066	-20.217	46.727	-155.203	-64.366	-66.817	3.878
	1000.00	67.028	156.684	103.593	-13.853	53.091	-170.537	-66.153	-66.997	3.500

References

Phase	H / S	C_p	Remarks	
SOL-A	Mi1	Mi1	Mi1	TPT= 730.8
SOL-B	Mi1	Mi1,e		

FeSi — IRON SILICON — 83.932

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	45.162	44.685	44.685	−78.852	0.000	−92.175	−78.852	−78.430	13.741
	300.00	45.203	44.965	44.686	−78.768	0.084	−92.258	−78.852	−78.428	13.655
	400.00	47.379	58.267	46.485	−74.139	4.713	−97.446	−78.971	−78.274	10.222
	500.00	49.555	69.073	49.954	−69.293	9.559	−103.829	−79.255	−78.070	8.156
	600.00	51.731	78.300	53.927	−64.228	14.624	−111.208	−79.656	−77.797	6.773
	700.00	53.907	86.438	58.001	−58.946	19.906	−119.453	−80.152	−77.449	5.779
	800.00	56.082	93.778	62.022	−53.447	25.405	−128.469	−80.777	−77.023	5.029
	900.00	58.258	100.509	65.929	−47.730	31.122	−138.188	−81.653	−76.504	4.440
	1000.00	60.434	106.760	69.703	−41.795	37.057	−148.555	−83.104	−75.862	3.963
	1100.00	62.610	112.622	73.341	−35.643	43.209	−159.527	−85.157	−75.023	3.563
	1200.00	64.785	118.163	76.847	−29.273	49.579	−171.069	−86.615	−74.055	3.224
	1300.00	66.961	123.434	80.230	−22.686	56.166	−183.151	−86.213	−73.025	2.934
	1400.00	69.137	128.476	83.497	−15.881	62.971	−195.748	−85.719	−72.028	2.687
	1500.00	71.312	133.321	86.658	−8.859	69.993	−208.840	−85.132	−71.070	2.475
	1600.00	73.488	137.992	89.722	−1.619	77.233	−222.407	−84.452	−70.154	2.290
	1683.00	75.294	141.754	92.195	4.556	83.408	−234.017	−84.712	−69.419	2.155
			41.865		70.459					
LIQ	1683.00	83.680	183.619	92.195	75.015	153.867	−234.017	−14.253	−69.419	2.155
	1700.00	83.680	184.460	93.114	76.437	155.289	−237.145	−64.208	−69.530	2.136
	1800.00	83.680	189.243	98.323	84.805	163.657	−255.833	−62.757	−69.886	2.028
	1900.00	83.680	193.768	103.228	93.173	172.025	−274.985	−75.486	−69.618	1.914
	2000.00	83.680	198.060	107.863	101.541	180.393	−294.579	−74.440	−69.336	1.811

References

Phase	H / S	C_p
SOL	Hu1	Hu1
LIQ	Hu1	Hu1

FeSi2 — LEBOITE (BETA) — 112.018

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	64.165	55.601	55.601	−81.199	0.000	−97.776	−81.199	−78.421	13.739
	300.00	64.218	55.998	55.602	−81.080	0.119	−97.880	−81.201	−78.404	13.651
	400.00	67.113	74.869	58.156	−74.514	6.685	−104.461	−81.505	−77.435	10.112
	500.00	70.021	90.157	63.073	−67.657	13.542	−112.736	−82.058	−76.357	7.977
	600.00	72.934	103.181	68.698	−60.509	20.690	−122.418	−82.752	−75.154	6.543
	700.00	75.849	114.642	74.458	−53.070	28.129	−133.320	−83.540	−73.827	5.509
	800.00	78.766	124.961	80.137	−45.340	35.859	−145.308	−84.442	−72.379	4.726
	900.00	81.684	134.407	85.649	−37.317	43.882	−158.283	−85.574	−70.807	4.110

References

Phase	H / S	C_p	Remarks	
SOL	Hu1	Hu1	Hu1	DPT= 1243.

121.286 LEBOITE (ALPHA) **FeSi2.33**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	71.455	69.500	69.500	−58.999	0.000	−79.721	−58.999	−58.513	10.251
	300.00	71.632	69.943	69.502	−58.867	0.132	−79.850	−58.999	−58.510	10.188
	400.00	79.016	91.644	72.411	−51.306	7.693	−87.963	−59.010	−58.345	7.619
	500.00	84.247	109.861	78.127	−43.132	15.867	−98.063	−58.998	−58.180	6.078
	600.00	88.631	125.617	84.758	−34.484	24.515	−109.854	−58.975	−58.019	5.051
	700.00	92.614	139.582	91.611	−25.419	33.580	−123.127	−58.946	−57.862	4.318
	800.00	96.384	152.197	98.408	−15.968	43.031	−137.725	−58.955	−57.707	3.768
	900.00	100.031	163.761	105.036	−6.146	52.853	−153.531	−59.133	−57.543	3.340

References

Phase	H / S	C_p	Remarks
SOL−A	Nb1	e	Hu1 stable at 1184. to 1490. K

292.642 2−IRON TANTALUM **Fe2Ta**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	74.803	106.692	106.692	−57.739	0.000	−89.549	−57.739	−60.908	10.671
	300.00	74.852	107.155	106.693	−57.601	0.138	−89.747	−57.740	−60.927	10.608
	400.00	77.488	129.049	109.661	−49.984	7.755	−101.603	−57.951	−61.965	8.092
	500.00	80.124	146.623	115.351	−42.103	15.636	−115.415	−58.391	−62.922	6.573
	600.00	82.760	161.465	121.831	−33.959	23.780	−130.838	−59.061	−63.769	5.552
	700.00	85.395	174.420	128.437	−25.551	32.188	−147.645	−59.974	−64.486	4.812
	800.00	88.031	185.995	134.921	−16.880	40.859	−165.676	−61.222	−65.050	4.247
	900.00	90.667	196.516	141.189	−7.945	49.794	−184.809	−63.063	−65.426	3.797
	1000.00	93.303	206.205	147.212	1.254	58.993	−204.951	−66.153	−65.539	3.423
	1100.00	95.939	215.221	152.990	10.716	68.455	−226.028	−70.552	−65.235	3.098
	1200.00	98.575	223.682	158.532	20.441	78.180	−247.977	−73.870	−64.642	2.814
	1300.00	101.211	231.677	163.854	30.431	88.170	−270.749	−73.586	−63.884	2.567

References

Phase	H / S	C_p
SOL	Ge1	Ge1

FeTe0.9 IRON 0.9–TELLURIDE 170.687

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[–]
SOL–B	298.15	49.665	80.082	80.082	–23.221	0.000	–47.097	–23.221	–25.682	4.499
	300.00	49.728	80.389	80.083	–23.129	0.092	–47.246	–23.218	–25.698	4.474
	400.00	52.075	95.056	82.067	–18.025	5.196	–56.048	–23.157	–26.538	3.466
	500.00	53.388	106.828	85.881	–12.747	10.474	–66.161	–23.347	–27.368	2.859
	600.00	54.295	116.646	90.213	–7.361	15.860	–77.349	–23.863	–28.130	2.449
	700.00	55.010	125.071	94.605	–1.894	21.327	–89.444	–24.739	–28.777	2.147
	800.00	55.622	132.458	98.884	3.638	26.859	–102.328	–41.895	–27.579	1.801
	900.00	56.175	139.041	102.987	9.228	32.449	–115.909	–43.725	–25.684	1.491
	1000.00	56.691	144.987	106.894	14.872	38.093	–130.115	–46.247	–23.553	1.230
	1100.00	57.182	150.413	110.608	20.565	43.786	–144.889	–49.492	–21.112	1.003
	1200.00	57.658	155.409	114.136	26.308	49.529	–160.184	–52.268	–18.429	0.802

References

Phase	H / S	C_p	Remarks	
SOL–B	Mi1	Mi1	Mi1	MPT= 1200.

FeTe2 IRON DITELLURIDE 311.047

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[–]
SOL–E	298.15	73.728	100.165	100.165	–72.383	0.000	–102.247	–72.383	–64.599	11.317
	300.00	73.824	100.621	100.166	–72.247	0.136	–102.433	–72.388	–64.551	11.239
	400.00	77.917	122.462	103.117	–64.645	7.738	–113.630	–72.783	–61.886	8.081
	500.00	80.915	140.182	108.812	–56.698	15.685	–126.789	–73.501	–59.086	6.173
	600.00	83.483	155.166	115.321	–48.476	23.907	–141.575	–74.621	–56.105	4.884
	700.00	85.847	168.214	121.964	–40.008	32.375	–157.758	–76.178	–52.902	3.948
	800.00	88.103	179.826	128.484	–31.310	41.073	–175.171	–113.478	–45.683	2.983
	900.00	90.295	190.330	134.782	–22.390	49.993	–193.686	–116.121	–37.053	2.151
	933.00	91.009	193.594	136.804	–19.398	52.985	–200.021	–117.088	–34.137	1.911

References

Phase	H / S	C_p	Remarks	
SOL–E	Mi1	Mi1	Mi1	MPT= 933.

103.727 IRON TITANIUM **FeTi**

Phase	T	C_p	S	−(G−H298)/T	H	· H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	46.749	52.718	52.718	−40.585	0.000	−56.303	−40.585	−38.999	6.832
	300.00	46.879	53.008	52.719	−40.498	0.087	−56.401	−40.591	−38.989	6.789
	400.00	51.787	67.248	54.627	−35.537	5.048	−62.436	−40.845	−38.413	5.016
	500.00	54.576	79.126	58.373	−30.209	10.376	−69.772	−41.069	−37.781	3.947
	600.00	56.530	89.257	62.697	−24.649	15.936	−78.203	−41.382	−37.096	3.229
	700.00	58.091	98.092	67.136	−18.915	21.670	−87.580	−41.850	−36.347	2.712
	800.00	59.442	105.939	71.505	−13.037	27.548	−97.789	−42.560	−35.516	2.319
	900.00	60.670	113.012	75.730	−7.031	33.554	−108.742	−43.666	−34.574	2.007
	1000.00	61.823	119.465	79.786	−0.906	39.679	−120.371	−45.511	−33.474	1.749
	1100.00	62.926	125.409	83.667	5.332	45.917	−132.618	−48.129	−32.130	1.526
	1200.00	63.995	130.931	87.378	11.678	52.263	−145.438	−54.322	−30.479	1.327
	1300.00	65.041	136.094	90.929	18.130	58.715	−158.792	−54.300	−28.493	1.145
	1400.00	66.070	140.952	94.330	24.686	65.271	−172.647	−54.321	−26.507	0.989
	1500.00	67.085	145.545	97.593	31.344	71.929	−186.974	−54.392	−24.518	0.854
	1590.00	67.991	149.480	100.419	37.422	78.007	−200.252	−54.506	−22.723	0.746

References

Phase	H / S	C_p	Remarks	
SOL	Ku1	e	Tk1	DPT= 1590. (LIQ + TiFe2)

Fe2U — 2-IRON URANIUM — 349.723

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	78.605	104.600	104.600	−32.217	0.000	−63.403	−32.217	−32.142	5.631
	300.00	78.659	105.086	104.602	−32.072	0.145	−63.597	−32.215	−32.142	5.596
	400.00	81.588	128.116	107.722	−24.059	8.158	−75.306	−32.323	−32.111	4.193
	500.00	84.517	146.637	113.711	−15.754	16.463	−89.072	−32.804	−32.010	3.344
	600.00	87.446	162.305	120.536	−7.156	25.061	−104.539	−33.717	−31.773	2.766
	700.00	90.374	176.005	127.502	1.735	33.952	−121.468	−35.119	−31.346	2.339
	800.00	93.303	188.264	134.344	10.919	43.136	−139.692	−37.153	−30.677	2.003
	900.00	96.232	199.422	140.964	20.396	52.613	−159.084	−40.129	−29.701	1.724
	1000.00	99.161	209.713	147.330	30.165	62.382	−179.547	−47.164	−28.151	1.470
	1100.00	102.090	219.301	153.442	40.228	72.445	−201.003	−57.009	−25.731	1.222
	1200.00	105.018	228.310	159.310	50.583	82.800	−223.388	−60.740	−22.759	0.991
	1300.00	107.947	236.831	164.948	61.232	93.449	−246.649	−60.806	−19.590	0.787
	1400.00	110.876	244.938	170.374	72.173	104.390	−270.741	−60.748	−16.421	0.613
	1500.00	113.805	252.688	175.605	83.407	115.624	−295.625	−69.997	−12.654	0.441
	1508.00	114.039	253.294	176.016	84.318	116.535	−297.649	−70.054	−12.348	0.428
			44.948		67.781					
LIQ	1508.00	138.072	298.242	176.016	152.099	184.316	−297.649	−2.273	−12.348	0.428
	1600.00	138.072	306.418	183.281	164.802	197.019	−325.467	−0.781	−13.008	0.425

References

Phase	H / S	C_p
SOL	Ku1	e
LIQ	Ku1	e

Fe(VO3)2 — IRON VANADATE — 253.726

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	196.664	188.280	188.280	−1900.373	0.000	−1956.509	−1900.373	−1747.642	306.180
	300.00	197.075	189.498	188.284	−1900.009	0.364	−1956.858	−1900.310	−1746.694	304.126
	400.00	212.539	248.570	196.233	−1879.438	20.935	−1978.866	−1896.412	−1696.053	221.482
	500.00	221.229	297.003	211.692	−1857.717	42.656	−2006.219	−1892.042	−1646.465	172.005
	600.00	227.253	337.897	229.406	−1835.279	65.094	−2038.017	−1887.615	−1597.767	139.098
	700.00	232.018	373.297	247.490	−1812.308	88.065	−2073.616	−1883.288	−1549.803	115.648
	800.00	236.113	404.552	265.207	−1788.897	111.476	−2112.538	−1879.172	−1502.446	98.100
	900.00	239.817	432.579	282.273	−1765.098	135.275	−2154.419	−1875.430	−1455.585	84.480
	1000.00	243.279	458.027	298.595	−1740.942	159.431	−2198.968	−1872.433	−1409.106	73.604
	1023.00	244.050	463.567	302.242	−1735.337	165.036	−2209.567	−1871.968	−1398.455	71.405

References

Phase	H / S	C_p	Remarks	
SOL	Tk1	e	Tk1	DPT= 1023. (FeVO4 + Fe2O3)

303.695 IRON TUNGSTATE **FeWO4**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	114.725	131.796	131.796	−1184.490	0.000	−1223.785	−1184.490	−1083.585	189.840
	300.00	114.832	132.506	131.798	−1184.278	0.212	−1224.029	−1184.478	−1082.959	188.560
	400.00	119.873	166.260	136.366	−1172.533	11.957	−1239.037	−1183.766	−1049.224	137.015
	500.00	124.181	193.479	145.152	−1160.326	24.164	−1257.066	−1183.045	−1015.673	106.107
	600.00	128.201	216.478	155.171	−1147.706	36.784	−1277.593	−1182.389	−982.262	85.513
	700.00	132.086	236.533	165.391	−1134.691	49.799	−1300.264	−1181.813	−948.954	70.812
	800.00	135.898	254.420	175.422	−1121.291	63.199	−1324.827	−1181.348	−915.722	59.791
	900.00	139.667	270.645	185.114	−1107.513	76.977	−1351.093	−1181.101	−882.537	51.221
	1000.00	143.411	285.554	194.423	−1093.358	91.132	−1378.913	−1181.381	−849.355	44.366
	1100.00	147.137	299.398	203.344	−1078.831	105.659	−1408.168	−1182.201	−816.097	38.753
	1200.00	150.852	312.360	211.894	−1063.931	120.559	−1438.763	−1182.352	−782.825	34.075
	1300.00	154.558	324.581	220.097	−1048.661	135.829	−1470.615	−1180.561	−749.603	30.119
	1400.00	158.259	336.170	227.977	−1033.020	151.470	−1503.658	−1178.590	−716.525	26.734
	1500.00	161.955	347.215	235.561	−1017.009	167.481	−1537.831	−1176.435	−683.594	23.805

References

Phase	H / S	C_p
SOL	Ku1,Tk1	Tk1,e

Ga GALLIUM 69.723

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	26.152	40.828	40.828	0.000	0.000	−12.173	0.000	0.000	0.000
	300.00	26.635	40.991	40.828	0.049	0.049	−12.248	0.000	0.000	0.000
	302.80	27.365	41.242	40.831	0.124	0.124	−12.364	0.000	0.000	0.000
			18.418		5.577					
LIQ	302.80	28.468	59.660	40.831	5.701	5.701	−12.364	0.000	0.000	0.000
	400.00	27.244	67.395	46.396	8.399	8.399	−18.559	0.000	0.000	0.000
	500.00	26.775	73.415	51.222	11.096	11.096	−25.611	0.000	0.000	0.000
	600.00	26.624	78.280	55.339	13.765	13.765	−33.203	0.000	0.000	0.000
	700.00	26.624	82.383	58.917	16.426	16.426	−41.242	0.000	0.000	0.000
	800.00	26.568	85.930	62.077	19.083	19.083	−49.661	0.000	0.000	0.000
	900.00	26.568	89.060	64.904	21.740	21.740	−58.414	0.000	0.000	0.000
	1000.00	26.568	91.859	67.462	24.397	24.397	−67.462	0.000	0.000	0.000
	1100.00	26.568	94.391	69.797	27.053	27.053	−76.777	0.000	0.000	0.000
	1200.00	26.568	96.703	71.944	29.710	29.710	−86.333	0.000	0.000	0.000
	1300.00	26.568	98.830	73.932	32.367	32.367	−96.111	0.000	0.000	0.000
	1400.00	26.568	100.799	75.781	35.024	35.024	−106.094	0.000	0.000	0.000
	1500.00	26.568	102.632	77.511	37.681	37.681	−116.266	0.000	0.000	0.000
	1600.00	26.568	104.346	79.135	40.338	40.338	−126.616	0.000	0.000	0.000
	1700.00	26.568	105.957	80.666	42.995	42.995	−137.132	0.000	0.000	0.000
	1800.00	26.568	107.476	82.114	45.651	45.651	−147.805	0.000	0.000	0.000
	1900.00	26.568	108.912	83.487	48.308	48.308	−158.625	0.000	0.000	0.000
	2000.00	26.568	110.275	84.792	50.965	50.965	−169.585	0.000	0.000	0.000
	2100.00	26.568	111.571	86.037	53.622	53.622	−180.677	0.000	0.000	0.000
	2200.00	26.568	112.807	87.226	56.279	56.279	−191.897	0.000	0.000	0.000
	2300.00	26.568	113.988	88.364	58.936	58.936	−203.237	0.000	0.000	0.000
	2400.00	26.568	115.119	89.455	61.592	61.592	−214.693	0.000	0.000	0.000
	2475.00	26.568	115.936	90.245	63.585	63.585	−223.357	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks
SOL	Hu1	Hu1	
LIQ	Hu1	Hu1	Hu1 BPT= 2475., L= 258.7 kJ

69.723 GALLIUM (GAS) **Ga**[g]

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f [-]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	25.333	169.038	169.038	271.960	0.000	221.561	271.960	233.734	-40.949
	300.00	25.391	169.195	169.039	272.007	0.047	221.248	271.958	233.497	-40.655
	400.00	26.972	176.776	170.062	274.646	2.686	203.935	266.247	222.494	-29.055
	500.00	26.992	182.814	172.031	277.352	5.392	185.945	266.255	211.556	-22.101
	600.00	26.348	187.686	174.248	280.023	8.063	167.411	266.258	200.615	-17.465
	700.00	25.492	191.684	176.462	282.615	10.655	148.437	266.189	189.678	-14.154
	800.00	24.719	195.036	178.580	285.124	13.164	129.096	266.042	178.757	-11.672
	900.00	24.077	197.909	180.572	287.563	15.603	109.445	265.823	167.859	-9.742
	1000.00	23.556	200.418	182.434	289.944	17.984	89.526	265.547	156.989	-8.200
	1100.00	23.136	202.642	184.172	292.278	20.318	69.371	265.224	146.148	-6.940
	1200.00	22.796	204.640	185.796	294.574	22.614	49.005	264.863	135.339	-5.891
	1300.00	22.518	206.454	187.316	296.839	24.879	28.449	264.472	124.561	-5.005
	1400.00	22.290	208.114	188.743	299.079	27.119	7.720	264.055	113.814	-4.246
	1500.00	22.101	209.645	190.086	301.298	29.338	-13.169	263.617	103.097	-3.590
	1600.00	21.943	211.066	191.353	303.500	31.540	-34.206	263.163	92.411	-3.017
	1700.00	21.811	212.392	192.552	305.688	33.728	-55.379	262.693	81.753	-2.512
	1800.00	21.700	213.636	193.690	307.863	35.903	-76.681	262.212	71.123	-2.064
	1900.00	21.605	214.806	194.771	310.028	38.068	-98.104	261.720	60.521	-1.664
	2000.00	21.524	215.912	195.800	312.185	40.225	-119.640	261.220	49.944	-1.304
	2100.00	21.454	216.961	196.783	314.333	42.373	-141.285	260.712	39.393	-0.980
	2200.00	21.395	217.958	197.723	316.476	44.516	-163.031	260.197	28.866	-0.685
	2300.00	21.343	218.907	198.624	318.613	46.653	-184.874	259.677	18.362	-0.417
	2400.00	21.298	219.815	199.488	320.745	48.785	-206.811	259.152	7.882	-0.172
	2500.00	21.259	220.683	200.318	322.872	50.912	-228.836	0.000	0.000	0.000
	2600.00	21.225	221.517	201.118	324.997	53.037	-250.946	0.000	0.000	0.000
	2700.00	21.195	222.317	201.888	327.118	55.158	-273.138	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

GaAs GALLIUM ARSENIDE 144.645

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	46.858	64.183	64.183	−74.057	0.000	−93.193	−74.057	−70.374	12.329
	300.00	46.869	64.472	64.183	−73.970	0.087	−93.312	−74.065	−70.352	12.249
	400.00	47.476	78.039	66.029	−69.253	4.804	−100.469	−80.204	−67.236	8.780
	500.00	48.083	88.698	69.534	−64.475	9.582	−108.824	−80.690	−63.937	6.679
	600.00	48.689	97.518	73.484	−59.637	14.420	−118.147	−81.142	−60.544	5.271
	700.00	49.296	105.069	77.470	−54.737	19.320	−128.286	−81.582	−57.076	4.259
	800.00	49.903	111.691	81.342	−49.777	24.280	−139.130	−82.011	−53.545	3.496
	900.00	50.509	117.604	85.048	−44.757	29.300	−150.600	−82.430	−49.962	2.900
	1000.00	51.116	122.957	88.576	−39.676	34.381	−162.633	−82.816	−46.333	2.420
	1100.00	51.723	127.857	91.927	−34.534	39.523	−175.177	−83.168	−42.668	2.026
	1200.00	52.329	132.384	95.112	−29.331	44.726	−188.192	−83.573	−38.969	1.696
	1300.00	52.936	136.596	98.143	−24.068	49.989	−201.643	−84.204	−35.229	1.416
	1400.00	53.543	140.542	101.032	−18.744	55.313	−215.502	−85.315	−31.424	1.172
	1500.00	54.149	144.256	103.791	−13.359	60.698	−229.744	−183.704	−21.087	0.734
	1511.00	54.216	144.652	104.087	−12.763	61.294	−231.333	−183.605	−19.895	0.688
			58.150		87.864					
LIQ	1511.00	58.994	202.802	104.087	75.101	149.158	−231.333	−95.741	−19.895	0.688
	1600.00	58.994	206.178	109.673	80.351	154.408	−249.534	−94.518	−15.463	0.505

References

Phase	H / S	C_p
SOL	Tk1	Ku1,e
LIQ	Tk1	Ku1

GaAsO4 GALLIUM ARSENATE 208.642

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	118.258	150.122	150.122	−1002.235	0.000	−1046.994	−1002.235	−901.846	158.000
	300.00	118.582	150.854	150.124	−1002.016	0.219	−1047.272	−1002.219	−901.223	156.917
	400.00	131.190	186.884	154.951	−989.462	12.773	−1064.215	−1006.464	−865.937	113.080
	500.00	138.871	217.036	164.436	−975.935	26.300	−1084.453	−1004.319	−831.042	86.818
	600.00	144.613	242.882	175.408	−961.750	40.485	−1107.480	−1001.744	−796.623	69.352
	700.00	149.438	265.545	186.699	−947.043	55.192	−1132.924	−998.885	−762.659	56.910
	800.00	153.776	285.787	197.842	−931.879	70.356	−1160.508	−995.784	−729.121	47.607
	859.00	156.194	296.815	204.264	−922.734	79.501	−1177.698	−993.846	−709.524	43.145

References

Phase	H / S	C_p
SOL	G1	G1

309.435 GALLIUM BROMIDE **GaBr3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	101.654	179.912	179.912	−386.602	0.000	−440.243	−386.602	−359.998	63.070
	300.00	101.797	180.541	179.914	−386.414	0.188	−440.576	−386.673	−359.833	62.652
	396.00	109.228	209.787	183.733	−376.285	10.317	−459.360	−436.288	−340.881	44.964
			29.583		11.715					
LIQ	396.00	125.520	239.370	183.733	−364.570	22.032	−459.360	−424.573	−340.881	44.964
	400.00	125.520	240.632	184.296	−364.068	22.534	−460.320	−424.400	−340.037	44.404
	500.00	125.520	268.641	198.468	−351.516	35.086	−485.836	−420.083	−319.446	33.372
	600.00	125.520	291.526	212.129	−338.964	47.638	−513.879	−415.777	−299.723	26.093

References

Phase	H / S	C_p
SOL	Ku1/e	e
LIQ	e	e

105.176 GALLIUM MONOCHLORIDE (GAS) **GaCl[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	35.735	240.250	240.250	−70.542	0.000	−142.173	−70.542	−96.739	16.948
	300.00	35.763	240.471	240.251	−70.476	0.066	−142.617	−70.556	−96.901	16.872
	400.00	36.741	250.914	241.668	−66.844	3.698	−167.209	−77.008	−103.757	13.549
	500.00	37.194	259.167	244.371	−63.144	7.398	−192.728	−77.791	−110.353	11.528
	600.00	37.440	265.972	247.421	−59.412	11.130	−218.995	−78.544	−116.794	10.168
	700.00	37.588	271.755	250.494	−55.660	14.882	−245.888	−79.292	−123.110	9.187
	800.00	37.685	276.781	253.473	−51.896	18.646	−273.320	−80.038	−129.319	8.444
	900.00	37.751	281.224	256.314	−48.124	22.418	−301.225	−80.785	−135.434	7.860
	1000.00	37.798	285.204	259.008	−44.346	26.196	−329.550	−81.535	−141.466	7.389
	1100.00	37.833	288.808	261.556	−40.564	29.978	−358.253	−82.287	−147.423	7.001
	1200.00	37.859	292.101	263.966	−36.780	33.762	−387.301	−83.041	−153.311	6.673
	1300.00	37.880	295.132	266.248	−32.993	37.549	−416.665	−83.798	−159.136	6.394
	1400.00	37.896	297.940	268.413	−29.204	41.338	−446.320	−84.556	−164.903	6.153
	1500.00	37.910	300.555	270.469	−25.414	45.128	−476.246	−85.317	−170.616	5.941
	1600.00	37.920	303.002	272.427	−21.622	48.920	−506.425	−86.081	−176.277	5.755
	1700.00	37.929	305.301	274.294	−17.830	52.712	−536.842	−86.846	−181.891	5.589
	1800.00	37.937	307.469	276.077	−14.036	56.506	−567.481	−87.615	−187.460	5.440
	1900.00	37.943	309.521	277.784	−10.242	60.300	−598.332	−88.387	−192.986	5.306
	2000.00	37.949	311.467	279.420	−6.448	64.094	−629.382	−89.161	−198.471	5.184

References

Phase	H / S	C_p
GAS	Pa2	e

GaCl2[g] GALLIUM DICHLORIDE (GAS) 140.628

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[-]
GAS	298.15	53.134	301.023	301.023	-241.249	0.000	-330.999	-241.249	-252.304	44.203
	300.00	53.191	301.352	301.024	-241.151	0.098	-331.556	-241.262	-252.373	43.942
	400.00	55.216	316.972	303.140	-235.716	5.533	-362.505	-247.645	-254.160	33.190
	500.00	56.176	329.407	307.192	-230.141	11.108	-394.845	-248.339	-255.707	26.713
	600.00	56.718	339.701	311.777	-224.495	16.754	-428.315	-248.995	-257.118	22.384
	700.00	57.061	348.472	316.408	-218.804	22.445	-462.735	-249.643	-258.421	19.284
	800.00	57.300	356.108	320.904	-213.086	28.163	-497.972	-250.287	-259.631	16.952
	900.00	57.477	362.868	325.198	-207.346	33.903	-533.927	-250.930	-260.760	15.134
	1000.00	57.616	368.931	329.274	-201.592	39.657	-570.523	-251.573	-261.818	13.676
	1100.00	57.730	374.428	333.132	-195.824	45.425	-607.695	-252.216	-262.811	12.480
	1200.00	57.828	379.455	336.786	-190.046	51.203	-645.392	-252.859	-263.746	11.481
	1300.00	57.913	384.088	340.249	-184.259	56.990	-683.573	-253.502	-264.627	10.633
	1400.00	57.990	388.382	343.536	-178.464	62.785	-722.199	-254.144	-265.459	9.904
	1500.00	58.060	392.386	346.660	-172.661	68.588	-761.239	-254.787	-266.245	9.271
	1600.00	58.126	396.135	349.636	-166.852	74.397	-800.667	-255.431	-266.987	8.716
	1700.00	58.187	399.660	352.476	-161.036	80.213	-840.459	-256.075	-267.690	8.225
	1800.00	58.246	402.988	355.191	-155.214	86.035	-880.593	-256.721	-268.354	7.787
	1900.00	58.302	406.139	357.790	-149.387	91.862	-921.051	-257.368	-268.983	7.395
	2000.00	58.357	409.131	360.283	-143.554	97.695	-961.815	-258.016	-269.578	7.041

References

Phase	H / S	C_p
GAS	Pa2	Pa2

GaCl3 GALLIUM CHLORIDE 176.081

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[-]
SOL	298.15	118.407	135.143	135.143	-524.674	0.000	-564.967	-524.674	-453.011	79.366
	300.00	118.407	135.876	135.145	-524.455	0.219	-565.218	-524.598	-452.566	78.799
	351.00	118.407	154.466	136.637	-518.416	6.258	-572.634	-528.192	-439.594	65.419
			32.781		11.506					
LIQ	351.00	128.030	187.247	136.637	-506.910	17.764	-572.634	-516.686	-439.594	65.419
	400.00	128.030	203.977	143.884	-500.637	24.037	-582.228	-514.331	-428.989	56.020
	500.00	128.030	232.547	158.866	-487.834	36.840	-604.107	-509.581	-408.205	42.645

References

Phase	H / S	C_p
SOL	Tk1/e	e
LIQ	Tk1	e

176.081 GALLIUM CHLORIDE (GAS) **GaCl3**[g]

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	74.934	325.148	325.148	-431.580	0.000	-528.523	-431.580	-416.567	72.981
	300.00	75.028	325.612	325.149	-431.441	0.139	-529.125	-431.584	-416.474	72.514
	400.00	78.361	347.720	328.141	-423.748	7.832	-562.836	-437.443	-409.598	53.488
	500.00	79.928	365.393	333.884	-415.825	15.755	-598.522	-437.573	-402.620	42.061
	600.00	80.799	380.049	340.392	-407.785	23.795	-635.815	-437.654	-395.621	34.442
	700.00	81.342	392.548	346.972	-399.676	31.904	-674.460	-437.722	-388.610	28.998
	800.00	81.710	403.436	353.364	-391.523	40.057	-714.271	-437.783	-381.590	24.915
	900.00	81.976	413.076	359.473	-383.338	48.242	-755.106	-437.843	-374.562	21.739
	1000.00	82.179	421.724	365.273	-375.130	56.450	-796.853	-437.904	-367.527	19.198
	1100.00	82.341	429.564	370.767	-366.903	64.677	-839.424	-437.965	-360.487	17.118
	1200.00	82.475	436.735	375.970	-358.662	72.918	-882.744	-438.027	-353.441	15.385
	1300.00	82.588	443.341	380.901	-350.409	81.171	-926.752	-438.090	-346.389	13.918
	1400.00	82.688	449.465	385.583	-342.145	89.435	-971.396	-438.154	-339.333	12.661
	1500.00	82.777	455.173	390.034	-333.872	97.708	-1016.631	-438.221	-332.272	11.571
	1600.00	82.858	460.518	394.274	-325.590	105.990	-1062.418	-438.290	-325.206	10.617
	1700.00	82.932	465.543	398.320	-317.300	114.280	-1108.724	-438.362	-318.137	9.775
	1800.00	83.002	470.285	402.188	-309.004	122.576	-1155.518	-438.437	-311.062	9.027
	1900.00	83.067	474.775	405.891	-300.700	130.880	-1202.773	-438.517	-303.984	8.357
	2000.00	83.130	479.037	409.442	-292.390	139.190	-1250.465	-438.601	-296.901	7.754

References

Phase	H / S	C_p
GAS	Pa2	Pa2

Ga2Cl6[g] DIGALLIUM HEXACHLORIDE (GAS) 352.162

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	164.976	500.633	500.633	−957.550	0.000	−1106.814	−957.550	−882.902	154.681
	300.00	165.184	501.654	500.636	−957.245	0.305	−1107.741	−957.531	−882.439	153.646
	400.00	172.521	550.329	507.223	−940.308	17.242	−1160.439	−967.696	−853.962	111.516
	500.00	175.966	589.237	519.867	−922.865	34.685	−1217.483	−966.360	−825.679	86.258
	600.00	177.878	621.504	534.194	−905.164	52.386	−1278.066	−964.902	−797.678	69.444
	700.00	179.067	649.020	548.681	−887.313	70.237	−1341.626	−963.404	−769.926	57.453
	800.00	179.871	672.986	562.753	−869.363	88.187	−1407.753	−961.884	−742.390	48.473
	900.00	180.450	694.207	576.203	−851.346	106.204	−1476.133	−960.357	−715.044	41.500
	1000.00	180.890	713.243	588.971	−833.278	124.272	−1546.521	−958.827	−687.870	35.931
	1100.00	181.239	730.501	601.065	−815.171	142.379	−1618.722	−957.294	−660.848	31.381
	1200.00	181.526	746.283	612.519	−797.032	160.518	−1692.572	−955.761	−633.966	27.596
	1300.00	181.770	760.823	623.375	−778.867	178.683	−1767.937	−954.228	−607.212	24.398
	1400.00	181.981	774.302	633.680	−760.679	196.871	−1844.702	−952.698	−580.576	21.662
	1500.00	182.170	786.864	643.478	−742.472	215.078	−1922.767	−951.170	−554.049	19.294
	1600.00	182.340	798.626	652.811	−724.246	233.304	−2002.048	−949.646	−527.624	17.225
	1700.00	182.497	809.685	661.717	−706.004	251.546	−2082.469	−948.127	−501.294	15.403
	1800.00	182.643	820.121	670.230	−687.747	269.803	−2163.964	−946.615	−475.054	13.786
	1900.00	182.781	829.999	678.381	−669.476	288.074	−2246.474	−945.109	−448.897	12.341
	2000.00	182.912	839.378	686.199	−651.191	306.359	−2329.947	−943.613	−422.819	11.043

References

Phase	H / S	C_p
GAS	Pa2	Pa2

88.721 GALLIUM MONOFLUORIDE (GAS) **GaF**[g]

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	33.364	227.811	227.811	-232.630	0.000	-300.552	-232.630	-258.147	45.226
	300.00	33.408	228.018	227.812	-232.568	0.062	-300.974	-232.646	-258.306	44.975
	400.00	35.005	237.878	229.145	-229.137	3.493	-324.288	-239.172	-264.921	34.595
	500.00	35.802	245.783	231.709	-225.593	7.037	-348.484	-240.006	-271.260	28.338
	600.00	36.283	252.356	234.618	-221.987	10.643	-373.401	-240.805	-277.436	24.153
	700.00	36.615	257.976	237.563	-218.341	14.289	-398.924	-241.596	-283.478	21.153
	800.00	36.868	262.882	240.428	-214.666	17.964	-424.972	-242.381	-289.408	18.896
	900.00	37.075	267.237	243.169	-210.969	21.661	-451.482	-243.165	-295.239	17.135
	1000.00	37.253	271.152	245.775	-207.252	25.378	-478.405	-243.945	-300.983	15.722
	1100.00	37.413	274.711	248.246	-203.519	29.111	-505.701	-244.722	-306.650	14.562
	1200.00	37.559	277.972	250.589	-199.770	32.860	-533.337	-245.494	-312.245	13.592
	1300.00	37.697	280.984	252.813	-196.007	36.623	-561.287	-246.261	-317.777	12.768
	1400.00	37.828	283.783	254.926	-192.231	40.399	-589.527	-247.023	-323.249	12.061
	1500.00	37.955	286.397	256.938	-188.442	44.188	-618.037	-247.779	-328.668	11.445
	1600.00	38.078	288.850	258.857	-184.640	47.990	-646.801	-248.529	-334.036	10.905
	1700.00	38.198	291.162	260.690	-180.826	51.804	-675.803	-249.273	-339.357	10.427
	1800.00	38.315	293.349	262.444	-177.001	55.629	-705.029	-250.011	-344.635	10.001
	1900.00	38.431	295.424	264.126	-173.163	59.467	-734.469	-250.742	-349.872	9.619
	2000.00	38.546	297.398	265.740	-169.315	63.315	-764.111	-251.466	-355.070	9.273

References

Phase	H / S	C_p
GAS	Pa2	Pa2

GaF2[g] GALLIUM DIFLUORIDE (GAS) 107.720

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	47.490	279.500	279.500	−536.807	0.000	−620.140	−536.807	−547.504	95.920
	300.00	47.595	279.794	279.501	−536.719	0.088	−620.657	−536.826	−547.570	95.340
	400.00	51.357	294.076	281.423	−531.746	5.061	−649.376	−543.417	−549.200	71.718
	500.00	53.197	305.754	285.158	−526.509	10.298	−679.386	−544.240	−550.549	57.515
	600.00	54.281	315.556	289.429	−521.131	15.676	−710.465	−545.003	−551.738	48.033
	700.00	55.007	323.981	293.778	−515.665	21.142	−742.451	−545.749	−552.802	41.251
	800.00	55.543	331.363	298.024	−510.136	26.671	−775.226	−546.483	−553.759	36.157
	900.00	55.969	337.930	302.100	−504.560	32.247	−808.697	−547.211	−554.625	32.190
	1000.00	56.325	343.846	305.984	−498.944	37.863	−842.791	−547.933	−555.410	29.012
	1100.00	56.637	349.229	309.674	−493.296	43.511	−877.448	−548.648	−556.123	26.408
	1200.00	56.918	354.170	313.179	−487.618	49.189	−912.622	−549.355	−556.771	24.236
	1300.00	57.178	358.736	316.510	−481.913	54.894	−948.270	−550.053	−557.361	22.395
	1400.00	57.422	362.982	319.679	−476.183	60.624	−984.358	−550.743	−557.897	20.815
	1500.00	57.655	366.952	322.700	−470.429	66.378	−1020.857	−551.423	−558.384	19.445
	1600.00	57.878	370.680	325.583	−464.652	72.155	−1057.741	−552.093	−558.826	18.244
	1700.00	58.095	374.196	328.341	−458.853	77.954	−1094.986	−552.752	−559.227	17.183
	1800.00	58.307	377.522	330.981	−453.033	83.774	−1132.573	−553.402	−559.589	16.239
	1900.00	58.514	380.680	333.515	−447.192	89.615	−1170.485	−554.040	−559.915	15.393
	2000.00	58.718	383.687	335.949	−441.330	95.477	−1208.704	−554.668	−560.208	14.631

References

Phase	H / S	C_p
GAS	Pa2	Pa2

126.718 GALLIUM FLUORIDE **GaF3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	89.003	96.002	96.002	−1174.867	0.000	−1203.490	−1174.867	−1100.622	192.824
	300.00	89.072	96.553	96.004	−1174.702	0.165	−1203.668	−1174.838	−1100.162	191.555
	400.00	92.817	122.690	99.542	−1165.608	9.259	−1214.684	−1178.914	−1073.699	140.211
	500.00	96.561	143.804	106.348	−1156.139	18.728	−1228.041	−1177.187	−1047.591	109.441
	600.00	100.304	161.740	114.121	−1146.296	28.571	−1243.339	−1175.222	−1021.852	88.960
	700.00	104.048	177.483	122.070	−1136.078	38.789	−1260.316	−1172.991	−996.462	74.357
	800.00	107.791	191.621	129.895	−1125.486	49.381	−1278.783	−1170.465	−971.413	63.427
	900.00	111.534	204.533	137.481	−1114.520	60.347	−1298.599	−1167.627	−946.698	54.945
	1000.00	115.277	216.478	144.790	−1103.179	71.688	−1319.657	−1164.464	−922.317	48.177
	1100.00	119.020	227.641	151.820	−1091.464	83.403	−1341.869	−1160.966	−898.269	42.655
	1200.00	122.763	238.157	158.581	−1079.375	95.492	−1365.164	−1157.126	−874.555	38.068
	1300.00	126.506	248.131	165.089	−1066.912	107.955	−1389.482	−1152.939	−851.174	34.201
	1400.00	130.249	257.643	171.363	−1054.074	120.793	−1414.775	−1148.402	−828.130	30.898
	1500.00	133.992	266.757	177.421	−1040.862	134.005	−1440.998	−1143.512	−805.422	28.047
	1600.00	137.735	275.524	183.280	−1027.276	147.591	−1468.115	−1138.267	−783.051	25.564
	1700.00	141.478	283.987	188.956	−1013.315	161.552	−1496.093	−1132.666	−761.020	23.383
	1800.00	145.221	292.180	194.464	−998.980	175.887	−1524.903	−1126.707	−739.329	21.455
	1900.00	148.965	300.131	199.818	−984.271	190.596	−1554.520	−1120.389	−717.978	19.739
	2000.00	152.708	307.868	205.028	−969.187	205.680	−1584.922	−1113.711	−696.970	18.203

References

Phase	H / S	C_p
SOL	Pa2	Pa2

GaF3[g] GALLIUM FLUORIDE (GAS) 126.718

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	65.968	292.948	292.948	−921.526	0.000	−1008.868	−921.526	−906.001	158.728
	300.00	66.087	293.356	292.949	−921.404	0.122	−1009.411	−921.540	−905.904	157.732
	400.00	71.482	313.159	295.612	−914.507	7.019	−1039.771	−927.814	−898.786	117.369
	500.00	74.909	329.508	300.805	−907.174	14.352	−1071.928	−928.223	−891.478	93.132
	600.00	77.083	343.372	306.773	−899.567	21.959	−1105.590	−928.493	−884.102	76.968
	700.00	78.522	355.370	312.878	−891.782	29.744	−1140.541	−928.695	−876.687	65.419
	800.00	79.515	365.924	318.863	−883.877	37.649	−1176.616	−928.856	−869.246	56.756
	900.00	80.226	375.333	324.624	−875.888	45.638	−1213.687	−928.995	−861.786	50.017
	1000.00	80.752	383.814	330.126	−867.838	53.688	−1251.652	−929.122	−854.312	44.625
	1100.00	81.150	391.530	335.362	−859.742	61.784	−1290.425	−929.243	−846.825	40.212
	1200.00	81.458	398.605	340.342	−851.611	69.915	−1329.936	−929.361	−839.327	36.535
	1300.00	81.701	405.135	345.078	−843.452	78.074	−1370.128	−929.480	−831.819	33.423
	1400.00	81.896	411.197	349.587	−835.272	86.254	−1410.948	−929.600	−824.303	30.755
	1500.00	82.054	416.852	353.885	−827.075	94.451	−1452.353	−929.725	−816.777	28.443
	1600.00	82.184	422.152	357.988	−818.862	102.664	−1494.306	−929.854	−809.243	26.419
	1700.00	82.292	427.138	361.910	−810.639	110.887	−1536.773	−929.990	−801.701	24.633
	1800.00	82.382	431.844	365.666	−802.405	119.121	−1579.725	−930.132	−794.150	23.046
	1900.00	82.458	436.301	369.267	−794.163	127.363	−1623.134	−930.281	−786.592	21.625
	2000.00	82.523	440.532	372.726	−785.913	135.613	−1666.977	−930.437	−779.025	20.346

References

Phase	H / S	C_p
GAS	Pa2	Pa2

GaI3 GALLIUM IODIDE 450.436

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	117.152	203.761	203.761	−239.325	0.000	−300.076	−239.325	−235.962	41.340
	300.00	117.152	204.485	203.763	−239.108	0.217	−300.454	−239.308	−235.941	41.081
	400.00	117.152	238.188	208.358	−227.393	11.932	−322.668	−268.401	−232.281	30.333
	486.00	117.152	261.003	215.721	−217.318	22.007	−344.165	−332.153	−220.408	23.689
			45.628		22.175					
LIQ	486.00	128.449	306.630	215.721	−195.143	44.182	−344.165	−309.978	−220.408	23.689
	500.00	128.449	310.278	218.318	−193.345	45.980	−348.484	−309.341	−217.837	22.757
	600.00	128.449	333.697	235.655	−180.500	58.825	−380.718	−304.791	−199.964	17.408
	618.20	128.449	337.535	238.598	−178.162	61.163	−386.826	−303.964	−196.796	16.628

References

Phase	H / S	C_p	Remarks	
SOL	Tk1/e	e		
LIQ	Tk1	e	Tk1	NBPT= 618.2

83.730 GALLIUM NITRIDE **GaN**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	40.756	29.706	29.706	−109.621	0.000	−118.478	−109.621	−77.741	13.620
	300.00	40.773	29.959	29.707	−109.546	0.075	−118.533	−109.621	−77.543	13.501
	400.00	41.673	41.811	31.317	−105.423	4.198	−122.148	−115.308	−65.039	8.493
	500.00	42.572	51.207	34.387	−101.211	8.410	−126.815	−115.263	−52.474	5.482
	600.00	43.472	59.048	37.862	−96.909	12.712	−132.338	−115.121	−39.928	3.476
	700.00	44.371	65.817	41.382	−92.517	17.104	−138.589	−114.911	−27.412	2.046
	800.00	45.271	71.801	44.818	−88.035	21.586	−145.475	−114.641	−14.930	0.975
	900.00	46.170	77.185	48.120	−83.463	26.158	−152.929	−114.314	−2.485	0.144
	1000.00	47.070	82.096	51.276	−78.801	30.820	−160.897	−113.928	9.920	−0.518
	1100.00	47.970	86.624	54.286	−74.049	35.572	−169.335	−113.482	22.284	−1.058
	1200.00	48.869	90.837	57.158	−69.207	40.414	−178.211	−112.971	34.604	−1.506
	1300.00	49.769	94.784	59.902	−64.275	45.346	−187.494	−112.393	46.879	−1.884
	1400.00	50.668	98.505	62.528	−59.253	50.368	−197.160	−111.745	59.107	−2.205
	1500.00	51.568	102.032	65.045	−54.141	55.480	−207.189	−111.024	71.286	−2.482
	1600.00	52.467	105.388	67.462	−48.939	60.682	−217.561	−110.229	83.414	−2.723
	1700.00	53.367	108.596	69.788	−43.648	65.973	−228.261	−109.357	95.491	−2.934
	1773.00	54.024	110.854	71.433	−39.728	69.893	−236.272	−108.671	104.273	−3.072

References

Phase	H / S	C_p	Remarks	
SOL	Tk1/Ku1	e	Tk1	MPT= 1773.

GaO[g] GALLIUM MONOXIDE (GAS) 85.722

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	36.819	230.941	230.941	141.197	0.000	72.342	141.197	115.097	−20.165
	300.00	36.843	231.169	230.942	141.265	0.068	71.914	141.189	114.935	−20.012
	400.00	38.417	241.981	232.405	145.027	3.830	48.235	135.115	108.055	−14.111
	500.00	39.696	250.699	235.220	148.937	7.740	23.587	134.798	101.329	−10.586
	600.00	40.613	258.022	238.426	152.955	11.758	−1.859	134.568	94.658	−8.241
	700.00	41.322	264.338	241.687	157.052	15.855	−27.984	134.377	88.022	−6.568
	800.00	41.936	269.896	244.873	161.216	20.019	−54.701	134.215	81.411	−5.316
	900.00	42.525	274.869	247.934	165.439	24.242	−81.944	134.079	74.819	−4.342
	1000.00	43.133	279.381	250.857	169.721	28.524	−109.660	133.973	68.240	−3.565
	1100.00	43.834	283.525	253.641	174.070	32.873	−137.808	133.910	61.670	−2.928
	1200.00	44.601	287.371	256.293	178.491	37.294	−166.355	133.900	55.104	−2.399
	1300.00	45.436	290.974	258.824	182.992	41.795	−195.274	133.953	48.536	−1.950
	1400.00	46.314	294.373	261.243	187.579	46.382	−224.543	134.077	41.961	−1.566
	1500.00	47.206	297.599	263.560	192.255	51.058	−254.143	134.275	35.375	−1.232
	1600.00	48.085	300.673	265.784	197.020	55.823	−284.057	134.550	28.773	−0.939
	1700.00	48.928	303.614	267.923	201.871	60.674	−314.273	134.898	22.152	−0.681
	1800.00	49.715	306.433	269.985	206.804	65.607	−344.776	135.316	15.508	−0.450
	1900.00	50.428	309.141	271.975	211.811	70.614	−375.556	135.797	8.839	−0.243
	2000.00	51.054	311.744	273.899	216.886	75.689	−406.601	136.334	2.144	−0.056

References

Phase	H / S	C_p
GAS	Tk1	e

155.445 DIGALLIUM OXIDE (GAS) **Ga2O[g]**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[-]
GAS	298.15	48.116	283.785	283.785	-98.742	0.000	-183.352	-98.742	-128.425	22.499
	300.00	48.170	284.083	283.786	-98.653	0.089	-183.878	-98.778	-128.609	22.393
	400.00	50.917	298.332	285.710	-93.693	5.049	-213.026	-112.005	-134.647	17.583
	500.00	52.858	309.917	289.429	-88.498	10.244	-243.456	-113.733	-140.103	14.636
	600.00	54.148	319.676	293.678	-83.143	15.599	-274.949	-115.294	-145.229	12.643
	700.00	55.030	328.093	298.007	-77.682	21.060	-307.347	-116.783	-150.100	11.201
	800.00	55.656	335.484	302.239	-72.146	26.596	-340.533	-118.229	-154.760	10.105
	900.00	56.115	342.068	306.305	-66.556	32.186	-374.417	-119.656	-159.241	9.242
	1000.00	56.462	347.999	310.183	-60.927	37.815	-408.925	-121.071	-163.563	8.544
	1100.00	56.730	353.393	313.870	-55.266	43.476	-443.999	-122.479	-167.744	7.965
	1200.00	56.941	358.339	317.372	-49.582	49.160	-479.589	-123.884	-171.797	7.478
	1300.00	57.111	362.903	320.701	-43.879	54.863	-515.654	-125.286	-175.733	7.061
	1400.00	57.247	367.141	323.869	-38.161	60.581	-552.159	-126.688	-179.561	6.699
	1500.00	57.358	371.094	326.887	-32.431	66.311	-589.073	-128.092	-183.288	6.383
	1600.00	57.449	374.799	329.767	-26.690	72.052	-626.369	-129.498	-186.922	6.102
	1700.00	57.523	378.284	332.519	-20.942	77.800	-664.025	-130.909	-190.468	5.852
	1800.00	57.583	381.574	335.154	-15.186	83.556	-702.020	-132.326	-193.931	5.628
	1900.00	57.630	384.689	337.680	-9.425	89.317	-740.334	-133.748	-197.314	5.425
	2000.00	57.667	387.646	340.105	-3.661	95.081	-778.952	-135.178	-200.623	5.240

References

Phase	H / S	C_p
GAS	C2/Tk1	e

Ga2O3 GALLIUM OXIDE 187.444

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL−B	298.15	92.191	84.977	84.977	−1089.095	0.000	−1114.431	−1089.095	−998.339	174.905
	300.00	92.392	85.548	84.979	−1088.924	0.171	−1114.589	−1089.103	−997.775	173.728
	400.00	102.868	113.609	88.733	−1079.145	9.950	−1124.588	−1100.481	−963.687	125.845
	500.00	110.541	137.441	96.152	−1068.450	20.645	−1137.171	−1099.770	−929.556	97.110
	600.00	115.827	158.092	104.793	−1057.116	31.979	−1151.971	−1098.511	−895.624	77.971
	700.00	119.573	176.243	113.730	−1045.336	43.759	−1168.706	−1096.936	−861.931	64.318
	800.00	122.334	192.399	122.573	−1033.234	55.861	−1187.153	−1095.153	−828.479	54.094
	900.00	124.442	206.935	131.152	−1020.891	68.204	−1207.132	−1093.232	−795.259	46.156
	1000.00	126.105	220.136	139.401	−1008.360	80.735	−1228.496	−1091.208	−762.258	39.816
	1100.00	127.457	232.220	147.297	−995.680	93.415	−1251.122	−1089.105	−729.465	34.639
	1200.00	128.587	243.360	154.844	−982.876	106.219	−1274.908	−1086.938	−696.865	30.334
	1300.00	129.561	253.692	162.055	−969.968	119.127	−1299.767	−1084.718	−664.449	26.698
	1400.00	130.425	263.326	168.949	−956.968	132.127	−1325.623	−1082.452	−632.205	23.588
	1500.00	131.218	272.351	175.545	−943.885	145.210	−1352.412	−1080.144	−600.125	20.898
	1600.00	131.970	280.844	181.863	−930.725	158.370	−1380.076	−1077.799	−568.200	18.550
	1700.00	132.705	288.867	187.924	−917.492	171.603	−1408.565	−1075.417	−536.423	16.482
	1800.00	133.446	296.473	193.745	−904.184	184.911	−1437.835	−1072.997	−504.787	14.649
	1900.00	134.213	303.708	199.343	−890.801	198.294	−1467.847	−1070.537	−473.287	13.012
	2000.00	135.022	310.613	204.736	−877.340	211.755	−1498.566	−1068.034	−441.917	11.542
	2073.00	135.650	315.465	208.550	−867.461	221.634	−1521.419	−1066.175	−419.097	10.560
			52.581		109.000					
LIQ	2073.00	184.000	368.045	208.550	−758.461	330.634	−1521.419	−957.175	−419.097	10.560
	2100.00	184.000	370.426	210.616	−753.493	335.602	−1531.388	−955.178	−412.102	10.250
	2200.00	184.000	378.986	218.076	−735.093	354.002	−1568.862	−947.804	−386.414	9.175
	2300.00	184.000	387.165	225.251	−716.693	372.402	−1607.173	−940.464	−361.061	8.200

References

Phase	H / S	C_p	Remarks
SOL−B	Tk1	Pa1	monoclinic
LIQ	e	e	

100.697

GALLIUM PHOSPHIDE

GaP

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	44.108	51.380	51.380	−100.416	0.000	−115.735	−100.416	−91.317	15.998
	300.00	44.187	51.653	51.380	−100.334	0.082	−115.830	−100.427	−91.261	15.890
	400.00	47.074	64.812	53.155	−95.753	4.663	−121.678	−107.448	−86.120	11.246
	500.00	48.589	75.494	56.589	−90.963	9.453	−128.710	−107.988	−80.721	8.433
	600.00	49.565	84.444	60.506	−86.053	14.363	−136.719	−108.378	−75.230	6.549
	700.00	50.285	92.141	64.488	−81.059	19.357	−145.558	−108.678	−69.680	5.200
	800.00	50.869	98.895	68.375	−76.000	24.416	−155.116	−108.909	−64.093	4.185
	900.00	51.375	104.916	72.107	−70.888	29.528	−165.312	−109.086	−58.479	3.394
	1000.00	51.831	110.353	75.664	−65.727	34.689	−176.080	−109.215	−52.849	2.761
	1100.00	52.254	115.313	79.046	−60.522	39.894	−187.367	−109.300	−47.208	2.242
	1200.00	52.656	119.877	82.261	−55.277	45.139	−199.130	−172.915	−40.472	1.762
	1300.00	53.042	124.108	85.320	−49.992	50.424	−211.331	−172.144	−29.466	1.184
	1400.00	53.417	128.052	88.233	−44.669	55.747	−223.942	−171.341	−18.521	0.691
	1500.00	53.784	131.750	91.012	−39.309	61.107	−236.934	−170.504	−7.634	0.266
	1600.00	54.143	135.233	93.668	−33.912	66.504	−250.285	−169.635	3.196	−0.104
	1700.00	54.498	138.526	96.211	−28.480	71.936	−263.974	−168.733	13.971	−0.429
	1790.00	54.814	141.345	98.410	−23.561	76.855	−276.569	−167.894	23.621	−0.689

References

Phase	H / S	C_p	Remarks	
SOL	Pa3	Pa2	Tk1	MPT= 1790.

101.789

GALLIUM MONOSULFIDE

GaS

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	46.016	57.739	57.739	−209.200	0.000	−226.415	−209.200	−204.685	35.860
	300.00	46.045	58.024	57.740	−209.115	0.085	−226.522	−209.206	−204.657	35.634
	400.00	47.614	71.485	59.565	−204.432	4.768	−233.026	−217.455	−201.190	26.273
	500.00	49.183	82.278	63.063	−199.592	9.608	−240.731	−219.214	−196.939	20.574
	600.00	50.752	91.384	67.043	−194.595	14.605	−249.426	−220.461	−192.356	16.746
	700.00	52.321	99.325	71.099	−189.442	19.758	−258.970	−221.279	−187.604	13.999
	800.00	53.890	106.414	75.078	−184.131	25.069	−269.263	−221.985	−182.745	11.932
	900.00	55.459	112.852	78.923	−178.664	30.536	−280.231	−275.381	−176.649	10.252
	1000.00	57.028	118.777	82.616	−173.039	36.161	−291.816	−274.249	−165.738	8.657
	1100.00	58.597	124.286	86.157	−167.258	41.942	−303.972	−272.966	−154.947	7.358
	1200.00	60.166	129.451	89.551	−161.320	47.880	−316.662	−271.534	−144.281	6.280
	1233.00	60.684	131.091	90.641	−159.326	49.874	−320.961	−271.028	−140.788	5.964

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1	Mi1	MPT= 1233.

Ga2S[g] DIGALLIUM SULFIDE (GAS) 171.512

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[-]
GAS	298.15	45.944	290.061	290.061	20.920	0.000	-65.562	20.920	-31.659	5.546
	300.00	46.074	290.345	290.061	21.005	0.085	-66.098	20.865	-31.985	5.569
	400.00	50.684	304.324	291.936	25.875	4.955	-95.854	4.453	-45.460	5.936
	500.00	52.879	315.895	295.606	31.065	10.145	-126.883	0.347	-57.480	6.005
	600.00	54.125	325.656	299.822	36.420	15.500	-158.973	-3.210	-68.700	5.981
	700.00	54.921	334.063	304.127	41.875	20.955	-191.969	-6.388	-79.361	5.922
	800.00	55.479	341.435	308.339	47.397	26.477	-225.752	-9.540	-89.572	5.848
	900.00	55.897	347.995	312.388	52.966	32.046	-260.229	-65.491	-98.233	5.701
	1000.00	56.229	353.902	316.249	58.573	37.653	-295.329	-67.033	-101.788	5.317
	1100.00	56.504	359.274	319.920	64.210	43.290	-330.992	-68.552	-105.190	4.995
	1200.00	56.741	364.201	323.407	69.873	48.953	-367.169	-70.051	-108.454	4.721
	1300.00	56.951	368.751	326.723	75.558	54.638	-403.819	-71.534	-111.594	4.484
	1400.00	57.142	372.979	329.877	81.262	60.342	-440.908	-73.002	-114.621	4.277
	1500.00	57.318	376.927	332.884	86.985	66.065	-478.406	-74.456	-117.543	4.093
	1600.00	57.483	380.632	335.754	92.726	71.806	-516.286	-75.898	-120.368	3.930
	1700.00	57.639	384.122	338.497	98.482	77.562	-554.525	-77.328	-123.103	3.783
	1800.00	57.789	387.420	341.124	104.253	83.333	-593.104	-78.747	-125.755	3.649
	1900.00	57.933	390.549	343.644	110.039	89.119	-632.003	-80.155	-128.328	3.528
	2000.00	58.073	393.524	346.064	115.839	94.919	-671.208	-81.553	-130.827	3.417

References

Phase	H / S	C_p
GAS	Mi1	Mi1

Ga2S3 DIGALLIUM TRISULFIDE 235.644

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[-]
SOL	298.15	104.596	142.256	142.256	-516.306	0.000	-558.720	-516.306	-505.702	88.597
	300.00	104.684	142.903	142.258	-516.112	0.194	-558.983	-516.336	-505.636	88.039
	400.00	109.412	173.666	146.421	-505.408	10.898	-574.874	-536.076	-497.925	65.022
	500.00	114.140	198.589	154.437	-494.230	22.076	-593.524	-542.000	-487.759	50.956
	600.00	118.867	219.817	163.606	-482.580	33.726	-614.470	-546.413	-476.463	41.480
	700.00	123.595	238.495	172.996	-470.457	45.849	-637.403	-549.542	-464.548	34.665
	800.00	128.323	255.308	182.251	-457.861	58.445	-662.107	-552.340	-452.215	29.527
	900.00	133.051	270.695	191.235	-444.792	71.514	-688.418	-713.204	-436.085	25.310
	1000.00	137.779	284.958	199.903	-431.250	85.056	-716.209	-710.481	-405.436	21.178
	1100.00	142.507	298.312	208.248	-417.236	99.070	-745.379	-707.308	-375.081	17.811
	1200.00	147.235	310.914	216.283	-402.749	113.557	-775.846	-703.680	-345.036	15.019
	1300.00	151.963	322.886	224.027	-387.789	128.517	-807.541	-699.595	-315.311	12.669
	1363.00	154.941	330.147	228.765	-378.122	138.184	-828.112	-696.787	-296.754	11.373

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1	Mi1	MPT= 1363.

191.473 GALLIUM ANTIMONY **GaSb**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	24.348	76.065	76.065	−41.589	0.000	−64.268	−41.589	−38.523	6.749
	300.00	24.360	76.216	76.066	−41.544	0.045	−64.409	−41.639	−38.504	6.704
	400.00	24.967	83.309	77.029	−39.077	2.512	−72.400	−50.086	−35.233	4.601
	500.00	25.538	88.941	78.867	−36.552	5.037	−81.022	−52.878	−31.195	3.259
	600.00	26.110	93.648	80.948	−33.969	7.620	−90.158	−55.642	−26.599	2.316
	700.00	26.700	97.717	83.060	−31.329	10.260	−99.731	−58.422	−21.540	1.607
	800.00	27.311	101.322	85.121	−28.629	12.960	−109.686	−61.247	−16.079	1.050
	900.00	27.947	104.575	87.105	−25.866	15.723	−119.983	−64.150	−10.259	0.595
	985.00	28.509	107.122	88.724	−23.467	18.122	−128.982	−86.549	−3.273	0.174
			67.242		66.233					
LIQ	985.00	62.760	174.364	88.724	42.766	84.355	−128.982	−20.316	−3.273	0.174
	1000.00	62.760	175.312	90.015	43.708	85.297	−131.604	−20.243	−3.014	0.157
	1100.00	62.760	181.294	98.046	49.984	91.573	−149.439	−19.762	−1.314	0.062
	1200.00	62.760	186.755	105.214	56.260	97.849	−167.846	−19.281	0.342	−0.015

References

Phase	H / S	C_p
SOL	Hu1	Hu1
LIQ	Hu1	Hu1

148.683 GALLIUM MONOSELENIDE **GaSe**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	48.510	70.291	70.291	−158.992	0.000	−179.949	−158.992	−155.177	27.186
	300.00	48.534	70.591	70.292	−158.902	0.090	−180.080	−158.998	−155.154	27.015
	400.00	49.831	84.731	72.211	−153.984	5.008	−187.877	−165.098	−152.004	19.850
	500.00	51.128	95.990	75.878	−148.936	10.056	−196.931	−171.557	−148.582	15.522
	600.00	52.426	105.427	80.037	−143.758	15.234	−207.014	−172.562	−143.891	12.527
	700.00	53.723	113.606	84.261	−138.451	20.541	−217.975	−173.431	−139.042	10.375
	800.00	55.020	120.864	88.391	−133.014	25.978	−229.705	−174.165	−134.077	8.754
	900.00	56.317	127.419	92.369	−127.447	31.545	−242.124	−174.770	−129.028	7.489
	1000.00	57.614	133.420	96.178	−121.750	37.242	−255.170	−175.245	−123.919	6.473
	1100.00	58.911	138.972	99.819	−115.924	43.068	−268.793	−228.901	−113.815	5.405
	1200.00	60.208	144.153	103.300	−109.968	49.024	−282.952	−227.670	−103.406	4.501
	1233.00	60.636	145.793	104.416	−107.974	51.018	−287.737	−227.233	−99.994	4.236

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1	Mi1	MPT= 1233.

Ga2Se3 DIGALLIUM TRISELENIDE 376.326

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	116.258	179.912	179.912	−408.777	0.000	−462.418	−408.777	−400.274	70.126
	300.00	116.324	180.631	179.914	−408.562	0.215	−462.751	−408.800	−400.221	69.685
	400.00	119.855	214.579	184.519	−396.753	12.024	−482.585	−421.696	−393.524	51.389
	500.00	123.386	241.703	193.331	−384.591	24.186	−505.443	−441.359	−386.008	40.326
	600.00	126.917	264.511	203.343	−372.076	36.701	−530.783	−444.724	−374.615	32.613
	700.00	130.449	284.341	213.527	−359.207	49.570	−558.246	−447.722	−362.688	27.064
	800.00	133.980	301.991	223.502	−345.986	62.791	−587.578	−450.358	−350.356	22.876
	900.00	137.511	317.975	233.124	−332.411	76.366	−618.589	−452.641	−337.716	19.601
	1000.00	141.043	332.646	242.353	−318.484	90.293	−651.130	−454.570	−324.839	16.968
	1100.00	144.574	346.254	251.187	−304.203	104.574	−685.083	−616.081	−296.925	14.100
	1200.00	148.105	358.985	259.645	−289.569	119.208	−720.351	−612.964	−268.045	11.668
	1293.00	151.389	370.162	267.196	−275.642	133.135	−754.261	−609.717	−241.434	9.753

References

Phase	H / S	C_p	Remarks
SOL	Mi1	Mi1	Tk1 MPT= 1293.

Ga2(SeO4)3 GALLIUM SELENATE 568.319

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	261.099	303.340	303.340	−1978.195	0.000	−2068.636	−1978.195	−1639.505	287.234
	300.00	261.680	304.957	303.345	−1977.711	0.484	−2069.198	−1978.276	−1637.403	285.097
	400.00	293.060	384.535	313.984	−1949.974	28.221	−2103.788	−1993.070	−1519.590	198.438
	500.00	324.440	453.301	335.109	−1919.099	59.096	−2145.750	−2012.373	−1400.743	146.335
	600.00	355.820	515.227	360.046	−1885.086	93.109	−2194.222	−2013.198	−1278.296	111.286
	700.00	387.200	572.433	386.348	−1847.935	130.260	−2248.639	−2011.441	−1155.916	86.255
	800.00	418.580	626.185	412.999	−1807.646	170.549	−2308.594	−2007.032	−1033.967	67.511

References

Phase	H / S	C_p
SOL	Ku1	Nb1,e

197.323 GALLIUM MONOTELLURIDE **GaTe**

Phase	T [K]	C_p [J / (K mol)]	S [J / (K mol)]	−(G−H298)/T [J / (K mol)]	H [kJ / mol]	H−H298 [kJ / mol]	G [kJ / mol]	ΔH_f [kJ / mol]	ΔG_f [kJ / mol]	log K_f [−]
SOL	298.15	49.437	85.354	85.354	−123.428	0.000	−148.876	−123.428	−121.946	21.364
	300.00	49.463	85.659	85.355	−123.337	0.091	−149.034	−123.433	−121.937	21.231
	400.00	50.861	100.081	87.311	−118.320	5.108	−158.353	−129.453	−119.581	15.616
	500.00	52.258	111.580	91.053	−113.164	10.264	−168.954	−129.900	−117.062	12.229
	600.00	53.656	121.231	95.299	−107.869	15.559	−180.607	−130.399	−114.448	9.964
	700.00	55.053	129.607	99.615	−102.433	20.995	−193.158	−130.974	−111.745	8.339
	800.00	56.451	137.050	103.837	−96.858	26.570	−206.498	−149.246	−107.075	6.991
	900.00	57.848	143.779	107.907	−91.143	32.285	−220.545	−149.954	−101.760	5.906
	1000.00	59.245	149.947	111.807	−85.288	38.140	−235.235	−150.521	−96.373	5.034
	1100.00	60.643	155.659	115.537	−79.294	44.134	−250.519	−150.949	−90.936	4.318
	1108.00	60.755	156.099	115.828	−78.808	44.620	−251.766	−150.978	−90.500	4.266

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1	Mi1	MPT= 1108.

522.246 DIGALLIUM TRITELLURIDE **Ga2Te3**

Phase	T [K]	C_p [J / (K mol)]	S [J / (K mol)]	−(G−H298)/T [J / (K mol)]	H [kJ / mol]	H−H298 [kJ / mol]	G [kJ / mol]	ΔH_f [kJ / mol]	ΔG_f [kJ / mol]	log K_f [−]
SOL	298.15	150.572	213.384	213.384	−274.889	0.000	−338.509	−274.889	−269.892	47.284
	300.00	150.917	214.316	213.387	−274.610	0.279	−338.905	−274.851	−269.861	46.987
	400.00	169.536	260.282	219.529	−258.587	16.302	−362.700	−283.585	−264.943	34.598
	500.00	188.154	300.113	231.741	−240.703	34.186	−390.760	−279.813	−260.693	27.234
	600.00	206.773	336.064	246.176	−220.957	53.932	−422.595	−274.784	−257.320	22.402
	700.00	225.392	369.336	261.421	−199.348	75.541	−457.884	−268.543	−254.886	19.020
	800.00	244.011	400.649	276.885	−175.878	99.011	−496.397	−313.959	−247.790	16.179
	900.00	262.630	430.464	292.305	−150.546	124.343	−537.964	−305.237	−240.023	13.931
	943.00	270.636	442.907	298.890	−139.081	135.808	−556.742	−300.915	−237.007	13.128

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1	Tk1	TPT= 943., MPT= 1065.

Gd GADOLINIUM 157.250

Phase	T [K]	C_p J/(K mol)	S J/(K mol)	−(G−H298)/T J/(K mol)	H kJ/mol	H−H298 kJ/mol	G kJ/mol	ΔH_f kJ/mol	ΔG_f kJ/mol	log K_f [−]
SOL−A	298.15	37.198	67.948	67.948	0.000	0.000	−20.259	0.000	0.000	0.000
	300.00	36.770	68.177	67.949	0.068	0.068	−20.385	0.000	0.000	0.000
	400.00	28.179	77.106	69.224	3.153	3.153	−27.690	0.000	0.000	0.000
	500.00	28.219	83.357	71.448	5.954	5.954	−35.724	0.000	0.000	0.000
	600.00	29.126	88.581	73.879	8.821	8.821	−44.328	0.000	0.000	0.000
	700.00	30.018	93.138	76.312	11.778	11.778	−53.418	0.000	0.000	0.000
	800.00	30.862	97.202	78.673	14.823	14.823	−62.939	0.000	0.000	0.000
	900.00	31.638	100.883	80.940	17.949	17.949	−72.846	0.000	0.000	0.000
	1000.00	32.509	104.260	83.105	21.155	21.155	−83.105	0.000	0.000	0.000
	1100.00	33.475	107.403	85.173	24.453	24.453	−93.690	0.000	0.000	0.000
	1200.00	34.515	110.360	87.150	27.852	27.852	−104.580	0.000	0.000	0.000
	1300.00	35.654	113.167	89.044	31.360	31.360	−115.757	0.000	0.000	0.000
	1400.00	36.903	115.854	90.864	34.987	34.987	−127.209	0.000	0.000	0.000
	1500.00	38.247	118.445	92.616	38.743	38.743	−138.925	0.000	0.000	0.000
	1533.00	38.705	119.283	93.181	40.013	40.013	−142.847	0.000	0.000	0.000
			2.552		3.912					
SOL−B	1533.00	28.284	121.834	93.181	43.925	43.925	−142.847	0.000	0.000	0.000
	1585.00	28.284	122.778	94.137	45.396	45.396	−149.207	0.000	0.000	0.000
			6.343		10.054					
LIQ	1585.00	37.154	129.121	94.137	55.450	55.450	−149.207	0.000	0.000	0.000
	1600.00	37.154	129.471	94.467	56.007	56.007	−151.147	0.000	0.000	0.000
	1700.00	37.154	131.724	96.593	59.723	59.723	−164.208	0.000	0.000	0.000
	1800.00	37.154	133.847	98.604	63.438	63.438	−177.487	0.000	0.000	0.000
	1900.00	37.154	135.856	100.512	67.153	67.153	−190.973	0.000	0.000	0.000
	2000.00	37.154	137.762	102.327	70.869	70.869	−204.655	0.000	0.000	0.000
	2100.00	37.154	139.575	104.058	74.584	74.584	−218.522	0.000	0.000	0.000
	2200.00	37.154	141.303	105.712	78.299	78.299	−232.567	0.000	0.000	0.000
	2300.00	37.154	142.954	107.296	82.015	82.015	−246.780	0.000	0.000	0.000
	2400.00	37.154	144.536	108.815	85.730	85.730	−261.156	0.000	0.000	0.000
	2500.00	37.154	146.052	110.274	89.446	89.446	−275.685	0.000	0.000	0.000
	2600.00	37.154	147.510	111.678	93.161	93.161	−290.364	0.000	0.000	0.000
	2700.00	37.154	148.912	113.032	96.876	96.876	−305.186	0.000	0.000	0.000
	2800.00	37.154	150.263	114.337	100.592	100.592	−320.145	0.000	0.000	0.000
	2900.00	37.154	151.567	115.599	104.307	104.307	−335.237	0.000	0.000	0.000
	3000.00	37.154	152.826	116.819	108.023	108.023	−350.457	0.000	0.000	0.000
	3100.00	37.154	154.045	118.000	111.738	111.738	−365.801	0.000	0.000	0.000
	3200.00	37.154	155.224	119.145	115.453	115.453	−381.264	0.000	0.000	0.000
	3300.00	37.154	156.368	120.256	119.169	119.169	−396.844	0.000	0.000	0.000
	3400.00	37.154	157.477	121.334	122.884	122.884	−412.537	0.000	0.000	0.000
	3500.00	37.154	158.554	122.382	126.600	126.600	−428.338	0.000	0.000	0.000
	3535.00	37.154	158.923	122.742	127.900	127.900	−433.894	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL − A	Hu1	Hu1		hcp
SOL − B	Hu1	Hu1		bcc
LIQ	Hu1	Hu1	Hu1	BPT = 3535., L = 359.4 kJ

157.250 GADOLINIUM (GAS) **Gd**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	27.578	194.314	194.314	397.480	0.000	339.545	397.480	359.804	−63.036
	300.00	27.570	194.485	194.315	397.531	0.051	339.186	397.463	359.570	−62.607
	400.00	27.308	202.378	195.392	400.274	2.794	319.323	397.121	347.013	−45.315
	500.00	26.951	208.436	197.419	402.988	5.508	298.770	397.034	334.495	−34.944
	600.00	26.470	213.308	199.675	405.660	8.180	277.675	396.839	322.003	−28.033
	700.00	25.951	217.350	201.920	408.281	10.801	256.136	396.503	309.555	−23.099
	800.00	25.454	220.782	204.068	410.851	13.371	234.225	396.028	297.164	−19.403
	900.00	25.019	223.754	206.094	413.374	15.894	211.995	395.425	284.841	−16.532
	1000.00	24.667	226.371	207.994	415.858	18.378	189.486	394.703	272.591	−14.239
	1100.00	24.414	228.710	209.773	418.311	20.831	166.730	393.858	260.420	−12.366
	1200.00	24.270	230.827	211.440	420.744	23.264	143.752	392.892	248.331	−10.810
	1300.00	24.241	232.768	213.007	423.169	25.689	120.571	391.809	236.328	−9.496
	1400.00	24.273	234.564	214.484	425.593	28.113	97.203	390.606	224.412	−8.373
	1500.00	24.462	236.245	215.879	428.029	30.549	73.662	389.285	212.586	−7.403
	1600.00	24.763	237.832	217.202	430.489	33.009	49.957	374.482	201.104	−6.565
	1700.00	25.141	239.345	218.460	432.984	35.504	26.098	373.261	190.305	−5.847
	1800.00	25.574	240.794	219.661	435.519	38.039	2.090	372.081	179.577	−5.211
	1900.00	26.044	242.189	220.810	438.100	40.620	−22.059	370.946	168.914	−4.644
	2000.00	26.539	243.537	221.913	440.729	43.249	−46.346	369.860	158.309	−4.135
	2100.00	27.050	244.845	222.974	443.408	45.928	−70.765	368.824	147.757	−3.675
	2200.00	27.570	246.115	223.997	446.139	48.659	−95.314	367.840	137.253	−3.259
	2300.00	28.093	247.352	224.986	448.922	51.442	−119.987	366.907	126.793	−2.880
	2400.00	28.615	248.559	225.943	451.758	54.278	−144.783	366.027	116.373	−2.533
	2500.00	29.132	249.737	226.871	454.645	57.165	−169.698	365.199	105.987	−2.214
	2600.00	29.643	250.890	227.773	457.584	60.104	−194.730	364.423	95.634	−1.921
	2700.00	30.145	252.018	228.650	460.573	63.093	−219.875	363.697	85.310	−1.650
	2800.00	30.635	253.123	229.504	463.612	66.132	−245.132	363.021	75.012	−1.399
	2900.00	31.113	254.207	230.338	466.700	69.220	−270.499	362.393	64.737	−1.166
	3000.00	31.578	255.269	231.151	469.835	72.355	−295.973	361.812	54.484	−0.949
	3100.00	32.028	256.312	231.946	473.015	75.535	−321.552	361.277	44.248	−0.746
	3200.00	32.463	257.336	232.723	476.240	78.760	−347.235	360.786	34.029	−0.555
	3300.00	32.882	258.341	233.485	479.507	82.027	−373.019	360.338	23.825	−0.377
	3400.00	33.285	259.329	234.230	482.816	85.336	−398.903	359.932	13.634	−0.209
	3500.00	33.670	260.299	234.961	486.164	88.684	−424.884	359.564	3.454	−0.052
	3600.00	34.038	261.253	235.678	489.549	92.069	−450.962	0.000	0.000	0.000
	3700.00	34.388	262.191	236.382	492.971	95.491	−477.134	0.000	0.000	0.000
	3800.00	34.720	263.112	237.074	496.426	98.946	−503.399	0.000	0.000	0.000
	3900.00	35.034	264.018	237.753	499.914	102.434	−529.756	0.000	0.000	0.000
	4000.00	35.329	264.909	238.421	503.432	105.952	−556.203	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

GdBr3 GADOLINIUM BROMIDE 396.962

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	96.957	189.954	189.954	−828.850	0.000	−885.485	−828.850	−797.154	139.658
	300.00	97.050	190.554	189.955	−828.671	0.179	−885.837	−828.949	−796.957	138.763
	400.00	100.524	219.009	193.812	−818.771	10.079	−906.375	−873.857	−776.960	101.461
	500.00	102.441	241.662	201.193	−808.615	20.235	−929.447	−872.041	−752.943	78.659
	600.00	103.745	260.461	209.549	−798.303	30.547	−954.579	−870.173	−729.299	63.491
	700.00	104.761	276.532	217.998	−787.876	40.974	−981.448	−868.306	−705.968	52.680
	800.00	105.621	290.579	226.211	−777.356	51.494	−1009.819	−866.452	−682.904	44.589
	900.00	106.393	303.064	234.069	−766.754	62.096	−1039.512	−864.613	−660.071	38.310
	1000.00	107.108	314.311	241.540	−756.079	72.771	−1070.390	−862.792	−637.442	33.297
	1058.00	107.506	320.361	245.697	−749.855	78.995	−1088.797	−861.750	−624.401	30.827
			36.046		38.137					
LIQ	1058.00	139.327	356.408	245.697	−711.718	117.132	−1088.797	−823.613	−624.401	30.827
	1100.00	139.327	361.832	250.028	−705.866	122.984	−1103.881	−821.537	−616.533	29.277
	1200.00	139.327	373.955	259.858	−691.934	136.916	−1140.679	−816.672	−598.112	26.035
	1300.00	139.327	385.107	269.069	−678.001	150.849	−1178.640	−811.926	−580.092	23.308

References

Phase	H / S	C_p
SOL	Pa2	Pa2
LIQ	Pa2	Pa2

396.962 GADOLINIUM BROMIDE (GAS) **GdBr3**[g]

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	79.926	398.932	398.933	-531.368	0.000	-650.310	-531.368	-561.979	98.456
	300.00	79.964	399.427	398.934	-531.220	0.148	-651.048	-531.498	-562.169	97.882
	400.00	81.323	422.645	402.090	-523.146	8.222	-692.204	-578.232	-562.790	73.493
	500.00	81.956	440.868	408.089	-514.979	16.389	-735.413	-578.404	-558.909	58.389
	600.00	82.303	455.844	414.837	-506.764	24.604	-780.270	-578.634	-554.990	48.316
	700.00	82.515	468.548	421.626	-498.522	32.846	-826.506	-578.953	-551.025	41.118
	800.00	82.654	479.576	428.195	-490.264	41.104	-873.924	-579.360	-547.009	35.716
	900.00	82.752	489.317	434.456	-481.993	49.375	-922.378	-579.851	-542.937	31.511
	1000.00	82.824	498.040	440.386	-473.714	57.654	-971.754	-580.426	-538.805	28.144
	1100.00	82.879	505.937	445.992	-465.429	65.939	-1021.959	-581.099	-534.611	25.387
	1200.00	82.923	513.150	451.292	-457.138	74.230	-1072.918	-581.877	-530.351	23.086
	1300.00	82.958	519.789	456.309	-448.844	82.524	-1124.570	-582.769	-526.022	21.136
	1400.00	82.987	525.938	461.066	-440.547	90.821	-1176.860	-583.786	-521.620	19.462
	1500.00	83.012	531.664	465.583	-432.247	99.121	-1229.743	-584.938	-517.140	18.008
	1600.00	83.034	537.022	469.883	-423.945	107.423	-1283.180	-599.603	-512.328	16.726
	1700.00	83.053	542.057	473.982	-415.640	115.728	-1337.137	-600.726	-506.838	15.573
	1800.00	83.070	546.805	477.897	-407.334	124.034	-1391.582	-601.855	-501.283	14.547
	1900.00	83.086	551.296	481.643	-399.026	132.342	-1446.489	-602.989	-495.665	13.627
	2000.00	83.100	555.558	485.233	-390.717	140.651	-1501.834	-604.130	-489.987	12.797

References

Phase	H / S	C_p
GAS	Pa2	Pa2

GdCl3 GADOLINIUM CHLORIDE 263.608

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[	J / (K mol)	]	[		kJ / mol		]	
SOL	298.15	88.003	151.419	151.419	−1008.001	0.000	−1053.147	−1008.001	−933.104	163.476
	300.00	88.047	151.964	151.421	−1007.838	0.163	−1053.427	−1008.001	−932.640	162.387
	400.00	90.787	177.654	154.905	−998.901	9.100	−1069.963	−1007.349	−907.593	118.520
	500.00	93.897	198.243	161.579	−989.669	18.332	−1088.790	−1006.275	−882.775	92.223
	600.00	97.154	215.649	169.176	−980.117	27.884	−1109.506	−1005.042	−858.188	74.712
	700.00	100.480	230.874	176.924	−970.236	37.765	−1131.848	−1003.634	−833.821	62.220
	800.00	103.843	244.511	184.534	−960.020	47.981	−1155.628	−1002.020	−809.670	52.866
	875.00	106.380	253.928	190.083	−952.137	55.864	−1174.324	−1000.663	−791.697	47.262
			46.526		40.710					
LIQ	875.00	139.515	300.454	190.083	−911.427	96.574	−1174.324	−959.953	−791.697	47.262
	900.00	139.515	304.384	193.204	−907.939	100.062	−1181.884	−958.653	−786.909	45.671
	1000.00	139.515	319.084	205.070	−893.987	114.014	−1213.071	−953.519	−768.102	40.122
	1100.00	139.515	332.381	216.049	−880.036	127.965	−1245.655	−948.497	−749.804	35.605
	1200.00	139.515	344.520	226.256	−866.084	141.917	−1279.508	−943.590	−731.959	31.861
	1300.00	139.515	355.687	235.789	−852.133	155.868	−1314.526	−938.806	−714.518	28.710

References

Phase	H / S	C_p
SOL	Pa2	Dw4e
LIQ	Dw4	Dw4

263.608 GADOLINIUM CHLORIDE (GAS) **GdCl3[g]**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	78.201	371.481	371.481	-696.636	0.000	-807.393	-696.636	-687.351	120.421
	300.00	78.259	371.965	371.483	-696.491	0.145	-808.081	-696.654	-687.293	119.668
	400.00	80.313	394.802	374.583	-688.548	8.088	-846.469	-696.996	-684.099	89.334
	500.00	81.273	412.838	380.494	-680.464	16.172	-886.883	-697.069	-680.867	71.130
	600.00	81.802	427.707	387.160	-672.308	24.328	-928.932	-697.233	-677.613	58.991
	700.00	82.128	440.343	393.877	-664.110	32.526	-972.350	-697.508	-674.323	50.319
	800.00	82.346	451.325	400.387	-655.886	40.750	-1016.945	-697.886	-670.987	43.811
	900.00	82.501	461.033	406.596	-647.643	48.993	-1062.573	-698.357	-667.597	38.746
	1000.00	82.617	469.732	412.483	-639.387	57.249	-1109.119	-698.919	-664.150	34.692
	1100.00	82.707	477.611	418.051	-631.120	65.516	-1156.492	-699.582	-660.642	31.371
	1200.00	82.780	484.810	423.318	-622.846	73.790	-1204.618	-700.352	-657.069	28.601
	1300.00	82.841	491.439	428.307	-614.565	82.071	-1253.435	-701.238	-653.427	26.255
	1400.00	82.892	497.580	433.038	-606.278	90.358	-1302.890	-702.250	-649.712	24.241
	1500.00	82.937	503.300	437.534	-597.986	98.650	-1352.937	-703.398	-645.920	22.493
	1600.00	82.978	508.654	441.813	-589.691	106.945	-1403.537	-718.060	-641.795	20.952
	1700.00	83.014	513.686	445.895	-581.391	115.245	-1454.657	-719.181	-636.994	19.572
	1800.00	83.047	518.432	449.794	-573.088	123.548	-1506.265	-720.308	-632.127	18.344
	1900.00	83.078	522.923	453.526	-564.782	131.854	-1558.335	-721.444	-627.197	17.243
	2000.00	83.107	527.185	457.103	-556.472	140.164	-1610.842	-722.587	-622.208	16.250

References

Phase	H / S	C_p
GAS	Pa2	Pa2

GdF3 GADOLINIUM FLUORIDE 214.245

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)		] [		kJ / mol		]	[−]
SOL−A	298.15	88.393	114.771	114.771	−1699.122	0.000	−1733.341	−1699.122	−1622.387	284.236
	300.00	88.596	115.319	114.773	−1698.958	0.164	−1733.554	−1699.114	−1621.911	282.400
	400.00	95.957	141.953	118.354	−1689.683	9.439	−1746.464	−1697.743	−1596.348	208.462
	500.00	99.713	163.807	125.327	−1679.882	19.240	−1761.785	−1695.788	−1571.222	164.144
	600.00	102.050	182.207	133.314	−1669.786	29.336	−1779.110	−1693.768	−1546.498	134.635
	700.00	103.717	198.070	141.458	−1659.494	39.628	−1798.143	−1691.759	−1522.113	113.581
	800.00	105.027	212.007	149.423	−1649.054	50.068	−1818.660	−1689.773	−1498.013	97.810
	900.00	106.129	224.443	157.080	−1638.495	60.627	−1840.494	−1687.812	−1474.161	85.558
	1000.00	107.102	235.676	164.387	−1627.833	71.289	−1863.509	−1685.876	−1450.526	75.768
	1100.00	107.991	245.926	171.341	−1617.078	82.044	−1887.597	−1683.979	−1427.084	67.767
	1200.00	108.823	255.359	177.954	−1606.237	92.885	−1912.667	−1682.129	−1403.812	61.106
	1300.00	109.614	264.101	184.249	−1595.315	103.807	−1938.645	−1680.334	−1380.692	55.477
	1348.00	109.983	268.082	187.163	−1590.044	109.078	−1951.418	−1679.495	−1369.643	53.073
			4.454		6.004					
SOL−B	1348.00	130.855	272.536	187.163	−1584.040	115.082	−1951.418	−1673.491	−1369.643	53.073
	1400.00	130.855	277.489	190.427	−1577.236	121.886	−1965.720	−1671.526	−1357.960	50.666
	1500.00	130.855	286.517	196.535	−1564.150	134.972	−1993.925	−1667.863	−1335.691	46.513
	1505.00	130.855	286.952	196.835	−1563.496	135.626	−1995.359	−1667.684	−1334.584	46.320
			34.835		52.426					
LIQ	1505.00	127.821	321.787	196.835	−1511.070	188.052	−1995.359	−1615.258	−1334.584	46.320
	1600.00	127.821	329.611	204.489	−1498.927	200.195	−2026.304	−1625.588	−1316.710	42.986
	1700.00	127.821	337.360	212.079	−1486.145	212.977	−2059.656	−1622.224	−1297.509	39.868
	1800.00	127.821	344.666	219.244	−1473.363	225.759	−2093.761	−1618.876	−1278.504	37.101

References

Phase	H / S	C_p
SOL−A	Pa2	Pa2
SOL−B	Pa2	Pa2
LIQ	Pa2	Pa2

214.245 GADOLINIUM FLUORIDE (GAS) **GdF3**[g]

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	71.523	335.340	335.340	-1246.832	0.000	-1346.814	-1246.832	-1235.860	216.518
	300.00	71.651	335.783	335.341	-1246.700	0.132	-1347.434	-1246.855	-1235.792	215.170
	400.00	76.177	357.107	338.218	-1239.277	7.555	-1382.119	-1247.337	-1232.003	160.883
	500.00	78.324	374.361	343.777	-1231.540	15.292	-1418.721	-1247.446	-1228.157	128.305
	600.00	79.534	388.757	350.108	-1223.642	23.190	-1456.897	-1247.625	-1224.285	106.583
	700.00	80.301	401.079	356.530	-1215.648	31.184	-1496.403	-1247.913	-1220.373	91.065
	800.00	80.834	411.839	362.786	-1207.590	39.242	-1537.060	-1248.308	-1216.413	79.424
	900.00	81.229	421.383	368.776	-1199.486	47.346	-1578.731	-1248.802	-1212.398	70.366
	1000.00	81.539	429.958	374.473	-1191.347	55.485	-1621.305	-1249.389	-1208.322	63.116
	1100.00	81.793	437.742	379.876	-1183.180	63.652	-1664.696	-1250.081	-1204.183	57.182
	1200.00	82.010	444.868	384.999	-1174.989	71.843	-1708.831	-1250.881	-1199.976	52.234
	1300.00	82.199	451.440	389.861	-1166.779	80.053	-1753.651	-1251.798	-1195.697	48.044
	1400.00	82.370	457.538	394.480	-1158.550	88.282	-1799.104	-1252.841	-1191.344	44.450
	1500.00	82.526	463.227	398.875	-1150.305	96.527	-1845.145	-1254.018	-1186.911	41.332
	1600.00	82.671	468.557	403.066	-1142.045	104.787	-1891.737	-1268.707	-1182.143	38.593
	1700.00	82.808	473.573	407.067	-1133.771	113.061	-1938.846	-1269.850	-1176.698	36.156
	1800.00	82.939	478.310	410.895	-1125.484	121.348	-1986.442	-1270.997	-1171.186	33.987
	1900.00	83.064	482.798	414.562	-1117.184	129.648	-2034.500	-1272.147	-1165.609	32.045
	2000.00	83.184	487.062	418.081	-1108.871	137.961	-2082.995	-1273.299	-1159.972	30.295

References

Phase	H / S	C_p
GAS	Pa2	Pa2

GdI3 GADOLINIUM IODIDE 537.963

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	98.644	226.354	226.354	−594.128	0.000	−661.616	−594.128	−589.415	103.263
	300.00	98.746	226.965	226.356	−593.945	0.183	−662.035	−594.165	−589.386	102.621
	400.00	102.393	255.945	230.283	−583.863	10.265	−686.241	−619.625	−586.723	76.618
	500.00	104.127	279.000	237.800	−573.528	20.600	−713.028	−684.382	−572.268	59.784
	600.00	105.109	298.079	246.302	−563.062	31.066	−741.909	−682.409	−550.031	47.884
	700.00	105.736	314.332	254.889	−552.518	41.610	−772.550	−680.467	−528.122	39.409
	800.00	106.173	328.481	263.223	−541.921	52.207	−804.706	−678.573	−506.488	33.070
	900.00	106.500	341.006	271.183	−531.287	62.841	−838.192	−676.735	−485.089	28.154
	1000.00	106.759	352.241	278.736	−520.623	73.505	−872.864	−674.959	−463.890	24.231
	1013.00	106.789	353.620	279.689	−519.235	74.893	−877.452	−674.733	−461.148	23.779
			0.908		0.920					
SOL−B	1013.00	127.821	354.528	279.689	−518.315	75.813	−877.452	−673.813	−461.148	23.779
	1100.00	127.821	365.060	286.030	−507.195	86.933	−908.761	−670.521	−443.022	21.037
	1200.00	127.821	376.182	293.086	−494.413	99.715	−945.831	−666.839	−422.503	18.391
	1203.00	127.821	376.501	293.293	−494.029	100.099	−946.960	−666.731	−421.892	18.319
			44.884		53.995					
LIQ	1203.00	155.854	421.385	293.293	−440.034	154.094	−946.960	−612.736	−421.892	18.319
	1300.00	155.854	433.471	303.308	−424.916	169.212	−988.428	−606.562	−406.748	16.343

References

Phase	H / S	C_p
SOL−A	Nb1/Pa2	Dw4,Pa2
SOL−B	Dw4,Pa2	Dw4,Pa2
LIQ	Dw4	Dw4

537.963 GADOLINIUM IODIDE (GAS) **GdI3[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[	J / (K mol)	]	[		kJ / mol		]	
GAS	298.15	81.496	427.614	427.614	−316.729	0.000	−444.222	−316.729	−372.022	65.177
	300.00	81.516	428.118	427.615	−316.578	0.151	−445.014	−316.798	−372.365	64.834
	400.00	82.220	451.680	430.823	−308.386	8.343	−489.058	−344.148	−389.540	50.869
	500.00	82.546	470.065	436.900	−300.146	16.583	−535.179	−411.000	−394.419	41.205
	600.00	82.724	485.133	443.721	−291.882	24.847	−582.962	−411.229	−391.083	34.047
	700.00	82.832	497.893	450.572	−283.604	33.125	−632.129	−411.553	−387.701	28.931
	800.00	82.903	508.959	457.194	−275.317	41.412	−682.484	−411.968	−384.266	25.090
	900.00	82.952	518.727	463.499	−267.024	49.705	−733.878	−412.472	−380.774	22.100
	1000.00	82.988	527.468	469.466	−258.727	58.002	−786.195	−413.062	−377.221	19.704
	1100.00	83.014	535.379	475.104	−250.427	66.302	−839.344	−413.753	−373.604	17.741
	1200.00	83.035	542.603	480.433	−242.124	74.605	−893.248	−414.551	−369.920	16.102
	1300.00	83.052	549.250	485.474	−233.820	82.909	−947.845	−415.465	−366.165	14.713
	1400.00	83.065	555.406	490.252	−225.514	91.215	−1003.082	−416.507	−362.334	13.519
	1500.00	83.076	561.137	494.789	−217.207	99.522	−1058.912	−417.687	−358.424	12.481
	1600.00	83.086	566.499	499.105	−208.899	107.830	−1115.297	−432.382	−354.180	11.563
	1700.00	83.094	571.536	503.219	−200.590	116.139	−1172.201	−433.537	−349.257	10.731
	1800.00	83.101	576.286	507.148	−192.280	124.449	−1229.595	−434.699	−344.266	9.990
	1900.00	83.107	580.779	510.906	−183.970	132.759	−1287.450	−435.870	−339.210	9.326
	2000.00	83.113	585.042	514.507	−175.659	141.070	−1345.743	−437.049	−334.092	8.726

References

Phase	H / S	C_p
GAS	Pa2	Pa2

Gd2O3 GADOLINIUM OXIDE (CUBIC) 362.498

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL-C	298.15	105.518	150.624	150.624	-1826.902	0.000	-1871.811	-1826.902	-1739.546	304.761
	300.00	105.753	151.277	150.626	-1826.707	0.195	-1872.090	-1826.925	-1739.004	302.788
	400.00	114.469	183.047	154.898	-1815.643	11.259	-1888.861	-1826.486	-1709.698	223.264
	500.00	119.258	209.146	163.217	-1803.938	22.964	-1908.511	-1824.973	-1680.669	175.578
	600.00	122.553	231.195	172.757	-1791.839	35.063	-1930.556	-1823.347	-1651.961	143.816
	700.00	125.148	250.288	182.499	-1779.450	47.452	-1954.652	-1821.755	-1623.524	121.149
	800.00	127.348	267.146	192.047	-1766.823	60.079	-1980.540	-1820.222	-1595.310	104.163
	900.00	129.277	282.259	201.245	-1753.989	72.913	-2008.023	-1818.748	-1567.286	90.963
	1000.00	130.978	295.970	210.043	-1740.975	85.927	-2036.945	-1817.338	-1539.422	80.411
	1100.00	132.459	308.525	218.433	-1727.801	99.101	-2067.178	-1816.026	-1511.694	71.784
	1200.00	133.705	320.105	226.429	-1714.491	112.411	-2098.617	-1814.836	-1484.082	64.600
	1300.00	134.694	330.848	234.053	-1701.069	125.833	-2131.171	-1813.804	-1456.562	58.525
	1400.00	135.395	340.858	241.329	-1687.562	139.340	-2164.762	-1812.971	-1429.114	53.321
	1500.00	135.773	350.214	248.279	-1674.000	152.902	-2199.321	-1812.385	-1401.718	48.812
	1550.00	135.831	354.667	251.640	-1667.210	159.692	-2216.944	-1819.665	-1387.948	46.774

References

Phase	H / S	C_p	Remarks
SOL-C	Pa1	Pa1	TPT (cubic - monoclinic): uncertain

362.498 GADOLINIUM OXIDE (MONOCLINIC) **Gd2O3[M]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−M	298.15	106.628	156.900	156.900	−1819.622	0.000	−1866.402	−1819.622	−1734.137	303.814
	300.00	106.804	157.560	156.902	−1819.425	0.197	−1866.693	−1819.643	−1733.607	301.848
	400.00	113.515	189.313	161.186	−1808.371	11.251	−1884.096	−1819.215	−1704.933	222.641
	500.00	117.398	215.091	169.470	−1796.812	22.810	−1904.357	−1817.847	−1676.516	175.144
	600.00	120.168	236.751	178.927	−1784.928	34.694	−1926.978	−1816.435	−1648.383	143.505
	700.00	122.413	255.448	188.553	−1772.795	46.827	−1951.609	−1815.100	−1620.481	120.922
	800.00	124.378	271.925	197.965	−1760.454	59.168	−1977.994	−1813.853	−1592.765	103.997
	900.00	126.180	286.680	207.016	−1747.925	71.697	−2005.937	−1812.684	−1565.200	90.842
	1000.00	127.881	300.063	215.662	−1735.221	84.401	−2035.284	−1811.585	−1537.761	80.324
	1100.00	129.515	312.328	223.900	−1722.351	97.271	−2065.912	−1810.576	−1510.428	71.724
	1200.00	131.105	323.666	231.747	−1709.320	110.302	−2097.719	−1809.665	−1483.183	64.561
	1300.00	132.663	334.222	239.229	−1696.131	123.491	−2130.619	−1808.866	−1456.010	58.503
	1400.00	134.198	344.109	246.371	−1682.788	136.834	−2164.541	−1808.197	−1428.893	53.313
	1500.00	135.716	353.420	253.200	−1669.292	150.330	−2199.422	−1807.677	−1401.819	48.816
	1600.00	137.221	362.227	259.741	−1655.645	163.977	−2235.208	−1834.058	−1374.272	44.865
	1700.00	138.717	370.591	266.018	−1641.848	177.774	−2271.853	−1833.229	−1345.560	41.344
	1800.00	140.204	378.562	272.051	−1627.902	191.720	−2309.313	−1832.288	−1316.900	38.215
	1900.00	141.685	386.182	277.859	−1613.808	205.814	−2347.553	−1831.234	−1288.295	35.418
	2000.00	143.161	393.487	283.459	−1599.565	220.057	−2386.539	−1830.066	−1259.750	32.901

References

Phase	H / S	C_p	Remarks
SOL−M	Nb1/Pa1	Pa1	Ku1 MPT= 2613.

208.702 GADOLINIUM CHLORIDE OXIDE **GdOCl**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	68.351	95.395	95.395	−979.002	0.000	−1007.444	−979.002	−923.342	161.766
	300.00	68.424	95.818	95.397	−978.875	0.127	−1007.621	−979.002	−922.997	160.708
	400.00	71.569	115.964	98.122	−971.865	7.137	−1018.251	−978.296	−904.406	118.103
	500.00	73.906	132.194	103.365	−964.587	14.415	−1030.685	−977.134	−886.066	92.567
	600.00	75.925	145.851	109.337	−957.094	21.908	−1044.604	−975.905	−867.967	75.563
	700.00	77.793	157.696	115.418	−949.407	29.595	−1059.795	−974.642	−850.076	63.433
	800.00	79.581	168.201	121.372	−941.538	37.464	−1076.099	−973.338	−832.370	54.348
	900.00	81.323	177.676	127.110	−933.493	45.509	−1093.401	−971.984	−814.830	47.291
	1000.00	83.036	186.333	132.605	−925.275	53.727	−1111.607	−970.573	−797.443	41.654

References

Phase	H / S	C_p
SOL	Nb1/e	e

Ge GERMANIUM 72.610

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	23.355	31.087	31.087	0.000	0.000	−9.269	0.000	0.000	0.000
	300.00	23.385	31.232	31.088	0.043	0.043	−9.326	0.000	0.000	0.000
	400.00	24.445	38.126	32.020	2.442	2.442	−12.808	0.000	0.000	0.000
	500.00	24.940	43.640	33.812	4.914	4.914	−16.906	0.000	0.000	0.000
	600.00	25.212	48.213	35.842	7.423	7.423	−21.505	0.000	0.000	0.000
	700.00	25.577	52.123	37.895	9.960	9.960	−26.526	0.000	0.000	0.000
	800.00	25.991	55.565	39.893	12.538	12.538	−31.914	0.000	0.000	0.000
	900.00	26.405	58.651	41.808	15.158	15.158	−37.627	0.000	0.000	0.000
	1000.00	27.209	61.478	43.636	17.842	17.842	−43.636	0.000	0.000	0.000
	1100.00	27.944	64.106	45.379	20.600	20.600	−49.916	0.000	0.000	0.000
	1200.00	28.680	66.569	47.043	23.431	23.431	−56.451	0.000	0.000	0.000
	1210.40	28.756	66.817	47.212	23.730	23.730	−57.145	0.000	0.000	0.000
			30.523		36.945					
LIQ	1210.40	27.614	97.339	47.212	60.675	60.675	−57.145	0.000	0.000	0.000
	1300.00	27.614	99.312	50.735	63.149	63.149	−65.956	0.000	0.000	0.000
	1400.00	27.614	101.358	54.279	65.910	65.910	−75.991	0.000	0.000	0.000
	1500.00	27.614	103.263	57.482	68.672	68.672	−86.223	0.000	0.000	0.000
	1600.00	27.614	105.045	60.400	71.433	71.433	−96.639	0.000	0.000	0.000
	1700.00	27.614	106.719	63.076	74.195	74.195	−107.228	0.000	0.000	0.000
	1800.00	27.614	108.298	65.544	76.956	76.956	−117.980	0.000	0.000	0.000
	1900.00	27.614	109.791	67.834	79.718	79.718	−128.885	0.000	0.000	0.000
	2000.00	27.614	111.207	69.968	82.479	82.479	−139.936	0.000	0.000	0.000
	2100.00	27.614	112.555	71.964	85.240	85.240	−151.124	0.000	0.000	0.000
	2200.00	27.614	113.839	73.838	88.002	88.002	−162.444	0.000	0.000	0.000
	2300.00	27.614	115.067	75.604	90.763	90.763	−173.890	0.000	0.000	0.000
	2400.00	27.614	116.242	77.273	93.525	93.525	−185.456	0.000	0.000	0.000
	2500.00	27.614	117.369	78.855	96.286	96.286	−197.137	0.000	0.000	0.000
	2600.00	27.614	118.452	80.357	99.048	99.048	−208.928	0.000	0.000	0.000
	2700.00	27.614	119.495	81.787	101.809	101.809	−220.826	0.000	0.000	0.000
	2800.00	27.614	120.499	83.152	104.571	104.571	−232.826	0.000	0.000	0.000
	2900.00	27.614	121.468	84.457	107.332	107.332	−244.925	0.000	0.000	0.000
	3000.00	27.614	122.404	85.706	110.093	110.093	−257.119	0.000	0.000	0.000
	3100.00	27.614	123.309	86.905	112.855	112.855	−269.405	0.000	0.000	0.000
	3104.00	27.614	123.345	86.952	112.965	112.965	−269.898	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL	Hu1	Hu1	Hu1	MPT= 1210.4
LIQ	Hu1	Hu1	Hu1	BPT= 3104., L= 331.0 kJ

72.610 GERMANIUM (GAS) **Ge[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	30.732	167.900	167.900	374.468	0.000	324.408	374.468	333.677	−58.459
	300.00	30.738	168.091	167.901	374.525	0.057	324.098	374.482	333.424	−58.054
	400.00	31.070	176.979	169.111	377.615	3.147	306.824	375.173	319.632	−41.740
	500.00	30.387	183.855	171.400	380.696	6.228	288.768	375.782	305.674	−31.934
	600.00	29.245	189.297	173.946	383.678	9.210	270.100	376.256	291.605	−25.386
	700.00	28.086	193.717	176.465	386.544	12.076	250.942	376.584	277.469	−20.705
	800.00	27.035	197.397	178.858	389.299	14.831	231.381	376.761	263.296	−17.191
	900.00	26.129	200.528	181.096	391.956	17.488	211.481	376.798	249.109	−14.458
	1000.00	25.371	203.240	183.178	394.530	20.062	191.290	376.688	234.926	−12.271
	1100.00	24.754	205.628	185.113	397.035	22.567	170.844	376.435	220.760	−10.483
	1200.00	24.265	207.760	186.913	399.485	25.017	150.173	376.054	206.624	−8.994
	1300.00	23.890	209.687	188.592	401.892	27.424	129.299	338.743	195.255	−7.845
	1400.00	23.614	211.447	190.162	404.266	29.798	108.241	338.356	184.232	−6.874
	1500.00	23.419	213.069	191.636	406.617	32.149	87.014	337.946	173.237	−6.033
	1600.00	23.290	214.576	193.023	408.952	34.484	65.631	337.519	162.270	−5.298
	1700.00	23.210	215.985	194.333	411.277	36.809	44.102	337.082	151.330	−4.650
	1800.00	23.163	217.311	195.573	413.596	39.128	22.437	336.639	140.417	−4.075
	1900.00	23.132	218.562	196.750	415.910	41.442	0.642	336.193	129.528	−3.561
	2000.00	23.100	219.748	197.871	418.222	43.754	−21.274	335.743	118.662	−3.099
	2100.00	23.108	220.875	198.940	420.532	46.064	−43.305	335.292	107.819	−2.682
	2200.00	23.129	221.950	199.961	422.844	48.376	−65.447	334.842	96.998	−2.303
	2300.00	23.157	222.979	200.940	425.158	50.690	−87.694	334.395	86.197	−1.958
	2400.00	23.189	223.965	201.879	427.476	53.008	−110.041	333.951	75.415	−1.641
	2500.00	23.222	224.913	202.781	429.796	55.328	−132.485	333.510	64.652	−1.351
	2600.00	23.254	225.824	203.650	432.120	57.652	−155.023	333.072	53.906	−1.083
	2700.00	23.284	226.702	204.488	434.447	59.979	−177.649	332.638	43.177	−0.835
	2800.00	23.312	227.550	205.296	436.777	62.309	−200.362	332.206	32.464	−0.606
	2900.00	23.338	228.368	206.078	439.109	64.641	−223.158	331.777	21.767	−0.392
	3000.00	23.360	229.160	206.834	441.444	66.976	−246.035	331.351	11.084	−0.193
	3100.00	23.380	229.926	207.567	443.781	69.313	−268.989	330.926	0.415	−0.007
	3200.00	23.397	230.668	208.277	446.120	71.652	−292.019	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

GeBr4[g] GERMANIUM TETRABROMIDE (GAS) 392.226

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	101.840	396.167	396.167	−299.993	0.000	−418.110	−299.993	−318.079	55.726
	300.00	101.915	396.797	396.169	−299.805	0.188	−418.844	−300.128	−318.191	55.402
	400.00	104.530	426.530	400.205	−289.463	10.530	−460.075	−361.150	−311.634	40.695
	500.00	105.701	449.996	407.899	−278.945	21.048	−503.943	−360.487	−299.331	31.271
	600.00	106.304	469.327	416.574	−268.341	31.652	−549.937	−359.829	−287.162	25.000
	700.00	106.638	485.741	425.312	−257.693	42.300	−597.711	−359.188	−275.102	20.528
	800.00	106.829	499.994	433.776	−247.018	52.975	−647.014	−358.588	−263.131	17.181
	900.00	106.936	512.584	441.847	−236.330	63.663	−697.655	−358.034	−251.233	14.581
	1000.00	106.992	523.854	449.494	−225.633	74.360	−749.487	−357.552	−239.393	12.505
	1100.00	107.015	534.052	456.725	−214.932	85.061	−802.390	−357.155	−227.597	10.808
	1200.00	107.014	543.364	463.562	−204.231	95.762	−856.268	−356.844	−215.833	9.395

References

Phase	H / S	C_p
GAS	Pa2	Pa2

GeCl[g] GERMANIUM MONOCHLORIDE (GAS) 108.063

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	36.980	245.861	245.861	73.028	0.000	−0.275	73.028	42.254	−7.403
	300.00	37.044	246.090	245.862	73.096	0.068	−0.730	73.022	42.063	−7.324
	400.00	39.215	257.093	247.347	76.926	3.898	−25.911	72.719	31.791	−4.151
	500.00	40.100	265.953	250.212	80.898	7.870	−52.078	72.434	21.592	−2.256
	600.00	40.480	273.302	253.466	84.930	11.902	−79.051	72.139	11.451	−0.997
	700.00	40.620	279.555	256.757	88.987	15.959	−106.702	71.820	1.360	−0.102
	800.00	40.633	284.981	259.954	93.050	20.022	−134.935	71.453	−8.681	0.567
	900.00	40.572	289.764	263.005	97.111	24.083	−163.677	71.031	−18.673	1.084
	1000.00	40.465	294.033	265.899	101.163	28.135	−192.871	70.528	−28.614	1.495
	1100.00	40.328	297.884	268.634	105.203	32.175	−222.470	69.933	−38.500	1.828
	1200.00	40.170	301.386	271.220	109.228	36.200	−252.436	69.245	−48.328	2.104
	1300.00	39.998	304.595	273.665	113.236	40.208	−282.737	31.649	−55.364	2.225
	1400.00	39.816	307.552	275.982	117.227	44.199	−313.346	30.988	−62.033	2.314
	1500.00	39.625	310.293	278.179	121.199	48.171	−344.240	30.304	−68.653	2.391
	1600.00	39.429	312.844	280.267	125.152	52.124	−375.399	29.598	−75.227	2.456
	1700.00	39.229	315.228	282.254	129.085	56.057	−406.803	28.868	−81.757	2.512
	1800.00	39.024	317.465	284.148	132.997	59.969	−438.439	28.114	−88.242	2.561
	1900.00	38.817	319.569	285.958	136.889	63.861	−470.292	27.336	−94.686	2.603
	2000.00	38.608	321.555	287.689	140.761	67.733	−502.349	26.533	−101.087	2.640

References

Phase	H / S	C_p
GAS	Pa2	Pa2

143.515 GERMANIUM DICHLORIDE (GAS) **GeCl2[g]**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	53.785	295.826	295.826	-171.000	0.000	-259.201	-171.000	-183.410	32.133
	300.00	53.836	296.159	295.827	-170.900	0.100	-259.748	-171.007	-183.487	31.948
	400.00	55.643	311.931	297.965	-165.414	5.586	-290.186	-171.386	-187.591	24.497
	500.00	56.492	324.449	302.054	-159.802	11.198	-322.027	-171.817	-191.593	20.016
	600.00	56.962	334.794	306.673	-154.128	16.872	-355.004	-172.287	-195.505	17.020
	700.00	57.255	343.598	311.335	-148.416	22.584	-388.934	-172.789	-199.336	14.875
	800.00	57.452	351.257	315.857	-142.680	28.320	-423.686	-173.336	-203.091	13.261
	900.00	57.594	358.033	320.174	-136.927	34.073	-459.157	-173.929	-206.776	12.001
	1000.00	57.702	364.107	324.269	-131.162	39.838	-495.269	-174.589	-210.391	10.990
	1100.00	57.788	369.610	328.144	-125.387	45.613	-531.959	-175.326	-213.936	10.159
	1200.00	57.858	374.642	331.813	-119.605	51.395	-569.175	-176.139	-217.410	9.464
	1300.00	57.918	379.275	335.288	-113.816	57.184	-606.874	-213.841	-218.084	8.763
	1400.00	57.969	383.569	338.585	-108.022	62.978	-645.019	-214.589	-218.382	8.148
	1500.00	58.015	387.570	341.719	-102.222	68.778	-683.578	-215.340	-218.627	7.613
	1600.00	58.057	391.316	344.703	-96.419	74.581	-722.524	-216.094	-218.821	7.144
	1700.00	58.095	394.837	347.549	-90.611	80.389	-761.834	-216.851	-218.969	6.728
	1800.00	58.130	398.158	350.269	-84.800	86.200	-801.485	-217.611	-219.071	6.357
	1900.00	58.164	401.302	352.873	-78.985	92.015	-841.460	-218.375	-219.132	6.024
	2000.00	58.195	404.286	355.370	-73.167	97.833	-881.740	-219.144	-219.152	5.724

References

Phase	H / S	C_p
GAS	Pa2	Pa2

GeCl3[g] GERMANIUM TRICHLORIDE (GAS) 178.968

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	76.257	335.202	335.202	−320.846	0.000	−420.786	−320.846	−311.734	54.615
	300.00	76.338	335.674	335.203	−320.705	0.141	−421.407	−320.842	−311.678	54.268
	400.00	79.189	358.084	338.239	−312.908	7.938	−456.142	−320.646	−308.653	40.306
	500.00	80.523	375.914	344.052	−304.915	15.931	−492.872	−320.481	−305.675	31.934
	600.00	81.259	390.666	350.627	−296.823	24.023	−531.222	−320.350	−302.727	26.355
	700.00	81.713	403.228	357.267	−288.673	32.173	−570.933	−320.252	−299.798	22.371
	800.00	82.017	414.161	363.710	−280.485	40.361	−611.814	−320.201	−296.880	19.384
	900.00	82.234	423.834	369.863	−272.272	48.574	−653.723	−320.196	−293.966	17.061
	1000.00	82.396	432.507	375.702	−264.040	56.806	−696.548	−320.260	−291.048	15.203
	1100.00	82.523	440.366	381.229	−255.794	65.052	−740.197	−320.402	−288.121	13.682
	1200.00	82.625	447.551	386.460	−247.537	73.309	−784.598	−320.622	−285.177	12.413
	1300.00	82.711	454.168	391.418	−239.270	81.576	−829.689	−357.732	−279.481	11.230
	1400.00	82.784	460.301	396.121	−230.995	89.851	−875.416	−357.890	−273.456	10.203
	1500.00	82.849	466.015	400.593	−222.713	98.133	−921.735	−358.053	−267.420	9.312
	1600.00	82.906	471.363	404.850	−214.425	106.421	−968.607	−358.221	−261.372	8.533
	1700.00	82.958	476.391	408.912	−206.132	114.714	−1015.997	−358.394	−255.313	7.845
	1800.00	83.005	481.134	412.794	−197.834	123.012	−1063.875	−358.573	−249.245	7.233
	1900.00	83.050	485.623	416.510	−189.531	131.315	−1112.215	−358.758	−243.166	6.685
	2000.00	83.091	489.884	420.073	−181.224	139.622	−1160.992	−358.949	−237.077	6.192

References

Phase	H / S	C_p
GAS	Pa2	Pa2

214.421 GERMANIUM TETRACHLORIDE (GAS) **GeCl4**[g]

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	95.917	348.390	348.390	-499.988	0.000	-603.860	-499.988	-461.547	80.861
	300.00	96.056	348.984	348.392	-499.810	0.178	-604.505	-499.979	-461.309	80.321
	400.00	100.945	377.386	352.231	-489.926	10.062	-640.880	-499.428	-448.499	58.568
	500.00	103.252	400.186	359.618	-479.704	20.284	-679.797	-498.820	-435.836	45.531
	600.00	104.543	419.135	368.003	-469.309	30.679	-720.790	-498.204	-423.297	36.851
	700.00	105.355	435.316	376.492	-458.811	41.177	-763.532	-497.597	-410.861	30.659
	800.00	105.910	449.423	384.745	-448.246	51.742	-807.784	-497.021	-398.510	26.020
	900.00	106.317	461.922	392.639	-437.634	62.354	-853.363	-496.480	-386.229	22.416
	1000.00	106.632	473.140	400.138	-426.986	73.002	-900.126	-495.998	-374.006	19.536
	1100.00	106.887	483.316	407.244	-416.309	83.679	-947.957	-495.587	-361.827	17.182
	1200.00	107.100	492.625	413.977	-405.610	94.378	-996.760	-495.246	-349.682	15.221
	1300.00	107.284	501.206	420.361	-394.890	105.098	-1046.457	-531.791	-334.833	13.454
	1400.00	107.448	509.162	426.423	-384.154	115.834	-1096.981	-531.377	-319.698	11.928
	1500.00	107.596	516.580	432.189	-373.401	126.587	-1148.272	-530.964	-304.592	10.607
	1600.00	107.732	523.529	437.683	-362.635	137.353	-1200.281	-530.551	-289.514	9.452
	1700.00	107.859	530.064	442.927	-351.855	148.133	-1252.964	-530.139	-274.462	8.433
	1800.00	107.978	536.232	447.941	-341.063	158.925	-1306.282	-529.729	-259.434	7.529
	1900.00	108.093	542.074	452.743	-330.260	169.728	-1360.200	-529.322	-244.429	6.720
	2000.00	108.202	547.621	457.349	-319.445	180.543	-1414.687	-528.919	-229.445	5.992

References

Phase	H / S	C_p	Remarks	
GAS	Pa2	Pa2	Pa2	NBPT= 356.

GeF[g] GERMANIUM MONOFLUORIDE (GAS) 91.608

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	34.781	234.008	234.008	−66.601	0.000	−136.370	−66.601	−96.870	16.971
	300.00	34.863	234.223	234.008	−66.537	0.064	−136.803	−66.609	−97.058	16.899
	400.00	37.678	244.700	235.418	−62.888	3.713	−160.768	−66.966	−107.151	13.993
	500.00	38.882	253.254	238.157	−59.052	7.549	−185.679	−67.284	−117.161	12.240
	600.00	39.451	260.400	241.285	−55.132	11.469	−211.372	−67.609	−127.106	11.066
	700.00	39.721	266.504	244.463	−51.172	15.429	−237.725	−67.961	−136.995	10.223
	800.00	39.831	271.817	247.557	−47.193	19.408	−264.647	−68.364	−146.830	9.587
	900.00	39.849	276.510	250.518	−43.209	23.392	−292.067	−68.823	−156.611	9.089
	1000.00	39.809	280.707	253.331	−39.225	27.376	−319.932	−69.364	−166.337	8.689
	1100.00	39.731	284.497	255.995	−35.248	31.353	−348.195	−69.997	−176.005	8.358
	1200.00	39.627	287.950	258.516	−31.280	35.321	−376.820	−70.724	−185.610	8.079
	1300.00	39.506	291.117	260.904	−27.323	39.278	−405.776	−108.359	−192.421	7.732
	1400.00	39.371	294.040	263.168	−23.379	43.222	−435.036	−109.058	−198.861	7.420
	1500.00	39.227	296.752	265.317	−19.449	47.152	−464.577	−109.778	−205.251	7.147
	1600.00	39.075	299.278	267.362	−15.534	51.067	−494.380	−110.519	−211.591	6.908
	1700.00	38.918	301.643	269.309	−11.635	54.966	−524.427	−111.282	−217.885	6.695
	1800.00	38.756	303.863	271.168	−7.751	58.850	−554.703	−112.066	−224.134	6.504
	1900.00	38.590	305.954	272.944	−3.884	62.717	−585.195	−112.871	−230.338	6.332
	2000.00	38.422	307.929	274.645	−0.033	66.568	−615.890	−113.698	−236.499	6.177

References

Phase	H / S	C_p
GAS	Pa2	Pa2

110.607 GERMANIUM DIFLUORIDE (GAS) **GeF2**[g]

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[-]
GAS	298.15	47.848	270.781	270.781	-574.003	0.000	-654.736	-574.003	-585.004	102.490
	300.00	47.927	271.077	270.782	-573.914	0.089	-655.238	-574.016	-585.073	101.870
	400.00	51.349	285.373	272.708	-568.937	5.066	-683.086	-574.651	-588.660	76.871
	500.00	53.420	297.073	276.446	-563.690	10.313	-712.226	-575.239	-592.094	61.856
	600.00	54.708	306.935	280.728	-558.279	15.724	-742.440	-575.809	-595.412	51.835
	700.00	55.552	315.436	285.093	-552.763	21.240	-773.568	-576.381	-598.634	44.671
	800.00	56.130	322.894	289.362	-547.177	26.826	-805.492	-576.979	-601.772	39.292
	900.00	56.541	329.530	293.463	-541.542	32.461	-838.120	-577.612	-604.834	35.104
	1000.00	56.844	335.504	297.373	-535.872	38.131	-871.376	-578.307	-607.822	31.749
	1100.00	57.072	340.933	301.090	-530.176	43.827	-905.202	-579.074	-610.737	29.001
	1200.00	57.248	345.907	304.621	-524.460	49.543	-939.548	-579.917	-613.579	26.708
	1300.00	57.387	350.495	307.975	-518.728	55.275	-974.371	-617.650	-613.617	24.655
	1400.00	57.497	354.752	311.166	-512.983	61.020	-1009.636	-618.430	-613.277	22.882
	1500.00	57.586	358.722	314.206	-507.229	66.774	-1045.311	-619.214	-612.882	21.342
	1600.00	57.659	362.441	317.105	-501.467	72.536	-1081.371	-620.003	-612.434	19.994
	1700.00	57.719	365.938	319.876	-495.698	78.305	-1117.792	-620.797	-611.937	18.803
	1800.00	57.770	369.239	322.527	-489.923	84.080	-1154.552	-621.596	-611.393	17.742
	1900.00	57.812	372.363	325.069	-484.144	89.859	-1191.634	-622.401	-610.804	16.792
	2000.00	57.847	375.329	327.508	-478.361	95.642	-1229.020	-623.212	-610.172	15.936

References

Phase	H / S	C_p
GAS	Pa2	Pa2

GeF3[g] GERMANIUM TRIFLUORIDE (GAS) 129.605

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	66.180	297.717	297.717	−752.994	0.000	−841.758	−752.994	−741.795	129.959
	300.00	66.314	298.127	297.719	−752.871	0.123	−842.310	−753.002	−741.725	129.146
	400.00	72.022	318.056	300.397	−745.930	7.064	−873.153	−753.280	−737.919	96.362
	500.00	75.418	334.524	305.624	−738.544	14.450	−905.806	−753.410	−734.061	76.687
	600.00	77.514	348.474	311.633	−730.889	22.105	−939.974	−753.474	−730.185	63.568
	700.00	78.881	360.533	317.777	−723.065	29.929	−975.438	−753.512	−726.300	54.197
	800.00	79.815	371.131	323.798	−715.128	37.866	−1012.032	−753.562	−722.410	47.169
	900.00	80.479	380.572	329.591	−707.111	45.883	−1049.626	−753.637	−718.511	41.701
	1000.00	80.966	389.078	335.121	−699.038	53.956	−1088.115	−753.768	−714.602	37.327
	1100.00	81.333	396.813	340.383	−690.922	62.072	−1127.416	−753.969	−710.676	33.747
	1200.00	81.616	403.902	345.385	−682.774	70.220	−1167.456	−754.245	−706.729	30.763
	1300.00	81.839	410.444	350.141	−674.601	78.393	−1208.178	−791.410	−700.025	28.127
	1400.00	82.016	416.516	354.668	−666.408	86.586	−1249.530	−791.622	−692.988	25.856
	1500.00	82.159	422.179	358.982	−658.199	94.795	−1291.467	−791.840	−685.935	23.886
	1600.00	82.276	427.485	363.100	−649.977	103.017	−1333.953	−792.064	−678.867	22.163
	1700.00	82.372	432.476	367.035	−641.744	111.250	−1376.954	−792.296	−671.785	20.641
	1800.00	82.452	437.187	370.803	−633.503	119.491	−1420.439	−792.535	−664.690	19.289
	1900.00	82.519	441.647	374.415	−625.254	127.740	−1464.383	−792.782	−657.580	18.078
	2000.00	82.576	445.881	377.884	−616.999	135.995	−1508.761	−793.037	−650.458	16.988

References

Phase	H / S	C_p
GAS	Pa2	Pa2

148.604 GERMANIUM TETRAFLUORIDE (GAS) **GeF4[g]**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	81.609	301.901	301.901	-1190.139	0.000	-1280.151	-1190.139	-1149.956	201.467
	300.00	81.788	302.407	301.903	-1189.988	0.151	-1280.710	-1190.147	-1149.706	200.182
	400.00	89.996	327.136	305.219	-1181.372	8.767	-1312.226	-1190.357	-1136.183	148.370
	500.00	95.270	347.830	311.729	-1172.088	18.051	-1346.003	-1190.272	-1122.645	117.282
	600.00	98.631	365.519	319.256	-1162.381	27.758	-1381.693	-1190.020	-1109.142	96.559
	700.00	100.861	380.901	326.988	-1152.400	37.739	-1419.031	-1189.675	-1095.689	81.761
	800.00	102.404	394.476	334.592	-1142.232	47.907	-1457.813	-1189.298	-1082.287	70.666
	900.00	103.510	406.605	341.932	-1131.933	58.206	-1497.878	-1188.915	-1068.934	62.039
	1000.00	104.329	417.555	348.956	-1121.539	68.600	-1539.095	-1188.565	-1055.622	55.140
	1100.00	104.950	427.529	355.652	-1111.074	79.065	-1581.356	-1188.271	-1042.343	49.497
	1200.00	105.432	436.683	362.028	-1100.554	89.585	-1624.573	-1188.038	-1029.087	44.795
	1300.00	105.813	445.137	368.100	-1089.991	100.148	-1668.670	-1224.686	-1013.118	40.708
	1400.00	106.119	452.991	373.887	-1079.394	110.745	-1713.581	-1224.376	-996.855	37.193
	1500.00	106.368	460.321	379.407	-1068.769	121.370	-1759.250	-1224.067	-980.614	34.148
	1600.00	106.573	467.192	384.682	-1058.122	132.017	-1805.629	-1223.761	-964.394	31.484
	1700.00	106.744	473.659	389.727	-1047.455	142.684	-1852.675	-1223.459	-948.193	29.134
	1800.00	106.888	479.764	394.561	-1036.774	153.365	-1900.349	-1223.164	-932.009	27.046
	1900.00	107.009	485.547	399.199	-1026.079	164.060	-1948.617	-1222.876	-915.842	25.178
	2000.00	107.113	491.038	403.655	-1015.372	174.767	-1997.449	-1222.596	-899.690	23.497

References

Phase	H / S	C_p
GAS	Pa2	Pa2

GeH4[g] GERMANIUM TETRAHYDRIDE (GAS) 76.642

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	45.017	217.259	217.259	90.793	0.000	26.017	90.793	113.210	−19.834
	300.00	45.357	217.539	217.260	90.877	0.084	25.615	90.727	113.350	−19.736
	400.00	58.081	232.546	219.220	96.124	5.331	3.105	87.763	121.368	−15.849
	500.00	65.157	246.327	223.288	102.313	11.520	−20.851	85.634	130.028	−13.584
	600.00	70.010	258.658	228.174	109.083	18.290	−46.112	84.038	139.064	−12.107
	700.00	73.814	269.745	233.335	116.280	25.487	−72.541	82.823	148.336	−11.069
	800.00	77.058	279.818	238.525	123.827	33.034	−100.027	81.886	157.762	−10.301
	900.00	79.976	289.065	243.634	131.681	40.888	−128.477	81.171	167.291	−9.709
	1000.00	82.693	297.633	248.610	139.816	49.023	−157.817	80.614	176.891	−9.240
	1100.00	85.277	305.637	253.435	148.215	57.422	−187.985	80.178	186.541	−8.858
	1200.00	87.772	313.164	258.101	156.868	66.075	−218.929	79.843	196.226	−8.541
	1300.00	90.203	320.286	262.613	165.768	74.975	−250.604	42.783	208.665	−8.384
	1400.00	92.589	327.058	266.977	174.907	84.114	−282.974	42.833	221.425	−8.261
	1500.00	94.940	333.527	271.199	184.284	93.491	−316.006	43.032	234.175	−8.155
	1600.00	97.266	339.728	275.290	193.895	103.102	−349.671	43.379	246.908	−8.061
	1700.00	99.571	345.694	279.257	203.737	112.944	−383.944	43.873	259.614	−7.977
	1800.00	101.861	351.451	283.109	213.808	123.015	−418.803	44.515	272.287	−7.902
	1900.00	104.139	357.019	286.853	224.108	133.315	−454.228	45.308	284.920	−7.833
	2000.00	106.406	362.418	290.497	234.636	143.843	−490.201	46.255	297.507	−7.770

References

Phase	H / S	C_p
GAS	Tk1	e

GeI4[g] GERMANIUM TETRAIODIDE (GAS) 580.228

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	104.137	428.928	428.928	−56.902	0.000	−184.787	−56.902	−106.263	18.617
	300.00	104.188	429.572	428.930	−56.709	0.193	−185.581	−56.954	−106.569	18.555
	400.00	105.936	459.823	433.042	−46.190	10.712	−230.119	−92.111	−121.539	15.871
	500.00	106.681	483.553	440.857	−35.554	21.348	−277.330	−180.335	−120.377	12.576
	600.00	107.031	503.038	449.645	−24.866	32.036	−326.689	−179.658	−108.449	9.441
	700.00	107.193	519.550	458.482	−14.154	42.748	−377.839	−179.008	−96.633	7.211
	800.00	107.257	533.869	467.030	−3.431	53.471	−430.526	−178.408	−84.907	5.544
	900.00	107.262	546.503	475.172	7.295	64.197	−484.557	−177.862	−73.252	4.251
	1000.00	107.232	557.803	482.880	18.020	74.922	−539.782	−177.396	−61.655	3.221
	1100.00	107.178	568.021	490.163	28.741	85.643	−596.082	−177.022	−50.100	2.379
	1200.00	107.109	577.344	497.046	39.456	96.358	−653.357	−176.741	−38.574	1.679

References

Phase	H / S	C_p
GAS	Nb1	Pa2

121.220 GERMANIUM 2–MAGNESIUM **GeMg2**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[–]
SOL	298.15	67.823	86.190	86.190	–104.182	0.000	–129.880	–104.182	–101.126	17.717
	300.00	67.900	86.610	86.192	–104.056	0.126	–130.040	–104.192	–101.107	17.604
	400.00	71.245	106.634	88.899	–97.088	7.094	–139.742	–104.725	–99.998	13.058
	500.00	73.760	122.811	94.115	–89.834	14.348	–151.239	–105.280	–98.753	10.317
	600.00	75.948	136.455	100.063	–82.347	21.835	–164.220	–105.875	–97.392	8.479
	700.00	77.981	148.317	106.127	–74.649	29.533	–178.471	–106.524	–95.928	7.158
	800.00	79.932	158.858	112.072	–66.753	37.429	–193.839	–107.250	–94.366	6.161
	900.00	81.836	168.383	117.808	–58.665	45.517	–210.209	–108.061	–92.708	5.381
	1000.00	83.709	177.102	123.307	–50.387	53.795	–227.489	–126.880	–89.438	4.672
	1100.00	85.564	185.168	128.569	–41.923	62.259	–245.608	–127.701	–85.653	4.067
	1200.00	87.405	192.692	133.602	–33.275	70.907	–264.505	–128.411	–81.799	3.561
	1300.00	89.236	199.760	138.422	–24.443	79.739	–284.131	–165.824	–75.159	3.020
	1390.00	90.879	205.788	142.590	–16.338	87.844	–302.383	–420.242	–63.482	2.386

References

Phase	H / S	C_p	Remarks
SOL	Tk1	Tk1,e	Tk1 MPT= 1390., L= 102.9 kJ

189.990 GERMANIUM 2–NICKEL **GeNi2**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[–]
SOL	298.15	69.896	90.793	90.793	–110.081	0.000	–137.151	–110.081	–110.069	19.284
	300.00	70.031	91.226	90.794	–109.952	0.129	–137.319	–110.091	–110.068	19.165
	400.00	75.542	112.196	93.616	–102.649	7.432	–147.527	–110.652	–109.977	14.362
	500.00	79.262	129.471	99.110	–94.900	15.181	–159.636	–111.288	–109.738	11.464
	600.00	82.276	144.196	105.427	–86.820	23.261	–173.337	–112.259	–109.346	9.519
	700.00	84.957	157.083	111.904	–78.456	31.625	–188.414	–113.067	–108.774	8.117
	800.00	87.461	168.592	118.284	–69.834	40.247	–204.708	–113.208	–108.150	7.061
	900.00	89.862	179.033	124.462	–60.967	49.114	–222.097	–113.264	–107.514	6.240
	1000.00	92.199	188.623	130.405	–51.864	58.217	–240.486	–113.339	–106.871	5.582
	1100.00	94.493	197.518	136.107	–42.529	67.552	–259.798	–113.451	–106.219	5.044
	1200.00	96.760	205.837	141.575	–32.966	77.115	–279.971	–113.602	–105.555	4.595
	1300.00	99.006	213.671	146.822	–23.178	86.903	–300.950	–150.596	–102.147	4.104
	1400.00	101.237	221.090	151.864	–13.165	96.916	–322.691	–150.544	–98.421	3.672

References

Phase	H / S	C_p
SOL	P2/Ku1	e

GeO[g] GERMANIUM MONOXIDE (GAS) 88.609

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	30.921	224.288	224.288	−46.191	0.000	−113.063	−46.191	−73.212	12.826
	300.00	30.999	224.480	224.289	−46.134	0.057	−113.478	−46.204	−73.379	12.776
	400.00	33.745	233.830	225.545	−42.877	3.314	−136.409	−46.832	−82.339	10.752
	500.00	35.016	241.513	227.994	−39.432	6.759	−160.188	−47.388	−91.151	9.523
	600.00	35.706	247.963	230.799	−35.893	10.298	−184.671	−47.937	−99.852	8.693
	700.00	36.123	253.501	233.656	−32.300	13.891	−209.750	−48.509	−108.460	8.093
	800.00	36.393	258.344	236.446	−28.673	17.518	−235.348	−49.129	−116.983	7.638
	900.00	36.578	262.641	239.122	−25.024	21.167	−261.401	−49.802	−125.425	7.279
	1000.00	36.710	266.503	241.671	−21.359	24.832	−287.862	−50.553	−133.788	6.988
	1100.00	36.808	270.006	244.090	−17.683	28.508	−314.690	−51.389	−142.072	6.746
	1200.00	36.883	273.212	246.385	−13.998	32.193	−341.853	−52.310	−150.276	6.541
	1300.00	36.941	276.167	248.564	−10.307	35.884	−369.324	−90.128	−155.669	6.255
	1400.00	36.987	278.906	250.634	−6.610	39.581	−397.079	−90.999	−160.678	5.995
	1500.00	37.024	281.459	252.605	−2.910	43.281	−425.099	−91.881	−165.625	5.768
	1600.00	37.055	283.850	254.484	0.794	46.985	−453.366	−92.772	−170.512	5.567
	1700.00	37.080	286.097	256.278	4.501	50.692	−481.864	−93.672	−175.343	5.388
	1800.00	37.101	288.217	257.994	8.210	54.401	−510.581	−94.583	−180.121	5.227
	1900.00	37.119	290.224	259.638	11.921	58.112	−539.504	−95.503	−184.848	5.082
	2000.00	37.134	292.128	261.216	15.634	61.825	−568.622	−96.433	−189.526	4.950

References

Phase	H / S	C_p
GAS	Nb1	e

104.609 GERMANIUM DIOXIDE **GeO2**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f [-]
		J / (K mol)			kJ / mol					
SOL-A	298.15	50.162	39.706	39.706	-579.902	0.000	-591.740	-579.902	-521.307	91.331
	300.00	50.442	40.017	39.707	-579.809	0.093	-591.814	-579.907	-520.944	90.704
	400.00	60.606	56.111	41.832	-574.190	5.712	-596.635	-579.658	-501.304	65.464
	500.00	65.799	70.246	46.135	-567.846	12.056	-602.969	-578.845	-481.802	50.333
	600.00	69.037	82.548	51.202	-561.094	18.808	-610.623	-577.761	-462.492	40.263
	700.00	71.351	93.372	56.468	-554.069	25.833	-619.430	-576.528	-443.376	33.085
	800.00	73.172	103.023	61.695	-546.840	33.062	-629.258	-575.214	-424.443	27.713
	900.00	74.708	111.732	66.779	-539.444	40.458	-640.003	-573.843	-405.679	23.545
	1000.00	76.066	119.675	71.677	-531.904	47.998	-651.579	-572.449	-387.068	20.218
	1100.00	77.307	126.984	76.377	-524.235	55.667	-663.917	-571.047	-368.598	17.503
	1200.00	78.470	133.761	80.880	-516.446	63.456	-676.958	-569.638	-350.256	15.246
	1300.00	79.576	140.086	85.194	-508.543	71.359	-690.654	-605.036	-329.301	13.231
	1308.00	79.663	140.574	85.531	-507.906	71.996	-691.777	-604.908	-327.605	13.083
			15.994		20.920					
SOL-B	1308.00	76.284	156.568	85.531	-486.986	92.916	-691.777	-583.988	-327.605	13.083
	1389.00	76.864	161.168	89.809	-480.784	99.118	-704.647	-582.949	-311.759	11.724
			9.037		12.552					
LIQ	1389.00	78.709	170.205	89.809	-468.232	111.670	-704.647	-570.397	-311.759	11.724
	1400.00	78.782	170.826	90.443	-467.366	112.536	-706.522	-570.234	-309.711	11.555
	1500.00	79.417	176.283	95.986	-459.456	120.446	-723.881	-568.726	-291.155	10.139
	1600.00	80.043	181.429	101.167	-451.483	128.419	-741.769	-567.182	-272.701	8.903
	1700.00	80.706	186.301	106.033	-443.446	136.456	-760.157	-565.598	-254.344	7.815
	1800.00	81.448	190.934	110.622	-435.339	144.563	-779.021	-563.968	-236.081	6.851
	1900.00	82.312	195.361	114.966	-427.152	152.750	-798.337	-562.283	-217.911	5.991
	2000.00	83.339	199.608	119.093	-418.871	161.031	-818.087	-560.526	-199.831	5.219

References

Phase	H / S	C_p	Remarks	
SOL-A	Pa1	Pa1		tetragonal
SOL-B	Pa1	Pa1		hexagonal
LIQ	Pa1	Pa1		

GeP GERMANIUM PHOSPHIDE 103.584

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	40.789	63.011	63.011	−20.999	0.000	−39.786	−20.999	−18.272	3.201
	300.00	40.882	63.264	63.012	−20.923	0.076	−39.903	−21.011	−18.255	3.179
	400.00	44.554	75.580	64.666	−16.633	4.366	−46.865	−22.371	−17.058	2.228
	500.00	46.861	85.784	67.899	−12.056	8.943	−54.948	−22.898	−15.665	1.636
	600.00	48.630	94.490	71.623	−7.279	13.720	−63.973	−23.262	−14.181	1.235
	700.00	50.145	102.102	75.444	−2.339	18.660	−73.810	−23.492	−12.648	0.944
	800.00	51.525	108.889	79.208	2.746	23.745	−84.366	−23.618	−11.089	0.724
	900.00	52.826	115.034	82.853	7.964	28.963	−95.567	−23.653	−9.520	0.553
	1000.00	54.078	120.665	86.356	13.309	34.308	−107.355	−23.624	−7.951	0.415
	1100.00	55.299	125.876	89.715	18.778	39.777	−119.686	−23.545	−6.387	0.303
	1200.00	56.497	130.739	92.933	24.368	45.367	−132.519	−86.990	−3.743	0.163
	1300.00	57.681	135.308	96.019	30.077	51.076	−145.824	−122.857	5.887	−0.237
	1400.00	58.853	139.626	98.981	35.904	56.903	−159.572	−121.654	15.746	−0.587
	1500.00	60.017	143.726	101.828	41.848	62.847	−173.742	−120.339	25.515	−0.889
	1600.00	61.175	147.637	104.570	47.907	68.906	−188.311	−118.911	35.192	−1.149
	1700.00	62.328	151.380	107.214	54.083	75.082	−203.263	−117.371	44.777	−1.376

References

Phase	H / S	C_p
SOL	Nb1	e

GeS GERMANIUM MONOSULFIDE 104.676

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	47.798	65.982	65.982	−76.149	0.000	−95.821	−76.149	−76.995	13.489
	300.00	47.836	66.277	65.983	−76.061	0.088	−95.944	−76.146	−77.001	13.407
	400.00	49.848	80.315	67.883	−71.176	4.973	−103.302	−78.242	−77.217	10.083
	500.00	51.861	91.654	71.538	−66.091	10.058	−111.918	−79.531	−76.831	8.026
	600.00	53.873	101.287	75.713	−60.804	15.345	−121.577	−80.329	−76.205	6.634
	700.00	55.886	109.743	79.982	−55.316	20.833	−132.136	−80.687	−75.486	5.633
	800.00	57.898	117.337	84.184	−49.627	26.522	−143.497	−80.936	−74.726	4.879
	900.00	59.911	124.272	88.259	−43.737	32.412	−155.582	−133.872	−72.786	4.224
	938.00	60.675	126.766	89.768	−41.445	34.704	−160.352	−133.289	−70.219	3.910
			24.979		23.430					
LIQ	938.00	60.668	151.744	89.768	−18.015	58.134	−160.352	−109.859	−70.219	3.910
	1000.00	60.668	155.628	93.733	−14.254	61.895	−169.882	−108.909	−67.630	3.533
	1100.00	60.668	161.410	99.626	−8.187	67.962	−185.738	−107.442	−63.574	3.019
	1110.36	60.668	161.979	100.206	−7.559	68.590	−187.413	−107.295	−63.161	2.971

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1		
LIQ	Mi1	Mi1	Mi1	BPT= 1110.36, L= 126.5 kJ

104.676 GERMANIUM MONOSULFIDE (GAS) **GeS[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	33.660	235.501	235.501	97.069	0.000	26.854	97.069	45.680	−8.003
	300.00	33.700	235.710	235.502	97.131	0.062	26.418	97.046	45.362	−7.898
	400.00	35.125	245.628	236.845	100.582	3.513	2.331	93.517	28.417	−3.711
	500.00	35.807	253.547	239.420	104.133	7.064	−22.641	90.693	12.446	−1.300
	600.00	36.196	260.113	242.337	107.734	10.665	−48.333	88.210	−2.962	0.258
	700.00	36.448	265.713	245.287	111.367	14.298	−74.632	85.996	−17.981	1.342
	800.00	36.626	270.592	248.151	115.021	17.952	−101.452	83.712	−32.681	2.134
	900.00	36.761	274.914	250.889	118.691	21.622	−128.731	28.555	−45.936	2.666
	1000.00	36.869	278.793	253.489	122.373	25.304	−156.420	27.718	−54.168	2.829
	1100.00	36.961	282.311	255.952	126.064	28.995	−184.478	26.810	−62.314	2.959
	1200.00	37.040	285.531	258.284	129.764	32.695	−212.872	25.830	−70.373	3.063
	1300.00	37.111	288.498	260.496	133.472	36.403	−241.576	−12.034	−75.617	3.038
	1400.00	37.176	291.251	262.596	137.186	40.117	−270.565	−12.940	−80.474	3.003
	1500.00	37.237	293.818	264.592	140.907	43.838	−299.820	−13.845	−85.267	2.969
	1600.00	37.294	296.223	266.495	144.634	47.565	−329.323	−14.748	−89.999	2.938
	1700.00	37.348	298.485	268.311	148.366	51.297	−359.060	−15.650	−94.674	2.909
	1800.00	37.401	300.622	270.047	152.103	55.034	−389.016	−16.550	−99.297	2.882
	1900.00	37.452	302.645	271.710	155.846	58.777	−419.180	−17.450	−103.869	2.856
	2000.00	37.501	304.568	273.305	159.594	62.525	−449.542	−18.348	−108.394	2.831

References

Phase	H / S	C_p
GAS	Mi1	Mi1

GeS2 GERMANIUM DISULFIDE 136.742

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[	J / (K mol)	]	[		kJ / mol		]	
SOL	298.15	65.698	87.446	87.446	−156.900	0.000	−182.972	−156.900	−154.588	27.083
	300.00	65.756	87.852	87.447	−156.778	0.122	−183.134	−156.906	−154.574	26.914
	400.00	68.860	107.194	90.063	−150.048	6.852	−192.925	−161.737	−153.562	20.053
	500.00	71.965	122.893	95.106	−143.006	13.894	−204.453	−164.972	−151.185	15.794
	600.00	75.069	136.288	100.880	−135.655	21.245	−217.428	−167.281	−148.190	12.901
	700.00	78.174	148.094	106.797	−127.992	28.908	−231.658	−168.775	−144.884	10.811
	800.00	81.278	158.735	112.635	−120.020	36.880	−247.008	−170.100	−141.381	9.231
	900.00	84.383	168.487	118.306	−111.737	45.163	−263.375	−276.850	−135.412	7.859
	1000.00	87.487	177.539	123.782	−103.143	53.757	−280.682	−274.611	−119.814	6.258
	1100.00	90.592	186.023	129.058	−94.239	62.661	−298.864	−272.149	−104.452	4.960
	1113.00	90.996	187.089	129.730	−93.059	63.841	−301.290	−271.812	−102.472	4.809
			37.592		41.840					
LIQ	1113.00	93.722	224.682	129.730	−51.219	105.681	−301.290	−271.812	−102.472	4.809
	1200.00	93.722	231.735	136.873	−43.065	113.835	−321.148	−227.503	−92.600	4.031

References

Phase	H / S	C_p
SOL	Mi1	Mi1
LIQ	Mi1	e

GeSe GERMANIUM MONOSELENIDE 151.570

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[	J / (K mol)	]	[		kJ / mol		]	
SOL	298.15	49.994	78.241	78.241	−69.036	0.000	−92.363	−69.036	−70.496	12.351
	300.00	50.024	78.550	78.242	−68.943	0.093	−92.509	−69.034	−70.505	12.276
	400.00	51.664	93.166	80.223	−63.859	5.177	−101.125	−69.016	−71.003	9.272
	500.00	53.304	104.870	84.020	−58.611	10.425	−111.046	−75.050	−71.402	7.459
	600.00	54.944	114.734	88.338	−53.198	15.838	−122.039	−75.661	−70.613	6.147
	700.00	56.584	123.327	92.735	−47.622	21.414	−133.951	−76.136	−69.733	5.204
	800.00	58.225	130.990	97.046	−41.881	27.155	−146.673	−76.488	−68.793	4.492
	900.00	59.865	137.942	101.210	−35.977	33.059	−160.125	−76.718	−67.816	3.936
	948.00	60.652	141.073	103.150	−33.085	35.951	−166.822	−76.792	−67.339	3.710
			26.040		24.686					
LIQ	948.00	63.597	167.113	103.150	−8.399	60.637	−166.822	−52.106	−67.339	3.710
	1000.00	63.597	170.509	106.565	−5.091	63.945	−175.601	−52.031	−68.176	3.561
	1100.00	63.597	176.571	112.658	1.268	70.304	−192.960	−105.255	−64.842	3.079
	1124.35	63.597	177.963	114.057	2.817	71.853	−197.276	−104.894	−63.951	2.971

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1		
LIQ	Mi1	Mi1	Mi1	BPT= 1124.35, L= 132.8 kJ

151.570 GERMANIUM MONOSELENIDE (GAS) **GeSe[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	35.060	247.802	247.802	105.437	0.000	31.555	105.437	53.423	−9.359
	300.00	35.084	248.019	247.803	105.502	0.065	31.096	105.412	53.100	−9.246
	400.00	35.955	258.249	249.192	109.060	3.623	5.760	103.903	35.883	−4.686
	500.00	36.367	266.321	251.839	112.678	7.241	−20.482	96.239	19.161	−2.002
	600.00	36.599	272.974	254.823	116.328	10.891	−47.457	93.865	3.968	−0.345
	700.00	36.745	278.628	257.830	119.995	14.558	−75.044	91.481	−10.826	0.808
	800.00	36.846	283.541	260.744	123.675	18.238	−103.158	89.068	−25.278	1.650
	900.00	36.920	287.886	263.523	127.364	21.927	−131.734	86.622	−39.424	2.288
	1000.00	36.978	291.779	266.157	131.059	25.622	−160.720	84.119	−53.296	2.784
	1100.00	37.025	295.305	268.649	134.759	29.322	−190.077	28.235	−61.959	2.942
	1200.00	37.065	298.529	271.007	138.463	33.026	−219.771	27.041	−70.106	3.052
	1300.00	37.100	301.497	273.239	142.172	36.735	−249.774	−11.025	−75.421	3.030
	1400.00	37.131	304.248	275.357	145.883	40.446	−280.063	−12.119	−80.334	2.997
	1500.00	37.159	306.810	277.370	149.598	44.161	−310.618	−13.197	−85.168	2.966
	1600.00	37.186	309.209	279.286	153.315	47.878	−341.420	−14.260	−89.932	2.936
	1700.00	37.210	311.465	281.113	157.035	51.598	−372.455	−15.308	−94.629	2.908
	1800.00	37.234	313.592	282.859	160.757	55.320	−403.709	−16.341	−99.265	2.881
	1900.00	37.256	315.606	284.530	164.482	59.045	−435.169	−17.358	−103.844	2.855
	2000.00	37.277	317.517	286.132	168.208	62.771	−466.826	−18.361	−108.370	2.830

References

Phase	H / S	C_p
GAS	Mi1	Mi1

230.530 GERMANIUM DISELENIDE **GeSe2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	71.156	112.550	112.550	−112.968	0.000	−146.525	−112.968	−112.057	19.632
	300.00	71.207	112.990	112.551	−112.836	0.132	−146.733	−112.974	−112.052	19.510
	400.00	73.981	133.855	115.377	−105.577	7.391	−159.119	−113.449	−111.682	14.584
	500.00	76.755	150.661	120.805	−98.040	14.928	−173.371	−126.004	−110.990	11.595
	600.00	79.529	164.901	126.997	−90.226	22.742	−189.166	−127.728	−107.821	9.387
	700.00	82.303	177.369	133.320	−82.134	30.834	−206.292	−129.202	−104.383	7.789
	800.00	85.077	188.540	139.536	−73.765	39.203	−224.597	−130.441	−100.750	6.578
	900.00	87.851	198.721	145.555	−65.119	47.849	−243.967	−131.443	−96.976	5.628
	1000.00	90.625	208.120	151.347	−56.195	56.773	−264.315	−132.233	−93.102	4.863
	1013.00	90.986	209.293	152.083	−55.014	57.954	−267.028	−241.442	−92.003	4.744

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1	Mi1	MPT= 1013.

GeTe — GERMANIUM MONOTELLURIDE — 200.210

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	51.858	89.956	89.956	−48.534	0.000	−75.354	−48.534	−51.328	8.993
	300.00	51.882	90.277	89.957	−48.438	0.096	−75.521	−48.529	−51.346	8.940
	400.00	53.137	105.374	92.007	−43.187	5.347	−85.337	−48.362	−52.315	6.832
	500.00	54.392	117.366	95.920	−37.811	10.723	−96.494	−48.364	−53.306	5.569
	600.00	55.647	127.394	100.352	−32.309	16.225	−108.745	−48.498	−54.284	4.726
	700.00	56.902	136.066	104.848	−26.681	21.853	−121.928	−48.755	−55.230	4.121
	800.00	58.158	143.746	109.239	−20.928	27.606	−135.925	−66.772	−54.250	3.542
	900.00	59.413	150.669	113.464	−15.050	33.484	−150.652	−67.278	−52.653	3.056
	997.00	60.630	156.811	117.387	−9.228	39.306	−165.569	−67.711	−51.054	2.675

References

Phase	H / S	C_p	Remarks
SOL	Mi1	Mi1	Mi1 MPT= 997.

GeU — GERMANIUM URANIUM — 310.639

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	51.412	90.374	90.374	−61.505	0.000	−88.450	−61.505	−64.187	11.245
	300.00	51.495	90.693	90.375	−61.410	0.095	−88.618	−61.504	−64.204	11.179
	400.00	54.930	106.017	92.441	−56.075	5.430	−98.482	−61.437	−65.113	8.503
	500.00	57.338	118.543	96.447	−50.457	11.048	−109.728	−61.372	−66.040	6.899
	600.00	59.341	129.178	101.038	−44.621	16.884	−122.128	−61.379	−66.974	5.831
	700.00	61.154	138.464	105.735	−38.595	22.910	−135.519	−61.525	−67.898	5.067
	800.00	62.865	146.742	110.352	−32.393	29.112	−149.787	−61.887	−68.787	4.491
	900.00	64.517	154.243	114.819	−26.024	35.481	−164.842	−62.527	−69.614	4.040
	1000.00	66.132	161.124	119.110	−19.491	42.014	−180.615	−65.930	−70.187	3.666
	1100.00	67.724	167.502	123.223	−12.798	48.707	−197.050	−70.803	−70.365	3.341
	1200.00	69.298	173.462	127.164	−5.947	55.558	−214.101	−70.612	−70.333	3.062
	1300.00	70.862	179.071	130.943	1.061	62.566	−231.731	−107.150	−67.590	2.716
	1400.00	72.417	184.379	134.572	8.225	69.730	−249.905	−106.576	−64.567	2.409

References

Phase	H / S	C_p
SOL	Ra1	Ra1,e

383.249

2–GERMANIUM URANIUM

Ge2U

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	75.846	130.541	130.541	–87.446	0.000	–126.367	–87.446	–92.835	16.264
	300.00	75.934	131.010	130.542	–87.306	0.140	–126.609	–87.443	–92.868	16.170
	400.00	79.718	153.412	133.571	–79.510	7.936	–140.874	–87.314	–94.697	12.366
	500.00	82.496	171.510	139.406	–71.394	16.052	–157.149	–87.224	–96.555	10.087
	600.00	84.878	186.765	146.060	–63.023	24.423	–175.082	–87.205	–98.424	8.569
	700.00	87.074	200.016	152.842	–54.425	33.021	–194.435	–87.315	–100.288	7.484
	800.00	89.170	211.780	159.487	–45.612	41.834	–215.036	–87.644	–102.122	6.668
	900.00	91.209	222.401	165.897	–36.592	50.854	–236.753	–88.254	–103.898	6.030
	1000.00	93.211	232.115	172.040	–27.371	60.075	–259.486	–91.653	–105.423	5.507
	1100.00	95.190	241.092	177.915	–17.951	69.495	–283.152	–96.556	–106.551	5.060
	1200.00	97.153	249.459	183.532	–8.334	79.112	–307.684	–96.430	–107.464	4.678
	1300.00	99.105	257.312	188.908	1.479	88.925	–333.027	–169.881	–102.930	4.136
	1400.00	101.048	264.728	194.061	11.487	98.933	–359.132	–169.224	–97.803	3.649

References

Phase	H / S	C_p
SOL	Ra1	Ra1,e

455.859

3–GERMANIUM URANIUM

Ge3U

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	100.321	170.707	170.707	–106.692	0.000	–157.588	–106.692	–114.788	20.110
	300.00	100.416	171.328	170.709	–106.506	0.186	–157.905	–106.687	–114.838	19.995
	400.00	104.548	200.820	174.702	–96.245	10.447	–176.573	–106.491	–117.588	15.355
	500.00	107.696	224.497	182.370	–85.628	21.064	–197.877	–106.372	–120.377	12.576
	600.00	110.458	244.381	191.091	–74.718	31.974	–221.347	–106.323	–123.184	10.724
	700.00	113.036	261.603	199.961	–63.543	43.149	–246.665	–106.393	–125.991	9.402
	800.00	115.518	276.860	208.638	–52.114	54.578	–273.602	–106.685	–128.774	8.408
	900.00	117.942	290.606	216.994	–40.441	66.251	–301.987	–107.260	–131.503	7.632
	1000.00	120.332	303.157	224.992	–28.527	78.165	–331.684	–110.651	–133.985	6.999
	1100.00	122.698	314.737	232.630	–16.375	90.317	–362.586	–115.580	–136.068	6.461
	1200.00	125.049	325.514	239.927	–3.988	102.704	–394.604	–115.515	–137.933	6.004
	1300.00	127.389	335.615	246.903	8.634	115.326	–427.666	–225.875	–131.613	5.288
	1400.00	129.721	345.141	253.583	21.490	128.182	–461.708	–225.132	–124.388	4.641

References

Phase	H / S	C_p
SOL	Ra1	Ra1,e

Ge3U5 — 3–GERMANIUM 5–URANIUM — 1407.974

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	208.202	374.886	374.886	−235.141	0.000	−346.913	−235.141	−244.135	42.771
	300.00	208.603	376.176	374.890	−234.755	0.386	−347.608	−235.141	−244.191	42.517
	400.00	225.097	438.644	383.296	−213.002	22.139	−388.459	−234.926	−247.231	32.285
	500.00	236.413	490.144	399.665	−189.901	45.240	−434.974	−234.652	−250.342	26.153
	600.00	245.690	534.088	418.495	−165.785	69.356	−486.238	−234.734	−253.482	22.068
	700.00	254.005	572.594	437.814	−140.795	94.346	−541.611	−235.526	−256.556	19.144
	800.00	261.807	607.025	456.850	−115.001	120.140	−600.621	−237.395	−259.448	16.940
	900.00	269.311	638.297	475.300	−88.443	146.698	−662.911	−240.642	−262.025	15.208
	1000.00	276.629	667.052	493.056	−61.145	173.996	−728.197	−257.658	−263.331	13.755
	1100.00	283.827	693.756	510.102	−33.121	202.020	−796.253	−281.949	−262.661	12.473
	1200.00	290.942	718.758	526.459	−4.382	230.759	−866.891	−280.845	−260.952	11.359
	1300.00	297.999	742.324	542.166	25.065	260.206	−939.957	−389.693	−251.164	10.092
	1400.00	305.014	764.665	557.268	55.216	290.357	−1015.316	−386.968	−240.606	8.977

References

Phase	H / S	C_p
SOL	Ra1	Ra1,e

Ge5U3 — 5–GERMANIUM 3–URANIUM — 1077.137

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	203.146	351.874	351.874	−239.743	0.000	−344.654	−239.743	−253.328	44.382
	300.00	203.406	353.132	351.878	−239.367	0.376	−345.306	−239.737	−253.412	44.123
	400.00	214.407	413.271	360.003	−218.436	21.307	−383.744	−239.406	−258.021	33.694
	500.00	222.371	462.003	375.682	−196.582	43.161	−427.584	−239.158	−262.707	27.445
	600.00	229.140	503.156	393.585	−174.000	65.743	−475.894	−239.123	−267.424	23.281
	700.00	235.344	538.949	411.849	−150.773	88.970	−528.037	−239.484	−272.121	20.306
	800.00	241.248	570.763	429.761	−126.941	112.802	−583.552	−240.500	−276.723	18.068
	900.00	246.976	599.510	447.050	−102.529	137.214	−642.088	−242.355	−281.149	16.317
	1000.00	252.596	625.823	463.630	−77.550	162.193	−703.373	−252.553	−284.819	14.877
	1100.00	258.145	650.159	479.494	−52.012	187.731	−767.187	−267.228	−287.299	13.643
	1200.00	263.646	672.856	494.672	−25.922	213.821	−833.350	−266.779	−289.142	12.586
	1300.00	269.113	694.175	509.207	0.716	240.459	−901.712	−450.216	−277.377	11.145
	1400.00	274.555	714.318	523.145	27.899	267.642	−972.146	−448.325	−264.149	9.856

References

Phase	H / S	C_p
SOL	Ra1	Ra1,e

1.008 HYDROGEN (GAS) **H[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.786	114.716	114.716	217.999	0.000	183.796	217.999	203.278	−35.613
	300.00	20.786	114.845	114.716	218.037	0.038	183.584	218.011	203.186	−35.378
	400.00	20.786	120.824	115.532	220.116	2.117	171.786	218.636	198.150	−25.876
	500.00	20.786	125.463	117.071	222.195	4.196	159.463	219.254	192.957	−20.158
	600.00	20.786	129.252	118.795	224.273	6.274	146.722	219.868	187.640	−16.335
	700.00	20.786	132.457	120.524	226.352	8.353	133.632	220.477	182.220	−13.597
	800.00	20.786	135.232	122.193	228.430	10.431	120.245	221.080	176.713	−11.538
	900.00	20.786	137.680	123.780	230.509	12.510	106.597	221.671	171.132	−9.932
	1000.00	20.786	139.870	125.282	232.588	14.589	92.717	222.248	165.485	−8.644
	1100.00	20.786	141.851	126.699	234.666	16.667	78.630	222.807	159.782	−7.587
	1200.00	20.786	143.660	128.039	236.745	18.746	64.353	223.346	154.029	−6.705
	1300.00	20.786	145.324	129.305	238.823	20.824	49.902	223.865	148.231	−5.956
	1400.00	20.786	146.864	130.505	240.902	22.903	35.292	224.361	142.394	−5.313
	1500.00	20.786	148.298	131.644	242.981	24.982	20.533	224.836	136.523	−4.754
	1600.00	20.786	149.640	132.727	245.059	27.060	5.635	225.289	130.620	−4.264
	1700.00	20.786	150.900	133.759	247.138	29.139	−9.392	225.721	124.690	−3.831
	1800.00	20.786	152.088	134.745	249.216	31.217	−24.542	226.132	118.735	−3.446
	1900.00	20.786	153.212	135.688	251.295	33.296	−39.808	226.524	112.758	−3.100
	2000.00	20.786	154.278	136.591	253.374	35.375	−55.183	226.898	106.760	−2.788
	2100.00	20.786	155.292	137.457	255.452	37.453	−70.662	227.254	100.745	−2.506
	2200.00	20.786	156.259	138.290	257.531	39.532	−86.239	227.593	94.712	−2.249
	2300.00	20.786	157.183	139.092	259.609	41.610	−101.912	227.916	88.665	−2.014
	2400.00	20.786	158.068	139.864	261.688	43.689	−117.675	228.224	82.604	−1.798
	2500.00	20.786	158.916	140.609	263.767	45.768	−133.524	228.518	76.531	−1.599
	2600.00	20.786	159.732	141.329	265.845	47.846	−149.457	228.797	70.445	−1.415
	2700.00	20.786	160.516	142.025	267.924	49.925	−165.470	229.064	64.350	−1.245
	2800.00	20.786	161.272	142.699	270.002	52.003	−181.559	229.318	58.245	−1.087
	2900.00	20.786	162.001	143.352	272.081	54.082	−197.723	229.560	52.131	−0.939
	3000.00	20.786	162.706	143.986	274.160	56.161	−213.959	229.790	46.008	−0.801
	3100.00	20.786	163.388	144.601	276.238	58.239	−230.264	230.008	39.879	−0.672
	3200.00	20.786	164.048	145.198	278.317	60.318	−246.635	230.216	33.742	−0.551
	3300.00	20.786	164.687	145.779	280.395	62.396	−263.072	230.413	27.599	−0.437
	3400.00	20.786	165.308	146.345	282.474	64.475	−279.572	230.599	21.451	−0.330
	3500.00	20.786	165.910	146.895	284.553	66.554	−296.133	230.775	15.297	−0.228
	3600.00	20.786	166.496	147.431	286.631	68.632	−312.754	230.941	9.138	−0.133
	3700.00	20.786	167.065	147.954	288.710	70.711	−329.432	231.098	2.974	−0.042
	3800.00	20.786	167.620	148.465	290.788	72.789	−346.166	231.244	−3.193	0.044
	3900.00	20.786	168.160	148.963	292.867	74.868	−362.955	231.381	−9.364	0.125
	4000.00	20.786	168.686	149.449	294.946	76.947	−379.798	231.509	−15.539	0.203
	4100.00	20.786	169.199	149.925	297.024	79.025	−396.692	231.627	−21.717	0.277
	4200.00	20.786	169.700	150.390	299.103	81.104	−413.637	231.736	−27.897	0.347
	4300.00	20.786	170.189	150.844	301.181	83.182	−430.632	231.836	−34.080	0.414
	4400.00	20.786	170.667	151.289	303.260	85.261	−447.675	231.927	−40.265	0.478
	4500.00	20.786	171.134	151.725	305.339	87.340	−464.765	232.009	−46.452	0.539
	4600.00	20.786	171.591	152.152	307.417	89.418	−481.901	232.082	−52.641	0.598
	4700.00	20.786	172.038	152.571	309.496	91.497	−499.083	232.147	−58.831	0.654
	4800.00	20.786	172.476	152.981	311.574	93.575	−516.308	232.204	−65.023	0.708
	4900.00	20.786	172.904	153.383	313.653	95.654	−533.578	232.253	−71.216	0.759
	5000.00	20.786	173.324	153.778	315.732	97.733	−550.889	232.294	−77.409	0.809

References

Phase	H / S	C_p
GAS	Ja2	Ja2

H2[g] HYDROGEN (GAS) 2.016

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	28.836	130.680	130.680	0.000	0.000	−38.962	0.000	0.000	0.000
	300.00	28.849	130.858	130.681	0.053	0.053	−39.204	0.000	0.000	0.000
	400.00	29.182	139.216	131.818	2.959	2.959	−52.727	0.000	0.000	0.000
	500.00	29.260	145.737	133.974	5.882	5.882	−66.987	0.000	0.000	0.000
	600.00	29.326	151.077	136.393	8.811	8.811	−81.836	0.000	0.000	0.000
	700.00	29.442	155.606	138.822	11.749	11.749	−97.175	0.000	0.000	0.000
	800.00	29.625	159.549	141.172	14.702	14.702	−112.937	0.000	0.000	0.000
	900.00	29.880	163.052	143.412	17.676	17.676	−129.070	0.000	0.000	0.000
	1000.00	30.205	166.216	145.536	20.680	20.680	−145.536	0.000	0.000	0.000
	1100.00	30.579	169.112	147.550	23.719	23.719	−162.305	0.000	0.000	0.000
	1200.00	30.992	171.790	149.460	26.797	26.797	−179.352	0.000	0.000	0.000
	1300.00	31.424	174.288	151.275	29.918	29.918	−196.657	0.000	0.000	0.000
	1400.00	31.863	176.633	153.003	33.082	33.082	−214.204	0.000	0.000	0.000
	1500.00	32.298	178.846	154.653	36.290	36.290	−231.979	0.000	0.000	0.000
	1600.00	32.725	180.944	156.231	39.541	39.541	−249.970	0.000	0.000	0.000
	1700.00	33.138	182.941	157.744	42.835	42.835	−268.165	0.000	0.000	0.000
	1800.00	33.536	184.846	159.197	46.168	46.168	−286.555	0.000	0.000	0.000
	1900.00	33.916	186.670	160.595	49.541	49.541	−305.131	0.000	0.000	0.000
	2000.00	34.279	188.419	161.943	52.951	52.951	−323.886	0.000	0.000	0.000
	2100.00	34.625	190.100	163.244	56.396	56.396	−342.813	0.000	0.000	0.000
	2200.00	34.953	191.718	164.502	59.875	59.875	−361.904	0.000	0.000	0.000
	2300.00	35.264	193.279	165.719	63.386	63.386	−381.154	0.000	0.000	0.000
	2400.00	35.560	194.786	166.899	66.928	66.928	−400.558	0.000	0.000	0.000
	2500.00	35.842	196.243	168.044	70.498	70.498	−420.110	0.000	0.000	0.000
	2600.00	36.111	197.654	169.156	74.096	74.096	−439.805	0.000	0.000	0.000
	2700.00	36.369	199.022	170.237	77.720	77.720	−459.639	0.000	0.000	0.000
	2800.00	36.616	200.349	171.289	81.369	81.369	−479.608	0.000	0.000	0.000
	2900.00	36.856	201.638	172.313	85.043	85.043	−499.708	0.000	0.000	0.000
	3000.00	37.089	202.891	173.311	88.740	88.740	−519.934	0.000	0.000	0.000
	3100.00	37.311	204.111	174.285	92.460	92.460	−540.285	0.000	0.000	0.000
	3200.00	37.529	205.299	175.236	96.202	96.202	−560.756	0.000	0.000	0.000
	3300.00	37.740	206.457	176.165	99.966	99.966	−581.344	0.000	0.000	0.000
	3400.00	37.946	207.587	177.072	103.750	103.750	−602.046	0.000	0.000	0.000
	3500.00	38.149	208.690	177.960	107.555	107.555	−622.860	0.000	0.000	0.000
	3600.00	38.348	209.767	178.829	111.380	111.380	−643.783	0.000	0.000	0.000
	3700.00	38.544	210.821	179.679	115.224	115.224	−664.813	0.000	0.000	0.000
	3800.00	38.737	211.851	180.512	119.088	119.088	−685.947	0.000	0.000	0.000
	3900.00	38.928	212.860	181.329	122.971	122.971	−707.182	0.000	0.000	0.000
	4000.00	39.116	213.848	182.129	126.874	126.874	−728.518	0.000	0.000	0.000
	4100.00	39.302	214.816	182.915	130.795	130.795	−749.951	0.000	0.000	0.000
	4200.00	39.485	215.765	183.686	134.734	134.734	−771.480	0.000	0.000	0.000
	4300.00	39.665	216.697	184.443	138.691	138.691	−793.104	0.000	0.000	0.000
	4400.00	39.843	217.610	185.186	142.667	142.667	−814.819	0.000	0.000	0.000
	4500.00	40.017	218.508	185.917	146.660	146.660	−836.625	0.000	0.000	0.000
	4600.00	40.188	219.389	186.635	150.670	150.670	−858.520	0.000	0.000	0.000
	4700.00	40.355	220.255	187.341	154.697	154.697	−880.503	0.000	0.000	0.000
	4800.00	40.518	221.107	188.036	158.741	158.741	−902.571	0.000	0.000	0.000
	4900.00	40.676	221.944	188.719	162.801	162.801	−924.723	0.000	0.000	0.000
	5000.00	40.828	222.767	189.392	166.876	166.876	−946.959	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Ja2	Ja2

43.818 METABORIC ACID **HBO2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	54.557	48.953	48.953	−802.784	0.000	−817.379	−802.784	−734.995	128.768
	300.00	54.716	49.291	48.954	−802.683	0.101	−817.470	−802.785	−734.575	127.901
	400.00	61.540	66.036	51.191	−796.846	5.938	−823.260	−802.737	−711.841	92.957
	500.00	66.551	80.326	55.623	−790.433	12.351	−830.596	−802.574	−689.134	71.993
	509.00	66.958	81.517	56.071	−789.832	12.952	−831.324	−802.555	−687.092	70.511

References

Phase	H / S	C_p	Remarks
SOL	Ja1	Ja1	Ja1 MPT= 509.

43.818 METABORIC ACID (GAS) **HBO2[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	42.205	239.740	239.740	−560.656	0.000	−632.134	−560.656	−549.750	96.314
	300.00	42.338	240.001	239.741	−560.578	0.078	−632.578	−560.680	−549.683	95.708
	400.00	48.004	253.015	241.477	−556.041	4.615	−657.247	−561.931	−545.827	71.278
	500.00	52.161	264.189	244.928	−551.025	9.631	−683.120	−563.167	−541.658	56.587
	600.00	55.723	274.020	248.973	−545.628	15.028	−710.040	−564.374	−537.242	46.771
	700.00	59.005	282.859	253.193	−539.890	20.766	−737.891	−565.515	−532.629	39.745
	800.00	62.137	290.944	257.413	−533.832	26.824	−766.587	−566.553	−527.858	34.466
	900.00	64.722	298.418	261.559	−527.484	33.172	−796.059	−567.480	−522.965	30.352
	1000.00	66.734	305.345	265.596	−520.907	39.749	−826.252	−568.329	−517.973	27.056
	1100.00	68.359	311.784	269.506	−514.150	46.506	−857.112	−569.131	−512.898	24.355
	1200.00	69.721	317.792	273.282	−507.244	53.412	−888.594	−569.902	−507.751	22.102
	1300.00	70.898	323.420	276.925	−500.212	60.444	−920.658	−570.654	−502.542	20.192
	1400.00	71.941	328.713	280.437	−493.069	67.587	−953.267	−571.396	−497.274	18.554
	1500.00	72.885	333.709	283.823	−485.827	74.829	−986.391	−572.134	−491.954	17.131
	1600.00	73.752	338.441	287.090	−478.494	82.162	−1020.000	−572.870	−486.585	15.885
	1700.00	74.562	342.937	290.244	−471.078	89.578	−1054.071	−573.609	−481.169	14.785
	1800.00	75.326	347.221	293.292	−463.583	97.073	−1088.581	−574.351	−475.710	13.805
	1900.00	76.053	351.313	296.238	−456.014	104.642	−1123.509	−575.100	−470.210	12.927
	2000.00	76.751	355.232	299.091	−448.374	112.282	−1158.838	−575.854	−464.670	12.136

References

Phase	H / S	C_p
GAS	Ja1	Ja1

H3BO3 BORIC ACID 61.833

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	81.375	88.743	88.743	−1093.990	0.000	−1120.449	−1093.990	−968.520	169.681
	300.00	81.717	89.247	88.744	−1093.839	0.151	−1120.613	−1094.022	−967.742	168.499
	400.00	100.208	115.288	92.170	−1084.743	9.247	−1130.858	−1095.106	−925.450	120.851
	444.10	108.362	126.187	95.009	−1080.144	13.846	−1136.184	−1095.170	−906.740	106.650

References

Phase	H / S	C_p	Remarks
SOL	Ja1,Nb1	Ja1	Ja1 NDPT= 330., MPT= 444.1

H3BO3[g] BORIC ACID (GAS) 61.833

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	65.347	295.245	295.245	−992.277	0.000	−1080.304	−992.277	−928.376	162.648
	300.00	65.551	295.649	295.246	−992.156	0.121	−1080.851	−992.339	−927.979	161.576
	400.00	76.850	316.070	297.953	−985.030	7.247	−1111.458	−995.393	−906.050	118.318
	500.00	86.383	334.283	303.430	−976.851	15.426	−1143.992	−997.916	−883.412	92.289
	600.00	94.017	350.732	309.965	−967.817	24.460	−1178.256	−999.996	−860.310	74.897
	700.00	100.263	365.709	316.875	−958.093	34.184	−1214.090	−1001.716	−836.888	62.449
	800.00	105.495	379.448	323.850	−947.798	44.479	−1251.357	−1003.139	−813.241	53.099
	900.00	109.955	392.138	330.741	−937.020	55.257	−1289.944	−1004.313	−789.431	45.817
	1000.00	113.801	403.927	337.477	−925.828	66.449	−1329.754	−1005.281	−765.501	39.986
	1100.00	117.140	414.934	344.024	−914.277	78.000	−1370.704	−1006.082	−741.483	35.210
	1200.00	120.051	425.254	350.368	−902.414	89.863	−1412.718	−1006.749	−717.398	31.228
	1300.00	122.595	434.966	356.505	−890.279	101.998	−1455.734	−1007.311	−693.262	27.856
	1400.00	124.822	444.134	362.440	−877.905	114.372	−1499.693	−1007.794	−669.086	24.964
	1500.00	126.772	452.814	368.178	−865.324	126.953	−1544.545	−1008.220	−644.878	22.457
	1600.00	128.483	461.052	373.728	−852.559	139.718	−1590.241	−1008.609	−620.642	20.262
	1700.00	129.987	468.887	379.097	−839.634	152.643	−1636.742	−1008.978	−596.383	18.325
	1800.00	131.316	476.355	384.294	−826.567	165.710	−1684.007	−1009.341	−572.102	16.602
	1900.00	132.498	483.487	389.329	−813.376	178.901	−1732.001	−1009.709	−547.801	15.060
	2000.00	133.562	490.311	394.208	−800.072	192.205	−1780.694	−1010.091	−523.480	13.672

References

Phase	H / S	C_p
GAS	Ja1	Ja1

80.912 HYDROGEN BROMIDE (GAS) **HBr**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	29.144	198.695	198.695	−36.380	0.000	−95.621	−36.380	−53.449	9.364
	300.00	29.147	198.875	198.695	−36.326	0.054	−95.989	−36.423	−53.555	9.325
	400.00	29.196	207.267	199.839	−33.409	2.971	−116.316	−52.200	−56.044	7.319
	500.00	29.442	213.803	202.002	−30.479	5.901	−137.381	−52.577	−56.961	5.951
	600.00	29.900	219.209	204.432	−27.513	8.867	−159.039	−52.935	−57.804	5.032
	700.00	30.469	223.860	206.882	−24.496	11.884	−181.198	−53.254	−58.589	4.372
	800.00	31.083	227.969	209.266	−21.418	14.962	−203.793	−53.527	−59.332	3.874
	900.00	31.699	231.665	211.553	−18.279	18.101	−226.778	−53.754	−60.044	3.485
	1000.00	32.297	235.036	213.735	−15.079	21.301	−250.115	−53.938	−60.732	3.172
	1100.00	32.862	238.141	215.815	−11.821	24.559	−273.776	−54.086	−61.404	2.916
	1200.00	33.388	241.023	217.797	−8.508	27.872	−297.736	−54.202	−62.064	2.702
	1300.00	33.871	243.715	219.688	−5.145	31.235	−321.974	−54.292	−62.716	2.520
	1400.00	34.311	246.242	221.495	−1.735	34.645	−346.474	−54.360	−63.361	2.364
	1500.00	34.709	248.623	223.225	1.716	38.096	−371.218	−54.411	−64.002	2.229
	1600.00	35.066	250.874	224.884	5.205	41.585	−396.194	−54.449	−64.640	2.110
	1700.00	35.385	253.010	226.476	8.728	45.108	−421.389	−54.477	−65.276	2.006
	1800.00	35.668	255.041	228.007	12.281	48.661	−446.792	−54.497	−65.911	1.913
	1900.00	35.919	256.976	229.481	15.861	52.241	−472.394	−54.513	−66.545	1.829
	2000.00	36.141	258.824	230.902	19.464	55.844	−498.185	−54.526	−67.178	1.754
	2100.00	36.337	260.592	232.274	23.088	59.468	−524.156	−54.539	−67.810	1.687
	2200.00	36.513	262.287	233.600	26.731	63.111	−550.301	−54.552	−68.441	1.625
	2300.00	36.671	263.914	234.883	30.390	66.770	−576.611	−54.567	−69.072	1.569
	2400.00	36.815	265.477	236.126	34.064	70.444	−603.081	−54.585	−69.703	1.517
	2500.00	36.949	266.983	237.330	37.753	74.133	−629.705	−54.606	−70.332	1.470
	2600.00	37.079	268.435	238.498	41.454	77.834	−656.476	−54.629	−70.961	1.426
	2700.00	37.207	269.836	239.633	45.168	81.548	−683.390	−54.656	−71.588	1.385
	2800.00	37.337	271.192	240.736	48.895	85.275	−710.442	−54.684	−72.215	1.347
	2900.00	37.475	272.504	241.809	52.636	89.016	−737.627	−54.714	−72.841	1.312
	3000.00	37.624	273.777	242.854	56.391	92.771	−764.941	−54.743	−73.465	1.279

References

Phase	H / S	C_p
GAS	Co1	Ja1

HCCN[g] DICARBON HYDRIDE-NITRIDE (GAS) 39.037

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	54.227	240.592	240.592	610.438	0.000	538.705	610.438	590.174	−103.396
	300.00	54.351	240.928	240.593	610.538	0.100	538.260	610.453	590.048	−102.736
	400.00	59.709	257.349	242.796	616.259	5.821	513.320	611.188	583.131	−76.149
	500.00	63.590	271.108	247.119	622.433	11.995	486.879	611.768	576.046	−60.179
	600.00	66.683	282.985	252.129	628.951	18.513	459.161	612.170	568.861	−49.524
	700.00	69.248	293.462	257.300	635.752	25.314	430.328	612.424	561.622	−41.909
	800.00	71.409	302.854	262.417	642.787	32.349	400.504	612.581	554.352	−36.196
	900.00	73.244	311.374	267.391	650.023	39.585	369.786	612.675	547.068	−31.751
	1000.00	74.809	319.174	272.185	657.427	46.989	338.253	612.719	539.775	−28.195
	1100.00	76.148	326.368	276.788	664.977	54.539	305.972	612.723	532.480	−25.285
	1200.00	77.302	333.045	281.201	672.651	62.213	272.997	612.692	525.187	−22.861
	1300.00	78.307	339.273	285.431	680.432	69.994	239.378	612.633	517.897	−20.809
	1400.00	79.198	345.109	289.488	688.308	77.870	205.155	612.552	510.612	−19.051
	1500.00	80.011	350.601	293.381	696.269	85.831	170.367	612.456	503.334	−17.528
	1600.00	80.672	355.785	297.120	704.302	93.864	135.045	612.345	496.063	−16.195
	1700.00	81.282	360.695	300.717	712.400	101.962	99.219	612.226	488.799	−15.019
	1800.00	81.809	365.356	304.180	720.555	110.117	62.915	612.099	481.542	−13.974
	1900.00	82.268	369.792	307.517	728.760	118.322	26.156	611.963	474.293	−13.039
	2000.00	82.673	374.022	310.737	737.007	126.569	−11.037	611.817	467.050	−12.198
	2100.00	83.032	378.064	313.848	745.293	134.855	−48.642	611.659	459.816	−11.437
	2200.00	83.351	381.935	316.855	753.612	143.174	−86.644	611.489	452.589	−10.746
	2300.00	83.638	385.646	319.766	761.962	151.524	−125.024	611.309	445.371	−10.115
	2400.00	83.897	389.211	322.586	770.339	159.901	−163.768	611.117	438.160	−9.536
	2500.00	84.131	392.641	325.320	778.741	168.303	−202.862	610.913	430.958	−9.004
	2600.00	84.343	395.945	327.973	787.164	176.726	−242.292	610.698	423.764	−8.514
	2700.00	84.537	399.132	330.550	795.609	185.171	−282.047	610.471	416.578	−8.059
	2800.00	84.713	402.209	333.055	804.071	193.633	−322.115	610.231	409.401	−7.637
	2900.00	84.875	405.185	335.491	812.551	202.113	−362.485	609.979	402.233	−7.245
	3000.00	85.023	408.065	337.862	821.046	210.608	−403.149	609.713	395.074	−6.879

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

27.026 HYDROGEN CYANIDE (GAS) **HCN[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	35.858	201.820	201.820	135.143	0.000	74.970	135.143	124.727	−21.852
	300.00	35.932	202.042	201.821	135.209	0.066	74.597	135.140	124.662	−21.706
	400.00	39.213	212.857	203.273	138.976	3.833	53.834	134.958	121.197	−15.827
	500.00	41.713	221.885	206.117	143.027	7.884	32.085	134.747	117.780	−12.304
	600.00	43.824	229.681	209.409	147.306	12.163	9.498	134.489	114.410	−9.960
	700.00	45.682	236.579	212.807	151.783	16.640	−13.822	134.198	111.086	−8.289
	800.00	47.347	242.789	216.173	156.436	21.293	−37.795	133.896	107.805	−7.039
	900.00	48.852	248.454	219.450	161.247	26.104	−62.362	133.599	104.562	−6.069
	1000.00	50.215	253.673	222.614	166.202	31.059	−87.471	133.312	101.351	−5.294
	1100.00	51.451	258.518	225.661	171.286	36.143	−113.084	133.040	98.168	−4.662
	1200.00	52.571	263.044	228.589	176.488	41.345	−139.164	132.783	95.009	−4.136
	1300.00	53.584	267.292	231.405	181.797	46.654	−165.683	132.542	91.871	−3.691
	1400.00	54.497	271.297	234.113	187.202	52.059	−192.615	132.319	88.751	−3.311
	1500.00	55.319	275.086	236.719	192.693	57.550	−219.936	132.113	85.646	−2.982
	1600.00	56.056	278.680	239.230	198.263	63.120	−247.625	131.923	82.555	−2.695
	1700.00	56.716	282.099	241.652	203.902	68.759	−275.666	131.749	79.475	−2.442
	1800.00	57.306	285.357	243.990	209.604	74.461	−304.040	131.589	76.405	−2.217
	1900.00	57.831	288.470	246.250	215.361	80.218	−332.732	131.440	73.343	−2.016
	2000.00	58.299	291.449	248.436	221.168	86.025	−361.729	131.301	70.289	−1.836
	2100.00	58.715	294.303	250.553	227.019	91.876	−391.018	131.167	67.242	−1.673
	2200.00	59.087	297.043	252.604	232.909	97.766	−420.586	131.039	64.201	−1.524
	2300.00	59.421	299.677	254.594	238.835	103.692	−450.423	130.913	61.165	−1.389
	2400.00	59.723	302.213	256.526	244.793	109.650	−480.518	130.790	58.135	−1.265
	2500.00	60.000	304.657	258.402	250.779	115.636	−510.863	130.667	55.111	−1.151
	2600.00	60.258	307.015	260.227	256.792	121.649	−541.447	130.544	52.091	−1.047
	2700.00	60.503	309.294	262.002	262.830	127.687	−572.263	130.422	49.076	−0.949
	2800.00	60.741	311.498	263.731	268.892	133.749	−603.303	130.299	46.065	−0.859
	2900.00	60.980	313.634	265.415	274.978	139.835	−634.560	130.178	43.059	−0.776
	3000.00	61.225	315.705	267.057	281.088	145.945	−666.028	130.058	40.057	−0.697

References

Phase	H / S	C_p
GAS	Ja1	Ja1

HCl[g] HYDROGEN CHLORIDE (GAS) 36.461

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	29.130	186.896	186.896	−92.312	0.000	−148.035	−92.312	−95.293	16.695
	300.00	29.141	187.076	186.896	−92.258	0.054	−148.381	−92.316	−95.311	16.595
	400.00	29.203	195.480	188.042	−89.337	2.975	−167.529	−92.581	−96.272	12.572
	500.00	29.265	201.999	190.205	−86.415	5.897	−187.415	−92.907	−97.158	10.150
	600.00	29.557	207.357	192.630	−83.476	8.836	−207.890	−93.249	−97.975	8.530
	700.00	30.002	211.945	195.070	−80.499	11.813	−228.861	−93.580	−98.737	7.368
	800.00	30.526	215.985	197.436	−77.473	14.839	−250.261	−93.883	−99.452	6.494
	900.00	31.081	219.613	199.702	−74.393	17.919	−272.044	−94.153	−100.132	5.812
	1000.00	31.638	222.916	201.861	−71.257	21.055	−294.173	−94.389	−100.783	5.264
	1100.00	32.181	225.957	203.915	−68.066	24.246	−316.618	−94.594	−101.413	4.816
	1200.00	32.697	228.780	205.871	−64.821	27.491	−339.357	−94.771	−102.025	4.441
	1300.00	33.182	231.416	207.736	−61.527	30.785	−362.368	−94.924	−102.623	4.123
	1400.00	33.632	233.892	209.516	−58.186	34.126	−385.635	−95.056	−103.210	3.851
	1500.00	34.047	236.227	211.220	−54.802	37.510	−409.142	−95.170	−103.788	3.614
	1600.00	34.426	238.436	212.853	−51.378	40.934	−432.876	−95.269	−104.359	3.407
	1700.00	34.771	240.534	214.420	−47.918	44.394	−456.825	−95.357	−104.925	3.224
	1800.00	35.083	242.530	215.926	−44.425	47.887	−480.979	−95.437	−105.485	3.061
	1900.00	35.365	244.435	217.377	−40.902	51.410	−505.328	−95.509	−106.042	2.915
	2000.00	35.618	246.255	218.776	−37.353	54.959	−529.864	−95.577	−106.594	2.784
	2100.00	35.847	247.999	220.126	−33.779	58.533	−554.577	−95.642	−107.143	2.665
	2200.00	36.052	249.671	221.431	−30.184	62.128	−579.461	−95.707	−107.689	2.557
	2300.00	36.239	251.278	222.694	−26.570	65.742	−604.509	−95.772	−108.233	2.458
	2400.00	36.409	252.824	223.918	−22.937	69.375	−629.715	−95.838	−108.773	2.367
	2500.00	36.566	254.313	225.104	−19.288	73.024	−655.072	−95.907	−109.311	2.284
	2600.00	36.713	255.751	226.255	−15.624	76.688	−680.576	−95.980	−109.845	2.207
	2700.00	36.853	257.139	227.373	−11.946	80.366	−706.220	−96.055	−110.377	2.135
	2800.00	36.990	258.481	228.461	−8.254	84.058	−732.002	−96.134	−110.906	2.069
	2900.00	37.128	259.782	229.518	−4.548	87.764	−757.915	−96.217	−111.432	2.007
	3000.00	37.269	261.043	230.548	−0.828	91.484	−783.957	−96.303	−111.956	1.949

References

Phase	H / S	C_p
GAS	Co1	Ja1

64.471 CARBON OXIDE-HYDRIDE-CHLORIDE (GAS) **HCICO**[g]

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J/(K mol)]			[kJ/mol]					[−]
GAS	298.15	44.661	259.065	259.065	−164.208	0.000	−241.448	−164.208	−156.412	27.403
	300.00	44.782	259.342	259.066	−164.125	0.083	−241.928	−164.226	−156.364	27.225
	400.00	50.546	273.046	260.895	−159.348	4.860	−268.566	−165.158	−153.599	20.058
	500.00	55.239	284.846	264.532	−154.051	10.157	−296.474	−165.969	−150.613	15.734
	600.00	59.165	295.274	268.803	−148.325	15.883	−325.490	−166.685	−147.473	12.839
	700.00	62.466	304.650	273.265	−142.239	21.969	−355.494	−167.311	−144.221	10.762
	800.00	65.236	313.177	277.729	−135.850	28.358	−386.392	−167.844	−140.884	9.199
	900.00	67.552	320.999	282.109	−129.207	35.001	−418.106	−168.286	−137.487	7.980
	1000.00	69.483	328.219	286.363	−122.352	41.856	−450.571	−168.654	−134.045	7.002
	1100.00	71.093	334.919	290.477	−115.321	48.887	−483.732	−168.963	−130.568	6.200
	1200.00	72.445	341.165	294.443	−108.142	56.066	−517.540	−169.225	−127.066	5.531
	1300.00	73.600	347.010	298.265	−100.838	63.370	−551.952	−169.452	−123.543	4.964
	1400.00	74.619	352.503	301.945	−93.427	70.781	−586.930	−169.648	−120.004	4.477
	1500.00	75.563	357.683	305.489	−85.917	78.291	−622.442	−169.817	−116.452	4.055
	1600.00	76.278	362.581	308.906	−78.327	85.881	−658.458	−169.968	−112.890	3.685
	1700.00	76.943	367.226	312.201	−70.665	93.543	−694.950	−170.105	−109.318	3.359
	1800.00	77.513	371.641	315.382	−62.942	101.266	−731.895	−170.232	−105.739	3.068
	1900.00	78.007	375.845	318.454	−55.165	109.043	−769.271	−170.355	−102.152	2.808
	2000.00	78.439	379.858	321.425	−47.342	116.866	−807.058	−170.478	−98.559	2.574
	2100.00	78.819	383.694	324.299	−39.479	124.729	−845.237	−170.605	−94.960	2.362
	2200.00	79.156	387.369	327.083	−31.580	132.628	−883.791	−170.740	−91.355	2.169
	2300.00	79.456	390.894	329.782	−23.649	140.559	−922.706	−170.883	−87.744	1.993
	2400.00	79.725	394.281	332.399	−15.690	148.518	−961.965	−171.037	−84.126	1.831
	2500.00	79.967	397.541	334.940	−7.705	156.503	−1001.558	−171.203	−80.501	1.682
	2600.00	80.186	400.682	337.408	0.303	164.511	−1041.470	−171.383	−76.869	1.544
	2700.00	80.385	403.712	339.808	8.331	172.539	−1081.690	−171.577	−73.231	1.417
	2800.00	80.565	406.638	342.143	16.379	180.587	−1122.209	−171.788	−69.584	1.298
	2900.00	80.729	409.468	344.416	24.444	188.652	−1163.015	−172.015	−65.930	1.188
	3000.00	80.879	412.208	346.630	32.524	196.732	−1204.099	−172.260	−62.268	1.084

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

HF[g] HYDROGEN FLUORIDE (GAS) 20.006

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	29.131	173.779	173.779	−272.546	0.000	−324.358	−272.546	−274.645	48.117
	300.00	29.139	173.959	173.779	−272.492	0.054	−324.680	−272.548	−274.658	47.822
	400.00	29.180	182.357	174.924	−269.573	2.973	−342.516	−272.688	−275.343	35.956
	500.00	29.139	188.862	177.086	−266.658	5.888	−361.089	−272.916	−275.982	28.832
	600.00	29.205	194.179	179.505	−263.741	8.805	−380.249	−273.201	−276.570	24.078
	700.00	29.361	198.692	181.932	−260.814	11.732	−399.898	−273.517	−277.106	20.678
	800.00	29.582	202.626	184.278	−257.867	14.679	−419.968	−273.850	−277.597	18.125
	900.00	29.847	206.126	186.514	−254.896	17.650	−440.409	−274.190	−278.045	16.137
	1000.00	30.142	209.285	188.636	−251.897	20.649	−461.182	−274.532	−278.455	14.545
	1100.00	30.516	212.178	190.647	−248.862	23.684	−482.257	−274.870	−278.830	13.241
	1200.00	30.934	214.850	192.554	−245.790	26.756	−503.610	−275.202	−279.176	12.152
	1300.00	31.384	217.344	194.366	−242.674	29.872	−525.221	−275.519	−279.494	11.230
	1400.00	31.832	219.686	196.091	−239.513	33.033	−547.074	−275.822	−279.788	10.439
	1500.00	32.261	221.897	197.739	−236.308	36.238	−569.154	−276.110	−280.061	9.753
	1600.00	32.666	223.992	199.315	−233.062	39.484	−591.450	−276.384	−280.316	9.151
	1700.00	33.044	225.984	200.825	−229.776	42.770	−613.949	−276.646	−280.553	8.620
	1800.00	33.396	227.883	202.276	−226.454	46.092	−636.643	−276.897	−280.776	8.148
	1900.00	33.724	229.698	203.672	−223.098	49.448	−659.523	−277.138	−280.985	7.725
	2000.00	34.030	231.435	205.017	−219.710	52.836	−682.580	−277.372	−281.181	7.344
	2100.00	34.316	233.103	206.315	−216.292	56.254	−705.808	−277.598	−281.366	6.999
	2200.00	34.584	234.705	207.569	−212.847	59.699	−729.199	−277.817	−281.541	6.685
	2300.00	34.836	236.248	208.783	−209.376	63.170	−752.747	−278.031	−281.705	6.398
	2400.00	35.075	237.736	209.959	−205.880	66.666	−776.446	−278.240	−281.860	6.135
	2500.00	35.301	239.172	211.098	−202.362	70.184	−800.292	−278.444	−282.007	5.892
	2600.00	35.516	240.561	212.205	−198.821	73.725	−824.279	−278.644	−282.145	5.668
	2700.00	35.721	241.905	213.280	−195.259	77.287	−848.403	−278.839	−282.276	5.461
	2800.00	35.917	243.208	214.326	−191.677	80.869	−872.659	−279.031	−282.400	5.268
	2900.00	36.105	244.472	215.344	−188.076	84.470	−897.043	−279.220	−282.517	5.089
	3000.00	36.287	245.699	216.335	−184.456	88.090	−921.552	−279.406	−282.628	4.921

References

Phase	H / S	C_p
GAS	Ja1,Nb1	Ja1

48.017 CARBON OXIDE-HYDRIDE-FLUORIDE (GAS) **HFCO**[g]

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol		]	[−]
GAS	298.15	40.478	246.824	246.824	−374.586	0.000	−448.177	−374.586	−366.170	64.151
	300.00	40.595	247.075	246.825	−374.511	0.075	−448.633	−374.610	−366.118	63.747
	400.00	46.551	259.587	248.490	−370.148	4.438	−473.982	−375.828	−363.100	47.416
	500.00	51.750	270.547	251.827	−365.226	9.360	−500.500	−376.911	−359.790	37.587
	600.00	56.210	280.387	255.781	−359.822	14.764	−528.054	−377.868	−356.273	31.016
	700.00	59.990	289.344	259.945	−354.007	20.579	−556.548	−378.702	−352.607	26.312
	800.00	63.161	297.568	264.141	−347.845	26.741	−585.899	−379.411	−348.829	22.776
	900.00	65.798	305.164	268.283	−341.392	33.194	−616.040	−380.006	−344.969	20.021
	1000.00	67.979	312.213	272.327	−334.700	39.886	−646.913	−380.506	−341.049	17.815
	1100.00	69.781	318.780	276.255	−327.809	46.777	−678.467	−380.931	−337.082	16.007
	1200.00	71.283	324.918	280.058	−320.754	53.832	−710.655	−381.299	−333.079	14.499
	1300.00	72.563	330.675	283.732	−313.560	61.026	−743.438	−381.622	−329.047	13.221
	1400.00	73.701	336.095	287.281	−306.246	68.340	−776.779	−381.907	−324.992	12.126
	1500.00	74.776	341.217	290.707	−298.822	75.764	−810.647	−382.156	−320.918	11.175
	1600.00	75.557	346.065	294.017	−291.309	83.277	−845.013	−382.380	−316.828	10.343
	1700.00	76.294	350.669	297.215	−283.715	90.871	−879.852	−382.584	−312.725	9.609
	1800.00	76.926	355.048	300.307	−276.053	98.533	−915.139	−382.774	−308.610	8.956
	1900.00	77.473	359.222	303.299	−268.333	106.253	−950.854	−382.956	−304.484	8.371
	2000.00	77.951	363.208	306.196	−260.561	114.025	−986.977	−383.134	−300.350	7.844
	2100.00	78.371	367.022	309.002	−252.745	121.841	−1023.490	−383.313	−296.206	7.368
	2200.00	78.744	370.676	311.723	−244.888	129.698	−1060.376	−383.496	−292.054	6.934
	2300.00	79.076	374.184	314.363	−236.997	137.589	−1097.621	−383.684	−287.893	6.538
	2400.00	79.373	377.556	316.926	−229.074	145.512	−1135.209	−383.880	−283.724	6.175
	2500.00	79.641	380.802	319.417	−221.124	153.462	−1173.128	−384.085	−279.547	5.841
	2600.00	79.882	383.930	321.838	−213.147	161.439	−1211.365	−384.300	−275.361	5.532
	2700.00	80.101	386.949	324.194	−205.148	169.438	−1249.910	−384.528	−271.167	5.246
	2800.00	80.301	389.866	326.488	−197.128	177.458	−1288.751	−384.768	−266.964	4.980
	2900.00	80.482	392.687	328.722	−189.088	185.498	−1327.880	−385.022	−262.752	4.733
	3000.00	80.648	395.418	330.900	−181.032	193.554	−1367.286	−385.291	−258.532	4.501

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

HI[g] HYDROGEN IODIDE (GAS) 127.912

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	29.170	206.590	206.590	26.359	0.000	−35.236	26.359	1.559	−0.273
	300.00	29.164	206.770	206.590	26.413	0.054	−35.618	26.336	1.405	−0.245
	400.00	29.252	215.157	207.733	29.328	2.969	−56.734	16.979	−6.428	0.839
	500.00	29.759	221.734	209.898	32.277	5.918	−78.590	−5.631	−10.085	1.054
	600.00	30.419	227.217	212.340	35.285	8.926	−101.045	−5.962	−10.944	0.953
	700.00	31.121	231.959	214.811	38.362	12.003	−124.009	−6.236	−11.751	0.877
	800.00	31.813	236.160	217.222	41.509	15.150	−147.419	−6.451	−12.524	0.818
	900.00	32.471	239.945	219.540	44.724	18.365	−171.227	−6.614	−13.273	0.770
	1000.00	33.085	243.399	221.756	48.002	21.643	−195.397	−6.732	−14.006	0.732
	1100.00	33.648	246.579	223.870	51.339	24.980	−219.898	−6.811	−14.729	0.699
	1200.00	34.160	249.529	225.887	54.730	28.371	−244.705	−6.860	−15.446	0.672
	1300.00	34.621	252.282	227.812	58.169	31.810	−269.797	−6.885	−16.161	0.649
	1400.00	35.034	254.863	229.653	61.652	35.293	−295.156	−6.891	−16.874	0.630
	1500.00	35.400	257.293	231.416	65.174	38.815	−320.764	−6.883	−17.587	0.612
	1600.00	35.723	259.588	233.105	68.731	42.372	−346.610	−6.865	−18.301	0.597
	1700.00	36.007	261.762	234.728	72.318	45.959	−372.678	−6.841	−19.017	0.584
	1800.00	36.255	263.827	236.287	75.931	49.572	−398.958	−6.814	−19.734	0.573
	1900.00	36.471	265.794	237.789	79.568	53.209	−425.440	−6.785	−20.452	0.562
	2000.00	36.661	267.669	239.237	83.224	56.865	−452.114	−6.759	−21.172	0.553
	2100.00	36.827	269.462	240.633	86.899	60.540	−478.971	−6.735	−21.894	0.545
	2200.00	36.973	271.179	241.983	90.589	64.230	−506.004	−6.715	−22.616	0.537
	2300.00	37.106	272.825	243.289	94.293	67.934	−533.205	−6.700	−23.339	0.530
	2400.00	37.227	274.407	244.552	98.010	71.651	−560.567	−6.690	−24.063	0.524
	2500.00	37.343	275.929	245.777	101.738	75.379	−588.084	−6.686	−24.787	0.518
	2600.00	37.457	277.396	246.965	105.478	79.119	−615.751	−6.687	−25.511	0.513
	2700.00	37.573	278.812	248.119	109.230	82.871	−643.561	−6.693	−26.235	0.508
	2800.00	37.697	280.180	249.239	112.993	86.634	−671.511	−6.703	−26.958	0.503
	2900.00	37.832	281.505	250.329	116.770	90.411	−699.596	−6.714	−27.682	0.499
	3000.00	37.984	282.790	251.390	120.560	94.201	−727.811	−6.726	−28.404	0.495

References

Phase	H / S	C_p
GAS	Co1	Ja1

27.026 NITROGEN HYDRIDE-CARBIDE (GAS) **HNC**[g]

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[-]
GAS	298.15	40.038	205.207	205.207	194.328	0.000	133.146	194.328	182.902	-32.044
	300.00	40.093	205.455	205.208	194.402	0.074	132.766	194.333	182.831	-31.834
	400.00	42.467	217.338	206.812	198.538	4.210	111.603	194.520	178.966	-23.371
	500.00	44.208	227.008	209.914	202.875	8.547	89.371	194.595	175.067	-18.289
	600.00	45.690	235.202	213.463	207.372	13.044	66.250	194.555	171.163	-14.901
	700.00	47.034	242.348	217.089	212.009	17.681	42.366	194.424	167.273	-12.482
	800.00	48.285	248.711	220.651	216.775	22.447	17.807	194.235	163.407	-10.669
	900.00	49.458	254.466	224.094	221.663	27.335	-7.356	194.015	159.567	-9.261
	1000.00	50.559	259.735	227.398	226.665	32.337	-33.070	193.775	155.752	-8.136
	1100.00	51.585	264.602	230.562	231.773	37.445	-59.290	193.526	151.962	-7.216
	1200.00	52.530	269.132	233.589	236.979	42.651	-85.979	193.273	148.194	-6.451
	1300.00	53.388	273.371	236.488	242.276	47.948	-113.107	193.021	144.448	-5.804
	1400.00	54.151	277.356	239.266	247.653	53.325	-140.645	192.770	140.721	-5.250
	1500.00	54.811	281.115	241.932	253.102	58.774	-168.570	192.522	137.012	-4.771
	1600.00	55.454	284.673	244.493	258.615	64.287	-196.861	192.276	133.319	-4.352
	1700.00	56.031	288.052	246.957	264.190	69.862	-225.499	192.037	129.642	-3.983
	1800.00	56.537	291.270	249.330	269.819	75.491	-254.466	191.804	125.978	-3.656
	1900.00	56.984	294.339	251.619	275.496	81.168	-283.748	191.575	122.327	-3.363
	2000.00	57.383	297.272	253.829	281.214	86.886	-313.330	191.347	118.689	-3.100
	2100.00	57.741	300.081	255.965	286.971	92.643	-343.198	191.119	115.061	-2.862
	2200.00	58.064	302.774	258.032	292.761	98.433	-373.342	190.891	111.445	-2.646
	2300.00	58.356	305.362	260.034	298.583	104.255	-403.750	190.661	107.839	-2.449
	2400.00	58.623	307.851	261.975	304.432	110.104	-434.411	190.429	104.243	-2.269
	2500.00	58.866	310.249	263.858	310.306	115.978	-465.317	190.194	100.657	-2.103
	2600.00	59.089	312.562	265.687	316.204	121.876	-496.458	189.956	97.080	-1.950
	2700.00	59.293	314.796	267.465	322.123	127.795	-527.827	189.715	93.512	-1.809
	2800.00	59.481	316.956	269.194	328.062	133.734	-559.415	189.469	89.954	-1.678
	2900.00	59.654	319.046	270.877	334.019	139.691	-591.216	189.219	86.404	-1.556
	3000.00	59.814	321.072	272.517	339.993	145.665	-623.222	188.963	82.863	-1.443

Referenzen

Phase	H/S	Cp
GAS	Tp1	Tp1

HNCO[g] ISOCYANIC ACID (GAS) 43.025

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	45.041	238.179	238.179	−101.671	0.000	−172.684	−101.671	−92.345	16.178
	300.00	45.157	238.458	238.180	−101.588	0.083	−173.125	−101.684	−92.287	16.069
	400.00	50.728	252.247	240.022	−96.781	4.890	−197.680	−102.312	−89.055	11.629
	500.00	55.004	264.046	243.675	−91.485	10.186	−223.509	−102.808	−85.682	8.951
	600.00	58.409	274.386	247.949	−85.809	15.862	−250.441	−103.248	−82.215	7.157
	700.00	61.229	283.608	252.397	−79.823	21.848	−278.349	−103.658	−78.677	5.871
	800.00	63.629	291.945	256.827	−73.577	28.094	−307.133	−104.035	−75.082	4.902
	900.00	65.703	299.562	261.158	−67.108	34.563	−336.714	−104.377	−71.442	4.146
	1000.00	67.512	306.580	265.354	−60.445	41.226	−367.025	−104.686	−67.766	3.540
	1100.00	69.099	313.091	269.401	−53.613	48.058	−398.013	−104.966	−64.060	3.042
	1200.00	70.494	319.164	273.298	−46.632	55.039	−429.629	−105.218	−60.330	2.626
	1300.00	71.722	324.856	277.047	−39.520	62.151	−461.833	−105.447	−56.580	2.273
	1400.00	72.803	330.212	280.656	−32.292	69.379	−494.589	−105.654	−52.813	1.970
	1500.00	73.754	335.268	284.129	−24.964	76.707	−527.865	−105.843	−49.032	1.707
	1600.00	74.592	340.055	287.476	−17.545	84.126	−561.633	−106.018	−45.238	1.477
	1700.00	75.332	344.600	290.704	−10.048	91.623	−595.868	−106.180	−41.435	1.273
	1800.00	75.987	348.925	293.819	−2.482	99.189	−630.546	−106.333	−37.622	1.092
	1900.00	76.571	353.049	296.829	5.147	106.818	−665.646	−106.481	−33.800	0.929
	2000.00	77.098	356.990	299.739	12.830	114.501	−701.150	−106.624	−29.971	0.783
	2100.00	77.548	360.763	302.556	20.563	122.234	−737.039	−106.769	−26.135	0.650
	2200.00	77.961	364.380	305.285	28.339	130.010	−773.297	−106.917	−22.292	0.529
	2300.00	78.332	367.854	307.930	36.154	137.825	−809.910	−107.068	−18.442	0.419
	2400.00	78.668	371.195	310.497	44.004	145.675	−846.863	−107.226	−14.585	0.317
	2500.00	78.973	374.412	312.989	51.886	153.557	−884.145	−107.390	−10.722	0.224
	2600.00	79.250	377.515	315.412	59.797	161.468	−921.742	−107.562	−6.852	0.138
	2700.00	79.503	380.511	317.768	67.735	169.406	−959.644	−107.744	−2.975	0.058
	2800.00	79.736	383.406	320.061	75.697	177.368	−997.841	−107.935	0.909	−0.017
	2900.00	79.950	386.208	322.294	83.682	185.353	−1036.322	−108.137	4.800	−0.086
	3000.00	80.148	388.922	324.469	91.687	193.358	−1075.079	−108.350	8.697	−0.151

References

Phase	H / S	C_p
GAS	Ja1	Ja1

63.013 NITRIC ACID (GAS) **HNO3[g]**

Phase	T [K]	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
GAS	298.15	53.495	266.475	266.475	−134.306	0.000	−213.756	−134.306	−73.964	12.958
	300.00	53.596	266.807	266.476	−134.207	0.099	−214.249	−134.342	−73.589	12.813
	400.00	62.603	283.378	268.674	−128.424	5.882	−241.776	−135.928	−53.077	6.931
	500.00	71.135	298.307	273.132	−121.718	12.588	−270.872	−136.741	−32.256	3.370
	600.00	77.415	311.862	278.476	−114.274	20.032	−301.391	−136.992	−11.328	0.986
	700.00	82.012	324.159	284.138	−106.291	28.015	−333.202	−136.882	9.611	−0.717
	800.00	85.480	335.347	289.850	−97.909	36.397	−366.186	−136.536	30.518	−1.993
	900.00	88.194	345.577	295.482	−89.220	45.086	−400.240	−136.031	51.370	−2.981
	1000.00	90.391	354.987	300.968	−80.287	54.019	−435.274	−135.413	72.161	−3.769
	1100.00	92.227	363.691	306.280	−71.154	63.152	−471.214	−134.711	92.885	−4.411
	1200.00	93.803	371.785	311.405	−61.851	72.455	−507.992	−133.945	113.542	−4.942
	1300.00	95.188	379.349	316.344	−52.400	81.906	−545.553	−133.126	134.133	−5.390
	1400.00	96.429	386.449	321.100	−42.818	91.488	−583.846	−132.263	154.659	−5.770
	1500.00	97.561	393.141	325.682	−33.117	101.189	−622.829	−131.363	175.122	−6.098
	1600.00	98.608	399.471	330.098	−23.308	110.998	−662.463	−130.429	195.524	−6.383
	1700.00	99.588	405.479	334.357	−13.398	120.908	−702.713	−129.466	215.867	−6.633
	1800.00	100.514	411.198	338.468	−3.393	130.913	−743.549	−128.476	236.152	−6.853
	1900.00	101.397	416.656	342.441	6.703	141.009	−784.944	−127.461	256.382	−7.048
	2000.00	102.245	421.879	346.283	16.886	151.192	−826.872	−126.422	276.557	−7.223
	2100.00	103.064	426.887	350.003	27.151	161.457	−869.312	−125.359	296.680	−7.380
	2200.00	103.858	431.700	353.608	37.498	171.804	−912.243	−124.275	316.752	−7.521

References

Phase	H / S	C_p
GAS	Ja1	Ja1

18.015 WATER **H2O**

Phase	T [K]	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
LIQ	298.15	75.288	69.950	69.950	−285.830	0.000	−306.686	−285.830	−237.141	41.546
	300.00	75.280	70.416	69.951	−285.691	0.139	−306.815	−285.771	−236.839	41.237
	373.15	75.946	86.881	71.713	−280.170	5.660	−312.590	−283.456	−225.169	31.520

References

Phase	H / S	C_p	Remarks
LIQ	Co1	La1	NBPT= 373.15; BPT= 372.778, L= 40.893 kJ

H2O[g] WATER (GAS) 18.015

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	33.590	188.959	188.959	−241.826	0.000	−298.164	−241.826	−228.620	40.053
	300.00	33.596	189.167	188.960	−241.764	0.062	−298.514	−241.844	−228.538	39.792
	400.00	34.261	198.910	190.284	−238.375	3.451	−317.939	−242.847	−223.951	29.245
	500.00	35.230	206.656	192.809	−234.902	6.924	−338.230	−243.826	−219.113	22.891
	600.00	36.322	213.174	195.673	−231.326	10.500	−359.230	−244.758	−214.081	18.637
	700.00	37.494	218.860	198.588	−227.635	14.191	−380.838	−245.633	−208.898	15.588
	800.00	38.723	223.947	201.445	−223.825	18.001	−402.982	−246.444	−203.595	13.293
	900.00	39.988	228.580	204.207	−219.889	21.937	−425.612	−247.186	−198.193	11.503
	1000.00	41.267	232.860	206.861	−215.827	25.999	−448.687	−247.858	−192.713	10.066
	1100.00	42.535	236.853	209.408	−211.636	30.190	−472.174	−248.461	−187.168	8.888
	1200.00	43.769	240.607	211.853	−207.321	34.505	−496.049	−248.998	−181.572	7.904
	1300.00	44.943	244.157	214.202	−202.885	38.941	−520.289	−249.475	−175.934	7.069
	1400.00	46.055	247.529	216.463	−198.334	43.492	−544.875	−249.895	−170.260	6.352
	1500.00	47.091	250.742	218.642	−193.676	48.150	−569.789	−250.266	−164.559	5.730
	1600.00	48.050	253.812	220.745	−188.919	52.907	−595.018	−250.593	−158.834	5.185
	1700.00	48.934	256.752	222.777	−184.069	57.757	−620.548	−250.882	−153.090	4.704
	1800.00	49.747	259.572	224.744	−179.134	62.692	−646.365	−251.139	−147.330	4.275
	1900.00	50.496	262.282	226.649	−174.122	67.704	−672.458	−251.369	−141.557	3.892
	2000.00	51.185	264.890	228.496	−169.037	72.789	−698.818	−251.576	−135.772	3.546
	2100.00	51.821	267.403	230.289	−163.886	77.940	−725.433	−251.763	−129.977	3.233
	2200.00	52.407	269.828	232.032	−158.675	83.151	−752.296	−251.935	−124.173	2.948
	2300.00	52.947	272.169	233.726	−153.407	88.419	−779.396	−252.093	−118.363	2.688
	2400.00	53.445	274.433	235.375	−148.087	93.739	−806.727	−252.241	−112.545	2.449
	2500.00	53.904	276.625	236.982	−142.719	99.107	−834.280	−252.381	−106.721	2.230
	2600.00	54.329	278.747	238.547	−137.307	104.519	−862.049	−252.515	−100.892	2.027
	2700.00	54.722	280.805	240.075	−131.854	109.972	−890.028	−252.644	−95.058	1.839
	2800.00	55.088	282.802	241.565	−126.363	115.463	−918.208	−252.772	−89.219	1.664
	2900.00	55.429	284.741	243.021	−120.837	120.989	−946.586	−252.898	−83.376	1.502
	3000.00	55.747	286.625	244.443	−115.278	126.548	−975.155	−253.025	−77.528	1.350
	3100.00	56.044	288.458	245.833	−109.689	132.137	−1003.909	−253.153	−71.676	1.208
	3200.00	56.323	290.242	247.193	−104.070	137.756	−1032.845	−253.284	−65.820	1.074
	3300.00	56.584	291.979	248.524	−98.425	143.401	−1061.956	−253.417	−59.960	0.949
	3400.00	56.830	293.672	249.827	−92.754	149.072	−1091.239	−253.555	−54.095	0.831
	3500.00	57.060	295.323	251.104	−87.059	154.767	−1120.689	−253.697	−48.227	0.720
	3600.00	57.278	296.933	252.355	−81.342	160.484	−1150.302	−253.844	−42.354	0.615
	3700.00	57.483	298.506	253.581	−75.604	166.222	−1180.075	−253.998	−36.477	0.515
	3800.00	57.676	300.041	254.783	−69.846	171.980	−1210.002	−254.158	−30.596	0.421
	3900.00	57.859	301.542	255.963	−64.069	177.757	−1240.082	−254.325	−24.711	0.331
	4000.00	58.033	303.009	257.121	−58.275	183.551	−1270.309	−254.501	−18.821	0.246
	4100.00	58.197	304.444	258.258	−52.463	189.363	−1300.682	−254.684	−12.927	0.165
	4200.00	58.354	305.848	259.374	−46.635	195.191	−1331.197	−254.877	−7.028	0.087
	4300.00	58.503	307.223	260.471	−40.793	201.033	−1361.851	−255.078	−1.125	0.014
	4400.00	58.645	308.569	261.549	−34.935	206.891	−1392.641	−255.289	4.784	−0.057
	4500.00	58.782	309.889	262.608	−29.064	212.762	−1423.564	−255.510	10.697	−0.124
	4600.00	58.914	311.182	263.650	−23.179	218.647	−1454.618	−255.740	16.615	−0.189
	4700.00	59.041	312.451	264.675	−17.281	224.545	−1485.800	−255.981	22.538	−0.250
	4800.00	59.164	313.695	265.684	−11.371	230.455	−1517.107	−256.232	28.467	−0.310
	4900.00	59.285	314.916	266.676	−5.448	236.378	−1548.538	−256.493	34.401	−0.367
	5000.00	59.402	316.115	267.653	0.486	242.312	−1580.090	−256.764	40.340	−0.421

References

Phase	H / S	C_p
GAS	Co1,e	Ja2

34.015 HYDROGEN PEROXIDE **H2O2**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
LIQ	298.15	89.098	109.600	109.600	-187.778	0.000	-220.455	-187.778	-120.328	21.081
	300.00	89.098	110.151	109.602	-187.613	0.165	-220.658	-187.721	-119.910	20.878
	400.00	89.098	135.783	113.096	-178.703	9.075	-233.017	-184.688	-97.766	12.767
	500.00	89.098	155.665	119.696	-169.794	17.984	-247.626	-181.760	-76.377	7.979

References

Phase	H / S	C_p
LIQ	Nb1	Nb1

34.015 HYDROGEN PEROXIDE (GAS) **H2O2[g]**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	43.124	232.991	232.991	-136.106	0.000	-205.572	-136.106	-105.445	18.474
	300.00	43.214	233.258	232.992	-136.026	0.080	-206.004	-136.134	-105.255	18.327
	400.00	48.432	246.410	234.749	-131.442	4.664	-230.006	-137.427	-94.756	12.374
	500.00	52.601	257.690	238.236	-126.379	9.727	-255.224	-138.345	-83.975	8.773
	600.00	55.649	267.563	242.318	-120.959	15.147	-281.497	-139.014	-73.035	6.358
	700.00	57.976	276.323	246.562	-115.273	20.833	-308.699	-139.521	-61.997	4.626
	800.00	59.855	284.191	250.782	-109.379	26.727	-336.732	-139.916	-50.894	3.323
	900.00	61.452	291.336	254.897	-103.311	32.795	-365.514	-140.229	-39.746	2.307
	1000.00	62.861	297.885	258.873	-97.095	39.011	-394.979	-140.477	-28.568	1.492
	1100.00	64.137	303.937	262.698	-90.744	45.362	-425.074	-140.674	-17.367	0.825
	1200.00	65.310	309.568	266.372	-84.271	51.835	-455.753	-140.829	-6.150	0.268
	1300.00	66.396	314.839	269.900	-77.685	58.421	-486.976	-140.946	5.078	-0.204
	1400.00	67.402	319.797	273.289	-70.994	65.112	-518.710	-141.033	16.314	-0.609
	1500.00	68.328	324.479	276.547	-64.207	71.899	-550.926	-141.095	27.556	-0.960

References

Phase	H / S	C_p
GAS	Ja1	Ja1

HDO[g] WATER–D1 (GAS) 19.021

Phase	T	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[–]
GAS	298.15	33.786	199.511	199.511	–245.371	0.000	–304.855	–245.371	–233.182	40.852
	300.00	33.798	199.720	199.512	–245.308	0.063	–305.224	–245.389	–233.106	40.587
	400.00	34.773	209.566	200.848	–241.884	3.487	–325.710	–246.364	–228.864	29.887
	500.00	36.045	217.458	203.405	–238.344	7.027	–347.073	–247.280	–224.381	23.441
	600.00	37.451	224.153	206.318	–234.670	10.701	–369.162	–248.124	–219.721	19.128
	700.00	38.920	230.036	209.295	–230.852	14.519	–391.877	–248.893	–214.925	16.038
	800.00	40.406	235.330	212.223	–226.886	18.485	–415.150	–249.583	–210.025	13.713
	900.00	41.872	240.174	215.064	–222.772	22.599	–438.928	–250.198	–205.042	11.900
	1000.00	43.283	244.659	217.802	–218.513	26.858	–463.173	–250.740	–199.995	10.447
	1100.00	44.621	248.848	220.436	–214.117	31.254	–487.850	–251.214	–194.897	9.255
	1200.00	45.873	252.785	222.969	–209.592	35.779	–512.934	–251.627	–189.759	8.260
	1300.00	47.029	256.503	225.407	–204.946	40.425	–538.400	–251.984	–184.588	7.417
	1400.00	48.087	260.028	227.755	–200.189	45.182	–564.228	–252.293	–179.392	6.693
	1500.00	49.054	263.379	230.019	–195.332	50.039	–590.400	–252.559	–174.175	6.065
	1600.00	49.934	266.573	232.205	–190.382	54.989	–616.898	–252.789	–168.942	5.515
	1700.00	50.734	269.625	234.317	–185.347	60.024	–643.709	–252.989	–163.696	5.030
	1800.00	51.463	272.546	236.360	–180.237	65.134	–670.819	–253.162	–158.438	4.598
	1900.00	52.126	275.346	238.339	–175.057	70.314	–698.215	–253.314	–153.171	4.211
	2000.00	52.730	278.035	240.257	–169.814	75.557	–725.885	–253.448	–147.897	3.863
	2100.00	53.281	280.622	242.118	–164.513	80.858	–753.818	–253.569	–142.616	3.547
	2200.00	53.784	283.112	243.925	–159.159	86.212	–782.006	–253.678	–137.330	3.261
	2300.00	54.245	285.513	245.681	–153.757	91.614	–810.438	–253.779	–132.040	2.999
	2400.00	54.669	287.831	247.389	–148.312	97.059	–839.106	–253.873	–126.745	2.759
	2500.00	55.061	290.071	249.052	–142.825	102.546	–868.001	–253.964	–121.446	2.537
	2600.00	55.420	292.237	250.672	–137.300	108.071	–897.117	–254.052	–116.143	2.333
	2700.00	55.753	294.335	252.250	–131.742	113.629	–926.446	–254.139	–110.837	2.144
	2800.00	56.062	296.368	253.790	–126.151	119.220	–955.982	–254.226	–105.528	1.969
	2900.00	56.349	298.341	255.292	–120.530	124.841	–985.718	–254.316	–100.216	1.805
	3000.00	56.617	300.256	256.759	–114.881	130.490	–1015.648	–254.408	–94.901	1.652
	3100.00	56.868	302.116	258.192	–109.207	136.164	–1045.767	–254.503	–89.582	1.509
	3200.00	57.103	303.925	259.593	–103.508	141.863	–1076.070	–254.603	–84.261	1.375
	3300.00	57.324	305.686	260.964	–97.787	147.584	–1106.551	–254.708	–78.936	1.249
	3400.00	57.531	307.400	262.304	–92.044	153.327	–1137.206	–254.818	–73.608	1.131
	3500.00	57.727	309.071	263.617	–86.281	159.090	–1168.029	–254.935	–68.276	1.019
	3600.00	57.912	310.700	264.902	–80.499	164.872	–1199.018	–255.059	–62.942	0.913
	3700.00	58.086	312.289	266.161	–74.699	170.672	–1230.168	–255.190	–57.603	0.813
	3800.00	58.252	313.840	267.396	–68.882	176.489	–1261.475	–255.329	–52.261	0.718
	3900.00	58.409	315.355	268.606	–63.049	182.322	–1292.935	–255.476	–46.915	0.628
	4000.00	58.558	316.836	269.793	–57.201	188.170	–1324.545	–255.632	–41.566	0.543
	4100.00	58.700	318.284	270.959	–51.338	194.033	–1356.301	–255.796	–36.212	0.461
	4200.00	58.836	319.700	272.102	–45.461	199.910	–1388.201	–255.971	–30.854	0.384
	4300.00	58.965	321.086	273.225	–39.571	205.800	–1420.240	–256.155	–25.492	0.310
	4400.00	59.089	322.443	274.329	–33.668	211.703	–1452.417	–256.349	–20.126	0.239
	4500.00	59.208	323.772	275.413	–27.753	217.618	–1484.728	–256.554	–14.755	0.171
	4600.00	59.322	325.075	276.478	–21.826	223.545	–1517.170	–256.769	–9.379	0.107
	4700.00	59.432	326.352	277.526	–15.889	229.482	–1549.742	–256.995	–3.999	0.044
	4800.00	59.537	327.604	278.556	–9.940	235.431	–1582.440	–257.231	1.387	–0.015
	4900.00	59.639	328.833	279.570	–3.981	241.390	–1615.262	–257.479	6.777	–0.072
	5000.00	59.738	330.039	280.567	1.988	247.359	–1648.206	–257.738	12.173	–0.127

References

Phase	H / S	C_p
GAS	Ja2	Ja2

97.995 PHOSPHORIC ACID **H3PO4**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	106.064	110.499	110.499	−1278.999	0.000	−1311.944	−1278.999	−1118.927	196.031
	300.00	106.608	111.157	110.501	−1278.802	0.197	−1312.149	−1279.035	−1117.934	194.650
	315.50	111.165	116.641	110.669	−1277.115	1.884	−1313.915	−1279.303	−1109.603	183.707
			42.437		13.389					
LIQ	315.50	150.273	159.079	110.669	−1263.726	15.273	−1313.915	−1265.914	−1109.603	183.707
	400.00	175.728	197.640	125.023	−1249.952	29.047	−1329.008	−1263.737	−1067.872	139.450
	500.00	205.853	240.089	143.837	−1230.873	48.126	−1350.918	−1257.793	−1019.535	106.510
	600.00	235.978	280.283	163.254	−1208.781	70.218	−1376.952	−1249.046	−972.659	84.677
	700.00	266.102	318.922	182.748	−1183.677	95.322	−1406.923	−1237.491	−927.469	69.209
	800.00	296.227	356.421	202.124	−1155.561	123.438	−1440.698	−1223.110	−884.128	57.728
	900.00	326.352	393.051	221.310	−1124.432	154.567	−1478.178	−1205.887	−842.760	48.912
	1000.00	356.477	428.995	240.286	−1090.291	188.708	−1519.285	−1185.807	−803.462	41.969

References

Phase	H / S	C_p
SOL	Nb1	Ja1
LIQ	Ja1	Ja1

HS[g] HYDROGEN MONOSULFIDE (GAS) 33.074

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	32.447	195.629	195.629	139.327	0.000	81.000	139.327	110.039	−19.278
	300.00	32.434	195.830	195.630	139.387	0.060	80.638	139.318	109.857	−19.128
	400.00	31.707	205.057	196.893	142.593	3.266	60.570	136.490	100.211	−13.086
	500.00	31.283	212.080	199.256	145.739	6.412	39.699	134.273	91.374	−9.546
	600.00	31.226	217.773	201.882	148.862	9.535	18.198	132.355	82.982	−7.224
	700.00	31.452	222.601	204.505	151.994	12.667	−3.827	130.708	74.885	−5.588
	800.00	31.844	226.825	207.037	155.158	15.831	−26.302	129.036	67.023	−4.376
	900.00	32.315	230.602	209.449	158.365	19.038	−49.177	74.550	60.526	−3.513
	1000.00	32.815	234.033	211.738	161.622	22.295	−72.411	74.469	58.973	−3.080
	1100.00	33.303	237.184	213.910	164.928	25.601	−95.974	74.414	57.426	−2.727
	1200.00	33.761	240.101	215.973	168.281	28.954	−119.840	74.380	55.883	−2.433
	1300.00	34.184	242.821	217.935	171.679	32.352	−143.988	74.363	54.343	−2.184
	1400.00	34.570	245.368	219.804	175.117	35.790	−168.399	74.360	52.803	−1.970
	1500.00	34.921	247.766	221.589	178.592	39.265	−193.057	74.367	51.263	−1.785
	1600.00	35.239	250.030	223.297	182.100	42.773	−217.947	74.381	49.722	−1.623
	1700.00	35.526	252.175	224.933	185.638	46.311	−243.059	74.400	48.181	−1.480
	1800.00	35.787	254.213	226.503	189.204	49.877	−268.379	74.422	46.638	−1.353
	1900.00	36.023	256.154	228.013	192.795	53.468	−293.898	74.446	45.093	−1.240
	2000.00	36.237	258.007	229.467	196.408	57.081	−319.607	74.470	43.548	−1.137
	2100.00	36.432	259.780	230.868	200.042	60.715	−345.497	74.492	42.001	−1.045
	2200.00	36.611	261.479	232.222	203.694	64.367	−371.560	74.513	40.454	−0.960
	2300.00	36.775	263.110	233.529	207.363	68.036	−397.790	74.531	38.905	−0.884
	2400.00	36.929	264.679	234.795	211.049	71.722	−424.180	74.546	37.356	−0.813
	2500.00	37.073	266.189	236.020	214.749	75.422	−450.724	74.558	35.806	−0.748
	2600.00	37.205	267.646	237.209	218.463	79.136	−477.416	74.567	34.256	−0.688
	2700.00	37.329	269.052	238.362	222.189	82.862	−504.252	74.571	32.705	−0.633
	2800.00	37.445	270.412	239.483	225.928	86.601	−531.225	74.571	31.155	−0.581
	2900.00	37.555	271.728	240.572	229.678	90.351	−558.333	74.567	29.604	−0.533
	3000.00	37.659	273.003	241.632	233.439	94.112	−585.569	74.559	28.054	−0.488
	3100.00	37.758	274.239	242.664	237.210	97.883	−612.932	74.545	26.504	−0.447
	3200.00	37.852	275.440	243.670	240.991	101.664	−640.416	74.527	24.954	−0.407
	3300.00	37.942	276.606	244.650	244.780	105.453	−668.019	74.504	23.405	−0.370
	3400.00	38.028	277.740	245.607	248.579	109.252	−695.736	74.475	21.857	−0.336
	3500.00	38.112	278.843	246.541	252.386	113.059	−723.566	74.442	20.310	−0.303
	3600.00	38.192	279.918	247.453	256.201	116.874	−751.504	74.403	18.764	−0.272
	3700.00	38.270	280.966	248.345	260.024	120.697	−779.548	74.359	17.219	−0.243
	3800.00	38.346	281.987	249.217	263.855	124.528	−807.696	74.309	15.676	−0.215
	3900.00	38.420	282.984	250.070	267.693	128.366	−835.945	74.254	14.133	−0.189
	4000.00	38.492	283.958	250.905	271.539	132.212	−864.292	74.194	12.593	−0.164
	4100.00	38.564	284.909	251.723	275.392	136.065	−892.736	74.127	11.053	−0.141
	4200.00	38.634	285.839	252.524	279.252	139.925	−921.273	74.055	9.516	−0.118
	4300.00	38.703	286.749	253.309	283.118	143.791	−949.903	73.978	7.980	−0.097
	4400.00	38.772	287.640	254.079	286.992	147.665	−978.622	73.895	6.446	−0.077
	4500.00	38.841	288.512	254.835	290.873	151.546	−1007.430	73.807	4.914	−0.057
	4600.00	38.909	289.366	255.576	294.760	155.433	−1036.324	73.714	3.384	−0.038
	4700.00	38.977	290.204	256.304	298.655	159.328	−1065.303	73.616	1.856	−0.021
	4800.00	39.045	291.025	257.019	302.556	163.229	−1094.364	73.513	0.331	−0.004
	4900.00	39.114	291.831	257.721	306.464	167.137	−1123.507	73.405	−1.193	0.013
	5000.00	39.183	292.622	258.411	310.379	171.052	−1152.730	73.293	−2.714	0.028

References

Phase	H / S	C_p
GAS	Ja2	Ja2

34.082 HYDROGEN SULFIDE (GAS) **H2S**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
GAS	298.15	34.187	205.753	205.753	−20.502	0.000	−81.847	−20.502	−33.328	5.839
	300.00	34.213	205.965	205.754	−20.439	0.063	−82.228	−20.534	−33.407	5.817
	400.00	35.585	215.992	207.112	−16.950	3.552	−103.347	−24.532	−37.342	4.876
	500.00	37.181	224.100	209.723	−13.313	7.189	−125.363	−27.721	−40.196	4.199
	600.00	38.942	231.033	212.710	−9.508	10.994	−148.128	−30.421	−42.426	3.693
	700.00	40.746	237.171	215.774	−5.524	14.978	−171.544	−32.684	−44.244	3.302
	800.00	42.516	242.728	218.801	−1.360	19.142	−195.543	−34.833	−45.749	2.987
	900.00	44.206	247.835	221.747	2.977	23.479	−220.074	−89.677	−45.836	2.660
	1000.00	45.789	252.575	224.596	7.478	27.980	−245.098	−90.015	−40.945	2.139
	1100.00	47.188	257.006	227.343	12.127	32.629	−270.579	−90.246	−36.026	1.711
	1200.00	48.460	261.167	229.990	16.911	37.413	−296.490	−90.389	−31.090	1.353
	1300.00	49.595	265.092	232.541	21.815	42.317	−322.805	−90.460	−26.145	1.051
	1400.00	50.598	268.805	234.999	26.825	47.327	−349.501	−90.473	−21.197	0.791
	1500.00	51.485	272.327	237.372	31.931	52.433	−376.559	−90.440	−16.250	0.566
	1600.00	52.269	275.675	239.662	37.119	57.621	−403.961	−90.371	−11.306	0.369
	1700.00	52.965	278.865	241.875	42.381	62.883	−431.689	−90.274	−6.367	0.196
	1800.00	53.586	281.910	244.015	47.709	68.211	−459.729	−90.157	−1.435	0.042
	1900.00	54.143	284.823	246.087	53.096	73.598	−488.067	−90.023	3.490	−0.096
	2000.00	54.646	287.613	248.094	58.536	79.038	−516.689	−89.878	8.408	−0.220
	2100.00	55.102	290.290	250.040	64.024	84.526	−545.585	−89.724	13.319	−0.331
	2200.00	55.518	292.863	251.928	69.555	90.057	−574.744	−89.563	18.222	−0.433
	2300.00	55.899	295.340	253.762	75.126	95.628	−604.155	−89.399	23.118	−0.525
	2400.00	56.250	297.726	255.545	80.734	101.236	−633.809	−89.232	28.006	−0.610
	2500.00	56.576	300.029	257.278	86.376	106.878	−663.697	−89.064	32.888	−0.687

References

Phase	H / S	C_p
GAS	Ja1	Ja1

66.148 DIHYDROGEN DISULFIDE (GAS) **H2S2**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
GAS	298.15	51.472	266.463	266.463	15.732	0.000	−63.714	15.732	−5.637	0.988
	300.00	51.560	266.782	266.464	15.827	0.095	−64.207	15.690	−5.769	1.004
	400.00	55.222	282.158	268.536	21.181	5.449	−91.682	8.975	−12.400	1.619
	500.00	57.785	294.768	272.558	26.837	11.105	−120.547	3.903	−17.198	1.797
	600.00	59.917	305.496	277.176	32.724	16.992	−150.573	−0.290	−21.005	1.829
	700.00	61.844	314.878	281.905	38.813	23.081	−181.602	−3.758	−24.178	1.804
	800.00	63.663	323.256	286.560	45.089	29.357	−213.516	−7.154	−26.866	1.754
	900.00	65.418	330.856	291.066	51.544	35.812	−246.227	−116.087	−26.820	1.557
	1000.00	67.134	337.838	295.398	58.172	42.440	−279.666	−116.133	−16.898	0.883

References

Phase	H / S	C_p
GAS	Mi1	Mi1

H2SO4 SULFURIC ACID 98.079

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[—— J / (K mol) ——]			[—— kJ / mol ——]					[−]
LIQ	298.15	138.593	156.795	156.795	−813.989	0.000	−860.738	−813.989	−689.889	120.866
	300.00	138.948	157.654	156.798	−813.732	0.257	−861.028	−813.936	−689.119	119.986
	400.00	158.238	200.265	162.478	−798.874	15.115	−878.980	−812.508	−647.930	84.611
	500.00	177.621	237.656	173.841	−782.082	31.907	−900.910	−808.658	−607.218	63.436
	600.00	197.041	271.756	187.356	−763.349	50.640	−926.403	−802.749	−567.448	49.401
	610.00	198.984	275.029	188.766	−761.369	52.620	−929.137	−802.041	−563.532	48.256

References

Phase	H / S	C_p	Remarks
LIQ	Ja1,Nb1	Ja1	Ja1 NBPT= 553. GAS (SO3 + H2SO4 + H2O)

H2SO4[g] SULFURIC ACID (GAS) 98.079

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[—— J / (K mol) ——]			[—— kJ / mol ——]					[−]
GAS	298.15	83.777	298.805	298.805	−735.129	0.000	−824.218	−735.129	−653.369	114.468
	300.00	84.052	299.324	298.807	−734.974	0.155	−824.771	−735.178	−652.861	113.673
	400.00	97.844	325.469	302.278	−725.852	9.277	−856.040	−739.486	−624.990	81.615
	500.00	108.085	348.464	309.263	−715.528	19.601	−889.760	−742.105	−596.069	62.271
	600.00	115.671	368.872	317.530	−704.323	30.806	−925.647	−743.724	−566.692	49.335
	700.00	121.389	387.150	326.193	−692.459	42.670	−963.464	−744.616	−537.110	40.080
	800.00	125.932	403.667	334.861	−680.085	55.044	−1003.018	−745.228	−507.422	33.131
	900.00	129.628	418.720	343.355	−667.301	67.828	−1044.149	−798.436	−476.516	27.656
	1000.00	132.706	432.542	351.592	−654.180	80.949	−1086.721	−797.078	−440.819	23.026

References

Phase	H / S	C_p
GAS	Ja1	Ja1

80.976 HYDROGEN SELENIDE (GAS) **H2Se[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	34.664	218.933	218.933	29.288	0.000	−35.987	29.288	15.575	−2.729
	300.00	34.709	219.147	218.933	29.352	0.064	−36.392	29.252	15.490	−2.697
	400.00	36.804	229.432	220.321	32.932	3.644	−58.841	27.258	11.201	−1.463
	500.00	38.560	237.837	223.009	36.702	7.414	−82.216	19.295	7.508	−0.784
	600.00	40.183	245.012	226.092	40.640	11.352	−106.367	16.789	5.389	−0.469
	700.00	41.743	251.324	229.254	44.737	15.449	−131.190	14.434	3.677	−0.274
	800.00	43.269	256.998	232.374	48.987	19.699	−156.611	12.217	2.293	−0.150
	900.00	44.776	262.181	235.402	53.390	24.102	−182.573	10.130	1.179	−0.068
	1000.00	46.271	266.976	238.322	57.942	28.654	−209.034	8.164	0.291	−0.015
	1100.00	47.758	271.456	241.133	62.644	33.356	−235.958	−46.999	4.548	−0.216
	1200.00	49.239	275.675	243.837	67.494	38.206	−263.317	−47.295	9.248	−0.403
	1300.00	50.717	279.675	246.441	72.491	43.203	−291.086	−47.474	13.968	−0.561
	1400.00	52.192	283.487	248.952	77.637	48.349	−319.245	−47.537	18.698	−0.698
	1500.00	53.665	287.138	251.377	82.930	53.642	−347.778	−47.483	23.428	−0.816
	1600.00	55.136	290.649	253.723	88.370	59.082	−376.668	−47.314	28.150	−0.919
	1700.00	56.606	294.036	255.995	93.957	64.669	−405.904	−47.026	32.858	−1.010
	1800.00	58.076	297.313	258.200	99.691	70.403	−435.472	−46.619	37.546	−1.090
	1900.00	59.544	300.492	260.343	105.572	76.284	−465.363	−46.092	42.208	−1.160
	2000.00	61.012	303.584	262.428	111.600	82.312	−495.567	−45.441	46.839	−1.223

References

Phase	H / S	C_p
GAS	Mi1	Mi1

H2Te[g] HYDROGEN TELLURIDE (GAS) 129.616

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	35.590	228.974	228.974	99.579	0.000	31.310	99.579	85.030	−14.897
	300.00	35.655	229.195	228.975	99.645	0.066	30.887	99.544	84.940	−14.789
	400.00	38.365	239.854	230.410	103.357	3.778	7.415	97.665	80.356	−10.493
	500.00	40.267	248.628	233.202	107.292	7.713	−17.022	95.771	76.247	−7.965
	600.00	41.850	256.113	236.411	111.400	11.821	−42.268	93.823	72.524	−6.314
	700.00	43.283	262.673	239.704	115.657	16.078	−68.214	91.794	69.133	−5.159
	800.00	44.636	268.541	242.948	120.054	20.475	−94.779	72.047	67.919	−4.435
	900.00	45.943	273.875	246.092	124.583	25.004	−121.904	69.836	67.537	−3.920
	1000.00	47.221	278.782	249.119	129.241	29.662	−149.540	67.725	67.396	−3.520
	1100.00	48.479	283.341	252.025	134.027	34.448	−177.649	65.706	67.461	−3.203
	1200.00	49.725	287.613	254.815	138.937	39.358	−206.199	63.773	67.707	−2.947
	1300.00	50.962	291.642	257.494	143.971	44.392	−235.163	61.921	68.111	−2.737
	1400.00	52.192	295.464	260.071	149.129	49.550	−264.520	13.709	71.145	−2.654
	1500.00	53.418	299.107	262.553	154.410	54.831	−294.250	13.590	75.252	−2.621
	1600.00	54.639	302.593	264.947	159.812	60.233	−324.336	13.558	79.365	−2.591
	1700.00	55.858	305.942	267.261	165.337	65.758	−354.764	13.610	83.476	−2.565
	1800.00	57.075	309.169	269.500	170.984	71.405	−385.521	13.749	87.582	−2.542
	1900.00	58.289	312.288	271.670	176.752	77.173	−416.595	13.978	91.679	−2.520
	2000.00	59.503	315.308	273.777	182.642	83.063	−447.975	14.303	95.760	−2.501

References

Phase	H / S	C_p
GAS	Mi1	Mi1

H2WO4 TUNGSTIC ACID 249.863

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	112.658	144.766	144.766	−1131.772	0.000	−1174.934	−1131.772	−1003.905	175.880
	300.00	112.968	145.464	144.769	−1131.563	0.209	−1175.203	−1131.770	−1003.112	174.657
	393.00	128.532	177.976	148.870	−1120.334	11.438	−1190.278	−1131.054	−963.297	128.034

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	NDPT= 393.

249.863 TUNGSTIC ACID (GAS) **H2WO4[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	101.890	351.565	351.565	−905.836	0.000	−1010.655	−905.836	−839.626	147.099
	300.00	102.260	352.197	351.567	−905.647	0.189	−1011.306	−905.854	−839.215	146.120
	400.00	116.178	383.755	355.776	−894.644	11.192	−1048.146	−906.165	−816.924	106.679
	500.00	123.957	410.582	364.125	−882.608	23.228	−1087.898	−905.683	−794.659	83.017
	600.00	129.226	433.673	373.837	−869.935	35.901	−1130.138	−904.816	−772.530	67.255
	700.00	133.231	453.906	383.860	−856.804	49.032	−1174.538	−903.733	−750.566	56.008
	800.00	136.490	471.916	393.762	−843.313	62.523	−1220.846	−902.514	−728.767	47.584
	900.00	139.253	488.155	403.363	−829.522	76.314	−1268.862	−901.197	−707.127	41.041
	1000.00	141.649	502.954	412.593	−815.475	90.361	−1318.429	−899.811	−685.637	35.814
	1100.00	143.753	516.555	421.434	−801.202	104.634	−1369.413	−898.375	−664.289	31.544
	1200.00	145.610	529.145	429.892	−786.732	119.104	−1421.706	−896.905	−643.073	27.992
	1300.00	147.248	540.866	437.983	−772.088	133.748	−1475.213	−895.418	−621.981	24.991
	1400.00	148.685	551.832	445.727	−757.289	148.547	−1529.854	−893.927	−601.003	22.424
	1500.00	149.934	562.134	453.148	−742.357	163.479	−1585.558	−892.447	−580.132	20.202
	1600.00	151.004	571.846	460.266	−727.308	178.528	−1642.261	−890.993	−559.358	18.261
	1700.00	151.900	581.028	467.102	−712.162	193.674	−1699.909	−889.581	−538.675	16.551
	1800.00	152.628	589.732	473.675	−696.934	208.902	−1758.451	−888.221	−518.072	15.034
	1900.00	153.190	598.000	480.003	−681.642	224.194	−1817.841	−886.934	−497.544	13.678
	2000.00	153.590	605.868	486.101	−666.301	239.535	−1878.038	−885.734	−477.081	12.460
	2100.00	153.830	613.368	491.984	−650.929	254.907	−1939.002	−884.632	−456.676	11.359
	2200.00	153.910	620.527	497.665	−635.541	270.295	−2000.700	−883.638	−436.321	10.360
	2300.00	153.832	627.367	503.157	−620.152	285.684	−2063.097	−882.762	−416.009	9.448
	2400.00	153.597	633.910	508.470	−604.780	301.056	−2126.163	−882.023	−395.731	8.613

References

Phase	H / S	C_p
GAS	Ja1	Ja1

He[g] HELIUM (GAS) 4.003

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.786	126.148	126.148	0.000	0.000	−37.611	0.000	0.000	0.000
	300.00	20.786	126.277	126.149	0.038	0.038	−37.845	0.000	0.000	0.000
	400.00	20.786	132.257	126.964	2.117	2.117	−50.786	0.000	0.000	0.000
	500.00	20.786	136.895	128.504	4.196	4.196	−64.252	0.000	0.000	0.000
	600.00	20.786	140.685	130.228	6.274	6.274	−78.137	0.000	0.000	0.000
	700.00	20.786	143.889	131.956	8.353	8.353	−92.369	0.000	0.000	0.000
	800.00	20.786	146.665	133.625	10.432	10.432	−106.900	0.000	0.000	0.000
	900.00	20.786	149.113	135.213	12.510	12.510	−121.691	0.000	0.000	0.000
	1000.00	20.786	151.303	136.714	14.589	14.589	−136.714	0.000	0.000	0.000
	1100.00	20.786	153.284	138.132	16.667	16.667	−151.945	0.000	0.000	0.000
	1200.00	20.786	155.093	139.471	18.746	18.746	−167.365	0.000	0.000	0.000
	1300.00	20.786	156.756	140.737	20.825	20.825	−182.959	0.000	0.000	0.000
	1400.00	20.786	158.297	141.937	22.903	22.903	−198.712	0.000	0.000	0.000
	1500.00	20.786	159.731	143.076	24.982	24.982	−214.614	0.000	0.000	0.000
	1600.00	20.786	161.072	144.160	27.060	27.060	−230.655	0.000	0.000	0.000
	1700.00	20.786	162.332	145.192	29.139	29.139	−246.826	0.000	0.000	0.000
	1800.00	20.786	163.521	146.177	31.218	31.218	−263.119	0.000	0.000	0.000
	1900.00	20.786	164.644	147.120	33.296	33.296	−279.528	0.000	0.000	0.000
	2000.00	20.786	165.711	148.023	35.375	35.375	−296.046	0.000	0.000	0.000
	2100.00	20.786	166.725	148.890	37.453	37.453	−312.669	0.000	0.000	0.000
	2200.00	20.786	167.692	149.723	39.532	39.532	−329.390	0.000	0.000	0.000
	2300.00	20.786	168.616	150.524	41.611	41.611	−346.206	0.000	0.000	0.000
	2400.00	20.786	169.500	151.297	43.689	43.689	−363.112	0.000	0.000	0.000
	2500.00	20.786	170.349	152.042	45.768	45.768	−380.104	0.000	0.000	0.000
	2600.00	20.786	171.164	152.762	47.847	47.847	−397.180	0.000	0.000	0.000
	2700.00	20.786	171.949	153.458	49.925	49.925	−414.336	0.000	0.000	0.000
	2800.00	20.786	172.705	154.132	52.004	52.004	−431.569	0.000	0.000	0.000
	2900.00	20.786	173.434	154.785	54.082	54.082	−448.876	0.000	0.000	0.000
	3000.00	20.786	174.139	155.418	56.161	56.161	−466.255	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

178.490 HAFNIUM **Hf**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	25.736	43.555	43.555	0.000	0.000	−12.986	0.000	0.000	0.000
	300.00	25.750	43.715	43.556	0.048	0.048	−13.067	0.000	0.000	0.000
	400.00	26.512	51.227	44.575	2.661	2.661	−17.830	0.000	0.000	0.000
	500.00	27.274	57.225	46.525	5.350	5.350	−23.262	0.000	0.000	0.000
	600.00	28.036	62.265	48.739	8.116	8.116	−29.243	0.000	0.000	0.000
	700.00	28.798	66.644	50.991	10.957	10.957	−35.693	0.000	0.000	0.000
	800.00	29.560	70.539	53.195	13.875	13.875	−42.556	0.000	0.000	0.000
	900.00	30.321	74.064	55.321	16.869	16.869	−49.789	0.000	0.000	0.000
	1000.00	31.083	77.299	57.359	19.939	19.939	−57.359	0.000	0.000	0.000
	1100.00	31.845	80.297	59.310	23.086	23.086	−65.241	0.000	0.000	0.000
	1200.00	32.607	83.100	61.177	26.308	26.308	−73.412	0.000	0.000	0.000
	1300.00	33.369	85.740	62.966	29.607	29.607	−81.855	0.000	0.000	0.000
	1400.00	34.131	88.241	64.683	32.982	32.982	−90.556	0.000	0.000	0.000
	1500.00	34.892	90.622	66.333	36.433	36.433	−99.500	0.000	0.000	0.000
	1600.00	35.654	92.898	67.923	39.961	39.961	−108.676	0.000	0.000	0.000
	1700.00	36.416	95.083	69.457	43.564	43.564	−118.076	0.000	0.000	0.000
	1800.00	37.178	97.186	70.939	47.244	47.244	−127.690	0.000	0.000	0.000
	1900.00	37.940	99.216	72.374	51.000	51.000	−137.511	0.000	0.000	0.000
	2000.00	38.702	101.182	73.766	54.832	54.832	−147.531	0.000	0.000	0.000
	2013.00	38.801	101.433	73.944	55.336	55.336	−148.848	0.000	0.000	0.000
			3.346		6.736					
SOL−B	2013.00	36.819	104.779	73.944	62.072	62.072	−148.848	0.000	0.000	0.000
	2100.00	36.819	106.337	75.253	65.275	65.275	−158.032	0.000	0.000	0.000
	2200.00	36.819	108.050	76.706	68.957	68.957	−168.752	0.000	0.000	0.000
	2300.00	36.819	109.686	78.104	72.639	72.639	−179.640	0.000	0.000	0.000
	2400.00	36.819	111.253	79.453	76.321	76.321	−190.687	0.000	0.000	0.000
	2500.00	36.819	112.756	80.755	80.003	80.003	−201.888	0.000	0.000	0.000
			9.623		24.058					
LIQ	2500.00	33.472	122.380	80.755	104.061	104.061	−201.888	0.000	0.000	0.000
	2600.00	33.472	123.692	82.382	107.408	107.408	−214.192	0.000	0.000	0.000
	2700.00	33.472	124.956	83.935	110.755	110.755	−226.625	0.000	0.000	0.000
	2800.00	33.472	126.173	85.422	114.102	114.102	−239.182	0.000	0.000	0.000
	2900.00	33.472	127.347	86.848	117.449	117.449	−251.858	0.000	0.000	0.000
	3000.00	33.472	128.482	88.217	120.797	120.797	−264.650	0.000	0.000	0.000
	3100.00	33.472	129.580	89.533	124.144	124.144	−277.553	0.000	0.000	0.000
	3200.00	33.472	130.642	90.801	127.491	127.491	−290.565	0.000	0.000	0.000
	3300.00	33.472	131.672	92.024	130.838	130.838	−303.681	0.000	0.000	0.000
	3400.00	33.472	132.672	93.205	134.185	134.185	−316.898	0.000	0.000	0.000
	3500.00	33.472	133.642	94.347	137.533	137.533	−330.214	0.000	0.000	0.000
	3600.00	33.472	134.585	95.452	140.880	140.880	−343.626	0.000	0.000	0.000
	3700.00	33.472	135.502	96.522	144.227	144.227	−357.130	0.000	0.000	0.000
	3800.00	33.472	136.395	97.559	147.574	147.574	−370.725	0.000	0.000	0.000
	3900.00	33.472	137.264	98.566	150.921	150.921	−384.408	0.000	0.000	0.000
	4000.00	33.472	138.111	99.544	154.269	154.269	−398.177	0.000	0.000	0.000

Hf HAFNIUM [continued] 178.490

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
LIQ	4100.00	33.472	138.938	100.495	157.616	157.616	−412.030	0.000	0.000	0.000
	4200.00	33.472	139.745	101.420	160.963	160.963	−425.964	0.000	0.000	0.000
	4300.00	33.472	140.532	102.321	164.310	164.310	−439.978	0.000	0.000	0.000
	4400.00	33.472	141.302	103.198	167.657	167.657	−454.070	0.000	0.000	0.000
	4500.00	33.472	142.054	104.053	171.005	171.005	−468.238	0.000	0.000	0.000
	4600.00	33.472	142.790	104.887	174.352	174.352	−482.480	0.000	0.000	0.000
	4700.00	33.472	143.509	105.701	177.699	177.699	−496.795	0.000	0.000	0.000
	4800.00	33.472	144.214	106.496	181.046	181.046	−511.182	0.000	0.000	0.000
	4871.00	33.472	144.706	107.050	183.423	183.423	−521.438	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL − A	Hu1	Hu1		hcp
SOL − B	Hu1	Hu1		bcc
LIQ	Hu1	Hu1	Hu1	BPT = 4871., L = 575.46 kJ

178.490 HAFNIUM (GAS) **Hf[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.803	186.892	186.892	619.232	0.000	563.510	619.232	576.496	−101.000
	300.00	20.807	187.020	186.892	619.270	0.038	563.164	619.223	576.231	−100.331
	400.00	20.962	193.025	187.710	621.358	2.126	544.148	618.697	561.978	−73.387
	500.00	21.395	197.743	189.261	623.473	4.241	524.602	618.123	547.864	−57.235
	600.00	22.115	201.704	191.013	625.647	6.415	504.624	617.531	533.868	−46.477
	700.00	23.011	205.179	192.793	627.902	8.670	484.277	616.945	519.970	−38.801
	800.00	23.990	208.315	194.540	630.252	11.020	463.600	616.377	506.156	−33.049
	900.00	24.980	211.198	196.233	632.700	13.468	442.622	615.831	492.411	−28.579
	1000.00	25.924	213.879	197.865	635.246	16.014	421.367	615.307	478.726	−25.006
	1100.00	26.795	216.391	199.436	637.883	18.651	399.852	614.797	465.093	−22.085
	1200.00	27.598	218.758	200.949	640.603	21.371	378.094	614.295	451.506	−19.654
	1300.00	28.302	220.995	202.405	643.399	24.167	356.105	613.792	437.960	−17.597
	1400.00	28.900	223.115	203.810	646.260	27.028	333.899	613.278	424.454	−15.837
	1500.00	29.397	225.127	205.164	649.175	29.943	311.486	612.742	410.985	−14.312
	1600.00	29.800	227.037	206.472	652.136	32.904	288.877	612.175	397.553	−12.979
	1700.00	30.121	228.854	207.736	655.133	35.901	266.081	611.568	384.157	−11.804
	1800.00	30.371	230.583	208.957	658.158	38.926	243.109	610.914	370.799	−10.760
	1900.00	30.561	232.230	210.139	661.205	41.973	219.967	610.205	357.478	−9.828
	2000.00	30.702	233.802	211.283	664.268	45.036	196.665	609.436	344.197	−8.989
	2100.00	30.804	235.302	212.392	667.344	48.112	173.209	602.069	331.242	−8.239
	2200.00	30.878	236.737	213.466	670.428	51.196	149.607	601.471	318.359	−7.559
	2300.00	30.932	238.111	214.508	673.519	54.287	125.864	600.880	305.504	−6.938
	2400.00	30.976	239.428	215.519	676.614	57.382	101.987	600.294	292.674	−6.370
	2500.00	31.019	240.693	216.501	679.714	60.482	77.980	599.711	279.868	−5.848
	2600.00	31.069	241.911	217.455	682.818	63.586	53.850	575.410	268.042	−5.385
	2700.00	31.134	243.085	218.382	685.928	66.696	29.600	575.173	256.225	−4.957
	2800.00	31.222	244.218	219.285	689.046	69.814	5.234	574.944	244.416	−4.560
	2900.00	31.314	245.316	220.164	692.172	72.940	−19.243	574.723	232.615	−4.190
	3000.00	31.430	246.379	221.020	695.309	76.077	−43.828	574.513	220.822	−3.845
	3100.00	31.568	247.412	221.855	698.459	79.227	−68.518	574.315	209.036	−3.522
	3200.00	31.729	248.417	222.669	701.624	82.392	−93.309	574.133	197.255	−3.220
	3300.00	31.913	249.396	223.464	704.806	85.574	−118.200	573.967	185.481	−2.936
	3400.00	32.120	250.351	224.241	708.007	88.775	−143.188	573.822	173.710	−2.669
	3500.00	32.350	251.286	225.001	711.230	91.998	−168.270	573.698	161.944	−2.417
	3600.00	32.602	252.201	225.743	714.478	95.246	−193.444	573.598	150.181	−2.179
	3700.00	32.873	253.098	226.471	717.751	98.519	−218.709	573.524	138.421	−1.954
	3800.00	33.164	253.978	227.183	721.053	101.821	−244.063	573.479	126.662	−1.741
	3900.00	33.472	254.843	227.881	724.385	105.153	−269.504	573.463	114.904	−1.539
	4000.00	33.795	255.695	228.566	727.748	108.516	−295.031	573.479	103.146	−1.347
	4100.00	34.132	256.533	229.238	731.144	111.912	−320.643	573.529	91.387	−1.164
	4200.00	34.482	257.360	229.898	734.575	115.343	−346.338	573.612	79.627	−0.990
	4300.00	34.841	258.176	230.546	738.041	118.809	−372.115	573.731	67.864	−0.824
	4400.00	35.209	258.981	231.183	741.543	122.311	−397.973	573.886	56.098	−0.666
	4500.00	35.584	259.776	231.809	745.083	125.851	−423.910	574.078	44.328	−0.515
	4600.00	35.963	260.563	232.426	748.660	129.428	−449.928	574.309	32.553	−0.370
	4700.00	36.345	261.340	233.033	752.276	133.044	−476.023	574.577	20.773	−0.231
	4800.00	36.727	262.109	233.631	755.929	136.697	−502.195	574.883	8.986	−0.098
	4900.00	37.109	262.871	234.220	759.621	140.389	−528.444	0.000	0.000	0.000
	5000.00	37.488	263.624	234.800	763.351	144.119	−554.769	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

HfB2 HAFNIUM DIBORIDE 200.112

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	49.453	42.677	42.677	−335.975	0.000	−348.699	−335.975	−332.237	58.206
	300.00	49.748	42.984	42.678	−335.883	0.092	−348.778	−335.973	−332.213	57.843
	400.00	60.741	58.989	44.785	−330.293	5.682	−353.889	−335.726	−330.993	43.223
	500.00	66.818	73.249	49.083	−323.892	12.083	−360.516	−335.475	−329.841	34.458
	600.00	70.961	85.816	54.179	−316.992	18.983	−368.482	−335.302	−328.732	28.619
	700.00	74.189	97.006	59.512	−309.730	26.245	−377.634	−335.191	−327.646	24.449
	800.00	76.931	107.095	64.840	−302.171	33.804	−387.847	−335.116	−326.574	21.323
	900.00	79.389	116.301	70.054	−294.353	41.622	−399.023	−335.056	−325.509	18.892
	1000.00	81.672	124.784	75.108	−286.299	49.676	−411.083	−334.997	−324.452	16.948
	1100.00	83.839	132.671	79.987	−278.022	57.953	−423.960	−334.927	−323.400	15.357
	1200.00	85.929	140.056	84.688	−269.533	66.442	−437.601	−334.839	−322.356	14.032
	1300.00	87.963	147.015	89.217	−260.838	75.137	−451.957	−334.726	−321.320	12.911
	1400.00	89.958	153.607	93.583	−251.942	84.033	−466.991	−334.583	−320.294	11.950
	1500.00	91.922	159.880	97.795	−242.848	93.127	−482.668	−334.408	−319.280	11.118

References

Phase	H / S	C_p	Remarks
SOL	Nb1	Nb1,e	Tk1 MPT= 3523.

HfBr4 HAFNIUM TETRABROMIDE 498.106

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	127.612	238.488	238.488	−767.346	0.000	−838.451	−767.346	−734.703	128.717
	300.00	127.729	239.278	238.490	−767.110	0.236	−838.893	−767.437	−734.500	127.888
	400.00	134.072	276.892	243.576	−754.020	13.326	−864.776	−825.925	−711.313	92.888
	500.00	140.415	307.491	253.389	−740.295	27.051	−894.041	−822.274	−683.073	71.360
	600.00	146.758	333.652	264.636	−725.937	41.409	−926.128	−818.118	−655.614	57.076
	700.00	153.101	356.751	276.176	−710.944	56.402	−960.670	−813.437	−628.893	46.929

References

Phase	H / S	C_p
SOL	Pa2	Pa2

498.106 HAFNIUM TETRABROMIDE (GAS) **HfBr4**[g]

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	103.555	418.928	418.928	-656.888	0.000	-781.791	-656.888	-678.043	118.790
	300.00	103.609	419.569	418.930	-656.696	0.192	-782.567	-657.024	-678.173	118.080
	400.00	105.512	449.674	423.022	-646.227	10.661	-826.097	-718.132	-672.633	87.837
	500.00	106.403	473.325	430.802	-635.626	21.262	-872.289	-717.605	-661.321	69.088
	600.00	106.897	492.772	439.558	-624.959	31.929	-920.623	-717.140	-650.109	56.597
	700.00	107.203	509.275	448.368	-614.253	42.635	-970.746	-716.746	-638.969	47.680
	800.00	107.409	523.605	456.897	-603.522	53.366	-1022.405	-716.428	-627.881	40.996
	900.00	107.557	536.265	465.026	-592.773	64.115	-1075.411	-716.188	-616.828	35.800
	1000.00	107.669	547.603	472.726	-582.011	74.877	-1129.614	-716.028	-605.797	31.644

References

Phase	H / S	C_p
GAS	Pa2	Pa2

HfC HAFNIUM CARBIDE 190.501

Phase	T [K]	C_p J / (K mol)	S J / (K mol)	−(G−H298)/T J / (K mol)	H kJ / mol	H−H298 kJ / mol	G kJ / mol	ΔH_f kJ / mol	ΔG_f kJ / mol	log K_f [−]
SOL	298.15	34.421	41.221	41.221	−251.040	0.000	−263.330	−251.040	−248.632	43.559
	300.00	34.611	41.434	41.221	−250.976	0.064	−263.406	−251.040	−248.618	43.288
	400.00	41.484	52.463	42.678	−247.126	3.914	−268.111	−250.840	−247.833	32.364
	500.00	44.958	62.130	45.625	−242.788	8.252	−273.853	−250.522	−247.118	25.816
	600.00	47.093	70.528	49.092	−238.178	12.862	−280.495	−250.258	−246.463	21.457
	700.00	48.597	77.906	52.692	−233.390	17.650	−287.924	−250.089	−245.845	18.345
	800.00	49.763	84.474	56.262	−228.470	22.570	−296.049	−250.011	−245.245	16.013
	900.00	50.734	90.393	59.731	−223.444	27.596	−304.798	−250.012	−244.650	14.199
	1000.00	51.584	95.783	63.070	−218.327	32.713	−314.110	−250.085	−244.051	12.748
	1100.00	52.354	100.737	66.272	−213.129	37.911	−323.940	−250.223	−243.442	11.560
	1200.00	53.069	105.323	69.338	−207.858	43.182	−334.245	−250.419	−242.817	10.570
	1300.00	53.747	109.598	72.272	−202.517	48.523	−344.994	−250.669	−242.174	9.731
	1400.00	54.397	113.605	75.083	−197.109	53.931	−356.156	−250.965	−241.510	9.011
	1500.00	55.027	117.379	77.778	−191.638	59.402	−367.707	−251.304	−240.823	8.386
	1600.00	55.641	120.950	80.366	−186.105	64.935	−379.625	−251.682	−240.112	7.839
	1700.00	56.243	124.342	82.854	−180.510	70.530	−391.891	−252.096	−239.376	7.355
	1800.00	56.835	127.573	85.249	−174.856	76.184	−404.488	−252.542	−238.615	6.924
	1900.00	57.420	130.662	87.558	−169.144	81.896	−417.401	−253.019	−237.829	6.538
	2000.00	57.999	133.622	89.788	−163.373	87.667	−430.616	−253.528	−237.016	6.190
	2100.00	58.574	136.466	91.944	−157.544	93.496	−444.122	−260.601	−235.890	5.867
	2200.00	59.144	139.204	94.030	−151.658	99.382	−457.906	−260.867	−234.707	5.573
	2300.00	59.711	141.845	96.052	−145.715	105.325	−471.959	−261.085	−233.513	5.303
	2400.00	60.275	144.398	98.013	−139.716	111.324	−486.272	−261.256	−232.310	5.056
	2500.00	60.836	146.870	99.918	−133.660	117.380	−500.836	−261.378	−231.102	4.829
	2600.00	61.396	149.267	101.771	−127.549	123.491	−515.643	−285.175	−228.933	4.599
	2700.00	61.954	151.595	103.573	−121.381	129.659	−530.687	−284.865	−226.776	4.387
	2800.00	62.510	153.858	105.329	−115.158	135.882	−545.960	−284.507	−224.631	4.191
	2900.00	63.065	156.061	107.040	−108.879	142.161	−561.457	−284.100	−222.499	4.008
	3000.00	63.619	158.209	108.710	−102.545	148.495	−577.171	−283.644	−220.383	3.837
	3100.00	64.173	160.304	110.341	−96.155	154.885	−593.097	−283.139	−218.282	3.678
	3200.00	64.725	162.350	111.934	−89.710	161.330	−609.230	−282.586	−216.199	3.529
	3300.00	65.276	164.350	113.492	−83.210	167.830	−625.565	−281.983	−214.134	3.389
	3400.00	65.827	166.307	115.017	−76.655	174.385	−642.098	−281.332	−212.087	3.258
	3500.00	66.377	168.223	116.510	−70.045	180.995	−658.825	−280.632	−210.061	3.135
	3600.00	66.927	170.101	117.973	−63.380	187.660	−675.742	−279.884	−208.055	3.019
	3700.00	67.476	171.942	119.406	−56.660	194.380	−692.844	−279.087	−206.070	2.909
	3800.00	68.025	173.748	120.813	−49.884	201.156	−710.129	−278.242	−204.108	2.806
	3900.00	68.574	175.523	122.193	−43.055	207.985	−727.593	−277.349	−202.169	2.708

References

Phase	H / S	C_p	Remarks	
SOL	Nb1/Sh1	Sh1	Ku1	MPT= 4103.

249.395 HAFNIUM DICHLORIDE (GAS) **HfCl2**[g]

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[-]
GAS	298.15	57.737	295.390	295.390	-317.984	0.000	-406.055	-317.984	-326.546	57.210
	300.00	57.787	295.748	295.392	-317.877	0.107	-406.601	-317.988	-326.600	56.866
	400.00	59.584	312.652	297.684	-311.997	5.987	-437.058	-318.187	-329.441	43.021
	500.00	60.489	326.055	302.064	-305.989	11.995	-469.016	-318.440	-332.226	34.707
	600.00	61.042	337.136	307.013	-299.910	18.074	-502.192	-318.762	-334.955	29.160
	700.00	61.430	346.576	312.007	-293.786	24.198	-536.389	-319.156	-337.623	25.194
	800.00	61.729	354.799	316.853	-287.627	30.357	-571.467	-319.621	-340.231	22.215
	900.00	61.976	362.084	321.482	-281.442	36.542	-607.318	-320.155	-342.775	19.894
	1000.00	62.192	368.626	325.875	-275.233	42.751	-643.859	-320.757	-345.257	18.034
	1100.00	62.387	374.562	330.035	-269.004	48.980	-681.023	-321.428	-347.675	16.510
	1200.00	62.568	379.999	333.975	-262.756	55.228	-718.755	-322.167	-350.029	15.236
	1300.00	62.738	385.014	337.711	-256.491	61.493	-757.008	-322.974	-352.319	14.156
	1400.00	62.902	389.669	341.258	-250.209	67.775	-795.745	-323.848	-354.544	13.228
	1500.00	63.060	394.014	344.632	-243.910	74.074	-834.932	-324.789	-356.704	12.422
	1600.00	63.214	398.089	347.847	-237.597	80.387	-874.539	-325.799	-358.799	11.714
	1700.00	63.365	401.926	350.916	-231.268	86.716	-914.542	-326.877	-360.829	11.087
	1800.00	63.513	405.552	353.852	-224.924	93.060	-954.917	-328.023	-362.793	10.528
	1900.00	63.659	408.990	356.664	-218.565	99.419	-995.646	-329.238	-364.692	10.026
	2000.00	63.804	412.259	359.363	-212.192	105.792	-1036.710	-330.521	-366.525	9.573

References

Phase	H / S	C_p
GAS	Tk1	e

HfCl3[g] HAFNIUM TRICHLORIDE (GAS) 284.848

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	76.569	352.821	352.821	−644.336	0.000	−749.529	−644.336	−636.760	111.558
	300.00	76.677	353.295	352.822	−644.194	0.142	−750.183	−644.336	−636.713	110.862
	400.00	80.562	375.959	355.886	−636.307	8.029	−786.690	−644.263	−634.180	82.815
	500.00	82.529	394.167	361.782	−628.143	16.193	−825.227	−644.144	−631.673	65.990
	600.00	83.742	409.329	368.478	−619.825	24.511	−865.423	−644.045	−629.189	54.776
	700.00	84.599	422.305	375.263	−611.406	32.930	−907.020	−643.983	−626.718	46.766
	800.00	85.266	433.647	381.867	−602.912	41.424	−949.830	−643.964	−624.254	40.760
	900.00	85.822	443.723	388.191	−594.357	49.979	−993.707	−643.992	−621.789	36.088
	1000.00	86.310	452.791	394.205	−585.750	58.586	−1038.541	−644.067	−619.318	32.350
	1100.00	86.753	461.038	399.911	−577.096	67.240	−1084.238	−644.190	−616.838	29.291
	1200.00	87.165	468.605	405.325	−568.400	75.936	−1130.726	−644.363	−614.344	26.742
	1300.00	87.556	475.597	410.465	−559.664	84.672	−1177.940	−644.585	−611.833	24.584
	1400.00	87.931	482.099	415.352	−550.890	93.446	−1225.829	−644.857	−609.304	22.733
	1500.00	88.295	488.178	420.007	−542.078	102.258	−1274.346	−645.180	−606.754	21.129
	1600.00	88.650	493.888	424.448	−533.231	111.105	−1323.452	−645.554	−604.180	19.724
	1700.00	88.998	499.273	428.692	−524.348	119.988	−1373.113	−645.980	−601.582	18.484
	1800.00	89.341	504.370	432.756	−515.431	128.905	−1423.297	−646.458	−598.956	17.381
	1900.00	89.680	509.209	436.654	−506.480	137.856	−1473.978	−646.989	−596.303	16.394
	2000.00	90.015	513.818	440.398	−497.496	146.840	−1525.131	−647.573	−593.621	15.504

References

Phase	H / S	C_p
GAS	Tk1	e

HfCl4 HAFNIUM TETRACHLORIDE 320.301

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	120.509	190.665	190.665	−990.353	0.000	−1047.200	−990.353	−901.169	157.881
	300.00	120.637	191.411	190.667	−990.130	0.223	−1047.553	−990.303	−900.616	156.811
	400.00	125.267	226.837	195.466	−977.804	12.549	−1068.539	−987.525	−871.136	113.759
	500.00	127.619	255.067	204.659	−965.149	25.204	−1092.683	−984.701	−842.365	88.001
	588.60	128.934	275.997	213.863	−953.780	36.573	−1116.232	−982.215	−817.352	72.535

References

Phase	H / S	C_p	Remarks
SOL	Nb1,Pa2	Pa2	Pa2 SPT= 588.6, L= 98.02 kJ

320.301 HAFNIUM TETRACHLORIDE (GAS) **HfCl4[g]**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[-]
GAS	298.15	98.944	372.611	372.611	-885.711	0.000	-996.805	-885.711	-850.774	149.052
	300.00	99.042	373.223	372.613	-885.528	0.183	-997.495	-885.701	-850.558	148.095
	400.00	102.678	402.279	376.550	-875.419	10.292	-1036.331	-885.140	-838.927	109.553
	500.00	104.511	425.409	384.088	-865.050	20.661	-1077.755	-884.602	-827.437	86.442
	600.00	105.557	444.564	392.617	-854.543	31.168	-1121.281	-884.130	-816.050	71.043
	700.00	106.208	460.888	401.233	-843.952	41.759	-1166.574	-883.735	-804.736	60.050
	800.00	106.639	475.100	409.597	-833.308	52.403	-1213.389	-883.420	-793.472	51.808
	900.00	106.939	487.679	417.587	-822.628	63.083	-1261.540	-883.185	-782.244	45.400
	1000.00	107.156	498.958	425.170	-811.923	73.788	-1310.881	-883.033	-771.037	40.275

References

Phase	H / S	C_p
GAS	Pa2	Pa2

254.484 HAFNIUM TETRAFLUORIDE **HfF4**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[-]
SOL	298.15	100.418	112.968	112.968	-1930.498	0.000	-1964.179	-1930.498	-1830.267	320.655
	300.00	100.754	113.590	112.970	-1930.312	0.186	-1964.389	-1930.475	-1829.645	318.569
	400.00	113.139	144.494	117.099	-1919.540	10.958	-1977.338	-1928.744	-1796.273	234.569
	500.00	119.720	170.510	125.252	-1907.869	22.629	-1993.124	-1926.489	-1763.410	184.222
	600.00	124.016	192.739	134.693	-1895.670	34.828	-2011.314	-1924.001	-1731.025	150.699
	700.00	127.233	212.108	144.398	-1883.101	47.397	-2031.577	-1921.374	-1699.068	126.786
	800.00	129.876	229.275	153.955	-1870.242	60.256	-2053.662	-1918.645	-1667.495	108.876
	900.00	132.184	244.708	163.196	-1857.137	73.361	-2077.374	-1915.830	-1636.269	94.967
	1000.00	134.284	258.745	172.059	-1843.812	86.686	-2102.557	-1912.936	-1605.361	83.855
	1100.00	136.249	271.637	180.534	-1830.285	100.213	-2129.085	-1909.968	-1574.747	74.779
	1200.00	138.122	283.573	188.629	-1816.566	113.932	-2156.853	-1906.927	-1544.406	67.226
	1235.50	138.770	287.609	191.415	-1811.651	118.847	-2166.992	-1905.831	-1533.698	64.842

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	Pa2	Pa2	NSPT= 1235.5

HfF4[g] HAFNIUM TETRAFLUORIDE (GAS) 254.484

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	91.041	336.440	336.440	−1669.834	0.000	−1770.144	−1669.834	−1636.231	286.661
	300.00	91.223	337.004	336.442	−1669.665	0.169	−1770.767	−1669.829	−1636.022	284.857
	400.00	97.714	364.265	340.115	−1660.174	9.660	−1805.880	−1669.378	−1624.815	212.179
	500.00	100.844	386.442	347.233	−1650.230	19.604	−1843.451	−1668.849	−1613.736	168.586
	600.00	102.650	405.000	355.357	−1640.048	29.786	−1883.048	−1668.379	−1602.759	139.533
	700.00	103.831	420.918	363.613	−1629.720	40.114	−1924.363	−1667.993	−1591.854	118.786
	800.00	104.680	434.841	371.665	−1619.293	50.541	−1967.166	−1667.696	−1580.998	103.229
	900.00	105.334	447.210	379.384	−1608.791	61.043	−2011.280	−1667.483	−1570.175	91.131
	1000.00	105.869	458.336	386.732	−1598.230	71.604	−2056.566	−1667.353	−1559.370	81.453
	1100.00	106.325	468.449	393.708	−1587.620	82.214	−2102.913	−1667.302	−1548.575	73.536
	1200.00	106.728	477.718	400.328	−1576.967	92.867	−2150.228	−1667.328	−1537.781	66.938
	1300.00	107.093	486.275	406.615	−1566.275	103.559	−2198.433	−1667.429	−1526.982	61.355
	1400.00	107.430	494.224	412.592	−1555.549	114.285	−2247.463	−1667.603	−1516.172	56.569
	1500.00	107.747	501.647	418.284	−1544.790	125.044	−2297.260	−1667.849	−1505.348	52.421

References

Phase	H / S	C_p
GAS	Pa2	Pa2

HfI4 HAFNIUM TETRAIODIDE 686.108

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	144.324	269.868	269.868	−493.712	0.000	−574.173	−493.712	−491.932	86.184
	300.00	144.381	270.761	269.871	−493.445	0.267	−574.673	−493.694	−491.921	85.651
	400.00	147.503	312.724	275.571	−478.851	14.861	−603.940	−524.990	−490.339	64.032
	500.00	150.624	345.974	286.439	−463.944	29.768	−636.931	−609.161	−473.621	49.479
	600.00	153.745	373.712	298.735	−448.726	44.986	−672.953	−604.210	−446.975	38.913
	700.00	156.867	397.646	311.194	−433.195	60.517	−711.548	−599.047	−421.174	31.428
	800.00	159.988	418.797	323.347	−417.353	76.359	−752.390	−593.666	−396.128	25.865

References

Phase	H / S	C_p
SOL	Pa2	Pa2

686.108 HAFNIUM TETRAIODIDE (GAS) **HfI4[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	105.101	443.362	443.362	−364.008	0.000	−496.196	−364.008	−413.955	72.523
	300.00	105.138	444.013	443.364	−363.814	0.194	−497.017	−364.063	−414.265	72.130
	400.00	106.409	474.459	447.507	−353.227	10.781	−543.011	−399.367	−429.409	56.075
	500.00	106.999	498.274	455.365	−342.553	21.455	−591.691	−487.770	−428.380	44.753
	600.00	107.321	517.814	464.194	−331.836	32.172	−642.524	−487.320	−416.546	36.264
	700.00	107.516	534.373	473.066	−321.093	42.915	−695.155	−486.945	−404.781	30.205
	800.00	107.643	548.739	481.647	−310.335	53.673	−749.326	−486.649	−393.065	25.664
	900.00	107.731	561.422	489.820	−299.566	64.442	−804.846	−486.434	−381.380	22.135
	1000.00	107.795	572.777	497.558	−288.790	75.218	−861.566	−486.303	−369.715	19.312

References

Phase	H / S	C_p
GAS	Pa2	Pa2

192.497 HAFNIUM NITRIDE **HfN**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	39.413	48.116	48.116	−373.631	0.000	−387.977	−373.631	−346.427	60.693
	300.00	39.517	48.360	48.117	−373.558	0.073	−388.066	−373.633	−346.258	60.289
	400.00	43.429	60.327	49.722	−369.389	4.242	−393.520	−373.535	−337.139	44.026
	500.00	45.711	70.281	52.867	−364.924	8.707	−400.064	−373.230	−328.073	34.274
	600.00	47.363	78.767	56.494	−360.267	13.364	−407.527	−372.830	−319.078	27.778
	700.00	48.721	86.173	60.216	−355.461	18.170	−415.782	−372.387	−310.154	23.144
	800.00	49.921	92.758	63.879	−350.528	23.103	−424.734	−371.926	−301.295	19.673
	900.00	51.028	98.703	67.424	−345.480	28.151	−434.312	−371.460	−292.494	16.976
	1000.00	52.076	104.134	70.827	−340.324	33.307	−444.458	−370.995	−283.745	14.821
	1100.00	53.085	109.145	74.085	−335.066	38.565	−455.125	−370.532	−275.042	13.061
	1200.00	54.067	113.806	77.203	−329.708	43.923	−466.275	−370.071	−266.382	11.595
	1300.00	55.029	118.172	80.189	−324.253	49.378	−477.876	−369.612	−257.759	10.357
	1400.00	55.976	122.284	83.050	−318.703	54.928	−489.901	−369.153	−249.173	9.297
	1500.00	56.913	126.178	85.797	−313.058	60.573	−502.326	−368.694	−240.619	8.379
	1600.00	57.841	129.881	88.437	−307.321	66.310	−515.130	−368.233	−232.095	7.577
	1700.00	58.764	133.415	90.980	−301.490	72.141	−528.296	−367.769	−223.601	6.870
	1800.00	59.683	136.800	93.432	−295.568	78.063	−541.808	−367.301	−215.134	6.243
	1900.00	60.599	140.052	95.801	−289.554	84.077	−555.652	−366.828	−206.693	5.682
	2000.00	61.514	143.183	98.092	−283.448	90.183	−569.815	−366.348	−198.277	5.178
	2100.00	62.429	146.207	100.312	−277.251	96.380	−584.285	−372.397	−189.598	4.716
	2200.00	63.345	149.132	102.464	−270.962	102.669	−599.053	−371.600	−180.912	4.295

References

Phase	H / S	C_p
SOL	Pa3	Pa3

HfO2 HAFNIUM DIOXIDE 210.489

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f [-]
		[	J / (K mol)	]	[		kJ / mol		]	
SOL-A	298.15	60.251	59.329	59.329	-1144.742	0.000	-1162.431	-1144.742	-1088.280	190.662
	300.00	60.447	59.702	59.330	-1144.630	0.112	-1162.541	-1144.732	-1087.930	189.425
	400.00	67.643	78.207	61.804	-1138.181	6.561	-1169.464	-1143.867	-1069.111	139.612
	500.00	71.460	93.747	66.683	-1131.210	13.532	-1178.083	-1142.644	-1050.559	109.751
	600.00	73.946	107.009	72.326	-1123.932	20.810	-1188.137	-1141.292	-1032.268	89.867
	700.00	75.805	118.553	78.123	-1116.441	28.301	-1199.428	-1139.897	-1014.207	75.681
	800.00	77.329	128.778	83.828	-1108.782	35.960	-1211.804	-1138.493	-996.347	65.055
	900.00	78.659	137.964	89.341	-1100.981	43.761	-1225.149	-1137.091	-978.663	56.800
	1000.00	79.867	146.315	94.627	-1093.054	51.688	-1239.369	-1135.697	-961.135	50.205
	1100.00	80.997	153.981	99.679	-1085.011	59.731	-1254.389	-1134.308	-943.746	44.815
	1200.00	82.073	161.075	104.504	-1076.857	67.885	-1270.146	-1132.926	-926.483	40.329
	1300.00	83.110	167.685	109.112	-1068.597	76.145	-1286.588	-1131.549	-909.336	36.538
	1400.00	84.121	173.881	113.520	-1060.236	84.506	-1303.670	-1130.175	-892.294	33.292
	1500.00	85.111	179.719	117.740	-1051.774	92.968	-1321.352	-1128.806	-875.350	30.482
	1600.00	86.086	185.243	121.788	-1043.214	101.528	-1339.603	-1127.440	-858.498	28.027
	1700.00	87.048	190.491	125.676	-1034.557	110.185	-1358.392	-1126.079	-841.731	25.863
	1800.00	88.002	195.494	129.417	-1025.805	118.937	-1377.693	-1124.722	-825.043	23.942
	1900.00	88.948	200.277	133.022	-1016.957	127.785	-1397.483	-1123.370	-808.431	22.225
	1973.00	89.634	203.643	135.573	-1010.439	134.303	-1412.227	-1122.386	-796.350	21.083
			5.302		10.460					
SOL-B	1973.00	108.784	208.945	135.573	-999.979	144.763	-1412.227	-1111.926	-796.350	21.083
	2000.00	108.784	210.423	136.573	-997.042	147.700	-1417.888	-1111.049	-792.037	20.686
	2100.00	108.784	215.731	140.217	-986.163	158.579	-1439.198	-1114.399	-775.878	19.299
	2200.00	108.784	220.792	143.766	-975.285	169.457	-1461.026	-1111.011	-759.838	18.041
	2300.00	108.784	225.627	147.221	-964.406	180.336	-1483.349	-1107.645	-743.951	16.896
	2400.00	108.784	230.257	150.585	-953.528	191.214	-1506.145	-1104.301	-728.210	15.849
	2500.00	108.784	234.698	153.861	-942.650	202.092	-1529.394	-1100.980	-712.608	14.889
	2600.00	108.784	238.964	157.053	-931.771	212.971	-1553.079	-1121.403	-696.182	13.986
	2700.00	108.784	243.070	160.163	-920.893	223.849	-1577.182	-1117.789	-679.896	13.153
	2800.00	108.784	247.026	163.195	-910.014	234.728	-1601.688	-1114.195	-663.744	12.382
	2900.00	108.784	250.844	166.152	-899.136	245.606	-1626.582	-1110.622	-647.720	11.667
	3000.00	108.784	254.532	169.037	-888.258	256.484	-1651.852	-1107.068	-631.818	11.001
	3100.00	108.784	258.099	171.853	-877.379	267.363	-1677.485	-1103.532	-616.035	10.380
	3173.00	108.784	260.631	173.866	-869.438	275.304	-1696.419	-1100.962	-604.585	9.953
			32.966		104.600					
LIQ	3173.00	108.784	293.596	173.866	-764.838	379.904	-1696.419	-996.362	-604.585	9.953
	3200.00	108.784	294.518	174.880	-761.901	382.841	-1704.358	-995.414	-601.255	9.814
	3300.00	108.784	297.865	178.556	-751.022	393.720	-1733.978	-991.914	-588.992	9.323

References

Phase	H / S	C_p
SOL-A	Nb1	Sh1
SOL-B	Sh1	Sh1
LIQ	Sh1	Sh1

314.108 HAFNIUM STRONTIUM TRIOXIDE **HfSrO3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	103.932	123.846	123.846	−1786.150	0.000	−1823.075	−1786.150	−1701.738	298.137
	300.00	104.233	124.490	123.848	−1785.957	0.193	−1823.305	−1786.136	−1701.214	296.208
	400.00	115.274	156.187	128.095	−1774.913	11.237	−1837.388	−1784.918	−1673.070	218.481
	500.00	121.127	182.594	136.431	−1763.068	23.082	−1854.365	−1783.277	−1645.294	171.883
	600.00	124.937	205.035	146.042	−1750.754	35.396	−1873.775	−1781.571	−1617.858	140.847
	700.00	127.782	224.517	155.892	−1738.112	48.038	−1895.274	−1779.962	−1590.702	118.700
	800.00	130.113	241.736	165.567	−1725.214	60.936	−1918.603	−1778.536	−1563.765	102.103
	900.00	132.146	257.181	174.903	−1712.100	74.050	−1943.562	−1778.115	−1536.913	89.200
	1000.00	133.993	271.201	183.842	−1698.791	87.359	−1969.992	−1776.835	−1510.181	78.884
	1100.00	135.718	284.053	192.376	−1685.305	100.845	−1997.764	−1782.830	−1483.227	70.433
	1200.00	137.361	295.933	200.517	−1671.651	114.499	−2026.770	−1781.236	−1456.061	63.381
	1300.00	138.946	306.991	208.287	−1657.835	128.315	−2056.923	−1779.608	−1429.029	57.419
	1400.00	140.489	317.345	215.711	−1643.863	142.287	−2088.145	−1777.946	−1402.123	52.314
	1500.00	142.000	327.089	222.814	−1629.738	156.412	−2120.371	−1776.248	−1375.338	47.894
	1600.00	143.488	336.301	229.622	−1615.463	170.687	−2153.545	−1774.516	−1348.667	44.029
	1700.00	144.957	345.044	236.156	−1601.041	185.109	−2187.616	−1909.687	−1323.400	40.663
	1800.00	146.412	353.371	242.439	−1586.472	199.678	−2222.540	−1906.457	−1289.005	37.406
	1900.00	147.856	361.326	248.488	−1571.759	214.391	−2258.278	−1903.197	−1254.791	34.497

References

Phase	H / S	C_p	Remarks	
SOL	Tk1	e	Tk1	MPT= 3163., L= 73.2 kJ

200.590 MERCURY **Hg**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
LIQ	298.15	27.979	75.898	75.898	0.000	0.000	−22.629	0.000	0.000	0.000
	300.00	27.963	76.071	75.898	0.052	0.052	−22.770	0.000	0.000	0.000
	400.00	27.404	84.027	76.987	2.816	2.816	−30.795	0.000	0.000	0.000
	500.00	27.177	90.113	79.027	5.543	5.543	−39.514	0.000	0.000	0.000
	600.00	27.141	95.063	81.300	8.258	8.258	−48.780	0.000	0.000	0.000
	629.30	27.161	96.357	81.971	9.053	9.053	−51.584	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
LIQ	Hu1	Hu1	Hu1,e	MPT= 234.29, L= 2.3 kJ / BPT= 629.3, L= 59.2 kJ

Hg[g] MERCURY (GAS) 200.590

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.786	174.967	174.967	61.404	0.000	9.238	61.404	31.866	−5.583
	300.00	20.786	175.096	174.968	61.442	0.038	8.914	61.391	31.683	−5.517
	400.00	20.786	181.076	175.783	63.521	2.117	−8.909	60.705	21.886	−2.858
	500.00	20.786	185.714	177.323	65.600	4.196	−27.257	60.057	12.256	−1.280
	600.00	20.786	189.504	179.046	67.678	6.274	−46.024	59.421	2.756	−0.240
	700.00	20.786	192.708	180.775	69.757	8.353	−65.139	0.000	0.000	0.000
	800.00	20.786	195.483	182.444	71.836	10.432	−84.551	0.000	0.000	0.000
	900.00	20.786	197.932	184.032	73.914	12.510	−104.224	0.000	0.000	0.000
	1000.00	20.786	200.122	185.533	75.993	14.589	−124.129	0.000	0.000	0.000
	1100.00	20.786	202.103	186.951	78.071	16.667	−144.242	0.000	0.000	0.000
	1200.00	20.786	203.911	188.290	80.150	18.746	−164.544	0.000	0.000	0.000
	1300.00	20.786	205.575	189.556	82.229	20.825	−185.019	0.000	0.000	0.000
	1400.00	20.786	207.116	190.756	84.307	22.903	−205.655	0.000	0.000	0.000
	1500.00	20.786	208.550	191.895	86.386	24.982	−226.439	0.000	0.000	0.000
	1600.00	20.786	209.891	192.978	88.464	27.060	−247.362	0.000	0.000	0.000
	1700.00	20.786	211.151	194.011	90.543	29.139	−268.414	0.000	0.000	0.000
	1800.00	20.786	212.339	194.996	92.622	31.218	−289.589	0.000	0.000	0.000
	1900.00	20.786	213.463	195.939	94.700	33.296	−310.880	0.000	0.000	0.000
	2000.00	20.786	214.530	196.842	96.779	35.375	−332.280	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

Hg3(AsO4)2 TRIMERCURY DIARSENATE 879.608

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	261.716	323.465	323.465	−1270.974	0.000	−1367.415	−1270.974	−1033.578	181.079
	300.00	262.319	325.086	323.470	−1270.489	0.485	−1368.015	−1270.953	−1032.105	179.706
	400.00	286.234	404.158	334.089	−1242.946	28.028	−1404.610	−1268.600	−952.786	124.421
	500.00	301.474	469.759	354.850	−1213.519	57.455	−1448.399	−1264.724	−874.258	91.333
	600.00	313.300	525.804	378.784	−1182.762	88.212	−1498.244	−1259.993	−796.598	69.350
	700.00	323.514	574.881	403.364	−1150.912	120.062	−1553.329	−1431.015	−699.866	52.225
	800.00	332.868	618.698	427.590	−1118.088	152.886	−1613.046	−1423.239	−595.941	38.911
	852.00	337.520	639.805	439.903	−1100.657	170.317	−1645.771	−1418.985	−542.301	33.248

References

Phase	H / S	C_p
SOL	G1	G1

280.494 MERCURY MONOBROMIDE (GAS) **HgBr[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	37.212	271.546	271.546	104.182	0.000	23.220	104.182	68.540	−12.008
	300.00	37.221	271.777	271.547	104.251	0.069	22.718	104.129	68.319	−11.895
	400.00	37.565	282.536	273.012	107.992	3.810	−5.023	87.865	59.680	−7.793
	500.00	37.785	290.944	275.788	111.760	7.578	−33.712	87.060	52.728	−5.508
	600.00	37.956	297.848	278.906	115.547	11.365	−63.162	86.273	45.936	−3.999
	700.00	38.105	303.711	282.041	119.350	15.168	−93.247	26.710	45.912	−3.426
	800.00	38.242	308.808	285.076	123.168	18.986	−123.878	26.575	48.665	−3.177
	900.00	38.371	313.320	287.968	126.998	22.816	−154.989	26.448	51.434	−2.985
	1000.00	38.496	317.369	290.709	130.842	26.660	−186.527	26.330	54.217	−2.832
	1100.00	38.618	321.044	293.302	134.698	30.516	−218.450	26.220	57.011	−2.707
	1200.00	38.738	324.409	295.756	138.565	34.383	−250.725	26.120	59.814	−2.604
	1300.00	38.856	327.514	298.081	142.445	38.263	−283.324	26.028	62.626	−2.516
	1400.00	38.974	330.398	300.288	146.337	42.155	−316.221	25.945	65.444	−2.442
	1500.00	39.091	333.091	302.386	150.240	46.058	−349.397	25.871	68.268	−2.377
	1600.00	39.207	335.618	304.385	154.155	49.973	−382.834	25.806	71.097	−2.321
	1700.00	39.323	337.998	306.293	158.081	53.899	−416.515	25.751	73.929	−2.272
	1800.00	39.439	340.249	308.117	162.019	57.837	−450.429	25.704	76.765	−2.228
	1900.00	39.554	342.384	309.865	165.969	61.787	−484.561	25.666	79.602	−2.188
	2000.00	39.669	344.416	311.542	169.930	65.748	−518.902	25.637	82.442	−2.153
	2100.00	39.784	346.354	313.154	173.903	69.721	−553.442	25.617	85.283	−2.121
	2200.00	39.899	348.208	314.706	177.887	73.705	−588.170	25.606	88.124	−2.092
	2273.00	39.983	349.512	315.803	180.803	76.621	−613.637	25.603	90.199	−2.073

References

Phase	H / S	C_p
GAS	Ja1	Ja1

360.398 MERCURY DIBROMIDE **HgBr2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	75.316	170.314	170.314	−169.452	0.000	−220.231	−169.452	−152.221	26.668
	300.00	75.371	170.780	170.315	−169.313	0.139	−220.547	−169.504	−152.114	26.485
	400.00	78.299	192.864	173.307	−161.629	7.823	−238.775	−199.067	−140.163	18.303
	500.00	81.228	210.650	179.052	−153.653	15.799	−258.978	−197.510	−125.612	13.123
	514.00	81.638	212.899	179.943	−152.513	16.939	−261.943	−197.270	−123.602	12.561
			34.840		17.908					
LIQ	514.00	102.090	247.740	179.943	−134.605	34.847	−261.943	−179.362	−123.602	12.561
	591.00	102.090	261.991	189.726	−126.744	42.708	−281.580	−176.454	−115.456	10.204

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	BPT= 591., L= 59.20 kJ

HgBr2[g] MERCURY DIBROMIDE (GAS) 360.398

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	60.277	320.231	320.232	−85.454	0.000	−180.931	−85.454	−112.921	19.783
	300.00	60.301	320.604	320.233	−85.342	0.112	−181.524	−85.534	−113.091	19.691
	400.00	61.162	338.086	322.610	−79.264	6.190	−214.498	−116.702	−115.887	15.133
	500.00	61.580	351.784	327.125	−73.124	12.330	−249.016	−116.982	−115.650	12.082
	600.00	61.814	363.034	332.200	−66.954	18.500	−284.774	−117.244	−115.359	10.043
	700.00	61.957	372.574	337.303	−60.765	24.689	−321.566	−176.289	−108.386	8.088
	800.00	62.050	380.854	342.241	−54.564	30.890	−359.247	−175.915	−98.712	6.445
	900.00	62.115	388.166	346.946	−48.355	37.099	−397.705	−175.543	−89.083	5.170
	1000.00	62.161	394.713	351.401	−42.142	43.312	−436.855	−175.173	−79.497	4.152
	1100.00	62.195	400.639	355.612	−35.924	49.530	−476.627	−174.806	−69.947	3.322
	1200.00	62.221	406.052	359.593	−29.703	55.751	−516.966	−174.444	−60.430	2.630
	1300.00	62.242	411.034	363.361	−23.480	61.974	−557.823	−174.085	−50.944	2.047
	1400.00	62.258	415.647	366.933	−17.255	68.199	−599.160	−173.730	−41.485	1.548
	1500.00	62.271	419.943	370.325	−11.028	74.426	−640.942	−173.379	−32.051	1.116
	1600.00	62.282	423.962	373.553	−4.800	80.654	−683.139	−173.033	−22.640	0.739
	1700.00	62.291	427.738	376.631	1.428	86.882	−725.726	−172.690	−13.251	0.407
	1800.00	62.299	431.299	379.570	7.658	93.112	−768.680	−172.352	−3.882	0.113
	1900.00	62.306	434.667	382.382	13.888	99.342	−811.980	−172.019	5.468	−0.150
	2000.00	62.312	437.863	385.077	20.119	105.573	−855.607	−171.690	14.801	−0.387

References

Phase	H / S	C_p
GAS	Ja1	Ja1

Hg2Br2 DIMERCURY DIBROMIDE 560.988

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	104.601	218.752	218.752	−204.179	0.000	−269.400	−204.179	−178.761	31.318
	300.00	104.719	219.400	218.754	−203.985	0.194	−269.805	−204.229	−178.603	31.098
	400.00	109.581	250.248	222.927	−193.251	10.928	−293.350	−233.505	−163.944	21.409
	500.00	112.962	275.079	230.954	−182.116	22.063	−319.656	−231.517	−146.776	15.334
	600.00	115.760	295.928	240.091	−170.677	33.502	−348.234	−229.225	−130.039	11.321
	666.00	117.446	308.096	246.237	−162.981	41.198	−368.173	−345.578	−112.305	8.808

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	NSPT= 666.

236.043 MERCURY MONOCHLORIDE (GAS) **HgCl[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
GAS	298.15	36.415	259.957	259.957	78.450	0.000	0.944	78.450	56.834	−9.957
	300.00	36.431	260.182	259.957	78.517	0.067	0.463	78.434	56.700	−9.872
	400.00	37.040	270.757	261.395	82.195	3.745	−26.108	77.614	49.580	−6.474
	500.00	37.366	279.060	264.128	85.916	7.466	−53.614	76.823	42.664	−4.457
	600.00	37.582	285.893	267.202	89.664	11.214	−81.871	76.039	35.905	−3.126
	700.00	37.745	291.699	270.298	93.431	14.981	−110.758	16.468	35.916	−2.680
	800.00	37.881	296.748	273.295	97.213	18.763	−140.186	16.318	38.705	−2.527
	900.00	38.000	301.217	276.154	101.007	22.557	−170.089	16.171	41.512	−2.409
	1000.00	38.109	305.226	278.864	104.812	26.362	−200.414	16.027	44.336	−2.316
	1100.00	38.211	308.863	281.429	108.628	30.178	−231.122	15.887	47.174	−2.240
	1200.00	38.309	312.192	283.856	112.454	34.004	−262.177	15.753	50.024	−2.177
	1300.00	38.404	315.263	286.155	116.290	37.840	−293.551	15.624	52.885	−2.125
	1400.00	38.496	318.112	288.337	120.135	41.685	−325.222	15.499	55.756	−2.080
	1500.00	38.587	320.771	290.412	123.989	45.539	−357.168	15.381	58.635	−2.042
	1600.00	38.677	323.264	292.388	127.852	49.402	−389.371	15.267	61.523	−2.009
	1700.00	38.765	325.612	294.274	131.724	53.274	−421.816	15.159	64.417	−1.979
	1800.00	38.853	327.830	296.077	135.605	57.155	−454.489	15.056	67.318	−1.954
	1900.00	38.940	329.933	297.804	139.495	61.045	−487.378	14.958	70.224	−1.931
	2000.00	39.026	331.933	299.461	143.393	64.943	−520.472	14.866	73.135	−1.910

References

Phase	H / S	C_p
GAS	Ja1	Ja1

271.495 MERCURY DICHLORIDE **HgCl2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	73.915	144.494	144.494	−230.120	0.000	−273.201	−230.120	−184.050	32.245
	300.00	73.979	144.952	144.496	−229.983	0.137	−273.469	−230.098	−183.764	31.996
	400.00	76.924	166.656	147.435	−222.432	7.688	−289.094	−228.778	−168.512	22.005
	500.00	79.377	184.090	153.079	−214.614	15.506	−306.659	−227.258	−153.618	16.048
	550.00	80.522	191.710	156.249	−210.616	19.504	−316.057	−226.429	−146.294	13.894
			35.298		19.414					
LIQ	550.00	102.090	227.008	156.249	−191.202	38.918	−316.057	−207.015	−146.294	13.894
	576.00	102.090	231.723	159.550	−188.548	41.572	−322.021	−206.014	−143.447	13.008

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	BPT= 576., L= 58.91 kJ

HgCl2[g] MERCURY DICHLORIDE (GAS) 271.495

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	58.112	294.793	294.793	−146.294	0.000	−234.187	−146.294	−145.035	25.410
	300.00	58.157	295.153	294.794	−146.186	0.108	−234.732	−146.301	−145.028	25.252
	400.00	59.829	312.141	297.099	−140.277	6.017	−265.134	−146.623	−144.552	18.877
	500.00	60.683	325.593	301.500	−134.247	12.047	−297.044	−146.891	−144.003	15.044
	600.00	61.174	336.704	306.468	−128.152	18.142	−330.175	−147.146	−143.401	12.484
	700.00	61.479	346.159	311.480	−122.018	24.276	−364.330	−206.188	−136.119	10.157
	800.00	61.682	354.382	316.340	−115.860	30.434	−399.366	−205.813	−126.134	8.236
	900.00	61.822	361.656	320.978	−109.684	36.610	−435.175	−205.442	−116.197	6.744
	1000.00	61.923	368.175	325.378	−103.497	42.797	−471.672	−205.074	−106.300	5.553
	1100.00	61.998	374.081	329.541	−97.300	48.994	−508.789	−204.710	−96.441	4.580
	1200.00	62.056	379.478	333.481	−91.098	55.196	−546.471	−204.350	−86.614	3.770
	1300.00	62.100	384.447	337.213	−84.890	61.404	−584.670	−203.994	−76.817	3.087
	1400.00	62.135	389.050	340.753	−78.678	67.616	−623.348	−203.642	−67.047	2.502
	1500.00	62.164	393.338	344.117	−72.463	73.831	−662.470	−203.294	−57.303	1.995
	1600.00	62.187	397.351	347.320	−66.245	80.049	−702.007	−202.951	−47.581	1.553
	1700.00	62.207	401.122	350.375	−60.026	86.268	−741.932	−202.613	−37.881	1.164
	1800.00	62.224	404.678	353.294	−53.804	92.490	−782.224	−202.281	−28.201	0.818
	1900.00	62.238	408.042	356.088	−47.581	98.713	−822.861	−201.954	−18.538	0.510
	2000.00	62.250	411.235	358.766	−41.356	104.938	−863.827	−201.633	−8.893	0.232

References

Phase	H / S	C_p
GAS	Ja1	Ja1

Hg2Cl2 DIMERCURY DICHLORIDE 472.085

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	101.948	192.535	192.535	−264.927	0.000	−322.331	−264.927	−210.551	36.888
	300.00	102.041	193.166	192.537	−264.738	0.189	−322.688	−264.905	−210.214	36.601
	400.00	106.131	223.118	196.593	−254.317	10.610	−343.564	−263.479	−192.188	25.097
	500.00	109.271	247.148	204.379	−243.542	21.385	−367.116	−261.730	−174.562	18.236
	600.00	112.038	267.319	213.232	−232.475	32.452	−392.866	−259.726	−157.312	13.695
	655.00	113.477	277.207	218.194	−226.273	38.654	−407.844	−376.670	−143.132	11.414

References

Phase	H / S	C_p	Remarks
SOL	Ja1	Ja1	Ja1 NSPT= 655.

219.588 MERCURY MONOFLUORIDE (GAS) **HgF[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		J / (K mol)			kJ / mol					
GAS	298.15	34.608	248.380	248.380	2.929	0.000	−71.125	2.929	−18.265	3.200
	300.00	34.644	248.594	248.380	2.993	0.064	−71.585	2.912	−18.396	3.203
	400.00	35.946	258.764	249.758	6.531	3.602	−96.974	2.079	−25.371	3.313
	500.00	36.595	266.861	252.397	10.161	7.232	−123.269	1.301	−32.143	3.358
	600.00	36.986	273.570	255.382	13.842	10.913	−150.300	0.530	−38.759	3.374
	700.00	37.256	279.293	258.400	17.555	14.626	−177.951	−59.031	−38.608	2.881
	800.00	37.462	284.282	261.330	21.291	18.362	−206.135	−59.177	−35.681	2.330
	900.00	37.630	288.704	264.130	25.046	22.117	−234.788	−59.324	−32.735	1.900
	1000.00	37.774	292.677	266.790	28.816	25.887	−263.861	−59.473	−29.773	1.555
	1100.00	37.903	296.283	269.309	32.600	29.671	−293.311	−59.621	−26.795	1.272
	1200.00	38.022	299.586	271.697	36.396	33.467	−323.107	−59.767	−23.805	1.036
	1300.00	38.133	302.634	273.961	40.204	37.275	−353.220	−59.911	−20.802	0.836
	1400.00	38.240	305.464	276.111	44.023	41.094	−383.627	−60.052	−17.788	0.664
	1500.00	38.342	308.106	278.157	47.852	44.923	−414.307	−60.190	−14.765	0.514
	1600.00	38.441	310.583	280.107	51.691	48.762	−445.242	−60.325	−11.732	0.383
	1700.00	38.538	312.917	281.969	55.540	52.611	−476.419	−60.455	−8.691	0.267
	1800.00	38.633	315.122	283.750	59.399	56.470	−507.822	−60.581	−5.642	0.164
	1900.00	38.727	317.214	285.457	63.267	60.338	−539.439	−60.704	−2.587	0.071
	2000.00	38.819	319.202	287.095	67.144	64.215	−571.261	−60.821	0.475	−0.012

References

Phase	H / S	C_p
GAS	Ja1	Ja1

238.587 MERCURY DIFLUORIDE **HgF2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		J / (K mol)			kJ / mol					
SOL	298.15	74.857	116.315	116.315	−422.584	0.000	−457.263	−422.584	−374.171	65.553
	300.00	74.895	116.778	116.317	−422.445	0.139	−457.479	−422.555	−373.871	65.097
	400.00	76.986	138.611	119.279	−414.851	7.733	−470.296	−420.939	−357.884	46.735
	500.00	79.077	156.014	124.943	−407.048	15.536	−485.055	−419.226	−342.316	35.761
	600.00	81.169	170.617	131.370	−399.036	23.548	−501.406	−417.401	−327.103	28.477
	700.00	83.261	183.286	137.901	−390.814	31.770	−519.115	−474.229	−305.568	22.802
	800.00	85.353	194.541	144.290	−382.384	40.200	−538.016	−471.483	−281.659	18.390
	900.00	87.446	204.714	150.448	−373.744	48.840	−557.987	−468.570	−258.104	14.980
	918.00	87.822	206.450	151.529	−372.166	50.418	−561.687	−468.027	−253.900	14.447
			25.068		23.012					
LIQ	918.00	102.090	231.517	151.529	−349.154	73.430	−561.687	−445.015	−253.900	14.447
	919.00	102.090	231.629	151.616	−349.052	73.532	−561.919	−444.970	−253.692	14.420

References

Phase	H / S	C_p	Remarks
SOL	Ja1	Ja1	
LIQ	Ja1	Ja1	Ja1 BPT= 919., L= 92.0 kJ

HgF2[g] MERCURY DIFLUORIDE (GAS) 238.587

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		J / (K mol)			kJ / mol					
GAS	298.15	53.970	265.982	265.982	−293.717	0.000	−373.019	−293.717	−289.927	50.794
	300.00	54.040	266.316	265.983	−293.617	0.100	−373.512	−293.727	−289.904	50.477
	400.00	56.962	282.301	268.142	−288.053	5.664	−400.974	−294.141	−288.562	37.682
	500.00	58.650	295.210	272.307	−282.265	11.452	−429.870	−294.443	−287.131	29.996
	600.00	59.677	306.001	277.048	−276.345	17.372	−459.946	−294.711	−285.643	24.867
	700.00	60.339	315.254	281.861	−270.342	23.375	−491.019	−353.757	−277.473	20.705
	800.00	60.788	323.342	286.551	−264.284	29.433	−522.958	−353.384	−266.601	17.407
	900.00	61.104	330.521	291.045	−258.189	35.528	−555.658	−353.015	−255.775	14.845
	1000.00	61.335	336.972	295.321	−252.066	41.651	−589.038	−352.651	−244.990	12.797
	1100.00	61.508	342.826	299.377	−245.924	47.793	−623.032	−352.293	−234.242	11.123
	1200.00	61.641	348.184	303.224	−239.766	53.951	−657.586	−351.943	−223.525	9.730
	1300.00	61.744	353.122	306.875	−233.597	60.120	−692.655	−351.598	−212.838	8.552
	1400.00	61.827	357.701	310.344	−227.418	66.299	−728.199	−351.261	−202.177	7.543
	1500.00	61.894	361.969	313.645	−221.232	72.485	−764.185	−350.930	−191.539	6.670
	1600.00	61.950	365.965	316.792	−215.039	78.678	−800.583	−350.606	−180.924	5.907
	1700.00	61.996	369.722	319.796	−208.842	84.875	−837.370	−350.289	−170.328	5.234
	1800.00	62.036	373.267	322.669	−202.640	91.077	−874.521	−349.979	−159.752	4.636
	1900.00	62.070	376.622	325.421	−196.435	97.282	−912.017	−349.675	−149.192	4.102
	2000.00	62.100	379.807	328.061	−190.226	103.491	−949.840	−349.378	−138.648	3.621

References

Phase	H / S	C_p
GAS	Ja1	Ja1

Hg2F2 DIMERCURY DIFLUORIDE 439.177

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		J / (K mol)			kJ / mol					
SOL	298.15	100.270	160.666	160.666	−485.344	0.000	−533.246	−485.344	−427.525	74.901
	300.00	100.386	161.286	160.668	−485.158	0.186	−533.544	−485.320	−427.167	74.376
	400.00	105.238	190.885	164.670	−474.858	10.486	−551.212	−483.762	−408.005	53.280
	500.00	108.657	214.751	172.376	−464.156	21.188	−571.532	−481.877	−389.279	40.668
	600.00	111.512	234.819	181.154	−453.145	32.199	−594.037	−479.768	−370.954	32.294
	700.00	114.100	252.206	190.090	−441.863	43.481	−618.407	−595.035	−339.722	25.350
	800.00	116.546	267.603	198.835	−430.330	55.014	−644.412	−591.265	−303.504	19.817
	900.00	118.910	281.467	207.258	−418.556	66.788	−671.876	−587.296	−267.770	15.541
	949.00	120.048	287.801	211.255	−412.702	72.642	−685.825	−585.278	−250.427	13.784

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	NDPT= 949. GAS (Hg + HgF2)

201.598 MERCURY MONOHYDRIDE (GAS) **HgH**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		J / (K mol)			kJ / mol					
GAS	298.15	29.905	219.711	219.711	238.488	0.000	172.981	238.488	215.091	−37.683
	300.00	29.948	219.896	219.711	238.543	0.055	172.575	238.465	214.946	−37.425
	400.00	31.746	228.777	220.910	241.635	3.147	150.124	237.339	207.282	−27.068
	500.00	33.012	236.003	223.228	244.876	6.388	126.874	236.391	199.881	−20.881
	600.00	34.038	242.116	225.880	248.229	9.741	102.960	235.566	192.658	−16.772
	700.00	34.926	247.431	228.587	251.679	13.191	78.477	176.047	192.203	−14.342
	800.00	35.716	252.147	231.243	255.211	16.723	53.494	176.025	194.514	−12.700
	900.00	36.430	256.396	233.805	258.819	20.331	28.063	176.067	196.823	−11.423
	1000.00	37.077	260.268	236.261	262.495	24.007	2.227	176.163	199.124	−10.401
	1100.00	37.665	263.830	238.607	266.233	27.745	−23.980	176.302	201.414	−9.564
	1200.00	38.195	267.130	240.848	270.026	31.538	−50.530	176.478	203.690	−8.866
	1300.00	38.671	270.207	242.990	273.870	35.382	−77.399	176.683	205.949	−8.275
	1400.00	39.094	273.088	245.038	277.759	39.271	−104.565	176.910	208.192	−7.768
	1500.00	39.466	275.798	246.999	281.687	43.199	−132.011	177.156	210.418	−7.327
	1600.00	39.786	278.356	248.880	285.650	47.162	−159.719	177.415	212.627	−6.942
	1700.00	40.056	280.776	250.685	289.643	51.155	−187.677	177.682	214.820	−6.601
	1800.00	40.275	283.072	252.421	293.660	55.172	−215.871	177.954	216.996	−6.297
	1900.00	40.444	285.255	254.093	297.696	59.208	−244.288	178.225	219.158	−6.025
	2000.00	40.564	287.332	255.703	301.747	63.259	−272.918	178.492	221.305	−5.780

References

Phase	H / S	C_p
GAS	Ja1	Ja1

HgI[g] MERCURY MONOIODIDE (GAS) 327.494

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	37.992	280.722	280.722	133.470	0.000	49.773	133.470	89.716	−15.718
	300.00	37.997	280.957	280.723	133.540	0.070	49.253	133.438	89.444	−15.574
	400.00	38.247	291.922	282.216	137.352	3.882	20.584	123.667	75.321	−9.836
	500.00	38.497	300.484	285.044	141.190	7.720	−9.052	100.680	65.473	−6.840
	600.00	38.747	307.525	288.221	145.052	11.582	−39.463	99.952	58.501	−5.093
	700.00	38.997	313.516	291.418	148.939	15.469	−70.522	40.459	58.286	−4.349
	800.00	39.248	318.740	294.513	152.851	19.381	−102.141	40.406	60.837	−3.972
	900.00	39.498	323.377	297.468	156.789	23.319	−134.251	40.375	63.393	−3.679
	1000.00	39.748	327.552	300.271	160.751	27.281	−166.801	40.365	65.951	−3.445
	1100.00	39.998	331.352	302.926	164.738	31.268	−199.749	40.376	68.509	−3.253
	1200.00	40.248	334.843	305.442	168.751	35.281	−233.061	40.409	71.066	−3.093
	1300.00	40.499	338.074	307.830	172.788	39.318	−266.709	40.464	73.618	−2.958
	1400.00	40.749	341.085	310.099	176.850	43.380	−300.668	40.541	76.166	−2.842
	1500.00	40.999	343.905	312.259	180.938	47.468	−334.919	40.640	78.707	−2.741
	1600.00	41.249	346.559	314.321	185.050	51.580	−369.444	40.760	81.241	−2.652
	1700.00	41.499	349.067	316.292	189.187	55.717	−404.226	40.903	83.767	−2.574
	1800.00	41.750	351.446	318.179	193.350	59.880	−439.253	41.068	86.284	−2.504
	1900.00	42.000	353.710	319.990	197.537	64.067	−474.511	41.255	88.791	−2.441
	2000.00	42.250	355.871	321.731	201.750	68.280	−509.991	41.464	91.288	−2.384

References

Phase	H / S	C_p
GAS	Ja1	Ja1

HgI2 MERCURY DIIODIDE 454.399

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	77.746	181.326	181.326	−105.437	0.000	−159.499	−105.437	−102.243	17.913
	300.00	77.823	181.807	181.328	−105.293	0.144	−159.835	−105.446	−102.223	17.799
	400.00	82.006	204.769	184.430	−97.302	8.135	−179.209	−121.857	−100.529	13.128
	402.00	82.090	205.178	184.532	−97.138	8.299	−179.619	−121.909	−100.422	13.048
			6.256		2.515					
SOL−B	402.00	84.119	211.434	184.532	−94.623	10.814	−179.619	−119.394	−100.422	13.048
	500.00	84.119	229.785	191.669	−86.379	19.058	−201.271	−161.855	−91.734	9.583
	530.00	84.119	234.687	193.966	−83.855	21.582	−208.239	−161.270	−87.544	8.628
			35.785		18.966					
LIQ	530.00	102.090	270.472	193.966	−64.889	40.548	−208.239	−142.304	−87.544	8.628
	600.00	102.090	283.136	203.646	−57.743	47.694	−227.625	−139.685	−80.477	7.006
	626.00	102.090	287.467	207.038	−55.089	50.348	−235.043	−138.714	−77.932	6.503

References

Phase	H / S	C_p	Remarks	
SOL−A	Nb1/Ja1	Ja1		
SOL−B	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja2	BPT= 626., L= 59.166 kJ

454.399 MERCURY DIIODIDE (GAS) **HgI2[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	61.116	336.214	336.214	−16.129	0.000	−116.371	−16.129	−59.115	10.357
	300.00	61.131	336.592	336.215	−16.016	0.113	−116.994	−16.168	−59.381	10.339
	400.00	61.662	354.262	338.621	−9.872	6.257	−151.577	−34.428	−72.897	9.519
	500.00	61.909	368.052	343.179	−3.693	12.436	−187.718	−79.169	−78.181	8.167
	600.00	62.043	379.352	348.294	2.506	18.635	−225.105	−79.436	−77.958	6.787
	700.00	62.125	388.922	353.432	8.714	24.843	−263.531	−138.490	−71.053	5.302
	800.00	62.178	397.222	358.398	14.930	31.059	−302.848	−138.125	−61.444	4.012
	900.00	62.215	404.548	363.127	21.149	37.278	−342.943	−137.764	−51.880	3.011
	1000.00	62.242	411.104	367.603	27.372	43.501	−383.732	−137.407	−42.357	2.212
	1100.00	62.262	417.037	371.831	33.598	49.727	−425.143	−137.056	−32.869	1.561
	1200.00	62.277	422.455	375.827	39.825	55.954	−467.122	−136.708	−23.413	1.019
	1300.00	62.290	427.441	379.608	46.053	62.182	−509.620	−136.366	−13.985	0.562
	1400.00	62.300	432.057	383.192	52.282	68.411	−552.598	−136.029	−4.584	0.171
	1500.00	62.308	436.356	386.595	58.513	74.642	−596.021	−135.698	4.793	−0.167
	1600.00	62.315	440.377	389.832	64.744	80.873	−639.860	−135.371	14.149	−0.462
	1700.00	62.321	444.155	392.917	70.976	87.105	−684.088	−135.050	23.484	−0.722
	1800.00	62.326	447.718	395.864	77.208	93.337	−728.684	−134.734	32.800	−0.952
	1900.00	62.331	451.088	398.682	83.441	99.570	−773.625	−134.424	42.099	−1.157
	2000.00	62.335	454.285	401.383	89.674	105.803	−818.895	−134.119	51.382	−1.342

References

Phase	H / S	C_p
GAS	Ja1	Ja1

654.989 DIMERCURY DIIODIDE **Hg2I2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	105.845	241.291	241.291	−119.085	0.000	−191.026	−119.085	−111.140	19.471
	300.00	105.956	241.946	241.293	−118.889	0.196	−191.473	−119.093	−111.091	19.343
	400.00	110.489	273.104	245.511	−108.048	11.037	−217.289	−135.419	−107.814	14.079
	500.00	113.581	298.106	253.611	−96.837	22.248	−245.891	−177.857	−96.840	10.117
	563.00	115.213	311.682	259.363	−89.629	29.456	−265.106	−176.432	−86.717	8.045
			48.306		27.196					
LIQ	563.00	136.398	359.987	259.363	−62.433	56.652	−265.106	−149.236	−86.717	8.045
	600.00	136.398	368.669	265.839	−57.387	61.698	−278.588	−147.586	−82.661	7.196
	630.00	136.398	375.324	270.895	−53.295	65.790	−289.749	−264.711	−79.302	6.575

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	NBPT= 630.

HgO MERCURY OXIDE (RED) 216.589

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	44.063	70.270	70.270	−90.789	0.000	−111.740	−90.789	−58.529	10.254
	300.00	44.144	70.543	70.271	−90.707	0.082	−111.870	−90.786	−58.329	10.156
	400.00	48.328	83.833	72.055	−86.078	4.711	−119.611	−90.407	−47.555	6.210
	500.00	51.622	94.987	75.555	−81.073	9.716	−128.566	−89.658	−36.922	3.857
	600.00	54.134	104.631	79.615	−75.779	15.010	−138.558	−88.659	−26.465	2.304
	700.00	56.056	113.127	83.808	−70.266	20.523	−149.455	−146.272	−9.552	0.713
	800.00	57.512	120.712	87.955	−64.584	26.205	−161.153	−144.337	9.848	−0.643

References

Phase	H / S	C_p	Remarks
SOL	Ja1	Ja1	Ja1 DEC., 749.K, GAS (Hg + O2), p= 1.87 bar

HgO[g] MERCURY OXIDE (GAS) 216.589

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	32.884	238.597	238.597	41.840	0.000	−29.298	41.840	23.913	−4.190
	300.00	32.918	238.801	238.598	41.901	0.061	−29.739	41.822	23.802	−4.144
	400.00	34.459	248.498	239.910	45.275	3.435	−54.124	40.946	17.932	−2.342
	500.00	35.436	256.300	242.433	48.774	6.934	−79.376	40.188	12.268	−1.282
	600.00	36.068	262.821	245.302	52.351	10.511	−105.341	39.471	6.752	−0.588
	700.00	36.499	268.415	248.214	55.981	14.141	−131.910	−20.026	7.993	−0.596
	800.00	36.810	273.310	251.051	59.647	17.807	−159.001	−20.106	12.001	−0.784
	900.00	37.044	277.660	253.771	63.340	21.500	−186.554	−20.195	16.019	−0.930
	1000.00	37.229	281.572	256.358	67.054	25.214	−214.518	−20.290	20.048	−1.047
	1100.00	37.379	285.128	258.815	70.785	28.945	−242.856	−20.393	24.087	−1.144
	1200.00	37.505	288.386	261.145	74.529	32.689	−271.534	−20.501	28.135	−1.225
	1300.00	37.614	291.392	263.358	78.285	36.445	−300.525	−20.616	32.193	−1.294
	1400.00	37.710	294.183	265.461	82.051	40.211	−329.805	−20.735	36.259	−1.353
	1500.00	37.796	296.788	267.464	85.827	43.987	−359.355	−20.858	40.335	−1.405
	1600.00	37.874	299.230	269.374	89.610	47.770	−389.158	−20.987	44.418	−1.450
	1700.00	37.947	301.528	271.198	93.401	51.561	−419.197	−21.120	48.510	−1.491
	1800.00	38.014	303.699	272.944	97.199	55.359	−449.459	−21.259	52.610	−1.527
	1900.00	38.078	305.756	274.617	101.004	59.164	−479.933	−21.403	56.718	−1.559
	2000.00	38.139	307.711	276.223	104.815	62.975	−510.607	−21.552	60.833	−1.589

References

Phase	H / S	C_p
GAS	Ja1	Ja1

232.656 MERCURY SULFIDE (RED.) **HgS**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−R	298.15	48.405	82.425	82.425	−53.346	0.000	−77.921	−53.346	−45.735	8.012
	300.00	48.434	82.724	82.426	−53.256	0.090	−78.074	−53.350	−45.687	*7.955*
	400.00	49.990	96.871	84.344	−48.335	5.011	−87.084	−55.775	−43.011	5.617
	500.00	51.547	108.193	88.018	−43.258	10.088	−97.355	−57.327	−39.660	4.143
	600.00	53.103	117.729	92.195	−38.026	15.320	−108.663	−58.385	−36.017	3.136
	618.00	53.383	119.303	92.962	−37.067	16.279	−110.797	−58.519	−35.344	2.987
			6.432		3.975					
SOL−B	618.00	53.402	125.735	92.962	−33.092	20.254	−110.797	−54.544	−35.344	2.987
	700.00	54.647	132.464	97.202	−28.662	24.684	−121.387	−113.830	−26.125	1.949
	800.00	56.166	139.860	102.080	−23.122	30.224	−135.010	−113.728	−13.602	0.888
	900.00	57.685	146.564	106.656	−17.429	35.917	−149.336	−166.321	0.056	−0.003
	1000.00	59.204	152.720	110.959	−11.585	41.761	−164.305	−164.390	18.440	−0.963
	1098.00	60.692	158.323	114.939	−5.710	47.636	−179.549	−162.358	36.262	−1.725

References

Phase	H / S	C_p	Remarks
SOL−R	Mi1	Mi1	
SOL−B	Mi1	Mi1	Mi1 DEC., MPT= 1098.

232.656 MERCURY SULFIDE (GAS) **HgS[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	36.180	254.329	254.329	127.194	0.000	51.366	127.194	83.552	−14.638
	300.00	36.195	254.553	254.330	127.261	0.067	50.895	127.167	83.281	−14.501
	400.00	36.717	265.048	255.757	130.910	3.716	24.891	123.471	68.963	−9.006
	500.00	36.960	273.270	258.467	134.595	7.401	−2.040	120.527	55.655	−5.814
	600.00	37.092	280.022	261.514	138.299	11.105	−29.714	117.939	42.932	−3.738
	700.00	37.173	285.746	264.577	142.012	14.818	−58.010	56.844	37.253	−2.780
	800.00	37.226	290.713	267.540	145.732	18.538	−86.838	55.126	34.569	−2.257
	900.00	37.263	295.100	270.364	149.457	22.263	−116.133	0.565	33.259	−1.930
	1000.00	37.289	299.028	273.037	153.185	25.991	−145.843	0.379	36.902	−1.928
	1100.00	37.310	302.583	275.564	156.915	29.721	−175.926	0.188	40.563	−1.926
	1200.00	37.326	305.830	277.953	160.646	33.452	−206.349	−0.007	44.242	−1.926
	1300.00	37.338	308.818	280.214	164.380	37.186	−237.084	−0.206	47.938	−1.926
	1400.00	37.349	311.585	282.357	168.114	40.920	−268.106	−0.410	51.649	−1.927
	1500.00	37.357	314.163	284.392	171.849	44.655	−299.395	−0.617	55.374	−1.928
	1600.00	37.365	316.574	286.329	175.585	48.391	−330.933	−0.827	59.114	−1.930
	1700.00	37.371	318.839	288.176	179.322	52.128	−362.704	−1.042	62.867	−1.932
	1800.00	37.377	320.975	289.939	183.060	55.866	−394.696	−1.260	66.632	−1.934
	1900.00	37.382	322.996	291.626	186.798	59.604	−426.896	−1.481	70.410	−1.936
	2000.00	37.387	324.914	293.243	190.536	63.342	−459.292	−1.706	74.200	−1.938

References

Phase	H / S	C_p
GAS	Mi1	Mi1

HgSO4 MERCURY SULFATE 296.654

Phase	T [K]	C_p J / (K mol)	S J / (K mol)	−(G−H298)/T J / (K mol)	H kJ / mol	H−H298 kJ / mol	G kJ / mol	ΔH_f kJ / mol	ΔG_f kJ / mol	log K_f [−]
SOL	298.15	102.237	140.164	140.164	−707.502	0.000	−749.292	−707.502	−594.776	104.202
	300.00	102.508	140.797	140.166	−707.313	0.189	−749.552	−707.515	−594.077	103.438
	400.00	117.152	172.293	144.362	−696.330	11.172	−765.247	−709.820	−556.128	72.623
	500.00	131.796	200.007	152.768	−683.882	23.620	−783.886	−710.120	−517.667	54.080
	600.00	146.440	225.331	162.778	−669.970	37.532	−805.169	−708.817	−479.270	41.724
	700.00	161.084	249.005	173.422	−654.594	52.908	−828.897	−764.759	−434.580	32.429
	800.00	175.728	271.470	184.285	−637.754	69.748	−854.930	−760.031	−387.720	25.316

References

Phase	H / S	C_p
SOL	Nb1/e	e

Hg2SO4 DIMERCURY SULFATE 497.244

Phase	T [K]	C_p J / (K mol)	S J / (K mol)	−(G−H298)/T J / (K mol)	H kJ / mol	H−H298 kJ / mol	G kJ / mol	ΔH_f kJ / mol	ΔG_f kJ / mol	log K_f [−]
SOL	298.15	131.961	200.832	200.832	−743.120	0.000	−802.998	−743.120	−625.854	109.647
	300.00	132.224	201.649	200.835	−742.876	0.244	−803.370	−743.130	−625.126	108.844
	400.00	146.442	241.635	206.191	−728.942	14.178	−825.596	−745.249	−585.683	76.482

References

Phase	H / S	C_p
SOL	St2	e

279.550 MERCURY SELENIDE **HgSe**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	53.568	100.834	100.834	−43.514	0.000	−73.578	−43.514	−38.350	6.719
	300.00	53.597	101.166	100.835	−43.415	0.099	−73.765	−43.514	−38.317	6.672
	400.00	55.145	116.797	102.956	−37.978	5.536	−84.696	−43.509	−36.587	4.778
	500.00	56.693	129.268	107.012	−32.386	11.128	−97.020	−49.454	−34.769	3.632
	600.00	58.241	139.742	111.617	−26.639	16.875	−110.484	−49.936	−31.784	2.767
	700.00	59.789	148.836	116.298	−20.738	22.776	−124.923	−109.049	−22.093	1.649
	800.00	61.337	156.921	120.880	−14.681	28.833	−140.218	−108.585	−9.700	0.633
	900.00	62.886	164.234	125.297	−8.470	35.044	−156.281	−107.967	2.625	−0.152
	1000.00	64.434	170.940	129.530	−2.104	41.410	−173.044	−107.195	14.873	−0.777
	1043.00	65.099	173.667	131.294	0.681	44.195	−180.454	−160.946	22.027	−1.103

References

Phase	H / S	C_p	Remarks
SOL	Mi1	Mi1	Mi1 DEC., MPT= 1043.

279.550 MERCURY SELENIDE (GAS) **HgSe[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	36.766	265.961	265.961	167.360	0.000	88.064	167.360	123.292	−21.600
	300.00	36.774	266.188	265.962	167.428	0.068	87.572	167.329	123.019	−21.419
	400.00	37.051	276.811	267.408	171.121	3.761	60.397	165.591	108.506	−14.169
	500.00	37.179	285.094	270.147	174.833	7.473	32.286	157.765	94.538	−9.876
	600.00	37.249	291.880	273.221	178.555	11.195	3.428	155.258	82.128	−7.150
	700.00	37.292	297.625	276.307	182.282	14.922	−26.055	93.971	76.775	−5.729
	800.00	37.319	302.607	279.290	186.013	18.653	−56.072	92.109	74.445	−4.861
	900.00	37.338	307.003	282.130	189.746	22.386	−86.557	90.249	72.349	−4.199
	1000.00	37.352	310.938	284.817	193.481	26.121	−117.457	88.390	70.460	−3.680
	1100.00	37.363	314.499	287.356	197.216	29.856	−148.732	33.221	73.711	−3.500
	1200.00	37.370	317.750	289.756	200.953	33.593	−180.347	32.811	77.410	−3.370
	1300.00	37.377	320.741	292.026	204.690	37.330	−212.273	32.414	81.143	−3.260
	1400.00	37.382	323.512	294.177	208.428	41.068	−244.488	32.030	84.906	−3.168
	1500.00	37.386	326.091	296.220	212.167	44.807	−276.969	31.658	88.696	−3.089
	1600.00	37.389	328.504	298.163	215.906	48.546	−309.700	31.299	92.510	−3.020
	1700.00	37.392	330.771	300.015	219.645	52.285	−342.665	30.953	96.346	−2.960
	1800.00	37.395	332.908	301.783	223.384	56.024	−375.850	30.621	100.203	−2.908
	1900.00	37.397	334.930	303.475	227.124	59.764	−409.243	30.301	104.077	−2.861
	2000.00	37.399	336.848	305.096	230.863	63.503	−442.833	29.994	107.968	−2.820

References

Phase	H / S	C_p
GAS	Mi1	Mi1

HgSeO3 — MERCURY SELENITE — 327.548

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	102.142	162.323	162.323	−365.263	0.000	−413.659	−365.263	−286.684	50.226
	300.00	102.257	162.955	162.324	−365.074	0.189	−413.960	−365.254	−286.197	49.831
	400.00	108.449	193.220	166.409	−354.539	10.724	−431.827	−364.608	−259.933	33.944
	500.00	114.642	218.085	174.327	−343.384	21.879	−452.427	−369.579	−233.782	24.423
	600.00	120.834	239.534	183.446	−331.610	33.653	−475.331	−368.773	−206.691	17.994
	633.00	122.877	246.058	186.541	−327.589	37.674	−483.344	−427.615	−197.431	16.292

References

Phase	H / S	C_p	Remarks	
SOL	Tk1	e	Tk1	TPT= 633., MPT= 738.

HgTe — MERCURY TELLURIDE — 328.190

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	54.798	112.968	112.968	−31.798	0.000	−65.479	−31.798	−28.093	4.922
	300.00	54.815	113.307	112.969	−31.697	0.101	−65.689	−31.796	−28.070	4.887
	400.00	55.723	129.201	115.130	−26.170	5.628	−77.850	−31.719	−26.842	3.505
	500.00	56.630	141.732	119.240	−20.552	11.246	−91.418	−31.734	−25.623	2.677
	600.00	57.538	152.137	123.880	−14.844	16.954	−106.126	−31.868	−24.390	2.123
	700.00	58.446	161.075	128.570	−9.044	22.754	−121.797	−90.916	−16.487	1.230
	800.00	59.354	168.939	133.134	−3.154	28.644	−138.305	−108.295	−3.993	0.261
	900.00	60.262	175.982	137.511	2.826	34.624	−155.558	−108.158	9.038	−0.525
	943.00	60.653	178.804	139.330	5.426	37.224	−163.186	−108.072	14.635	−0.811

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1	Mi1	MPT= 943., L= 35.6 kJ

328.190 MERCURY TELLURIDE (GAS) **HgTe**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	36.968	273.450	273.450	184.096	0.000	102.567	184.096	139.953	−24.519
	300.00	36.973	273.679	273.451	184.164	0.068	102.061	184.065	139.679	−24.320
	400.00	37.165	284.346	274.904	187.873	3.777	74.134	182.324	125.143	−16.342
	500.00	37.254	292.649	277.653	191.594	7.498	45.269	180.412	111.065	−11.603
	600.00	37.302	299.446	280.736	195.322	11.226	15.654	178.298	97.390	−8.479
	700.00	37.332	305.199	283.830	199.054	14.958	−14.585	117.183	90.725	−6.770
	800.00	37.351	310.185	286.820	202.788	18.692	−45.360	97.648	88.953	−5.808
	900.00	37.364	314.585	289.665	206.524	22.428	−76.603	95.539	87.993	−5.107
	1000.00	37.374	318.523	292.358	210.261	26.165	−108.262	93.432	87.267	−4.558
	1100.00	37.381	322.085	294.901	213.999	29.903	−140.295	91.326	86.752	−4.120
	1200.00	37.387	325.338	297.304	217.737	33.641	−172.668	89.220	86.430	−3.762
	1300.00	37.391	328.331	299.577	221.476	37.380	−205.354	87.115	86.283	−3.467
	1400.00	37.395	331.102	301.731	225.215	41.119	−238.327	38.570	88.789	−3.313
	1500.00	37.398	333.682	303.776	228.955	44.859	−271.568	38.040	92.394	−3.217
	1600.00	37.400	336.096	305.721	232.695	48.599	−305.058	37.517	96.035	−3.135
	1700.00	37.403	338.363	307.575	236.435	52.339	−338.782	37.000	99.708	−3.064
	1800.00	37.405	340.501	309.346	240.175	56.079	−372.726	36.487	103.412	−3.001
	1900.00	37.406	342.523	311.039	243.916	59.820	−406.878	35.983	107.144	−2.946
	2000.00	37.408	344.442	312.662	247.657	63.561	−441.227	35.491	110.902	−2.896

References

Phase	H / S	C_p
GAS	Mi1	Mi1

Ho HOLMIUM 164.930

Phase	T [K]	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL–A	298.15	27.159	75.019	75.019	0.000	0.000	–22.367	0.000	0.000	0.000
	300.00	27.154	75.187	75.020	0.050	0.050	–22.506	0.000	0.000	0.000
	400.00	27.822	83.073	76.090	2.793	2.793	–30.436	0.000	0.000	0.000
	500.00	28.222	89.335	78.135	5.600	5.600	–39.067	0.000	0.000	0.000
	600.00	28.272	94.487	80.444	8.426	8.426	–48.266	0.000	0.000	0.000
	700.00	28.451	98.854	82.769	11.259	11.259	–57.939	0.000	0.000	0.000
	800.00	29.097	102.689	85.024	14.132	14.132	–68.019	0.000	0.000	0.000
	900.00	30.416	106.185	87.184	17.101	17.101	–78.465	0.000	0.000	0.000
	1000.00	31.852	109.458	89.249	20.209	20.209	–89.249	0.000	0.000	0.000
	1100.00	33.735	112.580	91.229	23.486	23.486	–100.352	0.000	0.000	0.000
	1200.00	35.930	115.607	93.135	26.966	26.966	–111.762	0.000	0.000	0.000
	1300.00	38.472	118.581	94.978	30.683	30.683	–123.471	0.000	0.000	0.000
	1400.00	41.398	121.536	96.769	34.674	34.674	–135.477	0.000	0.000	0.000
	1500.00	44.698	124.503	98.519	38.976	38.976	–147.779	0.000	0.000	0.000
	1600.00	48.303	127.501	100.237	43.623	43.623	–160.379	0.000	0.000	0.000
	1700.00	52.089	130.543	101.930	48.642	48.642	–173.281	0.000	0.000	0.000
	1701.00	52.127	130.574	101.947	48.694	48.694	–173.411	0.000	0.000	0.000
			2.757		4.690					
SOL–B	1701.00	28.033	133.331	101.947	53.384	53.384	–173.411	0.000	0.000	0.000
	1743.00	28.033	134.014	102.711	54.562	54.562	–179.026	0.000	0.000	0.000
			6.988		12.180					
LIQ	1743.00	43.932	141.002	102.711	66.742	66.742	–179.026	0.000	0.000	0.000
	1800.00	43.932	142.416	103.946	69.246	69.246	–187.103	0.000	0.000	0.000
	1900.00	43.932	144.791	106.034	73.639	73.639	–201.465	0.000	0.000	0.000
	2000.00	43.932	147.045	108.029	78.032	78.032	–216.057	0.000	0.000	0.000
	2100.00	43.932	149.188	109.938	82.425	82.425	–230.870	0.000	0.000	0.000
	2200.00	43.932	151.232	111.769	86.819	86.819	–245.892	0.000	0.000	0.000
	2300.00	43.932	153.185	113.528	91.212	91.212	–261.113	0.000	0.000	0.000
	2400.00	43.932	155.055	115.219	95.605	95.605	–276.526	0.000	0.000	0.000
	2500.00	43.932	156.848	116.849	99.998	99.998	–292.122	0.000	0.000	0.000
	2600.00	43.932	158.571	118.420	104.391	104.391	–307.893	0.000	0.000	0.000
	2700.00	43.932	160.229	119.938	108.785	108.785	–323.834	0.000	0.000	0.000
	2800.00	43.932	161.827	121.406	113.178	113.178	–339.937	0.000	0.000	0.000
	2900.00	43.932	163.368	122.827	117.571	117.571	–356.197	0.000	0.000	0.000
	2964.00	43.932	164.327	123.712	120.383	120.383	–366.684	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks
SOL–A	Hu1	Hu1	
SOL–B	Hu1	Hu1	
LIQ	Hu1	Hu1	Hu1 BPT= 2964., L= 242.50 kJ

164.930 HOLMIUM (GAS) **Ho**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.786	195.578	195.578	300.830	0.000	242.519	300.830	264.885	−46.407
	300.00	20.786	195.706	195.578	300.868	0.038	242.157	300.818	264.662	−46.082
	400.00	20.786	201.686	196.393	302.947	2.117	222.273	300.154	252.709	−33.000
	500.00	20.786	206.324	197.933	305.026	4.196	201.864	299.425	240.931	−25.170
	600.00	20.822	210.119	199.657	307.107	6.277	181.036	298.681	229.302	−19.963
	700.00	20.808	213.328	201.387	309.189	8.359	159.859	297.929	217.798	−16.252
	800.00	20.818	216.106	203.057	311.270	10.440	138.384	297.138	206.404	−13.477
	900.00	20.872	218.561	204.646	313.354	12.524	116.649	296.253	195.114	−11.324
	1000.00	20.970	220.765	206.149	315.445	14.615	94.681	295.236	183.929	−9.607
	1100.00	21.110	222.770	207.571	317.549	16.719	72.502	294.063	172.854	−8.208
	1200.00	21.287	224.614	208.915	319.669	18.839	50.132	292.702	161.894	−7.047
	1300.00	21.496	226.326	210.189	321.808	20.978	27.584	291.124	151.055	−6.069
	1400.00	21.733	227.927	211.400	323.969	23.139	4.870	289.295	140.348	−5.236
	1500.00	21.993	229.436	212.552	326.155	25.325	−17.998	287.179	129.780	−4.519
	1600.00	22.272	230.864	213.653	328.368	27.538	−41.014	284.745	119.365	−3.897
	1700.00	22.565	232.223	214.705	330.610	29.780	−64.169	281.968	109.112	−3.353
	1800.00	22.869	233.521	215.715	332.881	32.051	−87.457	263.636	99.647	−2.892
	1900.00	23.180	234.766	216.685	335.184	34.354	−110.871	261.545	90.593	−2.491
	2000.00	23.493	235.963	217.619	337.518	36.688	−134.408	259.485	81.649	−2.132
	2100.00	23.806	237.117	218.520	339.883	39.053	−158.063	257.457	72.807	−1.811
	2200.00	24.114	238.231	219.391	342.279	41.449	−181.830	255.460	64.062	−1.521
	2300.00	24.414	239.310	220.234	344.705	43.875	−205.708	253.493	55.406	−1.258
	2400.00	24.702	240.355	221.050	347.161	46.331	−229.691	251.556	46.835	−1.019
	2500.00	24.974	241.369	221.843	349.645	48.815	−253.778	249.647	38.344	−0.801
	2600.00	25.228	242.353	222.613	352.155	51.325	−277.964	247.764	29.929	−0.601
	2700.00	25.459	243.310	223.362	354.690	53.860	−302.247	245.905	21.586	−0.418
	2800.00	25.664	244.240	224.091	357.246	56.416	−326.625	244.068	13.312	−0.248
	2900.00	25.839	245.143	224.802	359.821	58.991	−351.094	242.250	5.103	−0.092
	3000.00	25.981	246.022	225.494	362.413	61.583	−375.653	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

HoBr3 HOLMIUM BROMIDE 404.642

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	98.753	194.138	194.138	−840.984	0.000	−898.866	−840.984	−808.427	141.633
	300.00	98.837	194.749	194.139	−840.801	0.183	−899.226	−841.061	−808.225	140.724
	400.00	102.143	223.682	198.062	−830.736	10.248	−920.209	−885.462	−788.048	102.909
	500.00	104.213	246.711	205.567	−820.412	20.572	−943.767	−883.484	−763.921	79.806
	600.00	105.798	265.856	214.064	−809.909	31.075	−969.422	−881.384	−740.203	64.440
	700.00	107.152	282.268	222.663	−799.260	41.724	−996.848	−879.171	−716.847	53.492
	800.00	108.384	296.658	231.031	−788.483	52.501	−1025.809	−876.888	−693.813	45.301
	900.00	109.545	309.491	239.049	−777.586	63.398	−1056.128	−874.596	−671.067	38.948
	1000.00	110.662	321.091	246.682	−766.575	74.409	−1087.666	−872.342	−648.574	33.878
	1100.00	111.750	331.690	253.935	−755.454	85.530	−1120.313	−870.157	−626.303	29.741
	1192.00	112.734	340.705	260.288	−745.128	95.856	−1151.248	−868.240	−605.987	26.555
			42.015		50.082					
LIQ	1192.00	143.930	382.720	260.288	−695.046	145.938	−1151.248	−818.158	−605.987	26.555
	1200.00	143.930	383.683	261.108	−693.894	147.090	−1154.313	−817.747	−604.565	26.316
	1300.00	143.930	395.203	270.986	−679.501	161.483	−1193.265	−812.750	−587.004	23.586

References

Phase	H / S	C_p
SOL	Pa2	Pa2
LIQ	Pa2	Pa2

404.642 HOLMIUM BROMIDE (GAS) **HoBr3**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	79.866	404.096	404.096	−548.522	0.000	−669.003	−548.522	−578.564	101.362
	300.00	79.899	404.590	404.097	−548.374	0.148	−669.751	−548.634	−578.750	100.769
	400.00	81.121	427.764	407.249	−540.316	8.206	−711.421	−595.042	−579.261	75.644
	500.00	81.777	445.942	413.235	−532.168	16.354	−755.139	−595.240	−575.293	60.100
	600.00	82.211	460.893	419.968	−523.968	24.554	−800.503	−595.442	−571.284	49.735
	700.00	82.541	473.591	426.745	−515.729	32.793	−847.243	−595.640	−567.242	42.328
	800.00	82.814	484.631	433.305	−507.461	41.061	−895.166	−595.866	−563.171	36.771
	900.00	83.055	494.400	439.561	−499.168	49.354	−944.127	−596.178	−559.066	32.447
	1000.00	83.275	503.162	445.491	−490.851	57.671	−994.013	−596.618	−554.920	28.986
	1100.00	83.483	511.109	451.100	−482.513	66.009	−1044.732	−597.216	−550.723	26.152
	1200.00	83.681	518.381	456.408	−474.155	74.367	−1096.212	−598.008	−546.463	23.787
	1300.00	83.873	525.087	461.437	−465.777	82.745	−1148.390	−599.025	−542.128	21.783
	1400.00	84.061	531.309	466.208	−457.380	91.142	−1201.213	−600.306	−537.705	20.062
	1500.00	84.245	537.115	470.744	−448.965	99.557	−1254.638	−601.888	−533.180	18.567
	1600.00	84.426	542.558	475.064	−440.531	107.991	−1308.624	−603.806	−528.539	17.255
	1700.00	84.606	547.682	479.186	−432.080	116.442	−1363.139	−606.085	−523.767	16.093
	1800.00	84.784	552.523	483.127	−423.610	124.912	−1418.151	−623.939	−518.236	15.039
	1900.00	84.961	557.112	486.902	−415.123	133.399	−1473.635	−625.572	−512.319	14.085
	2000.00	85.136	561.474	490.522	−406.618	141.904	−1529.566	−627.195	−506.316	13.224

References

Phase	H / S	C_p
GAS	Pa2	Pa2

HoCl3 HOLMIUM CHLORIDE 271.288

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	96.222	153.971	153.971	−1005.415	0.000	−1051.322	−1005.415	−929.171	162.787
	300.00	96.328	154.567	153.973	−1005.237	0.178	−1051.607	−1005.381	−928.698	161.701
	400.00	100.226	182.883	157.807	−995.385	10.030	−1068.538	−1003.473	−903.422	117.975
	500.00	102.276	205.488	165.159	−985.251	20.164	−1087.995	−1001.502	−878.636	91.790
	600.00	103.600	224.259	173.489	−974.953	30.462	−1109.509	−999.483	−854.252	74.369
	700.00	104.579	240.306	181.916	−964.542	40.873	−1132.756	−997.421	−830.209	61.951
	800.00	105.376	254.324	190.109	−954.043	51.372	−1157.502	−995.352	−806.463	52.657
	900.00	106.067	266.776	197.949	−943.470	61.945	−1183.569	−993.337	−782.974	45.443
	993.00	106.649	277.235	204.892	−933.579	71.836	−1208.873	−991.549	−761.326	40.048
			30.864		30.648					
LIQ	993.00	143.511	308.099	204.892	−902.931	102.484	−1208.873	−960.901	−761.326	40.048
	1000.00	143.511	309.107	205.618	−901.926	103.489	−1211.033	−960.513	−759.921	39.694
	1100.00	143.511	322.785	215.658	−887.575	117.840	−1242.639	−955.069	−740.127	35.146
	1200.00	143.511	335.272	225.113	−873.224	132.191	−1275.551	−949.844	−720.819	31.376
	1300.00	143.511	346.759	234.035	−858.873	146.542	−1309.660	−944.869	−701.937	28.204

References

Phase	H / S	C_p
SOL	Nb1/Pa2	Dw4,Pa2
LIQ	Dw4	Dw4,Pa2

271.288 HOLMIUM CHLORIDE (GAS) **HoCl3[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	78.169	377.364	377.364	−682.410	0.000	−794.921	−682.410	−672.771	117.867
	300.00	78.222	377.848	377.365	−682.265	0.145	−795.620	−682.410	−672.711	117.129
	400.00	80.139	400.649	380.461	−674.335	8.075	−834.595	−682.423	−669.478	87.425
	500.00	81.120	418.647	386.362	−666.267	16.143	−875.591	−682.519	−666.232	69.601
	600.00	81.733	433.495	393.016	−658.123	24.287	−918.220	−682.653	−662.963	57.716
	700.00	82.171	446.129	399.724	−649.927	32.483	−962.217	−682.805	−659.669	49.225
	800.00	82.516	457.124	406.226	−641.692	40.718	−1007.391	−683.001	−656.352	42.855
	900.00	82.808	466.861	412.433	−633.425	48.985	−1053.600	−683.292	−653.004	37.899
	1000.00	83.066	475.599	418.320	−625.131	57.279	−1100.730	−683.718	−649.618	33.933
	1100.00	83.302	483.527	423.893	−616.813	65.597	−1148.692	−684.306	−646.181	30.685
	1200.00	83.524	490.785	429.169	−608.471	73.939	−1197.413	−685.091	−642.682	27.975
	1300.00	83.735	497.479	434.170	−600.108	82.302	−1246.831	−686.105	−639.108	25.680
	1400.00	83.938	503.692	438.916	−591.724	90.686	−1296.893	−687.383	−635.447	23.709
	1500.00	84.136	509.490	443.430	−583.321	99.089	−1347.555	−688.964	−631.684	21.997
	1600.00	84.329	514.926	447.730	−574.897	107.513	−1398.779	−690.883	−627.804	20.496
	1700.00	84.519	520.044	451.835	−566.455	115.955	−1450.530	−693.164	−623.794	19.167
	1800.00	84.707	524.880	455.760	−557.994	124.416	−1502.778	−711.022	−619.024	17.964
	1900.00	84.892	529.465	459.520	−549.514	132.896	−1555.497	−712.661	−613.869	16.876
	2000.00	85.076	533.824	463.127	−541.015	141.395	−1608.664	−714.294	−608.627	15.896

References

Phase	H / S	C_p
GAS	Pa2	Pa2

379.380 HOLMIUM CHLORIDE HEXAHYDRATE **HoCl3*6H2O**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	347.295	406.183	406.183	−2878.174	0.000	−2999.277	−2878.174	−2459.860	430.957
	300.00	347.332	408.331	406.189	−2877.531	0.643	−3000.031	−2878.159	−2457.264	427.848
	400.00	349.097	508.504	419.835	−2842.707	35.467	−3046.108	−2877.627	−2317.060	302.577
	500.00	350.611	586.568	445.660	−2807.720	70.454	−3101.004	−2877.517	−2176.939	227.423
	600.00	352.025	650.618	474.641	−2772.588	105.586	−3162.958	−2877.715	−2036.809	177.320

References

Phase	H / S	C_p
SOL	Nb1	Nb1,e

HoF3 HOLMIUM FLUORIDE 221.926

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	91.202	118.826	118.826	−1697.867	0.000	−1733.295	−1697.867	−1620.233	283.858
	300.00	91.341	119.390	118.827	−1697.698	0.169	−1733.515	−1697.835	−1619.751	282.024
	400.00	96.431	146.457	122.483	−1688.278	9.589	−1746.860	−1695.978	−1593.998	208.155
	500.00	99.114	168.289	129.532	−1678.489	19.378	−1762.633	−1694.041	−1568.727	163.884
	600.00	100.850	186.522	137.553	−1668.485	29.382	−1780.399	−1692.073	−1543.848	134.404
	700.00	102.138	202.169	145.692	−1658.333	39.534	−1799.852	−1690.080	−1519.301	113.372
	800.00	103.188	215.878	153.626	−1648.066	49.801	−1820.768	−1688.093	−1495.040	97.616
	900.00	104.100	228.086	161.234	−1637.700	60.167	−1842.977	−1686.169	−1471.025	85.376
	1000.00	104.925	239.097	168.478	−1627.249	70.618	−1866.345	−1684.346	−1447.219	75.595
	1100.00	105.694	249.134	175.361	−1616.717	81.150	−1890.764	−1682.651	−1423.590	67.601
	1200.00	106.425	258.362	181.899	−1606.111	91.756	−1916.145	−1681.117	−1400.108	60.945
	1300.00	107.129	266.908	188.113	−1595.433	102.434	−1942.414	−1679.776	−1376.746	55.318
	1343.00	107.425	270.399	190.692	−1590.820	107.047	−1953.967	−1679.268	−1366.731	53.158
			0.000		0.000					
SOL−B	1343.00	126.189	270.399	190.692	−1590.820	107.047	−1953.967	−1679.268	−1366.731	53.158
	1400.00	126.189	275.645	194.045	−1583.627	114.240	−1969.530	−1677.605	−1353.502	50.500
	1416.00	126.189	277.079	194.975	−1581.608	116.259	−1973.952	−1677.157	−1349.800	49.793
			39.772		56.317					
LIQ	1416.00	96.013	316.850	194.975	−1525.291	172.576	−1973.952	−1620.840	−1349.800	49.793
	1500.00	96.007	322.383	201.956	−1517.227	180.640	−2000.802	−1621.172	−1333.713	46.444
	1600.00	96.004	328.579	209.679	−1507.626	190.241	−2033.353	−1621.904	−1314.527	42.915
	1700.00	96.005	334.400	216.846	−1498.026	199.841	−2066.505	−1623.024	−1295.284	39.799
	1800.00	96.008	339.887	223.531	−1488.425	209.442	−2100.222	−1639.746	−1275.349	37.010

References

Phase	H / S	C_p
SOL−A	Pa2	Pa2
SOL−B	S3	S3
LIQ	S3	S3

221.926 HOLMIUM FLUORIDE (GAS) **HoF3[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	71.197	342.260	342.260	−1242.648	0.000	−1344.693	−1242.648	−1231.631	215.777
	300.00	71.321	342.701	342.262	−1242.516	0.132	−1345.326	−1242.653	−1231.563	214.434
	400.00	75.756	363.912	345.123	−1235.133	7.515	−1380.697	−1242.833	−1227.835	160.339
	500.00	77.958	381.077	350.653	−1227.436	15.212	−1417.975	−1242.989	−1224.068	127.878
	600.00	79.281	395.416	356.952	−1219.570	23.078	−1456.819	−1243.157	−1220.268	106.234
	700.00	80.189	407.709	363.345	−1211.594	31.054	−1496.990	−1243.340	−1216.439	90.772
	800.00	80.876	418.463	369.577	−1203.539	39.109	−1538.310	−1243.567	−1212.582	79.173
	900.00	81.434	428.022	375.550	−1195.423	47.225	−1580.643	−1243.891	−1208.691	70.151
	1000.00	81.913	436.628	381.234	−1187.255	55.393	−1623.882	−1244.352	−1204.756	62.930
	1100.00	82.339	444.455	386.631	−1179.042	63.606	−1667.942	−1244.975	−1200.768	57.020
	1200.00	82.730	451.636	391.753	−1170.788	71.860	−1712.752	−1245.794	−1196.714	52.092
	1300.00	83.095	458.273	396.618	−1162.497	80.151	−1758.252	−1246.840	−1192.584	47.919
	1400.00	83.443	464.444	401.245	−1154.170	88.478	−1804.391	−1248.147	−1188.363	44.338
	1500.00	83.777	470.212	405.653	−1145.809	96.839	−1851.127	−1249.754	−1184.038	41.232
	1600.00	84.101	475.629	409.859	−1137.415	105.233	−1898.422	−1251.692	−1179.596	38.510
	1700.00	84.417	480.737	413.879	−1128.989	113.659	−1946.242	−1253.988	−1175.021	36.104
	1800.00	84.726	485.571	417.729	−1120.532	122.116	−1994.560	−1271.853	−1169.687	33.943
	1900.00	85.031	490.161	421.421	−1112.044	130.604	−2043.349	−1273.492	−1163.966	32.000
	2000.00	85.332	494.530	424.968	−1103.525	139.123	−2092.585	−1275.116	−1158.160	30.248

References

Phase	H / S	C_p
GAS	Pa2	Pa2

377.859 HOLMIUM OXIDE **Ho2O3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	114.975	158.197	158.197	−1880.708	0.000	−1927.874	−1880.708	−1791.394	313.845
	300.00	115.154	158.909	158.199	−1880.495	0.213	−1928.168	−1880.677	−1790.840	311.813
	400.00	121.644	193.048	162.810	−1868.613	12.095	−1945.832	−1878.738	−1761.175	229.986
	500.00	124.948	220.581	171.701	−1856.268	24.440	−1966.558	−1876.595	−1732.031	180.944
	600.00	126.997	243.555	181.815	−1843.664	37.044	−1989.797	−1874.382	−1703.325	148.288
	700.00	128.453	263.246	192.075	−1830.888	49.820	−2015.160	−1872.154	−1674.992	124.989
	800.00	129.594	280.476	202.070	−1817.984	62.724	−2042.364	−1870.000	−1646.974	107.536
	900.00	130.552	295.797	211.649	−1804.975	75.733	−2071.192	−1868.039	−1619.216	93.977
	1000.00	131.396	309.596	220.765	−1791.877	88.831	−2101.473	−1866.350	−1591.663	83.140
	1100.00	132.165	322.156	229.420	−1778.699	102.009	−2133.070	−1864.988	−1564.263	74.281
	1200.00	132.883	333.687	237.635	−1765.446	115.262	−2165.870	−1864.020	−1536.970	66.903
	1300.00	133.566	344.350	245.439	−1752.123	128.585	−2199.779	−1863.506	−1509.740	60.662
	1400.00	134.223	354.273	252.862	−1738.733	141.975	−2234.715	−1863.517	−1482.531	55.314
	1500.00	134.860	363.555	259.936	−1725.279	155.429	−2270.612	−1864.128	−1455.300	50.678

References

Phase	H / S	C_p
SOL	Nb1	Pa3

I[g] IODINE (GAS) 126.904

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.786	180.786	180.786	106.760	0.000	52.859	106.760	70.173	−12.294
	300.00	20.786	180.915	180.786	106.798	0.038	52.524	106.748	69.946	−12.179
	400.00	20.786	186.894	181.602	108.877	2.117	34.119	98.007	58.062	−7.582
	500.00	20.786	191.533	183.141	110.956	4.196	15.189	75.989	50.201	−5.244
	600.00	20.786	195.322	184.865	113.034	6.274	−4.159	76.192	45.025	−3.920
	700.00	20.786	198.527	186.594	115.113	8.353	−23.856	76.389	39.814	−2.971
	800.00	20.786	201.302	188.263	117.192	10.432	−43.850	76.582	34.576	−2.258
	900.00	20.786	203.751	189.850	119.271	12.511	−64.105	76.771	29.314	−1.701
	1000.00	20.783	205.941	191.352	121.349	14.589	−84.592	76.955	24.031	−1.255
	1100.00	20.793	207.922	192.770	123.428	16.668	−105.287	77.137	18.730	−0.889
	1200.00	20.816	209.732	194.109	125.508	18.748	−126.171	77.316	13.412	−0.584
	1300.00	20.851	211.400	195.376	127.591	20.831	−147.228	77.496	8.080	−0.325
	1400.00	20.896	212.946	196.576	129.679	22.919	−168.446	77.676	2.733	−0.102
	1500.00	20.950	214.390	197.716	131.771	25.011	−189.814	77.858	−2.626	0.091
	1600.00	21.012	215.744	198.801	133.869	27.109	−211.321	78.043	−7.998	0.261
	1700.00	21.080	217.020	199.835	135.973	29.213	−232.960	78.232	−13.381	0.411
	1800.00	21.152	218.227	200.824	138.085	31.325	−254.723	78.424	−18.776	0.545
	1900.00	21.229	219.372	201.770	140.204	33.444	−276.604	78.622	−24.181	0.665
	2000.00	21.310	220.463	202.678	142.331	35.571	−298.596	78.824	−29.597	0.773
	2100.00	21.394	221.505	203.550	144.466	37.706	−320.695	79.031	−35.023	0.871
	2200.00	21.480	222.502	204.389	146.610	39.850	−342.895	79.244	−40.459	0.961
	2300.00	21.569	223.459	205.197	148.762	42.002	−365.194	79.463	−45.905	1.043
	2400.00	21.660	224.379	205.977	150.924	44.164	−387.586	79.688	−51.361	1.118
	2500.00	21.752	225.265	206.731	153.094	46.334	−410.068	79.919	−56.826	1.187
	2600.00	21.846	226.120	207.461	155.274	48.514	−432.638	80.156	−62.300	1.252
	2700.00	21.941	226.946	208.167	157.463	50.703	−455.291	80.400	−67.784	1.311
	2800.00	22.037	227.746	208.852	159.662	52.902	−478.026	80.651	−73.277	1.367
	2900.00	22.134	228.521	209.517	161.871	55.111	−500.840	80.909	−78.779	1.419
	3000.00	22.232	229.273	210.163	164.089	57.329	−523.730	81.173	−84.290	1.468

References

Phase	H / S	C_p
GAS	Ja2	Ja1

253.809 **IODINE** **I2**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[	kJ / mol	]			[−]
SOL	298.15	54.437	116.142	116.142	0.000	0.000	−34.628	0.000	0.000	0.000
	300.00	54.507	116.479	116.143	0.101	0.101	−34.843	0.000	0.000	0.000
	386.75	63.546	131.224	117.899	5.153	5.153	−45.597	0.000	0.000	0.000
			40.122		15.517					
LIQ	386.75	80.672	171.345	117.899	20.670	20.670	−45.597	0.000	0.000	0.000
	400.00	80.672	174.063	119.714	21.739	21.739	−47.886	0.000	0.000	0.000
	457.67	80.672	184.927	127.262	26.391	26.391	−58.244	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks
SOL	Ja2	Ja1	
LIQ	Ja2	Ja1	Ja2 BPT= 457.666, L= 41.96 kJ

253.809 **IODINE (GAS)** **I2[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[	kJ / mol	]			[−]
GAS	298.15	36.878	260.685	260.685	62.421	0.000	−15.302	62.421	19.326	−3.386
	300.00	36.888	260.913	260.686	62.489	0.068	−15.785	62.388	19.058	−3.318
	400.00	37.246	271.580	262.138	66.198	3.777	−42.434	44.459	5.452	−0.712
	500.00	37.442	279.914	264.890	69.933	7.512	−70.024	0.000	0.000	0.000
	600.00	37.574	286.753	267.981	73.684	11.263	−98.367	0.000	0.000	0.000
	700.00	37.677	292.553	271.087	77.447	15.026	−127.340	0.000	0.000	0.000
	800.00	37.763	297.590	274.092	81.219	18.798	−156.853	0.000	0.000	0.000
	900.00	37.841	302.042	276.955	84.999	22.578	−186.839	0.000	0.000	0.000
	1000.00	37.912	306.033	279.667	88.787	26.366	−217.246	0.000	0.000	0.000
	1100.00	37.980	309.650	282.231	92.582	30.161	−248.033	0.000	0.000	0.000
	1200.00	38.045	312.957	284.655	96.383	33.962	−279.165	0.000	0.000	0.000
	1300.00	38.108	316.005	286.951	100.191	37.770	−310.616	0.000	0.000	0.000
	1400.00	38.170	318.831	289.129	104.005	41.584	−342.359	0.000	0.000	0.000
	1500.00	38.231	321.467	291.198	107.825	45.404	−374.375	0.000	0.000	0.000
	1600.00	38.291	323.936	293.167	111.651	49.230	−406.647	0.000	0.000	0.000
	1700.00	38.351	326.259	295.046	115.483	53.062	−439.158	0.000	0.000	0.000
	1800.00	38.410	328.453	296.842	119.321	56.900	−471.894	0.000	0.000	0.000
	1900.00	38.469	330.531	298.561	123.165	60.744	−504.844	0.000	0.000	0.000
	2000.00	38.528	332.506	300.209	127.015	64.594	−537.997	0.000	0.000	0.000
	2100.00	38.586	334.387	301.792	130.870	68.449	−571.343	0.000	0.000	0.000
	2200.00	38.644	336.183	303.315	134.732	72.311	−604.872	0.000	0.000	0.000
	2300.00	38.702	337.903	304.782	138.599	76.178	−638.577	0.000	0.000	0.000
	2400.00	38.760	339.551	306.196	142.472	80.051	−672.450	0.000	0.000	0.000
	2500.00	38.818	341.134	307.562	146.351	83.930	−706.485	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Ja2	Ja1

In INDIUM 114.820

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	26.728	57.823	57.823	0.000	0.000	−17.240	0.000	0.000	0.000
	300.00	26.715	57.988	57.823	0.049	0.049	−17.347	0.000	0.000	0.000
	400.00	28.971	65.870	58.883	2.795	2.795	−23.553	0.000	0.000	0.000
	429.76	30.331	67.996	59.441	3.677	3.677	−25.545	0.000	0.000	0.000
			7.595		3.264					
LIQ	429.76	29.483	75.591	59.441	6.941	6.941	−25.545	0.000	0.000	0.000
	500.00	29.422	80.049	62.031	9.009	9.009	−31.015	0.000	0.000	0.000
	600.00	29.335	85.406	65.494	11.947	11.947	−39.296	0.000	0.000	0.000
	700.00	29.248	89.921	68.670	14.876	14.876	−48.069	0.000	0.000	0.000
	800.00	29.161	93.821	71.575	17.797	17.797	−57.260	0.000	0.000	0.000
	900.00	29.074	97.251	74.242	20.708	20.708	−66.817	0.000	0.000	0.000
	1000.00	29.079	100.315	76.698	23.616	23.616	−76.698	0.000	0.000	0.000
	1100.00	29.079	103.086	78.973	26.524	26.524	−86.871	0.000	0.000	0.000
	1200.00	29.079	105.616	81.090	29.432	29.432	−97.308	0.000	0.000	0.000
	1300.00	29.079	107.944	83.067	32.340	32.340	−107.987	0.000	0.000	0.000
	1400.00	29.079	110.099	84.922	35.248	35.248	−118.891	0.000	0.000	0.000
	1500.00	29.079	112.105	86.668	38.156	38.156	−130.002	0.000	0.000	0.000
	1600.00	29.079	113.982	88.317	41.064	41.064	−141.307	0.000	0.000	0.000
	1700.00	29.079	115.745	89.879	43.971	43.971	−152.795	0.000	0.000	0.000
	1800.00	29.079	117.407	91.363	46.879	46.879	−164.453	0.000	0.000	0.000
	1900.00	29.079	118.979	92.775	49.787	49.787	−176.273	0.000	0.000	0.000
	2000.00	29.079	120.471	94.123	52.695	52.695	−188.246	0.000	0.000	0.000
	2100.00	29.079	121.889	95.412	55.603	55.603	−200.365	0.000	0.000	0.000
	2200.00	29.079	123.242	96.646	58.511	58.511	−212.622	0.000	0.000	0.000
	2300.00	29.079	124.535	97.831	61.419	61.419	−225.011	0.000	0.000	0.000
	2343.00	29.079	125.073	98.326	62.669	62.669	−230.378	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL	Hu1	Hu1	Hu1	MPT= 629.76
LIQ	Hu1	Hu1	Hu1	BPT= 2343., L= 231.45 kJ

114.820 INDIUM (GAS) **In[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.831	173.775	173.775	242.672	0.000	190.861	242.672	208.101	−36.458
	300.00	20.841	173.904	173.775	242.711	0.039	190.539	242.661	207.886	−36.196
	400.00	21.188	179.944	174.597	244.811	2.139	172.833	242.016	196.387	−25.645
	500.00	21.970	184.747	176.161	246.965	4.293	154.591	237.955	185.607	−19.390
	600.00	23.088	188.848	177.941	249.216	6.544	135.907	237.269	175.204	−15.253
	700.00	24.271	192.496	179.765	251.584	8.912	116.837	236.708	164.906	−12.305
	800.00	25.343	195.809	181.566	254.066	11.394	97.419	236.270	154.679	−10.100
	900.00	26.198	198.846	183.320	256.646	13.974	77.684	235.937	144.501	−8.387
	1000.00	26.771	201.639	185.014	259.297	16.625	57.658	235.680	134.356	−7.018
	1100.00	27.023	204.205	186.644	261.989	19.317	37.364	235.465	124.234	−5.899
	1200.00	27.118	206.562	188.207	264.698	22.026	16.824	235.266	114.131	−4.968
	1300.00	27.040	208.730	189.703	267.407	24.735	−3.942	235.067	104.045	−4.181
	1400.00	26.857	210.728	191.135	270.102	27.430	−24.916	234.855	93.974	−3.506
	1500.00	26.610	212.573	192.503	272.776	30.104	−46.083	234.620	83.919	−2.922
	1600.00	26.326	214.281	193.811	275.423	32.751	−67.426	234.360	73.881	−2.412
	1700.00	26.024	215.868	195.063	278.041	35.369	−88.935	234.069	63.860	−1.962
	1800.00	25.716	217.347	196.260	280.628	37.956	−110.596	233.748	53.857	−1.563
	1900.00	25.410	218.729	197.407	283.184	40.512	−132.401	233.397	43.872	−1.206
	2000.00	25.113	220.025	198.506	285.710	43.038	−154.339	233.015	33.907	−0.886
	2100.00	24.829	221.243	199.560	288.207	45.535	−176.403	232.604	23.961	−0.596
	2200.00	24.562	222.392	200.572	290.676	48.004	−198.586	232.166	14.036	−0.333
	2300.00	24.315	223.478	201.544	293.120	50.448	−220.880	231.701	4.132	−0.094
	2400.00	24.088	224.508	202.480	295.540	52.868	−243.279	0.000	0.000	0.000
	2500.00	23.885	225.487	203.381	297.939	55.267	−265.779	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

InAs — INDIUM ARSENIDE — 189.742

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	47.780	75.701	75.701	−58.601	0.000	−81.171	−58.601	−53.286	9.335
	300.00	47.794	75.997	75.702	−58.513	0.088	−81.312	−58.608	−53.253	9.272
	400.00	48.547	89.849	77.586	−53.696	4.905	−89.635	−59.042	−51.408	6.713
	500.00	49.300	100.763	81.168	−48.803	9.798	−99.185	−62.931	−48.893	5.108
	600.00	50.053	109.818	85.209	−43.836	14.765	−109.726	−63.524	−46.029	4.007
	700.00	50.806	117.590	89.293	−38.793	19.808	−121.106	−64.088	−43.069	3.214
	800.00	51.559	124.424	93.265	−33.674	24.927	−133.213	−64.622	−40.029	2.614
	900.00	52.313	130.540	97.073	−28.481	30.120	−145.967	−65.123	−36.925	2.143
	1000.00	53.066	136.091	100.702	−23.212	35.389	−159.303	−65.572	−33.767	1.764
	1100.00	53.819	141.184	104.153	−17.868	40.733	−173.170	−65.972	−30.567	1.451
	1200.00	54.572	145.899	107.438	−12.448	46.153	−187.527	−66.412	−27.330	1.190
	1215.00	54.685	146.578	107.917	−11.629	46.972	−189.720	−66.490	−26.841	1.154
			63.363		76.986					
LIQ	1215.00	59.831	209.941	107.917	65.357	123.958	−189.720	−10.496	−26.841	1.154
	1300.00	59.831	213.986	114.722	70.443	129.044	−207.739	10.334	−29.449	1.183
	1400.00	59.831	218.420	121.972	76.426	135.027	−229.362	9.632	−32.487	1.212
	1500.00	59.831	222.548	128.541	82.409	141.010	−251.413	−88.410	−29.021	1.011
	1600.00	59.831	226.410	134.539	88.392	146.993	−273.863	−87.202	−25.101	0.819
	1700.00	59.831	230.037	140.051	94.376	152.977	−296.687	−85.996	−21.256	0.653
	1800.00	59.831	233.457	145.146	100.359	158.960	−319.863	−84.790	−17.483	0.507

References

Phase	H / S	C_p
SOL	Nb1	Nb1,e
LIQ	Tk1	e

InAsO4 — INDIUM ARSENATE — 253.739

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	119.320	154.850	154.850	−978.303	0.000	−1024.471	−978.303	−874.257	153.166
	300.00	119.637	155.589	154.852	−978.082	0.221	−1024.759	−978.286	−873.611	152.109
	400.00	132.021	191.884	159.717	−965.436	12.867	−1042.190	−976.834	−838.917	109.551
	500.00	139.674	222.216	169.268	−951.829	26.474	−1062.937	−978.126	−804.121	84.006
	600.00	145.466	248.212	180.310	−937.562	40.741	−1086.489	−975.738	−769.539	66.994
	700.00	150.379	271.013	191.672	−922.764	55.539	−1112.473	−973.057	−735.381	54.875
	800.00	154.822	291.387	202.885	−907.501	70.802	−1140.611	−970.120	−701.625	45.811
	822.00	155.759	295.600	205.310	−904.085	74.218	−1147.068	−969.441	−694.250	44.117

References

Phase	H / S	C_p
SOL	G1	G1

194.724 INDIUM MONOBROMIDE **InBr**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	50.998	113.000	113.000	−175.300	0.000	−208.991	−175.300	−169.060	29.619
	300.00	51.045	113.316	113.001	−175.206	0.094	−209.200	−175.325	−169.022	29.429
	400.00	53.555	128.344	115.033	−169.976	5.324	−221.313	−190.081	−163.852	21.397
	500.00	56.066	140.564	118.953	−164.495	10.805	−234.777	−192.661	−156.835	16.384
	558.35	57.530	146.832	121.544	−161.180	14.120	−243.164	−192.146	−152.682	14.284
			43.462		24.267					
LIQ	558.35	60.668	190.294	121.544	−136.913	38.387	−243.164	−167.879	−152.682	14.284
	600.00	60.668	194.659	126.470	−134.387	40.913	−251.182	−167.350	−151.568	13.195
	700.00	60.668	204.011	136.896	−128.320	46.980	−271.127	−166.080	−149.038	11.121
	800.00	60.668	212.112	145.803	−122.253	53.047	−291.942	−164.807	−146.690	9.578
	900.00	60.668	219.257	153.575	−116.186	59.114	−313.518	−163.531	−144.502	8.387
	1000.00	60.668	225.649	160.469	−110.119	65.181	−335.769	−162.255	−142.456	7.441
	1002.66	60.668	225.811	160.642	−109.958	65.342	−336.369	−162.221	−142.403	7.419

References

Phase	H / S	C_p	Remarks
SOL	Nb1	e	
LIQ	Tk1	e	e BPT= 1002.66, L= 80.0 kJ

194.724 INDIUM MONOBROMIDE (GAS) **InBr[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	36.647	259.480	259.480	−56.900	0.000	−134.264	−56.900	−94.333	16.527
	300.00	36.671	259.707	259.480	−56.832	0.068	−134.744	−56.952	−94.565	16.465
	400.00	37.543	270.392	260.932	−53.116	3.784	−161.273	−73.221	−103.811	13.556
	500.00	37.978	278.821	263.696	−49.337	7.563	−188.748	−77.504	−110.806	11.576
	600.00	38.242	285.771	266.813	−45.526	11.374	−216.988	−78.489	−117.374	10.218
	700.00	38.423	291.680	269.954	−41.692	15.208	−245.868	−79.452	−123.778	9.236
	800.00	38.562	296.820	272.998	−37.842	19.058	−275.298	−80.397	−130.046	8.491
	900.00	38.676	301.369	275.902	−33.980	22.920	−305.212	−81.325	−136.196	7.905
	1000.00	38.773	305.449	278.657	−30.108	26.792	−335.557	−82.243	−142.244	7.430
	1100.00	38.861	309.149	281.263	−26.226	30.674	−366.289	−83.156	−148.199	7.037
	1200.00	38.942	312.533	283.730	−22.336	34.564	−397.376	−84.063	−154.072	6.707
	1300.00	39.017	315.653	286.067	−18.438	38.462	−428.787	−84.966	−159.870	6.424
	1400.00	39.090	318.548	288.285	−14.532	42.368	−460.499	−85.864	−165.598	6.179
	1500.00	39.159	321.247	290.393	−10.620	46.280	−492.490	−86.758	−171.262	5.964
	1600.00	39.227	323.776	292.402	−6.701	50.199	−524.743	−87.648	−176.867	5.774
	1700.00	39.293	326.156	294.318	−2.775	54.125	−557.240	−88.534	−182.416	5.605
	1800.00	39.358	328.404	296.150	1.158	58.058	−589.970	−89.416	−187.913	5.453
	1900.00	39.422	330.534	297.904	5.097	61.997	−622.917	−90.294	−193.361	5.316
	2000.00	39.485	332.558	299.586	9.042	65.942	−656.073	−91.168	−198.763	5.191

References

Phase	H / S	C_p
GAS	Nb1	Nb1,e

InBr3 INDIUM TRIBROMIDE 354.532

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	98.223	178.657	178.657	−428.902	0.000	−482.169	−428.902	−396.857	69.528
	300.00	98.324	179.265	178.659	−428.720	0.182	−482.500	−428.980	−396.658	69.064
	400.00	103.763	208.296	182.580	−418.616	10.286	−501.934	−473.344	−376.656	49.186
	500.00	109.202	232.034	190.165	−407.968	20.934	−523.985	−474.448	−352.190	36.793
	600.00	114.642	252.425	198.880	−396.775	32.127	−548.230	−471.771	−327.981	28.553
	692.85	119.692	269.274	207.204	−385.896	43.006	−572.463	−468.814	−305.941	23.065

References

Phase	H / S	C_p	Remarks
SOL	Nb1/e	e	Tk1 SPT= 682., L= 123.4 kJ / MPT= 692.85

InCl INDIUM MONOCHLORIDE 150.273

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	51.456	100.002	100.002	−186.021	0.000	−215.837	−186.021	−165.336	28.966
	300.00	51.509	100.320	100.003	−185.926	0.095	−216.022	−186.007	−165.207	28.765
	387.00	54.021	113.743	101.635	−181.335	4.686	−225.354	−185.293	−159.270	21.497
			1.351		0.523					
SOL−B	387.00	55.999	115.094	101.635	−180.812	5.209	−225.354	−184.770	−159.270	21.497
	400.00	55.999	116.945	102.103	−180.084	5.937	−226.862	−184.644	−158.415	20.687
	484.00	55.999	127.619	105.634	−175.380	10.641	−237.148	−187.181	−152.567	16.465
			44.002		21.297					
LIQ	484.00	66.998	171.621	105.634	−154.083	31.938	−237.148	−165.884	−152.567	16.465
	500.00	66.998	173.800	107.781	−153.011	33.010	−239.911	−165.571	−152.132	15.893
	600.00	66.998	186.015	119.833	−146.312	39.709	−257.921	−163.627	−149.627	13.026
	700.00	66.998	196.343	130.044	−139.612	46.409	−277.052	−161.694	−147.447	11.003
	800.00	66.998	205.290	138.903	−132.912	53.109	−297.143	−159.768	−145.543	9.503
	900.00	66.998	213.181	146.726	−126.212	59.809	−318.075	−157.842	−143.881	8.351
	1000.00	66.998	220.240	153.731	−119.512	66.509	−339.752	−155.921	−142.432	7.440
	1100.00	66.998	226.625	160.072	−112.812	73.209	−362.100	−154.006	−141.176	6.704

References

Phase	H / S	C_p
SOL−A	Pa2	Pa2
SOL−B	Pa2	Pa2
LIQ	Pa2	Pa2

150.273 INDIUM MONOCHLORIDE (GAS) **InCl[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[	J / (K mol)	]	[		kJ / mol		]	
GAS	298.15	36.137	248.271	248.271	−71.630	0.000	−145.652	−71.630	−95.151	16.670
	300.00	36.155	248.494	248.272	−71.563	0.067	−146.111	−71.644	−95.297	16.593
	400.00	36.802	258.996	249.699	−67.911	3.719	−171.510	−72.471	−103.063	13.459
	500.00	37.139	267.248	252.413	−64.213	7.417	−197.837	−76.772	−110.057	11.498
	600.00	37.354	274.039	255.468	−60.487	11.143	−224.911	−77.803	−116.617	10.152
	700.00	37.511	279.810	258.544	−56.744	14.886	−252.611	−78.827	−123.006	9.179
	800.00	37.637	284.827	261.522	−52.986	18.644	−280.848	−79.842	−129.247	8.439
	900.00	37.745	289.266	264.363	−49.217	22.413	−309.557	−80.847	−135.363	7.856
	1000.00	37.843	293.248	267.056	−45.438	26.192	−338.686	−81.846	−141.366	7.384
	1100.00	37.933	296.859	269.604	−41.649	29.981	−368.194	−82.842	−147.270	6.993
	1200.00	38.018	300.164	272.015	−37.851	33.779	−398.047	−83.835	−153.083	6.664
	1300.00	38.099	303.210	274.299	−34.045	37.585	−428.218	−84.823	−158.814	6.381
	1400.00	38.179	306.036	276.466	−30.231	41.399	−458.682	−85.808	−164.468	6.136
	1500.00	38.256	308.673	278.526	−26.410	45.220	−489.419	−86.788	−170.053	5.922
	1600.00	38.332	311.144	280.488	−22.580	49.050	−520.411	−87.765	−175.572	5.732
	1700.00	38.406	313.470	282.361	−18.743	52.887	−551.643	−88.737	−181.030	5.562
	1800.00	38.480	315.668	284.151	−14.899	56.731	−583.101	−89.706	−186.431	5.410
	1900.00	38.554	317.750	285.865	−11.047	60.583	−614.773	−90.671	−191.779	5.272
	2000.00	38.626	319.730	287.509	−7.188	64.442	−646.648	−91.632	−197.075	5.147

References

Phase	H / S	C_p
GAS	Pa2	Pa2

185.725 INDIUM DICHLORIDE **InCl2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[	J / (K mol)	]	[		kJ / mol		]	
SOL−2	298.15	73.546	122.173	122.173	−362.753	0.000	−399.179	−362.753	−315.417	55.260
	300.00	73.638	122.628	122.174	−362.617	0.136	−399.405	−362.729	−315.123	54.868
	400.00	78.659	144.500	125.123	−355.002	7.751	−412.802	−361.327	−299.462	39.106
	463.00	81.822	156.231	128.572	−349.947	12.806	−422.282	−363.637	−289.535	32.665
			0.000		0.000					
SOL−1	463.00	81.822	156.231	128.572	−349.947	12.806	−422.282	−363.637	−289.535	32.665
	500.00	83.680	162.592	130.856	−346.885	15.868	−428.181	−362.995	−283.638	29.631

References

Phase	H / S	C_p
SOL−2	Tk1	e
SOL−1	u	e

InCl2[g] INDIUM DICHLORIDE (GAS) 185.725

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	54.125	312.001	312.002	−222.087	0.000	−315.110	−222.087	−231.348	40.531
	300.00	54.172	312.336	312.003	−221.987	0.100	−315.688	−222.099	−231.406	40.291
	400.00	55.830	328.181	314.152	−216.475	5.612	−347.748	−222.800	−234.408	30.610
	500.00	56.612	340.733	318.256	−210.849	11.238	−381.215	−226.959	−236.672	24.725
	600.00	57.050	351.096	322.891	−205.164	16.923	−415.822	−227.847	−238.531	20.766
	700.00	57.326	359.913	327.566	−199.444	22.643	−451.383	−228.733	−240.242	17.927
	800.00	57.514	367.581	332.099	−193.702	28.385	−487.766	−229.616	−241.826	15.790
	900.00	57.653	374.363	336.425	−187.943	34.144	−524.870	−230.495	−243.299	14.121
	1000.00	57.760	380.443	340.528	−182.172	39.915	−562.615	−231.374	−244.675	12.780
	1100.00	57.846	385.953	344.411	−176.392	45.695	−600.940	−232.255	−245.962	11.680
	1200.00	57.919	390.989	348.086	−170.603	51.484	−639.790	−233.138	−247.169	10.759
	1300.00	57.982	395.628	351.567	−164.808	57.279	−679.124	−234.024	−248.303	9.977
	1400.00	58.038	399.927	354.870	−159.007	63.080	−718.905	−234.912	−249.368	9.304
	1500.00	58.088	403.933	358.009	−153.201	68.886	−759.100	−235.802	−250.369	8.719
	1600.00	58.135	407.683	360.997	−147.390	74.697	−799.683	−236.695	−251.311	8.204
	1700.00	58.178	411.209	363.848	−141.574	80.513	−840.629	−237.590	−252.198	7.749
	1800.00	58.219	414.535	366.573	−135.754	86.333	−881.918	−238.488	−253.031	7.343
	1900.00	58.258	417.684	369.181	−129.930	92.157	−923.530	−239.390	−253.814	6.978
	2000.00	58.296	420.673	371.681	−124.103	97.984	−965.449	−240.295	−254.550	6.648

References

Phase	H / S	C_p
GAS	Pa2	Pa2

InCl3 INDIUM TRICHLORIDE 221.178

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	95.250	141.001	141.001	−537.226	0.000	−579.265	−537.226	−462.242	80.983
	300.00	95.353	141.590	141.003	−537.050	0.176	−579.527	−537.193	−461.777	80.403
	400.00	100.918	169.784	144.809	−527.236	9.990	−595.150	−535.326	−436.916	57.055
	500.00	106.483	192.901	152.181	−516.866	20.360	−613.317	−536.527	−412.010	43.042
	600.00	112.048	212.807	160.663	−505.940	31.286	−633.624	−533.991	−387.336	33.721
	700.00	117.612	230.497	169.398	−494.457	42.769	−655.804	−530.952	−363.127	27.097
	800.00	123.177	246.565	178.054	−482.417	54.809	−679.669	−527.391	−339.389	22.160
	856.00	126.293	255.003	182.814	−475.432	61.794	−693.715	−525.164	−326.304	19.912

References

Phase	H / S	C_p	Remarks	
SOL	Tk1/e	e	Tk1	MPT= 856.

221.178 INDIUM TRICHLORIDE (GAS) **InCl3**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	76.701	341.357	341.357	−374.050	0.000	−475.825	−374.050	−358.802	62.861
	300.00	76.769	341.831	341.358	−373.908	0.142	−476.457	−374.052	−358.708	62.457
	400.00	79.320	364.312	344.406	−366.088	7.962	−511.812	−374.177	−353.579	46.173
	500.00	80.603	382.164	350.234	−358.085	15.965	−549.167	−377.745	−347.860	36.341
	600.00	81.334	396.930	356.821	−349.985	24.065	−588.143	−378.036	−341.856	29.761
	700.00	81.788	409.504	363.472	−341.827	32.223	−628.480	−378.323	−335.803	25.058
	800.00	82.089	420.446	369.924	−333.632	40.418	−669.990	−378.606	−329.709	21.528
	900.00	82.298	430.128	376.086	−325.412	48.638	−712.528	−378.887	−323.580	18.780
	1000.00	82.449	438.807	381.932	−317.175	56.875	−755.982	−379.169	−317.420	16.580
	1100.00	82.561	446.671	387.465	−308.924	65.126	−800.262	−379.456	−311.231	14.779
	1200.00	82.647	453.858	392.703	−300.663	73.387	−845.293	−379.749	−305.016	13.277
	1300.00	82.714	460.476	397.665	−292.395	81.655	−891.015	−380.049	−298.776	12.005
	1400.00	82.766	466.608	402.373	−284.121	89.929	−937.373	−380.354	−292.513	10.914
	1500.00	82.809	472.320	406.848	−275.842	98.208	−984.322	−380.666	−286.228	9.967
	1600.00	82.843	477.665	411.109	−267.560	106.490	−1031.824	−380.985	−279.921	9.138
	1700.00	82.872	482.689	415.173	−259.274	114.776	−1079.845	−381.312	−273.595	8.407
	1800.00	82.895	487.426	419.057	−250.985	123.065	−1128.353	−381.647	−267.249	7.755
	1900.00	82.915	491.909	422.774	−242.695	131.355	−1177.321	−381.991	−260.884	7.172
	2000.00	82.931	496.162	426.338	−234.403	139.647	−1226.727	−382.344	−254.501	6.647

References

Phase	H / S	C_p
GAS	Pa2	Pa2

In2Cl6[g] DIINDIUM HEXACHLORIDE (GAS) 442.356

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	168.964	528.992	528.992	−884.665	0.000	−1042.384	−884.665	−808.338	141.617
	300.00	169.117	530.038	528.995	−884.352	0.313	−1043.364	−884.640	−807.864	140.662
	400.00	174.756	579.566	535.710	−867.122	17.543	−1098.949	−883.302	−782.482	102.182
	500.00	177.554	618.895	548.550	−849.493	35.172	−1158.940	−888.814	−756.326	79.013
	600.00	179.136	651.419	563.063	−831.651	53.014	−1222.503	−887.754	−729.928	63.546
	700.00	180.115	679.112	577.712	−813.685	70.980	−1289.063	−886.676	−703.709	52.511
	800.00	180.761	703.208	591.926	−795.639	89.026	−1358.205	−885.587	−677.645	44.246
	900.00	181.209	724.526	605.497	−777.539	107.126	−1429.613	−884.488	−651.718	37.825
	1000.00	181.532	743.636	618.372	−759.401	125.264	−1503.037	−883.389	−625.913	32.694
	1100.00	181.773	760.949	630.559	−741.236	143.429	−1578.280	−882.300	−600.219	28.502
	1200.00	181.956	776.774	642.094	−723.049	161.616	−1655.177	−881.221	−574.622	25.013
	1300.00	182.098	791.344	653.022	−704.846	179.819	−1733.593	−880.153	−549.116	22.064
	1400.00	182.211	804.843	663.390	−686.630	198.035	−1813.411	−879.096	−523.691	19.539
	1500.00	182.301	817.418	673.244	−668.405	216.260	−1894.531	−878.052	−498.342	17.354
	1600.00	182.375	829.185	682.626	−650.171	234.494	−1976.867	−877.022	−473.061	15.444
	1700.00	182.435	840.244	691.576	−631.930	252.735	−2060.344	−876.007	−447.845	13.761
	1800.00	182.485	850.673	700.128	−613.684	270.981	−2144.895	−875.008	−422.688	12.266
	1900.00	182.527	860.540	708.313	−595.433	289.232	−2230.460	−874.025	−397.586	10.930
	2000.00	182.562	869.904	716.161	−577.179	307.486	−2316.986	−873.061	−372.535	9.730

References

Phase	H / S	C_p
GAS	Pa2	Pa2

133.818 INDIUM MONOFLUORIDE (GAS) **InF**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	34.151	236.254	236.254	−193.719	0.000	−264.158	−193.719	−216.687	37.963
	300.00	34.189	236.466	236.255	−193.656	0.063	−264.596	−193.734	−216.829	37.753
	400.00	35.552	246.514	237.616	−190.160	3.559	−288.765	−194.590	−224.403	29.304
	500.00	36.230	254.528	240.224	−186.567	7.152	−313.831	−198.894	−231.203	24.154
	600.00	36.639	261.172	243.178	−182.922	10.797	−339.626	−199.923	−237.568	20.682
	700.00	36.920	266.842	246.163	−179.244	14.475	−366.033	−200.949	−243.760	18.190
	800.00	37.133	271.786	249.064	−175.541	18.178	−392.970	−201.969	−249.807	16.311
	900.00	37.307	276.170	251.836	−171.818	21.901	−420.372	−202.983	−255.725	14.842
	1000.00	37.456	280.109	254.470	−168.080	25.639	−448.189	−203.992	−261.532	13.661
	1100.00	37.590	283.685	256.966	−164.328	29.391	−476.382	−205.001	−267.237	12.690
	1200.00	37.712	286.961	259.331	−160.562	33.157	−504.916	−206.008	−272.850	11.877
	1300.00	37.827	289.985	261.574	−156.785	36.934	−533.765	−207.012	−278.379	11.185
	1400.00	37.936	292.792	263.705	−152.997	40.722	−562.906	−208.013	−283.832	10.590
	1500.00	38.041	295.413	265.732	−149.198	44.521	−592.318	−209.010	−289.212	10.071
	1600.00	38.143	297.871	267.665	−145.389	48.330	−621.983	−210.004	−294.527	9.615
	1700.00	38.243	300.187	269.511	−141.570	52.149	−651.887	−210.993	−299.779	9.211
	1800.00	38.341	302.375	271.276	−137.740	55.979	−682.016	−211.978	−304.973	8.850
	1900.00	38.437	304.451	272.968	−133.902	59.817	−712.358	−212.959	−310.113	8.526
	2000.00	38.532	306.425	274.592	−130.053	63.666	−742.903	−213.934	−315.201	8.232

References

Phase	H / S	C_p
GAS	Pa2	Pa2

InF2[g] INDIUM DIFLUORIDE (GAS) 152.817

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	49.437	291.830	291.831	−477.478	0.000	−564.487	−477.478	−486.784	85.283
	300.00	49.503	292.137	291.831	−477.386	0.092	−565.027	−477.494	−486.842	84.767
	400.00	52.397	306.805	293.812	−472.281	5.197	−595.003	−478.347	−489.832	63.965
	500.00	54.177	318.705	297.638	−466.944	10.534	−626.297	−482.588	−492.055	51.405
	600.00	55.282	328.688	302.004	−461.467	16.011	−658.680	−483.522	−493.861	42.994
	700.00	56.000	337.268	306.443	−455.901	21.577	−691.988	−484.435	−495.511	36.976
	800.00	56.487	344.779	310.775	−450.275	27.203	−726.098	−485.336	−497.032	32.453
	900.00	56.829	351.453	314.931	−444.608	32.870	−760.916	−486.228	−498.441	28.929
	1000.00	57.079	357.454	318.888	−438.912	38.566	−796.366	−487.120	−499.750	26.104
	1100.00	57.266	362.904	322.646	−433.194	44.284	−832.388	−488.017	−500.969	23.789
	1200.00	57.410	367.893	326.212	−427.460	50.018	−868.932	−488.919	−502.107	21.856
	1300.00	57.524	372.493	329.597	−421.713	55.765	−905.954	−489.827	−503.169	20.218
	1400.00	57.615	376.759	332.815	−415.956	61.522	−943.419	−490.740	−504.161	18.810
	1500.00	57.691	380.737	335.879	−410.191	67.287	−981.296	−491.660	−505.088	17.589
	1600.00	57.754	384.462	338.800	−404.419	73.059	−1019.558	−492.585	−505.953	16.518
	1700.00	57.808	387.965	341.590	−398.641	78.837	−1058.181	−493.516	−506.760	15.571
	1800.00	57.854	391.271	344.259	−392.857	84.621	−1097.145	−494.454	−507.512	14.728
	1900.00	57.894	394.400	346.817	−387.070	90.408	−1136.430	−495.397	−508.212	13.972
	2000.00	57.930	397.370	349.271	−381.279	96.199	−1176.019	−496.346	−508.862	13.290

References

Phase	H / S	C_p
GAS	Pa2	Pa2

171.815 INDIUM TRIFLUORIDE **InF3**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	92.018	110.002	110.002	-1189.930	0.000	-1222.727	-1189.930	-1114.792	195.307
	300.00	92.086	110.571	110.003	-1189.760	0.170	-1222.931	-1189.896	-1114.326	194.021
	400.00	95.742	137.563	113.659	-1180.368	9.562	-1235.394	-1188.070	-1089.414	142.263
	500.00	99.399	159.320	120.683	-1170.611	19.319	-1250.271	-1189.573	-1064.417	111.199
	600.00	103.056	177.766	128.697	-1160.488	29.442	-1267.148	-1187.597	-1039.567	90.502
	700.00	106.713	193.927	136.884	-1150.000	39.930	-1285.749	-1185.363	-1015.068	75.745
	800.00	110.370	208.415	144.935	-1139.146	50.784	-1305.878	-1182.838	-990.909	64.700
	900.00	114.027	221.626	152.733	-1127.926	62.004	-1327.389	-1180.002	-967.085	56.128
	1000.00	117.683	233.829	160.240	-1116.341	73.589	-1350.170	-1176.845	-943.594	49.288
	1100.00	121.340	245.217	167.453	-1104.389	85.541	-1374.128	-1173.361	-920.435	43.708
	1200.00	124.997	255.932	174.384	-1092.073	97.857	-1399.191	-1169.545	-897.607	39.072
	1300.00	128.654	266.081	181.051	-1079.390	110.540	-1425.296	-1165.390	-875.112	35.162
	1400.00	132.311	275.749	187.472	-1066.342	123.588	-1452.391	-1160.894	-852.949	31.824
	1445.00	133.956	279.961	190.287	-1060.351	129.579	-1464.895	-1158.758	-843.085	30.476
			44.301		64.015					
LIQ	1445.00	134.001	324.262	190.287	-996.336	193.594	-1464.895	-1094.743	-843.085	30.476
	1500.00	134.001	329.268	195.292	-988.966	200.964	-1482.868	-1092.091	-833.556	29.027
	1600.00	134.001	337.916	203.938	-975.566	214.364	-1516.232	-1087.283	-816.477	26.655
	1700.00	134.001	346.040	212.061	-962.165	227.765	-1550.433	-1082.494	-799.699	24.572
	1800.00	134.001	353.699	219.719	-948.765	241.165	-1585.424	-1077.720	-783.201	22.728
	1900.00	134.001	360.944	226.963	-935.365	254.565	-1621.159	-1072.962	-766.969	21.085
	2000.00	134.001	367.818	233.835	-921.965	267.965	-1657.601	-1068.219	-750.987	19.614

References

Phase	H / S	C_p
SOL	Pa2	Pa2
LIQ	Pa2	Pa2

InF3[g] INDIUM TRIFLUORIDE (GAS) 171.815

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	69.828	309.977	309.977	−857.720	0.000	−950.139	−857.720	−842.205	147.551
	300.00	69.972	310.409	309.978	−857.591	0.129	−950.713	−857.727	−842.108	146.624
	400.00	75.084	331.342	312.797	−850.302	7.418	−982.839	−858.004	−836.859	109.283
	500.00	77.514	348.386	318.265	−842.659	15.061	−1016.852	−861.621	−830.998	86.814
	600.00	78.890	362.650	324.506	−834.834	22.886	−1052.424	−861.942	−824.843	71.809
	700.00	79.767	374.882	330.850	−826.898	30.822	−1089.315	−862.261	−818.634	61.087
	800.00	80.379	385.575	337.036	−818.889	38.831	−1127.349	−862.581	−812.380	53.043
	900.00	80.836	395.070	342.967	−810.827	46.893	−1166.390	−862.903	−806.086	46.784
	1000.00	81.197	403.606	348.611	−802.725	54.995	−1206.331	−863.229	−799.755	41.775
	1100.00	81.496	411.360	353.968	−794.590	63.130	−1247.085	−863.562	−793.392	37.675
	1200.00	81.752	418.462	359.051	−786.427	71.293	−1288.581	−863.899	−786.998	34.257
	1300.00	81.978	425.015	363.876	−778.240	79.480	−1330.759	−864.240	−780.576	31.364
	1400.00	82.182	431.097	368.463	−770.032	87.688	−1373.569	−864.584	−774.127	28.883
	1500.00	82.370	436.774	372.830	−761.805	95.915	−1416.965	−864.930	−767.654	26.732
	1600.00	82.546	442.096	376.995	−753.559	104.161	−1460.912	−865.276	−761.157	24.849
	1700.00	82.712	447.105	380.973	−745.296	112.424	−1505.374	−865.624	−754.639	23.187
	1800.00	82.871	451.837	384.780	−737.016	120.704	−1550.323	−865.971	−748.101	21.709
	1900.00	83.024	456.322	388.428	−728.722	128.998	−1595.733	−866.319	−741.543	20.386
	2000.00	83.172	460.584	391.930	−720.412	137.308	−1641.580	−866.666	−734.967	19.195

References

Phase	H / S	C_p
GAS	Pa2	Pa2

InI INDIUM MONOIODIDE 241.724

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	51.858	123.846	123.846	−115.897	0.000	−152.822	−115.897	−118.268	20.720
	300.00	51.882	124.167	123.847	−115.801	0.096	−153.051	−115.901	−118.283	20.595
	400.00	53.137	139.265	125.897	−110.550	5.347	−166.256	−124.214	−118.760	15.508
	500.00	54.392	151.257	129.810	−105.174	10.723	−180.802	−149.150	−114.775	11.990
	600.00	55.647	161.284	134.242	−99.672	16.225	−196.442	−148.461	−107.962	9.399
	638.00	56.124	164.716	135.956	−97.548	18.349	−202.637	−148.166	−105.406	8.630
			35.150		22.426					
LIQ	638.00	60.668	199.867	135.956	−75.122	40.775	−202.637	−125.740	−105.406	8.630
	700.00	60.668	205.493	141.870	−71.361	44.536	−215.206	−124.960	−103.467	7.721
	800.00	60.668	213.594	150.340	−65.294	50.603	−236.169	−123.700	−100.482	6.561
	900.00	60.668	220.740	157.773	−59.227	56.670	−257.893	−122.435	−97.656	5.668

References

Phase	H / S	C_p
SOL	Tk1	Ku1
LIQ	Tk1	e

241.724 INDIUM MONOIODIDE (GAS) **InI**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	36.930	267.467	267.467	7.531	0.000	−72.214	7.531	−37.661	6.598
	300.00	36.936	267.695	267.468	7.599	0.068	−72.709	7.500	−37.941	6.606
	400.00	37.146	278.354	268.920	11.305	3.774	−100.037	−2.359	−52.541	6.861
	500.00	37.243	286.655	271.667	15.025	7.494	−128.303	−28.951	−62.275	6.506
	600.00	37.296	293.450	274.748	18.752	11.221	−157.318	−30.037	−68.838	5.993
	700.00	37.327	299.202	277.841	22.483	14.952	−186.958	−31.116	−75.219	5.613
	800.00	37.347	304.188	280.830	26.217	18.686	−217.133	−32.189	−81.446	5.318
	900.00	37.360	308.587	283.675	29.953	22.422	−247.776	−33.256	−87.539	5.081
	1000.00	37.370	312.524	286.366	33.689	26.158	−278.835	−34.321	−93.514	4.885
	1100.00	37.377	316.086	288.909	37.427	29.896	−310.269	−35.389	−99.381	4.719
	1200.00	37.381	319.339	291.311	41.164	33.633	−342.042	−36.459	−105.152	4.577
	1300.00	37.385	322.331	293.584	44.903	37.372	−374.128	−37.533	−110.833	4.453
	1400.00	37.388	325.102	295.737	48.641	41.110	−406.501	−38.609	−116.431	4.344
	1500.00	37.390	327.681	297.782	52.380	44.849	−439.142	−39.688	−121.952	4.247
	1600.00	37.391	330.094	299.727	56.119	48.588	−472.032	−40.770	−127.401	4.159
	1700.00	37.392	332.361	301.580	59.859	52.328	−505.156	−41.854	−132.782	4.080
	1800.00	37.393	334.499	303.350	63.598	56.067	−538.500	−42.942	−138.099	4.008
	1900.00	37.394	336.520	305.043	67.337	59.806	−572.051	−44.032	−143.356	3.941
	2000.00	37.394	338.438	306.666	71.077	63.546	−605.800	−45.126	−148.556	3.880

References

Phase	H / S	C_p
GAS	Nb1	Pa2

InI2[g] INDIUM DIIODIDE (GAS) 368.629

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	57.067	351.775	351.775	−23.430	0.000	−128.312	−23.430	−76.444	13.393
	300.00	57.081	352.128	351.776	−23.324	0.106	−128.963	−23.475	−76.773	13.367
	400.00	57.563	368.625	354.022	−17.589	5.841	−165.039	−42.123	−93.600	12.223
	500.00	57.788	381.496	358.276	−11.820	11.610	−202.568	−90.763	−101.529	10.607
	600.00	57.911	392.044	363.052	−6.035	17.395	−241.261	−91.666	−103.597	9.019
	700.00	57.986	400.977	367.848	−0.239	23.191	−280.924	−92.563	−105.515	7.874
	800.00	58.036	408.724	372.484	5.562	28.992	−321.417	−93.454	−107.304	7.006
	900.00	58.071	415.562	376.898	11.367	34.797	−362.638	−94.341	−108.982	6.325
	1000.00	58.097	421.681	381.076	17.176	40.606	−404.506	−95.228	−110.561	5.775
	1100.00	58.116	427.219	385.023	22.986	46.416	−446.955	−96.120	−112.052	5.321
	1200.00	58.132	432.277	388.753	28.799	52.229	−489.933	−97.016	−113.460	4.939
	1300.00	58.144	436.930	392.282	34.613	58.043	−533.397	−97.918	−114.794	4.612
	1400.00	58.155	441.240	395.627	40.428	63.858	−577.308	−98.825	−116.058	4.330
	1500.00	58.164	445.252	398.803	46.244	69.674	−621.635	−99.737	−117.258	4.083
	1600.00	58.172	449.006	401.825	52.060	75.490	−666.350	−100.654	−118.396	3.865
	1700.00	58.179	452.533	404.705	57.878	81.308	−711.429	−101.576	−119.476	3.671
	1800.00	58.185	455.859	407.456	63.696	87.126	−756.850	−102.504	−120.503	3.497
	1900.00	58.190	459.005	410.087	69.515	92.945	−802.595	−103.437	−121.477	3.340
	2000.00	58.196	461.990	412.608	75.334	98.764	−848.646	−104.376	−122.402	3.197

References

Phase	H / S	C_p
GAS	Pa2	Pa2

InI3 INDIUM TRIIODIDE 495.533

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	164.013	203.342	203.342	−234.722	0.000	−295.349	−234.722	−226.167	39.624
	300.00	164.013	204.357	203.346	−234.419	0.303	−295.726	−234.619	−226.114	39.370
	400.00	164.013	251.540	209.779	−218.017	16.705	−318.633	−253.421	−223.252	29.154
	480.00	164.013	281.444	219.307	−204.896	29.826	−339.989	−317.094	−213.902	23.277
			41.840		20.083					
LIQ	480.00	135.980	323.283	219.307	−184.813	49.909	−339.989	−297.011	−213.902	23.277
	500.00	135.980	328.834	223.577	−182.094	52.628	−346.511	−296.003	−210.459	21.987
	600.00	135.980	353.626	243.249	−168.496	66.226	−380.671	−290.969	−193.824	16.874
	700.00	135.980	374.588	260.553	−154.898	79.824	−417.109	−285.945	−178.030	13.285
	800.00	135.980	392.745	275.967	−141.300	93.422	−455.496	−280.925	−162.956	10.640

References

Phase	H / S	C_p	Remarks	
SOL	Tk1,e	e		
LIQ	Tk1	e	Tk1	BPT= 719.4, L= 95.4 kJ

495.533 INDIUM TRIIODIDE (GAS) **InI3[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
GAS	298.15	81.152	400.016	400.016	−120.499	0.000	−239.764	−120.499	−170.582	29.885
	300.00	81.176	400.518	400.018	−120.349	0.150	−240.504	−120.549	−170.893	29.755
	400.00	82.025	424.005	403.214	−112.183	8.316	−281.785	−147.586	−186.403	24.342
	500.00	82.419	442.355	409.274	−103.958	16.541	−325.136	−217.867	−189.085	19.754
	600.00	82.634	457.403	416.079	−95.705	24.794	−370.147	−218.178	−183.299	15.958
	700.00	82.765	470.152	422.916	−87.434	33.065	−416.540	−218.481	−177.462	13.242
	800.00	82.851	481.209	429.527	−79.153	41.346	−464.121	−218.779	−171.581	11.203
	900.00	82.910	490.971	435.822	−70.865	49.634	−512.739	−219.073	−165.664	9.615
	1000.00	82.954	499.709	441.782	−62.572	57.927	−562.281	−219.369	−159.714	8.343
	1100.00	82.986	507.617	447.413	−54.275	66.224	−612.653	−219.671	−153.734	7.300
	1200.00	83.012	514.839	452.735	−45.975	74.524	−663.781	−219.981	−147.726	6.430
	1300.00	83.032	521.484	457.772	−37.672	82.827	−715.602	−220.298	−141.692	5.693
	1400.00	83.049	527.638	462.545	−29.368	91.131	−768.062	−220.623	−135.633	5.061
	1500.00	83.063	533.369	467.078	−21.063	99.436	−821.116	−220.955	−129.551	4.511
	1600.00	83.075	538.730	471.390	−12.756	107.743	−874.723	−221.296	−123.446	4.030
	1700.00	83.085	543.766	475.501	−4.448	116.051	−928.851	−221.644	−117.320	3.605
	1800.00	83.094	548.516	479.427	3.861	124.360	−983.467	−222.000	−111.173	3.226
	1900.00	83.102	553.009	483.182	12.171	132.670	−1038.545	−222.364	−105.006	2.887
	2000.00	83.109	557.271	486.781	20.482	140.981	−1094.061	−222.736	−98.819	2.581

References

Phase	H / S	C_p
GAS	Pa2	Pa2

128.827 INDIUM NITRIDE **InN**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	41.692	43.514	43.514	−17.154	0.000	−30.128	−17.154	15.676	−2.746
	300.00	41.714	43.772	43.514	−17.077	0.077	−30.208	−17.153	15.880	−2.765
	400.00	42.928	55.938	45.165	−12.845	4.309	−35.220	−17.125	26.884	−3.511
	500.00	44.141	65.648	48.322	−8.491	8.663	−41.315	−20.456	38.430	−4.015
	600.00	45.355	73.803	51.907	−4.016	13.138	−48.298	−20.411	50.204	−4.371
	700.00	46.568	80.885	55.552	0.580	17.734	−56.040	−20.265	61.963	−4.624
	800.00	47.781	87.183	59.119	5.297	22.451	−64.449	−20.023	73.695	−4.812
	900.00	48.995	92.881	62.559	10.136	27.290	−73.457	−19.684	85.390	−4.956
	1000.00	50.208	98.106	65.856	15.096	32.250	−83.010	−19.252	97.043	−5.069
	1100.00	51.421	102.948	69.010	20.177	37.331	−93.065	−18.727	108.648	−5.159
	1200.00	52.635	107.474	72.029	25.380	42.534	−103.589	−18.106	120.200	−5.232
	1300.00	53.848	111.735	74.921	30.704	47.858	−114.551	−17.387	131.698	−5.292
	1400.00	55.061	115.770	77.696	36.150	53.304	−125.928	−16.566	143.135	−5.340
	1473.00	55.947	118.591	79.653	40.202	57.356	−134.483	−15.902	151.446	−5.370

References

Phase	H / S	C_p	Remarks	
SOL	Tk1/Ku1	e	Tk1	MPT= 1473.

In2O[g] DIINDIUM OXIDE (GAS) 245.639

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	49.790	298.319	298.319	−65.689	0.000	−154.633	−65.689	−89.571	15.692
	300.00	49.844	298.627	298.320	−65.597	0.092	−155.185	−65.723	−89.719	15.621
	400.00	52.590	313.357	300.310	−60.470	5.219	−185.813	−67.572	−97.445	12.725
	500.00	54.531	325.316	304.152	−55.107	10.582	−217.765	−76.168	−103.603	10.823
	600.00	55.822	335.380	308.540	−49.585	16.104	−250.813	−78.101	−108.907	9.481
	700.00	56.704	344.055	313.009	−43.956	21.733	−284.795	−79.958	−113.894	8.499
	800.00	57.329	351.670	317.375	−38.253	27.436	−319.589	−81.764	−118.618	7.745
	900.00	57.788	358.450	321.569	−32.496	33.193	−355.101	−83.533	−123.118	7.146
	1000.00	58.135	364.558	325.568	−26.699	38.990	−391.257	−85.283	−127.422	6.656
	1100.00	58.403	370.112	329.369	−20.872	44.817	−427.994	−87.026	−131.552	6.247
	1200.00	58.615	375.203	332.979	−15.020	50.669	−465.264	−88.765	−135.523	5.899
	1300.00	58.784	379.901	336.410	−9.150	56.539	−503.022	−90.502	−139.349	5.599
	1400.00	58.921	384.263	339.674	−3.265	62.424	−541.233	−92.239	−143.041	5.337
	1500.00	59.032	388.332	342.784	2.633	68.322	−579.865	−93.977	−146.610	5.105
	1600.00	59.123	392.145	345.751	8.541	74.230	−618.891	−95.719	−150.062	4.899
	1700.00	59.196	395.731	348.587	14.457	80.146	−658.286	−97.464	−153.405	4.714
	1800.00	59.256	399.117	351.301	20.380	86.069	−698.030	−99.215	−156.645	4.546
	1900.00	59.304	402.322	353.902	26.308	91.997	−738.104	−100.973	−159.787	4.393
	2000.00	59.341	405.365	356.400	32.240	97.929	−778.489	−102.738	−162.837	4.253

References

Phase	H / S	C_p
GAS	C2/Tk1	e

277.638 DIINDIUM TRIOXIDE **In2O3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	100.416	104.198	104.198	−925.789	0.000	−956.856	−925.789	−830.629	145.523
	300.00	100.734	104.820	104.200	−925.603	0.186	−957.049	−925.783	−830.039	144.523
	400.00	112.212	135.592	108.318	−914.879	10.910	−969.116	−925.007	−798.225	104.237
	500.00	117.960	161.310	116.419	−903.343	22.446	−983.998	−930.489	−765.574	79.979
	600.00	121.452	183.147	125.767	−891.361	34.428	−1001.249	−929.121	−732.716	63.789
	700.00	123.879	202.061	135.345	−879.088	46.701	−1020.531	−927.588	−700.102	52.242
	800.00	125.739	218.729	144.747	−866.604	59.185	−1041.587	−925.950	−667.714	43.597
	900.00	127.268	233.629	153.810	−853.951	71.838	−1064.218	−924.229	−635.537	36.886
	1000.00	128.593	247.108	162.476	−841.157	84.632	−1088.265	−922.444	−603.556	31.527
	1100.00	129.784	259.421	170.738	−828.237	97.552	−1113.600	−920.603	−571.756	27.150
	1200.00	130.884	270.762	178.607	−815.203	110.586	−1140.117	−918.708	−540.125	23.511
	1300.00	131.919	281.279	186.105	−802.062	123.727	−1167.725	−916.758	−508.656	20.438
	1400.00	132.908	291.092	193.257	−788.821	136.968	−1196.349	−914.752	−477.338	17.810
	1500.00	133.862	300.294	200.090	−775.482	150.307	−1225.923	−912.691	−446.166	15.537
	1600.00	134.791	308.963	206.626	−762.049	163.740	−1256.391	−910.574	−415.133	13.553

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	Pa1	Tk1	MPT= 2183.

InP INDIUM PHOSPHIDE 145.794

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL−A	298.15	45.436	59.802	59.802	−88.701	0.000	−106.531	−88.701	−77.046	13.498
	300.00	45.463	60.083	59.803	−88.617	0.084	−106.642	−88.710	−76.974	13.402
	400.00	46.928	73.363	61.603	−83.997	4.704	−113.342	−90.088	−72.790	9.505
	500.00	48.392	83.992	65.052	−79.231	9.470	−121.227	−94.169	−67.834	7.087
	600.00	49.857	92.944	68.974	−74.319	14.382	−130.085	−94.827	−62.502	5.441
	700.00	51.321	100.739	72.967	−69.260	19.441	−139.778	−95.330	−57.073	4.259
	800.00	52.785	107.688	76.880	−64.055	24.646	−150.205	−95.677	−51.582	3.368
	900.00	54.250	113.990	80.658	−58.703	29.998	−161.294	−95.870	−46.057	2.673
	910.00	54.396	114.590	81.028	−58.160	30.541	−162.437	−95.881	−45.504	2.612
			0.414		0.377					
SOL−B	910.00	55.229	115.004	81.028	−57.783	30.918	−162.437	−95.504	−45.504	2.612
	1000.00	55.229	120.213	84.324	−52.812	35.889	−173.025	−95.520	−40.558	2.119
	1100.00	55.229	125.477	87.830	−47.289	41.412	−185.314	−95.537	−35.061	1.665
	1200.00	55.229	130.282	91.170	−41.766	46.935	−198.105	−159.126	−28.473	1.239
	1300.00	55.229	134.703	94.351	−36.244	52.457	−211.357	−158.369	−17.616	0.708
	1328.00	55.229	135.880	95.214	−34.697	54.004	−215.145	−158.158	−14.587	0.574
			47.259		62.760					
LIQ	1328.00	58.576	183.139	95.214	28.063	116.764	−215.145	−95.398	−14.587	0.574
	1400.00	58.576	186.232	99.816	32.280	120.981	−228.444	−94.615	−10.226	0.382
	1500.00	58.576	190.273	105.714	38.138	126.839	−247.271	−93.533	−4.236	0.148
	1600.00	58.576	194.053	111.118	43.996	132.697	−266.490	−92.453	1.682	−0.055
	1700.00	58.576	197.604	116.102	49.853	138.554	−286.074	−91.377	7.532	−0.231

References

Phase	H / S	C_p
SOL−A	Nb1	Tk1,e
SOL−B	Tk1	e
LIQ	Tk1	e

146.886 INDIUM MONOSULFIDE **InS**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	48.123	69.036	69.036	−133.888	0.000	−154.471	−133.888	−127.674	22.368
	300.00	48.158	69.334	69.037	−133.799	0.089	−154.599	−133.891	−127.635	22.223
	400.00	50.041	83.446	70.948	−128.889	4.999	−162.267	−136.307	−125.437	16.380
	500.00	51.923	94.814	74.620	−123.791	10.097	−171.198	−141.326	−122.001	12.745
	600.00	53.806	104.447	78.808	−118.504	15.384	−181.173	−142.553	−118.010	10.274
	700.00	55.689	112.883	83.085	−113.030	20.858	−192.048	−143.317	−113.855	8.496
	800.00	57.572	120.442	87.290	−107.367	26.521	−203.720	−143.934	−109.604	7.156
	900.00	59.455	127.332	91.362	−101.515	32.373	−216.114	−197.201	−104.128	6.043
	965.00	60.678	131.520	93.927	−97.611	36.277	−224.528	−196.379	−97.435	5.274
			37.287		35.982					
LIQ	965.00	60.668	168.807	93.927	−61.629	72.259	−224.528	−160.397	−97.435	5.274
	1000.00	60.668	170.969	96.586	−59.505	74.383	−230.474	−159.934	−95.160	4.971
	1100.00	60.668	176.751	103.615	−53.439	80.449	−247.865	−158.618	−88.746	4.214
	1200.00	60.668	182.030	109.933	−47.372	86.516	−265.808	−157.307	−82.452	3.589
	1300.00	60.668	186.886	115.668	−41.305	92.583	−284.257	−156.002	−76.267	3.064
	1400.00	60.668	191.382	120.918	−35.238	98.650	−303.173	−154.702	−70.182	2.619
	1500.00	60.668	195.567	125.756	−29.171	104.717	−322.523	−153.407	−64.190	2.235
	1600.00	60.668	199.483	130.243	−23.105	110.783	−342.277	−152.117	−58.285	1.903
	1700.00	60.668	203.161	134.425	−17.038	116.850	−362.411	−150.830	−52.460	1.612
	1800.00	60.668	206.628	138.341	−10.971	122.917	−382.902	−149.548	−46.710	1.355

References

Phase	H / S	C_p
SOL	Mi1	Mi1
LIQ	Mi1	e

InS[g] INDIUM MONOSULFIDE (GAS) 146.886

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	35.028	251.777	251.777	233.049	0.000	157.982	233.049	184.779	−32.373
	300.00	35.057	251.994	251.778	233.114	0.065	157.516	233.022	184.480	−32.121
	400.00	36.084	262.241	253.168	236.678	3.629	131.782	229.260	168.613	−22.019
	500.00	36.560	270.350	255.822	240.313	7.264	105.138	222.778	154.335	−16.123
	600.00	36.818	277.041	258.817	243.983	10.934	77.759	219.935	140.922	−12.268
	700.00	36.974	282.729	261.837	247.673	14.624	49.763	217.386	127.956	−9.548
	800.00	37.075	287.673	264.764	251.376	18.327	21.238	214.808	115.355	−7.532
	900.00	37.144	292.044	267.557	255.087	22.038	−7.752	159.401	104.233	−6.050
	1000.00	37.194	295.960	270.205	258.804	25.755	−37.156	158.375	98.158	−5.127
	1100.00	37.230	299.507	272.710	262.526	29.477	−66.932	157.347	92.187	−4.378
	1200.00	37.258	302.748	275.080	266.250	33.201	−97.047	156.315	86.308	−3.757
	1300.00	37.280	305.731	277.325	269.977	36.928	−127.473	155.280	80.517	−3.235
	1400.00	37.297	308.494	279.453	273.706	40.657	−158.186	154.242	74.804	−2.791
	1500.00	37.311	311.068	281.476	277.436	44.387	−189.165	153.200	69.167	−2.409
	1600.00	37.322	313.476	283.402	281.168	48.119	−220.394	152.156	63.599	−2.076
	1700.00	37.332	315.739	285.238	284.901	51.852	−251.856	151.108	58.096	−1.785
	1800.00	37.340	317.873	286.992	288.634	55.585	−283.537	150.057	52.655	−1.528
	1900.00	37.346	319.892	288.671	292.369	59.320	−315.427	149.003	47.272	−1.300
	2000.00	37.352	321.808	290.281	296.104	63.055	−347.512	147.946	41.945	−1.095

References

Phase	H / S	C_p
GAS	Mi1	Mi1,e

325.838 DIINDIUM TRISULFIDE **In2S3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[	J / (K mol)	]	[		kJ / mol		]	
SOL−A	298.15	117.969	163.594	163.594	−355.640	0.000	−404.416	−355.640	−341.263	59.788
	300.00	118.122	164.325	163.597	−355.422	0.218	−404.719	−355.647	−341.174	59.404
	400.00	123.614	199.165	168.310	−343.298	12.342	−422.964	−362.757	−336.025	43.880
	500.00	126.332	227.070	177.365	−330.787	24.853	−444.322	−374.383	−327.748	34.240
	600.00	127.957	250.258	187.636	−318.067	37.573	−468.222	−378.266	−318.029	27.687
	660.00	128.665	262.488	193.893	−310.368	45.272	−483.609	−380.063	−311.916	24.686
			1.648		1.088					
SOL−B	660.00	134.342	264.136	193.893	−309.280	46.360	−483.609	−378.975	−311.916	24.686
	700.00	136.557	272.105	198.136	−303.862	51.778	−494.335	−379.848	−307.826	22.970
	800.00	142.097	290.702	208.563	−289.929	65.711	−522.490	−381.835	−297.400	19.418
	900.00	147.637	307.758	218.649	−275.442	80.198	−552.424	−541.792	−283.285	16.441
	1000.00	153.176	323.600	228.361	−260.402	95.238	−584.001	−538.072	−254.757	13.307
	1100.00	158.716	338.459	237.702	−244.807	110.833	−617.112	−533.820	−226.627	10.762
			3.652		4.017					
SOL−C	1100.00	159.410	342.111	237.702	−240.790	114.850	−617.112	−529.803	−226.627	10.762
	1200.00	159.410	355.981	246.989	−224.849	130.791	−652.026	−525.223	−199.267	8.674
	1300.00	159.410	368.741	255.870	−208.908	146.732	−688.271	−520.660	−172.290	6.923
	1400.00	159.410	380.554	264.359	−192.967	162.673	−725.743	−516.112	−145.663	5.435

References

Phase	H / S	C_p	Remarks	
SOL−A	Mi1	Mi1		
SOL−B	Mi1	Mi1		
SOL−C	Mi1	Mi1	Tk1	MPT= 1363.

766.496 PENTAINDIUM HEXASULFIDE **In5S6**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[	J / (K mol)	]	[		kJ / mol		]	
SOL	298.15	262.316	374.468	374.468	−774.040	0.000	−885.688	−774.040	−742.143	130.020
	300.00	262.574	376.091	374.473	−773.554	0.486	−886.382	−774.054	−741.945	129.184
	400.00	273.743	453.266	384.920	−746.702	27.338	−928.008	−788.415	−730.577	95.404
	500.00	282.127	515.280	404.990	−718.895	55.145	−976.535	−815.095	−712.371	74.421
	600.00	289.414	567.373	427.826	−690.312	83.728	−1030.736	−822.656	−691.053	60.162
	700.00	296.184	612.500	451.055	−661.029	113.011	−1089.778	−827.877	−668.691	49.898
	800.00	302.677	652.476	473.781	−631.084	142.956	−1153.064	−832.693	−645.624	42.155
	900.00	309.010	688.493	495.669	−600.499	173.541	−1220.142	−1153.906	−615.046	35.696
	1000.00	315.243	721.373	516.619	−569.285	204.755	−1290.659	−1148.242	−555.471	29.015
	1100.00	321.412	751.709	536.629	−537.452	236.588	−1364.332	−1142.002	−496.491	23.576

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	e	Mi1	NDPT= 1043.

In2(SO4)3 — DIINDIUM TRISULFATE — 517.831

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	280.002	272.002	272.002	−2787.000	0.000	−2868.097	−2787.000	−2437.958	427.120
	300.00	280.466	273.735	272.007	−2786.482	0.518	−2868.602	−2787.033	−2435.792	424.109
	400.00	305.570	357.858	283.308	−2757.180	29.820	−2900.323	−2794.792	−2318.246	302.732
	500.00	330.674	428.741	305.476	−2725.368	61.632	−2939.738	−2805.469	−2197.592	229.581
	600.00	355.778	491.249	331.324	−2691.045	95.955	−2985.794	−2806.707	−2075.843	180.718
	700.00	380.882	547.978	358.281	−2654.212	132.788	−3037.796	−2805.189	−1954.122	145.818
	800.00	405.986	600.476	385.312	−2614.869	172.131	−3095.250	−2801.788	−1832.754	119.667
	900.00	431.090	649.744	411.983	−2573.015	213.985	−3157.784	−2954.810	−1708.464	99.157
	943.00	441.885	670.114	423.290	−2554.246	232.754	−3186.163	−2949.799	−1649.032	91.343

References

Phase	H / S	C_p	Remarks
SOL	Nb1	Nb1,e	Tk1 TPT= 943.

InSb — INDIUM ANTIMONY — 236.570

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	49.471	86.199	86.199	−30.501	0.000	−56.201	−30.501	−25.389	4.448
	300.00	49.531	86.505	86.200	−30.409	0.092	−56.361	−30.506	−25.357	4.415
	400.00	51.839	101.106	88.175	−25.329	5.172	−65.771	−30.733	−23.609	3.083
	500.00	53.223	112.832	91.972	−20.071	10.430	−76.487	−34.310	−21.256	2.221
	600.00	54.241	122.629	96.287	−14.696	15.805	−88.273	−34.551	−18.621	1.621
	700.00	55.085	131.055	100.666	−9.229	21.272	−100.967	−34.772	−15.949	1.190
	797.00	55.815	138.251	104.811	−3.850	26.651	−114.035	−35.006	−13.326	0.873
			59.898		47.739					
LIQ	797.00	66.944	198.149	104.811	43.889	74.390	−114.035	−12.733	−13.326	0.873
	800.00	66.944	198.401	105.162	44.090	74.591	−114.630	12.758	−13.424	0.876
	900.00	66.944	206.285	115.968	50.785	81.286	−134.872	13.532	−16.745	0.972
	1000.00	66.944	213.339	125.359	57.479	87.980	−155.860	−5.692	−18.033	0.942
	1100.00	66.944	219.719	133.651	64.173	94.674	−177.518	−5.043	−19.299	0.916
	1200.00	66.944	225.544	141.070	70.868	101.369	−199.785	−4.395	−20.623	0.898

References

Phase	H / S	C_p
SOL−A	Nb1	Pa3
LIQ	Pa3	Pa3

193.780 INDIUM MONOSELENIDE **InSe**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	50.303	81.588	81.588	-117.989	0.000	-142.314	-117.989	-112.475	19.705
	300.00	50.334	81.899	81.589	-117.896	0.093	-142.466	-117.992	-112.441	19.578
	400.00	51.965	96.603	83.583	-112.781	5.208	-151.422	-118.290	-110.554	14.437
	500.00	53.597	108.374	87.402	-107.503	10.486	-161.690	-128.037	-107.937	11.276
	600.00	55.229	118.290	91.744	-102.062	15.927	-173.036	-129.048	-103.819	9.038
	700.00	56.861	126.926	96.166	-96.457	21.532	-185.305	-129.887	-99.545	7.428
	800.00	58.492	134.625	100.501	-90.689	27.300	-198.390	-130.555	-95.163	6.213
	900.00	60.124	141.609	104.686	-84.759	33.230	-212.207	-131.050	-90.707	5.265
	933.00	60.663	143.784	106.031	-82.766	35.223	-216.916	-131.177	-89.226	4.995
			37.221		34.727					
LIQ	933.00	60.668	181.004	106.031	-48.039	69.950	-216.916	-96.450	-89.226	4.995
	1000.00	60.668	185.212	111.197	-43.974	74.015	-229.186	-96.688	-88.699	4.633
	1100.00	60.668	190.994	118.192	-37.907	80.082	-248.000	-150.355	-82.928	3.938
	1200.00	60.668	196.273	124.482	-31.840	86.149	-267.368	-149.264	-76.847	3.345

References

Phase	H / S	C_p
SOL	Mi1	Mi1
LIQ	Mi1	Mi1

InSe[g] INDIUM MONOSELENIDE (GAS) 193.780

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	36.639	263.701	263.701	221.750	0.000	143.127	221.750	172.967	−30.303
	300.00	36.640	263.928	263.702	221.818	0.068	142.639	221.721	172.664	−30.063
	400.00	36.697	274.476	265.140	225.485	3.735	115.694	219.975	156.562	−20.445
	500.00	36.754	282.671	267.857	229.157	7.407	87.822	208.623	141.575	−14.790
	600.00	36.812	289.378	270.902	232.835	11.085	59.209	205.849	128.426	−11.180
	700.00	36.869	295.056	273.957	236.520	14.770	29.980	203.089	115.740	−8.637
	800.00	36.926	299.983	276.909	240.209	18.459	0.223	200.344	103.449	−6.755
	900.00	36.984	304.336	279.719	243.905	22.155	−29.998	197.613	91.502	−5.311
	1000.00	37.041	308.235	282.379	247.606	25.856	−60.629	194.892	79.857	−4.171
	1100.00	37.098	311.769	284.893	251.313	29.563	−91.632	138.865	73.440	−3.487
	1200.00	37.156	314.999	287.269	255.026	33.276	−122.973	137.602	67.548	−2.940
	1300.00	37.213	317.975	289.518	258.744	36.994	−154.624	136.356	61.761	−2.482
	1400.00	37.270	320.735	291.651	262.468	40.718	−186.561	135.129	56.069	−2.092
	1500.00	37.328	323.308	293.676	266.198	44.448	−218.765	133.919	50.464	−1.757
	1600.00	37.385	325.719	295.605	269.934	48.184	−251.217	132.728	44.939	−1.467
	1700.00	37.442	327.988	297.443	273.675	51.925	−283.904	131.555	39.488	−1.213
	1800.00	37.500	330.129	299.200	277.422	55.672	−316.811	130.401	34.106	−0.990
	1900.00	37.557	332.158	300.882	281.175	59.425	−349.926	129.265	28.787	−0.791
	2000.00	37.614	334.086	302.494	284.934	63.184	−383.239	128.148	23.528	−0.614

References

Phase	H / S	C_p
GAS	Tk1/Mi1	Mi1

In2Se3 DIINDIUM TRISELENIDE 466.520

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	140.563	201.250	201.250	−326.352	0.000	−386.355	−326.352	−314.077	55.025
	300.00	141.064	202.121	201.253	−326.091	0.261	−386.728	−326.331	−314.001	54.672
	400.00	168.113	246.407	207.109	−310.633	15.719	−409.196	−324.366	−310.146	40.501
	470.00	187.048	275.004	215.111	−298.202	28.150	−427.454	−328.649	−307.218	34.143
			2.991		1.406					
SOL−B	470.00	187.048	277.996	215.111	−296.796	29.556	−427.454	−327.243	−307.218	34.143
	500.00	195.163	289.818	219.240	−291.063	35.289	−435.972	−343.656	−305.728	31.939
	600.00	222.212	327.791	234.195	−270.194	56.158	−466.869	−339.207	−298.515	25.988

References

Phase	H / S	C_p	Remarks
SOL−A	Mi1	Mi1	
SOL−B	Mi1	Mi1	Mi1 TPT= 920., 1020. / MPT= 1173.

242.420 INDIUM MONOTELLURIDE **InTe**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	47.741	105.688	105.688	−71.965	0.000	−103.476	−71.965	−71.478	12.523
	300.00	47.777	105.983	105.689	−71.877	0.088	−103.672	−71.974	−71.475	12.445
	400.00	49.714	119.993	107.586	−67.002	4.963	−114.999	−72.530	−71.233	9.302
	500.00	51.651	131.295	111.232	−61.934	10.031	−127.581	−76.582	−70.284	7.343
	600.00	53.589	140.883	115.394	−56.672	15.293	−141.202	−77.385	−68.949	6.003
	700.00	55.526	149.289	119.648	−51.216	20.749	−155.719	−78.207	−67.479	5.035
	800.00	57.463	156.830	123.832	−45.567	26.398	−171.031	−96.668	−64.009	4.179
	900.00	59.400	163.710	127.886	−39.723	32.242	−187.063	−97.502	−59.874	3.475
	965.00	60.659	167.896	130.441	−35.822	36.143	−197.841	−97.938	−57.141	3.093
			37.201		35.899					
LIQ	965.00	60.668	205.097	130.441	0.077	72.042	−197.841	−62.039	−57.141	3.093
	1000.00	60.668	207.258	133.092	2.201	74.166	−205.057	−62.252	−56.959	2.975
	1100.00	60.668	213.041	140.102	8.268	80.233	−226.077	−62.858	−56.401	2.678
	1200.00	60.668	218.319	146.403	14.334	86.299	−247.649	−63.465	−55.787	2.428

References

Phase	H / S	C_p
SOL	Mi1	Mi1
LIQ	Mi1	Mi1

357.240 DIINDIUM TELLURIDE **In2Te**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	67.462	154.808	154.808	−79.705	0.000	−125.861	−79.705	−76.624	13.424
	300.00	67.530	155.226	154.809	−79.580	0.125	−126.148	−79.727	−76.605	13.338
	400.00	71.212	175.157	157.502	−72.643	7.062	−142.706	−80.965	−75.386	9.844
	500.00	74.894	191.443	162.708	−65.338	14.367	−161.059	−88.996	−72.747	7.600
	600.00	78.576	205.423	168.689	−57.664	22.041	−180.918	−90.325	−69.369	6.039
	700.00	82.257	217.812	174.837	−49.623	30.082	−202.091	−91.490	−65.782	4.909
	733.00	83.472	221.629	176.858	−46.888	32.817	−209.342	−109.352	−64.312	4.583

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	e	Tk1	MPT= 733.

In2Te3 DIINDIUM TRITELLURIDE 612.440

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL−A	298.15	123.351	234.304	234.304	−191.627	0.000	−261.485	−191.627	−182.733	32.014
	300.00	123.428	235.067	234.306	−191.399	0.228	−261.919	−191.640	−182.677	31.807
	400.00	127.612	271.148	239.198	−178.847	12.780	−287.306	−192.635	−179.559	23.448
	500.00	131.796	300.074	248.572	−165.876	25.751	−315.913	−200.812	−175.037	18.286
	600.00	135.980	324.473	259.240	−152.488	39.139	−347.171	−202.680	−169.710	14.775
	700.00	140.164	345.748	270.110	−138.680	52.947	−380.704	−204.776	−164.053	12.242
	800.00	144.348	364.738	280.772	−124.455	67.172	−416.245	−259.963	−152.440	9.953
	883.00	147.821	379.155	289.351	−112.330	79.297	−447.124	−262.049	−141.177	8.351
			0.000		0.000					
SOL−B	883.00	147.821	379.155	289.351	−112.330	79.297	−447.124	−262.049	−141.177	8.351
	900.00	148.532	381.981	291.074	−109.811	81.816	−453.594	−262.439	−138.846	8.058
	943.00	150.331	388.955	295.379	−103.385	88.242	−470.170	−263.372	−132.919	7.363
			86.520		81.588					
LIQ	943.00	154.808	475.474	295.379	−21.797	169.830	−470.170	−181.784	−132.919	7.363
	1000.00	154.808	484.560	305.906	−12.973	178.654	−497.533	−182.714	−129.937	6.787
	1100.00	154.808	499.315	322.829	2.508	194.135	−546.739	−184.346	−124.581	5.916
	1200.00	154.808	512.785	338.105	17.988	209.615	−597.353	−185.978	−119.075	5.183

References

Phase	H / S	C_p
SOL−A	Tk1/Mi1	e
SOL−B	u	e
LIQ	Tk1	e

192.220 IRIDIUM **Ir**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	24.961	35.505	35.505	0.000	0.000	−10.586	0.000	0.000	0.000
	300.00	24.971	35.660	35.506	0.046	0.046	−10.652	0.000	0.000	0.000
	400.00	25.507	42.917	36.492	2.570	2.570	−14.597	0.000	0.000	0.000
	500.00	26.043	48.666	38.371	5.148	5.148	−19.186	0.000	0.000	0.000
	600.00	26.579	53.462	40.497	7.779	7.779	−24.298	0.000	0.000	0.000
	700.00	27.202	57.603	42.652	10.466	10.466	−29.856	0.000	0.000	0.000
	800.00	27.901	61.280	44.755	13.221	13.221	−35.804	0.000	0.000	0.000
	900.00	28.621	64.608	46.778	16.046	16.046	−42.101	0.000	0.000	0.000
	1000.00	29.354	67.661	48.716	18.945	18.945	−48.716	0.000	0.000	0.000
	1100.00	30.094	70.494	50.569	21.917	21.917	−55.625	0.000	0.000	0.000
	1200.00	30.837	73.144	52.341	24.964	24.964	−62.809	0.000	0.000	0.000
	1300.00	31.583	75.642	54.038	28.085	28.085	−70.249	0.000	0.000	0.000
	1400.00	32.329	78.010	55.666	31.281	31.281	−77.933	0.000	0.000	0.000
	1500.00	33.075	80.265	57.232	34.551	34.551	−85.847	0.000	0.000	0.000
	1600.00	33.820	82.424	58.739	37.896	37.896	−93.983	0.000	0.000	0.000
	1700.00	34.563	84.496	60.194	41.315	41.315	−102.329	0.000	0.000	0.000
	1800.00	35.305	86.493	61.600	44.808	44.808	−110.879	0.000	0.000	0.000
	1900.00	36.044	88.422	62.961	48.376	48.376	−119.626	0.000	0.000	0.000
	2000.00	36.781	90.289	64.281	52.017	52.017	−128.562	0.000	0.000	0.000
	2100.00	37.516	92.102	65.563	55.732	55.732	−137.682	0.000	0.000	0.000
	2200.00	38.248	93.864	66.809	59.520	59.520	−146.980	0.000	0.000	0.000
	2300.00	38.978	95.580	68.023	63.381	63.381	−156.453	0.000	0.000	0.000
	2400.00	39.705	97.254	69.206	67.316	67.316	−166.095	0.000	0.000	0.000
	2500.00	40.429	98.890	70.361	71.322	71.322	−175.902	0.000	0.000	0.000
	2600.00	41.151	100.490	71.489	75.401	75.401	−185.872	0.000	0.000	0.000
	2700.00	41.870	102.056	72.592	79.552	79.552	−195.999	0.000	0.000	0.000
	2716.00	41.984	102.304	72.767	80.223	80.223	−197.634	0.000	0.000	0.000
			9.623		26.137					
LIQ	2716.00	41.840	111.927	72.767	106.360	106.360	−197.634	0.000	0.000	0.000
	2800.00	41.840	113.202	73.961	109.875	109.875	−207.090	0.000	0.000	0.000
	2900.00	41.840	114.670	75.339	114.059	114.059	−218.484	0.000	0.000	0.000
	3000.00	41.840	116.088	76.674	118.243	118.243	−230.022	0.000	0.000	0.000
	3100.00	41.840	117.460	77.968	122.427	122.427	−241.700	0.000	0.000	0.000
	3200.00	41.840	118.789	79.223	126.611	126.611	−253.513	0.000	0.000	0.000
	3300.00	41.840	120.076	80.441	130.795	130.795	−265.456	0.000	0.000	0.000
	3400.00	41.840	121.325	81.625	134.979	134.979	−277.527	0.000	0.000	0.000
	3500.00	41.840	122.538	82.777	139.163	139.163	−289.720	0.000	0.000	0.000
	3600.00	41.840	123.717	83.898	143.347	143.347	−302.033	0.000	0.000	0.000
	3700.00	41.840	124.863	84.990	147.531	147.531	−314.462	0.000	0.000	0.000
	3800.00	41.840	125.979	86.054	151.715	151.715	−327.005	0.000	0.000	0.000
	3900.00	41.840	127.066	87.092	155.899	155.899	−339.657	0.000	0.000	0.000
	4000.00	41.840	128.125	88.104	160.083	160.083	−352.417	0.000	0.000	0.000
	4100.00	41.840	129.158	89.093	164.267	164.267	−365.281	0.000	0.000	0.000
	4200.00	41.840	130.166	90.059	168.451	168.451	−378.248	0.000	0.000	0.000
	4300.00	41.840	131.151	91.003	172.635	172.635	−391.314	0.000	0.000	0.000
	4400.00	41.840	132.113	91.927	176.819	176.819	−404.477	0.000	0.000	0.000
	4500.00	41.840	133.053	92.830	181.003	181.003	−417.736	0.000	0.000	0.000
	4600.00	41.840	133.973	93.715	185.187	185.187	−431.087	0.000	0.000	0.000
	4697.00	41.840	134.846	94.555	189.245	189.245	−444.125	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks
SOL	Hu1	Hu1	
LIQ	Hu1	Hu1	Hu1 BPT= 4697., L= 604.1 kJ

Ir[g] IRIDIUM (GAS) 192.220

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.784	193.578	193.578	669.440	0.000	611.725	669.440	622.311	−109.026
	300.00	20.795	193.706	193.578	669.478	0.038	611.367	669.432	622.018	−108.303
	400.00	20.861	199.711	194.396	671.566	2.126	591.681	668.996	606.278	−79.172
	500.00	20.914	204.367	195.942	673.652	4.212	571.469	668.505	590.655	−61.705
	600.00	21.216	208.203	197.675	675.757	6.317	550.835	667.978	575.134	−50.070
	700.00	21.693	211.508	199.420	677.901	8.461	529.846	667.436	559.702	−41.765
	800.00	22.272	214.442	201.118	680.099	10.659	508.546	666.879	544.349	−35.542
	900.00	22.900	217.101	202.748	682.357	12.917	486.967	666.311	529.067	−30.706
	1000.00	23.547	219.547	204.307	684.680	15.240	465.133	665.735	513.849	−26.841
	1100.00	24.190	221.822	205.797	687.067	17.627	443.063	665.149	498.688	−23.681
	1200.00	24.817	223.953	207.222	689.517	20.077	420.773	664.553	483.582	−21.050
	1300.00	25.418	225.964	208.587	692.029	22.589	398.276	663.944	468.526	−18.826
	1400.00	25.986	227.868	209.897	694.600	25.160	375.584	663.319	453.517	−16.921
	1500.00	26.516	229.680	211.156	697.225	27.785	352.706	662.674	438.553	−15.272
	1600.00	27.006	231.407	212.368	699.902	30.462	329.651	662.006	423.633	−13.830
	1700.00	27.453	233.058	213.537	702.625	33.185	306.427	661.310	408.756	−12.560
	1800.00	27.855	234.638	214.666	705.391	35.951	283.042	660.583	393.921	−11.431
	1900.00	28.210	236.154	215.757	708.194	38.754	259.501	659.819	379.127	−10.423
	2000.00	28.519	237.609	216.814	711.031	41.591	235.813	659.014	364.374	−9.516
	2100.00	28.822	239.008	217.837	713.899	44.459	211.982	658.167	349.663	−8.697
	2200.00	29.084	240.355	218.830	716.794	47.354	188.013	657.274	334.993	−7.954
	2300.00	29.315	241.653	219.795	719.714	50.274	163.912	656.333	320.365	−7.276
	2400.00	29.518	242.905	220.732	722.656	53.216	139.684	655.341	305.779	−6.655
	2500.00	29.700	244.114	221.643	725.617	56.177	115.333	654.295	291.235	−6.085
	2600.00	29.864	245.282	222.530	728.596	59.156	90.862	653.194	276.734	−5.560
	2700.00	30.014	246.412	223.394	731.590	62.150	66.277	652.037	262.277	−5.074
	2800.00	30.150	247.506	224.235	734.598	65.158	41.581	624.723	248.671	−4.639
	2900.00	30.276	248.566	225.056	737.619	68.179	16.777	623.561	235.261	−4.238
	3000.00	30.393	249.595	225.857	740.653	71.213	−8.131	622.410	221.891	−3.863
	3100.00	30.501	250.593	226.639	743.698	74.258	−33.141	621.271	208.559	−3.514
	3200.00	30.603	251.563	227.403	746.753	77.313	−58.249	620.142	195.264	−3.187
	3300.00	30.698	252.506	228.149	749.818	80.378	−83.452	619.023	182.004	−2.881
	3400.00	30.788	253.424	228.879	752.892	83.452	−108.749	617.914	168.778	−2.593
	3500.00	30.873	254.318	229.593	755.976	86.536	−134.136	616.813	155.584	−2.322
	3600.00	30.954	255.189	230.292	759.067	89.627	−159.612	615.720	142.421	−2.066
	3700.00	31.030	256.038	230.977	762.166	92.726	−185.173	614.635	129.289	−1.825
	3800.00	31.103	256.866	231.647	765.273	95.833	−210.819	613.558	116.186	−1.597
	3900.00	31.172	257.675	232.304	768.387	98.947	−236.546	612.488	103.111	−1.381
	4000.00	31.239	258.465	232.948	771.507	102.067	−262.353	611.425	90.064	−1.176
	4100.00	31.302	259.237	233.580	774.634	105.194	−288.238	610.368	77.043	−0.982
	4200.00	31.362	259.992	234.200	777.768	108.328	−314.200	609.317	64.048	−0.797
	4300.00	31.420	260.731	234.808	780.907	111.467	−340.236	608.272	51.077	−0.620
	4400.00	31.476	261.454	235.406	784.052	114.612	−366.346	607.233	38.131	−0.453
	4500.00	31.529	262.162	235.993	787.202	117.762	−392.526	606.199	25.209	−0.293
	4600.00	31.579	262.855	236.569	790.357	120.917	−418.777	605.170	12.309	−0.140
	4700.00	31.628	263.535	237.136	793.518	124.078	−445.097	0.000	0.000	0.000
	4800.00	31.674	264.201	237.693	796.683	127.243	−471.484	0.000	0.000	0.000
	4900.00	31.719	264.855	238.240	799.852	130.412	−497.937	0.000	0.000	0.000
	5000.00	31.761	265.496	238.779	803.026	133.586	−524.455	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

431.932

IRIDIUM TRIBROMIDE

IrBr3

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	105.450	127.612	127.612	−177.820	0.000	−215.868	−177.820	−137.210	24.039
	300.00	105.488	128.264	127.614	−177.625	0.195	−216.104	−177.881	−136.957	23.846
	400.00	107.523	158.890	131.776	−166.974	10.846	−230.530	−221.478	−114.209	14.914
	500.00	109.558	183.102	139.702	−156.120	21.700	−247.671	−218.739	−87.706	9.163
	600.00	111.593	203.256	148.661	−145.063	32.757	−267.017	−215.890	−61.765	5.377
	700.00	113.628	220.611	157.728	−133.802	44.018	−288.230	−212.919	−36.311	2.710
	800.00	115.663	235.917	166.564	−122.337	55.483	−311.071	−209.831	−11.291	0.737

References

Phase	H / S	C_p
SOL	K4	K4

298.578

IRIDIUM TRICHLORIDE

IrCl3

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	85.842	114.851	114.851	−245.601	0.000	−279.844	−245.601	−169.475	29.691
	300.00	85.935	115.382	114.852	−245.442	0.159	−280.057	−245.583	−169.002	29.426
	400.00	89.851	140.682	118.275	−236.638	8.963	−292.911	−244.503	−143.634	18.757
	500.00	92.676	161.047	124.859	−227.507	18.094	−308.030	−243.306	−118.553	12.385
	600.00	95.070	178.160	132.353	−218.117	27.484	−325.013	−242.000	−93.724	8.159
	700.00	97.261	192.981	139.979	−208.499	37.102	−343.586	−240.584	−69.121	5.158
	800.00	99.344	206.105	147.440	−198.668	46.933	−363.553	−239.066	−44.729	2.921
	900.00	101.364	217.924	154.625	−188.633	56.968	−384.764	−237.445	−20.533	1.192
	1000.00	103.345	228.706	161.502	−178.397	67.204	−407.103	−235.720	3.476	−0.182
	1100.00	105.300	238.648	168.069	−167.965	77.636	−430.477	−233.890	27.308	−1.297

References

Phase	H / S	C_p
SOL	Nb1/Be6	e

IrF6[g] IRIDIUM HEXAFLUORIDE (GAS) 306.210

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	120.856	345.390	345.390	−543.920	0.000	−646.898	−543.920	−454.922	79.700
	300.00	121.152	346.138	345.392	−543.696	0.224	−647.538	−543.916	−454.370	79.113
	400.00	133.699	382.866	350.314	−530.899	13.021	−684.046	−543.284	−424.597	55.447
	500.00	141.137	413.569	359.981	−517.126	26.794	−723.911	−542.178	−395.047	41.270
	600.00	145.717	439.738	371.148	−502.766	41.154	−766.609	−540.868	−365.741	31.841
	700.00	148.696	462.439	382.604	−488.035	55.885	−811.743	−539.475	−336.663	25.122
	800.00	150.728	482.436	393.858	−473.058	70.862	−859.007	−538.070	−307.786	20.096
	900.00	152.170	500.277	404.709	−457.909	86.011	−908.158	−536.691	−279.084	16.198
	1000.00	153.226	516.367	415.084	−442.637	101.283	−959.004	−535.358	−250.533	13.086
	1100.00	154.022	531.010	424.967	−427.273	116.647	−1011.384	−534.085	−222.112	10.547
	1200.00	154.635	544.439	434.371	−411.839	132.081	−1065.165	−532.882	−193.805	8.436
	1300.00	155.117	556.836	443.321	−396.350	147.570	−1120.237	−531.755	−165.595	6.654
	1400.00	155.502	568.346	451.845	−380.818	163.102	−1176.503	−530.707	−137.468	5.129
	1500.00	155.814	579.086	459.974	−365.252	178.668	−1233.881	−529.742	−109.414	3.810
	1600.00	156.071	589.150	467.736	−349.657	194.263	−1292.298	−528.861	−81.421	2.658
	1700.00	156.284	598.619	475.159	−334.039	209.881	−1351.691	−528.068	−53.481	1.643
	1800.00	156.462	607.557	482.269	−318.402	225.518	−1412.004	−527.361	−25.585	0.742
	1900.00	156.614	616.020	489.088	−302.748	241.172	−1473.187	−526.743	2.274	−0.063
	2000.00	156.743	624.057	495.637	−287.080	256.840	−1535.194	−526.214	30.103	−0.786

References

Phase	H / S	C_p
GAS	Nb1/Pa2	Pa2

IrI IRIDIUM MONOIODIDE 319.124

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	52.277	108.784	108.784	−46.024	0.000	−78.458	−46.024	−50.558	8.858
	300.00	52.300	109.107	108.785	−45.927	0.097	−78.659	−46.024	−50.586	8.808
	400.00	53.555	124.325	110.851	−40.635	5.389	−90.365	−54.074	−51.825	6.768
	500.00	54.810	136.410	114.795	−35.216	10.808	−103.421	−75.330	−49.224	5.142
	600.00	56.066	146.515	119.262	−29.672	16.352	−117.581	−74.293	−44.099	3.839
	700.00	57.321	155.251	123.793	−24.003	22.021	−132.679	−73.192	−39.153	2.922
	800.00	58.576	162.987	128.218	−18.208	27.816	−148.598	−72.038	−34.368	2.244

References

Phase	H / S	C_p
SOL	Ku1/e	e

446.029 IRIDIUM DIIODIDE **IrI2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	79.465	158.992	158.992	−83.680	0.000	−131.083	−83.680	−85.870	15.044
	300.00	79.496	159.484	158.994	−83.533	0.147	−131.378	−83.680	−85.883	14.954
	400.00	81.170	182.582	162.132	−75.500	8.180	−148.533	−99.809	−86.050	11.237
	500.00	82.843	200.875	168.113	−67.299	16.381	−167.736	−142.380	−78.527	8.204
	600.00	84.517	216.127	174.878	−58.931	24.749	−188.607	−140.394	−65.941	5.741
	700.00	86.190	229.281	181.732	−50.396	33.284	−210.892	−138.308	−53.696	4.007
	800.00	87.864	240.899	188.415	−41.693	41.987	−234.412	−136.133	−41.756	2.726

References

Phase	H / S	C_p
SOL	Ku1/e	e

224.219 IRIDIUM DIOXIDE **IrO2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	59.985	58.576	58.576	−242.672	0.000	−260.136	−242.672	−188.386	33.004
	300.00	60.212	58.948	58.577	−242.561	0.111	−260.245	−242.661	−188.049	32.742
	400.00	68.505	77.560	61.058	−236.072	6.600	−267.095	−241.667	−169.976	22.197
	500.00	72.776	93.348	65.980	−228.988	13.684	−275.662	−240.220	−152.215	15.902
	600.00	75.466	106.870	71.696	−221.568	21.104	−285.690	−238.590	−134.765	11.732
	700.00	77.408	118.656	77.581	−213.919	28.753	−296.978	−236.884	−117.595	8.775
	800.00	78.952	129.096	83.380	−206.099	36.573	−309.376	−235.155	−100.671	6.573
	900.00	80.265	138.473	88.989	−198.137	44.535	−322.762	−233.424	−83.965	4.873
	1000.00	81.433	146.991	94.370	−190.051	52.621	−337.042	−231.699	−67.451	3.523
	1100.00	82.508	154.804	99.514	−181.853	60.819	−352.137	−229.983	−51.109	2.427
	1200.00	83.519	162.026	104.426	−173.551	69.121	−367.983	−228.276	−34.923	1.520
	1300.00	84.484	168.750	109.118	−165.151	77.521	−384.526	−226.580	−18.880	0.759

References

Phase	H / S	C_p
SOL	Be4	Tk1,e

IrO2[g] IRIDIUM DIOXIDE (GAS) 224.219

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	51.768	263.701	263.701	215.894	0.000	137.271	215.894	209.022	−36.620
	300.00	51.846	264.022	263.702	215.990	0.096	136.783	215.889	208.979	−36.387
	400.00	54.666	279.378	265.777	221.334	5.440	109.583	215.739	206.703	−26.993
	500.00	56.066	291.742	269.774	226.878	10.984	81.007	215.646	204.454	−21.359
	600.00	56.906	302.043	274.318	232.529	16.635	51.303	215.507	202.228	−17.606
	700.00	57.483	310.861	278.924	238.250	22.356	20.647	215.286	200.031	−14.927
	800.00	57.919	318.567	283.408	244.021	28.127	−10.832	214.965	197.873	−12.920
	900.00	58.273	325.410	287.701	249.831	33.937	−43.037	214.544	195.760	−11.362
	1000.00	58.576	331.565	291.785	255.674	39.780	−75.891	214.026	193.700	−10.118
	1100.00	58.846	337.161	295.660	261.545	45.651	−109.332	213.416	191.696	−9.103
	1200.00	59.094	342.292	299.335	267.443	51.549	−143.308	212.718	189.752	−8.260
	1300.00	59.325	347.031	302.824	273.364	57.470	−177.777	211.935	187.869	−7.549
	1400.00	59.545	351.436	306.141	279.307	63.413	−212.703	211.069	186.050	−6.942
	1500.00	59.757	355.551	309.299	285.272	69.378	−248.055	210.123	184.295	−6.418
	1600.00	59.962	359.414	312.312	291.258	75.364	−283.805	209.097	182.607	−5.961
	1700.00	60.162	363.056	315.191	297.265	81.371	−319.930	207.992	180.984	−5.561
	1800.00	60.358	366.500	317.946	303.291	87.397	−356.409	206.809	179.429	−5.207
	1900.00	60.551	369.769	320.589	309.336	93.442	−393.224	205.548	177.942	−4.892
	2000.00	60.741	372.879	323.126	315.401	99.507	−430.358	204.208	176.524	−4.610

References

Phase	H / S	C_p
GAS	Tk1	e

240.218 IRIDIUM TRIOXIDE (GAS) **IrO3[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
GAS	298.15	76.485	288.805	288.805	13.389	0.000	−72.718	13.389	29.614	−5.188
	300.00	76.564	289.279	288.807	13.531	0.142	−73.253	13.403	29.715	−5.174
	400.00	79.425	311.752	291.852	21.349	7.960	−103.352	14.241	35.030	−4.574
	500.00	80.843	329.643	297.682	29.370	15.981	−135.452	15.095	40.127	−4.192
	600.00	81.694	344.463	304.279	37.499	24.110	−169.179	15.855	45.060	−3.923
	700.00	82.277	357.103	310.945	45.700	32.311	−204.272	16.486	49.875	−3.722
	800.00	82.717	368.119	317.418	53.950	40.561	−240.545	16.976	54.610	−3.566
	900.00	83.073	377.883	323.604	62.240	48.851	−277.854	17.332	59.291	−3.441
	1000.00	83.379	386.652	329.478	70.563	57.174	−316.089	17.564	63.940	−3.340
	1100.00	83.650	394.612	335.043	78.915	65.526	−355.158	17.679	68.571	−3.256
	1200.00	83.899	401.901	340.315	87.292	73.903	−394.989	17.687	73.197	−3.186
	1300.00	84.131	408.626	345.314	95.694	82.305	−435.519	17.593	77.825	−3.127
	1400.00	84.352	414.869	350.062	104.118	90.729	−476.698	17.402	82.465	−3.077
	1500.00	84.564	420.696	354.579	112.564	99.175	−518.479	17.116	87.122	−3.034
	1600.00	84.770	426.160	358.884	121.031	107.642	−560.825	16.737	91.801	−2.997
	1700.00	84.970	431.305	362.994	129.518	116.129	−603.700	16.267	96.506	−2.965
	1800.00	85.166	436.167	366.925	138.025	124.636	−647.076	15.706	101.242	−2.938

References

Phase	H / S	C_p
GAS	Tk1	e

256.352 IRIDIUM DISULFIDE **IrS2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	65.889	69.036	69.036	−133.051	0.000	−153.634	−133.051	−123.933	21.713
	300.00	66.009	69.444	69.037	−132.929	0.122	−153.762	−133.059	−123.877	21.569
	400.00	70.780	89.153	71.692	−126.067	6.984	−161.728	−137.884	−120.576	15.746
	500.00	73.835	105.293	76.847	−118.828	14.223	−171.474	−141.027	−115.927	12.111
	600.00	76.215	118.972	82.756	−111.322	21.729	−182.705	−143.303	−110.673	9.635
	700.00	78.277	130.878	88.799	−103.595	29.456	−195.210	−144.883	−105.106	7.843
	800.00	80.168	141.456	94.732	−95.672	37.379	−208.836	−146.434	−99.320	6.485
	900.00	81.961	151.002	100.462	−87.565	45.486	−223.467	−253.566	−91.030	5.283
	1000.00	83.693	159.728	105.959	−79.282	53.769	−239.010	−251.852	−73.062	3.816
	1100.00	85.384	167.784	111.218	−70.828	62.223	−255.390	−250.055	−55.269	2.625
	1200.00	87.048	175.285	116.247	−62.206	70.845	−272.548	−248.176	−37.643	1.639
	1300.00	88.693	182.318	121.062	−53.419	79.632	−290.432	−246.218	−20.178	0.811
	1400.00	90.324	188.950	125.677	−44.468	88.583	−308.998	−244.181	−2.866	0.107

References

Phase	H / S	C_p
SOL	Mi1	Mi1

Ir2S3 DIIRIDIUM TRISULFIDE 480.638

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	109.295	121.336	121.336	−210.037	0.000	−246.213	−210.037	−196.369	34.403
	300.00	109.489	122.013	121.338	−209.835	0.202	−246.438	−210.053	−196.284	34.176
	400.00	117.464	154.699	125.741	−198.454	11.583	−260.333	−217.464	−191.308	24.982
	500.00	122.926	181.524	134.294	−186.422	23.615	−277.184	−222.294	−184.270	19.251
	600.00	127.399	204.341	144.114	−173.900	36.137	−296.505	−225.763	−176.309	15.349
	700.00	131.405	224.285	154.172	−160.958	49.079	−317.957	−228.122	−167.873	12.527
	800.00	135.163	242.079	164.067	−147.628	62.409	−341.291	−230.382	−159.114	10.389
	900.00	138.775	258.209	173.645	−133.930	76.107	−366.318	−390.955	−146.612	8.509
	1000.00	142.298	273.013	182.852	−119.876	90.161	−392.889	−388.204	−119.609	6.248
	1100.00	145.762	286.738	191.679	−105.472	104.565	−420.884	−385.272	−92.890	4.411
	1200.00	149.186	299.568	200.141	−90.725	119.312	−450.206	−382.162	−66.445	2.892
	1300.00	152.582	311.644	208.258	−75.636	134.401	−480.773	−378.878	−40.267	1.618
	1400.00	155.957	323.075	216.055	−60.209	149.828	−512.514	−375.419	−14.349	0.535

References

Phase	H / S	C_p
SOL	Mi1	Mi1

K POTASSIUM 39.098

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	29.278	64.670	64.670	0.000	0.000	−19.281	0.000	0.000	0.000
	300.00	29.411	64.852	64.671	0.054	0.054	−19.401	0.000	0.000	0.000
	336.35	32.025	68.362	64.881	1.171	1.171	−21.823	0.000	0.000	0.000
			6.966		2.343					
LIQ	336.35	32.141	75.328	64.881	3.514	3.514	−21.823	0.000	0.000	0.000
	400.00	31.502	80.843	66.996	5.539	5.539	−26.798	0.000	0.000	0.000
	500.00	30.698	87.782	70.488	8.647	8.647	−35.244	0.000	0.000	0.000
	600.00	30.141	93.325	73.848	11.687	11.687	−44.309	0.000	0.000	0.000
	700.00	29.830	97.945	76.969	14.683	14.683	−53.879	0.000	0.000	0.000
	800.00	29.766	101.921	79.845	17.661	17.661	−63.876	0.000	0.000	0.000
	900.00	29.948	105.435	82.497	20.644	20.644	−74.247	0.000	0.000	0.000
	1000.00	30.376	108.611	84.952	23.659	23.659	−84.952	0.000	0.000	0.000
	1039.54	30.613	109.793	85.875	24.864	24.864	−89.270	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL	Ja2	Ja1	Ja2	MPT= 336.35
LIQ	Ja2	Ja1	Ja2	BPT=1039.54 GAS(K),L=79.556kJ / NBPT=1037.(94.5 K+5.5 K2)

39.098

POTASSIUM (GAS)

K[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.754	160.340	160.340	89.000	0.000	41.195	89.000	60.476	−10.595
	300.00	20.754	160.468	160.340	89.038	0.038	40.898	88.984	60.299	−10.499
	400.00	20.762	166.440	161.155	91.114	2.114	24.538	85.575	51.337	−6.704
	500.00	20.769	171.074	162.692	93.191	4.191	7.654	84.544	42.898	−4.482
	600.00	20.777	174.861	164.414	95.268	6.268	−9.649	83.581	34.660	−3.017
	700.00	20.784	178.064	166.141	97.346	8.346	−27.299	82.663	26.580	−1.983
	800.00	20.792	180.840	167.809	99.425	10.425	−45.247	81.764	18.629	−1.216
	900.00	20.800	183.290	169.396	101.505	12.505	−63.456	80.860	10.791	−0.626
	1000.00	20.807	185.482	170.897	103.585	14.585	−81.897	79.926	3.056	−0.160
	1100.00	20.815	187.465	172.314	105.666	16.666	−100.546	0.000	0.000	0.000
	1200.00	20.822	189.276	173.653	107.748	18.748	−119.384	0.000	0.000	0.000
	1300.00	20.830	190.943	174.920	109.830	20.830	−138.396	0.000	0.000	0.000
	1400.00	20.837	192.487	176.120	111.914	22.914	−157.569	0.000	0.000	0.000
	1500.00	20.845	193.925	177.260	113.998	24.998	−176.890	0.000	0.000	0.000
	1600.00	20.852	195.271	178.344	116.083	27.083	−196.350	0.000	0.000	0.000
	1700.00	20.860	196.535	179.377	118.168	29.168	−215.941	0.000	0.000	0.000
	1800.00	20.867	197.728	180.364	120.255	31.255	−235.655	0.000	0.000	0.000
	1900.00	20.875	198.856	181.308	122.342	33.342	−255.485	0.000	0.000	0.000
	2000.00	20.882	199.927	182.212	124.430	35.430	−275.424	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Ja2	Ja1

K2[g] POTASSIUM (GAS) 78.197

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	37.892	249.752	249.752	127.085	0.000	52.621	127.085	91.184	−15.975
	300.00	37.897	249.986	249.753	127.155	0.070	52.159	127.047	90.962	−15.838
	400.00	38.163	260.926	251.243	130.959	3.874	26.588	119.881	80.185	−10.471
	500.00	38.396	269.467	254.064	134.787	7.702	0.053	117.493	70.541	−7.369
	600.00	38.617	276.488	257.234	138.637	11.552	−27.255	115.264	61.362	−5.342
	700.00	38.832	282.457	260.421	142.510	15.425	−55.210	113.144	52.547	−3.921
	800.00	39.045	287.656	263.507	146.404	19.319	−83.721	111.082	44.032	−2.875
	900.00	39.255	292.267	266.452	150.319	23.234	−112.721	109.030	35.773	−2.076
	1000.00	39.464	296.414	269.244	154.255	27.170	−142.159	106.938	27.745	−1.449
	1100.00	39.672	300.185	271.888	158.211	31.126	−171.992	−53.120	29.099	−1.382
	1200.00	39.880	303.646	274.392	162.189	35.104	−202.186	−53.306	36.582	−1.592
	1300.00	40.088	306.846	276.767	166.187	39.102	−232.712	−53.473	44.080	−1.771
	1400.00	40.295	309.824	279.023	170.207	43.122	−263.547	−53.621	51.590	−1.925
	1500.00	40.502	312.611	281.170	174.246	47.161	−294.671	−53.749	59.109	−2.058
	1600.00	40.709	315.232	283.218	178.307	51.222	−326.064	−53.858	66.637	−2.175
	1700.00	40.916	317.706	285.175	182.388	55.303	−357.712	−53.948	74.171	−2.279
	1800.00	41.122	320.051	287.048	186.490	59.405	−389.601	−54.019	81.709	−2.371
	1900.00	41.329	322.280	288.844	190.613	63.528	−421.718	−54.071	89.251	−2.454
	2000.00	41.536	324.405	290.569	194.756	67.671	−454.053	−54.103	96.795	−2.528
	2100.00	41.742	326.436	292.229	198.920	71.835	−486.596	−54.116	104.341	−2.595
	2200.00	41.949	328.383	293.829	203.104	76.019	−519.338	−54.111	111.886	−2.657

References

Phase	H / S	C_p
GAS	Ja1	Ja1

KAlCl4 POTASSIUM TETRACHLOROALUMINATE 207.891

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	156.485	196.648	196.648	−1196.624	0.000	−1255.255	−1196.624	−1094.499	191.752
	300.00	156.649	197.616	196.651	−1196.334	0.290	−1255.619	−1196.559	−1093.865	190.459
	400.00	165.486	243.892	202.901	−1180.228	16.396	−1277.784	−1195.378	−1059.713	138.384
	500.00	174.324	281.768	214.995	−1163.237	33.387	−1304.121	−1191.278	−1026.257	107.212
	529.00	176.887	291.669	218.928	−1158.145	38.479	−1312.437	−1189.958	−1016.723	100.394

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	MPT= 529.

356.993 TRIPOTASSIUM HEXACHLOROALUMINATE **K3AICl6**

Phase	T [K]	C_p [J / (K mol)]	S [J / (K mol)]	−(G−H298)/T [J / (K mol)]	H [kJ / mol]	H−H298 [kJ / mol]	G [kJ / mol]	ΔH_f [kJ / mol]	ΔG_f [kJ / mol]	log K_f [−]
SOL	298.15	249.037	376.560	376.560	−2092.000	0.000	−2204.271	−2092.000	−1938.430	339.605
	300.00	249.223	378.101	376.565	−2091.539	0.461	−2204.969	−2091.935	−1937.478	337.345
	400.00	259.297	451.178	386.460	−2066.113	25.887	−2246.584	−2095.871	−1885.129	246.173
	500.00	269.370	510.120	405.480	−2039.680	52.320	−2294.740	−2092.115	−1832.860	191.478
	600.00	279.444	560.123	427.188	−2012.239	79.761	−2348.313	−2087.455	−1781.432	155.087
	700.00	289.517	603.956	449.371	−1983.791	108.209	−2406.560	−2081.894	−1730.855	129.158
	800.00	299.590	643.273	471.192	−1954.336	137.664	−2468.954	−2075.489	−1681.135	109.767

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	MPT= 800.

258.267 TRIPOTASSIUM HEXAFLUOROALUMINATE **K3AIF6**

Phase	T [K]	C_p [J / (K mol)]	S [J / (K mol)]	−(G−H298)/T [J / (K mol)]	H [kJ / mol]	H−H298 [kJ / mol]	G [kJ / mol]	ΔH_f [kJ / mol]	ΔG_f [kJ / mol]	log K_f [−]
SOL	298.15	222.798	284.512	284.512	−3326.280	0.000	−3411.107	−3326.280	−3163.443	554.222
	300.00	223.384	285.892	284.516	−3325.867	0.413	−3411.635	−3326.249	−3162.433	550.628
	400.00	241.082	352.903	293.537	−3302.533	23.747	−3443.695	−3331.516	−3106.748	405.700
	500.00	255.308	408.243	311.096	−3277.707	48.573	−3481.828	−3328.743	−3050.853	318.720
	600.00	267.399	455.900	331.349	−3251.550	74.730	−3525.089	−3324.880	−2995.621	260.792
	700.00	278.905	497.955	352.202	−3224.253	102.027	−3572.822	−3320.090	−2941.111	219.468
	800.00	290.085	535.954	372.834	−3195.783	130.497	−3624.547	−3314.374	−2887.351	188.525
	900.00	298.710	570.643	392.914	−3166.324	159.956	−3679.902	−3307.997	−2834.351	164.501
	1000.00	305.479	602.477	412.300	−3136.103	190.177	−3738.580	−3311.805	−2781.324	145.281
	1100.00	311.246	631.869	430.942	−3105.261	221.019	−3800.316	−3541.279	−2714.876	128.919
	1200.00	316.332	659.174	448.837	−3073.876	252.404	−3864.885	−3530.499	−2640.220	114.926
	1293.00	320.242	682.936	464.829	−3044.267	282.013	−3927.304	−3520.105	−2571.615	103.888

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	MPT= 1293.

KAl(SO4)2 POTASSIUM ALUMINIUM SULFATE 258.207

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	192.972	204.602	204.602	−2470.200	0.000	−2531.202	−2470.200	−2239.717	392.389
	300.00	193.932	205.798	204.605	−2469.842	0.358	−2531.582	−2470.243	−2238.287	389.720
	400.00	230.559	267.191	212.727	−2448.415	21.785	−2555.291	−2477.854	−2160.147	282.086
	500.00	251.935	321.098	229.132	−2424.217	45.983	−2584.766	−2479.445	−2080.547	217.353
	600.00	267.308	368.449	248.486	−2398.222	71.978	−2619.292	−2479.035	−2000.771	174.183
	700.00	279.847	410.622	268.691	−2370.848	99.352	−2658.284	−2477.162	−1921.195	143.361
	800.00	290.875	448.723	288.851	−2342.303	127.897	−2701.281	−2474.664	−1841.938	120.266
	900.00	301.024	483.576	308.578	−2312.702	157.498	−2747.920	−2577.270	−1760.714	102.189
	1000.00	310.629	515.792	327.708	−2282.116	188.084	−2797.908	−2581.161	−1669.579	87.210

References

Phase	H / S	C_p
SOL	Nb1	La1

KAl(SO4)2*3H2O POTASSIUM ALUMINIUM SULFATE 3−HYDRATE 312.253

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	314.320	314.001	314.001	−3381.099	0.000	−3474.718	−3381.099	−2974.600	521.138
	300.00	315.283	315.948	314.007	−3380.517	0.582	−3475.301	−3381.159	−2972.077	517.485
	400.00	352.000	412.265	326.890	−3346.949	34.150	−3511.855	−3389.804	−2834.745	370.180
	500.00	373.422	493.276	352.288	−3310.605	70.494	−3557.243	−3392.605	−2695.670	281.615

References

Phase	H / S	C_p
SOL	Nb1	e

474.390 POTASSIUM ALUMINIUM SULFATE 12–HYDRATE **KAl(SO4)2*12H2O**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	651.878	687.398	687.398	–6061.800	0.000	–6266.748	–6061.800	–5140.728	900.634
	300.00	659.900	691.455	687.410	–6060.587	1.213	–6268.023	–6061.954	–5135.013	894.085
	364.00	937.424	845.029	701.271	–6009.472	52.328	–6317.063	–6060.976	–4937.105	708.483
			76.898		27.991					
LIQ	364.00	979.056	921.927	701.271	–5981.481	80.319	–6317.063	–6032.985	–4937.105	708.483
	400.00	979.056	1014.263	725.351	–5946.235	115.565	–6351.940	–6029.338	–4828.933	630.594
	500.00	979.056	1232.733	805.792	–5848.330	213.470	–6464.696	–6010.647	–4531.064	473.357

References

Phase	H / S	C_p	Remarks
SOL	La1	La1	La1 TPT= 57.85, L= 0.20 kJ
LIQ	La1	e	

256.214 POTASSIUM ARSENATE **K3AsO4**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	172.290	237.819	237.819	–1668.747	0.000	–1739.653	–1668.747	–1548.834	271.349
	300.00	172.514	238.885	237.822	–1668.428	0.319	–1740.094	–1668.745	–1548.089	269.546
	400.00	182.533	289.966	244.719	–1650.648	18.099	–1766.635	–1675.867	–1506.519	196.731
	500.00	190.477	331.573	258.054	–1631.988	36.759	–1797.774	–1675.215	–1464.242	152.968
	600.00	197.603	366.939	273.326	–1612.579	56.168	–1832.742	–1673.868	–1422.163	123.810
	700.00	204.343	397.909	288.956	–1592.480	76.267	–1871.016	–1671.945	–1380.357	103.004
	713.00	205.202	401.677	290.977	–1589.818	78.929	–1876.213	–1671.657	–1374.944	100.729

References

Phase	H / S	C_p
SOL	G1	G1

KBO2 POTASSIUM METABORATE 81.908

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	67.040	79.981	79.981	−994.955	0.000	−1018.801	−994.955	−936.617	164.091
	300.00	67.226	80.397	79.983	−994.831	0.124	−1018.950	−994.960	−936.255	163.017
	400.00	76.639	101.069	82.737	−987.622	7.333	−1028.050	−997.572	−916.196	119.643
	500.00	84.008	118.998	88.236	−979.574	15.381	−1039.073	−997.421	−895.860	93.590
	600.00	89.804	134.846	94.709	−970.873	24.082	−1051.780	−996.900	−875.591	76.227
	700.00	94.542	149.056	101.475	−961.648	33.307	−1065.988	−996.082	−855.434	63.833
	800.00	98.496	161.946	108.241	−951.990	42.965	−1081.548	−995.022	−835.412	54.547
	900.00	101.791	173.744	114.873	−941.971	52.984	−1098.340	−993.773	−815.534	47.332
	1000.00	104.463	184.612	121.310	−931.653	63.302	−1116.265	−992.394	−795.802	41.568
	1100.00	106.504	194.670	127.528	−921.099	73.856	−1135.236	−1069.887	−771.628	36.642
	1200.00	107.874	204.001	133.517	−910.375	84.580	−1155.175	−1067.382	−744.624	32.413
	1220.00	108.064	205.785	134.687	−908.215	86.740	−1159.273	−1066.877	−739.249	31.651
			25.721		31.380					
LIQ	1220.00	146.440	231.507	134.687	−876.835	118.120	−1159.273	−1035.497	−739.249	31.651
	1300.00	146.440	240.807	140.934	−865.120	129.835	−1178.170	−1030.434	−719.986	28.929
	1400.00	146.440	251.660	148.461	−850.476	144.479	−1202.800	−1024.176	−696.340	25.981
	1500.00	146.440	261.763	155.681	−835.832	159.123	−1228.477	−1017.992	−673.140	23.441
	1600.00	146.440	271.214	162.610	−821.188	173.767	−1255.131	−1011.876	−650.349	21.232
	1674.60	146.440	277.888	167.598	−810.264	184.691	−1275.614	−1007.356	−633.597	19.763

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	BPT= 1674.6

81.908 POTASSIUM METABORATE (GAS) **KBO2[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	59.030	297.592	297.592	−674.042	0.000	−762.769	−674.042	−680.585	119.236
	300.00	59.132	297.957	297.593	−673.933	0.109	−763.320	−674.062	−680.625	118.507
	400.00	63.985	315.665	299.974	−667.766	6.276	−794.032	−677.716	−682.177	89.083
	500.00	67.613	330.352	304.622	−661.177	12.865	−826.353	−679.025	−683.141	71.367
	600.00	70.380	342.934	309.984	−654.272	19.770	−860.032	−680.299	−683.844	59.534
	700.00	72.557	353.953	315.494	−647.121	26.921	−894.888	−681.554	−684.335	51.066
	800.00	74.296	363.760	320.926	−639.775	34.267	−930.783	−682.806	−684.647	44.703
	900.00	75.684	372.594	326.184	−632.273	41.769	−967.608	−684.076	−684.801	39.745
	1000.00	76.771	380.627	331.233	−624.648	49.394	−1005.275	−685.389	−684.812	35.771
	1100.00	77.689	387.989	336.063	−616.923	57.119	−1043.711	−765.711	−680.103	32.295
	1200.00	78.417	394.781	340.676	−609.116	64.926	−1082.854	−766.124	−672.303	29.265
	1300.00	79.008	401.082	345.084	−601.244	72.798	−1122.651	−766.559	−664.467	26.699
	1400.00	79.498	406.955	349.296	−593.318	80.724	−1163.056	−767.019	−656.596	24.498
	1500.00	79.909	412.455	353.325	−585.347	88.695	−1204.029	−767.507	−648.692	22.589
	1600.00	80.259	417.623	357.184	−577.338	96.704	−1245.536	−768.026	−640.755	20.918
	1700.00	80.560	422.498	360.884	−569.297	104.745	−1287.544	−768.579	−632.783	19.443
	1800.00	80.820	427.110	364.436	−561.228	112.814	−1330.027	−769.166	−624.779	18.131
	1900.00	81.046	431.486	367.851	−553.134	120.908	−1372.958	−769.791	−616.740	16.955
	2000.00	81.242	435.649	371.137	−545.020	129.022	−1416.317	−770.454	−608.668	15.897
	2100.00	81.412	439.617	374.305	−536.887	137.155	−1460.082	−771.158	−600.561	14.938
	2200.00	81.559	443.407	377.360	−528.738	145.304	−1504.234	−771.904	−592.420	14.066
	2300.00	81.686	447.036	380.311	−520.576	153.466	−1548.758	−772.694	−584.245	13.269
	2400.00	81.794	450.515	383.164	−512.401	161.641	−1593.636	−823.786	−574.965	12.514
	2500.00	81.885	453.855	385.926	−504.217	169.825	−1638.856	−824.744	−564.577	11.796

References

Phase	H / S	C_p
GAS	Ja1	Ja1

KBr POTASSIUM BROMIDE 119.002

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	52.306	95.939	95.939	−393.798	0.000	−422.402	−393.798	−380.430	66.650
	300.00	52.361	96.263	95.940	−393.701	0.097	−422.580	−393.825	−380.347	66.224
	400.00	54.103	111.608	98.021	−388.363	5.435	−433.006	−411.213	−372.300	48.617
	500.00	55.055	123.784	101.997	−382.905	10.893	−444.797	−410.708	−362.626	37.883
	600.00	56.242	133.920	106.496	−377.344	16.454	−457.696	−410.046	−353.069	30.737
	700.00	58.016	142.714	111.055	−371.636	22.162	−471.536	−409.203	−343.637	25.643
	800.00	60.523	150.616	115.513	−365.716	28.082	−486.209	−408.134	−334.340	21.830
	900.00	63.833	157.928	119.824	−359.505	34.293	−501.640	−406.786	−325.194	18.874
	1000.00	67.983	164.861	123.984	−352.921	40.877	−517.782	−405.099	−316.215	16.517
	1007.00	68.305	165.336	124.270	−352.444	41.354	−518.937	−404.967	−315.593	16.370
			25.345		25.522					
LIQ	1007.00	69.873	190.680	124.270	−326.922	66.876	−518.937	−379.445	−315.593	16.370
	1100.00	69.873	196.853	130.149	−320.424	73.374	−536.962	−456.496	−305.197	14.493
	1200.00	69.873	202.932	135.965	−313.437	80.361	−556.956	−453.480	−291.576	12.692
	1300.00	69.873	208.525	141.334	−306.450	87.348	−577.532	−450.468	−278.206	11.178
	1400.00	69.873	213.703	146.321	−299.462	94.336	−598.647	−447.460	−265.068	9.890
	1500.00	69.873	218.524	150.975	−292.475	101.323	−620.261	−444.455	−252.145	8.780
	1600.00	69.873	223.033	155.340	−285.488	108.310	−642.341	−441.454	−239.422	7.816
	1671.00	69.873	226.067	158.281	−280.527	113.271	−658.285	−439.325	−230.503	7.205

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	NBPT= 1671. GAS (KBr + K2Br2)

119.002 POTASSIUM BROMIDE (GAS) **KBr**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	36.921	250.522	250.522	−180.079	0.000	−254.772	−180.079	−212.800	37.282
	300.00	36.931	250.750	250.523	−180.011	0.068	−255.236	−180.135	−213.003	37.087
	400.00	37.316	261.433	251.976	−176.296	3.783	−280.870	−199.146	−220.163	28.750
	500.00	37.541	269.786	254.733	−172.553	7.526	−307.446	−200.356	−225.275	23.534
	600.00	37.700	276.645	257.831	−168.790	11.289	−334.777	−201.493	−230.151	20.036
	700.00	37.828	282.467	260.945	−165.014	15.065	−362.740	−202.581	−234.841	17.524
	800.00	37.939	287.526	263.958	−161.225	18.854	−391.245	−203.644	−239.377	15.630
	900.00	38.040	292.000	266.830	−157.426	22.653	−420.226	−204.707	−243.780	14.149
	1000.00	38.135	296.013	269.551	−153.617	26.462	−449.630	−205.795	−248.063	12.958
	1100.00	38.226	299.652	272.125	−149.799	30.280	−479.416	−285.871	−247.651	11.760
	1200.00	38.314	302.982	274.559	−145.972	34.107	−509.550	−286.015	−244.171	10.628
	1300.00	38.400	306.052	276.865	−142.136	37.943	−540.004	−286.155	−240.678	9.671
	1400.00	38.484	308.901	279.053	−138.292	41.787	−570.753	−286.290	−237.174	8.849
	1500.00	38.568	311.559	281.132	−134.440	45.639	−601.778	−286.420	−233.662	8.137
	1600.00	38.650	314.050	283.113	−130.579	49.500	−633.059	−286.545	−230.140	7.513
	1700.00	38.732	316.396	285.002	−126.710	53.369	−664.583	−286.666	−226.611	6.963
	1800.00	38.813	318.612	286.809	−122.832	57.247	−696.334	−286.781	−223.075	6.473
	1900.00	38.895	320.713	288.538	−118.947	61.132	−728.301	−286.892	−219.533	6.035
	2000.00	38.975	322.710	290.197	−115.053	65.026	−760.473	−286.998	−215.985	5.641

References

Phase	H / S	C_p
GAS	Ja1	Ja1

K2Br2[g] DIPOTASSIUM DIBROMIDE (GAS) 238.005

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	81.781	376.251	376.251	−540.573	0.000	−652.752	−540.573	−568.808	99.653
	300.00	81.797	376.757	376.253	−540.422	0.151	−653.449	−540.670	−568.983	99.069
	400.00	82.380	400.380	379.469	−532.209	8.364	−692.361	−577.908	−570.947	74.558
	500.00	82.652	418.795	385.561	−523.956	16.617	−733.353	−579.563	−569.012	59.444
	600.00	82.801	433.879	392.394	−515.682	24.891	−776.010	−581.088	−566.757	49.341
	700.00	82.892	446.650	399.256	−507.397	33.176	−820.052	−582.531	−564.254	42.105
	800.00	82.950	457.723	405.888	−499.105	41.468	−865.283	−583.942	−561.546	36.665
	900.00	82.991	467.495	412.201	−490.808	49.765	−911.554	−585.370	−558.662	32.424
	1000.00	83.020	476.241	418.175	−482.507	58.066	−958.748	−586.863	−555.615	29.022
	1100.00	83.041	484.155	423.819	−474.204	66.369	−1006.774	−746.348	−543.245	25.797
	1200.00	83.057	491.381	429.153	−465.899	74.674	−1055.556	−745.986	−524.797	22.844
	1300.00	83.070	498.029	434.199	−457.593	82.980	−1105.031	−745.630	−506.379	20.347
	1400.00	83.080	504.186	438.981	−449.285	91.288	−1155.146	−745.281	−487.988	18.207
	1500.00	83.088	509.918	443.521	−440.977	99.596	−1205.854	−744.938	−469.622	16.354
	1600.00	83.095	515.281	447.840	−432.668	107.905	−1257.117	−744.601	−451.279	14.733
	1700.00	83.101	520.319	451.957	−424.358	116.215	−1308.900	−744.270	−432.956	13.303
	1800.00	83.105	525.069	455.888	−416.048	124.525	−1361.171	−743.945	−414.653	12.033
	1900.00	83.109	529.562	459.648	−407.737	132.836	−1413.905	−743.627	−396.368	10.897
	2000.00	83.113	533.825	463.251	−399.426	141.147	−1467.076	−743.314	−378.099	9.875

References

Phase	H / S	C_p
GAS	Ja1	Ja1

65.116 POTASSIUM CYANIDE **KCN**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[-]
SOL	298.15	66.345	127.779	127.779	-113.470	0.000	-151.567	-113.470	-102.010	17.872
	300.00	66.346	128.190	127.781	-113.347	0.123	-151.804	-113.444	-101.939	17.749
	400.00	66.367	147.279	130.383	-106.712	6.758	-165.623	-114.789	-97.826	12.775
	500.00	66.388	162.091	135.299	-100.074	13.396	-181.119	-114.060	-93.673	9.786
	600.00	66.408	174.196	140.803	-93.434	20.036	-197.952	-113.532	-89.649	7.805
	700.00	66.429	184.435	146.324	-86.792	26.678	-215.897	-113.186	-85.698	6.395
	800.00	66.450	193.307	151.654	-80.148	33.322	-234.794	-112.998	-81.786	5.340
	895.00	66.470	200.764	156.479	-73.835	39.635	-253.519	-112.956	-78.083	4.557
			16.362		14.644					
LIQ	895.00	75.312	217.126	156.479	-59.191	54.279	-253.519	-98.312	-78.083	4.557
	900.00	75.312	217.546	156.817	-58.814	54.656	-254.605	-98.269	-77.970	4.525
	1000.00	75.312	225.481	163.294	-51.283	62.187	-276.764	-97.491	-75.758	3.957
	1100.00	75.312	232.659	169.278	-43.752	69.718	-299.676	-175.805	-69.031	3.278
	1200.00	75.312	239.212	174.837	-36.220	77.250	-323.274	-174.275	-59.393	2.585
	1300.00	75.312	245.240	180.024	-28.689	84.781	-347.501	-172.815	-49.879	2.004
	1400.00	75.312	250.821	184.884	-21.158	92.312	-372.308	-171.414	-40.475	1.510
	1500.00	75.312	256.017	189.455	-13.627	99.843	-397.652	-170.060	-31.170	1.085
	1600.00	75.312	260.878	193.769	-6.096	107.374	-423.500	-168.747	-21.954	0.717
	1700.00	75.312	265.443	197.852	1.436	114.906	-449.818	-167.468	-12.818	0.394
	1800.00	75.312	269.748	201.728	8.967	122.437	-476.580	-166.218	-3.758	0.109
	1900.00	75.312	273.820	205.416	16.498	129.968	-503.760	-164.994	5.235	-0.144

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	NBPT= 1898. GAS (KCN + K2(CN)2)

KCN[g] POTASSIUM CYANIDE (GAS) 65.116

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	50.854	253.158	253.158	79.496	0.000	4.017	79.496	53.574	−9.386
	300.00	50.893	253.472	253.159	79.590	0.094	3.548	79.493	53.413	−9.300
	400.00	52.372	268.336	255.175	84.760	5.264	−22.574	76.683	45.224	−5.906
	500.00	53.465	280.142	259.028	90.053	10.557	−50.018	76.067	37.428	−3.910
	600.00	54.465	289.979	263.389	95.450	15.954	−78.537	75.352	29.766	−2.591
	700.00	55.391	298.446	267.806	100.944	21.448	−107.968	74.550	22.230	−1.659
	800.00	56.234	305.898	272.111	106.526	27.030	−138.193	73.675	14.815	−0.967
	900.00	56.988	312.566	276.242	112.188	32.692	−169.122	72.733	7.513	−0.436
	1000.00	57.651	318.605	280.181	117.920	38.424	−200.685	71.712	0.321	−0.017
	1100.00	58.227	324.128	283.929	123.715	44.219	−232.826	−8.338	−2.181	0.104
	1200.00	58.722	329.216	287.494	129.563	50.067	−265.496	−8.492	−1.615	0.070
	1300.00	59.142	333.933	290.887	135.457	55.961	−298.657	−8.670	−1.035	0.042
	1400.00	59.496	338.330	294.120	141.389	61.893	−332.272	−8.866	−0.440	0.016
	1500.00	59.794	342.445	297.206	147.354	67.858	−366.313	−9.079	0.169	−0.006
	1600.00	60.046	346.312	300.156	153.346	73.850	−400.753	−9.305	0.793	−0.026
	1700.00	60.262	349.959	302.979	159.362	79.866	−435.568	−9.542	1.431	−0.044
	1800.00	60.453	353.409	305.686	165.398	85.902	−470.738	−9.787	2.084	−0.060
	1900.00	60.630	356.682	308.284	171.452	91.956	−506.244	−10.040	2.750	−0.076
	2000.00	60.803	359.797	310.783	177.524	98.028	−542.070	−10.297	3.430	−0.090

References

Phase	H / S	C_p
GAS	Ja1	Ja1

130.232 DIPOTASSIUM DICYANIDE (GAS) **K2(CN)2**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	110.261	373.113	373.113	−8.368	0.000	−119.612	−8.368	−20.498	3.591
	300.00	110.339	373.795	373.115	−8.164	0.204	−120.303	−8.358	−20.573	3.582
	400.00	113.289	405.984	377.484	3.032	11.400	−159.362	−13.123	−23.766	3.104
	500.00	115.428	431.498	385.822	14.470	22.838	−201.279	−13.502	−26.387	2.757
	600.00	117.387	452.719	395.252	26.112	34.480	−245.519	−14.084	−28.913	2.517
	700.00	119.208	470.952	404.794	37.943	46.311	−291.724	−14.845	−31.326	2.338
	800.00	120.871	486.981	414.086	49.948	58.316	−339.637	−15.752	−33.620	2.195
	900.00	122.362	501.305	422.995	62.111	70.479	−389.063	−16.798	−35.793	2.077
	1000.00	123.676	514.267	431.484	74.415	82.783	−439.852	−18.002	−37.840	1.977
	1100.00	124.818	526.109	439.556	86.841	95.209	−491.880	−177.266	−30.590	1.453
	1200.00	125.799	537.013	447.229	99.373	107.741	−545.043	−176.737	−17.280	0.752
	1300.00	126.633	547.116	454.529	111.996	120.364	−599.256	−176.257	−4.011	0.161
	1400.00	127.338	556.527	461.482	124.695	133.063	−654.443	−175.816	9.222	−0.344
	1500.00	127.930	565.334	468.115	137.459	145.827	−710.541	−175.407	22.424	−0.781
	1600.00	128.432	573.606	474.453	150.278	158.646	−767.492	−175.025	35.600	−1.162
	1700.00	128.862	581.406	480.517	163.143	171.511	−825.246	−174.664	48.753	−1.498
	1800.00	129.243	588.782	486.328	176.049	184.417	−883.759	−174.322	61.885	−1.796
	1900.00	129.595	595.780	491.906	188.991	197.359	−942.990	−173.993	74.999	−2.062
	2000.00	129.940	602.436	497.268	201.968	210.336	−1002.904	−173.674	88.096	−2.301

References

Phase	H / S	C_p
GAS	Ja1	Ja1

K2CO3 POTASSIUM CARBONATE 138.206

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	114.235	155.519	155.519	−1150.182	0.000	−1196.550	−1150.182	−1064.529	186.501
	300.00	114.542	156.227	155.521	−1149.970	0.212	−1196.838	−1150.176	−1063.998	185.258
	400.00	128.567	191.199	160.195	−1137.781	12.401	−1214.260	−1154.449	−1034.430	135.083
	500.00	140.004	221.144	169.459	−1124.340	25.842	−1234.911	−1153.144	−1004.558	104.945
	600.00	150.423	247.601	180.318	−1109.813	40.369	−1258.373	−1151.016	−975.028	84.884
	700.00	160.362	271.539	191.666	−1094.271	55.911	−1284.348	−1148.127	−945.914	70.585
	800.00	170.044	293.587	203.045	−1077.749	72.433	−1312.618	−1144.490	−917.266	59.891
	900.00	179.577	314.166	214.261	−1060.267	89.915	−1343.017	−1140.116	−889.118	51.603
	1000.00	189.017	333.576	225.230	−1041.837	108.345	−1375.412	−1135.026	−861.496	45.000
	1100.00	198.397	352.031	235.925	−1022.465	127.717	−1409.700	−1287.123	−825.248	39.188
	1174.00	205.311	365.171	243.660	−1007.528	142.654	−1436.239	−1280.857	−794.380	35.344
			23.521		27.614					
LIQ	1174.00	209.200	388.692	243.660	−979.914	170.268	−1436.239	−1280.857	−794.380	35.344
	1200.00	209.200	393.275	246.852	−974.475	175.707	−1446.405	−1250.865	−784.244	34.137
	1300.00	209.200	410.020	258.768	−953.555	196.627	−1486.581	−1241.776	−745.729	29.964
	1400.00	209.200	425.523	270.132	−932.635	217.547	−1528.367	−1232.772	−707.909	26.412
	1500.00	209.200	439.957	280.978	−911.715	238.467	−1571.650	−1223.841	−670.731	23.357
	1600.00	209.200	453.458	291.341	−890.795	259.387	−1616.328	−1214.975	−634.147	20.703
	1700.00	209.200	466.141	301.254	−869.875	280.307	−1662.314	−1206.168	−598.115	18.378
	1800.00	209.200	478.098	310.750	−848.955	301.227	−1709.532	−1197.416	−562.600	16.326
	1900.00	209.200	489.409	319.858	−828.035	322.147	−1757.912	−1188.714	−527.570	14.504
	2000.00	209.200	500.140	328.606	−807.115	343.067	−1807.394	−1180.061	−492.997	12.876

References

Phase	H / S	C_p
SOL	Ja1	Ja1
LIQ	Ja1	Ja1

74.551 POTASSIUM CHLORIDE **KCl**

Phase	T [K]	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	51.713	82.550	82.550	−436.684	0.000	−461.296	−436.684	−408.754	71.612
	300.00	51.710	82.870	82.551	−436.588	0.096	−461.449	−436.674	−408.581	71.140
	400.00	52.483	97.816	84.584	−431.391	5.293	−470.518	−438.695	−398.826	52.081
	500.00	54.209	109.702	88.457	−426.061	10.623	−480.912	−438.258	−388.904	40.629
	600.00	56.310	119.768	92.856	−420.537	16.147	−492.398	−437.592	−379.092	33.003
	700.00	58.588	128.617	97.345	−414.793	21.891	−504.826	−436.683	−369.411	27.566
	800.00	60.960	136.595	101.761	−408.817	27.867	−518.092	−435.537	−359.876	23.497
	900.00	63.387	143.915	106.043	−402.600	34.084	−532.123	−434.166	−350.499	20.342
	1000.00	65.849	150.720	110.174	−396.138	40.546	−546.858	−432.589	−341.285	17.827
	1044.00	66.939	153.579	111.944	−393.217	43.467	−553.553	−511.335	−336.966	16.859
			25.176		26.284					
LIQ	1044.00	73.597	178.755	111.944	−366.933	69.751	−553.553	−485.051	−336.966	16.859
	1100.00	73.597	182.601	115.444	−362.811	73.873	−563.672	−483.147	−329.073	15.626
	1200.00	73.597	189.004	121.311	−355.452	81.232	−582.257	−479.751	−315.216	13.721
	1300.00	73.597	194.895	126.748	−348.092	88.592	−601.456	−476.360	−301.643	12.120
	1400.00	73.597	200.349	131.812	−340.732	95.952	−621.221	−472.974	−288.330	10.758
	1500.00	73.597	205.427	136.553	−333.373	103.311	−641.513	−469.593	−275.259	9.585
	1600.00	73.597	210.177	141.007	−326.013	110.671	−662.296	−466.216	−262.414	8.567
	1700.00	73.597	214.639	145.209	−318.653	118.031	−683.539	−462.844	−249.779	7.675
	1750.00	73.597	216.772	147.223	−314.974	121.710	−694.324	−461.159	−243.537	7.269

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	NBPT= 1710. GAS (KCl + K2Cl2) / BPT= 1750. GAS (KCl)

KCl[g] POTASSIUM CHLORIDE (GAS) 74.551

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	36.483	239.099	239.100	−214.681	0.000	−285.969	−214.681	−233.426	40.895
	300.00	36.496	239.325	239.100	−214.613	0.068	−286.411	−214.699	−233.542	40.663
	400.00	37.000	249.902	240.539	−210.936	3.745	−310.897	−218.240	−239.205	31.237
	500.00	37.284	258.191	243.270	−207.221	7.460	−336.316	−219.418	−244.308	25.523
	600.00	37.482	265.007	246.342	−203.482	11.199	−362.486	−220.536	−249.180	21.693
	700.00	37.639	270.797	249.432	−199.726	14.955	−389.283	−221.615	−253.869	18.944
	800.00	37.774	275.832	252.424	−195.955	18.726	−416.620	−222.675	−258.404	16.872
	900.00	37.897	280.288	255.277	−192.171	22.510	−444.431	−223.737	−262.806	15.253
	1000.00	38.011	284.287	257.982	−188.376	26.305	−472.663	−224.827	−267.089	13.951
	1100.00	38.121	287.915	260.541	−184.569	30.112	−501.276	−304.904	−266.677	12.663
	1200.00	38.227	291.237	262.962	−180.752	33.929	−530.236	−305.051	−263.195	11.457
	1300.00	38.330	294.301	265.257	−176.924	37.757	−559.514	−305.192	−259.701	10.435
	1400.00	38.432	297.145	267.434	−173.086	41.595	−589.088	−305.328	−256.197	9.559
	1500.00	38.533	299.800	269.504	−169.237	45.444	−618.937	−305.458	−252.683	8.799
	1600.00	38.632	302.290	271.476	−165.379	49.302	−649.043	−305.582	−249.161	8.134
	1700.00	38.731	304.635	273.358	−161.511	53.170	−679.390	−305.701	−245.631	7.547
	1800.00	38.829	306.852	275.158	−157.633	57.048	−709.966	−305.815	−242.094	7.025
	1900.00	38.927	308.954	276.882	−153.745	60.936	−740.757	−305.923	−238.551	6.558
	2000.00	39.024	310.953	278.536	−149.848	64.833	−771.753	−306.026	−235.002	6.138
	2100.00	39.121	312.859	280.125	−145.940	68.741	−802.944	−306.123	−231.448	5.757
	2200.00	39.218	314.681	281.655	−142.023	72.658	−834.322	−306.216	−227.890	5.411
	2300.00	39.314	316.427	283.129	−138.097	76.584	−865.878	−306.304	−224.328	5.095
	2400.00	39.410	318.102	284.552	−134.161	80.520	−897.605	−306.387	−220.762	4.805
	2500.00	39.507	319.713	285.926	−130.215	84.466	−929.496	−306.465	−217.193	4.538

References

Phase	H / S	C_p
GAS	Ja1	Ja1

149.102

DIPOTASSIUM DICHLORIDE (GAS) **K2Cl2[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	80.861	352.821	352.821	−617.642	0.000	−722.835	−617.642	−617.751	108.227
	300.00	80.889	353.321	352.822	−617.492	0.150	−723.489	−617.664	−617.751	107.560
	400.00	81.862	376.744	356.009	−609.348	8.294	−760.046	−623.955	−616.662	80.528
	500.00	82.315	395.066	362.055	−601.137	16.505	−798.669	−625.531	−614.654	64.212
	600.00	82.563	410.097	368.847	−592.892	24.750	−838.950	−627.001	−612.339	53.309
	700.00	82.714	422.837	375.673	−584.627	33.015	−880.613	−628.406	−609.783	*45.503*
	800.00	82.813	433.888	382.274	−576.351	41.291	−923.461	−629.790	−607.028	39.635
	900.00	82.882	443.647	388.562	−568.066	49.576	−967.348	−631.198	−604.099	35.061
	1000.00	82.932	452.382	394.515	−559.775	57.867	−1012.157	−632.677	−601.010	31.394
	1100.00	82.969	460.288	400.140	−551.480	66.162	−1057.796	−792.150	−588.598	27.950
	1200.00	82.998	467.508	405.458	−543.181	74.461	−1104.191	−791.779	−570.110	24.816
	1300.00	83.020	474.153	410.490	−534.880	82.762	−1151.279	−791.417	−551.652	22.166
	1400.00	83.037	480.306	415.260	−526.577	91.065	−1199.005	−791.062	−533.222	19.895
	1500.00	83.051	486.035	419.789	−518.273	99.369	−1247.326	−790.714	−514.818	17.928
	1600.00	83.063	491.396	424.099	−509.967	107.675	−1296.200	−790.374	−496.436	16.207
	1700.00	83.071	496.432	428.207	−501.661	115.981	−1345.594	−790.042	−478.075	14.689
	1800.00	83.078	501.180	432.131	−493.353	124.289	−1395.477	−789.717	−459.733	13.341
	1900.00	83.084	505.672	435.884	−485.045	132.597	−1445.822	−789.401	−441.409	12.135
	2000.00	83.088	509.934	439.481	−476.736	140.906	−1496.604	−789.093	−423.102	11.050
	2100.00	83.091	513.988	442.933	−468.427	149.215	−1547.801	−788.794	−404.810	10.069
	2200.00	83.092	517.853	446.251	−460.118	157.524	−1599.395	−788.503	−386.532	9.177

References

Phase	H / S	C_p
GAS	Ja1	Ja1

138.549

POTASSIUM PERCHLORATE **KClO4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−1	298.15	112.400	151.042	151.042	−430.115	0.000	−475.148	−430.115	−300.277	52.607
	300.00	113.066	151.740	151.045	−429.906	0.209	−475.428	−430.101	−299.471	52.143
	400.00	138.684	188.174	155.838	−417.181	12.934	−492.450	−430.535	−255.713	33.393
	500.00	153.911	220.867	165.640	−402.501	27.614	−512.935	−426.867	−212.403	22.190
	572.85	162.272	242.375	174.050	−390.975	39.140	−529.819	−423.466	−181.386	16.539
			24.029		13.765					
SOL−2	572.85	162.272	266.404	174.050	−377.210	52.905	−529.819	−409.701	−181.386	16.539
	600.00	165.048	273.982	178.401	−372.766	57.349	−537.156	−408.309	−170.597	14.852
	700.00	174.254	300.133	193.954	−355.790	74.325	−565.883	−402.677	−131.413	9.806
	798.00	182.275	323.488	208.449	−338.314	91.801	−596.457	−396.473	−93.844	6.143

References

Phase	H / S	C_p	Remarks	
SOL−1	Ja1	Ja1	Ja1	TPT= 572.7
SOL−2	Ja1	Ja1	Ja1	MPT= 798.

K2CrO4 POTASSIUM CHROMATE 194.190

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	145.979	199.995	199.995	−1403.732	0.000	−1463.361	−1403.732	−1295.421	226.952
	300.00	146.118	200.899	199.998	−1403.462	0.270	−1463.731	−1403.722	−1294.749	225.436
	400.00	153.607	243.960	205.819	−1388.476	15.256	−1486.059	−1408.076	−1257.585	164.224
	500.00	161.097	279.041	217.058	−1372.740	30.992	−1512.261	−1407.277	−1220.044	127.457
	600.00	168.586	309.074	229.948	−1356.256	47.476	−1541.701	−1405.943	−1182.713	102.964
	700.00	176.075	335.624	243.183	−1339.023	64.709	−1573.960	−1404.086	−1145.648	85.489
	800.00	183.565	359.625	256.261	−1321.041	82.691	−1608.741	−1401.709	−1108.884	72.403
	900.00	191.054	381.678	268.987	−1302.310	101.422	−1645.820	−1398.820	−1072.449	62.243
	939.00	193.975	389.844	273.838	−1294.802	108.930	−1660.866	−1397.556	−1058.333	58.873
			10.694		10.042					
SOL−B	939.00	195.677	400.538	273.838	−1284.760	118.972	−1660.866	−1387.514	−1058.333	58.873
	1000.00	198.740	412.950	281.948	−1272.730	131.002	−1685.680	−1385.338	−1037.018	54.168
	1100.00	203.761	432.127	294.739	−1252.605	151.127	−1727.945	−1539.526	−993.195	47.163
	1200.00	208.782	450.072	306.944	−1231.978	171.754	−1772.065	−1533.615	−943.787	41.082
	1246.00	211.091	457.969	312.374	−1222.321	181.411	−1792.950	−1530.812	−921.230	38.620
			26.494		33.012					
LIQ	1246.00	209.200	484.463	312.374	−1189.309	214.423	−1792.950	−1497.800	−921.230	38.620
	1300.00	209.200	493.339	319.708	−1178.012	225.720	−1819.353	−1494.612	−896.311	36.014
	1400.00	209.200	508.842	332.671	−1157.092	246.640	−1869.471	−1488.879	−850.504	31.733
	1500.00	209.200	523.275	344.902	−1136.172	267.560	−1921.085	−1483.366	−805.100	28.036
	1600.00	209.200	536.777	356.477	−1115.252	288.480	−1974.095	−1478.098	−760.055	24.813

References

Phase	H / S	C_p
SOL−A	Nb1	Nb1,e
SOL−B	Tk1	e
LIQ	Tk1	e

58.097 POTASSIUM FLUORIDE **KF**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)		] [		kJ / mol			] [−]
SOL	298.15	48.975	66.546	66.546	−568.606	0.000	−588.447	−568.606	−538.934	94.419
	300.00	49.031	66.850	66.547	−568.515	0.091	−588.570	−568.599	−538.750	93.805
	400.00	51.051	81.259	68.499	−563.502	5.104	−596.005	−570.676	−528.398	69.002
	500.00	52.696	92.828	72.244	−558.314	10.292	−604.728	−570.278	−517.871	54.102
	600.00	54.302	102.579	76.508	−552.964	15.642	−614.511	−569.704	−507.441	44.177
	700.00	55.844	111.066	80.852	−547.456	21.150	−625.202	−568.968	−497.120	37.096
	800.00	57.391	118.623	85.109	−541.795	26.811	−636.693	−568.088	−486.914	31.792
	900.00	59.097	125.478	89.219	−535.973	32.633	−648.903	−567.073	−476.827	27.674
	1000.00	61.172	131.808	93.165	−529.963	38.643	−661.771	−565.918	−466.860	24.386
	1100.00	63.852	137.758	96.951	−523.718	44.888	−675.252	−643.533	−452.432	21.484
	1130.00	64.813	139.489	98.058	−521.788	46.818	−679.411	−642.786	−447.231	20.673
			24.067		27.196					
LIQ	1130.00	66.944	163.556	98.058	−494.592	74.014	−679.411	−615.590	−447.231	20.673
	1200.00	66.944	167.580	101.997	−489.906	78.700	−691.002	−613.667	−436.860	19.016
	1300.00	66.944	172.938	107.251	−483.212	85.394	−708.032	−610.929	−422.237	16.966
	1400.00	66.944	177.899	112.122	−476.517	92.089	−725.577	−608.199	−407.824	15.216
	1500.00	66.944	182.518	116.663	−469.823	98.783	−743.600	−605.477	−393.607	13.707
	1600.00	66.944	186.839	120.915	−463.129	105.477	−762.070	−602.763	−379.571	12.392
	1700.00	66.944	190.897	124.914	−456.434	112.172	−780.959	−600.055	−365.704	11.237
	1800.00	66.944	194.723	128.687	−449.740	118.866	−800.242	−597.353	−351.997	10.215

References

Phase	H / S	C_p
SOL	Ja1	Ja1
LIQ	Ja1	Ja1

KF[g] POTASSIUM FLUORIDE (GAS) 58.097

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	35.229	226.610	226.610	-326.770	0.000	-394.334	-326.770	-344.821	60.411
	300.00	35.254	226.828	226.611	-326.705	0.065	-394.753	-326.788	-344.933	60.058
	400.00	36.245	237.122	228.008	-323.124	3.646	-417.973	-330.299	-350.366	45.753
	500.00	36.793	245.274	230.674	-319.470	7.300	-442.107	-331.434	-355.250	37.113
	600.00	37.139	252.015	233.685	-315.772	10.998	-466.981	-332.513	-359.911	31.333
	700.00	37.382	257.759	236.724	-312.046	14.724	-492.477	-333.558	-364.394	27.191
	800.00	37.567	262.763	239.673	-308.298	18.472	-518.508	-334.591	-368.729	24.076
	900.00	37.717	267.197	242.489	-304.533	22.237	-545.011	-335.634	-372.934	21.645
	1000.00	37.845	271.178	245.163	-300.755	26.015	-571.933	-336.710	-377.021	19.694
	1100.00	37.958	274.790	247.694	-296.965	29.805	-599.234	-416.780	-376.414	17.874
	1200.00	38.060	278.097	250.092	-293.164	33.606	-626.880	-416.925	-372.738	16.225
	1300.00	38.155	281.147	252.365	-289.353	37.417	-654.845	-417.070	-369.050	14.829
	1400.00	38.244	283.978	254.523	-285.533	41.237	-683.103	-417.215	-365.350	13.631
	1500.00	38.330	286.620	256.576	-281.704	45.066	-711.634	-417.359	-361.641	12.593
	1600.00	38.412	289.096	258.532	-277.867	48.903	-740.421	-417.501	-357.922	11.685
	1700.00	38.492	291.427	260.399	-274.022	52.748	-769.448	-417.642	-354.194	10.883
	1800.00	38.570	293.630	262.185	-270.169	56.601	-798.702	-417.782	-350.457	10.170
	1900.00	38.646	295.717	263.895	-266.308	60.462	-828.170	-417.920	-346.713	9.532
	2000.00	38.722	297.701	265.536	-262.440	64.330	-857.842	-418.055	-342.962	8.957

References

Phase	H / S	C_p
GAS	Ja1	Ja1

116.193 DIPOTASSIUM DIFLUORIDE (GAS) **K2F2[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
GAS	298.15	78.523	319.767	319.767	−858.557	0.000	−953.896	−858.557	−854.869	149.770
	300.00	78.577	320.253	319.768	−858.412	0.145	−954.488	−858.578	−854.847	148.842
	400.00	80.503	343.159	322.879	−850.445	8.112	−987.708	−864.794	−852.494	111.324
	500.00	81.428	361.234	328.806	−842.343	16.214	−1022.960	−866.271	−849.246	88.720
	600.00	81.942	376.129	335.488	−834.172	24.385	−1059.850	−867.653	−845.710	73.626
	700.00	82.256	388.786	342.221	−825.961	32.596	−1098.112	−868.985	−841.947	62.827
	800.00	82.462	399.784	348.744	−817.725	40.832	−1137.552	−870.310	−837.994	54.715
	900.00	82.604	409.506	354.965	−809.471	49.086	−1178.026	−871.672	−833.873	48.397
	1000.00	82.706	418.214	360.862	−801.205	57.352	−1219.419	−873.114	−829.597	43.334
	1100.00	82.782	426.101	366.440	−792.931	65.626	−1261.641	−1032.561	−816.002	38.749
	1200.00	82.840	433.306	371.717	−784.649	73.908	−1304.617	−1032.172	−796.332	34.663
	1300.00	82.885	439.939	376.713	−776.363	82.194	−1348.284	−1031.797	−776.694	31.208
	1400.00	82.920	446.083	381.451	−768.073	90.484	−1392.588	−1031.436	−757.084	28.247
	1500.00	82.949	451.805	385.953	−759.779	98.778	−1437.486	−1031.088	−737.500	25.682
	1600.00	82.972	457.159	390.238	−751.483	107.074	−1482.937	−1030.751	−717.938	23.438
	1700.00	82.991	462.189	394.324	−743.185	115.372	−1528.907	−1030.426	−698.397	21.459
	1800.00	83.007	466.934	398.227	−734.885	123.672	−1575.366	−1030.111	−678.875	19.700
	1900.00	83.021	471.422	401.962	−726.584	131.973	−1622.285	−1029.807	−659.371	18.127
	2000.00	83.032	475.681	405.543	−718.281	140.276	−1669.642	−1029.513	−639.882	16.712

References

Phase	H / S	C_p
GAS	Ja1	Ja1

40.106 POTASSIUM HYDRIDE **KH**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	37.906	50.208	50.208	−57.819	0.000	−72.789	−57.819	−34.026	5.961
	300.00	38.073	50.443	50.209	−57.749	0.070	−72.882	−57.830	−33.878	5.899
	400.00	44.140	62.313	51.787	−53.608	4.211	−78.534	−60.627	−25.372	3.313
	500.00	48.533	72.652	54.948	−48.967	8.852	−85.293	−60.554	−16.555	1.730
	600.00	51.922	81.815	58.677	−43.936	13.883	−93.025	−60.028	−7.799	0.679
	700.00	54.604	90.025	62.579	−38.607	19.212	−101.624	−59.164	0.842	−0.063

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	NDPT= 690.2

KH[g] POTASSIUM HYDRIDE (GAS) 40.106

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	31.050	198.029	198.029	123.010	0.000	63.968	123.010	102.730	−17.998
	300.00	31.072	198.222	198.030	123.067	0.057	63.601	122.986	102.604	−17.865
	400.00	32.654	207.369	199.266	126.251	3.241	43.303	119.233	96.465	−12.597
	500.00	34.046	214.813	201.654	129.590	6.580	22.183	118.002	90.920	−9.498
	600.00	35.051	221.114	204.386	133.047	10.037	0.379	116.955	85.605	−7.453
	700.00	35.779	226.575	207.174	136.591	13.581	−22.012	116.033	80.454	−6.004
	800.00	36.327	231.390	209.906	140.197	17.187	−44.915	115.186	75.430	−4.925
	900.00	36.753	235.694	212.537	143.852	20.842	−68.273	114.369	70.510	−4.092
	1000.00	37.097	239.585	215.050	147.545	24.535	−92.040	113.547	65.680	−3.431
	1100.00	37.384	243.135	217.444	151.269	28.259	−116.179	33.744	65.519	−3.111
	1200.00	37.630	246.398	219.723	155.021	32.011	−140.657	33.874	68.402	−2.977
	1300.00	37.846	249.419	221.892	158.795	35.785	−165.450	34.005	71.274	−2.864
	1400.00	38.039	252.231	223.960	162.589	39.579	−190.534	34.134	74.136	−2.766
	1500.00	38.215	254.861	225.934	166.402	43.392	−215.890	34.259	76.989	−2.681
	1600.00	38.378	257.333	227.820	170.232	47.222	−241.501	34.378	79.834	−2.606
	1700.00	38.530	259.664	229.625	174.077	51.067	−267.352	34.491	82.671	−2.540
	1800.00	38.673	261.871	231.356	177.937	54.927	−293.430	34.598	85.502	−2.481
	1900.00	38.810	263.965	233.017	181.811	58.801	−319.723	34.699	88.328	−2.428
	2000.00	38.942	265.959	234.615	185.699	62.689	−346.220	34.794	91.148	−2.381
	2100.00	39.069	267.862	236.153	189.600	66.590	−372.912	34.883	93.963	−2.337
	2200.00	39.192	269.683	237.636	193.513	70.503	−399.789	34.967	96.775	−2.298
	2300.00	39.311	271.428	239.068	197.438	74.428	−426.846	35.047	99.582	−2.262
	2400.00	39.429	273.103	240.451	201.375	78.365	−454.073	35.122	102.386	−2.228
	2500.00	39.543	274.715	241.790	205.323	82.313	−481.464	35.194	105.188	−2.198

References

Phase	H / S	C_p
GAS	Ja1	Ja1

136.086 POTASSIUM DIHYDROGEN PHOSPHATE **KH2PO4**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−2	298.15	116.570	134.850	134.850	−1568.331	0.000	−1608.537	−1568.331	−1415.719	248.028
	300.00	117.134	135.573	134.853	−1568.115	0.216	−1608.787	−1568.375	−1414.772	246.334
	400.00	138.297	172.525	139.747	−1555.220	13.111	−1624.230	−1573.064	−1362.659	177.945
	444.00	144.193	187.271	143.733	−1549.000	19.331	−1632.149	−1573.333	−1339.498	157.586
			10.365		4.602					
SOL−1	444.00	144.193	197.636	143.733	−1544.398	23.933	−1632.149	−1568.731	−1339.498	157.586
	500.00	150.185	215.126	150.763	−1536.149	32.182	−1643.712	−1568.775	−1310.580	136.915
	600.00	158.422	243.272	163.886	−1520.699	47.632	−1666.663	−1568.246	−1258.979	109.604
	700.00	164.935	268.197	177.041	−1504.522	63.809	−1692.260	−1567.144	−1207.515	90.106
	800.00	170.529	290.594	189.859	−1487.743	80.588	−1720.218	−1565.602	−1156.240	75.495
	900.00	175.589	310.976	202.200	−1470.433	97.898	−1750.311	−1563.694	−1105.181	64.143
	1000.00	180.318	329.723	214.028	−1452.636	115.695	−1782.359	−1561.471	−1054.351	55.074

References

Phase	H / S	C_p	Remarks	
SOL−2	Nb1,Tk1	Tk1,e		
SOL−1	Tk1	Tk1,e	Tk1	TPT= 483./ 498./ 580./ 670.

174.176 DIPOTASSIUM HYDROGEN PHOSPHATE **K2HPO4**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−2	298.15	141.294	179.075	179.075	−1775.773	0.000	−1829.164	−1775.773	−1636.546	286.716
	300.00	141.954	179.951	179.078	−1775.511	0.262	−1829.496	−1775.799	−1635.682	284.798
	400.00	166.623	224.590	184.997	−1759.936	15.837	−1849.772	−1781.839	−1587.766	207.341
	500.00	180.268	263.355	196.885	−1742.538	33.235	−1874.216	−1780.870	−1539.332	160.813
	593.00	189.005	294.865	209.831	−1725.348	50.425	−1900.203	−1779.017	−1494.557	131.649

References

Phase	H / S	C_p	Remarks	
SOL−2	Tk1	Tk1,e	Tk1	TPT= 593.

KI POTASSIUM IODIDE 166.003

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	52.780	106.387	106.387	−327.900	0.000	−359.619	−327.900	−323.024	56.592
	300.00	52.803	106.713	106.388	−327.802	0.098	−359.816	−327.907	−322.994	56.238
	400.00	53.934	122.059	108.472	−322.465	5.435	−371.289	−338.874	−320.548	41.859
	500.00	55.357	134.238	112.448	−317.005	10.895	−384.124	−360.618	−313.868	32.790
	600.00	57.309	144.495	116.955	−311.376	16.524	−398.073	−359.905	−304.581	26.516
	700.00	59.770	153.508	121.545	−305.526	22.374	−412.982	−358.933	−295.433	22.045
	800.00	62.641	161.673	126.058	−299.408	28.492	−428.747	−357.679	−286.444	18.703
	900.00	65.793	169.231	130.440	−292.988	34.912	−445.296	−356.133	−277.629	16.113
	954.00	67.562	173.115	132.746	−289.388	38.512	−454.540	−355.177	−272.947	14.945
			25.174		24.016					
LIQ	954.00	72.383	198.289	132.746	−265.372	62.528	−454.540	−355.177	−272.947	14.945
	1000.00	72.383	201.698	135.840	−262.042	65.858	−463.740	−330.094	−270.165	14.112
	1100.00	72.383	208.597	142.146	−254.804	73.096	−484.261	−406.761	−259.699	12.332
	1200.00	72.383	214.895	147.950	−247.566	80.334	−505.440	−403.505	−246.473	10.729
	1300.00	72.383	220.689	153.325	−240.327	87.573	−527.223	−400.253	−233.519	9.383
	1400.00	72.383	226.053	158.331	−233.089	94.811	−549.563	−397.005	−220.815	8.239
	1500.00	72.383	231.047	163.014	−225.851	102.049	−572.421	−393.761	−208.343	7.255
	1600.00	72.383	235.718	167.414	−218.612	109.288	−595.762	−390.520	−196.088	6.402
	1618.00	72.383	236.528	168.178	−217.309	110.591	−600.012	−389.938	−193.904	6.260

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	NBPT= 1618., GAS (KI + K2I2)

166.003 POTASSIUM IODIDE (GAS) **KI**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	37.121	258.262	258.262	−125.520	0.000	−202.521	−125.520	−165.926	29.069
	300.00	37.129	258.492	258.263	−125.451	0.069	−202.999	−125.556	−166.176	28.934
	400.00	37.438	269.220	259.724	−121.721	3.799	−229.409	−138.130	−178.668	23.332
	500.00	37.628	277.596	262.491	−117.968	7.552	−256.765	−161.581	−186.509	19.485
	600.00	37.769	284.469	265.598	−114.197	11.323	−284.879	−162.726	−191.386	16.662
	700.00	37.887	290.300	268.721	−110.414	15.106	−313.625	−163.821	−196.076	14.631
	800.00	37.993	295.366	271.742	−106.620	18.900	−342.914	−164.891	−200.611	13.099
	900.00	38.091	299.847	274.621	−102.816	22.704	−372.678	−165.960	−205.012	11.899
	1000.00	38.185	303.865	277.348	−99.002	26.518	−402.868	−167.054	−209.292	10.932
	1100.00	38.276	307.509	279.926	−95.179	30.341	−433.439	−247.136	−208.877	9.919
	1200.00	38.365	310.843	282.366	−91.347	34.173	−464.359	−247.287	−205.392	8.940
	1300.00	38.452	313.917	284.676	−87.506	38.014	−495.599	−247.432	−201.895	8.112
	1400.00	38.538	316.770	286.868	−83.657	41.863	−527.135	−247.573	−198.387	7.402
	1500.00	38.624	319.432	288.951	−79.799	45.721	−558.947	−247.709	−194.869	6.786
	1600.00	38.709	321.927	290.935	−75.932	49.588	−591.016	−247.840	−191.342	6.247
	1700.00	38.793	324.277	292.828	−72.057	53.463	−623.327	−247.967	−187.807	5.771
	1800.00	38.877	326.496	294.637	−68.174	57.346	−655.867	−248.089	−184.265	5.347
	1900.00	38.961	328.601	296.370	−64.282	61.238	−688.623	−248.206	−180.716	4.968
	2000.00	39.045	330.601	298.032	−60.381	65.139	−721.584	−248.318	−177.161	4.627

References

Phase	H / S	C_p
GAS	Ja1	Ja1

K2I2[g] DIPOTASSIUM DIIODIDE (GAS) 332.006

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		J / (K mol)			kJ / mol					
GAS	298.15	82.256	395.916	395.916	−422.166	0.000	−540.208	−422.166	−467.018	81.820
	300.00	82.267	396.425	395.917	−422.014	0.152	−540.941	−422.223	−467.296	81.363
	400.00	82.648	420.151	399.150	−413.765	8.401	−581.826	−446.582	−480.343	62.726
	500.00	82.825	438.615	405.264	−405.491	16.675	−624.798	−492.717	−484.286	50.593
	600.00	82.922	453.725	412.120	−397.203	24.963	−669.438	−494.260	−482.453	42.001
	700.00	82.981	466.512	419.000	−388.908	33.258	−715.466	−495.721	−480.369	35.846
	800.00	83.018	477.595	425.647	−380.608	41.558	−762.684	−497.148	−478.078	31.215
	900.00	83.045	487.375	431.973	−372.304	49.862	−810.942	−498.593	−475.608	27.604
	1000.00	83.063	496.126	437.959	−363.999	58.167	−860.125	−500.103	−472.975	24.706
	1100.00	83.077	504.043	443.612	−355.692	66.474	−910.139	−659.605	−461.016	21.892
	1200.00	83.087	511.272	448.954	−347.384	74.782	−960.910	−659.262	−442.977	19.282
	1300.00	83.096	517.923	454.007	−339.074	83.092	−1012.375	−658.926	−424.967	17.075
	1400.00	83.102	524.082	458.795	−330.765	91.401	−1064.479	−658.596	−406.983	15.185
	1500.00	83.107	529.815	463.341	−322.454	99.712	−1117.177	−658.274	−389.022	13.547
	1600.00	83.111	535.179	467.665	−314.143	108.023	−1170.429	−657.959	−371.082	12.115
	1700.00	83.115	540.218	471.786	−305.832	116.334	−1224.202	−657.651	−353.161	10.851
	1800.00	83.118	544.968	475.721	−297.520	124.646	−1278.463	−657.350	−335.259	9.729
	1900.00	83.120	549.462	479.485	−289.208	132.958	−1333.187	−657.056	−317.373	8.725
	2000.00	83.122	553.726	483.091	−280.896	141.270	−1388.348	−656.770	−299.502	7.822

References

Phase	H / S	C_p
GAS	Ja1	Ja1

KNO3 POTASSIUM NITRATE 101.103

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		J / (K mol)			kJ / mol					
SOL−A	298.15	96.401	133.051	133.051	−494.628	0.000	−534.297	−494.628	−394.705	69.151
	300.00	96.621	133.648	133.053	−494.449	0.179	−534.544	−494.612	−394.085	68.616
	400.00	108.499	163.071	136.985	−484.193	10.435	−549.422	−495.756	−360.288	47.049
	401.20	108.642	163.396	137.063	−484.063	10.565	−549.618	−495.735	−359.882	46.855
			12.722		5.104					
SOL−B	401.20	120.499	176.118	137.063	−478.959	15.669	−549.618	−490.631	−359.882	46.855
	500.00	120.499	202.646	147.498	−467.054	27.574	−568.377	−487.783	−328.010	34.267
	600.00	120.499	224.615	158.575	−455.004	39.624	−589.773	−485.004	−296.319	25.797
	607.60	120.499	226.132	159.411	−454.088	40.540	−591.486	−484.797	−293.930	25.269
			15.838		9.623					
LIQ	607.60	123.386	241.970	159.411	−444.465	50.163	−591.486	−475.174	−293.930	25.269
	700.00	123.386	259.437	171.489	−433.064	61.564	−614.670	−472.464	−266.566	19.891

References

Phase	H / S	C_p	Remarks	
SOL−A	Nb1	La1	La1	TPT= 401.05
SOL−B	La1	La1	La1	MPT= 607.3
LIQ	La1	La1		

55.098 POTASSIUM MONOXIDE (GAS) **KO[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	35.981	238.179	238.179	71.128	0.000	0.115	71.128	49.979	−8.756
	300.00	36.001	238.402	238.180	71.195	0.067	−0.326	71.113	49.847	−8.679
	400.00	36.782	248.878	239.603	74.838	3.710	−24.713	67.787	43.347	−5.661
	500.00	37.222	257.137	242.313	78.540	7.412	−50.028	66.851	37.347	−3.902
	600.00	37.513	263.950	245.368	82.278	11.150	−76.093	65.969	31.529	−2.745
	700.00	37.730	269.750	248.447	86.040	14.912	−102.785	65.108	25.857	−1.930
	800.00	37.905	274.800	251.432	89.822	18.694	−130.018	64.244	20.309	−1.326
	900.00	38.056	279.273	254.282	93.620	22.492	−157.726	63.355	14.870	−0.863
	1000.00	38.191	283.290	256.985	97.433	26.305	−185.857	62.423	9.533	−0.498
	1100.00	38.316	286.936	259.545	101.258	30.130	−214.371	−17.514	8.875	−0.421
	1200.00	38.434	290.275	261.968	105.096	33.968	−243.234	−17.532	11.275	−0.491
	1300.00	38.547	293.356	264.266	108.945	37.817	−272.418	−17.557	13.677	−0.550
	1400.00	38.656	296.217	266.447	112.805	41.677	−301.898	−17.587	16.081	−0.600
	1500.00	38.762	298.887	268.522	116.676	45.548	−331.655	−17.621	18.487	−0.644
	1600.00	38.866	301.392	270.499	120.557	49.429	−361.670	−17.658	20.895	−0.682
	1700.00	38.969	303.751	272.386	124.449	53.321	−391.928	−17.698	23.306	−0.716
	1800.00	39.070	305.982	274.191	128.351	57.223	−422.416	−17.740	25.719	−0.746
	1900.00	39.170	308.097	275.920	132.263	61.135	−453.121	−17.785	28.134	−0.773
	2000.00	39.269	310.108	277.580	136.185	65.057	−484.032	−17.832	30.552	−0.798

References

Phase	H / S	C_p
GAS	Ja1	Ja1

71.097 POTASSIUM DIOXIDE **KO2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	77.490	122.591	122.591	−284.512	0.000	−321.063	−284.512	−240.617	42.155
	300.00	77.650	123.071	122.593	−284.368	0.144	−321.290	−284.477	−240.344	41.848
	400.00	83.909	146.359	125.725	−276.258	8.254	−334.802	−284.823	−225.481	29.445
	500.00	87.630	165.512	131.825	−267.668	16.844	−350.424	−282.399	−210.918	22.034
	600.00	90.157	181.726	138.825	−258.771	25.741	−367.807	−279.702	−196.872	17.139
	700.00	91.952	195.767	145.979	−249.661	34.851	−386.698	−276.843	−183.291	13.677
	782.00	93.016	206.013	151.746	−242.075	42.437	−403.177	−274.430	−172.468	11.520

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	TPT= 193.5 / 230.9, MPT= 782.

K2O — POTASSIUM OXIDE — 94.196

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	74.417	102.006	102.006	−361.498	0.000	−391.911	−361.498	−322.766	56.547
	300.00	74.511	102.467	102.007	−361.360	0.138	−392.100	−361.496	−322.526	56.157
	400.00	79.054	124.558	104.988	−353.670	7.828	−403.493	−366.260	−308.635	40.304
	500.00	82.227	142.560	110.758	−345.597	15.901	−416.877	−365.932	−294.258	30.741
	600.00	84.627	157.772	117.358	−337.250	24.248	−431.913	−365.245	−279.982	24.375
	700.00	86.709	170.976	124.095	−328.682	32.816	−448.365	−364.297	−265.844	19.838
	800.00	88.686	182.684	130.700	−319.912	41.586	−466.058	−363.151	−251.855	16.444
	900.00	90.626	193.242	137.072	−310.946	50.552	−484.863	−361.855	−238.020	13.814
	1000.00	92.524	202.889	143.178	−301.788	59.710	−504.676	−360.456	−224.334	11.718
	1013.00	92.765	204.085	143.952	−300.583	60.915	−507.322	−360.269	−222.566	11.476
			26.851		27.200					
LIQ	1013.00	107.000	230.936	143.952	−273.383	88.115	−507.322	−333.069	−222.566	11.476
	1100.00	107.000	239.752	151.185	−264.074	97.424	−527.802	−488.512	−204.010	9.688
	1200.00	107.000	249.063	158.960	−253.374	108.124	−552.249	−483.750	−178.356	7.764
	1300.00	107.000	257.627	166.224	−242.674	118.824	−577.590	−479.007	−153.099	6.152
	1400.00	107.000	265.557	173.040	−231.974	129.524	−603.754	−474.280	−128.207	4.783
	1500.00	107.000	272.939	179.457	−221.274	140.224	−630.683	−469.569	−103.652	3.609
	1600.00	107.000	279.845	185.517	−210.574	150.924	−658.326	−464.872	−79.410	2.592
	1700.00	107.000	286.331	191.259	−199.874	161.624	−686.638	−460.189	−55.462	1.704
	1800.00	107.000	292.447	196.712	−189.174	172.324	−715.580	−455.520	−31.790	0.923
	1900.00	107.000	298.233	201.904	−178.474	183.024	−745.116	−450.864	−8.376	0.230
	2000.00	107.000	303.721	206.859	−167.774	193.724	−775.216	−446.221	14.793	−0.386

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	Pa1	Tk1	TPT= 590., 645., 719.
LIQ	Tk1	e		

K2O2 — DIPOTASSIUM PEROXIDE — 110.195

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	95.838	110.081	110.081	−495.386	0.000	−528.207	−495.386	−428.479	75.068
	300.00	95.971	110.674	110.083	−495.209	0.177	−528.411	−495.372	−428.064	74.533
	400.00	104.338	139.441	113.947	−485.189	10.197	−540.965	−499.292	−404.845	52.867
	500.00	110.915	163.458	121.513	−474.413	20.973	−556.142	−497.791	−381.392	39.844
	600.00	116.825	184.204	130.270	−463.026	32.360	−573.548	−495.643	−358.304	31.193
	683.00	121.542	199.644	137.776	−453.130	42.256	−589.487	−493.421	−339.449	25.960

References

Phase	H / S	C_p	Remarks	
SOL	Pa1	Pa1	Pa1	MPT= 683.

158.163 KALIOPHILITE **KAlSiO4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	119.790	133.101	133.101	−2121.301	0.000	−2160.985	−2121.301	−2005.333	351.326
	300.00	119.914	133.843	133.104	−2121.079	0.222	−2161.232	−2121.324	−2004.614	349.034
	400.00	126.615	169.258	137.887	−2108.753	12.548	−2176.456	−2125.054	−1965.058	256.610
	500.00	133.317	198.231	147.141	−2095.756	25.545	−2194.872	−2126.203	−1924.920	201.095
	600.00	140.018	223.130	157.777	−2082.089	39.212	−2215.967	−2127.027	−1884.580	164.067
	700.00	146.720	245.217	168.719	−2067.753	53.548	−2239.404	−2127.511	−1844.129	137.611
	800.00	153.421	265.246	179.552	−2052.745	68.556	−2264.942	−2127.666	−1803.632	117.765
	900.00	160.123	283.704	190.112	−2037.068	84.233	−2292.401	−2127.533	−1763.133	102.330
	1000.00	166.824	300.921	200.341	−2020.721	100.580	−2321.642	−2137.678	−1721.904	89.943
	1100.00	173.526	317.135	210.228	−2003.703	117.598	−2352.552	−2215.516	−1675.792	79.577
	1200.00	180.227	332.521	219.784	−1986.016	135.285	−2385.041	−2212.882	−1626.838	70.814
	1300.00	186.929	347.212	229.025	−1967.658	153.643	−2419.033	−2209.690	−1578.127	63.410
	1400.00	193.630	361.310	237.974	−1948.630	172.671	−2454.464	−2205.930	−1529.682	57.073
	1500.00	200.332	374.898	246.652	−1928.932	192.369	−2491.278	−2201.598	−1481.526	51.591

References

Phase	H / S	C_p
SOL	Nb1	e

218.247 LEUCITE **KAlSi2O6**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	164.140	199.999	199.999	−3034.199	0.000	−3093.829	−3034.199	−2871.401	503.058
	300.00	164.330	201.015	200.003	−3033.895	0.304	−3094.200	−3034.232	−2870.391	499.780
	400.00	174.579	249.694	206.571	−3016.950	17.249	−3116.827	−3038.436	−2815.052	367.608
	500.00	184.828	289.751	219.312	−2998.979	35.220	−3143.855	−3039.949	−2759.022	288.233
	600.00	195.077	324.355	233.997	−2979.984	54.215	−3174.597	−3040.980	−2702.731	235.294
	700.00	205.326	355.196	249.146	−2959.964	74.235	−3208.601	−3041.485	−2646.308	197.470
	800.00	215.576	383.283	264.182	−2938.919	95.280	−3245.545	−3041.447	−2589.851	169.100
	900.00	225.825	409.266	278.876	−2916.849	117.350	−3285.188	−3040.888	−2533.430	147.036
	1000.00	236.074	433.589	293.144	−2893.754	140.445	−3327.343	−3050.357	−2476.339	129.351
	1100.00	246.323	456.570	306.965	−2869.634	164.565	−3371.861	−3127.257	−2414.446	114.652
	1200.00	256.572	478.442	320.351	−2844.489	189.710	−3418.620	−3123.414	−2349.808	102.284
	1300.00	266.821	499.384	333.323	−2818.320	215.879	−3467.518	−3118.735	−2285.525	91.834
	1400.00	277.070	519.532	345.908	−2791.125	243.074	−3518.470	−3113.206	−2221.634	82.890
	1500.00	287.319	538.998	358.135	−2762.906	271.293	−3571.402	−3106.818	−2158.168	75.154

References

Phase	H / S	C_p
SOL	Nb1	e

KAlSi3O8 — MICROCLINE — 278.332

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL−M	298.15	202.381	214.221	214.221	−3968.101	0.000	−4031.971	−3968.101	−3742.768	655.717
	300.00	203.770	215.477	214.225	−3967.725	0.376	−4032.368	−3968.153	−3741.370	651.430
	400.00	253.927	281.921	222.943	−3944.510	23.591	−4057.278	−3971.181	−3665.125	478.616
	500.00	279.219	341.566	240.831	−3917.733	50.368	−4088.517	−3969.226	−3588.802	374.920
	600.00	294.724	393.941	262.078	−3888.983	79.118	−4125.348	−3966.038	−3513.003	305.834
	700.00	305.608	440.232	284.287	−3858.940	109.161	−4167.102	−3962.223	−3437.792	256.531
	800.00	314.029	481.610	306.412	−3827.943	140.158	−4213.231	−3958.079	−3363.153	219.591
	900.00	321.018	519.012	327.990	−3796.181	171.920	−4263.292	−3953.795	−3289.044	190.891
	1000.00	327.118	553.156	348.824	−3763.769	204.332	−4316.925	−3960.017	−3214.656	167.916
	1100.00	332.636	584.597	368.847	−3730.777	237.324	−4373.833	−4034.210	−3135.764	148.905
	1200.00	337.759	613.762	388.056	−3697.254	270.847	−4433.768	−4028.238	−3054.349	132.952
	1300.00	342.604	640.990	406.477	−3663.234	304.867	−4496.521	−4022.033	−2973.441	119.474
	1400.00	347.246	666.550	424.150	−3628.740	339.361	−4561.911	−4015.601	−2893.020	107.940
	1500.00	351.738	690.662	441.121	−3593.790	374.311	−4629.783	−4008.949	−2813.067	97.960

References

Phase	H / S	C_p
SOL−M	Nb1	S5,Nb1

KAlSi3O8[A] — ADULARIA — 278.332

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL−A	298.15	190.461	234.304	234.304	−3954.089	0.000	−4023.947	−3954.089	−3734.744	654.312
	300.00	191.849	235.486	234.308	−3953.735	0.354	−4024.381	−3954.163	−3733.382	650.040
	400.00	242.007	298.501	242.558	−3931.712	22.377	−4051.112	−3958.383	−3658.960	477.811
	500.00	267.299	355.487	259.564	−3906.128	47.961	−4083.871	−3957.620	−3584.156	374.434
	600.00	282.804	405.688	279.822	−3878.570	75.519	−4121.982	−3955.624	−3509.637	305.541
	700.00	293.688	450.141	301.040	−3849.718	104.371	−4164.817	−3953.001	−3435.507	256.361
	800.00	302.109	489.928	322.208	−3819.913	134.176	−4211.855	−3950.049	−3361.778	219.502
	900.00	309.098	525.926	342.875	−3789.343	164.746	−4262.676	−3946.957	−3288.429	190.855
	1000.00	315.197	558.814	362.848	−3758.123	195.966	−4316.937	−3954.371	−3214.668	167.917
	1100.00	320.716	589.118	382.058	−3726.323	227.766	−4374.353	−4029.757	−3136.284	148.930
	1200.00	325.839	617.246	400.499	−3693.993	260.096	−4434.688	−4024.976	−3055.268	132.992
	1300.00	330.684	643.520	418.194	−3661.165	292.924	−4497.741	−4019.963	−2974.661	119.523
	1400.00	335.326	668.197	435.179	−3627.863	326.226	−4563.339	−4014.724	−2894.448	107.993
	1500.00	339.818	691.486	451.497	−3594.104	359.985	−4631.334	−4009.263	−2814.618	98.014

References

Phase	H / S	C_p
SOL−A	S5	S5

278.332 SANIDINE **KAlSi3O8**[S]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol	]		[−]
SOL−S	298.15	204.511	232.881	232.881	−3959.700	0.000	−4029.134	−3959.700	−3739.931	655.220
	300.00	205.899	234.151	232.885	−3959.320	0.380	−4029.566	−3959.748	−3738.567	650.942
	400.00	256.057	301.207	241.687	−3935.892	23.808	−4056.375	−3962.563	−3664.222	478.498
	500.00	281.349	361.328	259.733	−3908.903	50.797	−4089.567	−3960.395	−3589.852	375.029
	600.00	296.854	414.091	281.157	−3879.940	79.760	−4128.394	−3956.995	−3516.049	306.099
	700.00	307.738	460.710	303.543	−3849.683	110.017	−4172.180	−3952.966	−3442.870	256.910
	800.00	316.159	502.373	325.839	−3818.473	141.227	−4220.371	−3948.609	−3370.294	220.058
	900.00	323.148	540.025	347.579	−3786.498	173.202	−4272.521	−3944.112	−3298.274	191.427
	1000.00	329.247	574.394	368.567	−3753.873	205.827	−4328.267	−3950.121	−3225.998	168.509
	1100.00	334.766	606.037	388.736	−3720.668	239.032	−4387.309	−4024.102	−3149.240	149.545
	1200.00	339.889	635.388	408.082	−3686.933	272.767	−4449.398	−4017.916	−3069.978	133.633
	1300.00	344.733	662.786	426.632	−3652.700	307.000	−4514.322	−4011.498	−2991.242	120.190
	1400.00	349.376	688.505	444.428	−3617.993	341.707	−4581.899	−4004.854	−2913.009	108.686
	1473.00	352.667	706.346	456.969	−3592.368	367.332	−4632.816	−3999.864	−2856.204	101.285
			41.755		61.505					
LIQ	1473.00	382.836	748.101	456.969	−3530.863	428.837	−4632.816	−3938.359	−2856.204	101.285
	1500.00	382.836	755.055	462.273	−3520.526	439.174	−4653.109	−3935.685	−2836.393	98.772
	1600.00	382.836	779.763	481.352	−3482.243	477.457	−4729.863	−3925.926	−2763.426	90.217
	1700.00	382.836	802.972	499.595	−3443.959	515.741	−4809.012	−4066.921	−2689.723	82.645
	1800.00	382.836	824.854	517.063	−3405.675	554.025	−4890.413	−4056.921	−2609.000	75.711
	1900.00	382.836	845.553	533.812	−3367.392	592.308	−4973.943	−4047.016	−2528.831	69.522
	2000.00	382.836	865.190	549.894	−3329.108	630.592	−5059.489	−4037.205	−2449.180	63.966

References

Phase	H / S	C_p
SOL−S	Nb1	S5,e
LIQ	S5	S5

KAl3Si3O10(OH)2 MUSCOVITE 398.308

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	318.260	306.298	306.298	−5984.400	0.000	−6075.723	−5984.400	−5608.368	982.563
	300.00	319.937	308.272	306.304	−5983.810	0.590	−6076.291	−5984.489	−5606.034	976.097
	400.00	382.679	409.973	319.745	−5948.308	36.092	−6112.298	−5989.093	−5478.974	715.481
	500.00	417.563	499.411	346.937	−5908.163	76.237	−6157.869	−5988.091	−5351.514	559.069
	600.00	441.482	577.765	379.017	−5865.151	119.249	−6211.810	−5985.400	−5224.430	454.827
	700.00	460.223	647.273	412.468	−5820.036	164.364	−6273.127	−5981.694	−5097.883	380.409
	800.00	476.205	709.794	445.790	−5773.198	211.202	−6341.032	−5977.340	−4971.916	324.633
	900.00	490.582	766.725	478.333	−5724.848	259.552	−6414.900	−5972.629	−4846.519	281.285
	1000.00	503.963	819.112	509.826	−5675.114	309.286	−6494.226	−5999.348	−4719.381	246.515
	1100.00	516.693	867.746	540.180	−5624.077	360.323	−6578.598	−6071.903	−4587.102	217.823
	1200.00	528.980	913.234	569.392	−5571.790	412.610	−6667.671	−6063.691	−4452.477	193.811
	1300.00	540.954	956.049	597.504	−5518.291	466.109	−6761.155	−6054.644	−4318.570	173.522
	1400.00	552.702	996.569	624.574	−5463.607	520.793	−6858.804	−6044.763	−4185.391	156.159
	1500.00	564.282	1035.098	650.669	−5407.757	576.643	−6960.403	−6034.050	−4052.948	141.136

References

Phase	H / S	C_p
SOL	Nb1	e

233.436

DIPOTASSIUM TETRABORATE

K2B4O7

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	170.308	208.363	208.363	−3334.230	0.000	−3396.353	−3334.230	−3136.762	549.548
	300.00	171.170	209.419	208.366	−3333.914	0.316	−3396.740	−3334.297	−3135.536	545.945
	400.00	207.154	264.008	215.565	−3314.853	19.377	−3420.456	−3342.063	−3067.897	400.626
	500.00	231.238	312.969	230.242	−3292.867	41.363	−3449.351	−3343.921	−2999.120	313.316
	600.00	249.041	356.778	247.747	−3268.811	65.419	−3482.878	−3344.926	−2930.053	255.084
	700.00	262.488	396.227	266.188	−3243.203	91.027	−3520.562	−3345.322	−2860.870	213.481
	800.00	272.382	431.960	284.712	−3216.432	117.798	−3562.000	−3345.318	−2791.659	182.277
	900.00	279.108	464.460	302.907	−3188.832	145.398	−3606.846	−3345.133	−2722.462	158.008
	1000.00	282.868	494.087	320.566	−3160.709	173.521	−3654.796	−3345.004	−2653.285	138.593
	1088.00	283.815	517.999	335.581	−3135.759	198.471	−3699.342	−3503.263	−2585.065	124.108
			95.756		104.182					
LIQ	1088.00	464.529	613.755	335.581	−3031.577	302.653	−3699.342	−3399.342	−2585.065	124.108
	1100.00	465.456	618.855	338.644	−3025.997	308.233	−3706.738	−3396.710	−2576.100	122.329
	1200.00	473.178	659.686	363.716	−2979.065	355.165	−3770.689	−3376.718	−2502.378	108.926
	1300.00	480.900	697.866	387.967	−2931.361	402.869	−3838.587	−3356.286	−2430.342	97.652
	1400.00	488.622	733.787	411.398	−2882.885	451.345	−3910.187	−3335.381	−2359.897	88.049
	1500.00	496.344	767.762	434.033	−2833.637	500.593	−3985.280	−3313.982	−2290.963	79.778
	1600.00	504.066	800.041	455.908	−2783.617	550.613	−4063.683	−3292.070	−2223.474	72.589
	1700.00	511.788	830.832	477.064	−2732.824	601.406	−4145.238	−3269.635	−2157.370	66.288
	1800.00	519.510	860.304	497.542	−2681.259	652.971	−4229.805	−3246.667	−2092.603	60.726
	1900.00	527.232	888.599	517.384	−2628.922	705.308	−4317.260	−3223.159	−2029.127	55.785
	2000.00	534.954	915.839	536.630	−2575.813	758.417	−4407.490	−3199.105	−1966.903	51.370

References

Phase	H / S	C_p
SOL	Ja1	Ja1
LIQ	Ja1	Ja1

303.057

DIPOTASSIUM HEXABORATE

K2B6O10

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	261.928	251.040	251.040	−4633.529	0.000	−4708.377	−4633.529	−4353.562	762.726
	300.00	262.331	252.661	251.045	−4633.044	0.485	−4708.843	−4633.550	−4351.824	757.720
	400.00	285.758	331.316	261.611	−4605.647	27.882	−4738.173	−4640.166	−4256.764	555.876
	500.00	308.325	397.530	282.335	−4575.932	57.597	−4774.697	−4642.345	−4160.659	434.661
	600.00	330.038	455.670	306.471	−4544.010	89.519	−4817.412	−4644.185	−4064.140	353.815
	700.00	351.520	508.160	331.592	−4509.931	123.598	−4865.643	−4645.302	−3967.365	296.048
	800.00	372.791	556.491	356.721	−4473.713	159.816	−4918.906	−4645.422	−3870.496	252.717
	900.00	393.448	601.601	381.451	−4435.393	198.136	−4976.834	−4644.390	−3773.680	219.019
	1000.00	412.845	644.074	405.609	−4395.065	238.464	−5039.138	−4642.174	−3677.042	192.069
	1100.00	430.195	684.255	429.131	−4352.892	280.637	−5105.573	−4796.743	−3571.512	169.597

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	DPT= 1098.

K2B8O13 DIPOTASSIUM OCTABORATE 372.677

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	321.382	293.717	293.717	−5945.129	0.000	−6032.701	−5945.129	−5582.662	978.059
	300.00	322.105	295.707	293.723	−5944.534	0.595	−6033.246	−5945.164	−5580.413	971.636
	400.00	360.344	393.641	306.818	−5910.400	34.729	−6067.856	−5952.229	−5457.597	712.689
	500.00	397.708	478.073	332.801	−5872.493	72.636	−6111.529	−5954.265	−5333.686	557.206
	600.00	434.728	553.860	363.427	−5830.869	114.260	−6163.185	−5955.104	−5209.466	453.524
	700.00	471.585	623.643	395.676	−5785.553	159.576	−6222.102	−5954.175	−5085.239	379.465
	800.00	501.402	688.616	428.281	−5736.861	208.268	−6287.754	−5951.394	−4961.275	323.938
	900.00	525.091	749.091	460.607	−5685.493	259.636	−6359.675	−5947.186	−4837.750	280.776
	1000.00	544.619	805.455	492.306	−5631.980	313.149	−6437.435	−5941.903	−4714.754	246.273
	1100.00	561.426	858.168	523.196	−5576.660	368.469	−6520.645	−6093.647	−4583.161	217.636
	1130.00	566.077	873.337	532.291	−5559.747	385.382	−6546.618	−6091.045	−4542.001	209.956
			110.710		125.102					
LIQ	1130.00	661.490	984.047	532.291	−5434.645	510.484	−6546.618	−5965.943	−4542.001	209.956
	1200.00	661.490	1023.805	559.815	−5388.340	556.789	−6616.907	−5953.271	−4454.179	193.885
	1300.00	661.490	1076.753	597.570	−5322.191	622.938	−6721.970	−5935.708	−4329.971	173.980

References

Phase	H / S	C_p
SOL	Ja1	Ja1
LIQ	Ja1	Ja1

56.106 POTASSIUM HYDROXIDE **KOH**

Phase	T [K]	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL–A	298.15	64.897	78.910	78.910	–424.676	0.000	–448.203	–424.676	–378.858	66.374
	300.00	65.008	79.312	78.911	–424.556	0.120	–448.349	–424.664	–378.574	65.916
	400.00	71.672	98.897	81.537	–417.732	6.944	–457.291	–426.263	–362.867	47.386
	500.00	79.580	115.716	86.724	–410.180	14.496	–468.038	–424.810	–347.170	36.269
	516.00	80.960	118.244	87.662	–408.896	15.780	–469.910	–424.499	–344.690	34.893
			12.486		6.443					
SOL–B	516.00	78.659	130.731	87.662	–402.453	22.223	–469.910	–418.056	–344.690	34.893
	600.00	78.659	142.594	94.543	–395.845	28.831	–481.402	–416.559	–332.862	28.978
	679.00	78.659	152.324	100.712	–389.631	35.045	–493.059	–415.157	–321.931	24.766
			12.694		8.619					
LIQ	679.00	83.107	165.017	100.712	–381.012	43.664	–493.059	–406.538	–321.931	24.766
	700.00	83.107	167.549	102.679	–379.267	45.409	–496.551	–406.074	–319.321	23.828
	800.00	83.107	178.646	111.497	–370.956	53.720	–513.873	–403.886	–307.078	20.050
	900.00	83.107	188.435	119.512	–362.646	62.030	–532.237	–401.749	–295.106	17.127
	1000.00	83.107	197.191	126.850	–354.335	70.341	–551.526	–399.685	–283.368	14.802
	1100.00	83.107	205.112	133.610	–346.024	78.652	–571.647	–476.656	–267.248	12.691
	1200.00	83.107	212.343	139.874	–337.714	86.962	–592.525	–473.740	–248.340	10.810
	1300.00	83.107	218.995	145.708	–329.403	95.273	–614.097	–470.864	–229.674	9.228
	1400.00	83.107	225.154	151.166	–321.092	103.584	–636.308	–468.026	–211.227	7.881
	1500.00	83.107	230.888	156.292	–312.782	111.894	–659.113	–465.224	–192.983	6.720
	1594.00	83.107	235.939	160.841	–304.970	119.706	–681.057	–462.622	–176.002	5.768

References

Phase	H / S	C_p	Remarks	
SOL–A	Ja1	Ja1		
SOL–B	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	BPT= 1594., L= 142.7 kJ, GAS (KOH)

KOH[g] POTASSIUM HYDROXIDE (GAS) 56.106

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	48.524	236.380	236.380	−232.630	0.000	−303.107	−232.630	−233.762	40.954
	300.00	48.590	236.680	236.381	−232.540	0.090	−303.544	−232.648	−233.769	40.703
	400.00	50.808	251.011	238.320	−227.554	5.076	−327.958	−236.085	−233.534	30.496
	500.00	51.879	262.474	242.043	−222.414	10.216	−353.651	−237.044	−232.783	24.319
	600.00	52.599	271.999	246.264	−217.189	15.441	−380.388	−237.903	−231.849	20.184
	700.00	53.190	280.153	250.537	−211.899	20.731	−408.006	−238.706	−230.776	17.221
	800.00	53.730	287.291	254.694	−206.553	26.077	−436.385	−239.482	−229.590	14.991
	900.00	54.248	293.649	258.676	−201.154	31.476	−465.438	−240.257	−228.307	13.251
	1000.00	54.755	299.391	262.465	−195.703	36.927	−495.095	−241.053	−226.937	11.854
	1100.00	55.253	304.633	266.063	−190.203	42.427	−525.300	−320.834	−220.900	10.490
	1200.00	55.742	309.462	269.481	−184.653	47.977	−556.008	−320.680	−211.822	9.220
	1300.00	56.218	313.943	272.731	−179.055	53.575	−587.180	−320.516	−202.757	8.147
	1400.00	56.676	318.126	275.826	−173.410	59.220	−618.786	−320.343	−193.705	7.227
	1500.00	57.112	322.051	278.778	−167.720	64.910	−650.797	−320.163	−184.666	6.431
	1600.00	57.520	325.750	281.599	−161.989	70.641	−683.189	−319.975	−175.639	5.734
	1700.00	57.893	329.249	284.300	−156.218	76.412	−715.940	−319.782	−166.624	5.120
	1800.00	58.227	332.567	286.890	−150.411	82.219	−749.033	−319.587	−157.620	4.574
	1900.00	58.515	335.723	289.378	−144.574	88.056	−782.448	−319.393	−148.628	4.086
	2000.00	58.751	338.731	291.771	−138.710	93.920	−816.172	−319.203	−139.645	3.647

References

Phase	H / S	C_p
GAS	Ja1	Ja1

112.211 DIPOTASSIUM DIHYDROXIDE (GAS) **K2(OH)2**[g]

Phase	T	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[–]
GAS	298.15	81.465	328.135	328.135	–654.796	0.000	–752.629	–654.796	–613.940	107.560
	300.00	81.574	328.639	328.137	–654.645	0.151	–753.237	–654.861	–613.686	106.852
	400.00	88.170	353.003	331.414	–646.160	8.636	–787.361	–663.223	–598.514	78.158
	500.00	93.983	373.325	337.817	–637.042	17.754	–823.705	–666.302	–581.968	60.798
	600.00	98.647	390.887	345.231	–627.402	27.394	–861.935	–668.831	–564.856	49.175
	700.00	102.450	406.389	352.882	–617.342	37.454	–901.814	–670.955	–547.354	40.844
	800.00	105.621	420.282	360.454	–606.933	47.863	–943.159	–672.792	–529.568	34.577
	900.00	108.309	432.882	367.812	–596.233	58.563	–985.827	–674.439	–511.565	29.690
	1000.00	110.606	444.416	374.904	–585.285	69.511	–1029.700	–675.984	–493.384	25.772
	1100.00	112.653	455.055	381.713	–574.120	80.676	–1074.680	–835.383	–465.882	22.123
	1200.00	114.481	464.937	388.242	–562.761	92.035	–1120.686	–834.815	–432.316	18.818
	1300.00	116.113	474.166	394.500	–551.230	103.566	–1167.646	–834.153	–398.800	16.024
	1400.00	117.570	482.825	400.503	–539.545	115.251	–1215.500	–833.411	–365.339	13.631
	1500.00	118.875	490.982	406.266	–527.721	127.075	–1264.194	–832.605	–331.933	11.559
	1600.00	120.045	498.692	411.804	–515.774	139.022	–1313.682	–831.746	–298.582	9.748
	1700.00	121.096	506.002	417.132	–503.716	151.080	–1363.920	–830.845	–265.287	8.151
	1800.00	122.040	512.951	422.263	–491.559	163.237	–1414.870	–829.910	–232.046	6.734
	1900.00	122.886	519.572	427.212	–479.312	175.484	–1466.499	–828.949	–198.857	5.467
	2000.00	123.643	525.895	431.989	–466.984	187.812	–1518.775	–827.970	–165.720	4.328

References

Phase	H / S	C_p
GAS	Ja1	Ja1

K2SiO3 POTASSIUM METASILICATE 154.280

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	118.431	146.147	146.147	−1548.080	0.000	−1591.654	−1548.080	−1455.733	255.038
	300.00	118.801	146.881	146.149	−1547.861	0.219	−1591.925	−1548.088	−1455.160	253.366
	400.00	135.564	183.485	151.027	−1535.097	12.983	−1608.491	−1552.872	−1423.255	185.858
	500.00	148.112	215.145	160.755	−1520.885	27.195	−1628.458	−1551.744	−1390.957	145.312
	600.00	157.737	243.039	172.191	−1505.571	42.509	−1651.395	−1549.625	−1358.985	118.310
	700.00	164.851	267.905	184.121	−1489.431	58.649	−1676.965	−1546.809	−1327.426	99.054
	800.00	170.708	290.314	196.017	−1472.643	75.437	−1704.894	−1543.490	−1296.307	84.640
	900.00	175.309	310.699	207.644	−1455.331	92.749	−1734.960	−1539.815	−1265.627	73.455
	1000.00	179.075	329.382	218.897	−1437.595	110.485	−1766.977	−1535.909	−1235.370	64.529
	1100.00	182.002	346.588	229.734	−1419.541	128.539	−1800.787	−1689.789	−1196.340	56.809
	1200.00	184.933	362.550	240.145	−1401.193	146.887	−1836.253	−1683.627	−1151.752	50.134
	1249.00	186.262	369.978	245.093	−1392.098	155.982	−1854.201	−1680.539	−1130.096	47.262
			40.199		50.208					
LIQ	1249.00	179.912	410.177	245.093	−1341.890	206.190	−1854.201	−1630.331	−1130.096	47.262
	1300.00	179.912	417.377	251.712	−1332.715	215.365	−1875.305	−1627.431	−1109.728	44.589
	1400.00	179.912	430.710	264.027	−1314.724	233.356	−1917.718	−1621.810	−1070.116	39.927
	1500.00	179.912	443.123	275.558	−1296.732	251.348	−1961.417	−1616.273	−1030.903	35.899
	1600.00	179.912	454.734	286.397	−1278.741	269.339	−2006.316	−1610.818	−992.057	32.387
	1700.00	179.912	465.641	296.624	−1260.750	287.330	−2052.340	−1655.619	−953.103	29.285
	1800.00	179.912	475.925	306.302	−1242.759	305.321	−2099.423	−1650.094	−911.938	26.464
	1900.00	179.912	485.652	315.488	−1224.768	323.312	−2147.506	−1644.606	−871.079	23.948
	2000.00	179.912	494.880	324.228	−1206.776	341.304	−2196.537	−1639.154	−830.508	21.691
	2100.00	179.912	503.658	332.565	−1188.785	359.295	−2246.467	−1633.738	−790.209	19.655
	2200.00	179.912	512.028	340.534	−1170.794	377.286	−2297.255	−1628.358	−750.167	17.811
	2300.00	179.912	520.025	348.165	−1152.803	395.277	−2348.861	−1623.012	−710.370	16.133
	2400.00	179.912	527.682	355.487	−1134.812	413.268	−2401.249	−1617.702	−670.803	14.600
	2500.00	179.912	535.027	362.523	−1116.820	431.260	−2454.387	−1612.425	−631.458	13.194

References

Phase	H / S	C_p
SOL	Ja1,S5	Ja1
LIQ	Ja1	Ja1

214.365 POTASSIUM DISILICATE **K2Si2O5**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL−C	298.15	180.673	182.004	182.004	−2509.145	0.000	−2563.409	−2509.145	−2360.713	413.587
	300.00	180.945	183.122	182.007	−2508.811	0.334	−2563.747	−2509.129	−2359.792	410.876
	400.00	195.669	237.194	189.281	−2489.980	19.165	−2584.857	−2512.940	−2309.244	301.556
	500.00	210.392	282.438	203.501	−2469.677	39.468	−2610.896	−2511.058	−2258.514	235.945
	523.00	213.779	291.975	207.183	−2464.799	44.346	−2617.502	−2510.461	−2246.910	224.410
			0.000		0.000					
SOL−B	523.00	217.991	291.975	207.183	−2464.799	44.346	−2617.502	−2510.461	−2246.910	224.410
	600.00	226.062	322.457	220.054	−2447.703	61.442	−2641.177	−2507.816	−2208.289	192.249
	700.00	236.542	358.092	237.274	−2424.573	84.572	−2675.237	−2503.713	−2158.681	161.083
	800.00	247.023	390.362	254.424	−2400.394	108.751	−2712.684	−2498.849	−2109.714	137.750
	900.00	257.504	420.062	271.199	−2375.168	133.977	−2753.224	−2493.226	−2061.402	119.641
	1000.00	267.985	447.736	287.484	−2348.893	160.252	−2796.629	−2486.853	−2013.756	105.188
	1100.00	278.466	473.769	303.247	−2321.571	187.574	−2842.717	−2637.629	−1957.616	92.959
	1200.00	288.947	498.448	318.494	−2293.200	215.945	−2891.338	−2627.693	−1896.228	82.541
	1300.00	299.428	521.990	333.249	−2263.781	245.364	−2942.368	−2616.881	−1835.705	73.760
	1318.00	301.315	526.120	335.855	−2258.375	250.770	−2951.801	−2614.840	−1824.903	72.324
			31.110		41.003					
LIQ	1318.00	263.592	557.230	335.855	−2217.372	291.773	−2951.801	−2573.837	−1824.903	72.324
	1400.00	263.592	573.140	349.291	−2195.757	313.388	−2998.153	−2567.624	−1778.497	66.357
	1500.00	263.592	591.326	364.828	−2169.398	339.747	−3056.387	−2560.185	−1722.392	59.979
	1600.00	263.592	608.338	379.521	−2143.039	366.106	−3116.379	−2552.895	−1666.777	54.415
	1700.00	263.592	624.318	393.456	−2116.680	392.465	−3178.020	−2646.103	−1610.721	49.491
	1800.00	263.592	639.384	406.704	−2090.320	418.825	−3241.212	−2638.646	−1550.032	44.981
	1900.00	263.592	653.636	419.329	−2063.961	445.184	−3305.870	−2631.249	−1489.755	40.956
	2000.00	263.592	667.157	431.385	−2037.602	471.543	−3371.915	−2623.911	−1429.866	37.344

References

Phase	H / S	C_p
SOL−C	S5	S5
SOL−B	u	S5
LIQ	S5	S5

K2Si4O9 — POTASSIUM TETRASILICATE — 334.533

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL−A	298.15	300.731	265.684	265.684	−4315.796	0.000	−4395.010	−4315.796	−4058.762	711.078
	300.00	301.026	267.545	265.690	−4315.239	0.557	−4395.503	−4315.741	−4057.167	706.416
	400.00	316.963	356.328	277.687	−4284.340	31.456	−4426.871	−4317.670	−3970.503	518.494
	500.00	332.900	428.768	300.869	−4251.847	63.949	−4466.231	−4314.274	−3884.087	405.768
	600.00	348.837	490.871	327.478	−4217.760	98.036	−4512.283	−4309.991	−3798.436	330.683
	700.00	364.774	545.842	354.818	−4182.079	133.717	−4564.169	−4304.744	−3713.578	277.111
	800.00	380.711	595.591	381.852	−4144.805	170.991	−4621.278	−4298.476	−3629.541	236.985
	865.00	391.069	625.730	399.056	−4119.722	196.074	−4660.979	−4293.833	−3575.371	215.905
			3.725		3.222					
SOL−B	865.00	405.378	629.455	399.056	−4116.500	199.296	−4660.979	−4290.611	−3575.371	215.905
	900.00	405.944	645.546	408.330	−4102.302	213.494	−4683.293	−4287.509	−3546.492	205.833
	1000.00	407.563	688.400	434.231	−4061.627	254.169	−4750.027	−4278.878	−3464.623	180.973
	1043.00	408.260	705.574	445.066	−4044.087	271.709	−4780.000	−4434.292	−3429.204	171.739
			46.935		48.953					
LIQ	1043.00	410.032	752.508	445.066	−3995.134	320.662	−4780.000	−4385.339	−3429.204	171.739
	1100.00	410.032	774.326	461.567	−3971.762	344.034	−4823.520	−4379.441	−3377.110	160.366
	1200.00	410.032	810.003	489.139	−3930.759	385.037	−4902.762	−4369.368	−3286.436	143.055
	1300.00	410.032	842.823	515.100	−3889.755	426.041	−4985.426	−4359.621	−3196.590	128.441
	1400.00	410.032	873.210	539.607	−3848.752	467.044	−5071.246	−4350.179	−3107.482	115.942
	1500.00	410.032	901.499	562.801	−3807.749	508.047	−5159.998	−4341.029	−3019.039	105.132
	1600.00	410.032	927.962	584.806	−3766.746	549.050	−5251.485	−4332.160	−2931.197	95.694
	1700.00	410.032	952.820	605.730	−3725.743	590.053	−5345.537	−4524.275	−2842.114	87.328
	1800.00	410.032	976.257	625.670	−3684.739	631.057	−5442.002	−4515.044	−2743.430	79.612

References

Phase	H / S	C_p
SOL−A	S5	S5
SOL−B	S5	S5
LIQ	S5	S5

K3PO4 — POTASSIUM PHOSPHATE — 212.266

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	164.851	211.710	211.710	−1988.237	0.000	−2051.358	−1988.237	−1858.940	325.679
	300.00	165.151	212.731	211.714	−1987.932	0.305	−2051.751	−1988.247	−1858.138	323.531
	400.00	178.299	262.161	218.364	−1970.718	17.519	−2075.583	−1996.681	−1813.142	236.772
	500.00	188.359	303.061	231.328	−1952.371	35.866	−2103.901	−1996.408	−1767.267	184.625
	600.00	197.206	338.197	246.278	−1933.086	55.151	−2136.004	−1995.194	−1721.539	149.873
	700.00	205.478	369.223	261.667	−1912.948	75.289	−2171.404	−1993.188	−1676.078	125.070
	800.00	213.445	397.183	276.887	−1892.000	96.237	−2209.747	−1990.480	−1630.953	106.490
	900.00	221.234	422.774	291.694	−1870.265	117.972	−2250.762	−1987.139	−1586.207	92.061

References

Phase	H / S	C_p	Remarks	
SOL	Tk1	e	Tk1	TPT= 538., 833., 1328., 1353. / MPT= 1913

110.263 POTASSIUM SULFIDE **K2S**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−1	298.15	74.682	115.060	115.060	−376.560	0.000	−410.865	−376.560	−362.745	63.551
	300.00	74.730	115.522	115.061	−376.422	0.138	−411.078	−376.573	−362.659	63.145
	400.00	77.315	137.374	118.023	−368.820	7.740	−423.769	−384.521	−356.895	46.606
	500.00	79.915	154.905	123.702	−360.958	15.602	−438.411	−386.777	−349.742	36.537
	600.00	82.522	169.706	130.167	−352.837	23.723	−454.660	−388.311	−342.176	29.789
	700.00	85.131	182.623	136.757	−344.454	32.106	−472.290	−389.231	−334.409	24.954
	800.00	87.742	194.161	143.224	−335.810	40.750	−491.139	−389.903	−326.530	21.320
	900.00	103.621	204.998	149.480	−326.594	49.966	−511.092	−442.860	−317.429	18.423
	1000.00	155.974	218.324	155.664	−313.900	62.660	−532.224	−438.030	−303.704	15.864
	1050.00	195.021	226.844	158.845	−305.161	71.399	−543.347	−592.145	−295.544	14.703
			0.000		0.000					
SOL−2	1050.00	194.974	226.844	158.845	−305.161	71.399	−543.347	−592.145	−295.544	14.703
	1100.00	142.340	234.699	162.125	−296.728	79.832	−554.897	−586.715	−281.558	13.370
	1200.00	142.340	247.084	168.696	−282.494	94.066	−578.995	−578.493	−254.179	11.064
	1221.00	142.340	249.554	170.066	−279.505	97.055	−584.210	−576.767	−248.519	10.632
			13.227		16.150					
LIQ	1221.00	100.960	262.780	170.066	−263.355	113.205	−584.210	−560.617	−248.519	10.632
	1300.00	100.960	269.110	175.894	−255.379	121.181	−605.222	−557.397	−228.428	9.178
	1400.00	100.960	276.592	182.823	−245.283	131.277	−632.512	−553.327	−203.275	7.584
	1500.00	100.960	283.557	189.309	−235.187	141.373	−660.524	−549.263	−178.413	6.213
	1600.00	100.960	290.073	195.405	−225.091	151.469	−689.209	−545.205	−153.823	5.022
	1700.00	100.960	296.194	201.156	−214.995	161.565	−718.525	−541.153	−129.485	3.979
	1800.00	100.960	301.965	206.598	−204.899	171.661	−748.436	−537.106	−105.386	3.058
	1900.00	100.960	307.423	211.762	−194.803	181.757	−778.908	−533.065	−81.512	2.241
	2000.00	100.960	312.602	216.675	−184.707	191.853	−809.911	−529.029	−57.851	1.511

References

Phase	H / S	C_p
SOL−1	Ja1	Ja1,Dw3
SOL−2	Ja1	Ja1,Dw3
LIQ	Ja1,Dw3	Ja1

K2SO3 POTASSIUM SULFITE 158.261

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	123.430	171.544	171.544	−1126.751	0.000	−1177.897	−1126.751	−1038.030	181.859
	300.00	123.583	172.308	171.546	−1126.523	0.228	−1178.215	−1126.755	−1037.479	180.641
	400.00	131.867	208.995	176.493	−1113.750	13.001	−1197.348	−1133.989	−1006.689	131.460
	500.00	140.151	239.310	186.107	−1100.149	26.602	−1219.804	−1135.095	−974.742	101.831
	600.00	148.436	265.595	197.210	−1085.720	41.031	−1245.077	−1135.060	−942.653	82.065
	700.00	156.720	289.099	208.686	−1070.462	56.289	−1272.831	−1133.987	−910.659	67.954
	800.00	165.004	310.567	220.098	−1054.376	72.375	−1302.829	−1132.222	−878.868	57.384
	900.00	173.289	330.480	231.269	−1037.461	89.290	−1334.893	−1182.589	−846.184	49.111

References

Phase	H / S	C_p
SOL	Tk1	Tk1,e

174.260 POTASSIUM SULFATE **K2SO4**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL−A	298.15	131.193	175.561	175.561	−1437.790	0.000	−1490.133	−1437.790	−1319.684	231.203
	300.00	131.584	176.373	175.563	−1437.547	0.243	−1490.459	−1437.806	−1318.951	229.650
	400.00	147.904	216.611	180.939	−1423.521	14.269	−1510.166	−1445.273	−1278.246	166.922
	500.00	160.164	250.992	191.594	−1408.091	29.699	−1533.587	−1446.079	−1236.394	129.165
	600.00	170.519	281.107	204.054	−1391.558	46.232	−1560.222	−1445.520	−1194.485	103.989
	700.00	184.553	308.349	217.032	−1373.868	63.922	−1589.712	−1443.642	−1152.776	86.021
	800.00	211.057	334.528	230.082	−1354.233	83.557	−1621.856	−1439.997	−1111.445	72.570
	857.00	235.736	349.845	237.535	−1341.540	96.250	−1641.358	−1436.576	−1088.147	66.323
			9.862		8.452					
SOL−B	857.00	183.994	359.708	237.535	−1333.088	104.702	−1641.358	−1428.124	−1088.147	66.323
	900.00	187.489	368.800	243.590	−1325.101	112.689	−1657.021	−1479.849	−1069.965	62.099
	1000.00	195.617	388.975	257.131	−1305.946	131.844	−1694.921	−1475.481	−1024.650	53.522
	1100.00	203.745	408.000	269.989	−1285.978	151.812	−1734.778	−1628.389	−970.634	46.092
	1200.00	211.873	426.077	282.249	−1265.197	172.593	−1776.489	−1620.718	−911.171	39.662
	1300.00	220.001	443.357	293.982	−1243.603	194.187	−1819.967	−1612.309	−852.379	34.249
	1342.00	223.415	450.406	298.768	−1234.291	203.499	−1838.736	−1608.556	−827.887	32.224
			25.627		34.392					
LIQ	1342.00	201.460	476.034	298.768	−1199.899	237.891	−1838.736	−1574.164	−827.887	32.224
	1400.00	201.460	484.558	306.290	−1188.215	249.575	−1866.595	−1570.173	−795.718	29.689
	1500.00	201.460	498.457	318.643	−1168.069	269.721	−1915.754	−1563.341	−740.639	25.791
	1600.00	201.460	511.459	330.292	−1147.923	289.867	−1966.257	−1556.568	−686.013	22.396
	1700.00	201.460	523.672	341.311	−1127.777	310.013	−2018.020	−1549.849	−631.810	19.413
	1800.00	201.460	535.187	351.766	−1107.631	330.159	−2070.968	−1543.185	−578.000	16.773
	1900.00	201.460	546.080	361.709	−1087.485	350.305	−2125.036	−1536.572	−524.559	14.421
	2000.00	201.460	556.413	371.188	−1067.339	370.451	−2180.165	−1530.012	−471.465	12.313

References

Phase	H / S	C_p
SOL−A	Nb1,Ja1	Ja1
SOL−B	Ja1	Ja1
LIQ	Ja1	Ja1

Kr[g] KRYPTON (GAS) 83.800

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.786	164.085	164.085	0.000	0.000	−48.922	0.000	0.000	0.000
	300.00	20.786	164.213	164.085	0.038	0.038	−49.225	0.000	0.000	0.000
	400.00	20.786	170.193	164.900	2.117	2.117	−65.960	0.000	0.000	0.000
	500.00	20.786	174.831	166.440	4.196	4.196	−83.220	0.000	0.000	0.000
	600.00	20.786	178.621	168.164	6.274	6.274	−100.898	0.000	0.000	0.000
	700.00	20.786	181.825	169.892	8.353	8.353	−118.925	0.000	0.000	0.000
	800.00	20.786	184.601	171.561	10.432	10.432	−137.249	0.000	0.000	0.000
	900.00	20.786	187.049	173.149	12.510	12.510	−155.834	0.000	0.000	0.000
	1000.00	20.786	189.239	174.650	14.589	14.589	−174.650	0.000	0.000	0.000
	1100.00	20.786	191.220	176.068	16.667	16.667	−193.675	0.000	0.000	0.000
	1200.00	20.786	193.029	177.407	18.746	18.746	−212.889	0.000	0.000	0.000
	1300.00	20.786	194.693	178.674	20.825	20.825	−232.276	0.000	0.000	0.000
	1400.00	20.786	196.233	179.874	22.903	22.903	−251.823	0.000	0.000	0.000
	1500.00	20.786	197.667	181.013	24.982	24.982	−271.519	0.000	0.000	0.000
	1600.00	20.786	199.009	182.096	27.060	27.060	−291.353	0.000	0.000	0.000
	1700.00	20.786	200.269	183.128	29.139	29.139	−311.318	0.000	0.000	0.000
	1800.00	20.786	201.457	184.114	31.218	31.218	−331.405	0.000	0.000	0.000
	1900.00	20.786	202.581	185.056	33.296	33.296	−351.607	0.000	0.000	0.000
	2000.00	20.786	203.647	185.960	35.375	35.375	−371.919	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

Thermochemical Data of Pure Substances
Ihsan Barin

Part VII
The Tables

12 Tables of thermochemical data of pure substances

138.906 **LANTHANUM** **La**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL-A	298.15	27.136	56.902	56.902	0.000	0.000	-16.965	0.000	0.000	0.000
	300.00	27.141	57.070	56.903	0.050	0.050	-17.071	0.000	0.000	0.000
	400.00	27.373	64.910	57.970	2.776	2.776	-23.188	0.000	0.000	0.000
	500.00	27.606	71.043	59.993	5.525	5.525	-29.997	0.000	0.000	0.000
	550.00	27.722	73.680	61.120	6.908	6.908	-33.616	0.000	0.000	0.000
			0.662		0.364					
SOL-B	550.00	27.215	74.342	61.120	7.272	7.272	-33.616	0.000	0.000	0.000
	600.00	27.761	76.733	62.322	8.646	8.646	-37.393	0.000	0.000	0.000
	700.00	28.976	81.102	64.699	11.482	11.482	-45.289	0.000	0.000	0.000
	800.00	30.293	85.056	67.000	14.445	14.445	-53.600	0.000	0.000	0.000
	900.00	31.668	88.703	69.211	17.543	17.543	-62.290	0.000	0.000	0.000
	1000.00	33.080	92.112	71.333	20.780	20.780	-71.333	0.000	0.000	0.000
	1100.00	34.516	95.332	73.369	24.159	24.159	-80.706	0.000	0.000	0.000
	1134.00	35.008	96.390	74.044	25.341	25.341	-83.966	0.000	0.000	0.000
			2.752		3.121					
SOL-C	1134.00	39.539	99.143	74.044	28.462	28.462	-83.966	0.000	0.000	0.000
	1193.00	39.539	101.148	75.335	30.795	30.795	-89.875	0.000	0.000	0.000
			5.194		6.197					
LIQ	1193.00	34.309	106.343	75.335	36.992	36.992	-89.875	0.000	0.000	0.000
	1200.00	34.309	106.543	75.516	37.232	37.232	-90.620	0.000	0.000	0.000
	1300.00	34.309	109.289	78.010	40.663	40.663	-101.413	0.000	0.000	0.000
	1400.00	34.309	111.832	80.336	44.094	44.094	-112.471	0.000	0.000	0.000
	1500.00	34.309	114.199	82.516	47.525	47.525	-123.774	0.000	0.000	0.000
	1600.00	34.309	116.413	84.566	50.956	50.956	-135.306	0.000	0.000	0.000
	1700.00	34.309	118.493	86.501	54.387	54.387	-147.052	0.000	0.000	0.000
	1800.00	34.309	120.454	88.333	57.817	57.817	-159.000	0.000	0.000	0.000
	1900.00	34.309	122.309	90.073	61.248	61.248	-171.139	0.000	0.000	0.000
	2000.00	34.309	124.069	91.729	64.679	64.679	-183.459	0.000	0.000	0.000
	2100.00	34.309	125.743	93.310	68.110	68.110	-195.950	0.000	0.000	0.000
	2200.00	34.309	127.339	94.820	71.541	71.541	-208.605	0.000	0.000	0.000
	2300.00	34.309	128.864	96.268	74.972	74.972	-221.416	0.000	0.000	0.000
	2400.00	34.309	130.324	97.657	78.403	78.403	-234.376	0.000	0.000	0.000
	2500.00	34.309	131.725	98.991	81.834	81.834	-247.479	0.000	0.000	0.000
	2600.00	34.309	133.070	100.276	85.264	85.264	-260.719	0.000	0.000	0.000
	2700.00	34.309	134.365	101.515	88.695	88.695	-274.091	0.000	0.000	0.000
	2800.00	34.309	135.613	102.711	92.126	92.126	-287.590	0.000	0.000	0.000
	2900.00	34.309	136.817	103.866	95.557	95.557	-301.212	0.000	0.000	0.000
	3000.00	34.309	137.980	104.984	98.988	98.988	-314.952	0.000	0.000	0.000
	3100.00	34.309	139.105	106.067	102.419	102.419	-328.807	0.000	0.000	0.000
	3200.00	34.309	140.194	107.116	105.850	105.850	-342.772	0.000	0.000	0.000
	3300.00	34.309	141.250	108.135	109.281	109.281	-356.845	0.000	0.000	0.000
	3400.00	34.309	142.274	109.124	112.712	112.712	-371.021	0.000	0.000	0.000
	3500.00	34.309	143.269	110.085	116.142	116.142	-385.298	0.000	0.000	0.000
	3600.00	34.309	144.235	111.021	119.573	119.573	-399.674	0.000	0.000	0.000
	3700.00	34.309	145.175	111.931	123.004	123.004	-414.145	0.000	0.000	0.000
	3726.00	34.309	145.416	112.164	123.896	123.896	-417.922	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL - A	Hu1	Hu1		double hcp
SOL - B	Hu1	Hu1		fcc
SOL - C	Hu1	Hu1		bcc
LIQ	Hu1	Hu1	Hu1	BPT = 3726., L = 413.72 kJ

La[g] LANTHANUM (GAS) 138.906

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	22.734	182.377	182.377	430.952	0.000	376.576	430.952	393.542	−68.947
	300.00	22.777	182.518	182.377	430.994	0.042	376.239	430.944	393.310	−68.481
	400.00	24.660	189.348	183.296	433.373	2.421	357.634	430.597	380.822	−49.730
	500.00	25.970	194.998	185.087	435.907	4.955	338.408	430.382	368.405	−38.487
	600.00	27.006	199.827	187.151	438.558	7.606	318.661	429.911	356.055	−30.997
	700.00	27.907	204.059	189.270	441.304	10.352	298.463	429.822	343.752	−25.651
	800.00	28.740	207.841	191.360	444.137	13.185	277.864	429.692	331.464	−21.642
	900.00	29.540	211.272	193.384	447.051	16.099	256.906	429.509	319.196	−18.526
	1000.00	30.327	214.425	195.333	450.045	19.093	235.619	429.265	306.952	−16.034
	1100.00	30.945	217.346	197.203	453.110	22.158	214.029	428.951	294.735	−13.996
	1200.00	31.383	220.059	198.996	456.228	25.276	192.157	418.995	282.777	−12.309
	1300.00	31.680	222.583	200.714	459.382	28.430	170.023	418.719	271.436	−10.906
	1400.00	31.871	224.939	202.362	462.560	31.608	147.646	418.466	260.117	−9.705
	1500.00	31.984	227.142	203.941	465.753	34.801	125.041	418.229	248.814	−8.664
	1600.00	32.043	229.208	205.456	468.955	38.003	102.222	417.999	237.528	−7.754
	1700.00	32.064	231.151	206.911	472.161	41.209	79.203	417.774	226.255	−6.952
	1800.00	32.061	232.984	208.309	475.367	44.415	55.995	417.550	214.996	−6.239
	1900.00	32.045	234.717	209.654	478.572	47.620	32.610	417.324	203.749	−5.601
	2000.00	32.023	236.360	210.949	481.776	50.824	9.055	417.097	192.514	−5.028
	2100.00	32.002	237.922	212.196	484.977	54.025	−14.660	416.867	181.290	−4.509
	2200.00	31.986	239.411	213.400	488.176	57.224	−38.527	416.635	170.078	−4.038
	2300.00	31.978	240.832	214.562	491.374	60.422	−62.540	416.403	158.876	−3.608
	2400.00	31.982	242.193	215.685	494.572	63.620	−86.691	416.170	147.684	−3.214
	2500.00	31.998	243.499	216.771	497.771	66.819	−110.977	415.938	136.502	−2.852
	2600.00	32.028	244.755	217.824	500.972	70.020	−135.390	415.708	125.329	−2.518
	2700.00	32.073	245.964	218.844	504.177	73.225	−159.926	415.482	114.165	−2.209
	2800.00	32.131	247.132	219.833	507.388	76.436	−184.581	415.261	103.009	−1.922
	2900.00	32.204	248.260	220.794	510.604	79.652	−209.351	415.047	91.861	−1.655
	3000.00	32.291	249.354	221.728	513.829	82.877	−234.232	414.841	80.720	−1.405
	3100.00	32.391	250.414	222.636	517.063	86.111	−259.221	414.644	69.586	−1.173
	3200.00	32.503	251.444	223.521	520.307	89.355	−284.314	414.458	58.458	−0.954
	3300.00	32.627	252.446	224.382	523.564	92.612	−309.508	414.283	47.336	−0.749
	3400.00	32.761	253.422	225.222	526.833	95.881	−334.802	414.122	36.219	−0.556
	3500.00	32.903	254.374	226.041	530.116	99.164	−360.192	413.974	25.106	−0.375
	3600.00	33.053	255.303	226.841	533.414	102.462	−385.676	413.841	13.998	−0.203
	3700.00	33.210	256.211	227.623	536.727	105.775	−411.252	413.723	2.893	−0.041
	3800.00	33.370	257.098	228.387	540.056	109.104	−436.918	0.000	0.000	0.000
	3900.00	33.534	257.967	229.134	543.401	112.449	−462.671	0.000	0.000	0.000
	4000.00	33.700	258.818	229.866	546.763	115.811	−488.510	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

277.825 LANTHANUM ARSENATE **LaAsO4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	117.888	163.469	163.469	−1556.866	0.000	−1605.604	−1556.866	−1455.664	255.026
	300.00	118.239	164.199	163.471	−1556.648	0.218	−1605.907	−1556.852	−1455.036	253.344
	400.00	131.829	200.284	168.299	−1544.072	12.794	−1624.186	−1555.451	−1421.278	185.600
	500.00	140.001	230.636	177.814	−1530.455	26.411	−1645.773	−1553.267	−1387.976	145.001
	600.00	146.039	256.716	188.841	−1516.141	40.725	−1670.171	−1551.016	−1355.124	117.974
	700.00	151.071	279.615	200.206	−1501.280	55.586	−1697.010	−1548.178	−1322.698	98.701
	781.00	154.740	296.356	209.323	−1488.893	67.973	−1720.347	−1545.784	−1296.739	86.728

References

Phase	H / S	C_p
SOL	G1	G1

378.618 LANTHANUM BROMIDE **LaBr3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	99.564	177.820	177.820	−907.091	0.000	−960.108	−907.091	−875.071	153.309
	300.00	99.654	178.436	177.822	−906.907	0.184	−960.438	−907.167	−874.872	152.329
	400.00	103.685	207.689	181.783	−896.729	10.362	−979.804	−951.438	−854.891	111.637
	500.00	106.871	231.177	189.389	−886.197	20.894	−1001.785	−949.193	−831.009	86.815
	600.00	109.725	250.918	198.041	−875.365	31.726	−1025.916	−947.060	−807.570	70.305
	700.00	112.422	268.036	206.844	−864.257	42.834	−1051.882	−944.391	−784.531	58.542
	800.00	115.035	283.219	215.459	−852.884	54.207	−1079.459	−941.602	−761.882	49.746
	900.00	117.600	296.916	223.761	−841.251	65.840	−1108.476	−938.703	−739.590	42.925
	1000.00	120.134	309.438	231.712	−829.365	77.726	−1138.803	−935.702	−717.627	37.485
	1061.00	121.670	316.597	236.388	−821.990	85.101	−1157.899	−933.823	−704.380	34.678
			51.265		54.392					
LIQ	1061.00	138.072	367.861	236.388	−767.598	139.493	−1157.899	−879.431	−704.380	34.678
	1100.00	138.072	372.846	241.138	−762.213	144.878	−1172.343	−877.589	−697.979	33.144
	1200.00	138.072	384.859	252.622	−748.406	158.685	−1210.237	−882.524	−681.630	29.671
	1300.00	138.072	395.911	263.224	−734.598	172.493	−1249.283	−877.826	−665.079	26.723

References

Phase	H / S	C_p
SOL	Pa2	Pa2
LIQ	Dw2	Dw2

LaBr3[g] LANTHANUM BROMIDE (GAS) 378.618

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	80.037	383.703	383.703	-603.751	0.000	-718.152	-603.751	-633.115	110.919
	300.00	80.075	384.198	383.704	-603.603	0.148	-718.862	-603.863	-633.296	110.267
	400.00	81.384	407.440	386.864	-595.521	8.230	-758.497	-650.230	-633.584	82.738
	500.00	81.994	425.673	392.868	-587.348	16.403	-800.185	-650.345	-629.409	65.754
	600.00	82.329	440.655	399.621	-579.131	24.620	-843.524	-650.826	-625.178	54.427
	700.00	82.534	453.362	406.414	-570.887	32.864	-888.241	-651.021	-620.889	46.331
	800.00	82.669	464.393	412.987	-562.626	41.125	-934.141	-651.345	-616.564	40.258
	900.00	82.764	474.136	419.251	-554.354	49.397	-981.076	-651.806	-612.191	35.531
	1000.00	82.835	482.859	425.183	-546.074	57.677	-1028.934	-652.412	-607.758	31.746
	1100.00	82.889	490.757	430.791	-537.788	65.963	-1077.621	-653.165	-603.257	28.646
	1200.00	82.932	497.971	436.093	-529.497	74.254	-1127.062	-663.616	-598.455	26.050
	1300.00	82.967	504.611	441.112	-521.202	82.549	-1177.196	-664.430	-592.992	23.827
	1400.00	82.996	510.760	445.870	-512.904	90.847	-1227.968	-665.250	-587.467	21.919
	1500.00	83.021	516.487	450.389	-504.603	99.148	-1279.334	-666.076	-581.882	20.263
	1600.00	83.043	521.846	454.689	-496.300	107.451	-1331.254	-666.907	-576.242	18.812
	1700.00	83.063	526.881	458.789	-487.994	115.757	-1383.692	-667.744	-570.550	17.531
	1800.00	83.080	531.629	462.705	-479.687	124.064	-1436.620	-668.587	-564.808	16.390
	1900.00	83.096	536.122	466.452	-471.378	132.373	-1490.010	-669.436	-559.019	15.369
	2000.00	83.111	540.385	470.043	-463.068	140.683	-1543.837	-670.291	-553.186	14.448

References

Phase	H / S	C_p
GAS	Pa2	Pa2

245.264 LANTHANUM CHLORIDE **LaCl3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol	]		[−]
SOL	298.15	98.132	137.570	137.570	−1071.104	0.000	−1112.120	−1071.104	−995.372	174.385
	300.00	98.250	138.177	137.572	−1070.922	0.182	−1112.376	−1071.067	−994.902	173.228
	400.00	103.486	167.204	141.494	−1060.820	10.284	−1127.702	−1068.891	−969.833	126.647
	500.00	107.545	190.745	149.063	−1050.263	20.841	−1145.635	−1066.439	−945.347	98.760
	600.00	111.139	210.675	157.712	−1039.326	31.778	−1165.731	−1064.076	−921.347	80.210
	700.00	114.515	228.063	166.546	−1028.042	43.062	−1187.686	−1061.143	−897.788	66.994
	800.00	117.774	243.568	175.222	−1016.427	54.677	−1211.281	−1058.049	−874.661	57.110
	900.00	120.966	257.625	183.608	−1004.489	66.615	−1236.352	−1054.798	−851.931	49.445
	1000.00	124.115	270.533	191.664	−992.235	78.869	−1262.768	−1051.392	−829.572	43.332
	1100.00	127.237	282.509	199.385	−979.667	91.437	−1290.427	−1047.835	−807.561	38.348
	1131.00	128.200	286.059	201.712	−975.708	95.396	−1299.240	−1046.701	−800.805	36.985
			48.092		54.392					
LIQ	1131.00	157.737	334.151	201.712	−921.316	149.788	−1299.240	−992.309	−800.805	36.985
	1200.00	157.737	343.492	209.598	−910.432	160.672	−1322.622	−997.318	−789.032	34.346
	1300.00	157.737	356.117	220.390	−894.658	176.446	−1357.611	−990.635	−771.946	31.017
	1400.00	157.737	367.807	230.507	−878.885	192.219	−1393.814	−983.964	−755.374	28.183
	1500.00	157.737	378.690	240.028	−863.111	207.993	−1431.145	−977.304	−739.279	25.744

References

Phase	H / S	C_p
SOL	Pa2	Pa2
LIQ	Pa2	Pa2

LaCl3[g] LANTHANUM CHLORIDE (GAS) 245.264

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	78.423	356.628	356.628	-733.455	0.000	-839.784	-733.455	-723.035	126.673
	300.00	78.479	357.113	356.630	-733.310	0.145	-840.444	-733.454	-722.970	125.880
	400.00	80.445	380.000	359.737	-725.350	8.105	-877.350	-733.421	-719.481	93.955
	500.00	81.364	398.060	365.659	-717.254	16.201	-916.285	-733.430	-715.996	74.800
	600.00	81.870	412.944	372.336	-709.090	24.365	-956.857	-733.841	-712.472	62.026
	700.00	82.182	425.589	379.063	-700.887	32.568	-998.799	-733.988	-708.901	52.899
	800.00	82.389	436.577	385.580	-692.657	40.798	-1041.919	-734.279	-705.299	46.051
	900.00	82.537	446.290	391.797	-684.411	49.044	-1086.072	-734.719	-701.652	40.723
	1000.00	82.647	454.993	397.689	-676.151	57.304	-1131.144	-735.309	-697.948	36.457
	1100.00	82.733	462.874	403.262	-667.882	65.573	-1177.043	-736.050	-694.177	32.964
	1200.00	82.801	470.076	408.534	-659.605	73.850	-1223.696	-746.492	-690.106	30.040
	1300.00	82.858	476.705	413.526	-651.322	82.133	-1271.039	-747.299	-685.375	27.539
	1400.00	82.907	482.848	418.261	-643.034	90.421	-1319.021	-748.113	-680.581	25.393
	1500.00	82.949	488.569	422.760	-634.741	98.714	-1367.595	-748.934	-675.729	23.531
	1600.00	82.987	493.924	427.042	-626.444	107.011	-1416.722	-749.762	-670.821	21.900
	1700.00	83.021	498.956	431.126	-618.144	115.311	-1466.369	-750.597	-665.862	20.459
	1800.00	83.052	503.702	435.027	-609.840	123.615	-1516.504	-751.440	-660.853	19.177
	1900.00	83.080	508.193	438.761	-601.534	131.921	-1567.101	-752.291	-655.797	18.029
	2000.00	83.107	512.455	442.340	-593.224	140.231	-1618.135	-753.149	-650.697	16.994

References

Phase	H / S	C_p
GAS	Pa2	Pa2

195.901 LANTHANUM FLUORIDE **LaF3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[	J / (K mol)	]	[		kJ / mol		]	
SOL−A	298.15	90.293	106.985	106.985	−1699.541	0.000	−1731.439	−1699.541	−1623.778	284.479
	300.00	90.307	107.543	106.987	−1699.374	0.167	−1731.637	−1699.511	−1623.308	282.643
	400.00	92.319	133.750	110.546	−1690.259	9.282	−1743.760	−1697.943	−1598.145	208.696
	500.00	95.594	154.689	117.347	−1680.870	18.671	−1758.214	−1696.347	−1573.378	164.370
	600.00	99.365	172.446	125.085	−1671.125	28.416	−1774.592	−1694.932	−1548.914	134.845
	700.00	103.372	188.062	132.988	−1660.989	38.552	−1792.633	−1692.958	−1524.732	113.777
	800.00	107.504	202.134	140.766	−1650.446	49.095	−1812.153	−1690.787	−1500.845	97.995
	900.00	111.708	215.039	148.311	−1639.486	60.055	−1833.021	−1688.396	−1477.244	85.737
	1000.00	115.958	227.028	155.590	−1628.103	71.438	−1855.131	−1685.771	−1453.921	75.945
	1100.00	120.237	238.280	162.601	−1616.293	83.248	−1878.402	−1682.900	−1430.873	67.946
	1200.00	124.536	248.926	169.355	−1604.055	95.486	−1902.767	−1689.327	−1407.871	61.283
	1300.00	128.850	259.065	175.869	−1591.386	108.155	−1928.170	−1685.709	−1384.560	55.632
	1400.00	133.173	268.772	182.160	−1578.285	121.256	−1954.565	−1681.683	−1361.543	50.800
	1500.00	137.505	278.108	188.247	−1564.751	134.790	−1981.912	−1677.245	−1338.829	46.622
	1600.00	141.842	287.120	194.147	−1550.784	148.757	−2010.176	−1672.393	−1316.423	42.977
	1700.00	146.183	295.850	199.874	−1536.382	163.159	−2039.327	−1667.126	−1294.334	39.770
	1766.00	149.050	301.472	203.566	−1526.640	172.901	−2059.039	−1663.420	−1279.932	37.858
			28.430		50.208					
LIQ	1766.00	167.360	329.902	203.566	−1476.432	223.109	−2059.039	−1613.212	−1279.932	37.858
	1800.00	167.360	333.094	205.983	−1470.741	228.800	−2070.310	−1610.634	−1273.540	36.957
	1900.00	167.360	342.142	212.913	−1454.005	245.536	−2104.076	−1603.064	−1255.019	34.503
	2000.00	167.360	350.727	219.591	−1437.269	262.272	−2138.723	−1595.507	−1236.896	32.304

References

Phase	H / S	C_p
SOL−A	Pa2	Pa2
LIQ	Pa2	Pa2

LaF3[g] LANTHANUM FLUORIDE (GAS) 195.901

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
GAS	298.15	72.711	321.859	321.859	−1264.405	0.000	−1360.367	−1264.405	−1252.707	219.469
	300.00	72.828	322.309	321.860	−1264.270	0.135	−1360.963	−1264.408	−1252.634	218.103
	400.00	76.943	343.907	324.777	−1256.753	7.652	−1394.316	−1264.436	−1248.702	163.064
	500.00	78.889	361.309	330.401	−1248.951	15.454	−1429.605	−1264.428	−1244.769	130.040
	600.00	79.982	375.797	336.793	−1241.003	23.402	−1466.481	−1264.811	−1240.803	108.022
	700.00	80.672	388.182	343.271	−1232.968	31.437	−1504.695	−1264.937	−1236.794	92.291
	800.00	81.147	398.987	349.575	−1224.875	39.530	−1544.065	−1265.216	−1232.756	80.491
	900.00	81.497	408.566	355.607	−1216.742	47.663	−1584.452	−1265.652	−1228.674	71.310
	1000.00	81.770	417.167	361.341	−1208.579	55.826	−1625.746	−1266.246	−1224.535	63.963
	1100.00	81.992	424.971	366.776	−1200.390	64.015	−1667.858	−1266.997	−1220.329	57.949
	1200.00	82.179	432.114	371.927	−1192.181	72.224	−1710.718	−1277.453	−1215.822	52.923
	1300.00	82.343	438.698	376.814	−1183.955	80.450	−1754.263	−1278.278	−1210.653	48.645
	1400.00	82.488	444.806	381.455	−1175.713	88.692	−1798.441	−1279.111	−1205.420	44.975
	1500.00	82.621	450.501	385.870	−1167.458	96.947	−1843.210	−1279.952	−1200.127	41.792
	1600.00	82.743	455.838	390.078	−1159.190	105.215	−1888.530	−1280.800	−1194.777	39.005
	1700.00	82.858	460.857	394.095	−1150.910	113.495	−1934.367	−1281.653	−1189.375	36.545
	1800.00	82.967	465.597	397.937	−1142.618	121.787	−1980.692	−1282.511	−1183.922	34.357
	1900.00	83.071	470.085	401.617	−1134.316	130.089	−2027.478	−1283.374	−1178.421	32.397
	2000.00	83.171	474.349	405.148	−1126.004	138.401	−2074.701	−1284.242	−1172.875	30.632

References

Phase	H / S	C_p
GAS	Pa2	Pa2

LaH2 LANTHANUM DIHYDRIDE 140.921

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	43.762	51.672	51.672	−202.100	0.000	−217.506	−202.100	−161.578	28.308
	300.00	43.790	51.943	51.673	−202.019	0.081	−217.602	−202.123	−161.327	28.090
	400.00	45.304	64.748	53.409	−197.564	4.536	−223.464	−203.300	−147.548	19.268
	500.00	46.819	75.020	56.737	−192.958	9.142	−230.468	−204.365	−133.485	13.945
	600.00	48.334	83.690	60.524	−188.201	13.899	−238.415	−205.658	−119.186	10.376
	700.00	49.848	91.255	64.385	−183.291	18.809	−247.170	−206.522	−104.705	7.813
	800.00	51.363	98.010	68.173	−178.231	23.869	−256.639	−207.377	−90.102	5.883
	900.00	52.877	104.147	71.835	−173.019	29.081	−266.751	−208.238	−75.391	4.376
	1000.00	54.392	109.796	75.352	−167.655	34.445	−277.452	−209.115	−60.583	3.165
	1100.00	55.907	115.052	78.725	−162.140	39.960	−288.697	−210.018	−45.686	2.169
	1200.00	57.421	119.981	81.959	−156.474	45.626	−300.451	−220.503	−30.480	1.327

References

Phase	H / S	C_p
SOL	Nb1/B2	B2,e

519.619 LANTHANUM IODIDE **LaI3**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol	]		[−]
SOL	298.15	99.170	214.221	214.221	−666.930	0.000	−730.800	−666.930	−661.893	115.961
	300.00	99.238	214.834	214.223	−666.746	0.184	−731.197	−666.948	−661.862	115.240
	400.00	102.597	243.856	218.157	−656.650	10.280	−754.193	−692.035	−659.176	86.080
	500.00	105.632	267.079	225.694	−646.237	20.693	−779.777	−756.662	−644.744	67.356
	600.00	108.540	286.596	234.260	−635.528	31.402	−807.486	−754.701	−622.542	54.197
	700.00	111.387	303.542	242.973	−624.532	42.398	−837.011	−752.184	−600.712	44.826
	800.00	114.203	318.600	251.502	−613.252	53.678	−868.132	−749.525	−579.253	37.821
	900.00	117.000	332.213	259.726	−601.692	65.238	−900.683	−746.733	−558.135	32.393
	1000.00	119.785	344.684	267.606	−589.852	77.078	−934.536	−743.813	−537.335	28.068
	1051.00	121.203	350.678	271.493	−583.707	83.223	−952.269	−742.275	−526.843	26.184
			53.345		56.066					
LIQ	1051.00	151.766	404.023	271.493	−527.641	139.289	−952.269	−686.209	−526.843	26.184
	1100.00	151.766	410.939	277.552	−520.204	146.726	−972.237	−683.236	−519.482	24.668
	1200.00	151.766	424.144	289.226	−505.028	161.902	−1014.001	−686.834	−504.633	21.966
	1300.00	151.766	436.292	300.077	−489.851	177.079	−1057.031	−680.800	−489.694	19.676

References

Phase	H / S	C_p
SOL	Nb1/Pa2	Dw4,Pa2
LIQ	Dw4	Dw4

LaI3[g] LANTHANUM IODIDE (GAS) 519.619

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	81.562	412.752	412.752	−387.857	0.000	−510.919	−387.857	−442.012	77.439
	300.00	81.581	413.257	412.754	−387.706	0.151	−511.683	−387.907	−442.348	77.020
	400.00	82.258	436.833	415.964	−379.509	8.348	−554.242	−414.894	−459.226	59.969
	500.00	82.572	455.226	422.044	−371.266	16.591	−598.879	−481.691	−463.846	48.458
	600.00	82.744	470.297	428.868	−363.000	24.857	−645.178	−482.172	−460.233	40.067
	700.00	82.848	483.060	435.721	−354.720	33.137	−692.862	−482.372	−456.563	34.069
	800.00	82.916	494.128	442.346	−346.431	41.426	−741.734	−482.705	−452.855	29.568
	900.00	82.963	503.897	448.653	−338.137	49.720	−791.644	−483.179	−449.096	26.065
	1000.00	82.997	512.640	454.622	−329.839	58.018	−842.479	−483.799	−445.277	23.259
	1100.00	83.023	520.552	460.261	−321.538	66.319	−894.145	−484.570	−441.389	20.960
	1200.00	83.043	527.776	465.591	−313.235	74.622	−946.566	−495.041	−437.198	19.031
	1300.00	83.059	534.424	470.634	−304.930	82.927	−999.681	−495.879	−432.344	17.372
	1400.00	83.072	540.580	475.413	−296.623	91.234	−1053.435	−496.724	−427.425	15.947
	1500.00	83.083	546.312	479.950	−288.315	99.542	−1107.783	−497.577	−422.446	14.711
	1600.00	83.092	551.674	484.267	−280.006	107.851	−1162.685	−498.438	−417.409	13.627
	1700.00	83.100	556.712	488.382	−271.697	116.160	−1218.107	−499.308	−412.318	12.669
	1800.00	83.107	561.462	492.311	−263.387	124.470	−1274.017	−500.185	−407.176	11.816
	1900.00	83.113	565.955	496.070	−255.076	132.781	−1330.390	−501.071	−401.984	11.051
	2000.00	83.118	570.218	499.672	−246.764	141.093	−1387.201	−501.965	−396.746	10.362

References

Phase	H / S	C_p
GAS	Pa2	Pa2

LaMg LANTHANUM MAGNESIUM 163.210

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	56.648	103.303	103.303	−9.845	0.000	−40.645	−9.845	−13.937	2.442
	300.00	56.685	103.654	103.304	−9.740	0.105	−40.836	−9.836	−13.962	2.431
	400.00	58.676	120.233	105.551	−3.972	5.873	−52.066	−9.345	−15.410	2.012
	500.00	60.668	133.541	109.860	1.995	11.840	−64.775	−8.796	−16.988	1.775
	600.00	62.660	144.778	114.767	8.161	18.006	−78.705	−8.537	−18.651	1.624
	700.00	64.651	154.586	119.769	14.527	24.372	−93.683	−7.912	−20.386	1.521
	800.00	66.643	163.349	124.678	21.092	30.937	−109.588	−7.332	−22.208	1.450
	900.00	68.634	171.314	129.424	27.856	37.701	−126.327	−6.806	−24.100	1.399
	1000.00	70.626	178.648	133.985	34.819	44.664	−143.830	−15.287	−25.289	1.321
	1018.00	70.984	179.911	134.785	36.093	45.938	−147.057	−15.197	−25.470	1.307

References

Phase	H / S	C_p	Remarks	
SOL	Hu1,e	e	Hu1	MPT= 1018.

152.912 LANTHANUM NITRIDE **LaN**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	40.358	44.350	44.350	−303.340	0.000	−316.563	−303.340	−271.034	47.484
	300.00	40.471	44.600	44.351	−303.265	0.075	−316.645	−303.342	−270.833	47.156
	400.00	44.680	56.892	45.998	−298.983	4.357	−321.739	−303.244	−260.001	33.953
	500.00	46.999	67.131	49.231	−294.390	8.950	−327.955	−302.870	−249.229	26.037
	600.00	48.574	75.847	52.958	−289.607	13.733	−335.115	−302.700	−238.516	20.765
	700.00	49.798	83.430	56.782	−284.686	18.654	−343.087	−302.137	−227.863	17.003
	800.00	50.834	90.148	60.540	−279.654	23.686	−351.772	−301.621	−217.289	14.187
	900.00	51.762	96.190	64.171	−274.523	28.817	−361.094	−301.177	−206.775	12.001
	1000.00	52.622	101.689	67.652	−269.303	34.037	−370.992	−300.814	−196.306	10.254
	1100.00	53.438	106.743	70.979	−264.000	39.340	−381.417	−300.539	−185.869	8.826
	1200.00	54.224	111.427	74.157	−258.617	44.723	−392.329	−309.903	−175.227	7.627
	1300.00	54.989	115.797	77.194	−253.156	50.184	−403.692	−309.570	−164.017	6.590
	1400.00	55.738	119.900	80.099	−247.619	55.721	−415.479	−309.182	−152.835	5.702
	1500.00	56.476	123.770	82.883	−242.009	61.331	−427.664	−308.736	−141.683	4.934
	1600.00	57.205	127.439	85.554	−236.325	67.015	−440.226	−308.232	−130.562	4.262
	1700.00	57.928	130.928	88.121	−230.568	72.772	−453.146	−307.669	−119.475	3.671
	1800.00	58.645	134.260	90.593	−224.739	78.601	−466.407	−307.046	−108.422	3.146

References

Phase	H / S	C_p
SOL	Nb1/Ku1	e

La2O3 LANTHANUM OXIDE 325.809

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	108.781	127.319	127.319	−1793.702	0.000	−1831.662	−1793.702	−1705.984	298.881
	300.00	108.995	127.993	127.321	−1793.501	0.201	−1831.898	−1793.683	−1705.440	296.944
	400.00	116.983	160.578	131.710	−1782.155	11.547	−1846.386	−1792.245	−1676.225	218.893
	500.00	121.444	187.199	140.228	−1770.217	23.485	−1863.816	−1790.393	−1647.429	172.106
	600.00	124.517	209.626	149.974	−1757.911	35.791	−1883.687	−1789.069	−1618.960	140.943
	700.00	126.935	229.008	159.911	−1745.335	48.367	−1905.640	−1787.046	−1590.770	118.705
	800.00	129.004	246.095	169.637	−1732.535	61.167	−1929.412	−1785.178	−1562.861	102.044
	900.00	130.869	261.399	178.998	−1719.541	74.161	−1954.800	−1783.487	−1535.174	89.099
	1000.00	132.609	275.278	187.942	−1706.366	87.336	−1981.644	−1781.979	−1507.667	78.752
	1100.00	134.265	287.996	196.468	−1693.022	100.680	−2009.817	−1780.658	−1480.301	70.294
	1200.00	135.866	299.747	204.591	−1679.515	114.187	−2039.211	−1798.620	−1452.595	63.230
	1300.00	137.428	310.684	212.336	−1665.850	127.852	−2069.739	−1797.192	−1423.817	57.210
	1400.00	138.960	320.925	219.731	−1652.030	141.672	−2101.325	−1795.654	−1395.153	52.054
	1500.00	140.472	330.564	226.801	−1638.058	155.644	−2133.904	−1794.005	−1366.603	47.589
	1600.00	141.967	339.678	233.574	−1623.936	169.766	−2167.420	−1792.246	−1338.166	43.687
	1700.00	143.450	348.329	240.072	−1609.665	184.037	−2201.824	−1790.375	−1309.843	40.247
	1800.00	144.923	356.570	246.317	−1595.247	198.455	−2237.072	−1788.392	−1281.633	37.192
	1900.00	146.388	364.445	252.328	−1580.681	213.021	−2273.126	−1786.297	−1253.536	34.462
	2000.00	147.847	371.991	258.124	−1565.969	227.733	−2309.950	−1784.091	−1225.553	32.008

References

Phase	H / S	C_p
SOL−A	Nb1	Pa1

LaOCl LANTHANUM CHLORIDE OXIDE 190.358

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	68.978	82.843	82.843	−1010.854	0.000	−1035.554	−1010.854	−954.745	167.267
	300.00	69.064	83.270	82.845	−1010.726	0.128	−1035.707	−1010.835	−954.397	166.175
	400.00	72.528	103.659	85.601	−1003.631	7.223	−1045.094	−1009.684	−935.751	122.197
	500.00	74.789	120.099	90.909	−996.259	14.595	−1056.309	−1008.377	−917.417	95.842
	600.00	76.577	133.897	96.954	−988.688	22.166	−1069.027	−1007.325	−899.323	78.293
	700.00	78.143	145.821	103.103	−980.951	29.903	−1083.026	−1005.889	−881.437	65.774
	800.00	79.589	156.351	109.113	−973.064	37.790	−1098.145	−1004.485	−863.754	56.397
	900.00	80.965	165.805	114.896	−965.036	45.818	−1114.260	−1003.120	−846.245	49.115
	1000.00	82.299	174.405	120.423	−956.872	53.982	−1131.277	−1001.796	−828.886	43.297
	1100.00	83.605	182.311	125.695	−948.577	62.277	−1149.118	−1000.511	−811.658	38.542
	1200.00	84.892	189.641	130.722	−940.152	70.702	−1167.720	−1008.816	−794.318	34.576

References

Phase	H / S	C_p
SOL	Nb1/e	e

170.971 LANTHANUM MONOSULFIDE **LaS**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f [-]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	48.106	71.128	71.128	-456.056	0.000	-477.263	-456.056	-450.740	78.968
	300.00	48.116	71.426	71.129	-455.967	0.089	-477.395	-456.059	-450.707	78.475
	400.00	48.660	85.342	73.023	-451.128	4.928	-485.265	-458.527	-448.800	58.607
	500.00	49.204	96.259	76.617	-446.235	9.821	-494.364	-460.285	-446.187	46.613
	600.00	49.748	105.278	80.664	-441.287	14.769	-504.454	-462.035	-443.194	38.583
	700.00	50.292	112.987	84.744	-436.285	19.771	-515.377	-463.179	-439.963	32.830
	800.00	50.836	119.738	88.705	-431.229	24.827	-527.020	-464.445	-436.563	28.505
	900.00	51.380	125.757	92.493	-426.118	29.938	-539.300	-518.638	-431.842	25.063
	1000.00	51.923	131.199	96.096	-420.953	35.103	-552.152	-518.545	-422.203	22.054
	1100.00	52.467	136.173	99.516	-415.734	40.322	-565.524	-518.548	-412.570	19.591
	1200.00	53.011	140.762	102.765	-410.460	45.596	-579.374	-528.195	-402.706	17.529
	1300.00	53.555	145.026	105.854	-405.131	50.925	-593.666	-528.152	-392.250	15.761
	1400.00	54.099	149.015	108.796	-399.749	56.307	-608.370	-528.059	-381.799	14.245
	1500.00	54.643	152.766	111.603	-394.312	61.744	-623.461	-527.917	-371.357	12.932
	1600.00	55.187	156.310	114.288	-388.820	67.236	-638.916	-527.724	-360.926	11.783
	1700.00	55.731	159.672	116.859	-383.274	72.782	-654.717	-527.482	-350.508	10.770
	1800.00	56.275	162.873	119.327	-377.674	78.382	-670.845	-527.189	-340.106	9.870
	1900.00	56.819	165.930	121.700	-372.019	84.037	-687.287	-526.846	-329.721	9.065
	2000.00	57.363	168.858	123.985	-366.310	89.746	-704.027	-526.452	-319.356	8.341
	2100.00	57.907	171.670	126.190	-360.547	95.509	-721.054	-526.008	-309.012	7.686
	2200.00	58.450	174.377	128.319	-354.729	101.327	-738.358	-525.513	-298.691	7.092
	2300.00	58.994	176.987	130.378	-348.857	107.199	-755.926	-524.967	-288.393	6.550
	2400.00	59.538	179.509	132.373	-342.930	113.126	-773.752	-524.371	-278.119	6.053
	2500.00	60.082	181.951	134.308	-336.949	119.107	-791.826	-523.724	-267.872	5.597
	2600.00	60.626	184.318	136.186	-330.914	125.142	-810.140	-523.026	-257.651	5.176

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1	Mi1	MPT= 2600.

La2S3 LANTHANUM SULFIDE 374.009

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[-]
SOL	298.15	120.891	164.975	164.975	-1221.728	0.000	-1270.915	-1221.728	-1208.312	211.691
	300.00	120.918	165.723	164.977	-1221.504	0.224	-1271.221	-1221.731	-1208.229	210.371
	400.00	122.382	200.709	169.738	-1209.339	12.389	-1289.623	-1228.761	-1203.415	157.150
	500.00	123.846	228.175	178.775	-1197.028	24.700	-1311.116	-1233.654	-1196.579	125.006
	600.00	125.311	250.885	188.955	-1184.570	37.158	-1335.101	-1238.167	-1188.714	103.487
	700.00	126.775	270.311	199.223	-1171.966	49.762	-1361.184	-1241.163	-1180.234	88.070
	800.00	128.240	287.336	209.194	-1159.215	62.513	-1389.083	-1244.418	-1171.314	76.479
	900.00	129.704	302.525	218.735	-1146.318	75.410	-1418.590	-1406.335	-1158.505	67.238
	1000.00	131.168	316.266	227.812	-1133.274	88.454	-1449.540	-1405.271	-1131.027	59.079
	1100.00	132.633	328.836	236.433	-1120.084	101.644	-1481.804	-1404.367	-1103.648	52.408
	1200.00	134.097	340.440	244.623	-1106.748	114.980	-1515.275	-1422.722	-1075.892	46.832
	1300.00	135.562	351.231	252.413	-1093.265	128.463	-1549.865	-1421.663	-1047.032	42.070
	1400.00	137.026	361.331	259.836	-1079.635	142.093	-1585.498	-1420.472	-1018.258	37.992
	1500.00	138.490	370.835	266.922	-1065.860	155.868	-1622.111	-1419.150	-989.573	34.460
	1600.00	139.955	379.819	273.700	-1051.937	169.791	-1659.648	-1417.694	-960.982	31.373
	1700.00	141.419	388.348	280.195	-1037.869	183.859	-1698.060	-1416.104	-932.485	28.652
	1800.00	142.884	396.473	286.431	-1023.653	198.075	-1737.304	-1414.381	-904.086	26.236
	1900.00	144.348	404.237	292.429	-1009.292	212.436	-1777.343	-1412.523	-875.786	24.077
	2000.00	145.812	411.679	298.206	-994.784	226.944	-1818.141	-1410.531	-847.588	22.137
	2100.00	147.277	418.828	303.781	-980.129	241.599	-1859.669	-1408.403	-819.493	20.384
	2200.00	148.741	425.713	309.168	-965.328	256.400	-1901.898	-1406.140	-791.502	18.793
	2300.00	150.206	432.357	314.381	-950.381	271.347	-1944.803	-1403.742	-763.617	17.342
	2400.00	151.670	438.781	319.431	-935.287	286.441	-1988.362	-1401.208	-735.839	16.015

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1	Mi1	MPT= 2400.

217.865 LANTHANUM MONOSELENIDE **LaSe**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	49.193	81.170	81.170	−359.824	0.000	−384.025	−359.824	−354.460	62.100
	300.00	49.204	81.474	81.171	−359.733	0.091	−384.175	−359.830	−354.427	61.711
	400.00	49.790	95.709	83.107	−354.783	5.041	−393.067	−360.274	−352.564	46.040
	500.00	50.375	106.882	86.784	−349.775	10.049	−403.216	−366.825	−350.482	36.615
	600.00	50.961	116.119	90.926	−344.708	15.116	−414.379	−368.394	−347.066	30.215
	700.00	51.547	124.018	95.102	−339.583	20.241	−426.396	−369.619	−343.415	25.626
	800.00	52.133	130.940	99.158	−334.399	25.425	−439.151	−370.912	−339.584	22.173
	900.00	52.718	137.114	103.039	−329.156	30.668	−452.559	−372.282	−335.587	19.477
	1000.00	53.304	142.699	106.730	−323.855	35.969	−466.554	−373.733	−331.433	17.312
	1100.00	53.890	147.807	110.235	−318.495	41.329	−481.083	−428.579	−322.175	15.299
	1200.00	54.476	152.521	113.565	−313.077	46.747	−496.102	−438.301	−312.269	13.593
	1300.00	55.061	156.904	116.732	−307.600	52.224	−511.576	−438.311	−301.765	12.125
	1400.00	55.647	161.006	119.750	−302.065	57.759	−527.473	−438.250	−291.264	10.867
	1500.00	56.233	164.865	122.630	−296.471	63.353	−543.769	−438.119	−280.769	9.777
	1600.00	56.819	168.513	125.385	−290.818	69.006	−560.439	−437.916	−270.285	8.824
	1700.00	57.404	171.975	128.024	−285.107	74.717	−577.465	−437.642	−259.816	7.983
	1800.00	57.990	175.273	130.558	−279.337	80.487	−594.829	−437.297	−249.365	7.236
	1900.00	58.576	178.424	132.995	−273.509	86.315	−612.515	−436.880	−238.936	6.569
	2000.00	59.162	181.444	135.343	−267.622	92.202	−630.510	−436.392	−228.530	5.969
	2100.00	59.748	184.344	137.608	−261.677	98.147	−648.800	−435.832	−218.150	5.426
	2200.00	60.333	187.137	139.796	−255.673	104.151	−667.375	−435.200	−207.799	4.934
	2250.00	60.626	188.496	140.863	−252.649	107.175	−676.766	−434.858	−202.635	4.704

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1	Mi1	MPT= 2250.

LaSe[g] LANTHANUM MONOSELENIDE (GAS) 217.865

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[-]
GAS	298.15	35.739	263.074	263.074	187.443	0.000	109.008	187.443	138.572	-24.277
	300.00	35.759	263.295	263.074	187.509	0.066	108.521	187.412	138.269	-24.075
	400.00	36.460	273.693	264.487	191.125	3.682	81.648	185.634	122.151	-15.951
	500.00	36.787	281.868	267.175	194.789	7.346	53.855	177.739	106.590	-11.135
	600.00	36.966	288.592	270.201	198.478	11.035	25.323	174.792	92.636	-8.065
	700.00	37.076	294.299	273.246	202.180	14.737	-3.829	172.144	79.151	-5.906
	800.00	37.148	299.255	276.194	205.892	18.449	-33.512	169.378	66.054	-4.313
	900.00	37.199	303.633	279.004	209.609	22.166	-63.661	166.483	53.311	-3.094
	1000.00	37.236	307.555	281.667	213.331	25.888	-94.224	163.453	40.897	-2.136
	1100.00	37.265	311.105	284.184	217.056	29.613	-125.160	106.973	33.748	-1.603
	1200.00	37.288	314.349	286.565	220.784	33.341	-156.435	95.560	27.398	-1.193
	1300.00	37.306	317.334	288.818	224.513	37.070	-188.021	93.803	21.790	-0.876
	1400.00	37.322	320.099	290.955	228.245	40.802	-219.894	92.059	16.316	-0.609
	1500.00	37.335	322.675	292.985	231.978	44.535	-252.034	90.330	10.966	-0.382
	1600.00	37.346	325.085	294.917	235.712	48.269	-284.424	88.614	5.731	-0.187
	1700.00	37.357	327.349	296.758	239.447	52.004	-317.046	86.912	0.603	-0.019
	1800.00	37.366	329.485	298.518	243.183	55.740	-349.889	85.224	-4.425	0.128
	1900.00	37.374	331.505	300.201	246.920	59.477	-382.939	83.549	-9.360	0.257
	2000.00	37.382	333.422	301.815	250.658	63.215	-416.187	81.889	-14.207	0.371
	2100.00	37.389	335.246	303.364	254.396	66.953	-449.621	80.241	-18.971	0.472
	2200.00	37.395	336.986	304.853	258.136	70.693	-483.233	78.608	-23.657	0.562

References

Phase	H / S	C_p
GAS	Mi1	Mi1

514.691 LANTHANUM SELENIDE **La2Se3**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	125.573	202.213	202.213	-933.032	0.000	-993.322	-933.032	-921.593	161.459
	300.00	125.604	202.990	202.215	-932.800	0.232	-993.697	-933.041	-921.522	160.451
	400.00	127.235	239.347	207.161	-920.158	12.874	-1015.896	-933.854	-917.577	119.823
	500.00	128.867	267.914	216.555	-907.353	25.679	-1041.310	-952.977	-913.103	95.391
	600.00	130.499	291.554	227.141	-894.384	38.648	-1069.316	-956.795	-904.769	78.767
	700.00	132.131	311.793	237.822	-881.253	51.779	-1099.508	-959.879	-895.855	66.850
	800.00	133.762	329.543	248.200	-867.958	65.074	-1131.592	-963.054	-886.493	57.882
	900.00	135.394	345.392	258.134	-854.500	78.532	-1165.353	-966.335	-876.727	50.884
	1000.00	137.026	359.742	267.589	-840.879	92.153	-1200.621	-969.732	-866.590	45.266
	1100.00	138.658	372.878	276.572	-827.095	105.937	-1237.261	-1133.185	-841.244	39.947
	1200.00	140.290	385.013	285.109	-813.148	119.884	-1275.163	-1151.587	-814.284	35.445
	1300.00	141.921	396.306	293.233	-799.037	133.995	-1314.235	-1150.506	-786.217	31.591
	1400.00	143.553	406.884	300.977	-784.763	148.269	-1354.400	-1149.226	-758.242	28.290
	1500.00	145.185	416.843	308.373	-770.327	162.705	-1395.592	-1147.745	-730.365	25.434
	1600.00	146.817	426.265	315.450	-755.727	177.305	-1437.751	-1146.064	-702.593	22.937
	1700.00	148.448	435.215	322.234	-740.963	192.069	-1480.829	-1144.181	-674.933	20.738
	1800.00	150.080	443.746	328.749	-726.037	206.995	-1524.780	-1142.097	-647.389	18.787
	1900.00	151.712	451.905	335.018	-710.947	222.085	-1569.566	-1139.811	-619.967	17.044

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1	Mi1	MPT= 1900.

La2Te3 LANTHANUM TELLURIDE 660.611

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	132.148	231.626	231.626	−784.500	0.000	−853.559	−784.500	−775.356	135.839
	300.00	132.173	232.444	231.629	−784.256	0.244	−853.989	−784.499	−775.299	134.992
	400.00	133.511	270.651	236.829	−770.971	13.529	−879.232	−784.722	−772.215	100.841
	500.00	134.850	300.587	246.693	−757.553	26.947	−907.847	−785.520	−769.008	80.338
	600.00	136.189	325.291	257.793	−744.001	40.499	−939.176	−787.592	−765.522	66.645
	700.00	137.528	346.385	268.979	−730.315	54.185	−972.785	−789.622	−761.693	56.838
	800.00	138.867	364.837	279.832	−716.496	68.004	−1008.365	−845.300	−751.881	49.093
	900.00	140.206	381.271	290.206	−702.542	81.958	−1045.686	−848.839	−739.993	42.948
	1000.00	141.545	396.112	300.067	−688.454	96.046	−1084.567	−852.522	−727.702	38.011
	1100.00	142.884	409.666	309.423	−674.233	110.267	−1124.865	−856.357	−715.036	33.954
	1200.00	144.222	422.155	318.304	−659.878	124.622	−1166.464	−879.444	−701.562	30.538
	1300.00	145.561	433.752	326.743	−645.389	139.111	−1209.267	−883.113	−686.589	27.587
	1400.00	146.900	444.589	334.778	−630.765	153.735	−1253.189	−1025.967	−663.864	24.769
	1500.00	148.239	454.769	342.442	−616.008	168.492	−1298.162	−1024.647	−638.045	22.219
	1600.00	149.578	464.379	349.765	−601.118	183.382	−1344.124	−1023.169	−612.319	19.990
	1700.00	150.917	473.487	356.777	−586.093	198.407	−1391.022	−1021.543	−586.690	18.027
	1760.00	151.720	478.736	360.846	−577.014	207.486	−1419.589	−1020.497	−571.360	16.957

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1	Mi1	MPT= 1760.

6.941 LITHIUM **Li**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	24.623	29.080	29.080	0.000	0.000	−8.670	0.000	0.000	0.000
	300.00	24.677	29.232	29.080	0.046	0.046	−8.724	0.000	0.000	0.000
	400.00	27.610	36.733	30.083	2.660	2.660	−12.033	0.000	0.000	0.000
	453.69	29.185	40.308	31.084	4.185	4.185	−14.103	0.000	0.000	0.000
			6.612		3.000					
LIQ	453.69	30.759	46.920	31.084	7.185	7.185	−14.103	0.000	0.000	0.000
	500.00	30.184	49.881	32.691	8.595	8.595	−16.345	0.000	0.000	0.000
	600.00	29.459	55.312	36.024	11.573	11.573	−21.614	0.000	0.000	0.000
	700.00	29.115	59.824	39.111	14.499	14.499	−27.377	0.000	0.000	0.000
	800.00	28.955	63.700	41.948	17.402	17.402	−33.558	0.000	0.000	0.000
	900.00	28.887	67.105	44.557	20.293	20.293	−40.102	0.000	0.000	0.000
	1000.00	28.860	70.147	46.967	23.180	23.180	−46.967	0.000	0.000	0.000
	1100.00	28.847	72.897	49.201	26.066	26.066	−54.121	0.000	0.000	0.000
	1200.00	28.831	75.407	51.282	28.950	28.950	−61.538	0.000	0.000	0.000
	1300.00	28.702	77.708	53.228	31.824	31.824	−69.196	0.000	0.000	0.000
	1400.00	28.619	79.832	55.053	34.690	34.690	−77.074	0.000	0.000	0.000
	1500.00	28.535	81.803	56.771	37.548	37.548	−85.157	0.000	0.000	0.000
	1600.00	28.451	83.642	58.394	40.397	40.397	−93.430	0.000	0.000	0.000
	1620.12	28.434	83.998	58.710	40.969	40.969	−95.117	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL	Ja2	Ja1		
LIQ	Ja1	Ja1	Ja2	BPT=1620.12 GAS(Li),L=145.843kJ / NBPT=1620. GAS (Li+Li2)

Li[g] LITHIUM (GAS) 6.941

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.786	138.781	138.781	159.300	0.000	117.922	159.300	126.593	−22.179
	300.00	20.786	138.910	138.781	159.338	0.038	117.666	159.293	126.390	−22.006
	400.00	20.786	144.889	139.597	161.417	2.117	103.461	158.757	115.495	−15.082
	500.00	20.786	149.528	141.136	163.496	4.196	88.732	154.901	105.077	−10.977
	600.00	20.786	153.317	142.860	165.574	6.274	73.584	154.002	95.198	−8.288
	700.00	20.786	156.522	144.589	167.653	8.353	58.088	153.154	85.465	−6.377
	800.00	20.786	159.297	146.258	169.732	10.432	42.294	152.330	75.852	−4.953
	900.00	20.786	161.745	147.845	171.810	12.510	26.239	151.517	66.341	−3.850
	1000.00	20.786	163.935	149.347	173.889	14.589	9.953	150.708	56.920	−2.973
	1100.00	20.786	165.917	150.764	175.967	16.667	−6.541	149.902	47.580	−2.259
	1200.00	20.786	167.725	152.104	178.046	18.746	−23.224	149.096	38.314	−1.668
	1300.00	20.786	169.389	153.370	180.125	20.825	−40.081	148.301	29.115	−1.170
	1400.00	20.786	170.929	154.570	182.203	22.903	−57.098	147.513	19.976	−0.745
	1500.00	20.797	172.364	155.709	184.282	24.982	−74.264	146.735	10.893	−0.379
	1600.00	20.807	173.706	156.792	186.362	27.062	−91.568	145.965	1.863	−0.061
	1700.00	20.817	174.968	157.825	188.444	29.144	−109.002	0.000	0.000	0.000
	1800.00	20.827	176.158	158.811	190.526	31.226	−126.559	0.000	0.000	0.000
	1900.00	20.837	177.285	159.753	192.609	33.309	−144.232	0.000	0.000	0.000
	2000.00	20.847	178.354	160.657	194.693	35.393	−162.014	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Ja2	Ja1

13.882 LITHIUM (GAS) **Li2**[g]

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	36.064	196.967	196.967	210.874	0.000	152.148	210.874	169.489	-29.694
	300.00	36.087	197.190	196.967	210.941	0.067	151.784	210.850	169.232	-29.466
	400.00	36.957	207.705	198.395	214.598	3.724	131.516	209.278	155.583	-20.317
	500.00	37.434	216.008	201.116	218.320	7.446	110.316	201.130	143.007	-14.940
	600.00	37.757	222.863	204.186	222.080	11.206	88.362	198.935	131.591	-11.456
	700.00	38.007	228.702	207.282	225.868	14.994	65.777	196.870	120.532	-8.994
	800.00	38.218	233.791	210.284	229.680	18.806	42.647	194.877	109.763	-7.167
	900.00	38.407	238.304	213.151	233.511	22.637	19.038	192.925	99.241	-5.760
	1000.00	38.581	242.360	215.873	237.361	26.487	-4.999	191.000	88.935	-4.645
	1100.00	38.746	246.045	218.451	241.227	30.353	-29.422	189.096	78.821	-3.743
	1200.00	38.906	249.423	220.893	245.110	34.236	-54.198	187.211	68.879	-2.998
	1300.00	39.060	252.543	223.209	249.008	38.134	-79.298	185.360	59.094	-2.374
	1400.00	39.212	255.443	225.409	252.922	42.048	-104.699	183.542	49.449	-1.845
	1500.00	39.361	258.154	227.503	256.851	45.977	-130.380	181.755	39.934	-1.391
	1600.00	39.509	260.699	229.499	260.794	49.920	-156.324	180.000	30.537	-0.997
	1700.00	39.655	263.098	231.405	264.752	53.878	-182.515	-112.135	35.489	-1.090
	1800.00	39.800	265.369	233.230	268.725	57.851	-208.939	-112.327	44.179	-1.282
	1900.00	39.944	267.525	234.978	272.712	61.838	-235.585	-112.506	52.878	-1.454
	2000.00	40.087	269.577	236.657	276.714	65.840	-262.441	-112.673	61.587	-1.608
	2100.00	40.230	271.537	238.272	280.729	69.855	-289.497	-112.827	70.304	-1.749
	2200.00	40.372	273.411	239.827	284.760	73.886	-316.746	-112.969	79.028	-1.876

References

Phase	H / S	C_p
GAS	Ja1	Ja1

LiAlF4[g] LITHIUM TETRAFLUOROALUMINATE (GAS) 109.916

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	100.693	326.497	326.497	−1853.512	0.000	−1950.857	−1853.512	−1812.830	317.600
	300.00	101.001	327.121	326.499	−1853.325	0.187	−1951.462	−1853.532	−1812.578	315.598
	400.00	112.231	357.921	330.622	−1842.593	10.919	−1985.761	−1854.347	−1798.794	234.898
	500.00	118.096	383.652	338.729	−1831.050	22.462	−2022.876	−1858.107	−1784.514	186.427
	600.00	121.849	405.536	348.086	−1819.042	34.470	−2062.363	−1858.777	−1769.730	154.069
	700.00	124.605	424.535	357.680	−1806.713	46.799	−2103.888	−1859.343	−1754.843	130.948
	800.00	126.830	441.323	367.106	−1794.138	59.374	−2147.197	−1859.884	−1739.878	113.602
	900.00	127.866	456.309	376.200	−1781.413	72.099	−2192.092	−1860.535	−1724.839	100.107
	1000.00	128.807	469.833	384.898	−1768.577	84.935	−2238.410	−1871.891	−1708.961	89.267
	1100.00	129.508	482.144	393.187	−1755.660	97.852	−2286.018	−1872.447	−1692.641	80.377
	1200.00	130.044	493.436	401.077	−1742.681	110.831	−2334.805	−1872.984	−1676.271	72.966
	1300.00	130.466	503.863	408.588	−1729.655	123.857	−2384.677	−1873.500	−1659.858	66.694
	1400.00	130.803	513.544	415.743	−1716.591	136.921	−2435.553	−1874.002	−1643.405	61.316
	1500.00	131.079	522.578	422.568	−1703.496	150.016	−2487.364	−1874.494	−1626.916	56.654
	1600.00	131.308	531.046	429.086	−1690.377	163.135	−2540.049	−1874.978	−1610.395	52.574
	1700.00	131.500	539.012	435.320	−1677.236	176.276	−2593.556	−2020.662	−1586.724	48.754
	1800.00	131.664	546.533	441.292	−1664.078	189.434	−2647.837	−2020.386	−1561.206	45.305
	1900.00	131.805	553.656	447.020	−1650.904	202.608	−2702.850	−2020.116	−1535.703	42.219
	2000.00	131.927	560.419	452.522	−1637.717	215.795	−2758.556	−2019.853	−1510.215	39.443
	2100.00	132.035	566.859	457.815	−1624.519	228.993	−2814.923	−2019.599	−1484.739	36.931
	2200.00	132.131	573.003	462.912	−1611.311	242.201	−2871.918	−2019.352	−1459.275	34.648

References

Phase	H / S	C_p
GAS	Ja2	Ja1

161.795 TRILITHIUM HEXAFLUOROALUMINATE **Li3AlF6**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL-B	298.15	202.512	187.891	187.891	-3383.601	0.000	-3439.621	-3383.601	-3223.790	564.795
	300.00	203.129	189.145	187.895	-3383.226	0.375	-3439.969	-3383.581	-3222.798	561.139
	400.00	229.852	251.521	196.218	-3361.480	22.121	-3462.088	-3381.826	-3169.437	413.886
	500.00	248.158	304.885	212.745	-3337.531	46.070	-3489.974	-3388.413	-3115.694	325.494
	600.00	262.246	351.420	232.062	-3311.986	71.615	-3522.838	-3384.975	-3061.453	266.523
	700.00	274.070	392.755	252.120	-3285.157	98.444	-3560.085	-3380.442	-3007.877	224.451
	748.00	279.243	411.103	261.738	-3271.876	111.725	-3579.381	-3377.944	-2982.413	208.269
			2.797		2.092					
SOL-C	748.00	284.512	413.900	261.738	-3269.784	113.817	-3579.381	-3375.852	-2982.413	208.269
	800.00	284.512	433.021	272.257	-3254.989	128.612	-3601.406	-3372.802	-2955.165	192.953
	848.00	284.512	449.599	281.830	-3241.333	142.268	-3622.593	-3370.054	-2930.188	180.492
			1.480		1.255					
SOL-D	848.00	294.972	451.079	281.830	-3240.078	143.523	-3622.593	-3368.799	-2930.188	180.492
	900.00	294.972	468.634	292.121	-3224.739	158.862	-3646.510	-3365.359	-2903.396	168.509
	978.00	294.972	493.151	307.190	-3201.731	181.870	-3684.033	-3370.959	-2863.063	152.915
			0.427		0.418					
SOL-E	978.00	305.432	493.578	307.190	-3201.313	182.288	-3684.033	-3370.541	-2863.063	152.915
	1000.00	305.432	500.373	311.366	-3194.594	189.007	-3694.967	-3368.861	-2851.666	148.956
	1058.00	305.432	517.593	322.204	-3176.879	206.722	-3724.493	-3364.449	-2821.794	139.315
			81.465		86.190					
LIQ	1058.00	359.824	599.058	322.204	-3090.689	292.912	-3724.493	-3278.259	-2821.794	139.315
	1100.00	359.824	613.066	333.044	-3075.576	308.025	-3749.949	-3272.793	-2803.781	133.140
	1200.00	359.824	644.375	357.702	-3039.594	344.007	-3812.844	-3259.822	-2761.716	120.214
	1300.00	359.824	673.176	380.877	-3003.611	379.990	-3878.741	-3246.878	-2720.732	109.320
	1400.00	359.824	699.842	402.719	-2967.629	415.972	-3947.408	-3233.956	-2680.745	100.020
	1500.00	359.824	724.667	423.365	-2931.647	451.954	-4018.648	-3221.053	-2641.680	91.991
	1600.00	359.824	747.890	442.929	-2895.664	487.937	-4092.288	-3208.163	-2603.475	84.995
	1700.00	359.824	769.704	461.516	-2859.682	523.919	-4168.179	-3630.900	-2544.715	78.190
	1800.00	359.824	790.271	479.215	-2823.699	559.902	-4246.187	-3615.776	-2481.258	72.004
	1900.00	359.824	809.726	496.103	-2787.717	595.884	-4326.196	-3600.687	-2418.641	66.493
	2000.00	359.824	828.182	512.249	-2751.735	631.866	-4408.099	-3585.629	-2356.818	61.554

References

Phase	H / S	C_p
SOL-B	Ja1	Ja1
SOL-C	Ja1	Ja1
SOL-D	Ja1	Ja1
SOL-E	Ja1	Ja1
LIQ	Ja1	Ja1

Li3AsO4 — LITHIUM ARSENATE — 159.742

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	161.844	173.134	173.134	−1702.386	0.000	−1754.006	−1702.386	−1595.020	279.441
	300.00	162.149	174.136	173.137	−1702.086	0.300	−1754.327	−1702.377	−1594.354	277.602
	400.00	174.635	222.646	179.666	−1685.194	17.192	−1774.253	−1701.777	−1558.433	203.510
	500.00	183.134	262.571	192.372	−1667.287	35.099	−1798.572	−1710.359	−1521.735	158.975
	600.00	190.063	296.588	206.975	−1648.618	53.768	−1826.571	−1709.565	−1484.074	129.200
	700.00	196.251	326.357	221.946	−1629.298	73.088	−1857.748	−1708.212	−1446.593	107.946
	800.00	202.044	352.945	236.688	−1609.381	93.005	−1891.737	−1706.408	−1409.337	92.020
	900.00	207.607	377.065	250.966	−1588.897	113.489	−1928.255	−1704.192	−1372.332	79.648
	980.00	211.953	394.927	261.997	−1572.114	130.272	−1959.143	−1702.117	−1342.921	71.579

References

Phase	H / S	C_p
SOL	G1	G1

LiBO2 — LITHIUM METABORATE — 49.751

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	60.365	51.714	51.714	−1019.222	0.000	−1034.641	−1019.222	−963.068	168.725
	300.00	60.624	52.088	51.715	−1019.110	0.112	−1034.737	−1019.231	−962.719	167.624
	400.00	71.145	71.097	54.236	−1012.478	6.744	−1040.916	−1019.549	−943.827	123.251
	500.00	78.603	87.802	59.313	−1004.977	14.245	−1048.879	−1022.773	−924.565	96.589
	600.00	85.057	102.713	65.325	−996.789	22.433	−1058.417	−1022.703	−904.923	78.781
	700.00	91.097	116.282	71.649	−987.979	31.243	−1069.377	−1022.229	−885.324	66.064
	800.00	96.939	128.829	78.022	−978.576	40.646	−1081.640	−1021.348	−865.822	56.532
	900.00	102.675	140.579	84.327	−968.595	50.627	−1095.116	−1020.046	−846.455	49.127
	1000.00	108.351	151.691	90.512	−958.043	61.179	−1109.734	−1018.306	−827.256	43.211
	1100.00	113.989	162.283	96.559	−946.926	72.296	−1125.437	−1016.113	−808.253	38.381
	1117.00	114.945	164.038	97.573	−944.980	74.242	−1128.211	−1015.695	−805.044	37.647
			30.266		33.807					
LIQ	1117.00	144.310	194.304	97.573	−911.173	108.049	−1128.211	−981.888	−805.044	37.647
	1200.00	144.310	204.647	104.625	−899.195	120.027	−1144.772	−977.404	−792.067	34.478
	1300.00	144.310	216.198	112.769	−884.764	134.458	−1165.822	−972.072	−776.839	31.214
	1400.00	144.310	226.893	120.544	−870.333	148.889	−1187.983	−966.810	−762.018	28.431
	1500.00	144.310	236.849	127.969	−855.902	163.320	−1211.176	−961.612	−747.572	26.033
	1600.00	144.310	246.163	135.069	−841.471	177.751	−1235.332	−956.473	−733.471	23.945
	1700.00	144.310	254.912	141.863	−827.040	192.182	−1260.390	−1096.597	−712.568	21.895
	1800.00	144.310	263.160	148.375	−812.609	206.613	−1286.297	−1090.819	−690.146	20.028
	1900.00	144.310	270.963	154.624	−798.178	221.044	−1313.007	−1085.102	−668.042	18.366
	1990.60	144.310	277.685	160.073	−785.103	234.119	−1337.863	−1079.974	−648.276	17.011

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	BPT= 1990.6, L= 265.7 kJ

49.751 LITHIUM METABORATE (GAS) **LiBO2[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	57.252	274.580	274.580	−646.846	0.000	−728.712	−646.846	−657.139	115.128
	300.00	57.369	274.934	274.581	−646.740	0.106	−729.220	−646.861	−657.203	114.429
	400.00	62.813	292.225	276.901	−640.717	6.129	−757.607	−647.788	−660.517	86.255
	500.00	66.771	306.689	281.451	−634.227	12.619	−787.572	−652.023	−663.258	69.290
	600.00	69.739	319.137	286.719	−627.395	19.451	−818.877	−653.309	−665.383	57.927
	700.00	72.048	330.068	292.147	−620.301	26.545	−851.349	−654.551	−667.297	49.794
	800.00	73.880	339.813	297.507	−613.001	33.845	−884.852	−655.774	−669.034	43.683
	900.00	75.337	348.602	302.704	−605.538	41.308	−919.279	−656.989	−670.618	38.922
	1000.00	76.478	356.601	307.700	−597.945	48.901	−954.546	−658.207	−672.068	35.105
	1100.00	77.416	363.936	312.483	−590.248	56.598	−990.578	−659.435	−673.394	31.977
	1200.00	78.179	370.706	317.057	−582.467	64.379	−1027.314	−660.676	−674.609	29.365
	1300.00	78.805	376.989	321.428	−574.617	72.229	−1064.703	−661.925	−675.719	27.151
	1400.00	79.326	382.849	325.608	−566.710	80.136	−1102.698	−663.186	−676.733	25.249
	1500.00	79.761	388.337	329.609	−558.755	88.091	−1141.260	−664.464	−677.656	23.598
	1600.00	80.128	393.497	333.443	−550.760	96.086	−1180.354	−665.762	−678.493	22.151
	1700.00	80.441	398.364	337.120	−542.731	104.115	−1219.949	−812.288	−672.128	20.652
	1800.00	80.709	402.970	340.651	−534.673	112.173	−1260.018	−812.883	−663.866	19.265
	1900.00	80.940	407.340	344.047	−526.590	120.256	−1300.536	−813.514	−655.571	18.023
	2000.00	81.140	411.497	347.317	−518.486	128.360	−1341.479	−814.184	−647.241	16.904
	2100.00	81.315	415.460	350.468	−510.363	136.483	−1382.828	−814.895	−638.876	15.891
	2200.00	81.469	419.246	353.509	−502.224	144.622	−1424.565	−815.647	−630.477	14.969
	2300.00	81.604	422.871	356.446	−494.070	152.776	−1466.672	−816.442	−622.042	14.127
	2400.00	81.724	426.346	359.287	−485.903	160.943	−1509.134	−867.540	−612.504	13.331
	2500.00	81.830	429.685	362.036	−477.726	169.120	−1551.937	−868.501	−601.857	12.575

References

Phase	H / S	C_p
GAS	Ja1	Ja1

72.948 LITHIUM TRIFLUOROBERYLLATE **LiBeF3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	91.817	89.245	89.245	−1651.843	0.000	−1678.451	−1651.843	−1576.272	276.156
	300.00	92.049	89.813	89.246	−1651.673	0.170	−1678.617	−1651.836	−1575.803	274.372
	400.00	104.600	118.013	93.007	−1641.840	10.003	−1689.046	−1651.277	−1550.532	202.479
	500.00	117.152	142.702	100.522	−1630.753	21.090	−1702.104	−1653.275	−1525.145	159.331
	600.00	129.704	165.171	109.450	−1618.410	33.433	−1717.513	−1651.389	−1499.679	130.559
	650.00	135.980	175.801	114.147	−1611.768	40.075	−1726.039	−1650.046	−1487.089	119.504

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	MPT= 650.

LiBeF3[g] LITHIUM TRIFLUOROBERYLLATE (GAS) 72.948

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	61.124	267.885	267.885	-887.008	0.000	-966.878	-887.008	-864.698	151.492
	300.00	61.359	268.264	267.887	-886.895	0.113	-967.374	-887.058	-864.560	150.533
	400.00	73.647	287.655	270.447	-880.125	6.883	-995.187	-889.561	-856.673	111.870
	500.00	82.544	305.109	275.665	-872.286	14.722	-1024.841	-894.808	-847.882	88.578
	600.00	88.548	320.725	281.898	-863.712	23.296	-1056.147	-896.691	-838.313	72.982
	700.00	92.708	334.705	288.462	-854.637	32.371	-1088.931	-898.257	-828.456	61.820
	800.00	95.699	347.290	295.042	-845.209	41.799	-1123.042	-899.631	-818.389	53.435
	900.00	97.926	358.697	301.491	-835.523	51.485	-1158.350	-900.889	-808.157	46.904
	1000.00	99.631	369.106	307.740	-825.641	61.367	-1194.748	-902.088	-797.789	41.672
	1100.00	100.968	378.667	313.759	-815.609	71.399	-1232.143	-903.280	-787.302	37.386
	1200.00	102.034	387.500	319.541	-805.457	81.551	-1270.457	-904.484	-776.706	33.809
	1300.00	102.896	395.702	325.088	-795.209	91.799	-1309.622	-905.710	-766.008	30.779
	1400.00	103.598	403.354	330.408	-784.883	102.125	-1349.579	-906.974	-755.214	28.177
	1500.00	104.171	410.522	335.513	-774.494	112.514	-1390.277	-908.287	-744.329	25.920
	1600.00	104.640	417.261	340.413	-764.052	122.956	-1431.669	-917.383	-733.154	23.935
	1700.00	105.019	423.616	345.122	-753.569	133.439	-1473.716	-1063.547	-714.489	21.954
	1800.00	105.322	429.628	349.652	-743.051	143.957	-1516.381	-1063.749	-693.951	20.138
	1900.00	105.558	435.329	354.012	-732.506	154.502	-1559.631	-1063.963	-673.401	18.513
	2000.00	105.734	440.748	358.215	-721.941	165.067	-1603.437	-1064.192	-652.839	17.050

References

Phase	H / S	C_p
GAS	Ja1	Ja1

98.888 DILITHIUM TETRAFLUOROBERYLLATE **Li2BeF4**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)		] [		kJ / mol		]	[-]
SOL	298.15	135.259	130.583	130.583	-2273.586	0.000	-2312.519	-2273.586	-2171.438	380.427
	300.00	135.535	131.420	130.585	-2273.336	0.250	-2312.762	-2273.573	-2170.804	377.971
	400.00	150.444	172.453	136.079	-2259.037	14.549	-2328.018	-2272.769	-2136.662	279.019
	500.00	165.354	207.625	146.947	-2243.247	30.339	-2347.059	-2277.681	-2102.142	219.609
	600.00	180.264	239.091	159.724	-2225.966	47.620	-2369.420	-2275.571	-2067.210	179.967
	700.00	195.173	267.998	173.152	-2207.194	66.392	-2394.793	-2272.142	-2032.736	151.685
	732.20	199.974	276.883	177.519	-2200.832	72.754	-2403.566	-2270.756	-2021.755	144.231
			60.086		43.995					
LIQ	732.20	232.086	336.969	177.519	-2156.837	116.749	-2403.566	-2226.761	-2021.755	144.231
	800.00	232.086	357.522	191.917	-2141.102	132.484	-2427.119	-2221.557	-2003.006	130.783
	900.00	232.086	384.858	211.866	-2117.893	155.693	-2464.265	-2214.008	-1976.142	114.692
	1000.00	232.086	409.311	230.409	-2094.684	178.902	-2503.995	-2206.608	-1950.111	101.863
	1100.00	232.086	431.431	247.694	-2071.476	202.110	-2546.050	-2199.361	-1924.813	91.402
	1200.00	232.086	451.625	263.859	-2048.267	225.319	-2590.217	-2192.257	-1900.169	82.712
	1300.00	232.086	470.202	279.027	-2025.058	248.528	-2636.321	-2185.270	-1876.112	75.383
	1400.00	232.086	487.401	293.304	-2001.850	271.736	-2684.212	-2178.399	-1852.589	69.121
	1500.00	232.086	503.414	306.784	-1978.641	294.945	-2733.762	-2171.639	-1829.553	63.711
	1600.00	232.086	518.392	319.546	-1955.432	318.154	-2784.860	-2172.712	-1806.765	58.985
	1700.00	232.086	532.462	331.661	-1932.224	341.362	-2837.410	-2456.098	-1769.867	54.381
	1800.00	232.086	545.728	343.189	-1909.015	364.571	-2891.326	-2447.598	-1729.746	50.196
	1900.00	232.086	558.276	354.182	-1885.806	387.780	-2946.532	-2439.142	-1690.097	46.464
	2000.00	232.086	570.181	364.687	-1862.598	410.988	-3002.959	-2430.728	-1650.891	43.117

References

Phase	H / S	C_p
SOL	Ja1	Ja1
LIQ	Ja1	Ja1

LiBr LITHIUM BROMIDE 86.845

Phase	T [K]	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	48.941	74.057	74.057	−350.912	0.000	−372.992	−350.912	−341.631	59.852
	300.00	48.970	74.360	74.058	−350.821	0.091	−373.129	−350.937	−341.574	59.473
	400.00	51.237	88.749	76.004	−345.814	5.098	−381.314	−365.785	−335.372	43.795
	500.00	53.422	100.416	79.755	−340.582	10.330	−390.790	−368.334	−327.518	34.216
	600.00	56.094	110.379	84.047	−335.113	15.799	−401.340	−367.702	−319.408	27.807
	700.00	59.765	119.288	88.455	−329.329	21.583	−412.830	−366.712	−311.432	23.239
	800.00	64.455	127.564	92.831	−323.126	27.786	−425.177	−365.285	−303.627	19.825
	823.00	65.654	129.408	93.828	−321.629	29.283	−428.132	−364.886	−301.860	19.159
			21.453		17.656					
LIQ	823.00	65.270	150.861	93.828	−303.973	46.939	−428.132	−347.230	−301.860	19.159
	900.00	65.270	156.699	98.961	−298.948	51.964	−439.977	−345.877	−297.676	17.277
	1000.00	65.270	163.576	105.085	−292.420	58.492	−455.997	−344.120	−292.415	15.274
	1100.00	65.270	169.797	110.689	−285.893	65.019	−472.670	−342.365	−287.330	13.644
	1200.00	65.270	175.476	115.855	−279.366	71.546	−489.938	−340.611	−282.404	12.293
	1300.00	65.270	180.701	120.645	−272.839	78.073	−507.750	−338.852	−277.624	11.155
	1400.00	65.270	185.538	125.109	−266.312	84.600	−526.065	−337.086	−272.981	10.185
	1500.00	65.270	190.041	129.290	−259.785	91.127	−544.847	−335.316	−268.464	9.349
	1600.00	65.270	194.253	133.220	−253.258	97.654	−564.064	−333.539	−264.065	8.621
	1609.10	65.270	194.624	133.566	−252.664	98.248	−565.833	−333.377	−263.670	8.559

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja2	BPT= 1562. GAS (LiBr + Li2Br2) / 1609.1 GAS (LiBr)

86.845 LITHIUM BROMIDE (GAS) **LiBr[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	33.879	224.343	224.343	−153.971	0.000	−220.859	−153.971	−189.498	33.199
	300.00	33.923	224.552	224.343	−153.908	0.063	−221.274	−154.024	−189.718	33.033
	400.00	35.470	234.553	225.696	−150.428	3.543	−244.250	−170.399	−198.308	25.896
	500.00	36.231	242.558	228.295	−146.839	7.132	−268.119	−174.592	−204.847	21.400
	600.00	36.683	249.207	231.242	−143.192	10.779	−292.716	−175.781	−210.784	18.350
	700.00	36.989	254.886	234.224	−139.508	14.463	−317.928	−176.891	−216.530	16.158
	800.00	37.218	259.841	237.123	−135.797	18.174	−343.669	−177.956	−222.119	14.503
	900.00	37.401	264.235	239.896	−132.066	21.905	−369.877	−178.995	−227.577	13.208
	1000.00	37.556	268.184	242.531	−128.318	25.653	−396.502	−180.017	−232.920	12.166
	1100.00	37.693	271.770	245.028	−124.555	29.416	−423.502	−181.026	−238.161	11.309
	1200.00	37.817	275.055	247.396	−120.779	33.192	−450.846	−182.024	−243.311	10.591
	1300.00	37.932	278.087	249.641	−116.992	36.979	−478.505	−183.004	−248.379	9.980
	1400.00	38.041	280.902	251.775	−113.193	40.778	−506.456	−183.967	−253.371	9.453
	1500.00	38.146	283.530	253.805	−109.384	44.587	−534.679	−184.914	−258.296	8.995
	1600.00	38.246	285.995	255.741	−105.564	48.407	−563.156	−185.845	−263.157	8.591
	1700.00	38.344	288.317	257.589	−101.735	52.236	−591.873	−331.966	−260.841	8.015
	1800.00	38.440	290.511	259.358	−97.895	56.076	−620.815	−332.115	−256.652	7.448
	1900.00	38.534	292.592	261.053	−94.047	59.924	−649.972	−332.259	−252.456	6.941
	2000.00	38.627	294.571	262.680	−90.189	63.782	−679.330	−332.396	−248.252	6.484

References

Phase	H / S	C_p
GAS	Ja1	Ja1

Li2Br2[g] DILITHIUM DIBROMIDE (GAS) 173.690

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	74.978	314.537	314.537	-500.825	0.000	-594.604	-500.825	-531.882	93.184
	300.00	75.076	315.001	314.538	-500.686	0.139	-595.187	-500.917	-532.075	92.642
	400.00	78.505	337.139	317.533	-492.983	7.842	-627.838	-532.925	-535.955	69.989
	500.00	80.102	354.848	323.285	-485.044	15.781	-662.468	-540.548	-535.924	55.988
	600.00	80.977	369.537	329.805	-476.986	23.839	-698.708	-542.164	-534.844	46.562
	700.00	81.511	382.063	336.398	-468.859	31.966	-736.303	-543.626	-533.507	39.811
	800.00	81.863	392.971	342.802	-460.690	40.135	-775.067	-545.008	-531.967	34.734
	900.00	82.110	402.629	348.923	-452.490	48.335	-814.856	-546.350	-530.255	30.775
	1000.00	82.292	411.290	354.734	-444.270	56.555	-855.559	-547.669	-528.396	27.601
	1100.00	82.430	419.140	360.238	-436.033	64.792	-897.087	-548.976	-526.406	24.997
	1200.00	82.540	426.317	365.450	-427.785	73.040	-939.365	-550.275	-524.296	22.822
	1300.00	82.629	432.927	370.390	-419.526	81.299	-982.331	-551.551	-522.080	20.977
	1400.00	82.703	439.053	375.078	-411.259	89.566	-1025.934	-552.808	-519.765	19.393
	1500.00	82.765	444.762	379.536	-402.986	97.839	-1070.128	-554.047	-517.362	18.016
	1600.00	82.820	450.105	383.781	-394.707	106.118	-1114.874	-555.268	-514.876	16.809
	1700.00	82.868	455.127	387.832	-386.422	114.403	-1160.139	-846.885	-498.074	15.304
	1800.00	82.911	459.865	391.703	-378.133	122.692	-1205.890	-846.573	-477.564	13.859
	1900.00	82.950	464.349	395.410	-369.840	130.985	-1252.103	-846.264	-457.072	12.566
	2000.00	82.986	468.605	398.964	-361.543	139.282	-1298.753	-845.959	-436.597	11.403

References

Phase	H / S	C_p
GAS	Ja1	Ja1

73.891 LITHIUM CARBONATE **Li2CO3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL−A	298.15	96.232	90.169	90.169	−1216.038	0.000	−1242.922	−1216.038	−1132.123	198.343
	300.00	96.567	90.766	90.171	−1215.860	0.178	−1243.089	−1216.048	−1131.603	197.030
	400.00	112.173	120.737	94.153	−1205.404	10.634	−1253.699	−1216.315	−1103.399	144.089
	500.00	128.951	147.511	102.185	−1193.375	22.663	−1267.130	−1222.075	−1074.574	112.260
	600.00	149.369	172.767	111.856	−1179.491	36.547	−1283.152	−1220.467	−1045.195	90.992
	623.00	154.622	178.484	114.211	−1175.996	40.042	−1287.191	−1219.828	−1038.488	87.071
			0.900		0.561					
SOL−B	623.00	126.970	179.384	114.211	−1175.435	40.603	−1287.191	−1219.267	−1038.488	87.071
	683.00	137.815	191.550	120.471	−1167.491	48.547	−1298.320	−1218.836	−1021.093	78.091
			3.277		2.238					
SOL−C	683.00	137.815	194.827	120.471	−1165.253	50.785	−1298.320	−1216.598	−1021.093	78.091
	700.00	140.888	198.252	122.319	−1162.884	53.154	−1301.661	−1216.373	−1016.229	75.832
	800.00	158.963	218.245	133.063	−1147.892	68.146	−1322.488	−1214.115	−987.773	64.495
	900.00	177.038	238.012	143.627	−1131.092	84.946	−1345.303	−1210.239	−959.696	55.699
	993.00	193.847	256.234	153.321	−1113.846	102.192	−1368.286	−1205.158	−934.048	49.134
			45.085		44.769					
LIQ	993.00	185.435	301.319	153.321	−1069.077	146.961	−1368.286	−1160.389	−934.048	49.134
	1000.00	185.435	302.621	154.362	−1067.779	148.259	−1370.400	−1160.012	−932.454	48.706
	1100.00	185.435	320.295	168.656	−1049.235	166.803	−1401.560	−1154.692	−909.956	43.210
	1200.00	185.435	336.430	181.975	−1030.692	185.346	−1434.408	−1149.485	−887.938	38.651
	1300.00	185.435	351.273	194.434	−1012.148	203.890	−1468.803	−1144.357	−866.351	34.810
	1400.00	185.435	365.015	206.134	−993.605	222.433	−1504.626	−1139.294	−845.156	31.533
	1500.00	185.435	377.809	217.157	−975.061	240.977	−1541.774	−1134.287	−824.321	28.705
	1600.00	185.435	389.776	227.576	−956.518	259.520	−1580.160	−1129.327	−803.819	26.242
	1700.00	185.435	401.018	237.451	−937.974	278.064	−1619.705	−1414.819	−769.385	23.640
	1800.00	185.435	411.617	246.836	−919.431	296.607	−1660.342	−1408.434	−731.602	21.231
	1900.00	185.435	421.643	255.775	−900.887	315.151	−1702.010	−1402.100	−694.174	19.084
	2000.00	185.435	431.155	264.308	−882.344	333.694	−1744.654	−1395.816	−657.077	17.161

References

Phase	H / S	C_p
SOL−A	Ja1	Ja1
SOL−B	Ja1	Ja1
SOL−C	Ja1	Ja1
LIQ	Ja1	Ja1

LiCl LITHIUM CHLORIDE 42.394

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	48.030	59.300	59.300	-408.266	0.000	-425.946	-408.266	-384.015	67.278
	300.00	48.094	59.597	59.301	-408.177	0.089	-426.056	-408.254	-383.864	66.837
	400.00	50.966	73.847	61.224	-403.217	5.049	-432.756	-407.642	-375.829	49.078
	500.00	53.350	85.480	64.947	-397.999	10.267	-440.739	-410.145	-367.630	38.406
	600.00	55.590	95.406	69.215	-392.551	15.715	-449.795	-409.492	-359.184	31.270
	700.00	57.776	104.140	73.593	-386.883	21.383	-459.781	-408.589	-350.867	26.182
	800.00	59.939	111.996	77.910	-380.997	27.269	-470.594	-407.458	-342.696	22.376
	883.00	61.725	118.000	81.400	-375.948	32.318	-480.142	-406.355	-336.031	19.878
			22.460		19.832					
LIQ	883.00	65.019	140.460	81.400	-356.116	52.150	-480.142	-406.355	-336.031	19.878
	900.00	64.858	141.698	82.527	-355.012	53.254	-482.540	-386.227	-335.062	19.446
	1000.00	63.911	148.483	88.790	-348.574	59.692	-497.056	-384.546	-329.468	17.210
	1100.00	62.963	154.529	94.497	-342.230	66.036	-512.212	-382.965	-324.037	15.387
	1200.00	62.016	159.967	99.730	-335.981	72.285	-527.942	-381.482	-318.747	13.875
	1300.00	61.069	164.894	104.556	-329.827	78.439	-544.189	-380.088	-313.576	12.600
	1400.00	60.122	169.385	109.029	-323.767	84.499	-560.906	-378.786	-308.509	11.511
	1500.00	59.174	173.501	113.191	-317.802	90.464	-578.053	-377.573	-303.532	10.570
	1600.00	58.227	177.289	117.081	-311.932	96.334	-595.595	-376.450	-298.633	9.749
	1700.00	57.280	180.791	120.727	-306.157	102.109	-613.501	-520.623	-286.681	8.809

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja2	NBPT= 1656. GAS (LiCl + Li2Cl2) / 1701. GAS (LiCl)

42.394 LITHIUM CHLORIDE (GAS) **LiCl[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
GAS	298.15	33.245	212.924	212.924	−195.719	0.000	−259.202	−195.719	−217.271	38.065
	300.00	33.280	213.130	212.925	−195.657	0.062	−259.597	−195.734	−217.405	37.854
	400.00	34.780	222.927	214.251	−192.249	3.470	−281.419	−196.674	−224.492	29.316
	500.00	35.706	230.795	216.798	−188.721	6.998	−304.118	−200.866	−231.009	24.133
	600.00	36.303	237.362	219.693	−185.118	10.601	−327.535	−202.059	−236.924	20.626
	700.00	36.713	242.990	222.629	−181.466	14.253	−351.559	−203.172	−242.646	18.106
	800.00	37.012	247.913	225.488	−177.779	17.940	−376.110	−204.240	−248.212	16.207
	900.00	37.242	252.286	228.228	−174.066	21.653	−401.124	−205.281	−253.645	14.721
	1000.00	37.425	256.220	230.833	−170.332	25.387	−426.552	−206.305	−258.964	13.527
	1100.00	37.578	259.794	233.306	−166.582	29.137	−452.356	−207.317	−264.181	12.545
	1200.00	37.709	263.070	235.652	−162.817	32.902	−478.501	−208.318	−269.306	11.723
	1300.00	37.824	266.093	237.879	−159.041	36.678	−504.961	−209.303	−274.349	11.023
	1400.00	37.927	268.900	239.996	−155.253	40.466	−531.713	−210.272	−279.316	10.421
	1500.00	38.021	271.520	242.011	−151.456	44.263	−558.735	−211.226	−284.214	9.897
	1600.00	38.109	273.976	243.933	−147.649	48.070	−586.011	−212.167	−289.049	9.436
	1700.00	38.192	276.289	245.769	−143.834	51.885	−613.526	−358.300	−286.705	8.809
	1800.00	38.270	278.474	247.525	−140.011	55.708	−641.265	−358.464	−282.489	8.198
	1900.00	38.345	280.546	249.209	−136.180	59.539	−669.217	−358.625	−278.264	7.650
	2000.00	38.417	282.514	250.826	−132.342	63.377	−697.370	−358.784	−274.030	7.157

References

Phase	H / S	C_p
GAS	Ja1	Ja1

Li2Cl2[g] DILITHIUM DICHLORIDE (GAS) 84.787

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	72.099	288.776	288.776	−598.546	0.000	−684.645	−598.546	−600.782	105.255
	300.00	72.230	289.223	288.778	−598.412	0.134	−685.179	−598.567	−600.796	104.608
	400.00	76.835	310.727	291.678	−590.927	7.619	−715.217	−599.776	−601.364	78.530
	500.00	78.981	328.129	297.285	−583.124	15.422	−747.188	−607.415	−600.970	62.783
	600.00	80.160	342.643	303.669	−575.162	23.384	−780.747	−609.043	−599.525	52.193
	700.00	80.883	355.058	310.145	−567.107	31.439	−815.647	−610.518	−597.820	44.610
	800.00	81.361	365.891	316.450	−558.993	39.553	−851.706	−611.914	−595.910	38.909
	900.00	81.699	375.495	322.487	−550.839	47.707	−888.785	−613.269	−593.828	34.465
	1000.00	81.948	384.116	328.227	−542.656	55.890	−926.773	−614.602	−591.596	30.902
	1100.00	82.140	391.936	333.668	−534.452	64.094	−965.581	−615.922	−589.232	27.980
	1200.00	82.292	399.090	338.826	−526.230	72.316	−1005.138	−617.232	−586.747	25.540
	1300.00	82.418	405.682	343.719	−517.994	80.552	−1045.381	−618.518	−584.155	23.472
	1400.00	82.523	411.794	348.366	−509.747	88.799	−1086.258	−619.784	−581.464	21.695
	1500.00	82.613	417.490	352.786	−501.490	97.056	−1127.726	−621.031	−578.683	20.152
	1600.00	82.692	422.825	356.999	−493.225	105.321	−1169.744	−622.260	−575.820	18.799
	1700.00	82.763	427.840	361.020	−484.952	113.594	−1212.280	−913.884	−558.639	17.165
	1800.00	82.826	432.572	364.865	−476.672	121.874	−1255.303	−913.579	−537.751	15.605
	1900.00	82.885	437.052	368.547	−468.387	130.159	−1298.786	−913.277	−516.880	14.210
	2000.00	82.938	441.305	372.080	−460.096	138.450	−1342.706	−912.979	−496.025	12.955

References

Phase	H / S	C_p
GAS	Ja1	Ja1

58.393 LITHIUM HYPOCHLORITE (GAS) **LiClO[g]**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f [-]
		[	J / (K mol)	]	[		kJ / mol		]	
GAS	298.15	42.972	256.438	256.438	-14.226	0.000	-90.683	-14.226	-18.169	3.183
	300.00	43.045	256.704	256.439	-14.146	0.080	-91.158	-14.251	-18.194	3.168
	400.00	46.978	269.640	258.176	-9.640	4.586	-117.496	-15.578	-19.308	2.521
	500.00	49.890	280.456	261.579	-4.788	9.438	-145.016	-19.975	-19.776	2.066
	600.00	51.864	289.738	265.518	0.306	14.532	-173.537	-21.256	-19.612	1.707
	700.00	53.232	297.842	269.569	5.565	19.791	-202.924	-22.390	-19.247	1.436
	800.00	54.214	305.017	273.560	10.940	25.166	-233.074	-23.439	-18.725	1.223
	900.00	54.942	311.447	277.419	16.399	30.625	-263.903	-24.436	-18.076	1.049
	1000.00	55.498	317.266	281.117	21.923	36.149	-295.343	-25.402	-17.317	0.905
	1100.00	55.932	322.576	284.648	27.495	41.721	-327.339	-26.346	-16.463	0.782
	1200.00	56.276	327.458	288.015	33.106	47.332	-359.844	-27.275	-15.523	0.676
	1300.00	56.553	331.974	291.225	38.748	52.974	-392.818	-28.186	-14.507	0.583
	1400.00	56.778	336.174	294.287	44.415	58.641	-426.228	-29.082	-13.421	0.501
	1500.00	56.961	340.098	297.212	50.102	64.328	-460.044	-29.967	-12.272	0.427
	1600.00	57.110	343.779	300.009	55.806	70.032	-494.240	-30.844	-11.063	0.361
	1700.00	57.230	347.245	302.686	61.523	75.749	-528.793	-176.921	-2.680	0.082
	1800.00	57.326	350.519	305.253	67.251	81.477	-563.682	-177.039	7.573	-0.220
	1900.00	57.400	353.620	307.718	72.988	87.214	-598.891	-177.164	17.833	-0.490
	2000.00	57.456	356.566	310.088	78.731	92.957	-634.401	-177.299	28.099	-0.734

References

Phase	H / S	C_p
GAS	Ja1	Ja1

LiClO4 LITHIUM PERCHLORATE 106.391

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	105.049	125.520	125.520	−380.744	0.000	−418.168	−380.744	−253.907	44.484
	300.00	105.437	126.171	125.522	−380.549	0.195	−418.401	−380.735	−253.120	44.072
	400.00	129.704	159.931	129.956	−368.754	11.990	−432.727	−379.230	−210.754	27.522
	500.00	143.511	190.540	139.075	−355.011	25.733	−450.282	−379.325	−168.648	17.619
	509.00	144.374	193.108	140.008	−353.716	27.028	−452.008	−379.024	−164.859	16.918
			57.540		29.288					
LIQ	509.00	161.084	250.649	140.008	−324.428	56.316	−452.008	−349.736	−164.859	16.918
	600.00	161.084	277.144	158.853	−309.769	70.975	−476.056	−345.198	−132.191	11.508
	700.00	161.084	301.975	177.571	−293.661	87.083	−505.043	−340.364	−97.075	7.244
	800.00	161.084	323.485	194.495	−277.552	103.192	−536.340	−335.684	−62.640	4.090
	900.00	161.084	342.458	209.902	−261.444	119.300	−569.656	−331.141	−28.784	1.671
	1000.00	161.084	359.430	224.021	−245.336	135.408	−604.765	−326.714	4.573	−0.239
	1100.00	161.084	374.783	237.040	−229.227	151.517	−641.488	−322.386	37.491	−1.780
	1200.00	161.084	388.799	249.111	−213.119	167.625	−679.677	−318.142	70.020	−3.048
	1300.00	161.084	401.692	260.359	−197.010	183.734	−719.211	−313.960	102.196	−4.106
	1400.00	161.084	413.630	270.886	−180.902	199.842	−759.984	−309.835	134.053	−5.002
	1500.00	161.084	424.744	280.777	−164.794	215.950	−801.909	−305.761	165.617	−5.767

References

Phase	H / S	C_p
SOL	Ja1	Ja1
LIQ	Ja1	Ja1

25.939 LITHIUM FLUORIDE **LiF**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	41.919	35.660	35.660	-616.931	0.000	-627.563	-616.931	-588.661	103.131
	300.00	42.025	35.920	35.661	-616.853	0.078	-627.629	-616.928	-588.486	102.464
	400.00	46.343	48.654	37.368	-612.417	4.514	-631.878	-616.712	-579.036	75.614
	500.00	49.278	59.325	40.721	-607.629	9.302	-637.292	-619.541	-569.333	59.478
	600.00	51.668	68.526	44.606	-602.579	14.352	-643.694	-619.205	-559.319	48.693
	700.00	53.800	76.653	48.615	-597.304	19.627	-650.961	-618.632	-549.380	40.995
	800.00	55.795	83.969	52.584	-591.823	25.108	-658.998	-617.857	-539.537	35.228
	900.00	57.711	90.652	56.448	-586.147	30.784	-667.734	-616.896	-529.803	30.749
	1000.00	59.577	96.829	60.181	-580.283	36.648	-677.112	-615.759	-520.186	27.172
	1100.00	61.411	102.594	63.777	-574.233	42.698	-687.086	-614.448	-510.690	24.251
	1121.30	61.799	103.775	64.526	-572.921	44.010	-689.284	-614.146	-508.684	23.697
			24.157		27.087					
LIQ	1121.30	64.183	127.932	64.526	-545.834	71.097	-689.284	-587.059	-508.684	23.697
	1200.00	64.183	132.286	68.829	-540.783	76.148	-699.525	-585.745	-503.228	21.905
	1300.00	64.183	137.423	73.910	-534.364	82.567	-713.014	-584.075	-496.420	19.946
	1400.00	64.183	142.179	78.619	-527.946	88.985	-726.997	-582.404	-489.740	18.272
	1500.00	64.183	146.608	83.005	-521.528	95.403	-741.439	-580.732	-483.179	16.826
	1600.00	64.183	150.750	87.111	-515.110	101.821	-756.309	-579.058	-476.730	15.564
	1700.00	64.183	154.641	90.970	-508.691	108.240	-771.581	-722.587	-463.265	14.234
	1800.00	64.183	158.309	94.611	-502.273	114.658	-787.230	-720.157	-448.081	13.003
	1900.00	64.183	161.780	98.055	-495.855	121.076	-803.236	-717.734	-433.032	11.905
	2000.00	64.183	165.072	101.325	-489.437	127.494	-819.580	-715.316	-418.110	10.920

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	MPT= 1121.3
LIQ	Ja1	Ja1	Ja1	NBPT= 1990. GAS (LiF + Li2F2 + Li3F3)

LiF[g] LITHIUM FLUORIDE (GAS) 25.939

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	31.299	200.272	200.272	−340.891	0.000	−400.602	−340.891	−361.700	63.368
	300.00	31.326	200.466	200.273	−340.833	0.058	−400.973	−340.908	−361.829	63.000
	400.00	32.943	209.699	201.520	−337.620	3.271	−421.499	−341.915	−368.657	48.142
	500.00	34.236	217.197	203.929	−334.257	6.634	−442.855	−346.169	−374.897	39.165
	600.00	35.138	223.524	206.681	−330.786	10.105	−464.900	−347.412	−380.524	33.128
	700.00	35.777	228.991	209.487	−327.238	13.653	−487.532	−348.566	−385.950	28.800
	800.00	36.246	233.800	212.231	−323.636	17.255	−510.676	−349.669	−391.215	25.544
	900.00	36.603	238.091	214.871	−319.993	20.898	−534.274	−350.742	−396.344	23.003
	1000.00	36.886	241.963	217.389	−316.318	24.573	−558.280	−351.794	−401.354	20.965
	1100.00	37.116	245.489	219.786	−312.617	28.274	−582.656	−352.832	−406.260	19.292
	1200.00	37.309	248.727	222.065	−308.896	31.995	−607.369	−353.859	−411.071	17.893
	1300.00	37.475	251.720	224.232	−305.156	35.735	−632.393	−354.867	−415.798	16.707
	1400.00	37.620	254.503	226.296	−301.402	39.489	−657.706	−355.860	−420.448	15.687
	1500.00	37.750	257.103	228.264	−297.633	43.258	−683.287	−356.837	−425.027	14.801
	1600.00	37.867	259.543	230.144	−293.852	47.039	−709.121	−357.800	−429.542	14.023
	1700.00	37.976	261.842	231.941	−290.060	50.831	−735.191	−503.956	−426.876	13.116
	1800.00	38.076	264.016	233.663	−286.257	54.634	−761.485	−504.141	−422.336	12.256
	1900.00	38.171	266.077	235.316	−282.445	58.446	−787.991	−504.324	−417.786	11.486
	2000.00	38.261	268.037	236.903	−278.623	62.268	−814.697	−504.502	−413.227	10.792
	2100.00	38.346	269.906	238.430	−274.793	66.098	−841.595	−504.678	−408.659	10.165
	2200.00	38.428	271.692	239.902	−270.954	69.937	−868.675	−504.851	−404.083	9.594
	2300.00	38.508	273.402	241.322	−267.107	73.784	−895.931	−505.021	−399.499	9.073
	2400.00	38.585	275.042	242.693	−263.252	77.639	−923.353	−505.188	−394.907	8.595
	2500.00	38.660	276.619	244.018	−259.390	81.501	−950.937	−505.353	−390.309	8.155

References

Phase	H / S	C_p
GAS	Ja1	Ja1

51.879 DILITHIUM DIFLUORIDE (GAS) **Li2F2[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[	J / (K mol)	]	[		kJ / mol		]	
GAS	298.15	63.131	258.681	258.681	−942.781	0.000	−1019.907	−942.781	−942.103	165.053
	300.00	63.304	259.072	258.682	−942.664	0.117	−1020.386	−942.813	−942.099	164.034
	400.00	70.368	278.350	261.262	−935.946	6.835	−1047.286	−944.537	−941.602	122.961
	500.00	74.377	294.522	266.342	−928.691	14.090	−1075.952	−952.516	−940.035	98.205
	600.00	76.802	308.314	272.217	−921.123	21.658	−1106.111	−954.376	−937.359	81.604
	700.00	78.365	320.279	278.247	−913.359	29.422	−1137.554	−956.015	−934.391	69.725
	800.00	79.426	330.817	284.173	−905.466	37.315	−1170.119	−957.533	−931.198	60.801
	900.00	80.176	340.217	289.887	−897.484	45.297	−1203.680	−958.982	−927.818	53.849
	1000.00	80.725	348.695	295.351	−889.438	53.343	−1238.132	−960.390	−924.280	48.279
	1100.00	81.138	356.409	300.556	−881.344	61.437	−1273.393	−961.773	−920.602	43.716
	1200.00	81.456	363.483	305.510	−873.213	69.568	−1309.393	−963.139	−916.798	39.907
	1300.00	81.705	370.013	310.224	−865.055	77.726	−1346.072	−964.476	−912.882	36.680
	1400.00	81.904	376.076	314.713	−856.874	85.907	−1383.380	−965.790	−908.864	33.910
	1500.00	82.065	381.732	318.995	−848.675	94.106	−1421.273	−967.083	−904.753	31.506
	1600.00	82.196	387.033	323.083	−840.462	102.319	−1459.714	−968.359	−900.556	29.400
	1700.00	82.304	392.019	326.993	−832.237	110.544	−1498.669	−1260.028	−882.038	27.102
	1800.00	82.395	396.726	330.738	−824.002	118.779	−1538.109	−1259.770	−859.811	24.951
	1900.00	82.470	401.183	334.329	−815.758	127.023	−1578.006	−1259.516	−837.598	23.027
	2000.00	82.535	405.415	337.778	−807.508	135.273	−1618.338	−1259.267	−815.398	21.296
	2100.00	82.589	409.443	341.096	−799.252	143.529	−1659.082	−1259.022	−793.211	19.730
	2200.00	82.635	413.286	344.291	−790.990	151.791	−1700.220	−1258.784	−771.035	18.307
	2300.00	82.675	416.961	347.371	−782.725	160.056	−1741.734	−1258.552	−748.870	17.007
	2400.00	82.710	420.480	350.344	−774.455	168.326	−1783.607	−1258.326	−726.714	15.817
	2500.00	82.739	423.857	353.218	−766.183	176.598	−1825.825	−1258.108	−704.568	14.721

References

Phase	H / S	C_p
GAS	Ja1	Ja1

Li3F3[g] TRILITHIUM TRIFLUORIDE (GAS) 77.818

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	102.501	318.093	318.093	−1517.202	0.000	−1612.042	−1517.202	−1495.336	261.977
	300.00	102.756	318.728	318.095	−1517.012	0.190	−1612.631	−1517.236	−1495.200	260.337
	400.00	113.294	349.872	322.270	−1506.161	11.041	−1646.110	−1519.048	−1487.584	194.259
	500.00	119.398	375.868	330.464	−1494.500	22.702	−1682.434	−1530.237	−1478.558	154.464
	600.00	123.126	397.992	339.921	−1482.360	34.842	−1721.155	−1532.239	−1468.027	127.803
	700.00	125.541	417.166	349.618	−1469.918	47.284	−1761.934	−1533.902	−1457.190	108.737
	800.00	127.186	434.044	359.137	−1457.277	59.925	−1804.512	−1535.377	−1446.129	94.423
	900.00	128.354	449.095	368.311	−1444.497	72.705	−1848.682	−1536.744	−1434.890	83.279
	1000.00	129.210	462.665	377.079	−1431.616	85.586	−1894.281	−1538.045	−1423.503	74.356
	1100.00	129.855	475.012	385.430	−1418.662	98.540	−1941.175	−1539.306	−1411.987	67.050
	1200.00	130.353	486.333	393.373	−1405.650	111.552	−1989.250	−1540.539	−1400.358	60.956
	1300.00	130.744	496.783	400.931	−1392.595	124.607	−2038.412	−1541.727	−1388.628	55.796
	1400.00	131.056	506.484	408.128	−1379.504	137.698	−2088.581	−1542.878	−1376.808	51.369
	1500.00	131.309	515.535	414.990	−1366.385	150.817	−2139.687	−1543.998	−1364.907	47.530
	1600.00	131.516	524.016	421.542	−1353.244	163.958	−2191.669	−1545.089	−1352.931	44.169
	1700.00	131.688	531.994	427.807	−1340.083	177.119	−2244.474	−1981.771	−1319.527	40.544
	1800.00	131.831	539.525	433.806	−1326.907	190.295	−2298.053	−1980.560	−1280.606	37.162
	1900.00	131.952	546.657	439.560	−1313.718	203.484	−2352.365	−1979.355	−1241.753	34.138
	2000.00	132.054	553.427	445.085	−1300.518	216.684	−2407.373	−1978.156	−1202.963	31.418
	2100.00	132.141	559.873	450.399	−1287.308	229.894	−2463.040	−1976.964	−1164.233	28.959
	2200.00	132.216	566.022	455.516	−1274.090	243.112	−2519.337	−1975.780	−1125.559	26.724
	2300.00	132.280	571.900	460.449	−1260.865	256.337	−2576.235	−1974.606	−1086.939	24.685
	2400.00	132.336	577.531	465.211	−1247.634	269.568	−2633.709	−1973.441	−1048.370	22.817
	2500.00	132.384	582.934	469.813	−1234.398	282.804	−2691.734	−1972.285	−1009.849	21.100

References

Phase	H / S	C_p
GAS	Ja1	Ja1

41.939 LITHIUM HYPOFLUORITE (GAS) **LiFO[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	42.828	246.024	246.024	−92.048	0.000	−165.400	−92.048	−95.916	16.804
	300.00	42.963	246.289	246.025	−91.969	0.079	−165.855	−92.070	−95.940	16.705
	400.00	47.925	259.418	247.781	−87.393	4.655	−191.160	−93.202	−97.057	12.674
	500.00	50.545	270.419	251.240	−82.459	9.589	−217.668	−97.413	−97.578	10.194
	600.00	52.211	279.791	255.237	−77.315	14.733	−245.190	−98.564	−97.501	8.488
	700.00	53.401	287.933	259.339	−72.032	20.016	−273.585	−99.609	−97.240	7.256
	800.00	54.313	295.126	263.371	−66.644	25.404	−302.745	−100.596	−96.834	6.323
	900.00	55.041	301.567	267.264	−61.175	30.873	−332.585	−101.545	−96.306	5.589
	1000.00	55.636	307.398	270.990	−55.641	36.407	−363.038	−102.468	−95.674	4.998
	1100.00	56.126	312.724	274.546	−50.052	41.996	−394.048	−103.373	−94.951	4.509
	1200.00	56.529	317.625	277.934	−44.418	47.630	−425.569	−104.262	−94.146	4.098
	1300.00	56.854	322.163	281.164	−38.749	53.299	−457.561	−105.131	−93.268	3.748
	1400.00	57.110	326.387	284.245	−33.050	58.998	−489.991	−105.987	−92.323	3.445
	1500.00	57.300	330.334	287.187	−27.329	64.719	−522.829	−106.832	−91.318	3.180
	1600.00	57.429	334.036	290.001	−21.592	70.456	−556.050	−107.673	−90.256	2.947
	1700.00	57.498	337.520	292.695	−15.845	76.203	−589.629	−253.720	−82.021	2.520
	1800.00	57.510	340.807	295.277	−10.094	81.954	−623.547	−253.815	−71.918	2.087
	1900.00	57.465	343.916	297.756	−4.345	87.703	−657.785	−253.930	−61.810	1.699
	2000.00	57.365	346.861	300.138	1.397	93.445	−692.325	−254.070	−51.695	1.350

References

Phase	H / S	C_p
GAS	Ja1	Ja1

LiH LITHIUM HYDRIDE 7.949

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	27.951	20.037	20.037	-90.625	0.000	-96.599	-90.625	-68.448	11.992
	300.00	28.089	20.211	20.038	-90.573	0.052	-96.636	-90.645	-68.310	11.894
	400.00	34.795	29.239	21.223	-87.419	3.206	-99.114	-91.558	-60.717	7.929
	500.00	40.737	37.650	23.677	-83.638	6.987	-102.463	-95.174	-52.625	5.498
	600.00	46.378	45.579	26.672	-79.281	11.344	-106.628	-95.259	-44.096	3.839
	700.00	51.876	53.142	29.917	-74.368	16.257	-111.567	-94.741	-35.602	2.657
	800.00	57.299	60.424	33.278	-68.908	21.717	-117.247	-93.661	-27.221	1.777
	900.00	62.678	67.484	36.688	-62.909	27.716	-123.644	-92.041	-19.007	1.103
	961.95	65.996	71.765	38.810	-58.924	31.701	-127.958	-90.772	-14.022	0.761
			23.488		22.594					
LIQ	961.95	58.576	95.253	38.810	-36.330	54.295	-127.958	-68.178	-14.022	0.761
	1000.00	58.576	97.525	41.001	-34.101	56.524	-131.626	-67.621	-11.891	0.621
	1100.00	58.576	103.108	46.397	-28.243	62.382	-141.662	-66.168	-6.388	0.303
	1200.00	58.576	108.205	51.339	-22.385	68.240	-152.231	-64.734	-1.017	0.044

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	MPT= 961.8
LIQ	Ja1	Ja1	Ja1	NDPT= 1223. (2 LiH = 2 Li + H2)

7.949 LITHIUM HYDRIDE (GAS) **LiH[g]**

Phase	T [K]	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
GAS	298.15	29.737	170.904	170.904	140.624	0.000	89.669	140.624	117.820	−20.642
	300.00	29.743	171.088	170.905	140.679	0.055	89.352	140.607	117.679	−20.490
	400.00	30.785	179.767	172.081	143.698	3.074	71.791	139.559	110.188	−14.389
	500.00	32.060	186.776	174.341	146.842	6.218	53.454	135.306	103.293	−10.791
	600.00	33.160	192.721	176.921	150.104	9.480	34.472	134.126	97.004	−8.445
	700.00	34.071	197.903	179.556	153.467	12.843	14.935	133.094	90.900	−6.783
	800.00	34.826	202.504	182.142	156.913	16.289	−5.090	132.161	84.937	−5.546
	900.00	35.454	206.643	184.638	160.428	19.804	−25.551	131.297	79.086	−4.590
	1000.00	35.979	210.407	187.030	164.001	23.377	−46.406	130.480	73.329	−3.830
	1100.00	36.419	213.857	189.314	167.621	26.997	−67.622	129.696	67.652	−3.213
	1200.00	36.790	217.042	191.494	171.282	30.658	−89.168	128.934	62.046	−2.701
	1300.00	37.104	220.000	193.574	174.977	34.353	−111.022	128.194	56.502	−2.270
	1400.00	37.373	222.760	195.561	178.701	38.077	−133.162	127.470	51.014	−1.903
	1500.00	37.605	225.346	197.462	182.451	41.827	−155.568	126.758	45.578	−1.587
	1600.00	37.811	227.780	199.281	186.222	45.598	−178.226	126.054	40.189	−1.312
	1700.00	37.998	230.078	201.026	190.012	49.388	−201.120	−19.849	41.964	−1.289
	1800.00	38.176	232.255	202.701	193.821	53.197	−224.237	−19.789	45.599	−1.323
	1900.00	38.353	234.323	204.311	197.647	57.023	−247.567	−19.732	49.230	−1.353
	2000.00	38.536	236.295	205.861	201.492	60.868	−271.099	−19.677	52.858	−1.381

References

Phase	H / S	C_p
GAS	Ja1	Ja1

LiI LITHIUM IODIDE 133.845

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	50.278	85.772	85.772	-270.077	0.000	-295.650	-270.077	-269.666	47.244
	300.00	50.330	86.083	85.773	-269.984	0.093	-295.809	-270.080	-269.663	46.953
	400.00	53.139	100.947	87.781	-264.810	5.267	-305.189	-278.340	-269.213	35.156
	500.00	55.948	113.106	91.665	-259.356	10.721	-315.909	-302.918	-264.552	27.638
	600.00	58.758	123.555	96.128	-253.621	16.456	-327.754	-302.036	-256.956	22.370
	700.00	61.567	132.824	100.720	-247.605	22.472	-340.581	-300.827	-249.534	18.620
	742.00	62.747	136.445	102.641	-244.994	25.083	-346.236	-300.229	-246.474	17.351
			19.736		14.644					
LIQ	742.00	63.178	156.181	102.641	-230.350	39.727	-346.236	-285.585	-246.474	17.351
	800.00	63.178	160.936	106.697	-226.686	43.391	-355.435	-284.697	-243.450	15.896
	900.00	63.178	168.377	113.145	-220.368	49.709	-371.908	-283.161	-238.387	13.836
	1000.00	63.178	175.034	119.007	-214.050	56.027	-389.084	-281.624	-233.494	12.196
	1100.00	63.178	181.056	124.378	-207.732	62.345	-406.893	-280.089	-228.755	10.863
	1200.00	63.178	186.553	129.334	-201.414	68.663	-425.278	-278.555	-224.156	9.757
	1300.00	63.178	191.610	133.932	-195.096	74.981	-444.189	-277.016	-219.686	8.827
	1400.00	63.178	196.292	138.221	-188.779	81.298	-463.587	-275.471	-215.333	8.034
	1500.00	63.178	200.651	142.240	-182.461	87.616	-483.437	-273.921	-211.092	7.351

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja2	NBPT= 1449. GAS (LiJ + Li2J2) / 1497. GAS (Li)

133.845 LITHIUM IODIDE (GAS) **LiI[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol	]		[−]
GAS	298.15	34.571	232.229	232.229	−91.002	0.000	−160.241	−91.002	−134.257	23.521
	300.00	34.601	232.443	232.230	−90.938	0.064	−160.671	−91.034	−134.525	23.423
	400.00	35.801	242.579	233.604	−87.412	3.590	−184.444	−100.941	−148.467	19.388
	500.00	36.484	250.648	236.233	−83.795	7.207	−209.119	−127.356	−157.761	16.481
	600.00	36.918	257.341	239.209	−80.123	10.879	−234.528	−128.538	−163.729	14.254
	700.00	37.220	263.055	242.218	−76.416	14.586	−260.554	−129.638	−169.507	12.649
	800.00	37.446	268.041	245.141	−72.682	18.320	−287.114	−130.693	−175.130	11.435
	900.00	37.626	272.462	247.935	−68.928	22.074	−314.144	−131.721	−180.623	10.483
	1000.00	37.776	276.434	250.590	−65.158	25.844	−341.592	−132.732	−186.002	9.716
	1100.00	37.906	280.041	253.106	−61.373	29.629	−369.418	−133.730	−191.281	9.083
	1200.00	38.023	283.344	255.490	−57.577	33.425	−397.590	−134.718	−196.469	8.552
	1300.00	38.129	286.392	257.751	−53.769	37.233	−426.079	−135.689	−201.575	8.099
	1400.00	38.228	289.221	259.899	−49.951	41.051	−454.861	−136.644	−206.608	7.709
	1500.00	38.321	291.862	261.943	−46.124	44.878	−483.917	−137.584	−211.572	7.368
	1600.00	38.411	294.338	263.891	−42.287	48.715	−513.228	−138.510	−216.474	7.067
	1700.00	38.496	296.669	265.751	−38.442	52.560	−542.780	−284.627	−214.199	6.582
	1800.00	38.580	298.872	267.531	−34.588	56.414	−572.558	−284.774	−210.051	6.096
	1900.00	38.661	300.960	269.236	−30.726	60.276	−602.550	−284.917	−205.896	5.660
	2000.00	38.740	302.945	270.872	−26.856	64.146	−632.746	−285.056	−201.734	5.269

References

Phase	H / S	C_p
GAS	Ja1	Ja1

Li2I2[g] DILITHIUM DIIODIDE (GAS) 267.691

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	75.984	330.645	330.645	−361.916	0.000	−460.498	−361.916	−408.530	71.573
	300.00	76.070	331.116	330.647	−361.775	0.141	−461.110	−361.967	−408.819	71.182
	400.00	79.082	353.474	333.675	−353.996	7.920	−495.386	−381.056	−423.433	55.295
	500.00	80.483	371.288	339.477	−346.010	15.906	−531.655	−433.133	−428.940	44.811
	600.00	81.251	386.036	346.043	−337.920	23.996	−569.542	−434.750	−427.946	37.256
	700.00	81.719	398.599	352.676	−329.770	32.146	−608.789	−436.215	−426.694	31.840
	800.00	82.028	409.532	359.115	−321.582	40.334	−649.208	−437.604	−425.239	27.765
	900.00	82.244	419.207	365.264	−313.368	48.548	−690.654	−438.953	−423.612	24.586
	1000.00	82.402	427.881	371.100	−305.135	56.781	−733.016	−440.283	−421.836	22.034
	1100.00	82.523	435.740	376.624	−296.888	65.028	−776.203	−441.601	−419.927	19.941
	1200.00	82.618	442.925	381.854	−288.631	73.285	−820.141	−442.913	−417.899	18.191
	1300.00	82.695	449.541	386.810	−280.365	81.551	−864.769	−444.204	−415.762	16.706
	1400.00	82.760	455.672	391.512	−272.093	89.823	−910.033	−445.477	−413.526	15.429
	1500.00	82.814	461.384	395.982	−263.814	98.102	−955.889	−446.734	−411.200	14.319
	1600.00	82.861	466.730	400.239	−255.530	106.386	−1002.298	−447.975	−408.791	13.346
	1700.00	82.902	471.755	404.299	−247.242	114.674	−1049.225	−739.612	−392.063	12.047
	1800.00	82.939	476.494	408.180	−238.950	122.966	−1096.639	−739.322	−371.627	10.784
	1900.00	82.972	480.979	411.894	−230.654	131.262	−1144.515	−739.037	−351.207	9.655
	2000.00	83.003	485.236	415.456	−222.355	139.561	−1192.828	−738.756	−330.803	8.640

References

Phase	H / S	C_p
GAS	Ja1	Ja1

Li3N TRILITHIUM NITRIDE 34.830

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	75.275	62.593	62.593	−164.557	0.000	−183.219	−164.557	−128.644	22.538
	300.00	75.534	63.059	62.594	−164.418	0.139	−183.335	−164.581	−128.421	22.360
	400.00	87.086	86.452	65.706	−156.258	8.299	−190.839	−165.724	−116.189	15.173
	500.00	96.968	106.959	71.945	−147.050	17.507	−200.530	−175.790	−102.764	10.736
	600.00	106.414	125.478	79.347	−136.878	27.679	−212.165	−176.043	−88.116	7.671
	700.00	115.560	142.572	87.173	−125.777	38.780	−225.578	−175.243	−73.511	5.485
	800.00	124.386	158.583	95.108	−113.777	50.780	−240.644	−173.505	−59.086	3.858
	900.00	132.856	173.726	103.010	−100.912	63.645	−257.266	−170.903	−44.931	2.608
	1000.00	140.940	188.146	110.808	−87.219	77.338	−275.365	−167.491	−31.110	1.625
	1086.00	147.569	200.046	117.406	−74.811	89.746	−292.060	−163.944	−19.526	0.939

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	MPT= 1086.

22.940 LITHIUM MONOXIDE (GAS) **LiO[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	32.184	210.962	210.962	84.098	0.000	21.200	84.098	60.452	−10.591
	300.00	32.245	211.161	210.963	84.158	0.060	20.809	84.085	60.305	−10.500
	400.00	34.421	220.779	212.259	87.506	3.408	−0.806	83.333	52.489	−6.854
	500.00	35.472	228.585	214.769	91.006	6.908	−23.286	79.369	45.190	−4.721
	600.00	36.080	235.110	217.630	94.586	10.488	−46.480	78.391	38.447	−3.347
	700.00	36.479	240.704	220.536	98.215	14.117	−70.278	77.467	31.864	−2.378
	800.00	36.766	245.594	223.369	101.878	17.780	−94.598	76.559	25.411	−1.659
	900.00	36.988	249.938	226.085	105.566	21.468	−119.378	75.652	19.072	−1.107
	1000.00	37.171	253.845	228.669	109.274	25.176	−144.571	74.743	12.834	−0.670
	1100.00	37.327	257.395	231.121	112.999	28.901	−170.135	73.828	6.687	−0.318
	1200.00	37.465	260.649	233.448	116.739	32.641	−196.040	72.909	0.624	−0.027
	1300.00	37.590	263.653	235.658	120.492	36.394	−222.257	71.996	−5.362	0.215
	1400.00	37.706	266.443	237.758	124.257	40.159	−248.763	71.088	−11.279	0.421
	1500.00	37.816	269.048	239.758	128.033	43.935	−275.539	70.186	−17.131	0.597
	1600.00	37.920	271.492	241.666	131.820	47.722	−302.567	69.290	−22.923	0.748
	1700.00	38.021	273.794	243.489	135.617	51.519	−329.833	−76.806	−21.538	0.662
	1800.00	38.118	275.970	245.233	139.424	55.326	−357.322	−76.939	−18.283	0.531
	1900.00	38.213	278.033	246.906	143.240	59.142	−385.023	−77.075	−15.021	0.413
	2000.00	38.306	279.996	248.512	147.066	62.968	−412.925	−77.215	−11.751	0.307
	2100.00	38.397	281.867	250.056	150.901	66.803	−441.019	−77.357	−8.475	0.211
	2200.00	38.487	283.655	251.543	154.746	70.648	−469.296	−77.503	−5.191	0.123
	2300.00	38.575	285.368	252.976	158.599	74.501	−497.748	−77.653	−1.901	0.043
	2400.00	38.663	287.012	254.361	162.461	78.363	−526.367	−77.805	1.396	−0.030
	2500.00	38.750	288.592	255.698	166.331	82.233	−555.148	−77.961	4.699	−0.098
	2600.00	38.837	290.113	256.993	170.211	86.113	−584.084	−78.120	8.009	−0.161
	2700.00	38.922	291.581	258.247	174.099	90.001	−613.169	−78.282	11.324	−0.219
	2800.00	39.008	292.998	259.463	177.995	93.897	−642.398	−78.447	14.646	−0.273
	2900.00	39.093	294.368	260.643	181.900	97.802	−671.767	−78.614	17.974	−0.324
	3000.00	39.177	295.695	261.789	185.814	101.716	−701.270	−78.783	21.307	−0.371

References

Phase	H / S	C_p
GAS	Ja1	Ja1

Li2O LITHIUM OXIDE 29.881

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	54.086	37.890	37.890	−598.730	0.000	−610.027	−598.730	−562.104	98.478
	300.00	54.362	38.226	37.891	−598.630	0.100	−610.097	−598.748	−561.877	97.831
	400.00	64.074	55.381	40.165	−592.644	6.086	−614.796	−599.476	−549.468	71.753
	500.00	69.534	70.302	44.735	−585.946	12.784	−621.098	−606.179	−536.276	56.024
	600.00	73.723	83.362	50.107	−578.777	19.953	−628.794	−606.544	−522.252	45.466
	700.00	77.347	95.004	55.704	−571.220	27.510	−637.723	−606.468	−508.204	37.923
	800.00	80.616	105.549	61.286	−563.320	35.410	−647.759	−606.041	−494.192	32.267
	900.00	83.601	115.219	66.748	−555.107	43.623	−658.804	−605.313	−480.252	27.873
	1000.00	86.329	124.171	72.048	−546.608	52.122	−670.778	−604.320	−466.407	24.363
	1100.00	88.807	132.517	77.170	−537.849	60.881	−683.617	−603.086	−452.673	21.496
	1200.00	91.040	140.341	82.112	−528.855	69.875	−697.264	−601.634	−439.062	19.112
	1300.00	93.029	147.709	86.877	−519.649	79.081	−711.671	−599.969	−425.580	17.100
	1400.00	94.771	154.668	91.473	−510.257	88.473	−726.793	−598.116	−412.234	15.381
	1500.00	96.266	161.259	95.908	−500.703	98.027	−742.592	−596.098	−399.027	13.895
	1600.00	97.514	167.513	100.189	−491.012	107.718	−759.033	−593.939	−385.958	12.600
	1700.00	98.512	173.456	104.326	−481.209	117.521	−776.084	−882.075	−358.787	11.024
	1800.00	99.260	179.109	108.325	−471.318	127.412	−793.715	−878.206	−328.117	9.522
	1843.00	99.505	181.456	110.004	−467.044	131.686	−801.467	−876.527	−314.996	8.928
			31.783		58.576					
LIQ	1843.00	100.416	213.239	110.004	−408.468	190.262	−801.467	−817.951	−314.996	8.928
	1900.00	100.416	216.297	113.147	−402.745	195.985	−813.709	−815.669	−299.476	8.233
	2000.00	100.416	221.448	118.434	−392.703	206.027	−835.599	−811.677	−272.411	7.115
	2100.00	100.416	226.347	123.457	−382.662	216.068	−857.990	−807.699	−245.545	6.108
	2200.00	100.416	231.018	128.241	−372.620	226.110	−880.861	−803.733	−218.869	5.197
	2300.00	100.416	235.482	132.807	−362.578	236.152	−904.187	−799.782	−192.373	4.369
	2400.00	100.416	239.756	137.175	−352.537	246.193	−927.951	−795.843	−166.048	3.614
	2500.00	100.416	243.855	141.361	−342.495	256.235	−952.133	−791.917	−139.888	2.923
	2600.00	100.416	247.793	145.379	−332.454	266.276	−976.716	−788.004	−113.884	2.288
	2700.00	100.416	251.583	149.243	−322.412	276.318	−1001.686	−784.103	−88.030	1.703
	2800.00	100.416	255.235	152.964	−312.370	286.360	−1027.028	−780.215	−62.321	1.163
	2900.00	100.416	258.759	156.551	−302.329	296.401	−1052.729	−776.338	−36.750	0.662

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja2	DEC., 1700.K, GAS (Li,O2,LixOy) / NBPT= 2836. GAS (Li2O)

29.881 LITHIUM OXIDE (GAS) **Li2O[g]**

Phase	T [K]	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
GAS	298.15	49.776	229.108	229.108	−166.942	0.000	−235.251	−166.942	−187.328	32.819
	300.00	49.834	229.416	229.109	−166.850	0.092	−235.675	−166.968	−187.454	32.639
	400.00	53.122	244.210	231.104	−161.700	5.242	−259.383	−168.532	−194.055	25.341
	500.00	55.607	256.348	234.975	−156.255	10.687	−284.429	−176.487	−199.607	20.853
	600.00	57.282	266.645	239.417	−150.605	16.337	−310.592	−178.372	−204.050	17.764
	700.00	58.426	275.566	243.958	−144.816	22.126	−337.713	−180.064	−208.194	15.536
	800.00	59.233	283.424	248.410	−138.931	28.011	−365.670	−181.652	−212.103	13.849
	900.00	59.819	290.436	252.697	−132.977	33.965	−394.369	−183.184	−215.817	12.526
	1000.00	60.257	296.762	256.792	−126.972	39.970	−423.734	−184.684	−219.363	11.458
	1100.00	60.592	302.522	260.692	−120.929	46.013	−453.703	−186.166	−222.759	10.578
	1200.00	60.855	307.805	264.401	−114.856	52.086	−484.223	−187.636	−226.020	9.838
	1300.00	61.063	312.685	267.929	−108.760	58.182	−515.250	−189.080	−229.160	9.208
	1400.00	61.232	317.217	271.290	−102.645	64.297	−546.748	−190.504	−232.190	8.663
	1500.00	61.371	321.446	274.494	−96.514	70.428	−578.684	−191.909	−235.118	8.188
	1600.00	61.486	325.411	277.554	−90.371	76.571	−611.029	−193.298	−237.954	7.768
	1700.00	61.583	329.141	280.480	−84.218	82.724	−643.758	−485.084	−226.461	6.958
	1800.00	61.665	332.664	283.282	−78.055	88.887	−676.850	−484.944	−211.252	6.130
	1900.00	61.735	336.000	285.970	−71.885	95.057	−710.284	−484.810	−196.051	5.390
	2000.00	61.795	339.168	288.551	−65.709	101.233	−744.044	−484.683	−180.856	4.723
	2100.00	61.848	342.184	291.034	−59.527	107.415	−778.113	−484.564	−165.668	4.121
	2200.00	61.894	345.062	293.425	−53.339	113.603	−812.476	−484.453	−150.485	3.573
	2300.00	61.934	347.814	295.730	−47.148	119.794	−847.121	−484.351	−135.307	3.073
	2400.00	61.970	350.451	297.956	−40.953	125.989	−882.035	−484.259	−120.133	2.615
	2500.00	62.001	352.981	300.106	−34.754	132.188	−917.208	−484.176	−104.963	2.193
	2600.00	62.030	355.414	302.187	−28.553	138.389	−952.628	−484.103	−89.796	1.804
	2700.00	62.055	357.755	304.202	−22.348	144.594	−988.288	−484.039	−74.631	1.444
	2800.00	62.078	360.013	306.155	−16.142	150.800	−1024.177	−483.986	−59.469	1.109
	2900.00	62.099	362.191	308.050	−9.933	157.009	−1060.287	−483.942	−44.309	0.798
	3000.00	62.118	364.297	309.890	−3.722	163.220	−1096.612	−483.908	−29.150	0.508

References

Phase	H / S	C_p
GAS	Ja1	Ja1

45.881 DILITHIUM PEROXIDE **Li2O2**

Phase	T [K]	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	70.671	56.484	56.484	−632.621	0.000	−649.462	−632.621	−570.957	100.029
	300.00	70.890	56.922	56.485	−632.490	0.131	−649.567	−632.636	−570.574	99.346
	400.00	82.676	78.930	59.407	−624.812	7.809	−656.384	−633.157	−549.794	71.796
	468.00	90.691	92.523	63.241	−618.917	13.704	−662.218	−639.259	−535.424	59.760

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	NDPT= 468.

Li2O2[g] DILITHIUM PEROXIDE (GAS) 45.881

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	72.623	273.563	273.563	−242.672	0.000	−324.235	−242.672	−245.730	43.051
	300.00	72.747	274.013	273.564	−242.538	0.134	−324.741	−242.683	−245.749	42.789
	400.00	77.109	295.627	276.482	−235.014	7.658	−353.265	−243.359	−246.675	32.212
	500.00	79.144	313.077	282.113	−227.190	15.482	−383.729	−250.464	−246.776	25.780
	600.00	80.264	327.615	288.519	−219.215	23.457	−415.784	−251.604	−245.928	21.410
	700.00	80.952	340.043	295.014	−211.151	31.521	−449.182	−252.648	−244.899	18.275
	800.00	81.410	350.885	301.334	−203.032	39.640	−483.740	−253.671	−243.722	15.913
	900.00	81.733	360.493	307.384	−194.874	47.798	−519.317	−254.701	−242.417	14.070
	1000.00	81.973	369.117	313.133	−186.688	55.984	−555.805	−255.751	−240.996	12.588
	1100.00	82.159	376.939	318.584	−178.481	64.191	−593.114	−256.824	−239.469	11.371
	1200.00	82.308	384.095	323.749	−170.257	72.415	−631.171	−257.917	−237.843	10.353
	1300.00	82.431	390.688	328.648	−162.020	80.652	−669.914	−259.012	−236.126	9.488
	1400.00	82.535	396.801	333.300	−153.772	88.900	−709.293	−260.109	−234.324	8.743
	1500.00	82.625	402.498	337.726	−145.514	97.158	−749.261	−261.207	−232.444	8.094
	1600.00	82.704	407.833	341.943	−137.247	105.425	−789.780	−262.307	−230.491	7.525
	1700.00	82.776	412.849	345.968	−128.973	113.699	−830.817	−553.818	−214.227	6.582
	1800.00	82.840	417.582	349.816	−120.692	121.980	−872.341	−553.417	−194.263	5.637
	1900.00	82.900	422.063	353.502	−112.405	130.267	−914.325	−553.036	−174.321	4.792
	2000.00	82.955	426.317	357.037	−104.112	138.560	−956.746	−552.674	−154.398	4.032

References

Phase	H / S	C_p
GAS	Ja1	Ja1

65.921 LITHIUM ALUMINATE **LiAlO2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	67.831	53.346	53.346	−1188.674	0.000	−1204.579	−1188.674	−1126.314	197.326
	300.00	68.199	53.767	53.347	−1188.548	0.126	−1204.678	−1188.693	−1125.927	196.041
	400.00	81.572	75.468	56.215	−1180.973	7.701	−1211.160	−1189.210	−1104.905	144.286
	500.00	88.415	94.476	62.012	−1172.442	16.232	−1219.680	−1192.314	−1083.508	113.193
	600.00	92.688	110.999	68.830	−1163.373	25.301	−1229.972	−1192.137	−1061.758	92.434
	700.00	95.747	125.527	75.913	−1153.944	34.730	−1241.813	−1191.757	−1040.057	77.610
	800.00	98.160	138.475	82.939	−1144.245	44.429	−1255.025	−1191.299	−1018.416	66.496
	900.00	100.196	150.157	89.769	−1134.325	54.349	−1269.466	−1190.864	−996.833	57.855
	1000.00	101.999	160.809	96.348	−1124.214	64.460	−1285.022	−1201.047	−974.535	50.905
	1100.00	103.649	170.609	102.660	−1113.930	74.744	−1301.600	−1200.332	−951.918	45.203
	1200.00	105.196	179.694	108.705	−1103.487	85.187	−1319.120	−1199.497	−929.370	40.454
	1300.00	106.669	188.173	114.496	−1092.893	95.781	−1337.518	−1198.536	−906.898	36.440
	1400.00	108.089	196.130	120.045	−1082.155	106.519	−1356.738	−1197.452	−884.504	33.001
	1500.00	109.470	203.635	125.370	−1071.277	117.397	−1376.729	−1196.247	−862.192	30.024
	1600.00	110.820	210.743	130.486	−1060.262	128.412	−1397.451	−1194.924	−839.964	27.422
	1700.00	112.148	217.502	135.407	−1049.114	139.560	−1418.866	−1338.688	−810.702	24.910
	1800.00	113.458	223.949	140.148	−1037.833	150.841	−1440.941	−1336.381	−779.710	22.627
	1883.00	114.534	229.088	143.956	−1028.371	160.303	−1459.744	−1334.385	−754.087	20.918
			46.662		87.864					
LIQ	1883.00	133.888	275.749	143.956	−940.507	248.167	−1459.744	−1246.521	−754.087	20.918
	1900.00	133.888	276.953	145.141	−938.231	250.443	−1464.442	−1245.776	−749.644	20.609
	2000.00	133.888	283.820	151.905	−924.843	263.831	−1492.483	−1241.409	−723.645	18.900
	2100.00	133.888	290.353	158.343	−911.454	277.220	−1521.194	−1237.066	−697.864	17.358
	2200.00	133.888	296.581	164.486	−898.065	290.609	−1550.544	−1232.746	−672.289	15.962
	2300.00	133.888	302.533	170.360	−884.676	303.998	−1580.501	−1228.450	−646.910	14.692
	2400.00	133.888	308.231	175.987	−871.287	317.387	−1611.042	−1224.177	−621.717	13.531
	2500.00	133.888	313.697	181.386	−857.899	330.775	−1642.140	−1219.927	−596.702	12.467

References

Phase	H / S	C_p
SOL	Ja1	Ja1
LIQ	Ja1	Ja1

LiAlSiO4 — EUCRYPTITE — 126.006

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL−B	298.15	113.397	103.801	103.801	−2124.200	0.000	−2155.148	−2124.200	−2010.108	352.163
	300.00	114.057	104.504	103.803	−2123.990	0.210	−2155.341	−2124.226	−2009.400	349.868
	400.00	138.258	141.071	108.624	−2111.221	12.979	−2167.650	−2124.643	−1971.017	257.388
	500.00	150.988	173.413	118.421	−2096.704	27.496	−2183.410	−2127.099	−1932.357	201.872
	600.00	159.203	201.712	129.995	−2081.170	43.030	−2202.197	−2125.993	−1893.504	164.844
	700.00	165.285	226.729	142.062	−2064.933	59.267	−2223.644	−2124.508	−1854.870	138.412
	800.00	170.232	249.132	154.070	−2048.150	76.050	−2247.456	−2122.812	−1816.464	118.603
	900.00	174.518	269.435	165.778	−2030.909	93.291	−2273.400	−2121.022	−1778.277	103.209
	1000.00	178.393	288.026	177.086	−2013.260	110.940	−2301.286	−2129.739	−1739.533	90.864
	1100.00	182.001	305.199	187.962	−1995.239	128.961	−2330.958	−2127.452	−1700.622	80.756
	1200.00	185.426	321.183	198.405	−1976.866	147.334	−2362.286	−2124.935	−1661.928	72.342
	1300.00	188.722	336.156	208.432	−1958.158	166.042	−2395.161	−2122.184	−1623.454	65.231
			0.965		1.255					
SOL−C	1300.00	194.974	337.122	208.432	−1956.903	167.297	−2395.161	−2120.929	−1623.454	65.231
	1400.00	199.995	351.754	218.151	−1937.155	187.045	−2429.611	−2117.231	−1585.323	59.149
	1500.00	205.016	365.724	227.527	−1916.904	207.296	−2465.490	−2113.120	−1547.471	53.888
	1600.00	210.037	379.116	236.585	−1896.151	228.049	−2502.736	−2108.592	−1509.906	49.293

References

Phase	H / S	C_p
SOL−B	Nb1	S5e
SOL−C	S5	S5

LiAlSi2O6 — ALPHA−SPODUMENE — 186.090

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL−A	298.15	159.001	129.290	129.290	−3054.701	0.000	−3093.249	−3054.701	−2881.432	504.815
	300.00	159.707	130.276	129.293	−3054.406	0.295	−3093.489	−3054.734	−2880.357	501.515
	400.00	186.924	180.367	135.938	−3036.929	17.772	−3109.076	−3055.536	−2822.066	368.524
	500.00	203.217	223.945	149.283	−3017.370	37.331	−3129.343	−3058.288	−2763.408	288.691
	600.00	215.209	262.098	164.972	−2996.425	58.276	−3153.684	−3057.307	−2704.512	235.449
	700.00	225.171	296.039	181.316	−2974.395	80.306	−3181.622	−3055.732	−2645.831	197.434
	800.00	234.051	326.695	197.603	−2951.427	103.274	−3212.783	−3053.696	−2587.407	168.940
	900.00	242.301	354.744	213.526	−2927.605	127.096	−3246.874	−3051.293	−2529.262	146.795
	1000.00	250.161	380.682	228.961	−2902.979	151.722	−3283.662	−3059.104	−2470.644	129.053
	1100.00	257.766	404.883	243.866	−2877.581	177.120	−3322.953	−3055.604	−2411.962	114.535
	1200.00	265.197	427.632	258.241	−2851.432	203.269	−3364.590	−3051.559	−2353.624	102.451

References

Phase	H / S	C_p
SOL−A	Nb1	S5,e

186.090 BETA–SPODUMENE **LiAlSi2O6[B]**

Phase	T	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	162.802	154.390	154.390	–3026.701	0.000	–3072.732	–3026.701	–2860.916	501.221
	300.00	163.599	155.399	154.393	–3026.399	0.302	–3073.019	–3026.727	–2859.887	497.951
	400.00	193.217	207.036	161.232	–3008.379	18.322	–3091.194	–3026.986	–2804.184	366.189
	500.00	209.376	252.031	175.000	–2988.185	38.516	–3114.201	–3029.103	–2748.266	287.109
	600.00	220.236	291.217	191.176	–2966.676	60.025	–3141.406	–3027.558	–2692.234	234.380
	700.00	228.596	325.817	207.987	–2944.220	82.481	–3172.292	–3025.557	–2636.500	196.738
	800.00	235.622	356.812	224.686	–2921.001	105.700	–3206.450	–3023.270	–2581.074	168.527
	900.00	241.873	384.931	240.953	–2897.121	129.580	–3243.558	–3020.809	–2525.946	146.602
	1000.00	247.643	410.716	256.657	–2872.642	154.059	–3283.358	–3028.767	–2470.340	129.037
	1100.00	253.098	434.577	271.761	–2847.603	179.098	–3325.638	–3025.626	–2414.647	114.662
	1200.00	258.339	456.825	286.266	–2822.030	204.671	–3370.220	–3022.156	–2359.254	102.696
	1300.00	263.429	477.705	300.197	–2795.940	230.761	–3416.957	–3018.349	–2304.164	92.582
	1400.00	268.410	497.410	313.586	–2769.347	257.354	–3465.722	–3014.204	–2249.380	83.925
	1500.00	273.309	516.096	326.470	–2742.261	284.440	–3516.405	–3009.723	–2194.904	76.433
	1600.00	278.147	533.890	338.882	–2714.688	312.013	–3568.912	–3004.907	–2140.738	69.888
	1700.00	282.938	550.897	350.857	–2686.633	340.068	–3623.157	–3245.316	–2078.869	63.876

References

Phase	H / S	C_p
SOL	Nb1	S5

Li2B4O7 DILITHIUM TETRABORATE 169.122

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	182.288	155.645	155.645	−3362.262	0.000	−3408.667	−3362.262	−3170.298	555.423
	300.00	182.558	156.773	155.648	−3361.925	0.337	−3408.956	−3362.290	−3169.107	551.791
	400.00	200.001	211.579	163.003	−3342.832	19.430	−3427.463	−3364.284	−3104.435	405.398
	500.00	219.452	258.290	177.491	−3321.863	40.399	−3451.007	−3372.813	−3038.573	317.438
	600.00	238.670	300.011	194.491	−3298.950	63.312	−3478.957	−3374.837	−2971.520	258.694
	700.00	256.889	338.185	212.329	−3274.162	88.100	−3510.892	−3375.914	−2904.202	216.714
	800.00	273.787	373.607	230.300	−3247.617	114.645	−3546.502	−3375.985	−2836.798	185.224
	900.00	289.213	406.760	248.084	−3219.454	142.808	−3585.538	−3375.053	−2769.445	160.734
	1000.00	303.085	437.963	265.527	−3189.826	172.436	−3627.789	−3373.165	−2702.248	141.151
	1100.00	315.357	467.439	282.556	−3158.890	203.372	−3673.073	−3370.403	−2635.284	125.139
	1190.00	325.012	492.623	297.498	−3130.064	232.198	−3716.285	−3367.251	−2575.259	113.040
			101.260		120.499					
LIQ	1190.00	467.688	593.882	297.498	−3009.565	352.697	−3716.285	−3246.752	−2575.259	113.040
	1200.00	467.950	597.797	299.985	−3004.887	357.375	−3722.243	−3244.943	−2569.624	111.853
	1300.00	470.571	635.357	324.356	−2957.961	404.301	−3783.924	−3226.873	−2514.080	101.017
	1400.00	473.192	670.326	347.833	−2910.772	451.490	−3849.229	−3208.821	−2459.927	91.781
	1500.00	475.813	703.062	370.436	−2863.322	498.940	−3917.915	−3190.767	−2407.065	83.821
	1600.00	478.434	733.854	392.196	−2815.610	546.652	−3989.776	−3172.692	−2355.407	76.896
	1700.00	481.055	762.937	413.157	−2767.635	594.627	−4064.629	−3444.997	−2290.640	70.383
	1800.00	483.675	790.508	433.362	−2719.399	642.863	−4142.313	−3425.349	−2223.303	64.519
	1900.00	486.296	816.729	452.855	−2670.900	691.362	−4222.686	−3405.672	−2157.060	59.302
	2000.00	488.917	841.740	471.678	−2622.140	740.122	−4305.619	−3385.959	−2091.853	54.634
	2100.00	491.538	865.657	489.874	−2573.117	789.145	−4390.997	−3366.207	−2027.633	50.435
	2200.00	494.159	888.584	507.480	−2523.832	838.430	−4478.717	−3346.412	−1964.355	46.640

References

Phase	H / S	C_p
SOL	Ja1	Ja1
LIQ	Ja1	Ja1

238.742 DILITHIUM HEXABORATE **Li2B6O10**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	293.231	188.280	188.280	−4659.888	0.000	−4716.024	−4659.888	−4382.431	767.784
	300.00	293.622	190.095	188.286	−4659.345	0.543	−4716.374	−4659.834	−4380.710	762.749
	400.00	316.229	277.650	200.070	−4628.856	31.032	−4739.916	−4657.618	−4288.037	559.960
	500.00	336.684	350.475	223.063	−4596.182	63.706	−4771.419	−4662.492	−4195.179	438.267
	600.00	353.892	413.426	249.660	−4561.628	98.260	−4809.684	−4661.575	−4101.801	357.093
	700.00	368.361	469.097	277.107	−4525.495	134.393	−4853.863	−4660.498	−4008.588	299.124
	800.00	380.564	519.105	304.284	−4488.031	171.857	−4903.315	−4659.223	−3915.542	255.659
	900.00	390.841	564.540	330.715	−4449.446	210.442	−4957.532	−4657.741	−3822.669	221.862
	1000.00	399.429	606.177	356.209	−4409.919	249.969	−5016.097	−4656.072	−3729.971	194.834
	1100.00	406.503	644.590	380.702	−4369.611	290.277	−5078.660	−4654.261	−3637.448	172.728

References

Phase	H / S	C_p	Remarks
SOL	Ja1	Ja1	Ja1 NDPT= 1107.

94.787 LITHIUM IRON DIOXIDE **LiFeO2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	79.480	75.312	75.312	−750.200	0.000	−772.654	−750.200	−694.686	121.706
	300.00	79.776	75.805	75.314	−750.053	0.147	−772.794	−750.199	−694.342	120.896
	400.00	91.987	100.572	78.608	−741.414	8.786	−781.643	−749.772	−675.770	88.246
	500.00	100.412	122.044	85.196	−731.776	18.424	−792.798	−751.980	−657.051	68.642
	600.00	107.347	140.979	92.946	−721.380	28.820	−805.968	−750.809	−638.168	55.557
	700.00	113.578	158.001	101.043	−710.330	39.870	−820.930	−749.269	−619.512	46.229
	800.00	119.435	173.553	109.149	−698.677	51.523	−837.519	−747.472	−601.096	39.248
	900.00	125.073	187.947	117.114	−686.450	63.750	−855.602	−745.574	−582.913	33.831
	1000.00	130.576	201.411	124.877	−673.667	76.533	−875.077	−743.916	−564.933	29.509

References

Phase	H / S	C_p
SOL	Nb1	e

LiOH LITHIUM HYDROXIDE 23.948

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	49.576	42.802	42.802	−484.926	0.000	−497.688	−484.926	−438.954	76.903
	300.00	49.778	43.110	42.803	−484.834	0.092	−497.767	−484.934	−438.669	76.379
	400.00	58.051	58.666	44.868	−479.407	5.519	−502.873	−485.059	−423.215	55.266
	500.00	63.650	72.249	49.016	−473.309	11.617	−509.434	−487.887	−407.464	42.567
	600.00	68.206	84.267	53.908	−466.711	18.215	−517.271	−487.311	−391.426	34.077
	700.00	72.279	95.091	59.031	−459.684	25.242	−526.248	−486.307	−375.519	28.022
	744.30	73.995	99.579	61.312	−456.444	28.482	−530.560	−485.742	−368.525	25.863
			28.051		20.878					
LIQ	744.30	87.086	127.629	61.312	−435.566	49.360	−530.560	−464.864	−368.525	25.863
	800.00	87.086	133.914	66.150	−430.715	54.211	−537.846	−463.385	−361.369	23.595
	900.00	87.086	144.171	74.261	−422.006	62.920	−551.761	−460.758	−348.775	20.242
	1000.00	87.086	153.347	81.719	−413.298	71.628	−566.645	−458.170	−336.472	17.575
	1100.00	87.086	161.647	88.613	−404.589	80.337	−582.401	−455.620	−324.426	15.406
	1200.00	87.086	169.224	95.020	−395.881	89.045	−598.950	−453.109	−312.610	13.608
	1300.00	87.086	176.195	101.000	−387.172	97.754	−616.225	−450.627	−301.003	12.094
	1400.00	87.086	182.649	106.604	−378.464	106.462	−634.172	−448.173	−289.585	10.805
	1500.00	87.086	188.657	111.876	−369.755	115.171	−652.740	−445.747	−278.342	9.693
	1600.00	87.086	194.277	116.853	−361.046	123.880	−671.890	−443.347	−267.261	8.725
	1700.00	87.086	199.557	121.564	−352.338	132.588	−691.584	−586.178	−249.207	7.657
	1800.00	87.086	204.534	126.036	−343.629	141.297	−711.791	−583.076	−229.475	6.659
	1900.00	87.086	209.243	130.293	−334.921	150.005	−732.482	−580.007	−209.915	5.771

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	BPT= 1897., L= 187.9 kJ, GAS (LiOH)

23.948 LITHIUM HYDROXIDE (GAS) **LiOH[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	46.122	210.648	210.648	−234.304	0.000	−297.109	−234.304	−238.375	41.762
	300.00	46.201	210.934	210.649	−234.219	0.085	−297.499	−234.318	−238.400	41.509
	400.00	49.113	224.676	212.503	−229.435	4.869	−319.305	−235.087	−239.647	31.295
	500.00	50.664	235.816	216.087	−224.439	9.865	−342.348	−239.018	−240.378	25.112
	600.00	51.689	245.149	220.174	−219.319	14.985	−366.409	−239.919	−240.563	20.943
	700.00	52.479	253.178	224.329	−214.109	20.195	−391.334	−240.732	−240.605	17.954
	800.00	53.152	260.231	228.385	−208.827	25.477	−417.012	−241.497	−240.535	15.705
	900.00	53.763	266.527	232.279	−203.481	30.823	−443.355	−242.233	−240.370	13.951
	1000.00	54.337	272.221	235.993	−198.076	36.228	−470.297	−242.947	−240.124	12.543
	1100.00	54.885	277.426	239.527	−192.614	41.690	−497.783	−243.645	−239.808	11.388
	1200.00	55.413	282.225	242.887	−187.099	47.205	−525.769	−244.328	−239.429	10.422
	1300.00	55.920	286.680	246.087	−181.533	52.771	−554.217	−244.987	−238.994	9.603
	1400.00	56.404	290.842	249.137	−175.916	58.388	−583.095	−245.626	−238.509	8.899
	1500.00	56.862	294.749	252.048	−170.253	64.051	−612.377	−246.245	−237.979	8.287
	1600.00	57.290	298.433	254.833	−164.545	69.759	−642.038	−246.845	−237.408	7.751
	1700.00	57.681	301.918	257.502	−158.796	75.508	−672.057	−392.636	−229.680	7.057
	1800.00	58.031	305.225	260.062	−153.010	81.294	−702.415	−392.457	−220.099	6.387
	1900.00	58.333	308.371	262.522	−147.191	87.113	−733.096	−392.277	−210.529	5.788
	2000.00	58.582	311.370	264.890	−141.345	92.959	−764.085	−392.102	−200.968	5.249
	2100.00	58.771	314.233	267.172	−135.477	98.827	−795.366	−391.934	−191.415	4.761
	2200.00	58.894	316.970	269.374	−129.593	104.711	−826.927	−391.780	−181.870	4.318
	2300.00	58.945	319.589	271.501	−123.700	110.604	−858.756	−391.645	−172.332	3.914
	2400.00	58.916	322.098	273.557	−117.807	116.497	−890.841	−391.537	−162.799	3.543
	2500.00	58.802	324.501	275.547	−111.920	122.384	−923.172	−391.462	−153.270	3.202

References

Phase	H / S	C_p
GAS	Ja1	Ja1

Li2(OH)2[g] DILITHIUM DIHYDROXIDE (GAS) 47.897

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	71.234	269.768	269.768	−711.280	0.000	−791.711	−711.280	−674.244	118.125
	300.00	71.436	270.209	269.770	−711.148	0.132	−792.211	−711.347	−674.014	117.356
	400.00	81.756	292.221	272.701	−703.472	7.808	−820.360	−714.776	−661.043	86.323
	500.00	89.634	311.355	278.560	−694.882	16.398	−850.560	−724.039	−646.620	67.552
	600.00	95.529	328.243	285.461	−685.611	25.669	−882.556	−726.811	−630.866	54.922
	700.00	100.113	343.326	292.669	−675.820	35.460	−916.148	−729.066	−614.691	45.869
	800.00	103.808	356.944	299.866	−665.618	45.662	−951.173	−730.958	−598.219	39.060
	900.00	106.861	369.353	306.908	−655.080	56.200	−987.497	−732.583	−581.526	33.751
	1000.00	109.422	380.748	313.730	−644.262	67.018	−1025.010	−734.005	−564.664	29.495
	1100.00	111.695	391.286	320.307	−633.203	78.077	−1063.618	−735.265	−547.668	26.007
	1200.00	113.669	401.091	326.636	−621.933	89.347	−1103.243	−736.390	−530.563	23.095
	1300.00	115.409	410.260	332.719	−610.477	100.803	−1143.815	−737.387	−513.370	20.627
	1400.00	116.956	418.870	338.569	−598.857	112.423	−1185.276	−738.277	−496.104	18.510
	1500.00	118.340	426.988	344.195	−587.091	124.189	−1227.573	−739.075	−478.777	16.672
	1600.00	119.579	434.665	349.612	−575.194	136.086	−1270.659	−739.795	−461.400	15.063
	1700.00	120.690	441.949	354.831	−563.180	148.100	−1314.493	−1030.859	−429.739	13.204
	1800.00	121.681	448.876	359.865	−551.060	160.220	−1359.037	−1029.954	−394.405	11.445
	1900.00	122.560	455.479	364.725	−538.847	172.433	−1404.257	−1029.019	−359.122	9.873
	2000.00	123.335	461.785	369.421	−526.552	184.728	−1450.123	−1028.065	−323.889	8.459

References

Phase	H / S	C_p
GAS	Ja1	Ja1

89.966 LITHIUM METASILICATE **Li2SiO3**

Phase	T [K]	C_P	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J/(K mol)	]	[		kJ/mol		]	[−]
SOL	298.15	95.414	80.291	80.291	−1649.500	0.000	−1673.439	−1649.500	−1558.740	273.085
	300.00	95.977	80.883	80.293	−1649.323	0.177	−1673.588	−1649.533	−1558.177	271.303
	400.00	116.974	111.731	84.356	−1638.550	10.950	−1683.242	−1650.568	−1527.537	199.476
	500.00	128.532	139.176	92.635	−1626.229	23.271	−1695.817	−1656.984	−1496.114	156.298
	600.00	136.376	163.340	102.447	−1612.964	36.536	−1710.968	−1656.790	−1463.947	127.448
	700.00	142.466	184.836	112.710	−1599.012	50.488	−1728.397	−1656.022	−1431.861	106.847
	800.00	147.620	204.204	122.956	−1584.502	64.998	−1747.864	−1654.830	−1399.914	91.405
	900.00	152.232	221.861	132.978	−1569.506	79.994	−1769.180	−1653.287	−1368.139	79.405
	1000.00	156.506	238.124	142.690	−1554.066	95.434	−1792.190	−1651.424	−1336.553	69.814
	1100.00	160.559	253.232	152.061	−1538.212	111.288	−1816.767	−1649.259	−1305.168	61.977
	1200.00	164.462	267.371	161.087	−1521.960	127.540	−1842.804	−1646.798	−1273.994	55.456
	1300.00	168.259	280.685	169.780	−1505.323	144.177	−1870.213	−1644.026	−1243.037	49.946
	1400.00	171.980	293.291	178.156	−1488.310	161.190	−1898.918	−1640.949	−1212.305	45.232
	1474.00	174.696	302.219	184.161	−1475.483	174.017	−1920.954	−1638.477	−1189.712	42.160
			19.018		28.033					
LIQ	1474.00	167.360	321.237	184.161	−1447.450	202.050	−1920.954	−1610.444	−1189.712	42.160
	1500.00	167.360	324.163	186.563	−1443.099	206.401	−1929.344	−1609.740	−1182.297	41.171
	1600.00	167.360	334.965	195.504	−1426.363	223.137	−1962.306	−1607.068	−1153.888	37.671
	1700.00	167.360	345.111	204.009	−1409.627	239.873	−1996.315	−1945.047	−1110.956	34.136
	1800.00	167.360	354.677	212.116	−1392.891	256.609	−2031.309	−1940.769	−1062.016	30.819
	1900.00	167.360	363.725	219.860	−1376.155	273.345	−2067.233	−1936.528	−1013.312	27.858
	2000.00	167.360	372.310	227.269	−1359.419	290.081	−2104.039	−1932.324	−964.831	25.199
	2100.00	167.360	380.475	234.372	−1342.683	306.817	−2141.681	−1928.156	−916.559	22.798
	2200.00	167.360	388.261	241.191	−1325.947	323.553	−2180.121	−1924.024	−868.484	20.620

Referenzen

Phase	H/S	Cp
SOL	Ja1	Kl1
LIQ	Ja1	Ja1

Li2Si2O5 LITHIUM DISILICATE 150.050

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL-A	298.15	138.072	125.520	125.520	-2560.901	0.000	-2598.325	-2560.901	-2416.851	423.422
	300.00	138.909	126.377	125.523	-2560.645	0.256	-2598.558	-2560.946	-2415.957	420.655
	400.00	174.891	171.743	131.461	-2544.789	16.112	-2613.486	-2561.991	-2367.402	309.151
	500.00	192.673	212.959	143.726	-2526.285	34.616	-2632.764	-2567.562	-2318.180	242.179
	600.00	205.685	249.330	158.355	-2506.316	54.585	-2655.914	-2566.201	-2268.414	197.483
	700.00	214.890	281.756	173.711	-2485.269	75.632	-2682.498	-2564.042	-2218.945	165.580
	800.00	222.589	310.964	189.072	-2463.387	97.514	-2712.158	-2561.324	-2169.825	141.675
	900.00	229.492	337.586	204.116	-2440.778	120.123	-2744.605	-2558.133	-2121.075	123.104
	1000.00	235.350	362.080	218.704	-2417.525	143.376	-2779.605	-2554.528	-2072.702	108.267
	1100.00	240.580	384.759	232.782	-2393.725	167.176	-2816.961	-2550.583	-2024.708	96.145
	1200.00	245.182	405.897	246.337	-2369.429	191.472	-2856.506	-2546.325	-1977.087	86.060
	1209.00	245.535	407.731	247.532	-2367.220	193.681	-2860.167	-2545.928	-1972.819	85.235
			0.778		0.941					
SOL-B	1209.00	248.178	408.509	247.532	-2366.279	194.622	-2860.167	-2544.987	-1972.819	85.235
	1300.00	248.178	426.520	259.438	-2343.695	217.206	-2898.171	-2540.782	-1929.908	77.545
	1307.00	248.178	427.852	260.337	-2341.958	218.943	-2901.161	-2540.463	-1926.619	76.998
			41.168		53.806					
LIQ	1307.00	251.040	469.020	260.337	-2288.152	272.749	-2901.161	-2486.657	-1926.619	76.998
	1400.00	251.040	486.276	274.779	-2264.805	296.096	-2945.591	-2482.225	-1886.925	70.402
	1500.00	251.040	503.596	289.463	-2239.701	321.200	-2995.095	-2477.588	-1844.566	64.233
	1600.00	251.040	519.797	303.358	-2214.597	346.304	-3046.273	-2473.082	-1802.512	58.846
	1700.00	251.040	535.017	316.542	-2189.493	371.408	-3099.022	-2859.468	-1745.601	53.636
	1800.00	251.040	549.366	329.081	-2164.389	396.512	-3153.248	-2853.257	-1680.259	48.760
	1900.00	251.040	562.939	341.036	-2139.285	421.616	-3208.869	-2847.107	-1615.261	44.407
	2000.00	251.040	575.815	352.456	-2114.181	446.720	-3265.812	-2841.018	-1550.584	40.497
	2100.00	251.040	588.064	363.386	-2089.077	471.824	-3324.011	-2834.987	-1486.211	36.967
	2200.00	251.040	599.742	373.866	-2063.973	496.928	-3383.406	-2829.015	-1422.124	33.766

References

Phase	H / S	C_p
SOL-A	Ja1	Ja1
SOL-B	Ja1	Ja1
LIQ	Ja1	Ja1

119.847 LITHIUM ORTHOSILICATE **Li4SiO4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	146.629	121.336	121.336	−2330.070	0.000	−2366.246	−2330.070	−2203.625	386.066
	300.00	146.891	122.244	121.339	−2329.798	0.272	−2366.472	−2330.127	−2202.841	383.549
	400.00	158.504	166.191	127.252	−2314.495	15.575	−2380.971	−2333.345	−2159.937	282.059
	500.00	167.548	202.559	138.778	−2298.180	31.890	−2399.459	−2349.167	−2114.934	220.946
	600.00	175.582	233.827	152.073	−2281.018	49.052	−2421.314	−2352.611	−2067.751	180.014
	700.00	183.140	261.465	165.763	−2263.079	66.991	−2446.104	−2355.336	−2020.050	150.738
	800.00	190.442	286.398	179.308	−2244.398	85.672	−2473.517	−2357.448	−1972.000	128.758
	900.00	197.597	309.243	192.494	−2224.995	105.075	−2503.314	−2358.983	−1923.721	111.650
	1000.00	204.660	330.429	205.240	−2204.882	125.188	−2535.310	−2359.952	−1875.302	97.956
	1100.00	211.663	350.264	217.532	−2184.065	146.005	−2569.355	−2360.350	−1826.813	86.748
	1200.00	218.626	368.979	229.380	−2162.550	167.520	−2605.326	−2360.168	−1778.313	77.408
	1300.00	225.559	386.753	240.807	−2140.341	189.729	−2643.120	−2359.364	−1729.853	69.506
	1400.00	232.472	403.722	251.842	−2117.439	212.631	−2682.649	−2357.937	−1681.479	62.737
	1500.00	239.369	419.996	262.514	−2093.847	236.223	−2723.841	−2355.883	−1633.228	56.874
	1528.00	241.298	424.441	265.440	−2087.118	242.952	−2735.663	−2355.195	−1619.745	55.371
			20.372		31.129					
LIQ	1528.00	287.022	444.813	265.440	−2055.989	274.081	−2735.663	−2324.066	−1619.745	55.371
	1600.00	287.022	458.029	273.812	−2035.323	294.747	−2768.169	−2318.956	−1586.676	51.800
	1700.00	287.022	475.429	285.165	−2006.621	323.449	−2814.851	−2942.907	−1512.195	46.464
	1800.00	287.022	491.835	296.195	−1977.919	352.151	−2863.222	−2932.685	−1428.331	41.449
	1900.00	287.022	507.353	306.904	−1949.216	380.854	−2913.188	−2922.514	−1345.033	36.978
	2000.00	287.022	522.076	317.298	−1920.514	409.556	−2964.666	−2912.393	−1262.270	32.967
	2100.00	287.022	536.080	327.385	−1891.812	438.258	−3017.579	−2902.322	−1180.012	29.351
	2200.00	287.022	549.432	337.177	−1863.110	466.960	−3071.860	−2892.301	−1098.232	26.075

References

Phase	H / S	C_p
SOL	S5	S5
LIQ	S5	e

Li2TiO3 DILITHIUM TITANIUM TRIOXIDE 109.760

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	109.864	91.755	91.755	−1670.671	0.000	−1698.028	−1670.671	−1579.770	276.769
	300.00	110.355	92.436	91.757	−1670.467	0.204	−1698.198	−1670.686	−1579.206	274.964
	400.00	127.284	126.852	96.335	−1658.464	12.207	−1709.205	−1670.957	−1548.648	202.233
	500.00	135.815	156.252	105.456	−1645.273	25.398	−1723.399	−1676.925	−1517.464	158.528
	600.00	141.460	181.541	116.079	−1631.394	39.277	−1740.319	−1676.526	−1485.601	129.333
	700.00	145.695	203.679	127.045	−1617.027	53.644	−1759.603	−1675.766	−1453.837	108.487
	800.00	149.047	223.361	137.877	−1602.284	68.387	−1780.973	−1674.805	−1422.196	92.860
	900.00	151.758	241.078	148.376	−1587.239	83.432	−1804.209	−1673.732	−1390.684	80.713
	1000.00	153.968	257.186	158.464	−1571.949	98.722	−1829.135	−1672.603	−1359.294	71.002
	1100.00	155.775	271.948	168.119	−1556.459	114.212	−1855.602	−1671.453	−1328.019	63.062
	1200.00	157.256	285.568	177.346	−1540.805	129.866	−1883.486	−1674.302	−1296.730	56.445
	1300.00	158.483	298.205	186.163	−1525.016	145.655	−1912.683	−1672.623	−1265.333	50.842
	1400.00	159.520	309.989	194.591	−1509.115	161.556	−1943.099	−1670.922	−1234.067	46.044
	1485.00	160.299	319.414	201.469	−1495.522	175.149	−1969.852	−1669.474	−1207.587	42.477
			7.748		11.506					
SOL−B	1485.00	176.063	327.162	201.469	−1484.016	186.655	−1969.852	−1657.968	−1207.587	42.477
	1500.00	176.565	328.934	202.735	−1481.371	189.300	−1974.773	−1657.474	−1203.040	41.894
	1600.00	179.912	340.437	210.984	−1463.547	207.124	−2008.246	−1654.043	−1172.855	38.290
	1700.00	183.259	351.444	218.925	−1445.389	225.282	−2042.844	−1940.794	−1128.650	34.679
	1800.00	186.606	362.014	226.583	−1426.896	243.775	−2078.520	−1935.406	−1081.031	31.371
	1820.00	187.276	364.079	228.082	−1423.157	247.514	−2085.781	−1934.305	−1071.544	30.754
			60.461		110.039					
LIQ	1820.00	200.832	424.540	228.082	−1313.118	357.553	−2085.781	−1824.266	−1071.544	30.754
	1900.00	200.832	433.180	236.537	−1297.051	373.620	−2120.092	−1818.800	−1038.576	28.552
	2000.00	200.832	443.481	246.629	−1276.968	393.703	−2163.930	−1826.221	−997.241	26.045
	2100.00	200.832	453.279	256.238	−1256.885	413.786	−2208.772	−1819.543	−955.957	23.778
	2200.00	200.832	462.622	265.409	−1236.802	433.869	−2254.570	−1812.900	−914.990	21.725

References

Phase	H / S	C_p
SOL−A	Ja1	Ja1
SOL−B	Ja1	Ja1
LIQ	Ja1	Ja1

153.104 DILITHIUM ZIRCONIUM TRIOXIDE **Li2ZrO3**

Phase	T	C_P	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J/(K mol)]			[kJ/mol]					[-]
SOL	298.15	120.469	91.630	91.630	-1760.200	0.000	-1787.519	-1760.200	-1666.843	292.024
	300.00	120.728	92.376	91.632	-1759.977	0.223	-1787.690	-1760.196	-1666.264	290.122
	400.00	130.332	128.589	96.504	-1747.366	12.834	-1798.802	-1759.830	-1635.003	213.510
	500.00	135.572	158.282	105.981	-1734.050	26.150	-1813.191	-1765.597	-1603.219	167.487
	600.00	139.095	183.328	116.840	-1720.307	39.893	-1830.304	-1765.240	-1570.772	136.748
	700.00	141.806	204.980	127.919	-1706.257	53.943	-1849.744	-1764.691	-1538.402	114.797
	800.00	144.086	224.068	138.768	-1691.960	68.240	-1871.215	-1764.054	-1506.118	98.339
	900.00	146.114	241.158	149.212	-1677.449	82.751	-1894.491	-1763.381	-1473.917	85.544
	1000.00	147.986	256.651	159.193	-1662.743	97.457	-1919.393	-1762.698	-1441.790	75.311
	1100.00	149.756	270.839	168.707	-1647.855	112.345	-1945.778	-1762.016	-1409.733	66.943
	1200.00	151.456	283.943	177.771	-1632.794	127.406	-1973.525	-1765.049	-1377.515	59.962
	1300.00	153.108	296.131	186.412	-1617.565	142.635	-2002.536	-1763.812	-1345.270	54.054
	1400.00	154.724	307.537	194.661	-1602.173	158.027	-2032.725	-1762.483	-1313.124	48.993
	1500.00	156.314	318.266	202.547	-1586.621	173.579	-2064.020	-1761.071	-1281.076	44.611

Referenzen

Phase	H/S	Cp
SOL	Nb1/K7	Kl1

Li2SO4 LITHIUM SULFATE 109.946

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	120.960	115.102	115.102	−1436.489	0.000	−1470.807	−1436.489	−1321.580	231.535
	300.00	121.237	115.851	115.104	−1436.265	0.224	−1471.020	−1436.507	−1320.866	229.983
	400.00	136.195	152.777	120.038	−1423.393	13.096	−1484.504	−1439.388	−1282.114	167.427
	500.00	151.153	184.775	129.849	−1409.026	27.463	−1501.413	−1446.910	−1242.018	129.753
	600.00	166.111	213.656	141.445	−1393.163	43.326	−1521.356	−1446.897	−1201.008	104.557
	700.00	181.070	240.385	153.692	−1375.804	60.685	−1544.073	−1445.210	−1160.140	86.571
	800.00	196.028	265.540	166.115	−1356.949	79.540	−1569.381	−1442.194	−1119.607	73.103
	848.00	203.208	277.170	172.073	−1347.367	89.122	−1582.407	−1440.329	−1100.305	67.776
			33.551		28.451					
SOL−B	848.00	213.384	310.720	172.073	−1318.916	117.573	−1582.407	−1411.878	−1100.305	67.776
	900.00	213.384	323.420	180.454	−1307.820	128.669	−1598.898	−1461.866	−1080.133	62.689
	1000.00	213.384	345.902	195.895	−1286.482	150.007	−1632.384	−1455.061	−1038.084	54.224
	1100.00	213.384	366.240	210.471	−1265.143	171.346	−1668.007	−1448.354	−996.711	47.330
	1132.00	213.384	372.359	214.961	−1258.315	178.174	−1679.825	−1446.226	−983.603	45.387
			7.577		8.577					
LIQ	1132.00	205.016	379.936	214.961	−1249.738	186.751	−1679.825	−1437.649	−983.603	45.387
	1200.00	205.016	391.895	224.652	−1235.797	200.692	−1706.071	−1433.721	−956.444	41.633
	1300.00	205.016	408.305	238.156	−1215.295	221.194	−1746.092	−1427.989	−916.904	36.842

References

Phase	H / S	C_p
SOL−A	Nb1	Pa3
SOL−B	Pa3	Pa3
LIQ	Pa3	Pa3

Li2Se LITHIUM SELENIDE 92.842

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	71.471	71.128	71.128	−419.199	0.000	−440.406	−419.199	−410.466	71.912
	300.00	71.505	71.570	71.129	−419.067	0.132	−440.538	−419.205	−410.412	71.459
	400.00	73.304	92.387	73.956	−411.826	7.373	−448.781	−419.861	−407.400	53.201
	500.00	75.103	108.938	79.352	−404.406	14.793	−458.875	−433.121	−403.446	42.148
	600.00	76.902	122.790	85.468	−396.806	22.393	−470.480	−434.991	−397.330	34.591
	700.00	78.701	134.779	91.674	−389.026	30.173	−483.371	−436.578	−390.925	29.171
	800.00	80.500	145.406	97.739	−381.066	38.133	−497.390	−437.937	−384.308	25.093
	900.00	82.299	154.991	103.576	−372.926	46.273	−512.418	−439.095	−377.532	21.911
	1000.00	84.098	163.755	109.162	−364.606	54.593	−528.361	−440.064	−370.638	19.360
	1100.00	85.898	171.855	114.498	−356.106	63.093	−545.147	−494.161	−358.702	17.033
	1200.00	87.697	179.406	119.596	−347.426	71.773	−562.714	−493.317	−346.424	15.079
	1300.00	89.496	186.497	124.472	−338.567	80.632	−581.012	−492.262	−334.224	13.429
	1375.00	90.845	191.554	127.994	−331.804	87.395	−595.191	−491.334	−325.132	12.351

References

Phase	H / S	C_p	Remarks	
SOL	Nb1/Mi1	Mi1	Mi1	MPT= 1375.

141.482 LITHIUM TELLURIDE **Li2Te**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol	]		[−]
SOL	298.15	74.026	77.404	77.404	−355.640	0.000	−378.718	−355.640	−346.620	60.726
	300.00	74.057	77.862	77.405	−355.503	0.137	−378.862	−355.642	−346.564	60.342
	400.00	75.730	99.396	80.330	−348.014	7.626	−387.772	−356.066	−343.492	44.855
	500.00	77.404	116.475	85.908	−340.357	15.283	−398.594	−363.186	−339.622	35.480
	600.00	79.078	130.735	92.223	−332.533	23.107	−410.974	−364.444	−334.789	29.146
	700.00	80.751	143.050	98.624	−324.541	31.099	−424.677	−365.654	−329.751	24.606
	800.00	82.425	153.943	104.871	−316.383	39.257	−439.537	−384.491	−322.659	21.067
	900.00	84.098	163.747	110.877	−308.056	47.584	−455.429	−385.713	−314.855	18.274
	1000.00	85.772	172.695	116.618	−299.563	56.077	−472.258	−386.760	−306.924	16.032
	1100.00	87.446	180.948	122.095	−290.902	64.738	−489.945	−387.635	−298.897	14.193

References

Phase	H / S	C_p
SOL	Mi1	e

Lu LUTETIUM 174.967

Phase	T [K]	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	26.783	50.961	50.961	0.000	0.000	−15.194	0.000	0.000	0.000
	300.00	26.786	51.127	50.962	0.050	0.050	−15.288	0.000	0.000	0.000
	400.00	26.890	58.850	52.014	2.734	2.734	−20.806	0.000	0.000	0.000
	500.00	26.997	64.860	54.004	5.428	5.428	−27.002	0.000	0.000	0.000
	600.00	27.238	69.801	56.237	8.138	8.138	−33.742	0.000	0.000	0.000
	700.00	27.655	74.028	58.484	10.881	10.881	−40.939	0.000	0.000	0.000
	800.00	28.397	77.768	60.665	13.682	13.682	−48.532	0.000	0.000	0.000
	900.00	29.285	81.162	62.756	16.565	16.565	−56.481	0.000	0.000	0.000
	1000.00	30.308	84.299	64.756	19.544	19.544	−64.756	0.000	0.000	0.000
	1100.00	31.486	87.242	66.667	22.632	22.632	−73.334	0.000	0.000	0.000
	1200.00	32.843	90.039	68.499	25.847	25.847	−82.199	0.000	0.000	0.000
	1300.00	34.389	92.727	70.260	29.207	29.207	−91.338	0.000	0.000	0.000
	1400.00	36.122	95.338	71.959	32.731	32.731	−100.742	0.000	0.000	0.000
	1500.00	38.033	97.894	73.603	36.437	36.437	−110.404	0.000	0.000	0.000
	1600.00	40.106	100.414	75.200	40.343	40.343	−120.320	0.000	0.000	0.000
	1700.00	42.317	102.911	76.757	44.463	44.463	−130.486	0.000	0.000	0.000
	1800.00	44.641	105.395	78.279	48.810	48.810	−140.901	0.000	0.000	0.000
	1900.00	47.048	107.873	79.771	53.394	53.394	−151.565	0.000	0.000	0.000
	1936.00	47.929	108.765	80.302	55.104	55.104	−155.464	0.000	0.000	0.000
			9.632		18.648					
LIQ	1936.00	47.907	118.397	80.302	73.752	73.752	−155.464	0.000	0.000	0.000
	2000.00	47.907	119.955	81.546	76.818	76.818	−163.092	0.000	0.000	0.000
	2100.00	47.907	122.292	83.431	81.609	81.609	−175.205	0.000	0.000	0.000
	2200.00	47.907	124.521	85.249	86.399	86.399	−187.547	0.000	0.000	0.000
	2300.00	47.907	126.650	87.003	91.190	91.190	−200.106	0.000	0.000	0.000
	2400.00	47.907	128.689	88.697	95.981	95.981	−212.874	0.000	0.000	0.000
	2500.00	47.907	130.645	90.336	100.771	100.771	−225.841	0.000	0.000	0.000
	2600.00	47.907	132.524	91.923	105.562	105.562	−239.000	0.000	0.000	0.000
	2700.00	47.907	134.332	93.461	110.353	110.353	−252.344	0.000	0.000	0.000
	2800.00	47.907	136.074	94.952	115.143	115.143	−265.865	0.000	0.000	0.000
	2900.00	47.907	137.755	96.399	119.934	119.934	−279.556	0.000	0.000	0.000
	3000.00	47.907	139.379	97.805	124.725	124.725	−293.414	0.000	0.000	0.000
	3100.00	47.907	140.950	99.171	129.515	129.515	−307.431	0.000	0.000	0.000
	3200.00	47.907	142.471	100.501	134.306	134.306	−321.602	0.000	0.000	0.000
	3300.00	47.907	143.945	101.795	139.097	139.097	−335.923	0.000	0.000	0.000
	3400.00	47.907	145.376	103.056	143.887	143.887	−350.390	0.000	0.000	0.000
	3500.00	47.907	146.764	104.285	148.678	148.678	−364.997	0.000	0.000	0.000
	3600.00	47.907	148.114	105.484	153.469	153.469	−379.741	0.000	0.000	0.000
	3664.00	47.907	148.958	106.236	156.535	156.535	−389.248	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL	Hu1	Hu1		
LIQ	Hu1	Hu1	Hu1	BPT= 3664., L= 355.9 kJ

174.967

LUTETIUM (GAS)

Lu[g]

Phase	T	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[–]
GAS	298.15	20.861	184.800	184.800	427.605	0.000	372.507	427.605	387.701	−67.924
	300.00	20.870	184.929	184.800	427.644	0.039	372.165	427.594	387.453	−67.462
	400.00	21.276	190.983	185.623	429.749	2.144	353.356	427.015	374.161	−48.860
	500.00	22.097	195.812	187.193	431.914	4.309	334.009	426.487	361.011	−37.715
	600.00	23.142	199.932	188.980	434.176	6.571	314.217	426.038	347.959	−30.293
	700.00	24.154	203.576	190.810	436.542	8.937	294.038	425.660	334.977	−24.996
	800.00	25.003	206.859	192.614	439.001	11.396	273.514	425.319	322.045	−21.027
	900.00	25.644	209.843	194.365	441.535	13.930	252.676	424.970	309.157	−17.943
	1000.00	26.075	212.569	196.052	444.123	16.518	231.553	424.579	296.309	−15.478
	1100.00	26.326	215.068	197.668	446.744	19.139	210.170	424.112	283.504	−13.462
	1200.00	26.439	217.364	199.215	449.383	21.778	188.547	423.536	270.746	−11.785
	1300.00	26.466	219.482	200.694	452.029	24.424	166.703	422.822	258.041	−10.368
	1400.00	26.419	221.442	202.107	454.674	27.069	144.656	421.943	245.398	−9.156
	1500.00	26.333	223.261	203.457	457.312	29.707	122.419	420.874	232.823	−8.108
	1600.00	26.224	224.958	204.748	459.940	32.335	100.007	419.596	220.327	−7.193
	1700.00	26.104	226.544	205.984	462.556	34.951	77.431	418.093	207.918	−6.389
	1800.00	25.978	228.032	207.168	465.160	37.555	54.702	416.350	195.603	−5.676
	1900.00	25.853	229.434	208.304	467.752	40.147	31.828	414.357	183.393	−5.042
	2000.00	25.732	230.757	209.394	470.331	42.726	8.818	393.513	171.910	−4.490
	2100.00	25.618	232.009	210.441	472.898	45.293	−14.321	391.290	160.884	−4.002
	2200.00	25.512	233.199	211.449	475.455	47.850	−37.582	389.056	149.965	−3.561
	2300.00	25.416	234.330	212.419	478.001	50.396	−60.959	386.811	139.147	−3.160
	2400.00	25.333	235.410	213.355	480.539	52.934	−84.446	384.558	128.428	−2.795
	2500.00	25.262	236.443	214.258	483.068	55.463	−108.039	382.297	117.802	−2.461
	2600.00	25.206	237.433	215.130	485.591	57.986	−131.733	380.029	107.267	−2.155
	2700.00	25.165	238.383	215.974	488.110	60.505	−155.525	377.757	96.819	−1.873
	2800.00	25.141	239.298	216.791	490.625	63.020	−179.409	375.482	86.456	−1.613
	2900.00	25.135	240.180	217.582	493.139	65.534	−203.383	373.205	76.173	−1.372
	3000.00	25.148	241.032	218.350	495.653	68.048	−227.444	370.928	65.970	−1.149
	3100.00	25.182	241.857	219.095	498.169	70.564	−251.589	368.654	55.842	−0.941
	3200.00	25.237	242.658	219.819	500.690	73.085	−275.814	366.384	45.788	−0.747
	3300.00	25.315	243.435	220.523	503.217	75.612	−300.119	364.120	35.804	−0.567
	3400.00	25.417	244.192	221.208	505.753	78.148	−324.501	361.866	25.889	−0.398
	3500.00	25.544	244.931	221.875	508.301	80.696	−348.957	359.623	16.040	−0.239
	3600.00	25.698	245.653	222.525	510.863	83.258	−373.486	357.394	6.255	−0.091
	3700.00	25.879	246.359	223.160	513.442	85.837	−398.087	0.000	0.000	0.000
	3800.00	25.878	247.049	223.780	516.030	88.425	−422.758	0.000	0.000	0.000
	3900.00	25.878	247.721	224.385	518.617	91.012	−447.496	0.000	0.000	0.000
	4000.00	25.878	248.377	224.977	521.205	93.600	−472.302	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1,e

Lu2O3 LUTETIUM OXIDE 397.932

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	101.755	109.956	109.956	-1878.198	0.000	-1910.981	-1878.198	-1788.846	313.398
	300.00	102.026	110.586	109.957	-1878.010	0.188	-1911.185	-1878.190	-1788.292	311.369
	400.00	111.877	141.469	114.101	-1867.251	10.947	-1923.839	-1877.258	-1758.443	229.629
	500.00	116.954	167.030	122.207	-1855.786	22.412	-1939.302	-1875.769	-1728.904	180.617
	600.00	120.150	188.655	131.526	-1843.921	34.277	-1957.114	-1874.064	-1699.690	147.971
	700.00	122.460	207.357	141.054	-1831.785	46.413	-1976.935	-1872.296	-1670.767	124.674
	800.00	124.296	223.833	150.392	-1819.445	58.753	-1998.511	-1870.563	-1642.096	107.218
	900.00	125.857	238.565	159.385	-1806.935	71.263	-2021.644	-1868.927	-1613.638	93.653
	1000.00	127.248	251.899	167.980	-1794.279	83.919	-2046.178	-1867.421	-1585.354	82.810
	1100.00	128.526	264.088	176.171	-1781.489	96.709	-2071.986	-1866.072	-1557.214	73.946
	1200.00	129.729	275.323	183.971	-1768.576	109.622	-2098.964	-1864.912	-1529.189	66.564
	1300.00	130.879	285.752	191.404	-1755.545	122.653	-2127.024	-1863.976	-1501.252	60.321
	1400.00	131.989	295.492	198.495	-1742.402	135.796	-2156.091	-1863.300	-1473.377	54.972
	1500.00	133.071	304.636	205.269	-1729.148	149.050	-2186.102	-1862.921	-1445.540	50.338
	1600.00	134.131	313.258	211.752	-1715.788	162.410	-2217.001	-1862.873	-1417.718	46.284
	1700.00	135.174	321.421	217.965	-1702.323	175.875	-2248.738	-1863.186	-1389.889	42.706
	1800.00	136.204	329.176	223.930	-1688.754	189.444	-2281.272	-1863.885	-1362.029	39.525
	1900.00	137.223	336.568	229.665	-1675.082	203.116	-2314.562	-1864.990	-1334.120	36.678
	2000.00	138.234	343.632	235.188	-1661.310	216.888	-2348.574	-1903.709	-1304.910	34.081

References

Phase	H / S	C_p
SOL	Nb1	Pa1

24.305 MAGNESIUM **Mg**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	24.900	32.677	32.677	0.000	0.000	−9.743	0.000	0.000	0.000
	300.00	24.922	32.831	32.677	0.046	0.046	−9.803	0.000	0.000	0.000
	400.00	26.100	40.162	33.669	2.597	2.597	−13.468	0.000	0.000	0.000
	500.00	27.278	46.113	35.580	5.266	5.266	−17.790	0.000	0.000	0.000
	600.00	28.455	51.190	37.769	8.053	8.053	−22.661	0.000	0.000	0.000
	700.00	29.633	55.665	40.012	10.957	10.957	−28.008	0.000	0.000	0.000
	800.00	30.811	59.699	42.224	13.979	13.979	−33.780	0.000	0.000	0.000
	900.00	31.989	63.396	44.374	17.119	17.119	−39.937	0.000	0.000	0.000
	922.00	32.248	64.171	44.837	17.826	17.826	−41.340	0.000	0.000	0.000
			9.711		8.954					
LIQ	922.00	32.635	73.883	44.837	26.780	26.780	−41.340	0.000	0.000	0.000
	1000.00	32.635	76.533	47.208	29.325	29.325	−47.208	0.000	0.000	0.000
	1100.00	32.635	79.644	50.017	32.589	32.589	−55.019	0.000	0.000	0.000
	1200.00	32.635	82.483	52.606	35.853	35.853	−63.127	0.000	0.000	0.000
	1300.00	32.635	85.095	55.006	39.116	39.116	−71.508	0.000	0.000	0.000
	1361.00	32.635	86.592	56.389	41.107	41.107	−76.745	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL	Hu1	Hu1		
LIQ	Hu1	Hu1	Hu1	BPT= 1361., L= 127.4 kJ

Mg[g] MAGNESIUM (GAS) 24.305

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	20.786	148.646	148.646	146.440	0.000	102.121	146.440	111.864	−19.598
	300.00	20.786	148.774	148.646	146.478	0.038	101.846	146.432	111.649	−19.440
	400.00	20.786	154.754	149.461	148.557	2.117	86.655	145.960	100.123	−13.075
	500.00	20.786	159.392	151.001	150.636	4.196	70.940	145.370	88.730	−9.270
	600.00	20.786	163.182	152.725	152.714	6.274	54.805	144.662	77.466	−6.744
	700.00	20.786	166.386	154.453	154.793	8.353	38.323	143.836	66.331	−4.950
	800.00	20.786	169.162	156.122	156.872	10.432	21.542	142.892	55.322	−3.612
	900.00	20.786	171.610	157.710	158.950	12.510	4.501	141.831	44.438	−2.579
	1000.00	20.786	173.800	159.211	161.029	14.589	−12.771	131.703	34.436	−1.799
	1100.00	20.786	175.781	160.629	163.107	16.667	−30.252	130.518	24.767	−1.176
	1200.00	20.786	177.590	161.968	165.186	18.746	−47.922	129.333	15.205	−0.662
	1300.00	20.786	179.254	163.235	167.265	20.825	−65.765	128.149	5.743	−0.231
	1400.00	20.786	180.794	164.435	169.343	22.903	−83.768	0.000	0.000	0.000
	1500.00	20.786	182.228	165.574	171.422	24.982	−101.920	0.000	0.000	0.000
	1600.00	20.786	183.570	166.657	173.500	27.060	−120.211	0.000	0.000	0.000
	1700.00	20.786	184.830	167.689	175.579	29.139	−138.632	0.000	0.000	0.000
	1800.00	20.786	186.018	168.675	177.658	31.218	−157.175	0.000	0.000	0.000
	1900.00	20.786	187.142	169.617	179.736	33.296	−175.833	0.000	0.000	0.000
	2000.00	20.786	188.208	170.521	181.815	35.375	−194.601	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

Mg3(AsO4)2 MAGNESIUM ARSENATE 350.753

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	236.313	225.099	225.099	−3059.759	0.000	−3126.872	−3059.759	−2831.694	496.101
	300.00	237.195	226.564	225.104	−3059.321	0.438	−3127.290	−3059.768	−2830.279	492.795
	400.00	270.079	299.870	234.875	−3033.761	25.998	−3153.709	−3058.759	−2753.867	359.618
	500.00	288.215	362.242	254.276	−3005.776	53.983	−3186.897	−3056.149	−2677.926	279.761
	600.00	300.545	415.937	276.850	−2976.306	83.453	−3225.869	−3052.923	−2602.578	226.575
	700.00	310.134	463.011	300.151	−2945.756	114.003	−3269.864	−3049.460	−2527.793	188.626
	800.00	318.263	504.967	323.177	−2914.328	145.431	−3318.301	−3045.910	−2453.511	160.198
	900.00	325.542	542.879	345.516	−2882.132	177.627	−3370.723	−3042.321	−2379.676	138.113
	1000.00	332.293	577.532	367.009	−2849.237	210.522	−3426.768	−3065.511	−2303.970	120.347
	1100.00	338.700	609.505	387.620	−2815.685	244.074	−3486.141	−3061.461	−2228.009	105.799
	1200.00	344.872	639.242	407.363	−2781.504	278.255	−3548.595	−3057.169	−2152.430	93.693
	1225.00	346.388	646.369	412.168	−2772.864	286.895	−3564.665	−3056.094	−2133.592	90.977

References

Phase	H / S	C_p
SOL	G1	G1

45.927

MAGNESIUM DIBORIDE **MgB2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	47.981	35.982	35.982	−92.048	0.000	−102.776	−92.048	−89.557	15.690
	300.00	48.128	36.280	35.983	−91.959	0.089	−102.843	−92.047	−89.542	15.591
	400.00	54.104	51.020	37.953	−86.821	5.227	−107.229	−92.190	−88.696	11.582
	500.00	58.091	63.543	41.850	−81.202	10.846	−112.973	−92.700	−87.770	9.169
	600.00	61.295	74.425	46.392	−75.228	16.820	−119.883	−93.475	−86.714	7.549
	700.00	64.128	84.090	51.099	−68.955	23.093	−127.818	−94.416	−85.515	6.381
	800.00	66.765	92.827	55.778	−62.409	29.639	−136.670	−95.458	−84.173	5.496
	900.00	69.287	100.837	60.345	−55.606	36.442	−146.359	−96.559	−82.697	4.800
	1000.00	71.738	108.264	64.770	−48.554	43.494	−156.818	−106.639	−80.338	4.196
	1100.00	74.143	115.215	69.043	−41.259	50.789	−167.996	−107.668	−77.658	3.688
	1200.00	76.516	121.768	73.167	−33.726	58.322	−179.848	−108.576	−74.888	3.260
	1300.00	78.867	127.985	77.146	−25.957	66.091	−192.338	−109.353	−72.049	2.895
	1320.00	79.335	129.193	77.926	−24.375	67.673	−194.910	−109.492	−71.474	2.828

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	DPT= 1320.

67.549

MAGNESIUM TETRABORIDE **MgB4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	70.439	51.923	51.923	−105.018	0.000	−120.499	−105.018	−103.803	18.186
	300.00	70.604	52.360	51.925	−104.888	0.130	−120.595	−105.018	−103.796	18.072
	400.00	79.468	73.903	54.802	−97.378	7.640	−126.939	−105.518	−103.340	13.495
	500.00	87.166	92.485	60.521	−89.036	15.982	−135.278	−106.767	−102.662	10.725
	600.00	93.916	108.985	67.248	−79.976	25.042	−145.367	−108.416	−101.691	8.853
	700.00	100.072	123.931	74.294	−70.272	34.746	−157.024	−110.237	−100.427	7.494
	800.00	105.771	137.670	81.368	−59.976	45.042	−170.113	−112.096	−98.898	6.457
	900.00	111.011	150.436	88.342	−49.133	55.885	−184.525	−113.922	−97.139	5.638
	1000.00	115.704	162.380	95.155	−37.792	67.226	−200.173	−124.637	−94.421	4.932
	1100.00	119.720	173.602	101.781	−26.015	79.003	−216.977	−126.243	−91.320	4.336

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	DPT= 1100.

MgBr[g] MAGNESIUM MONOBROMIDE (GAS) 104.209

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	35.619	244.957	244.957	-35.146	0.000	-108.180	-35.146	-75.747	13.270
	300.00	35.643	245.178	244.958	-35.080	0.066	-108.633	-35.196	-75.998	13.233
	400.00	36.500	255.565	246.368	-31.467	3.679	-133.693	-51.375	-86.317	11.272
	500.00	36.926	263.760	249.056	-27.794	7.352	-159.674	-52.217	-94.957	9.920
	600.00	37.182	270.517	252.086	-24.088	11.058	-186.398	-53.157	-103.419	9.003
	700.00	37.358	276.263	255.140	-20.360	14.786	-213.744	-54.201	-111.715	8.336
	800.00	37.491	281.260	258.099	-16.617	18.529	-241.625	-55.355	-119.854	7.826
	900.00	37.599	285.682	260.923	-12.863	22.283	-269.977	-56.619	-127.841	7.420
	1000.00	37.692	289.649	263.601	-9.098	26.048	-298.747	-66.943	-134.925	7.048
	1100.00	37.774	293.245	266.135	-5.325	29.821	-327.894	-68.320	-141.656	6.727
	1200.00	37.850	296.535	268.533	-1.544	33.602	-357.386	-69.692	-148.262	6.454
	1300.00	37.921	299.567	270.805	2.245	37.391	-387.193	-71.059	-154.754	6.218
	1400.00	37.988	302.380	272.961	6.041	41.187	-417.292	-199.387	-157.513	5.877
	1500.00	38.053	305.003	275.011	9.843	44.989	-447.662	-199.562	-154.516	5.381
	1600.00	38.116	307.461	276.963	13.651	48.797	-478.287	-199.733	-151.507	4.946
	1700.00	38.177	309.774	278.826	17.466	52.612	-509.150	-199.901	-148.488	4.562
	1800.00	38.238	311.958	280.606	21.287	56.433	-540.237	-200.065	-145.459	4.221
	1900.00	38.297	314.027	282.311	25.113	60.259	-571.537	-200.226	-142.421	3.915
	2000.00	38.355	315.993	283.947	28.946	64.092	-603.039	-200.384	-139.374	3.640

References

Phase	H / S	C_p
GAS	Ja1	Ja1

184.113 MAGNESIUM BROMIDE **MgBr2**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	73.164	117.152	117.152	-524.255	0.000	-559.184	-524.255	-504.060	88.309
	300.00	73.250	117.605	117.153	-524.120	0.135	-559.401	-524.306	-503.934	87.743
	400.00	77.280	139.269	120.080	-516.579	7.676	-572.287	-553.798	-491.003	64.118
	500.00	79.740	156.800	125.727	-508.718	15.537	-587.118	-552.298	-475.475	49.673
	600.00	81.436	171.495	132.163	-500.656	23.599	-603.553	-550.741	-460.256	40.069
	700.00	82.961	184.162	138.707	-492.436	31.819	-621.350	-549.161	-445.300	33.229
	800.00	84.557	195.343	145.101	-484.061	40.194	-640.336	-547.556	-430.572	28.113
	900.00	86.267	205.400	151.252	-475.521	48.734	-660.381	-545.913	-416.047	24.147
	984.00	87.744	213.163	156.209	-468.213	56.042	-677.965	-553.451	-403.388	21.413
			39.970		39.330					
LIQ	984.00	104.600	253.133	156.209	-428.883	95.372	-677.965	-514.121	-403.388	21.413
	1000.00	104.600	254.820	157.774	-427.209	97.046	-682.029	-513.573	-401.592	20.977
	1100.00	104.600	264.789	167.056	-416.749	107.506	-708.017	-510.149	-390.560	18.546
	1200.00	104.600	273.891	175.585	-406.289	117.966	-734.958	-506.732	-379.839	16.534
	1300.00	104.600	282.263	183.474	-395.829	128.426	-762.771	-503.322	-369.403	14.843
	1400.00	104.600	290.015	190.810	-385.369	138.886	-791.389	-626.880	-355.600	13.268
	1429.00	104.600	292.159	192.845	-382.336	141.919	-799.831	-625.550	-349.995	12.793

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	BPT= 1429., L= 149.0 kJ, GAS (MgBr2)

MgBr2[g] MAGNESIUM BROMIDE (GAS) 184.113

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[-]
GAS	298.15	58.710	300.939	300.939	-302.922	0.000	-392.647	-302.922	-337.523	59.133
	300.00	58.746	301.302	300.940	-302.813	0.109	-393.204	-302.999	-337.737	58.805
	400.00	60.137	318.416	303.264	-296.861	6.061	-424.228	-334.080	-342.943	44.784
	500.00	60.869	331.922	307.692	-290.807	12.115	-456.768	-334.388	-345.125	36.055
	600.00	61.296	343.061	312.686	-284.697	18.225	-490.534	-334.783	-347.237	30.230
	700.00	61.565	352.531	317.719	-278.553	24.369	-525.325	-335.278	-349.275	26.063
	800.00	61.745	360.764	322.596	-272.387	30.535	-560.999	-335.882	-351.235	22.933
	900.00	61.871	368.045	327.249	-266.206	36.716	-597.446	-336.598	-353.112	20.494
	1000.00	61.962	374.568	331.661	-260.014	42.908	-634.583	-346.378	-354.146	18.499
	1100.00	62.030	380.477	335.834	-253.814	49.108	-672.339	-347.215	-354.882	16.852
	1200.00	62.082	385.877	339.783	-247.609	55.313	-710.661	-348.052	-355.542	15.476
	1300.00	62.123	390.848	343.522	-241.398	61.524	-749.501	-348.891	-356.132	14.310
	1400.00	62.155	395.453	347.069	-235.184	67.738	-788.818	-476.696	-353.029	13.172
	1500.00	62.181	399.742	350.439	-228.968	73.954	-828.581	-476.355	-344.208	11.986
	1600.00	62.202	403.756	353.647	-222.748	80.174	-868.758	-476.017	-335.409	10.950
	1700.00	62.219	407.527	356.707	-216.527	86.395	-909.324	-475.682	-326.631	10.036
	1800.00	62.233	411.084	359.630	-210.305	92.617	-950.256	-475.351	-317.873	9.224
	1900.00	62.245	414.449	362.427	-204.081	98.841	-991.534	-475.024	-309.134	8.499
	2000.00	62.254	417.642	365.109	-197.856	105.066	-1033.140	-474.700	-300.411	7.846

References

Phase	H / S	C_p
GAS	Ja1	Ja1

368.226 DIMAGNESIUM TETRABROMIDE (GAS) **Mg2Br4[g]**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	129.004	461.186	461.186	-767.764	0.000	-905.267	-767.764	-795.019	139.284
	300.00	129.053	461.984	461.189	-767.525	0.239	-906.121	-767.897	-795.187	138.454
	400.00	130.778	499.382	466.276	-754.521	13.243	-954.274	-828.960	-791.706	103.386
	500.00	131.578	528.661	475.931	-741.399	26.365	-1005.729	-828.560	-782.443	81.741
	600.00	132.014	552.692	486.782	-728.218	39.546	-1059.833	-828.388	-773.240	67.317
	700.00	132.277	573.064	497.689	-715.002	52.762	-1116.147	-828.452	-764.047	57.014
	800.00	132.449	590.739	508.240	-701.765	65.999	-1174.356	-828.755	-754.828	49.285
	900.00	132.568	606.346	518.291	-688.514	79.250	-1234.226	-829.298	-745.558	43.271
	1000.00	132.653	620.318	527.807	-675.253	92.511	-1295.571	-847.981	-734.698	38.377
	1100.00	132.717	632.965	536.801	-661.984	105.780	-1358.245	-848.785	-723.330	34.348
	1200.00	132.766	644.515	545.303	-648.710	119.054	-1422.127	-849.597	-711.890	30.988
	1300.00	132.805	655.143	553.349	-635.431	132.333	-1487.117	-850.416	-700.381	28.142
	1400.00	132.836	664.986	560.976	-622.149	145.615	-1553.130	-1105.172	-681.552	25.429
	1500.00	132.862	674.152	568.219	-608.864	158.900	-1620.092	-1103.638	-651.347	22.682
	1600.00	132.883	682.727	575.110	-595.577	172.187	-1687.941	-1102.113	-621.244	20.282
	1700.00	132.902	690.784	581.680	-582.287	185.477	-1756.620	-1100.596	-591.236	18.166
	1800.00	132.917	698.381	587.955	-568.996	198.768	-1826.082	-1099.089	-561.317	16.289
	1900.00	132.931	705.568	593.957	-555.704	212.060	-1896.283	-1097.589	-531.482	14.611
	2000.00	132.943	712.387	599.710	-542.410	225.354	-1967.183	-1096.099	-501.725	13.104

References

Phase	H / S	C_p
GAS	Ja1	Ja1

MgC2 MAGNESIUM DICARBIDE 48.327

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	56.235	54.392	54.392	87.864	0.000	71.647	87.864	84.813	−14.859
	300.00	56.455	54.741	54.393	87.968	0.104	71.546	87.891	84.794	−14.764
	400.00	64.401	72.220	56.722	94.063	6.199	65.175	89.360	83.540	−10.909
	500.00	68.425	87.065	61.347	100.723	12.859	57.191	90.689	81.926	−8.559
	600.00	70.905	99.775	66.718	107.698	19.834	47.833	91.717	80.071	−6.971
	700.00	72.657	110.843	72.248	114.881	27.017	37.290	92.439	78.069	−5.826
	800.00	74.019	120.637	77.697	122.217	34.353	25.707	92.905	75.982	−4.961
	900.00	75.156	129.423	82.964	129.677	41.813	13.196	93.159	73.850	−4.286
	1000.00	76.153	137.394	88.015	137.243	49.379	−0.151	84.281	72.456	−3.785
	1100.00	77.058	144.695	92.840	144.905	57.041	−14.260	84.301	71.273	−3.384
	1200.00	77.901	151.437	97.446	152.653	64.789	−29.071	84.294	70.088	−3.051
	1300.00	78.699	157.704	101.843	160.483	72.619	−44.532	84.278	68.905	−2.769
	1400.00	79.466	163.564	106.045	168.392	80.528	−60.598	−42.699	71.352	−2.662
	1500.00	80.209	169.072	110.065	176.376	88.512	−77.233	−41.512	79.457	−2.767
	1600.00	80.934	174.272	113.917	184.433	96.569	−94.403	−40.302	87.482	−2.856
	1700.00	81.646	179.200	117.613	192.562	104.698	−112.078	−39.059	95.431	−2.932
	1800.00	82.346	183.887	121.166	200.762	112.898	−130.235	−37.779	103.305	−2.998
	1900.00	83.038	188.358	124.586	209.031	121.167	−148.849	−36.457	111.108	−3.055
	2000.00	83.723	192.634	127.882	217.369	129.505	−167.900	−35.092	118.839	−3.104
	2100.00	84.402	196.736	131.064	225.775	137.911	−187.370	−33.683	126.501	−3.147
	2200.00	85.077	200.678	134.139	234.249	146.385	−207.241	−32.227	134.095	−3.184
	2300.00	85.747	204.474	137.115	242.791	154.927	−227.500	−30.723	141.622	−3.216
	2400.00	86.415	208.138	139.998	251.399	163.535	−248.132	−29.169	149.082	−3.245
	2500.00	87.080	211.679	142.795	260.073	172.209	−269.124	−27.564	156.476	−3.269

References

Phase	H / S	C_p
SOL	A1	A1

84.643 DIMAGNESIUM TRICARBIDE **Mg2C3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	93.789	100.416	100.416	79.496	0.000	49.557	79.496	74.177	−12.995
	300.00	94.155	100.997	100.418	79.670	0.174	49.371	79.530	74.144	−12.910
	400.00	107.389	130.147	104.302	89.834	10.338	37.775	81.481	72.057	−9.410
	500.00	114.089	154.900	112.014	100.939	21.443	23.489	83.255	69.487	−7.259
	600.00	118.218	176.091	120.970	112.568	33.072	6.914	84.570	66.602	−5.798
	700.00	121.133	194.544	130.191	124.543	45.047	−11.638	85.402	63.535	−4.741
	800.00	123.401	210.873	139.276	136.774	57.278	−31.925	85.816	60.378	−3.942
	900.00	125.293	225.520	148.059	149.211	69.715	−53.757	85.875	57.192	−3.319
	1000.00	126.951	238.808	156.479	161.825	82.329	−76.983	67.719	55.531	−2.901
	1100.00	128.456	250.979	164.525	174.596	95.100	−101.481	67.396	54.328	−2.580
	1200.00	129.858	262.217	172.203	187.512	108.016	−127.148	67.049	53.155	−2.314
	1300.00	131.186	272.664	179.534	200.565	121.069	−153.898	66.699	52.012	−2.090
	1400.00	132.461	282.433	186.539	213.748	134.252	−181.658	−187.559	58.151	−2.170
	1500.00	133.696	291.614	193.241	227.056	147.560	−210.365	−185.487	75.630	−2.634
	1600.00	134.902	300.281	199.662	240.486	160.990	−239.964	−183.366	92.969	−3.035
	1700.00	136.085	308.495	205.825	254.036	174.540	−270.406	−181.185	110.173	−3.385
	1800.00	137.250	316.307	211.748	267.703	188.207	−301.650	−178.937	127.248	−3.693
	1900.00	138.400	323.758	217.448	281.485	201.989	−333.656	−176.615	144.195	−3.964
	2000.00	139.538	330.886	222.943	295.382	215.886	−366.391	−174.217	161.018	−4.205
	2100.00	140.668	337.722	228.247	309.392	229.896	−399.823	−171.742	177.719	−4.421
	2200.00	141.789	344.292	233.374	323.515	244.019	−433.926	−169.186	194.301	−4.613
	2300.00	142.904	350.619	238.335	337.750	258.254	−468.673	−166.546	210.764	−4.787
	2400.00	144.014	356.724	243.141	352.096	272.600	−504.042	−163.820	227.111	−4.943
	2500.00	145.119	362.626	247.803	366.553	287.057	−540.012	−161.008	243.342	−5.084

References

Phase	H / S	C_p
SOL	Ja1	A1

84.314 MAGNESIUM CARBONATE **MgCO3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	75.520	65.701	65.701	−1095.798	0.000	−1115.387	−1095.798	−1012.186	177.331
	300.00	75.868	66.170	65.703	−1095.658	0.140	−1115.509	−1095.801	−1011.667	176.147
	400.00	90.102	90.119	68.872	−1087.299	8.499	−1123.347	−1095.487	−983.646	128.451
	500.00	99.793	111.315	75.284	−1077.783	18.015	−1133.440	−1094.559	−955.784	99.850
	600.00	107.694	130.225	82.893	−1067.399	28.399	−1145.534	−1093.281	−928.144	80.802
	700.00	114.750	147.364	90.897	−1056.271	39.527	−1159.426	−1091.719	−900.741	67.214

References

Phase	H / S	C_p
SOL	Nb1	Ku1

MgCl[g] MAGNESIUM MONOCHLORIDE 59.758

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	34.777	233.409	233.409	−43.514	0.000	−113.105	−43.514	−70.101	12.281
	300.00	34.811	233.625	233.410	−43.450	0.064	−113.537	−43.527	−70.266	12.234
	400.00	36.013	243.827	234.793	−39.900	3.614	−137.431	−44.262	−79.070	10.325
	500.00	36.597	251.933	237.438	−36.267	7.247	−162.233	−45.083	−87.679	9.160
	600.00	36.939	258.638	240.429	−32.589	10.925	−187.771	−46.009	−96.113	8.367
	700.00	37.166	264.350	243.448	−28.883	14.631	−213.928	−47.046	−104.383	7.789
	800.00	37.332	269.324	246.379	−25.157	18.357	−240.617	−48.196	−112.497	7.345
	900.00	37.462	273.729	249.177	−21.418	22.096	−267.774	−49.459	−120.460	6.991
	1000.00	37.570	277.682	251.834	−17.666	25.848	−295.348	−59.784	−127.519	6.661
	1100.00	37.664	281.267	254.349	−13.904	29.610	−323.298	−61.162	−134.226	6.374
	1200.00	37.748	284.548	256.731	−10.133	33.381	−351.591	−62.537	−140.807	6.129
	1300.00	37.825	287.573	258.988	−6.355	37.159	−380.199	−63.908	−147.274	5.918
	1400.00	37.897	290.378	261.132	−2.568	40.946	−409.098	−192.240	−150.007	5.597
	1500.00	37.965	292.995	263.170	1.225	44.739	−438.268	−192.420	−146.984	5.118
	1600.00	38.031	295.448	265.111	5.024	48.538	−467.692	−192.597	−143.949	4.699
	1700.00	38.094	297.755	266.964	8.831	52.345	−497.353	−192.771	−140.903	4.329
	1800.00	38.155	299.934	268.736	12.643	56.157	−527.238	−192.942	−137.847	4.000
	1900.00	38.216	301.999	270.433	16.462	59.976	−557.336	−193.111	−134.782	3.705
	2000.00	38.275	303.961	272.060	20.286	63.800	−587.635	−193.277	−131.707	3.440
	2100.00	38.333	305.829	273.624	24.117	67.631	−618.125	−193.442	−128.625	3.199
	2200.00	38.390	307.614	275.129	27.953	71.467	−648.798	−193.604	−125.534	2.981
	2300.00	38.447	309.322	276.579	31.795	75.309	−679.645	−193.765	−122.437	2.781
	2400.00	38.504	310.959	277.977	35.642	79.156	−710.660	−193.925	−119.332	2.597
	2500.00	38.560	312.532	279.328	39.495	83.009	−741.835	−194.083	−116.221	2.428
	2600.00	38.615	314.046	280.635	43.354	86.868	−773.164	−194.240	−113.103	2.272
	2700.00	38.670	315.504	281.899	47.218	90.732	−804.642	−194.396	−109.980	2.128
	2800.00	38.725	316.911	283.125	51.088	94.602	−836.263	−194.552	−106.850	1.993
	2900.00	38.780	318.271	284.313	54.964	98.478	−868.023	−194.707	−103.715	1.868
	3000.00	38.835	319.587	285.467	58.844	102.358	−899.916	−194.862	−100.575	1.751

References

Phase	H / S	C_p
GAS	Ja1	Ja1

95.210 MAGNESIUM CHLORIDE **MgCl2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	71.383	89.630	89.630	−641.616	0.000	−668.339	−641.616	−592.074	103.729
	300.00	71.493	90.071	89.631	−641.484	0.132	−668.505	−641.593	−591.767	103.036
	400.00	75.709	111.283	92.494	−634.100	7.516	−678.614	−640.228	−575.359	75.134
	500.00	78.148	128.459	98.025	−626.399	15.217	−690.628	−638.766	−559.310	58.431
	600.00	79.865	142.866	104.330	−618.494	23.122	−704.214	−637.283	−543.559	47.321
	700.00	81.262	155.284	110.742	−610.436	31.180	−719.135	−635.806	−528.055	39.404
	800.00	82.545	166.220	117.007	−602.246	39.370	−735.221	−634.343	−512.762	33.480
	900.00	83.849	176.017	123.028	−593.927	47.689	−752.342	−632.890	−497.651	28.883
	987.00	85.079	183.809	128.047	−586.579	55.037	−767.998	−640.578	−484.006	25.615
			43.663		43.095					
LIQ	987.00	92.048	227.471	128.047	−543.484	98.132	−767.998	−597.483	−484.006	25.615
	1000.00	92.048	228.676	129.347	−542.288	99.328	−770.963	−597.198	−482.513	25.204
	1100.00	92.048	237.449	138.782	−533.083	108.533	−794.276	−595.010	−471.151	22.373
	1200.00	92.048	245.458	147.343	−523.878	117.738	−818.428	−592.833	−459.987	20.023
	1300.00	92.048	252.826	155.177	−514.673	126.943	−843.347	−590.665	−449.004	18.041
	1400.00	92.048	259.647	162.399	−505.468	136.148	−868.975	−715.468	−434.560	16.214
	1500.00	92.048	265.998	169.096	−496.264	145.352	−895.261	−712.131	−414.612	14.438
	1600.00	92.048	271.939	175.340	−487.059	154.557	−922.161	−708.801	−394.886	12.892
	1700.00	92.048	277.519	181.188	−477.854	163.762	−949.636	−705.478	−375.368	11.534
	1708.00	92.048	277.951	181.641	−477.118	164.498	−951.858	−705.212	−373.815	11.432

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	BPT= 1708., L= 156.2 kJ

MgCl2[g] MAGNESIUM CHLORIDE (GAS) 95.210

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	57.098	279.768	279.768	-392.459	0.000	-475.872	-392.459	-399.607	70.009
	300.00	57.147	280.121	279.769	-392.353	0.106	-476.390	-392.462	-399.651	69.585
	400.00	59.063	296.853	282.037	-386.533	5.926	-505.274	-392.660	-402.019	52.498
	500.00	60.119	310.157	286.376	-380.569	11.890	-535.647	-392.936	-404.329	42.240
	600.00	60.748	321.178	291.284	-374.523	17.936	-567.230	-393.312	-406.574	35.395
	700.00	61.150	330.574	296.243	-368.427	24.032	-599.829	-393.797	-408.748	30.501
	800.00	61.421	338.759	301.057	-362.297	30.162	-633.304	-394.395	-410.845	26.825
	900.00	61.612	346.005	305.656	-356.145	36.314	-667.549	-395.108	-412.859	23.962
	1000.00	61.751	352.504	310.021	-349.977	42.482	-702.480	-404.887	-414.030	21.627
	1100.00	61.855	358.394	314.155	-343.796	48.663	-738.030	-405.724	-414.904	19.702
	1200.00	61.935	363.780	318.070	-337.606	54.853	-774.142	-406.562	-415.702	18.095
	1300.00	61.997	368.740	321.779	-331.410	61.049	-810.772	-407.401	-416.429	16.732
	1400.00	62.046	373.336	325.300	-325.207	67.252	-847.878	-535.207	-413.464	15.427
	1500.00	62.086	377.618	328.646	-319.001	73.458	-885.428	-534.868	-404.780	14.096
	1600.00	62.118	381.626	331.834	-312.791	79.668	-923.393	-534.532	-396.118	12.932
	1700.00	62.145	385.393	334.875	-306.577	85.882	-961.746	-534.201	-387.477	11.906
	1800.00	62.167	388.946	337.781	-300.362	92.097	-1000.464	-533.874	-378.856	10.994
	1900.00	62.185	392.308	340.563	-294.144	98.315	-1039.529	-533.553	-370.253	10.179
	2000.00	62.200	395.498	343.231	-287.925	104.534	-1078.920	-533.237	-361.666	9.446

References

Phase	H / S	C_p
GAS	Ja1	Ja1

43.303 MAGNESIUM MONOFLUORIDE (GAS) **MgF[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	32.417	221.083	221.083	−236.814	0.000	−302.730	−236.814	−262.756	46.034
	300.00	32.472	221.284	221.084	−236.754	0.060	−303.139	−236.829	−262.917	45.778
	400.00	34.447	230.935	222.386	−233.394	3.420	−325.769	−237.627	−271.492	35.453
	500.00	35.407	238.736	224.902	−229.897	6.917	−349.265	−238.480	−279.861	29.237
	600.00	35.967	245.245	227.765	−226.326	10.488	−373.473	−239.433	−288.050	25.077
	700.00	36.338	250.818	230.669	−222.710	14.104	−398.283	−240.496	−296.070	22.093
	800.00	36.608	255.689	233.499	−219.062	17.752	−423.613	−241.673	−303.931	19.845
	900.00	36.820	260.014	236.209	−215.390	21.424	−449.402	−242.965	−311.637	18.087
	1000.00	36.995	263.902	238.787	−211.699	25.115	−475.601	−253.321	−318.435	16.633
	1100.00	37.147	267.436	241.234	−207.992	28.822	−502.171	−254.730	−324.878	15.427
	1200.00	37.282	270.674	243.554	−204.270	32.544	−529.079	−256.136	−331.193	14.416
	1300.00	37.406	273.663	245.756	−200.536	36.278	−556.297	−257.539	−337.390	13.557
	1400.00	37.522	276.439	247.850	−196.789	40.025	−583.804	−385.901	−339.852	12.680
	1500.00	37.632	279.032	249.843	−193.032	43.782	−611.579	−386.110	−336.555	11.720
	1600.00	37.737	281.464	251.744	−189.263	47.551	−639.605	−386.315	−333.245	10.879
	1700.00	37.838	283.754	253.561	−185.484	51.330	−667.867	−386.516	−329.922	10.137
	1800.00	37.937	285.920	255.299	−181.696	55.118	−696.352	−386.712	−326.587	9.477
	1900.00	38.033	287.974	256.965	−177.897	58.917	−725.047	−386.903	−323.242	8.887
	2000.00	38.128	289.927	258.565	−174.089	62.725	−753.943	−387.090	−319.886	8.355
	2100.00	38.221	291.790	260.103	−170.272	66.542	−783.030	−387.272	−316.522	7.873
	2200.00	38.313	293.570	261.584	−166.445	70.369	−812.298	−387.449	−313.148	7.435
	2300.00	38.404	295.275	263.012	−162.609	74.205	−841.741	−387.622	−309.767	7.035
	2400.00	38.494	296.911	264.390	−158.764	78.050	−871.351	−387.789	−306.379	6.668
	2500.00	38.583	298.484	265.723	−154.910	81.904	−901.121	−387.952	−302.983	6.330
	2600.00	38.672	299.999	267.012	−151.048	85.766	−931.046	−388.109	−299.581	6.019
	2700.00	38.760	301.461	268.261	−147.176	89.638	−961.119	−388.262	−296.173	5.730
	2800.00	38.848	302.872	269.472	−143.296	93.518	−991.336	−388.409	−292.760	5.462
	2900.00	38.936	304.236	270.648	−139.406	97.408	−1021.692	−388.552	−289.341	5.212
	3000.00	39.023	305.558	271.789	−135.508	101.306	−1052.182	−388.689	−285.918	4.978

References

Phase	H / S	C_p
GAS	Ja1	Ja1

MgF2 MAGNESIUM FLUORIDE 62.302

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	61.538	57.255	57.255	-1124.241	0.000	-1141.312	-1124.241	-1071.106	187.653
	300.00	61.697	57.636	57.256	-1124.127	0.114	-1141.418	-1124.231	-1070.776	186.439
	400.00	68.484	76.395	59.768	-1117.590	6.651	-1148.148	-1123.459	-1053.063	137.516
	500.00	72.635	92.159	64.713	-1110.518	13.723	-1156.597	-1122.419	-1035.581	108.186
	600.00	75.318	105.655	70.439	-1103.111	21.130	-1166.505	-1121.272	-1018.320	88.653
	700.00	77.179	117.413	76.328	-1095.481	28.760	-1177.671	-1120.096	-1001.255	74.715
	800.00	78.554	127.813	82.126	-1087.691	36.550	-1189.942	-1118.935	-984.357	64.272
	900.00	79.625	137.130	87.729	-1079.781	44.460	-1203.197	-1117.811	-967.602	56.158
	1000.00	80.497	145.566	93.098	-1071.773	52.468	-1217.339	-1125.690	-950.213	49.634
	1100.00	81.235	153.273	98.223	-1063.685	60.556	-1232.286	-1124.573	-932.719	44.291
	1200.00	81.879	160.370	103.110	-1055.529	68.712	-1247.973	-1123.408	-915.328	39.843
	1300.00	82.454	166.947	107.771	-1047.312	76.929	-1264.343	-1122.201	-898.037	36.084
	1400.00	82.978	173.077	112.219	-1039.040	85.201	-1281.347	-1247.919	-877.212	32.729
	1500.00	83.465	178.818	116.470	-1030.718	93.523	-1298.945	-1245.452	-850.818	29.628
	1536.00	83.632	180.800	117.954	-1027.710	96.531	-1305.419	-1244.556	-841.358	28.612
			38.217		58.702					
LIQ	1536.00	94.922	219.017	117.954	-969.008	155.233	-1305.419	-1185.854	-841.358	28.612
	1600.00	94.922	222.892	122.075	-962.933	161.308	-1319.560	-1183.536	-827.051	27.000
	1700.00	94.922	228.647	128.176	-953.441	170.800	-1342.140	-1179.924	-804.882	24.731
	1800.00	94.922	234.073	133.910	-943.948	180.293	-1365.279	-1176.323	-782.924	22.720
	1900.00	94.922	239.205	139.318	-934.456	189.785	-1388.945	-1172.732	-761.167	20.926
	2000.00	94.922	244.074	144.435	-924.964	199.277	-1413.111	-1169.151	-739.598	19.316
	2100.00	94.922	248.705	149.291	-915.472	208.769	-1437.752	-1165.579	-718.209	17.864
	2200.00	94.922	253.121	153.911	-905.979	218.262	-1462.845	-1162.016	-696.989	16.549
	2300.00	94.922	257.340	158.317	-896.487	227.754	-1488.369	-1158.462	-675.931	15.351
	2400.00	94.922	261.380	162.527	-886.995	237.246	-1514.307	-1154.916	-655.027	14.256
	2500.00	94.922	265.255	166.560	-877.503	246.738	-1540.640	-1151.377	-634.271	13.252
	2600.00	94.922	268.978	170.428	-868.010	256.231	-1567.353	-1147.847	-613.657	12.329

References

Phase	H / S	C_p	Remarks	
SOL	Ja2	Ja1		
LIQ	Ja2	Ja1	Ja2	BPT= 2536., L= 274.052 kJ

62.302 MAGNESIUM FLUORIDE (GAS) **MgF2**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	48.284	256.508	256.508	−726.761	0.000	−803.239	−726.761	−733.033	128.424
	300.00	48.353	256.807	256.509	−726.672	0.089	−803.714	−726.776	−733.072	127.639
	400.00	51.407	271.166	258.446	−721.673	5.088	−830.139	−727.542	−735.054	95.988
	500.00	53.344	282.862	262.196	−716.428	10.333	−857.859	−728.329	−736.843	76.977
	600.00	54.595	292.706	266.482	−711.027	15.734	−886.650	−729.187	−738.466	64.289
	700.00	55.449	301.190	270.849	−705.522	21.239	−916.355	−730.137	−739.939	55.215
	800.00	56.062	308.636	275.116	−699.945	26.816	−946.854	−731.188	−741.269	48.400
	900.00	56.423	315.260	279.215	−694.321	32.440	−978.055	−732.352	−742.460	43.091
	1000.00	56.782	321.224	283.123	−688.660	38.101	−1009.884	−742.578	−742.758	38.798
	1100.00	57.142	326.653	286.837	−682.964	43.797	−1042.282	−743.852	−742.714	35.269
	1200.00	57.215	331.627	290.365	−677.247	49.514	−1075.199	−745.126	−742.555	32.323
	1300.00	57.317	336.211	293.718	−671.520	55.241	−1108.594	−746.409	−742.288	29.826
	1400.00	57.422	340.462	296.907	−665.783	60.978	−1142.430	−874.662	−738.295	27.546
	1500.00	57.519	344.427	299.944	−660.036	66.725	−1176.677	−874.771	−728.550	25.370
	1600.00	57.604	348.142	302.842	−654.280	72.481	−1211.308	−874.883	−718.799	23.466
	1700.00	57.676	351.637	305.610	−648.516	78.245	−1246.298	−874.999	−709.040	21.786
	1800.00	57.736	354.935	308.260	−642.745	84.016	−1281.628	−875.120	−699.274	20.292
	1900.00	57.786	358.058	310.799	−636.969	89.792	−1317.280	−875.245	−689.501	18.956
	2000.00	57.826	361.023	313.237	−631.188	95.573	−1353.235	−875.376	−679.722	17.753
	2100.00	57.859	363.845	315.580	−625.404	101.357	−1389.479	−875.512	−669.936	16.664
	2200.00	57.887	366.538	317.836	−619.617	107.144	−1426.000	−875.653	−660.143	15.674
	2300.00	57.909	369.111	320.010	−613.827	112.934	−1462.783	−875.801	−650.344	14.770
	2400.00	57.929	371.576	322.107	−608.035	118.726	−1499.818	−875.955	−640.539	13.941
	2500.00	57.947	373.942	324.134	−602.241	124.520	−1537.095	−876.116	−630.726	13.178
	2600.00	57.964	376.215	326.093	−596.445	130.316	−1574.604	−876.282	−620.907	12.474
	2700.00	57.980	378.403	327.990	−590.648	136.113	−1612.335	−876.455	−611.082	11.822
	2800.00	57.998	380.511	329.829	−584.849	141.912	−1650.281	−876.633	−601.250	11.216
	2900.00	58.016	382.547	331.612	−579.049	147.712	−1688.435	−876.817	−591.412	10.652
	3000.00	58.037	384.514	333.343	−573.246	153.515	−1726.789	−877.006	−581.567	10.126

References

Phase	H / S	C_p
GAS	Ja2	Ja1

Mg2F4[g] DIMAGNESIUM TETRAFLUORIDE (GAS) 124.604

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	107.497	337.014	337.014	−1718.369	0.000	−1818.850	−1718.369	−1678.438	294.055
	300.00	107.732	337.680	337.016	−1718.170	0.199	−1819.474	−1718.378	−1678.190	292.199
	400.00	117.036	370.087	341.371	−1706.883	11.486	−1854.918	−1718.620	−1664.747	217.394
	500.00	122.153	396.805	349.867	−1694.900	23.469	−1893.302	−1718.701	−1651.270	172.507
	600.00	125.202	419.368	359.619	−1682.520	35.849	−1934.141	−1718.841	−1637.772	142.581
	700.00	127.150	438.825	369.577	−1669.895	48.474	−1977.073	−1719.126	−1624.240	121.202
	800.00	128.464	455.894	379.321	−1657.111	61.258	−2021.826	−1719.597	−1610.656	105.165
	900.00	129.389	471.082	388.689	−1644.215	74.154	−2068.189	−1720.277	−1596.999	92.687
	1000.00	130.064	484.751	397.623	−1631.241	87.128	−2115.992	−1739.076	−1581.740	82.622
	1100.00	130.570	497.172	406.117	−1618.208	100.161	−2165.098	−1739.983	−1565.962	74.361
	1200.00	130.957	508.551	414.186	−1605.131	113.238	−2215.392	−1740.889	−1550.102	67.474
	1300.00	131.261	519.045	421.853	−1592.020	126.349	−2266.778	−1741.798	−1534.167	61.644
	1400.00	131.502	528.782	429.148	−1578.881	139.488	−2319.176	−1996.639	−1510.904	56.373
	1500.00	131.696	537.861	436.096	−1565.721	152.648	−2372.513	−1995.190	−1476.259	51.408
	1600.00	131.854	546.366	442.725	−1552.543	165.826	−2426.729	−1993.750	−1441.711	47.067
	1700.00	131.984	554.364	449.059	−1539.351	179.018	−2481.769	−1992.318	−1407.252	43.240
	1800.00	132.092	561.911	455.121	−1526.147	192.222	−2537.586	−1990.896	−1372.877	39.840
	1900.00	132.182	569.055	460.931	−1512.933	205.436	−2594.138	−1989.485	−1338.582	36.800
	2000.00	132.258	575.837	466.508	−1499.711	218.658	−2651.385	−1988.086	−1304.360	34.066

References

Phase	H / S	C_p
GAS	Ja2	Ja1

MgH2 MAGNESIUM HYDRIDE 26.321

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	35.327	31.087	31.087	−76.149	0.000	−85.418	−76.149	−36.713	6.432
	300.00	35.499	31.306	31.088	−76.083	0.066	−85.475	−76.183	−36.468	6.350
	400.00	43.283	42.643	32.581	−72.124	4.025	−89.181	−77.680	−22.987	3.002
	500.00	49.539	52.990	35.643	−67.476	8.673	−93.971	−78.624	−9.194	0.960
	600.00	55.192	62.528	39.339	−62.236	13.913	−99.752	−79.099	4.744	−0.413

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	NDPT= 560.

151.209 MAGNESIUM MONOIODIDE (GAS) **MgI[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	36.606	272.237	272.237	24.686	0.000	−56.481	24.686	−29.425	5.155
	300.00	36.627	272.463	272.237	24.754	0.068	−56.985	24.657	−29.761	5.182
	400.00	37.431	283.123	273.685	28.461	3.775	−84.788	14.994	−47.378	6.187
	500.00	37.915	291.530	276.443	32.230	7.544	−113.536	−8.003	−60.733	6.345
	600.00	38.273	298.476	279.553	36.040	11.354	−143.046	−8.855	−71.201	6.199
	700.00	38.571	304.399	282.690	39.882	15.196	−173.197	−9.798	−81.519	6.083
	800.00	38.837	309.567	285.733	43.753	19.067	−203.901	−10.836	−91.695	5.987
	900.00	39.085	314.156	288.641	47.649	22.963	−235.091	−11.970	−101.735	5.905
	1000.00	39.322	318.286	291.402	51.570	26.884	−266.716	−22.149	−110.886	5.792
	1100.00	39.551	322.045	294.020	55.513	30.827	−298.736	−23.367	−119.700	5.684
	1200.00	39.775	325.496	296.501	59.480	34.794	−331.115	−24.564	−128.405	5.589
	1300.00	39.995	328.688	298.856	63.468	38.782	−363.826	−25.743	−137.011	5.505
	1400.00	40.213	331.660	301.094	67.479	42.793	−396.845	−153.867	−141.897	5.294
	1500.00	40.429	334.442	303.225	71.511	46.825	−430.152	−153.823	−141.044	4.912
	1600.00	40.643	337.058	305.259	75.564	50.878	−463.728	−153.761	−140.194	4.577
	1700.00	40.856	339.528	307.203	79.639	54.953	−497.559	−153.681	−139.348	4.282
	1800.00	41.069	341.870	309.064	83.736	59.050	−531.630	−153.582	−138.508	4.019
	1900.00	41.280	344.096	310.850	87.853	63.167	−565.929	−153.466	−137.673	3.785
	2000.00	41.491	346.218	312.566	91.992	67.306	−600.445	−153.331	−136.846	3.574

References

Phase	H / S	C_p
GAS	Ja1	Ja1

MgI2 MAGNESIUM IODIDE 278.114

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	74.849	129.704	129.704	−366.937	0.000	−405.608	−366.937	−361.238	63.287
	300.00	74.936	130.167	129.705	−366.798	0.139	−405.849	−366.945	−361.202	62.891
	400.00	78.413	152.244	132.692	−359.116	7.821	−420.014	−383.453	−358.660	46.836
	500.00	80.918	170.020	138.437	−351.145	15.792	−436.155	−426.345	−348.341	36.391
	600.00	83.015	184.966	144.979	−342.944	23.993	−453.924	−424.681	−332.895	28.981
	700.00	84.737	197.896	151.635	−334.555	32.382	−473.082	−422.959	−317.733	23.710
	800.00	86.260	209.312	158.145	−326.004	40.933	−493.453	−421.202	−302.821	19.772
	900.00	87.666	219.554	164.409	−317.306	49.631	−514.905	−419.425	−288.130	16.723
	907.00	87.761	220.234	164.837	−316.693	50.244	−516.444	−419.300	−287.109	16.535
			32.291		29.288					
LIQ	907.00	100.416	252.525	164.837	−287.405	79.532	−516.444	−390.012	−287.109	16.535
	1000.00	100.416	262.327	173.455	−278.066	88.871	−540.392	−396.178	−275.939	14.414
	1100.00	100.416	271.897	181.977	−268.024	98.913	−567.111	−393.195	−264.059	12.539
	1200.00	100.416	280.635	189.839	−257.983	108.954	−594.744	−390.218	−252.451	10.989

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja2	BPT= 1254., L= 151.151 kJ

278.114 MAGNESIUM IODIDE (GAS) **MgI2[g]**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	59.622	317.466	317.466	-160.247	0.000	-254.899	-160.247	-210.529	36.884
	300.00	59.650	317.835	317.467	-160.137	0.110	-255.487	-160.284	-210.841	36.711
	400.00	60.722	335.161	319.822	-154.112	6.135	-288.176	-178.448	-226.822	29.620
	500.00	61.270	348.775	324.300	-148.009	12.238	-322.397	-223.208	-234.583	24.507
	600.00	61.586	359.976	329.340	-141.865	18.382	-357.851	-223.602	-236.822	20.617
	700.00	61.783	369.486	334.413	-135.696	24.551	-394.336	-224.100	-238.988	17.833
	800.00	61.914	377.745	339.324	-129.511	30.736	-431.707	-224.709	-241.074	15.741
	900.00	62.006	385.043	344.007	-123.314	36.933	-469.853	-225.433	-243.078	14.108
	1000.00	62.072	391.580	348.443	-117.110	43.137	-508.690	-235.223	-244.236	12.758
	1100.00	62.122	397.498	352.638	-110.900	49.347	-548.148	-236.071	-245.097	11.639
	1200.00	62.159	402.905	356.605	-104.686	55.561	-588.172	-236.922	-245.880	10.703
	1300.00	62.189	407.882	360.360	-98.469	61.778	-628.715	-237.776	-246.592	9.908
	1400.00	62.212	412.491	363.921	-92.249	67.998	-669.737	-365.597	-243.609	9.089
	1500.00	62.231	416.784	367.304	-86.027	74.220	-711.203	-365.273	-234.907	8.180
	1600.00	62.246	420.801	370.523	-79.803	80.444	-753.084	-364.954	-226.226	7.386
	1700.00	62.259	424.575	373.593	-73.577	86.670	-795.355	-364.639	-217.566	6.685
	1800.00	62.269	428.134	376.525	-67.351	92.896	-837.992	-364.330	-208.923	6.063
	1900.00	62.278	431.501	379.331	-61.124	99.123	-880.975	-364.025	-200.298	5.507
	2000.00	62.285	434.695	382.020	-54.896	105.351	-924.286	-363.725	-191.688	5.006

References

Phase	H / S	C_p
GAS	Ja1	Ja1

184.243 MAGNESIUM MOLYBDATE **MgMoO4**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	111.168	118.801	118.801	-1401.226	0.000	-1436.646	-1401.226	-1296.049	227.062
	300.00	111.574	119.489	118.803	-1401.020	0.206	-1436.867	-1401.219	-1295.397	225.549
	400.00	126.943	153.942	123.396	-1389.007	12.219	-1450.584	-1400.153	-1260.252	164.572
	500.00	135.762	183.287	132.516	-1375.841	25.385	-1467.484	-1398.323	-1225.478	128.025
	600.00	141.968	208.614	143.137	-1361.940	39.286	-1487.108	-1396.146	-1191.110	103.695
	700.00	146.910	230.881	154.113	-1347.488	53.738	-1509.105	-1393.780	-1157.122	86.345
	800.00	151.150	250.781	164.974	-1332.581	68.645	-1533.206	-1391.289	-1123.482	73.356
	900.00	154.958	268.807	175.525	-1317.272	83.954	-1559.199	-1388.698	-1090.161	63.271
	1000.00	158.477	285.318	185.691	-1301.599	99.627	-1586.917	-1394.968	-1056.375	55.179
	1100.00	161.785	300.579	195.450	-1285.584	115.642	-1616.221	-1392.099	-1022.653	48.562
	1200.00	164.931	314.792	204.810	-1269.247	131.979	-1646.997	-1389.042	-989.201	43.059
	1300.00	167.947	328.113	213.787	-1252.602	148.624	-1679.150	-1385.806	-956.011	38.413
	1400.00	170.852	340.667	222.406	-1235.661	165.565	-1712.595	-1509.367	-919.448	34.305
	1500.00	173.660	352.550	230.690	-1218.435	182.791	-1747.261	-1504.626	-877.475	30.556

References

Phase	H / S	C_p
SOL	Nb1	Nb1,e

Mg3N2 TRIMAGNESIUM DINITRIDE 100.928

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL−A	298.15	104.527	87.864	87.864	−460.658	0.000	−486.855	−460.658	−400.498	70.166
	300.00	104.583	88.511	87.866	−460.465	0.193	−487.018	−460.657	−400.125	69.668
	400.00	107.642	119.016	92.005	−449.853	10.805	−497.460	−460.616	−379.956	49.617
	500.00	110.701	143.365	99.921	−438.936	21.722	−510.618	−460.645	−359.789	37.587
	600.00	113.760	163.818	108.910	−427.713	32.945	−526.004	−460.766	−339.608	29.566
	700.00	116.819	181.584	118.050	−416.184	44.474	−543.293	−460.992	−319.399	23.834
	800.00	119.877	197.383	126.997	−404.349	56.309	−562.256	−461.333	−299.149	19.532
	823.00	120.581	200.790	129.012	−401.584	59.074	−566.835	−461.428	−294.485	18.691
			1.118		0.920					
SOL−B	823.00	160.553	201.908	129.012	−400.664	59.994	−566.835	−460.508	−294.485	18.691
	900.00	163.988	216.419	135.876	−388.169	72.489	−582.947	−457.750	−279.077	16.197
	1000.00	168.448	233.928	144.817	−371.547	89.111	−605.475	−480.987	−257.144	13.432
	1061.00	171.169	243.982	150.232	−361.189	99.469	−620.054	−478.605	−243.560	11.991
			1.025		1.088					
SOL−C	1061.00	123.595	245.007	150.232	−360.101	100.557	−620.054	−477.517	−243.560	11.991
	1100.00	123.595	249.469	153.672	−355.281	105.377	−629.697	−477.808	−234.956	11.157
	1200.00	123.595	260.223	162.109	−342.921	117.737	−655.189	−478.588	−212.844	9.265
	1300.00	123.595	270.116	170.042	−330.562	130.096	−681.713	−479.413	−190.666	7.661
	1400.00	123.595	279.275	177.521	−318.202	142.456	−709.188	−861.168	−157.537	5.878
	1500.00	123.595	287.803	184.592	−305.843	154.815	−737.547	−858.513	−107.370	3.739
	1600.00	123.595	295.779	191.295	−293.483	167.175	−766.730	−855.888	−57.380	1.873
	1700.00	123.595	303.272	197.664	−281.124	179.534	−796.686	−853.290	−7.552	0.232
	1800.00	123.595	310.337	203.729	−268.764	191.894	−827.370	−850.716	42.123	−1.222
	1900.00	123.595	317.019	209.517	−256.405	204.253	−858.741	−848.162	91.655	−2.520
	2000.00	123.595	323.359	215.052	−244.045	216.613	−890.763	−845.626	141.053	−3.684

References

Phase	H / S	C_p
SOL−A	Pa3	Pa3
SOL−B	Pa3	Pa3
SOL−C	Pa3	Pa3

Mg(NO3)2 MAGNESIUM NITRATE 148.315

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	141.929	164.000	164.000	−790.650	0.000	−839.547	−790.650	−589.182	103.222
	300.00	142.377	164.880	164.003	−790.387	0.263	−839.851	−790.650	−587.932	102.368
	400.00	168.526	209.345	169.890	−774.868	15.782	−858.606	−789.513	−520.468	67.966
	500.00	196.631	249.949	181.888	−756.619	34.031	−881.594	−786.049	−453.559	47.383
	600.00	225.506	288.344	196.455	−735.517	55.133	−908.523	−780.195	−387.570	33.741

References

Phase	H / S	C_p
SOL	La1,Nb1	La1

141.685 MAGNESIUM 2–NICKEL **MgNi2**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	73.415	88.701	88.701	–55.229	0.000	–81.675	–55.229	–54.119	9.481
	300.00	73.471	89.155	88.702	–55.093	0.136	–81.840	–55.236	–54.112	9.422
	400.00	76.525	110.710	91.620	–47.593	7.636	–91.877	–55.751	–53.668	7.008
	500.00	79.580	128.114	97.232	–39.788	15.441	–103.845	–56.528	–53.063	5.543
	600.00	82.634	142.893	103.640	–31.677	23.552	–117.413	–57.747	–52.265	4.550
	700.00	85.688	155.860	110.192	–23.261	31.968	–132.364	–58.870	–51.242	3.824
	800.00	88.743	167.502	116.640	–14.540	40.689	–148.541	–59.355	–50.117	3.272
	900.00	91.797	178.131	122.890	–5.513	49.716	–165.830	–59.771	–48.938	2.840

References

Phase	H / S	C_p	Remarks	
SOL	Tk1	Ku1,e	Hu1	MPT= 1418.

MgO MAGNESIUM OXIDE 40.304

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	37.110	26.924	26.924	−601.241	0.000	−609.268	−601.241	−568.943	99.677
	300.00	37.245	27.154	26.925	−601.172	0.069	−609.318	−601.245	−568.743	99.027
	400.00	42.560	38.678	28.460	−597.154	4.087	−612.625	−601.264	−557.896	72.854
	500.00	45.543	48.523	31.513	−592.736	8.505	−616.998	−601.044	−547.076	57.153
	600.00	47.430	57.005	35.072	−588.081	13.160	−622.284	−600.756	−536.310	46.690
	700.00	48.748	64.421	38.746	−583.269	17.972	−628.363	−600.475	−525.591	39.220
	800.00	49.741	70.998	42.374	−578.342	22.899	−635.140	−600.239	−514.910	33.620
	900.00	50.538	76.904	45.888	−573.327	27.914	−642.540	−600.067	−504.255	29.266
	1000.00	51.209	82.264	49.262	−568.239	33.002	−650.503	−608.916	−492.858	25.744
	1100.00	51.796	87.173	52.488	−563.088	38.153	−658.978	−608.783	−481.258	22.853
	1200.00	52.324	91.703	55.570	−557.882	43.359	−667.925	−608.615	−469.672	20.444
	1300.00	52.809	95.910	58.513	−552.625	48.616	−677.308	−608.413	−458.102	18.407
	1400.00	53.264	99.841	61.326	−547.321	53.920	−687.098	−735.143	−442.919	16.526
	1500.00	53.695	103.530	64.018	−541.973	59.268	−697.268	−733.694	−422.096	14.699
	1600.00	54.109	107.009	66.597	−536.582	64.659	−707.797	−732.215	−401.371	13.103
	1700.00	54.509	110.301	69.072	−531.151	70.090	−718.664	−730.709	−380.740	11.699
	1800.00	54.898	113.428	71.450	−525.681	75.560	−729.852	−729.175	−360.197	10.453
	1900.00	55.278	116.407	73.739	−520.172	81.069	−741.344	−727.615	−339.741	9.340
	2000.00	55.651	119.251	75.944	−514.626	86.615	−753.128	−726.028	−319.367	8.341
	2100.00	56.018	121.976	78.071	−509.042	92.199	−765.191	−724.416	−299.074	7.439
	2200.00	56.381	124.590	80.127	−503.422	97.819	−777.520	−722.779	−278.858	6.621
	2300.00	56.740	127.104	82.115	−497.766	103.475	−790.105	−721.117	−258.717	5.876
	2400.00	57.095	129.526	84.040	−492.074	109.167	−802.938	−719.430	−238.649	5.194
	2500.00	57.447	131.864	85.907	−486.347	114.894	−816.008	−717.719	−218.651	4.568
	2600.00	57.797	134.124	87.718	−480.585	120.656	−829.308	−715.983	−198.723	3.992
	2700.00	58.145	136.312	89.478	−474.788	126.453	−842.830	−714.223	−178.861	3.460
	2800.00	58.491	138.433	91.188	−468.956	132.285	−856.568	−712.439	−159.066	2.967
	2900.00	58.836	140.491	92.853	−463.090	138.151	−870.515	−710.630	−139.334	2.510
	3000.00	59.179	142.492	94.474	−457.189	144.052	−884.664	−708.797	−119.665	2.084
	3100.00	59.521	144.438	96.055	−451.254	149.987	−899.011	−706.938	−100.058	1.686
	3105.00	59.538	144.534	96.133	−450.956	150.285	−899.734	−706.844	−99.079	1.667
			25.063		77.822					
LIQ	3105.00	66.944	169.597	96.133	−373.134	228.107	−899.734	−629.022	−99.079	1.667
	3200.00	66.944	171.615	98.344	−366.774	234.467	−915.942	−626.544	−82.903	1.353
	3300.00	66.944	173.675	100.596	−360.080	241.161	−933.207	−623.944	−65.954	1.044
	3400.00	66.944	175.673	102.775	−353.386	247.855	−950.675	−621.352	−49.085	0.754
	3500.00	66.944	177.614	104.885	−346.691	254.550	−968.340	−618.768	−32.291	0.482
	3600.00	66.944	179.500	106.932	−339.997	261.244	−986.196	−616.192	−15.571	0.226
	3700.00	66.944	181.334	108.918	−333.302	267.939	−1004.238	−613.623	1.078	−0.015
	3800.00	66.944	183.119	110.847	−326.608	274.633	−1022.461	−611.062	17.657	−0.243
	3900.00	66.944	184.858	112.723	−319.914	281.327	−1040.860	−608.507	34.169	−0.458
	4000.00	66.944	186.553	114.548	−313.219	288.022	−1059.431	−605.959	50.615	−0.661

References

Phase	H / S	C_p
SOL	Ja1	Ja1
LIQ	Ja1	Ja1

142.266 MAGNESIUM DIALUMINIUM TETRAOXIDE **MgAl2O4**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol	]		[-]
SOL	298.15	116.191	80.630	80.630	-2299.903	0.000	-2323.943	-2299.903	-2175.011	381.053
	300.00	116.806	81.351	80.632	-2299.687	0.216	-2324.093	-2299.932	-2174.236	378.568
	400.00	139.375	118.454	85.538	-2286.736	13.167	-2334.118	-2300.488	-2132.206	278.438
	500.00	151.260	150.946	95.447	-2272.153	27.750	-2347.626	-2299.974	-2090.183	218.360
	600.00	158.939	179.244	107.107	-2256.621	43.282	-2364.167	-2299.057	-2048.307	178.321
	700.00	164.632	204.190	119.230	-2240.431	59.472	-2383.364	-2298.014	-2006.597	149.734
	800.00	169.267	226.485	131.268	-2223.729	76.174	-2404.917	-2297.013	-1965.036	128.304
	900.00	173.287	246.659	142.986	-2206.597	93.306	-2428.590	-2296.208	-1923.590	111.642
	1000.00	176.925	265.107	154.289	-2189.084	110.819	-2454.192	-2325.715	-1879.944	98.198
	1100.00	180.313	282.131	165.147	-2171.221	128.682	-2481.564	-2324.483	-1835.424	87.157
	1200.00	183.530	297.959	175.562	-2153.027	146.876	-2510.578	-2323.001	-1791.028	77.961
	1300.00	186.629	312.772	185.553	-2134.519	165.384	-2541.122	-2321.271	-1746.765	70.186
	1400.00	189.640	326.713	195.143	-2115.705	184.198	-2573.103	-2446.261	-1699.016	63.391
	1500.00	192.587	339.898	204.358	-2096.593	203.310	-2606.440	-2442.859	-1645.759	57.310
	1600.00	195.485	352.420	213.224	-2077.189	222.714	-2641.061	-2439.218	-1592.737	51.998
	1700.00	198.345	364.357	221.765	-2057.497	242.406	-2676.904	-2435.338	-1539.949	47.317
	1800.00	201.176	375.774	230.007	-2037.521	262.382	-2713.915	-2431.222	-1487.397	43.163
	1900.00	203.983	386.727	237.969	-2017.263	282.640	-2752.044	-2426.871	-1435.080	39.453
	2000.00	206.771	397.261	245.672	-1996.725	303.178	-2791.246	-2422.287	-1382.998	36.120
	2100.00	209.544	407.416	253.133	-1975.909	323.994	-2831.483	-2417.470	-1331.151	33.111
	2200.00	212.304	417.228	260.371	-1954.816	345.087	-2872.718	-2412.422	-1279.538	30.380
	2300.00	215.054	426.726	267.398	-1933.448	366.455	-2914.918	-2407.144	-1228.161	27.892
	2400.00	217.795	435.937	274.229	-1911.806	388.097	-2958.054	-2401.635	-1177.018	25.617
	2408.00	218.014	436.662	274.768	-1910.063	389.840	-2961.544	-2401.185	-1172.937	25.443
			81.664		196.648					
LIQ	2408.00	230.120	518.326	274.768	-1713.415	586.488	-2961.544	-2204.537	-1172.937	25.443
	2500.00	230.120	526.954	283.891	-1692.244	607.659	-3009.630	-2198.251	-1133.642	23.686

References

Phase	H / S	C_p
SOL	Nb1	Nb1,e
LIQ	Ja1	Ja1

MgOH[g] MAGNESIUM MONOHYDROXIDE (GAS) 41.312

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	43.033	226.464	226.464	−164.766	0.000	−232.286	−164.766	−172.480	30.218
	300.00	43.127	226.730	226.465	−164.686	0.080	−232.705	−164.786	−172.528	30.040
	400.00	46.910	239.709	228.208	−160.166	4.600	−256.049	−165.755	−174.957	22.847
	500.00	49.111	250.433	231.613	−155.356	9.410	−280.572	−166.605	−177.158	18.508
	600.00	50.553	259.522	235.526	−150.368	14.398	−306.082	−167.449	−179.189	15.600
	700.00	51.608	267.398	239.529	−145.258	19.508	−332.436	−168.339	−181.077	13.512
	800.00	52.456	274.346	243.455	−140.054	24.712	−359.530	−169.301	−182.832	11.938
	900.00	53.191	280.568	247.239	−134.771	29.995	−387.281	−170.348	−184.461	10.706
	1000.00	53.864	286.207	250.859	−129.417	35.349	−415.625	−180.434	−185.211	9.674
	1100.00	54.508	291.371	254.310	−123.999	40.767	−444.507	−181.553	−185.634	8.815
	1200.00	55.141	296.141	257.600	−118.516	46.250	−473.886	−182.648	−185.957	8.094
	1300.00	55.679	300.576	260.737	−112.975	51.791	−503.724	−183.722	−186.189	7.481
	1400.00	56.199	304.721	263.732	−107.381	57.385	−533.991	−311.744	−182.711	6.817
	1500.00	56.682	308.615	266.596	−101.737	63.029	−564.660	−311.603	−173.499	6.042
	1600.00	57.125	312.288	269.338	−96.046	68.720	−595.707	−311.450	−164.297	5.364
	1700.00	57.526	315.763	271.968	−90.313	74.453	−627.111	−311.288	−155.105	4.766
	1800.00	57.889	319.062	274.493	−84.542	80.224	−658.854	−311.121	−145.922	4.235
	1900.00	58.217	322.201	276.922	−78.737	86.029	−690.918	−310.950	−136.749	3.759
	2000.00	58.514	325.195	279.261	−72.900	91.866	−723.289	−310.778	−127.585	3.332
	2100.00	58.783	328.056	281.517	−67.035	97.731	−755.953	−310.607	−118.430	2.946
	2200.00	59.027	330.796	283.696	−61.144	103.622	−788.896	−310.439	−109.282	2.595
	2300.00	59.250	333.425	285.801	−55.230	109.536	−822.108	−310.274	−100.142	2.274
	2400.00	59.453	335.951	287.838	−49.295	115.471	−855.578	−310.115	−91.010	1.981
	2500.00	59.640	338.382	289.812	−43.340	121.426	−889.295	−309.961	−81.883	1.711
	2600.00	59.811	340.724	291.725	−37.368	127.398	−923.251	−309.814	−72.763	1.462
	2700.00	59.970	342.985	293.582	−31.378	133.388	−957.437	−309.674	−63.649	1.231
	2800.00	60.116	345.168	295.386	−25.374	139.392	−991.846	−309.542	−54.539	1.017
	2900.00	60.252	347.280	297.139	−19.356	145.410	−1026.469	−309.418	−45.434	0.818
	3000.00	60.379	349.325	298.844	−13.324	151.442	−1061.299	−309.302	−36.333	0.633

References

Phase	H / S	C_p
GAS	Ja1	Ja1

58.320 MAGNESIUM HYDROXIDE **Mg(OH)2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	77.215	63.220	63.220	−924.664	0.000	−943.513	−924.664	−833.644	146.051
	300.00	77.590	63.699	63.222	−924.521	0.143	−943.631	−924.675	−833.079	145.052
	400.00	91.703	88.191	66.465	−915.974	8.690	−951.250	−924.556	−802.532	104.800
	500.00	99.617	109.570	72.998	−906.378	18.286	−961.163	−923.610	−772.124	80.663
	542.20	102.124	117.745	76.166	−902.120	22.544	−965.961	−923.070	−759.360	73.156

References

Phase	H / S	C_p	Remarks
SOL	Ja1	Ja1	Ja1 NDPT= 542.2

76.765 MAGNESIUM CHLORIDE HYDROXIDE **Mg(OH)Cl**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	74.116	83.701	83.701	−799.600	0.000	−824.555	−799.600	−731.488	128.154
	300.00	74.228	84.160	83.702	−799.463	0.137	−824.711	−799.594	−731.066	127.290
	400.00	80.283	106.343	86.686	−791.737	7.863	−834.274	−799.092	−708.288	92.493
	500.00	86.337	124.908	92.520	−783.406	16.194	−845.860	−798.206	−685.682	71.633
	600.00	92.391	141.184	99.301	−774.470	25.130	−859.180	−796.918	−663.291	57.745
	700.00	98.445	155.881	106.350	−764.928	34.672	−874.045	−795.215	−641.149	47.843
	800.00	104.500	169.422	113.398	−754.781	44.819	−890.318	−793.088	−619.279	40.435

References

Phase	H / S	C_p
SOL	La1,Nb1	La1

MgSiO3 MAGNESIUM METASILICATE 100.389

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL−1	298.15	81.946	67.768	67.768	−1548.917	0.000	−1569.122	−1548.917	−1462.022	256.140
	300.00	82.255	68.276	67.770	−1548.765	0.152	−1569.248	−1548.930	−1461.482	254.467
	400.00	94.238	93.759	71.163	−1539.878	9.039	−1577.382	−1549.173	−1432.276	187.036
	500.00	101.552	115.624	77.923	−1530.067	18.850	−1587.878	−1548.898	−1403.076	146.578
	600.00	107.027	134.641	85.825	−1519.628	29.289	−1600.412	−1548.361	−1373.959	119.614
	700.00	111.636	151.493	94.025	−1508.689	40.228	−1614.735	−1547.658	−1344.945	100.361
	800.00	115.781	166.674	102.173	−1497.316	51.601	−1630.655	−1546.821	−1316.042	85.929
	900.00	119.658	180.537	110.121	−1485.542	63.375	−1648.026	−1545.856	−1287.251	74.710
	903.00	119.771	180.936	110.355	−1485.183	63.734	−1648.568	−1545.825	−1286.389	74.412
			0.741		0.669					
SOL−2	903.00	120.340	181.677	110.355	−1484.514	64.403	−1648.568	−1545.156	−1286.389	74.412
	1000.00	120.340	193.955	117.879	−1472.841	76.076	−1666.796	−1553.164	−1257.885	65.705
	1100.00	120.340	205.425	125.325	−1460.807	88.110	−1686.774	−1552.312	−1228.400	58.332
	1200.00	120.340	215.896	132.442	−1448.773	100.144	−1707.848	−1551.564	−1198.987	52.191
	1258.00	120.340	221.576	136.422	−1441.793	107.124	−1720.536	−1551.174	−1181.955	49.077
			1.297		1.632					
SOL−3	1258.00	122.432	222.873	136.422	−1440.161	108.756	−1720.536	−1549.542	−1181.955	49.077
	1300.00	122.432	226.894	139.280	−1435.019	113.898	−1729.981	−1549.190	−1169.689	46.999
	1400.00	122.432	235.967	145.867	−1422.776	126.141	−1753.130	−1675.378	−1136.897	42.418
	1500.00	122.432	244.414	152.158	−1410.533	138.384	−1777.154	−1673.500	−1098.500	38.253
	1600.00	122.432	252.316	158.174	−1398.289	150.628	−1801.995	−1671.701	−1060.226	34.613
	1700.00	122.432	259.738	163.932	−1386.046	162.871	−1827.601	−1720.158	−1021.615	31.390
	1800.00	122.432	266.736	169.451	−1373.803	175.114	−1853.928	−1718.287	−980.579	28.456
	1850.00	122.432	270.091	172.126	−1367.681	181.236	−1867.349	−1717.365	−960.099	27.108
			40.709		75.312					
LIQ	1850.00	146.440	310.800	172.126	−1292.369	256.548	−1867.349	−1642.053	−960.099	27.108
	1900.00	146.440	314.705	175.827	−1285.047	263.870	−1882.988	−1639.939	−941.697	25.889
	2000.00	146.440	322.217	182.960	−1270.403	278.514	−1914.837	−1635.737	−905.056	23.638
	2100.00	146.440	329.362	189.763	−1255.759	293.158	−1947.419	−1631.570	−868.624	21.606
	2200.00	146.440	336.174	196.264	−1241.115	307.802	−1980.698	−1627.436	−832.391	19.763
	2300.00	146.440	342.683	202.490	−1226.471	322.446	−2014.643	−1623.336	−796.344	18.086
	2400.00	146.440	348.916	208.462	−1211.827	337.090	−2049.226	−1619.270	−760.475	16.551
	2500.00	146.440	354.894	214.200	−1197.183	351.734	−2084.418	−1615.236	−724.775	15.143
	2600.00	146.440	360.637	219.723	−1182.539	366.378	−2120.196	−1611.234	−689.236	13.847
	2700.00	146.440	366.164	225.045	−1167.895	381.022	−2156.538	−1607.265	−653.850	12.649
	2800.00	146.440	371.490	230.181	−1153.251	395.666	−2193.423	−1603.326	−618.610	11.540

References

Phase	H / S	C_p
SOL−1	Ja1	Ja1
SOL−2	Ja1	Ja1
SOL−3	Ja1	Ja1
LIQ	Ja1	Ja1

140.693 MAGNESIUM ORTHOSILICATE **Mg2SiO4**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f [-]
		[	J / (K mol)	]	[		kJ / mol		]	
SOL	298.15	118.717	95.140	95.140	-2176.935	0.000	-2205.301	-2176.935	-2057.875	360.531
	300.00	119.152	95.876	95.142	-2176.715	0.220	-2205.478	-2176.953	-2057.137	358.179
	400.00	137.398	132.875	100.063	-2163.810	13.125	-2216.960	-2177.215	-2017.124	263.409
	500.00	148.766	164.845	109.899	-2149.462	27.473	-2231.884	-2176.601	-1977.161	206.553
	600.00	156.557	192.696	121.428	-2134.174	42.761	-2249.792	-2175.583	-1937.364	168.663
	700.00	162.392	217.287	133.400	-2118.215	58.720	-2270.315	-2174.390	-1897.754	141.612
	800.00	167.078	239.287	145.285	-2101.734	75.201	-2293.163	-2173.136	-1858.320	121.336
	900.00	171.043	259.200	156.853	-2084.823	92.112	-2318.103	-2171.877	-1819.043	105.575
	1000.00	174.530	277.405	168.011	-2067.541	109.394	-2344.946	-2188.541	-1778.390	92.894
	1100.00	177.684	294.190	178.729	-2049.928	127.007	-2373.537	-2187.128	-1737.442	82.504
	1200.00	180.593	309.777	189.008	-2032.012	144.923	-2403.744	-2185.537	-1696.631	73.852
	1300.00	183.315	324.340	198.864	-2013.816	163.119	-2435.458	-2183.775	-1655.959	66.537
	1400.00	185.887	338.021	208.320	-1995.354	181.581	-2468.583	-2435.778	-1608.172	60.002
	1500.00	188.335	350.930	217.401	-1976.642	200.293	-2503.037	-2431.331	-1549.211	53.948
	1600.00	190.676	363.160	226.132	-1957.691	219.244	-2538.746	-2426.736	-1490.552	48.662
	1700.00	192.921	374.787	234.537	-1938.510	238.425	-2575.649	-2472.180	-1431.738	43.992
	1800.00	195.079	385.876	242.639	-1919.110	257.825	-2613.686	-2467.088	-1370.682	39.776
	1900.00	197.155	396.479	250.459	-1899.497	277.438	-2652.808	-2461.831	-1309.913	36.012
	2000.00	199.153	406.643	258.016	-1879.681	297.254	-2692.967	-2456.417	-1249.425	32.632
	2100.00	201.074	416.406	265.328	-1859.669	317.266	-2734.123	-2450.853	-1189.212	29.580
	2171.00	202.391	423.114	270.379	-1845.346	331.589	-2763.927	-2446.816	-1146.624	27.588
			32.763		71.128					
LIQ	2171.00	205.016	455.877	270.379	-1774.218	402.717	-2763.927	-2375.688	-1146.624	27.588
	2200.00	205.016	458.597	272.842	-1768.272	408.663	-2777.187	-2373.950	-1130.217	26.835
	2300.00	205.016	467.711	281.118	-1747.771	429.164	-2823.506	-2367.986	-1073.818	24.387
	2400.00	205.016	476.436	289.075	-1727.269	449.666	-2870.716	-2362.067	-1017.677	22.149
	2500.00	205.016	484.805	296.738	-1706.768	470.167	-2918.781	-2356.192	-961.781	20.095
	2600.00	205.016	492.846	304.127	-1686.266	490.669	-2967.666	-2350.359	-906.120	18.204
	2700.00	205.016	500.584	311.261	-1665.764	511.171	-3017.340	-2344.569	-850.683	16.457
	2800.00	205.016	508.039	318.157	-1645.263	531.672	-3067.773	-2338.820	-795.459	14.839
	2900.00	205.016	515.234	324.829	-1624.761	552.174	-3118.939	-2333.111	-740.439	13.337
	3000.00	205.016	522.184	331.292	-1604.260	572.675	-3170.812	-2327.440	-685.617	11.938

References

Phase	H / S	C_p
SOL	Ja1	Ja1
LIQ	Ja1	Ja1

$Mg_3Si_2O_5(OH)_4$ CHRYSOTILE 277.112

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	273.680	221.296	221.296	−4365.598	0.000	−4431.577	−4365.598	−4037.962	707.434
	300.00	274.942	222.993	221.301	−4365.091	0.507	−4431.988	−4365.654	−4035.929	702.718
	400.00	323.919	309.533	232.768	−4334.892	30.706	−4458.705	−4366.536	−3925.786	512.655
	500.00	353.690	385.217	255.860	−4300.920	64.678	−4493.528	−4364.738	−3815.766	398.630
	600.00	375.902	451.740	283.076	−4264.399	101.199	−4535.443	−4361.407	−3706.264	322.659
	700.00	394.544	511.118	311.487	−4225.856	139.742	−4583.639	−4356.996	−3597.409	268.442
	800.00	411.284	564.910	339.854	−4185.553	180.045	−4637.481	−4351.699	−3489.249	227.825
	900.00	426.917	614.264	367.639	−4143.636	221.962	−4696.473	−4345.597	−3381.801	196.275
	1000.00	441.864	660.022	394.616	−4100.192	265.406	−4760.214	−4365.577	−3272.800	170.954

References

Phase	H / S	C_p
SOL	Nb1,S5	S5

$Mg_3Si_4O_{10}(OH)_2$ TALC 379.266

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	321.698	260.697	260.697	−5922.498	0.000	−6000.225	−5922.498	−5542.603	971.041
	300.00	323.050	262.691	260.703	−5921.902	0.596	−6000.709	−5922.567	−5540.245	964.642
	400.00	376.678	363.715	274.113	−5886.657	35.841	−6032.143	−5924.199	−5412.457	706.794
	500.00	410.915	451.654	301.027	−5847.185	75.313	−6073.012	−5923.125	−5284.605	552.079
	600.00	437.519	528.999	332.706	−5804.722	117.776	−6122.121	−5920.415	−5157.133	448.968
	700.00	460.518	598.203	365.776	−5759.799	162.699	−6178.541	−5916.466	−5030.216	375.359
	800.00	481.597	661.088	398.817	−5712.681	209.817	−6241.552	−5911.423	−4903.940	320.194
	900.00	501.560	718.973	431.216	−5663.516	258.982	−6310.592	−5905.330	−4778.360	277.329
	1000.00	520.829	772.820	462.714	−5612.392	310.106	−6385.212	−5925.037	−4651.241	242.956
	1100.00	539.644	823.345	493.225	−5559.366	363.132	−6465.046	−5916.516	−4524.262	214.839

References

Phase	H / S	C_p
SOL	Nb1	S5

780.820 ANTHOPHYLLITE **Mg7Si8O22(OH)2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	628.991	558.982	558.982	−12086.405	0.000	−12253.066	−12086.405	−11367.041	1991.458
	300.00	632.281	562.883	558.994	−12085.238	1.167	−12254.103	−12086.563	−11362.577	1978.401
	400.00	752.921	763.493	585.527	−12015.218	71.187	−12320.616	−12089.939	−11120.503	1452.189
	500.00	816.424	938.936	639.081	−11936.478	149.927	−12405.946	−12087.742	−10878.329	1136.451
	600.00	857.436	1091.635	702.065	−11852.663	233.742	−12507.644	−12083.290	−10636.841	926.019
	700.00	887.830	1226.187	767.520	−11765.338	321.067	−12623.669	−12077.880	−10396.186	775.773
	800.00	912.564	1346.402	832.499	−11675.283	411.122	−12752.404	−12072.045	−10156.339	663.141
	900.00	934.008	1455.149	895.736	−11582.933	503.472	−12892.568	−12066.003	−9917.237	575.581
	1000.00	953.408	1554.575	956.719	−11488.549	597.856	−13043.124	−12122.485	−9673.510	505.292
	1100.00	971.473	1646.301	1015.292	−11392.296	694.109	−13203.226	−12115.468	−9428.944	447.743

References

Phase	H / S	C_p
SOL	S5	S5

MgTiO3 MAGNESIUM TITANIUM TRIOXIDE 120.183

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	91.893	74.559	74.559	−1572.556	0.000	−1594.786	−1572.556	−1484.125	260.013
	300.00	92.199	75.128	74.561	−1572.386	0.170	−1594.924	−1572.560	−1483.577	258.314
	400.00	105.184	103.588	78.353	−1562.462	10.094	−1603.897	−1572.233	−1453.939	189.865
	500.00	113.185	127.985	85.900	−1551.514	21.042	−1615.506	−1571.242	−1424.472	148.814
	600.00	118.512	149.121	94.716	−1539.913	32.643	−1629.385	−1569.952	−1395.236	121.466
	700.00	122.361	167.693	103.841	−1527.860	44.696	−1645.245	−1568.558	−1366.226	101.949
	800.00	125.343	184.234	112.876	−1515.469	57.087	−1662.856	−1567.166	−1337.417	87.324
	900.00	127.787	199.143	121.646	−1502.809	69.747	−1682.038	−1565.835	−1308.779	75.960
	1000.00	129.880	212.717	130.085	−1489.923	82.633	−1702.641	−1573.542	−1279.526	66.836
	1100.00	131.736	225.185	138.171	−1476.841	95.715	−1724.544	−1572.293	−1250.185	59.366
	1200.00	133.425	236.721	145.909	−1463.582	108.974	−1747.647	−1575.032	−1220.839	53.142
	1300.00	134.994	247.463	153.312	−1450.160	122.396	−1771.862	−1573.235	−1191.396	47.871
	1400.00	136.474	257.522	160.400	−1436.586	135.970	−1797.116	−1698.357	−1158.464	43.223
	1500.00	137.888	266.986	167.194	−1422.867	149.689	−1823.346	−1695.296	−1120.007	39.002
	1600.00	139.250	275.929	173.713	−1409.010	163.546	−1850.496	−1692.212	−1081.755	35.316
	1700.00	140.572	284.411	179.977	−1395.019	177.537	−1878.517	−1689.115	−1043.696	32.069
	1800.00	141.862	292.482	186.005	−1380.897	191.659	−1907.365	−1686.014	−1005.819	29.188
	1900.00	143.126	300.186	191.813	−1366.647	205.909	−1937.001	−1682.914	−968.115	26.615
	1903.00	143.164	300.412	191.984	−1366.218	206.338	−1937.902	−1682.821	−966.987	26.542
			47.490		90.374					
LIQ	1903.00	163.176	347.902	191.984	−1275.844	296.712	−1937.902	−1592.447	−966.987	26.542
	2000.00	163.176	356.015	199.745	−1260.016	312.540	−1972.045	−1601.697	−934.784	24.414
	2100.00	163.176	363.976	207.377	−1243.698	328.858	−2008.048	−1596.693	−901.561	22.425
	2200.00	163.176	371.567	214.669	−1227.380	345.176	−2044.828	−1591.722	−868.577	20.623
	2300.00	163.176	378.821	221.650	−1211.063	361.493	−2082.350	−1586.786	−835.817	18.982
	2400.00	163.176	385.765	228.344	−1194.745	377.811	−2120.582	−1581.882	−803.271	17.483
	2500.00	163.176	392.426	234.775	−1178.428	394.128	−2159.494	−1577.012	−770.929	16.108
	2600.00	163.176	398.826	240.962	−1162.110	410.446	−2199.058	−1572.174	−738.782	14.842
	2700.00	163.176	404.985	246.924	−1145.792	426.764	−2239.251	−1567.367	−706.819	13.674
	2800.00	163.176	410.919	252.676	−1129.475	443.081	−2280.048	−1562.591	−675.035	12.593
	2900.00	163.176	416.645	258.232	−1113.157	459.399	−2321.428	−1557.845	−643.420	11.589
	3000.00	163.176	422.177	263.605	−1096.840	475.716	−2363.370	−1553.128	−611.969	10.655

References

Phase	H / S	C_p
SOL	Ja1	Ja1
LIQ	Ja1	Ja1

200.062 MAGNESIUM DITITANIUM PENTOXIDE **MgTi2O5**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol	]		[-]
SOL	298.15	146.877	135.603	135.603	-2509.354	0.000	-2549.784	-2509.354	-2368.788	415.002
	300.00	147.341	136.513	135.606	-2509.082	0.272	-2550.036	-2509.357	-2367.916	412.291
	400.00	165.658	181.676	141.640	-2493.339	16.015	-2566.010	-2508.771	-2320.824	303.068
	500.00	176.678	219.909	153.571	-2476.185	33.169	-2586.140	-2507.334	-2273.992	237.562
	600.00	184.556	252.849	167.436	-2458.106	51.248	-2609.816	-2505.510	-2227.490	193.920
	700.00	190.869	281.787	181.747	-2439.325	70.029	-2636.577	-2503.515	-2181.310	162.771
	800.00	196.319	307.637	195.896	-2419.961	89.393	-2666.070	-2501.457	-2135.421	139.429
	900.00	201.253	331.049	209.632	-2400.079	109.275	-2698.023	-2499.390	-2089.790	121.288
	1000.00	205.862	352.494	222.861	-2379.721	129.633	-2732.215	-2506.282	-2043.632	106.748
	1100.00	210.254	372.322	235.558	-2358.914	150.440	-2768.468	-2504.122	-1997.470	94.852
	1200.00	214.497	390.799	247.734	-2337.675	171.679	-2806.634	-2509.842	-1951.273	84.937
	1300.00	218.634	408.132	259.412	-2316.018	193.336	-2846.590	-2506.379	-1904.864	76.538
	1400.00	222.694	424.484	270.624	-2293.951	215.403	-2888.228	-2629.671	-1855.102	69.215
	1500.00	226.695	439.985	281.403	-2271.481	237.873	-2931.458	-2624.618	-1799.951	62.680
	1600.00	230.653	454.742	291.779	-2248.613	260.741	-2976.200	-2619.385	-1745.143	56.973
	1700.00	234.576	468.843	301.783	-2225.352	284.002	-3022.385	-2613.987	-1690.667	51.948
	1800.00	238.472	482.361	311.442	-2201.699	307.655	-3069.950	-2608.439	-1636.513	47.490
	1900.00	242.347	495.359	320.782	-2177.658	331.696	-3118.840	-2602.749	-1582.672	43.511
	1963.00	244.778	503.304	326.513	-2162.313	347.041	-3150.298	-2627.386	-1548.558	41.207
			74.600		146.440					
LIQ	1963.00	261.082	577.904	326.513	-2015.873	493.481	-3150.298	-2480.946	-1548.558	41.207
	2000.00	261.082	582.779	331.209	-2006.213	503.141	-3171.771	-2478.174	-1531.010	39.986
	2100.00	261.082	595.517	343.494	-1980.105	529.249	-3230.691	-2470.721	-1483.835	36.908
	2200.00	261.082	607.663	355.228	-1953.997	555.357	-3290.855	-2463.324	-1437.014	34.119
	2300.00	261.082	619.268	366.457	-1927.889	581.465	-3352.206	-2455.984	-1390.528	31.580
	2400.00	261.082	630.380	377.224	-1901.781	607.573	-3414.692	-2448.700	-1344.360	29.259
	2500.00	261.082	641.038	387.565	-1875.673	633.681	-3478.267	-2441.469	-1298.495	27.131
	2600.00	261.082	651.277	397.512	-1849.564	659.790	-3542.886	-2434.293	-1252.918	25.171
	2700.00	261.082	661.131	407.095	-1823.456	685.898	-3608.509	-2427.170	-1207.616	23.363
	2800.00	261.082	670.626	416.338	-1797.348	712.006	-3675.100	-2420.098	-1162.577	21.688
	2900.00	261.082	679.787	425.265	-1771.240	738.114	-3742.623	-2413.075	-1117.789	20.134
	3000.00	261.082	688.638	433.898	-1745.132	764.222	-3811.047	-2406.101	-1073.243	18.687

References

Phase	H / S	C_p
SOL	Ja1	Ja1
LIQ	Ja1	Ja1

Mg2TiO4 DIMAGNESIUM TITANIUM TETRAOXIDE 160.488

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	128.575	115.102	115.102	−2164.383	0.000	−2198.701	−2164.383	−2047.715	358.751
	300.00	129.026	115.899	115.104	−2164.145	0.238	−2198.914	−2164.392	−2046.991	356.413
	400.00	146.285	155.653	120.407	−2150.285	14.098	−2212.546	−2164.165	−2007.859	262.200
	500.00	156.410	189.460	130.925	−2135.115	29.268	−2229.846	−2163.152	−1968.890	205.689
	600.00	163.687	218.649	143.169	−2119.095	45.288	−2250.285	−2161.809	−1930.160	168.035
	700.00	169.582	244.337	155.823	−2102.423	61.960	−2273.459	−2160.328	−1891.668	141.158
	800.00	174.708	267.323	168.349	−2085.204	79.179	−2299.062	−2158.798	−1853.392	121.014
	900.00	179.358	288.172	180.522	−2067.498	96.885	−2326.853	−2157.263	−1815.309	105.358
	1000.00	183.686	307.296	192.256	−2049.343	115.040	−2356.639	−2173.639	−1775.880	92.762
	1100.00	187.779	324.997	203.529	−2030.768	133.615	−2388.265	−2171.915	−1736.186	82.445
	1200.00	191.691	341.505	214.346	−2011.793	152.590	−2421.599	−2173.976	−1696.539	73.848
	1300.00	195.454	356.998	224.730	−1992.435	171.948	−2456.532	−2171.298	−1656.859	66.573
	1400.00	199.091	371.616	234.704	−1972.707	191.676	−2492.969	−2422.299	−1610.138	60.075
	1500.00	202.616	385.473	244.298	−1952.620	211.763	−2530.830	−2416.771	−1552.318	54.057
	1600.00	206.039	398.659	253.537	−1932.187	232.196	−2570.041	−2411.022	−1494.874	48.803
	1700.00	209.368	411.251	262.446	−1911.416	252.967	−2610.542	−2405.070	−1437.796	44.178
	1800.00	212.609	423.310	271.050	−1890.316	274.067	−2652.274	−2398.927	−1381.074	40.078
	1900.00	215.765	434.890	279.371	−1868.897	295.486	−2695.188	−2392.606	−1324.699	36.419
	2000.00	218.840	446.036	287.427	−1847.166	317.217	−2739.237	−2400.250	−1268.215	33.122
	2005.00	218.992	446.582	287.823	−1846.071	318.312	−2741.469	−2399.918	−1265.385	32.966
			64.690		129.704					
LIQ	2005.00	228.446	511.273	287.823	−1716.367	448.016	−2741.469	−2270.214	−1265.385	32.966
	2100.00	228.446	521.848	298.173	−1694.665	469.718	−2790.546	−2263.034	−1217.943	30.295
	2200.00	228.446	532.476	308.583	−1671.820	492.563	−2843.266	−2255.519	−1168.353	27.740
	2300.00	228.446	542.630	318.540	−1648.975	515.408	−2897.025	−2248.049	−1119.104	25.416
	2400.00	228.446	552.353	328.081	−1626.131	538.252	−2951.778	−2240.624	−1070.178	23.292
	2500.00	228.446	561.679	337.240	−1603.286	561.097	−3007.483	−2233.242	−1021.562	21.344
	2600.00	228.446	570.638	346.046	−1580.442	583.941	−3064.102	−2225.903	−973.239	19.553
	2700.00	228.446	579.260	354.524	−1557.597	606.786	−3121.599	−2218.607	−925.199	17.899
	2800.00	228.446	587.568	362.700	−1534.752	629.631	−3179.943	−2211.352	−877.427	16.369
	2900.00	228.446	595.585	370.593	−1511.908	652.475	−3239.103	−2204.136	−829.915	14.948
	3000.00	228.446	603.329	378.223	−1489.063	675.320	−3299.051	−2196.959	−782.650	13.627

References

Phase	H / S	C_p
SOL	Ja1	Ja1
LIQ	Ja1	Ja1

262.858 MAGNESIUM ORTHOPHOSPHATE **Mg3(PO4)2**

Phase	T [K]	C_p [J / (K mol)]	S [J / (K mol)]	-(G-H298)/T [J / (K mol)]	H [kJ / mol]	H-H298 [kJ / mol]	G [kJ / mol]	ΔH_f [kJ / mol]	ΔG_f [kJ / mol]	log K_f [-]
SOL	298.15	213.107	189.201	189.201	-3780.662	0.000	-3837.072	-3780.662	-3538.696	619.965
	300.00	213.593	190.520	189.205	-3780.267	0.395	-3837.423	-3780.711	-3537.194	615.880
	400.00	239.026	255.491	197.891	-3757.622	23.040	-3859.819	-3784.106	-3455.325	451.219
	500.00	262.568	311.395	215.122	-3732.525	48.137	-3888.223	-3784.517	-3373.048	352.380
	600.00	284.045	361.197	235.389	-3705.177	75.485	-3921.896	-3783.433	-3290.833	286.492
	700.00	303.399	406.464	256.643	-3675.787	104.875	-3960.312	-3781.040	-3208.906	239.451
	800.00	320.605	448.124	278.008	-3644.569	136.093	-4003.068	-3777.501	-3127.401	204.198
	900.00	335.651	486.776	299.083	-3611.738	168.924	-4049.837	-3772.977	-3046.401	176.809
	1000.00	348.531	522.826	319.675	-3577.511	203.151	-4100.337	-3794.481	-2963.676	154.807
	1100.00	359.242	556.564	339.693	-3542.104	238.558	-4154.325	-3788.167	-2880.894	136.802
	1200.00	367.781	588.204	359.098	-3505.735	274.927	-4211.580	-3908.191	-2796.545	121.730
	1300.00	374.148	617.908	377.876	-3468.620	312.042	-4271.901	-3898.915	-2704.280	108.659
	1400.00	378.340	645.802	396.028	-3430.978	349.684	-4335.101	-4270.133	-2601.861	97.077
	1500.00	380.358	671.987	413.562	-3393.025	387.637	-4401.005	-4256.713	-2483.166	86.472
	1600.00	380.202	696.541	430.489	-3354.979	425.683	-4469.444	-4243.312	-2365.368	77.221
	1621.00	379.892	701.497	433.968	-3346.998	433.664	-4484.124	-4240.520	-2340.738	75.427
			74.853		121.336					
LIQ	1621.00	474.718	776.349	433.968	-3225.662	555.000	-4484.124	-4119.184	-2340.738	75.427
	1700.00	475.386	798.955	450.408	-3188.133	592.529	-4546.355	-4101.217	-2254.496	69.272
	1800.00	476.231	826.151	470.534	-3140.552	640.110	-4627.623	-4078.489	-2146.521	62.290
	1900.00	477.076	851.922	489.935	-3092.886	687.776	-4711.538	-4055.775	-2039.809	56.078
	2000.00	477.922	876.414	508.651	-3045.136	735.526	-4797.965	-4033.074	-1934.293	50.519

References

Phase	H / S	C_p
SOL	Co1	Ja1
LIQ	Ja1	Ja1

255.810 2-MAGNESIUM LEAD **Mg2Pb**

Phase	T [K]	C_p [J / (K mol)]	S [J / (K mol)]	-(G-H298)/T [J / (K mol)]	H [kJ / mol]	H-H298 [kJ / mol]	G [kJ / mol]	ΔH_f [kJ / mol]	ΔG_f [kJ / mol]	log K_f [-]
SOL	298.15	72.466	110.876	110.876	-49.706	0.000	-82.764	-49.706	-43.963	7.702
	300.00	72.530	111.324	110.877	-49.572	0.134	-82.969	-49.714	-43.927	7.648
	400.00	75.981	132.663	113.763	-42.146	7.560	-95.211	-50.121	-41.936	5.476
	500.00	79.433	149.988	119.327	-34.376	15.330	-109.370	-50.501	-39.845	4.163
	600.00	82.885	164.776	125.699	-26.260	23.446	-125.125	-50.855	-37.681	3.280
	700.00	86.337	177.812	132.230	-17.799	31.907	-142.267	-56.022	-34.662	2.587
	800.00	89.789	189.566	138.674	-8.992	40.714	-160.645	-56.278	-31.592	2.063
	811.40	90.182	190.839	139.398	-7.966	41.740	-162.813	-56.298	-31.240	2.011

References

Phase	H / S	C_p	Remarks	
SOL	Tk1	Tk1,e	Hu1	DPT= 811.4 (peritec.)

MgS MAGNESIUM SULFIDE 56.371

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	45.584	50.334	50.334	−345.724	0.000	−360.731	−345.724	−341.431	59.817
	300.00	45.626	50.616	50.334	−345.640	0.084	−360.824	−345.728	−341.404	59.444
	400.00	47.616	64.030	52.150	−340.972	4.752	−366.584	−348.193	−339.839	44.378
	500.00	48.966	74.810	55.639	−336.138	9.586	−373.543	−349.930	−337.572	35.266
	600.00	49.883	83.824	59.606	−331.193	14.531	−381.487	−351.347	−334.960	29.161
	700.00	50.542	91.565	63.631	−326.170	19.554	−390.266	−352.538	−332.134	24.784
	800.00	51.042	98.348	67.556	−321.090	24.634	−399.769	−353.840	−329.133	21.490
	900.00	51.442	104.384	71.319	−315.965	29.759	−409.911	−408.062	−324.806	18.851
	1000.00	51.876	109.827	74.902	−310.799	34.925	−420.626	−416.937	−314.802	16.444
	1100.00	52.343	114.793	78.306	−305.588	40.136	−431.860	−416.832	−304.593	14.464
	1200.00	52.807	119.367	81.539	−300.331	45.393	−443.571	−416.686	−294.396	12.815
	1300.00	53.253	123.612	84.614	−295.027	50.697	−455.723	−416.501	−284.212	11.420
	1400.00	53.677	127.574	87.543	−289.681	56.043	−468.284	−543.240	−270.416	10.089
	1500.00	54.086	131.291	90.337	−284.292	61.432	−481.229	−541.794	−250.979	8.740
	1600.00	54.485	134.795	93.007	−278.864	66.860	−494.535	−540.313	−231.639	7.562
	1700.00	54.879	138.110	95.564	−273.396	72.328	−508.182	−538.796	−212.394	6.526
	1800.00	55.272	141.258	98.015	−267.888	77.836	−522.152	−537.243	−193.238	5.608
	1900.00	55.668	144.257	100.371	−262.341	83.383	−536.429	−535.656	−174.170	4.788
	2000.00	56.069	147.122	102.637	−256.754	88.970	−550.999	−534.032	−155.186	4.053
	2100.00	56.476	149.868	104.821	−251.127	94.597	−565.849	−532.372	−136.284	3.390
	2200.00	56.888	152.504	106.929	−245.459	100.265	−580.969	−530.674	−117.463	2.789
	2300.00	57.305	155.042	108.966	−239.749	105.975	−596.347	−528.939	−98.719	2.242
	2400.00	57.725	157.490	110.938	−233.998	111.726	−611.974	−527.166	−80.052	1.742
	2500.00	58.147	159.855	112.847	−228.204	117.520	−627.842	−525.354	−61.459	1.284

References

Phase	H / S	C_p
SOL	Ja1	Ja1

56.371 MAGNESIUM SULFIDE (GAS) **MgS[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	34.580	225.627	225.627	145.227	0.000	77.956	145.227	97.256	−17.039
	300.00	34.668	225.841	225.628	145.291	0.064	77.539	145.203	96.959	−16.882
	400.00	37.953	236.264	227.028	148.921	3.694	54.416	141.701	81.161	−10.599
	500.00	42.948	245.239	229.787	152.953	7.726	30.333	139.161	66.305	−6.927
	600.00	48.418	253.561	233.063	157.526	12.299	5.389	137.372	51.917	−4.520
	700.00	52.676	261.367	236.555	162.595	17.368	−20.362	136.227	37.770	−2.818
	800.00	55.077	268.579	240.114	167.999	22.772	−46.864	135.248	23.772	−1.552
	900.00	55.661	275.116	243.647	173.549	28.322	−74.055	81.453	11.050	−0.641
	1000.00	54.851	280.948	247.091	179.084	33.857	−101.864	72.946	3.960	−0.207
	1100.00	53.291	286.106	250.408	184.494	39.267	−130.222	73.251	−2.955	0.140
	1200.00	51.749	290.674	253.577	189.743	44.516	−159.065	73.387	−9.890	0.431
	1300.00	50.078	294.748	256.590	194.832	49.605	−188.340	73.358	−16.830	0.676
	1400.00	48.585	298.403	259.449	199.763	54.536	−218.001	−53.796	−20.133	0.751
	1500.00	47.279	301.710	262.158	204.555	59.328	−248.009	−52.947	−17.759	0.618
	1600.00	46.161	304.724	264.725	209.226	63.999	−278.333	−52.223	−15.437	0.504
	1700.00	45.217	307.494	267.161	213.793	68.566	−308.946	−51.607	−13.157	0.404
	1800.00	44.426	310.055	269.473	218.274	73.047	−339.825	−51.081	−10.911	0.317
	1900.00	43.764	312.439	271.673	222.683	77.456	−370.951	−50.632	−8.692	0.239
	2000.00	43.212	314.669	273.767	227.031	81.804	−402.308	−50.247	−6.495	0.170
	2100.00	42.752	316.766	275.765	231.328	86.101	−433.880	−49.917	−4.316	0.107
	2200.00	42.368	318.746	277.675	235.583	90.356	−465.657	−49.632	−2.151	0.051
	2300.00	42.048	320.622	279.501	239.804	94.577	−497.626	−49.386	0.002	0.000
	2400.00	41.781	322.405	281.252	243.995	98.768	−529.778	−49.173	2.144	−0.047
	2500.00	41.560	324.106	282.933	248.162	102.935	−562.104	−48.988	4.278	−0.089

References

Phase	H / S	C_p
GAS	Ja1	Ja1

MgSO4 MAGNESIUM SULFATE 120.369

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	96.202	91.600	91.600	−1284.898	0.000	−1312.209	−1284.898	−1170.579	205.081
	300.00	96.496	92.196	91.602	−1284.720	0.178	−1312.379	−1284.917	−1169.870	203.692
	400.00	109.905	121.905	95.562	−1274.361	10.537	−1323.123	−1287.632	−1131.332	147.737
	500.00	119.649	147.526	103.452	−1262.861	22.037	−1336.624	−1288.821	−1092.128	114.094
	600.00	127.460	170.051	112.712	−1250.494	34.404	−1352.525	−1289.136	−1052.744	91.650
	700.00	134.264	190.220	122.368	−1237.402	47.496	−1370.556	−1288.767	−1013.368	75.618
	800.00	140.484	208.560	132.013	−1223.660	61.238	−1390.508	−1288.082	−974.070	63.600
	900.00	146.291	225.445	141.468	−1209.319	75.579	−1412.219	−1339.897	−933.721	54.192
	1000.00	151.724	241.143	150.660	−1194.415	90.483	−1435.558	−1345.958	−887.984	46.384
	1100.00	156.757	255.843	159.561	−1178.987	105.911	−1460.415	−1342.655	−842.343	40.000
	1200.00	161.321	269.682	168.166	−1163.079	121.819	−1486.698	−1338.957	−797.021	34.693
	1300.00	165.325	282.757	176.483	−1146.742	138.156	−1514.326	−1334.903	−752.021	30.217
	1400.00	168.664	295.136	184.520	−1130.036	154.862	−1543.226	−1457.510	−703.717	26.256
			10.460		14.644					
LIQ	1400.00	158.992	305.596	184.520	−1115.392	169.506	−1543.226	−1442.866	−703.717	26.256
	1500.00	158.992	316.565	192.962	−1099.493	185.405	−1574.340	−1438.192	−651.085	22.673
	1600.00	158.992	326.826	201.011	−1083.594	201.304	−1606.515	−1433.574	−598.762	19.548
	1700.00	158.992	336.465	208.698	−1067.695	217.203	−1639.685	−1429.009	−546.726	16.799
	1800.00	158.992	345.553	216.051	−1051.795	233.103	−1673.790	−1424.497	−494.957	14.363
	1900.00	158.992	354.149	223.095	−1035.896	249.002	−1708.779	−1420.036	−443.438	12.191
	2000.00	158.992	362.304	229.854	−1019.997	264.901	−1744.605	−1415.626	−392.153	10.242

References

Phase	H / S	C_p
SOL	Nb1	Ja1
LIQ	Ja1	Ja1

MgSe MAGNESIUM SELENIDE 103.265

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	47.976	62.760	62.760	−292.880	0.000	−311.592	−292.880	−289.250	50.675
	300.00	48.007	63.057	62.761	−292.791	0.089	−311.708	−292.884	−289.227	50.359
	400.00	49.714	77.101	64.664	−287.905	4.975	−318.746	−293.217	−287.964	37.604
	500.00	51.421	88.378	68.315	−282.848	10.032	−327.037	−299.639	−286.510	29.931
	600.00	53.128	97.904	72.473	−277.621	15.259	−336.364	−300.713	−283.782	24.705
	700.00	54.836	106.222	76.712	−272.223	20.657	−346.578	−301.734	−280.879	20.959
	800.00	56.543	113.656	80.873	−266.654	26.226	−357.579	−302.702	−277.833	18.141
	900.00	58.250	120.414	84.897	−260.914	31.966	−369.287	−303.617	−274.669	15.941
	1000.00	59.957	126.640	88.764	−255.004	37.876	−381.644	−313.427	−270.648	14.137

References

Phase	H / S	C_p
SOL	Mi1	e

151.263 MAGNESIUM SELENITE **MgSeO3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	104.598	100.416	100.416	−900.192	0.000	−930.131	−900.192	−816.042	142.967
	300.00	104.709	101.063	100.418	−899.998	0.194	−930.317	−900.173	−815.520	141.995
	400.00	110.679	132.004	104.596	−889.229	10.963	−942.031	−899.079	−787.464	102.832
	500.00	116.650	157.343	112.684	−877.863	22.329	−956.534	−903.780	−759.613	79.356
	600.00	122.620	179.138	121.983	−865.899	34.293	−973.382	−902.857	−730.861	63.627
	700.00	128.591	198.489	131.555	−853.338	46.854	−992.280	−901.598	−702.289	52.405
	800.00	134.562	216.049	141.035	−840.181	60.011	−1013.020	−899.982	−673.923	44.003
	900.00	140.532	232.243	150.281	−826.426	73.766	−1035.445	−897.990	−645.781	37.480
	1000.00	146.503	247.359	159.241	−812.074	88.118	−1059.433	−904.552	−617.124	32.235
	1069.00	150.622	257.270	165.251	−801.824	98.368	−1076.845	−956.361	−594.050	29.027

References

Phase	H / S	C_p	Remarks
SOL	Nb1/Tk1	e	Tk1 MPT= 1069.

76.695 2−MAGNESIUM SILICON **Mg2Si**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	67.838	75.772	75.772	−79.287	0.000	−101.878	−79.287	−76.782	13.452
	300.00	67.988	76.192	75.773	−79.161	0.126	−102.019	−79.291	−76.767	13.366
	400.00	73.778	96.633	78.521	−72.042	7.245	−110.695	−79.396	−75.906	9.912
	500.00	77.262	113.495	83.879	−64.479	14.808	−121.227	−79.450	−75.027	7.838
	600.00	79.839	127.818	90.039	−56.620	22.667	−133.310	−79.540	−74.135	6.454
	700.00	81.987	140.290	96.345	−48.526	30.761	−146.729	−79.704	−73.222	5.464
	800.00	83.907	151.365	102.543	−40.230	39.057	−161.322	−79.961	−72.280	4.719
	900.00	85.695	161.352	108.532	−31.749	47.538	−176.966	−80.321	−71.300	4.138
	1000.00	87.400	170.470	114.276	−23.093	56.194	−193.563	−98.687	−68.757	3.592
	1100.00	89.051	178.878	119.772	−14.271	65.016	−211.036	−99.047	−65.746	3.122
	1200.00	90.665	186.696	125.027	−5.284	74.003	−229.319	−99.287	−62.707	2.730
	1300.00	92.254	194.016	130.055	3.862	83.149	−248.359	−99.410	−59.653	2.397
	1373.00	93.401	199.087	133.591	10.638	89.925	−262.708	−353.993	−55.206	2.100
			62.471		85.772					
LIQ	1373.00	94.140	261.557	133.591	96.410	175.697	−262.708	−268.221	−55.206	2.100
	1400.00	94.140	263.391	136.077	98.952	178.239	−269.795	−267.557	−51.024	1.904
	1500.00	94.140	269.886	144.784	108.366	187.653	−296.463	−265.126	−35.642	1.241
	1600.00	94.140	275.961	152.794	117.780	197.067	−323.758	−262.734	−20.422	0.667
	1700.00	94.140	281.668	160.209	127.194	206.481	−351.642	−310.561	−4.902	0.151
	1800.00	94.140	287.049	167.108	136.608	215.895	−380.081	−308.024	13.004	−0.377
	1900.00	94.140	292.139	173.556	146.022	225.309	−409.043	−305.487	30.770	−0.846
	2000.00	94.140	296.968	179.607	155.436	234.723	−438.500	−302.949	48.402	−1.264

References

Phase	H / S	C_p
SOL	Tk1	Ja1
LIQ	Ku1	Ja1

MgTe — MAGNESIUM TELLURIDE — 151.905

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	40.775	74.475	74.475	−209.200	0.000	−231.405	−209.200	−206.905	36.249
	300.00	40.794	74.727	74.476	−209.125	0.075	−231.543	−209.218	−206.890	36.023
	400.00	41.840	86.606	76.089	−204.993	4.207	−239.635	−210.323	−205.954	26.895
	500.00	42.886	96.055	79.168	−200.757	8.443	−248.784	−211.662	−204.712	21.386
	600.00	43.932	103.967	82.659	−196.416	12.784	−258.796	−213.235	−203.178	17.688
	700.00	44.978	110.817	86.203	−191.970	17.230	−269.542	−215.042	−201.363	15.026
	800.00	46.024	116.892	89.667	−187.420	21.780	−280.933	−234.704	−197.392	12.888
	900.00	47.070	122.373	93.001	−182.765	26.435	−292.901	−236.955	−192.593	11.178
	1000.00	48.116	127.386	96.192	−178.006	31.194	−305.392	−248.168	−186.785	9.757
	1100.00	49.162	132.021	99.241	−173.142	36.058	−318.366	−250.333	−180.541	8.573
	1200.00	50.208	136.344	102.155	−168.174	41.026	−331.786	−252.394	−174.105	7.579
	1300.00	51.254	140.404	104.943	−163.101	46.099	−345.626	−254.350	−167.500	6.730
	1400.00	52.300	144.240	107.614	−157.923	51.277	−359.860	−429.604	−154.630	5.769
	1500.00	53.346	147.884	110.178	−152.641	56.559	−374.467	−428.592	−135.024	4.702

References

Phase	H / S	C_p
SOL	Ku1	e

Mg2Th — 2−MAGNESIUM THORIUM — 280.648

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	76.974	92.466	92.466	−31.380	0.000	−58.949	−31.380	−23.546	4.125
	300.00	77.046	92.943	92.468	−31.238	0.142	−59.120	−31.380	−23.497	4.091
	400.00	80.549	115.601	95.534	−23.353	8.027	−69.593	−31.399	−20.867	2.725
	500.00	83.693	133.917	101.435	−15.139	16.241	−82.098	−31.451	−18.229	1.904
	600.00	86.694	149.442	108.174	−6.619	24.761	−96.284	−31.559	−15.576	1.356
	700.00	89.628	163.027	115.059	2.197	33.577	−111.922	−31.734	−12.899	0.963
	800.00	92.527	175.185	121.828	11.305	42.685	−128.843	−31.980	−10.193	0.666
	900.00	95.405	186.249	128.380	20.702	52.082	−146.922	−32.300	−7.451	0.432
	1000.00	98.270	196.450	134.684	30.386	61.766	−166.064	−50.592	−3.154	0.165
	1100.00	101.126	205.950	140.735	40.356	71.736	−186.189	−50.840	1.603	−0.076

References

Phase	H / S	C_p
SOL	N2,Tk1/Ku1	e

222.184 MAGNESIUM METAVANADATE **Mg(VO3)2**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f [-]
		J / (K mol)			kJ / mol					
SOL	298.15	165.137	160.699	160.699	-2201.658	0.000	-2249.570	-2201.658	-2039.094	357.241
	300.00	165.377	161.721	160.702	-2201.352	0.306	-2249.869	-2201.654	-2038.086	354.862
	400.00	178.347	211.074	167.344	-2184.166	17.492	-2268.596	-2201.065	-1983.632	259.036
	500.00	191.318	252.264	180.314	-2165.683	35.975	-2291.815	-2199.750	-1929.411	201.564
	600.00	204.288	288.292	195.366	-2145.903	55.755	-2318.878	-2197.679	-1875.525	163.279
	700.00	217.258	320.757	210.996	-2124.825	76.833	-2349.355	-2194.821	-1822.047	135.963
	800.00	230.229	350.614	226.606	-2102.451	99.207	-2382.942	-2191.147	-1769.035	115.506
	900.00	243.199	378.480	241.949	-2078.779	122.879	-2419.412	-2186.641	-1716.533	99.625
	1000.00	256.170	404.775	256.928	-2053.811	147.847	-2458.586	-2190.261	-1663.819	86.909
	1100.00	269.140	429.799	271.515	-2027.546	174.112	-2500.325	-2183.990	-1611.470	76.522
	1200.00	282.110	453.773	285.711	-1999.983	201.675	-2544.511	-2176.760	-1559.735	67.893
	1300.00	295.081	476.867	299.532	-1971.123	230.535	-2591.050	-2168.567	-1508.641	60.618
	1400.00	308.051	499.209	313.001	-1940.967	260.691	-2639.860	-2286.378	-1454.587	54.271
	1500.00	321.022	520.905	326.141	-1909.513	292.145	-2690.870	-2275.088	-1395.561	48.598

References

Phase	H / S	C_p
SOL	Nb1	Ku1,e

262.489 MAGNESIUM PYROVANADATE **Mg2V2O7**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f [-]
		J / (K mol)			kJ / mol					
SOL	298.15	203.470	200.401	200.401	-2836.375	0.000	-2896.125	-2836.375	-2645.323	463.450
	300.00	203.694	201.660	200.405	-2835.998	0.377	-2896.496	-2836.373	-2644.138	460.385
	400.00	215.786	261.915	208.539	-2815.024	21.351	-2919.791	-2836.033	-2580.098	336.926
	500.00	227.877	311.366	224.298	-2792.841	43.534	-2948.524	-2835.216	-2516.199	262.865
	600.00	239.969	353.981	242.438	-2769.449	66.926	-2981.838	-2833.900	-2452.510	213.510
	700.00	252.061	391.881	261.127	-2744.847	91.528	-3019.164	-2832.050	-2389.084	178.276
	800.00	264.153	426.328	279.655	-2719.037	117.338	-3060.099	-2829.630	-2325.961	151.870
	900.00	276.244	458.139	297.741	-2692.017	144.358	-3104.342	-2826.618	-2263.178	131.351
	1000.00	288.336	487.870	315.283	-2663.788	172.587	-3151.658	-2840.915	-2199.245	114.877
	1100.00	300.428	515.918	332.259	-2634.350	202.025	-3201.860	-2836.489	-2135.285	101.396
	1200.00	312.520	542.578	348.684	-2603.702	232.673	-3254.795	-2831.212	-2071.766	90.182
	1300.00	324.611	568.070	364.586	-2571.846	264.529	-3310.337	-2825.077	-2008.722	80.711
	1400.00	336.703	592.569	380.001	-2538.780	297.595	-3368.376	-3072.013	-1938.925	72.342
	1500.00	348.795	616.211	394.965	-2504.505	331.870	-3428.822	-3061.800	-1858.341	64.713

References

Phase	H / S	C_p
SOL	Nb1	Ku1,e

MgWO4 MAGNESIUM TUNGSTATE 272.153

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	109.139	101.169	101.169	−1515.863	0.000	−1546.027	−1515.863	−1404.217	246.013
	300.00	109.527	101.845	101.171	−1515.661	0.202	−1546.214	−1515.860	−1403.524	244.375
	400.00	123.612	135.540	105.670	−1503.915	11.948	−1558.131	−1515.073	−1366.168	178.403
	500.00	131.353	164.017	114.569	−1491.139	24.724	−1573.147	−1513.599	−1329.104	138.851
	600.00	136.960	188.480	124.896	−1477.713	38.150	−1590.801	−1511.836	−1292.367	112.511
	700.00	141.748	209.958	135.545	−1463.773	52.090	−1610.744	−1509.911	−1255.939	93.719
	800.00	146.225	229.180	146.068	−1449.373	66.490	−1632.718	−1507.852	−1219.797	79.645
	900.00	150.605	246.656	156.288	−1434.532	81.331	−1656.522	−1505.650	−1183.920	68.713
	1000.00	154.985	262.751	166.140	−1419.252	96.611	−1682.003	−1512.234	−1147.540	59.941
	1100.00	159.406	277.729	175.611	−1403.533	112.330	−1709.035	−1509.576	−1111.197	52.766
	1200.00	163.879	291.791	184.713	−1387.369	128.494	−1737.518	−1506.598	−1075.109	46.798
	1300.00	168.402	305.086	193.465	−1370.756	145.107	−1767.368	−1503.284	−1039.284	41.759
	1400.00	172.962	317.733	201.893	−1353.688	162.175	−1798.514	−1626.586	−1000.098	37.314
	1500.00	177.540	329.822	210.022	−1336.163	179.700	−1830.896	−1621.385	−955.529	33.274
	1600.00	182.115	341.426	217.874	−1318.180	197.683	−1864.462	−1615.824	−911.318	29.751
	1700.00	186.664	352.604	225.473	−1299.741	216.122	−1899.167	−1609.904	−867.465	26.654
	1800.00	191.162	363.401	232.837	−1280.849	235.014	−1934.970	−1603.625	−823.972	23.911
	1900.00	195.582	373.855	239.986	−1261.511	254.352	−1971.836	−1596.998	−780.837	21.467
	2000.00	199.898	383.998	246.934	−1241.736	274.127	−2009.731	−1590.033	−738.060	19.276

References

Phase	H / S	C_p
SOL	Ja1	Ja1

54.938 MANGANESE **Mn**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	26.328	32.008	32.008	0.000	0.000	−9.543	0.000	0.000	0.000
	300.00	26.363	32.171	32.008	0.049	0.049	−9.602	0.000	0.000	0.000
	400.00	28.235	40.011	33.065	2.779	2.779	−13.226	0.000	0.000	0.000
	500.00	30.108	46.513	35.121	5.696	5.696	−17.561	0.000	0.000	0.000
	600.00	31.981	52.168	37.501	8.800	8.800	−22.500	0.000	0.000	0.000
	700.00	33.430	57.214	39.963	12.076	12.076	−27.974	0.000	0.000	0.000
	800.00	34.776	61.766	42.409	15.486	15.486	−33.927	0.000	0.000	0.000
	900.00	36.122	65.940	44.794	19.031	19.031	−40.315	0.000	0.000	0.000
	980.00	37.199	69.061	46.649	21.964	21.964	−45.716	0.000	0.000	0.000
			2.271		2.226					
SOL−B	980.00	37.596	71.333	46.649	24.190	24.190	−45.716	0.000	0.000	0.000
	1000.00	37.681	72.093	47.150	24.943	24.943	−47.150	0.000	0.000	0.000
	1100.00	38.106	75.704	49.584	28.732	28.732	−54.543	0.000	0.000	0.000
	1200.00	38.530	79.038	51.902	32.564	32.564	−62.282	0.000	0.000	0.000
	1300.00	38.955	82.139	54.110	36.438	36.438	−70.343	0.000	0.000	0.000
	1360.00	39.210	83.902	55.385	38.783	38.783	−75.324	0.000	0.000	0.000
			1.560		2.121					
SOL−C	1360.00	43.095	85.462	55.385	40.904	40.904	−75.324	0.000	0.000	0.000
	1400.00	43.430	86.716	56.263	42.635	42.635	−78.768	0.000	0.000	0.000
	1410.00	43.514	87.025	56.480	43.069	43.069	−79.637	0.000	0.000	0.000
			1.333		1.879					
SOL−D	1410.00	45.232	88.358	56.480	44.948	44.948	−79.637	0.000	0.000	0.000
	1500.00	45.976	91.180	58.478	49.053	49.053	−87.717	0.000	0.000	0.000
	1517.00	46.116	91.699	58.847	49.835	49.835	−89.271	0.000	0.000	0.000
			7.949		12.058					
LIQ	1517.00	46.024	99.647	58.847	61.893	61.893	−89.271	0.000	0.000	0.000
	1600.00	46.024	102.099	61.028	65.713	65.713	−97.645	0.000	0.000	0.000
	1700.00	46.024	104.889	63.527	70.316	70.316	−107.995	0.000	0.000	0.000
	1800.00	46.024	107.520	65.898	74.918	74.918	−118.617	0.000	0.000	0.000
	1900.00	46.024	110.008	68.155	79.521	79.521	−129.495	0.000	0.000	0.000
	2000.00	46.024	112.369	70.307	84.123	84.123	−140.614	0.000	0.000	0.000
	2100.00	46.024	114.614	72.364	88.725	88.725	−151.964	0.000	0.000	0.000
	2200.00	46.024	116.755	74.334	93.328	93.328	−163.534	0.000	0.000	0.000
	2300.00	46.024	118.801	76.223	97.930	97.930	−175.312	0.000	0.000	0.000
	2332.00	46.024	119.437	76.811	99.403	99.403	−179.124	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL−A	Hu1	Hu1		complex bcc
SOL−B	Hu1	Hu1		complex cubic
SOL−C	Hu1	Hu1		fcc
SOL−D	Hu1	Hu1		bcc
LIQ	Hu1	Hu1	Hu1	BPT = 2332., L = 226.7 kJ

Mn[g] MANGANESE (GAS) 54.938

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	20.786	173.712	173.712	283.257	0.000	231.465	283.257	241.008	−42.224
	300.00	20.786	173.841	173.712	283.295	0.038	231.143	283.247	240.746	−41.918
	400.00	20.786	179.820	174.528	285.374	2.117	213.446	282.595	226.672	−29.600
	500.00	20.786	184.459	176.067	287.453	4.196	195.223	281.757	212.784	−22.229
	600.00	20.786	188.248	177.791	289.531	6.274	176.582	280.731	199.083	−17.332
	700.00	20.786	191.453	179.520	291.610	8.353	157.593	279.534	185.567	−13.847
	800.00	20.786	194.228	181.189	293.689	10.432	138.306	278.202	172.233	−11.246
	900.00	20.786	196.676	182.776	295.767	12.510	118.758	276.736	159.073	−9.232
	1000.00	20.786	198.866	184.278	297.846	14.589	98.979	272.903	146.130	−7.633
	1100.00	20.786	200.848	185.695	299.924	16.667	78.992	271.192	133.535	−6.341
	1200.00	20.786	202.656	187.035	302.003	18.746	58.815	269.439	121.097	−5.271
	1300.00	20.786	204.320	188.301	304.082	20.825	38.466	267.643	108.808	−4.372
	1400.00	20.786	205.860	189.501	306.160	22.903	17.956	263.526	96.723	−3.609
	1500.00	20.786	207.295	190.640	308.239	24.982	−2.703	259.186	85.014	−2.960
	1600.00	20.792	208.636	191.723	310.318	27.061	−23.500	244.604	74.144	−2.421
	1700.00	20.795	209.897	192.756	312.397	29.140	−44.428	242.081	63.568	−1.953
	1800.00	20.798	211.085	193.741	314.477	31.220	−65.477	239.558	53.140	−1.542
	1900.00	20.806	212.210	194.684	316.557	33.300	−86.643	237.036	42.852	−1.178
	2000.00	20.820	213.278	195.587	318.638	35.381	−107.917	234.515	32.697	−0.854
	2100.00	20.845	214.294	196.454	320.721	37.464	−129.296	231.996	22.668	−0.564
	2200.00	20.881	215.265	197.287	322.807	39.550	−150.775	229.480	12.759	−0.303
	2300.00	20.931	216.194	198.089	324.898	41.641	−172.348	226.968	2.964	−0.067
	2400.00	20.995	217.086	198.862	326.994	43.737	−194.012	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

129.860 MANGANESE ARSENIDE **MnAs**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL−3	298.15	70.164	77.069	77.069	−56.902	0.000	−79.880	−56.902	−59.691	10.458
	300.00	70.182	77.503	77.071	−56.772	0.130	−80.023	−56.867	−59.709	10.396
	315.65	70.340	81.076	77.181	−55.673	1.229	−81.264	−56.569	−59.865	9.907
			10.366		3.272					
SOL−2	315.65	70.340	91.442	77.181	−52.401	4.501	−81.264	−53.297	−59.865	9.907
	393.00	71.116	106.941	81.566	−46.930	9.972	−88.958	−51.886	−61.636	8.192
			0.064		0.025					
SOL−1	393.00	71.116	107.004	81.566	−46.905	9.997	−88.958	−51.861	−61.636	8.192
	400.00	71.187	108.261	82.022	−46.407	10.495	−89.711	−51.737	−61.811	8.072
	500.00	72.191	124.253	88.925	−39.238	17.664	−101.365	−50.053	−64.528	6.741
	600.00	73.195	137.504	95.948	−31.969	24.933	−114.471	−48.510	−67.570	5.883
	700.00	74.199	148.862	102.715	−24.599	32.303	−128.803	−47.094	−70.860	5.288
	800.00	75.203	158.836	109.119	−17.129	39.773	−144.198	−45.766	−74.347	4.854
	900.00	76.207	167.752	115.147	−9.558	47.344	−160.535	−44.523	−77.995	4.527
	1000.00	77.212	175.833	120.818	−1.887	55.015	−177.720	−45.573	−81.732	4.269
	1100.00	78.216	183.239	126.161	5.884	62.786	−195.679	−44.429	−85.404	4.055
	1200.00	79.220	190.088	131.206	13.756	70.658	−214.349	−43.339	−89.178	3.882
	1209.00	79.310	190.680	131.647	14.469	71.371	−216.063	−43.249	−89.522	3.868

References

Phase	H / S	C_p	Remarks	
SOL−3	Tk1	e		
SOL−2	Tk1	e		
SOL−1	Tk1	e	Tk1	MPT= 1209.

442.653 MANGANESE ARSENATE **Mn3(AsO4)2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	261.785	319.616	319.616	−2366.261	0.000	−2461.554	−2366.261	−2166.975	379.645
	300.00	262.389	321.237	319.621	−2365.776	0.485	−2462.147	−2366.231	−2165.739	377.089
	400.00	286.357	400.338	330.243	−2338.223	28.038	−2498.358	−2363.765	−2099.241	274.133
	500.00	301.629	465.970	351.013	−2308.782	57.479	−2541.767	−2360.445	−2033.485	212.437
	600.00	313.477	522.045	374.957	−2278.008	88.253	−2591.235	−2356.867	−1968.428	171.367
	700.00	323.710	571.150	399.548	−2246.140	120.121	−2645.945	−2353.200	−1903.975	142.076
	800.00	333.081	614.995	423.787	−2213.295	152.966	−2705.291	−2349.398	−1840.058	120.143
	862.00	338.625	640.062	438.450	−2192.471	173.790	−2744.205	−2346.975	−1800.676	109.116

References

Phase	H / S	C_p
SOL	G1	G1

MnB — MANGANESE MONOBORIDE — 65.749

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	35.818	32.426	32.426	−75.312	0.000	−84.980	−75.312	−73.699	12.912
	300.00	35.987	32.648	32.427	−75.246	0.066	−85.040	−75.315	−73.689	12.830
	400.00	42.499	43.994	33.929	−71.286	4.026	−88.884	−75.451	−73.125	9.549
	500.00	46.367	53.921	36.958	−66.830	8.482	−93.791	−75.642	−72.524	7.577
	600.00	49.195	62.635	40.526	−62.046	13.266	−99.628	−75.944	−71.874	6.257
	700.00	51.531	70.399	44.249	−57.007	18.305	−106.286	−76.335	−71.165	5.310
	800.00	53.605	77.417	47.963	−51.749	23.563	−113.683	−76.770	−70.397	4.596
	900.00	55.527	83.843	51.598	−46.291	29.021	−121.750	−77.240	−69.573	4.038
	1000.00	57.354	89.788	55.123	−40.647	34.665	−130.435	−79.969	−68.649	3.586
	1100.00	59.120	95.338	58.530	−34.823	40.489	−139.694	−80.464	−67.492	3.205
	1200.00	60.843	100.556	61.816	−28.824	46.488	−149.492	−80.886	−66.294	2.886

References

Phase	H / S	C_p	Remarks
SOL	Ku1	e	Tk1 MPT= 2163.

MnB2 — MANGANESE DIBORIDE — 76.560

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	53.623	34.518	34.518	−94.140	0.000	−104.432	−94.140	−91.412	16.015
	300.00	53.706	34.850	34.519	−94.041	0.099	−104.496	−94.131	−91.395	15.913
	400.00	58.191	50.914	36.679	−88.446	5.694	−108.812	−93.996	−90.520	11.821
	500.00	62.676	64.381	40.906	−82.403	11.737	−114.593	−94.331	−89.619	9.362
	600.00	67.162	76.205	45.823	−75.911	18.229	−121.634	−94.905	−88.626	7.716
	700.00	71.647	86.895	50.938	−68.970	25.170	−129.797	−95.550	−87.528	6.531
	800.00	76.132	96.755	56.056	−61.581	32.559	−138.985	−96.138	−86.341	5.637
	900.00	80.617	105.981	61.096	−53.744	40.396	−149.126	−96.609	−85.086	4.938
	1000.00	85.103	114.707	66.024	−45.458	48.682	−160.164	−99.160	−83.742	4.374
	1100.00	89.588	123.028	70.831	−36.723	57.417	−172.054	−99.275	−82.192	3.903
	1200.00	94.073	131.016	75.516	−27.540	66.600	−184.759	−99.101	−80.645	3.510

References

Phase	H / S	C_p	Remarks
SOL	Ku1	e	Tk1 MPT= 2261.

214.746 MANGANESE DIBROMIDE **MnBr2**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	75.304	142.256	142.256	−385.765	0.000	−428.179	−385.765	−373.254	65.393
	300.00	75.350	142.722	142.257	−385.626	0.139	−428.442	−385.814	−373.176	64.976
	400.00	77.831	164.738	145.243	−377.967	7.798	−443.862	−415.367	−362.820	47.379
	500.00	80.312	182.372	150.961	−370.059	15.706	−461.246	−414.070	−349.832	36.547
	600.00	82.793	197.234	157.466	−361.904	23.861	−480.245	−412.737	−337.109	29.348
	700.00	85.274	210.183	164.092	−353.501	32.264	−500.629	−411.345	−324.613	24.223
	800.00	87.755	221.732	170.588	−344.849	40.916	−522.235	−409.851	−312.324	20.393
	900.00	90.236	232.211	176.861	−335.950	49.815	−544.940	−408.254	−300.228	17.425
	971.00	91.998	239.129	181.164	−329.481	56.284	−561.675	−407.056	−291.752	15.695
			34.472		33.472					
LIQ	971.00	100.416	273.601	181.164	−296.009	89.756	−561.675	−373.584	−291.752	15.695
	1000.00	100.416	276.556	183.887	−293.096	92.669	−569.652	−375.078	−289.273	15.110
	1100.00	100.416	286.127	192.754	−283.055	102.710	−597.794	−372.598	−280.813	13.335
	1200.00	100.416	294.864	200.904	−273.013	112.752	−626.850	−370.168	−272.576	11.865
	1300.00	100.416	302.902	208.445	−262.972	122.793	−656.744	−367.786	−264.541	10.629

References

Phase	H / S	C_p
SOL	Tk1	e
LIQ	Br1,e	e

MnBr2[g] MANGANESE DIBROMIDE (GAS) 214.746

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	55.596	318.093	318.093	−175.310	0.000	−270.150	−175.310	−215.225	37.707
	300.00	55.663	318.438	318.094	−175.207	0.103	−270.738	−175.396	−215.473	37.517
	400.00	58.059	334.825	320.313	−169.505	5.805	−303.435	−206.906	−222.393	29.041
	500.00	59.254	347.922	324.569	−163.634	11.676	−337.594	−207.644	−226.181	23.629
	600.00	59.975	358.793	329.393	−157.670	17.640	−372.946	−208.502	−229.810	20.007
	700.00	60.473	368.078	334.272	−151.646	23.664	−409.301	−209.490	−233.285	17.408
	800.00	60.853	376.179	339.015	−145.579	29.731	−446.522	−210.581	−236.611	15.449
	900.00	61.163	383.365	343.551	−139.478	35.832	−484.506	−211.782	−239.794	13.917
	1000.00	61.429	389.823	347.861	−133.348	41.962	−523.171	−215.329	−242.791	12.682
	1100.00	61.668	395.689	351.946	−127.193	48.117	−562.451	−216.736	−245.470	11.656
	1200.00	61.888	401.065	355.819	−121.015	54.295	−602.292	−218.169	−248.019	10.796
	1300.00	62.094	406.027	359.492	−114.815	60.495	−642.650	−219.630	−250.447	10.063
	1400.00	62.291	410.635	362.983	−108.596	66.714	−683.486	−223.399	−252.697	9.428
	1500.00	62.480	414.940	366.305	−102.358	72.952	−724.767	−227.375	−254.598	8.866
	1600.00	62.664	418.978	369.472	−96.100	79.210	−766.465	−241.581	−255.683	8.347
	1700.00	62.843	422.782	372.497	−89.825	85.485	−808.555	−243.716	−256.499	7.881
	1800.00	63.020	426.379	375.391	−83.532	91.778	−851.014	−245.838	−257.189	7.463
	1900.00	63.193	429.791	378.165	−77.221	98.089	−893.824	−247.948	−257.762	7.086
	2000.00	63.365	433.037	380.829	−70.893	104.417	−936.967	−250.046	−258.225	6.744

References

Phase	H / S	C_p
GAS	Tk1	e

Mn3C TRIMANGANESE CARBIDE 176.825

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	93.433	98.701	98.701	4.602	0.000	−24.826	4.602	5.515	−0.966
	300.00	93.712	99.279	98.702	4.775	0.173	−25.009	4.613	5.521	−0.961
	400.00	104.333	127.864	102.528	14.737	10.135	−36.409	5.348	5.717	−0.747
	500.00	110.508	151.856	110.060	25.500	20.898	−50.428	6.029	5.726	−0.598
	600.00	114.932	172.412	118.780	36.781	32.179	−66.666	6.416	5.623	−0.490
	700.00	118.530	190.407	127.754	48.459	43.857	−84.826	6.489	5.483	−0.409
	800.00	121.688	206.444	136.606	60.473	55.871	−104.682	6.348	5.346	−0.349
	900.00	124.589	220.946	145.184	72.788	68.186	−126.063	5.996	5.240	−0.304
	1000.00	127.332	234.216	153.433	85.385	80.783	−148.831	−1.261	5.320	−0.278
	1100.00	129.970	246.477	161.341	98.251	93.649	−172.873	−1.952	6.012	−0.286
	1200.00	132.538	257.896	168.917	111.377	106.775	−198.098	−2.567	6.764	−0.294

References

Phase	H / S	C_p
SOL−A	Nb1	A1

420.599 HEPTAMANGANESE TRICARBIDE **Mn7C3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	235.772	238.906	238.906	−109.202	0.000	−180.432	−109.202	−108.496	19.008
	300.00	236.036	240.366	238.911	−108.766	0.436	−180.875	−109.154	−108.492	18.890
	400.00	248.562	310.051	248.328	−84.513	24.689	−208.533	−107.121	−108.606	14.183
	500.00	259.352	366.694	266.507	−59.109	50.093	−242.455	−106.131	−109.114	11.399
	600.00	269.459	414.879	287.317	−32.664	76.538	−281.592	−106.159	−109.724	9.552
	700.00	279.244	457.154	308.619	−5.227	103.975	−325.235	−106.986	−110.259	8.228
	800.00	288.859	495.071	329.595	23.179	132.381	−372.878	−108.224	−110.647	7.224
	900.00	298.374	529.644	349.929	52.541	161.743	−424.138	−109.774	−110.859	6.434
	1000.00	307.827	561.571	369.517	82.852	192.054	−478.719	−127.202	−110.567	5.775
	1100.00	317.242	591.351	388.345	114.105	223.307	−536.381	−129.041	−108.811	5.167

References

Phase	H / S	C_p
SOL	Pa3	Pa3

872.115 15−MANGANESE 4−CARBID **Mn15C4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	447.985	135.980	135.980	−175.728	0.000	−216.270	−175.728	−66.278	11.612
	300.00	448.486	138.753	135.989	−174.899	0.829	−216.525	−175.693	−65.599	11.422
	400.00	472.284	271.160	153.881	−128.816	46.912	−237.280	−174.707	−29.098	3.800
	500.00	492.788	378.785	188.423	−80.547	95.181	−269.939	−175.520	7.360	−0.769
	600.00	511.995	470.341	227.963	−30.301	145.427	−312.506	−178.161	44.154	−3.844
	700.00	530.590	550.668	268.439	21.832	197.560	−363.635	−182.276	81.520	−6.083
	800.00	548.858	622.713	308.295	75.806	251.534	−422.364	−187.152	119.530	−7.805
	900.00	566.937	688.405	346.932	131.597	307.325	−487.967	−192.665	158.190	−9.181
	1000.00	584.897	749.068	384.150	189.190	364.918	−559.878	−232.223	198.177	−10.352
	1100.00	602.781	805.654	419.924	248.574	424.302	−637.645	−238.435	241.525	−11.469
	1200.00	620.613	858.867	454.307	309.744	485.472	−720.896	−243.725	285.399	−12.423
	1300.00	638.407	909.246	487.381	372.696	548.424	−809.324	−248.054	329.675	−13.246
	1400.00	656.175	957.207	519.241	437.425	613.153	−902.665	−285.588	375.217	−14.000

References

Phase	H / S	C_p
SOL	Pa3	Pa3

MnCO3 MANGANESE CARBONATE 114.947

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	81.499	85.801	85.801	−894.100	0.000	−919.682	−894.100	−816.680	143.079
	300.00	81.843	86.306	85.803	−893.949	0.151	−919.841	−894.095	−816.200	142.113
	400.00	95.273	111.887	89.200	−885.025	9.075	−929.780	−893.395	−790.321	103.205
	500.00	103.579	134.094	96.009	−875.058	19.042	−942.105	−892.264	−764.679	79.885
	600.00	109.869	153.554	104.012	−864.375	29.725	−956.507	−891.005	−739.279	64.360
	700.00	115.206	170.900	112.350	−853.115	40.985	−972.745	−889.681	−714.094	53.286

References

Phase	H / S	C_p
SOL	Nb1	Ku1,e

MnCl2 MANGANESE DICHLORIDE 125.843

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	73.010	118.240	118.240	−481.290	0.000	−516.543	−481.290	−440.478	77.170
	300.00	73.104	118.692	118.241	−481.155	0.135	−516.762	−481.266	−440.225	76.650
	400.00	76.929	140.294	121.161	−473.637	7.653	−529.754	−479.945	−426.742	55.727
	500.00	79.518	157.751	126.788	−465.808	15.482	−544.684	−478.605	−413.596	43.208
	600.00	81.620	172.440	133.205	−457.749	23.541	−561.213	−477.285	−400.719	34.886
	700.00	83.492	185.164	139.738	−449.492	31.798	−579.107	−475.981	−388.060	28.957
	800.00	85.241	196.428	146.134	−441.055	40.235	−598.197	−474.659	−375.590	24.524
	900.00	86.919	206.565	152.294	−432.446	48.844	−618.355	−473.321	−363.287	21.085
	923.00	87.299	208.764	153.674	−430.443	50.847	−623.131	−473.011	−360.479	20.400
			40.843		37.698					
LIQ	923.00	94.307	249.606	153.674	−392.745	88.545	−623.131	−435.313	−360.479	20.400
	1000.00	94.307	257.163	161.356	−385.483	95.807	−642.646	−436.011	−354.253	18.504
	1100.00	94.307	266.151	170.481	−376.052	105.238	−668.819	−434.123	−346.169	16.438
	1200.00	94.307	274.357	178.800	−366.622	114.668	−695.850	−432.288	−338.255	14.724
	1300.00	94.307	281.906	186.445	−357.191	124.099	−723.668	−430.505	−330.491	13.279
	1400.00	94.307	288.895	193.516	−347.760	133.530	−752.213	−431.051	−322.799	12.044
	1500.00	94.307	295.401	200.094	−338.329	142.961	−781.431	−431.827	−314.986	10.969

References

Phase	H / S	C_p
SOL	Nb1	Pa2
LIQ	Pa2	Pa2

125.843 MANGANESE DICHLORIDE (GAS) **MnCl2[g]**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	53.823	289.856	289.856	-263.600	0.000	-350.020	-263.600	-273.955	47.996
	300.00	53.889	290.189	289.857	-263.500	0.100	-350.557	-263.612	-274.019	47.711
	400.00	56.252	306.061	292.005	-257.977	5.623	-380.402	-264.286	-277.389	36.223
	500.00	57.413	318.751	296.128	-252.288	11.312	-411.664	-265.085	-280.576	29.312
	600.00	58.101	329.284	300.801	-246.510	17.090	-444.081	-266.046	-283.586	24.688
	700.00	58.566	338.277	305.528	-240.675	22.925	-477.470	-267.164	-286.423	21.373
	800.00	58.911	346.121	310.122	-234.801	28.799	-511.698	-268.405	-289.091	18.876
	900.00	59.188	353.077	314.516	-228.896	34.704	-546.664	-269.770	-291.596	16.924
	1000.00	59.421	359.325	318.690	-222.965	40.635	-582.290	-273.492	-293.897	15.352
	1100.00	59.627	364.998	322.646	-217.012	46.588	-618.510	-275.083	-295.861	14.049
	1200.00	59.813	370.195	326.395	-211.040	52.560	-655.274	-276.707	-297.678	12.958
	1300.00	59.986	374.989	329.951	-205.050	58.550	-692.536	-278.364	-299.359	12.028
	1400.00	60.149	379.440	333.329	-199.043	64.557	-730.260	-282.335	-300.846	11.225
	1500.00	60.304	383.596	336.543	-193.021	70.579	-768.414	-286.519	-301.969	10.515
	1600.00	60.455	387.492	339.607	-186.983	76.617	-806.970	-300.937	-302.262	9.868
	1700.00	60.601	391.162	342.532	-180.930	82.670	-845.905	-303.290	-302.273	9.288
	1800.00	60.744	394.630	345.331	-174.863	88.737	-885.196	-305.636	-302.145	8.768
	1900.00	60.884	397.918	348.013	-168.781	94.819	-924.825	-307.974	-301.888	8.299
	2000.00	61.022	401.044	350.587	-162.686	100.914	-964.774	-310.306	-301.507	7.875

References

Phase	H / S	C_p
GAS	Nb1/e	e

MnF2 MANGANESE DIFLUORIDE 92.935

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL-A	298.15	67.791	93.094	93.094	-849.352	0.000	-877.108	-849.352	-807.102	141.401
	300.00	67.916	93.514	93.095	-849.226	0.126	-877.281	-849.333	-806.839	140.483
	400.00	72.913	113.804	95.828	-842.161	7.191	-887.683	-848.212	-792.840	103.534
	500.00	76.142	130.440	101.137	-834.700	14.652	-899.920	-847.031	-779.134	81.396
	600.00	78.675	144.553	107.226	-826.956	22.396	-913.688	-845.864	-765.664	66.657
	700.00	80.878	156.849	113.455	-818.976	30.376	-928.771	-844.710	-752.389	56.144
	800.00	82.907	167.783	119.575	-810.786	38.566	-945.012	-843.536	-739.280	48.270
	900.00	84.834	177.660	125.489	-802.398	46.954	-962.292	-842.341	-726.319	42.154
	1000.00	86.697	186.695	131.164	-793.821	55.531	-980.516	-843.356	-713.447	37.267
	1023.00	87.119	188.671	132.435	-791.822	57.530	-984.833	-843.075	-710.463	36.276
			2.045		2.092					
SOL-B	1023.00	87.368	190.716	132.435	-789.730	59.622	-984.833	-840.983	-710.463	36.276
	1100.00	89.014	197.116	136.741	-782.939	66.413	-999.767	-839.970	-700.675	33.272
	1173.00	90.574	202.885	140.679	-776.385	72.967	-1014.368	-838.928	-691.465	30.791
			24.968		29.288					
LIQ	1173.00	92.048	227.853	140.679	-747.097	102.255	-1014.368	-809.640	-691.465	30.791
	1200.00	92.048	229.948	142.664	-744.611	104.741	-1020.549	-809.202	-688.749	29.980
	1300.00	92.048	237.316	149.665	-735.406	113.946	-1043.917	-807.618	-678.776	27.274

References

Phase	H / S	C_p
SOL-A	Pa2	Pa2
SOL-B	Pa2	Pa2
LIQ	Pa2	e

MnF2[g] MANGANESE DIFLUORIDE (GAS) 92.935

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	52.928	272.471	272.471	-531.368	0.000	-612.605	-531.368	-542.599	95.061
	300.00	53.019	272.799	272.472	-531.270	0.098	-613.110	-531.377	-542.669	94.487
	400.00	56.307	288.564	274.599	-525.782	5.586	-641.208	-531.832	-546.364	71.348
	500.00	57.968	301.324	278.710	-520.061	11.307	-670.723	-532.391	-549.936	57.451
	600.00	58.990	311.990	283.392	-514.209	17.159	-701.403	-533.117	-553.380	48.176
	700.00	59.710	321.140	288.146	-508.272	23.096	-733.070	-534.006	-556.688	41.541
	800.00	60.269	329.151	292.782	-502.272	29.096	-765.593	-535.022	-559.861	36.555
	900.00	60.735	336.277	297.226	-496.222	35.146	-798.871	-536.164	-562.898	32.670
	1000.00	61.142	342.698	301.457	-490.127	41.241	-832.825	-539.662	-565.757	29.552
	1100.00	61.511	348.543	305.476	-483.995	47.373	-867.392	-541.025	-568.300	26.986
	1200.00	61.854	353.910	309.292	-477.826	53.542	-902.518	-542.417	-570.719	24.843

References

Phase	H / S	C_p
GAS	Pa2	Pa2

111.933

MANGANESE TRIFLUORIDE

MnF3

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	91.238	97.069	97.069	−1071.104	0.000	−1100.045	−1071.104	−999.807	175.162
	300.00	91.295	97.633	97.071	−1070.935	0.169	−1100.225	−1071.071	−999.365	174.005
	400.00	94.391	124.321	100.688	−1061.651	9.453	−1111.379	−1069.337	−975.727	127.417
	500.00	97.487	145.717	107.623	−1052.057	19.047	−1124.915	−1067.705	−952.515	99.509
	600.00	100.583	163.764	115.513	−1042.153	28.951	−1140.412	−1066.115	−929.627	80.931
	700.00	103.680	179.502	123.554	−1031.940	39.164	−1157.592	−1064.503	−907.006	67.682
	800.00	106.776	193.548	131.440	−1021.418	49.686	−1176.256	−1062.800	−884.621	57.760
	900.00	109.872	206.304	139.060	−1010.585	60.519	−1196.258	−1060.984	−862.456	50.056
	1000.00	112.968	218.040	146.379	−999.443	71.661	−1217.483	−1061.274	−840.455	43.901

References

Phase	H / S	C_p
SOL	Tk1	e

308.747

MANGANESE DIIODIDE

MnI2

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	75.341	171.544	171.544	−266.102	0.000	−317.248	−266.102	−273.077	47.842
	300.00	75.391	172.010	171.545	−265.963	0.139	−317.566	−266.112	−273.120	47.554
	400.00	78.124	194.073	174.535	−258.287	7.815	−335.916	−282.805	−274.805	35.886
	500.00	80.856	211.799	180.271	−250.338	15.764	−356.238	−325.967	−268.653	28.066
	600.00	83.588	226.783	186.805	−242.116	23.986	−378.185	−324.600	−257.317	22.401
	700.00	86.320	239.873	193.471	−233.620	32.482	−401.531	−323.143	−246.217	18.373
	800.00	89.052	251.578	200.015	−224.852	41.250	−426.114	−321.557	−235.334	15.366
	900.00	91.784	262.224	206.344	−215.810	50.292	−451.812	−319.840	−224.658	13.039
	911.00	92.085	263.341	207.026	−214.799	51.303	−454.702	−319.643	−223.496	12.815
			45.928		41.840					
LIQ	911.00	108.784	309.269	207.026	−172.959	93.143	−454.702	−277.803	−223.496	12.815
	1000.00	108.784	319.409	216.584	−163.277	102.825	−482.686	−277.007	−218.289	11.402
	1100.00	108.784	329.777	226.410	−152.398	113.704	−515.153	−273.712	−212.577	10.094
	1200.00	108.784	339.242	235.424	−141.520	124.582	−548.611	−270.467	−207.163	9.018

References

Phase	H / S	C_p	Remarks	
SOL	Tk1	e		
LIQ	Br1	e	Br1	NBPT= 1290.

MnMoO4 — MANGANESE MOLYBDATE — 214.876

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	124.078	135.980	135.980	−1191.310	0.000	−1231.852	−1191.310	−1091.455	191.218
	300.00	124.173	136.748	135.982	−1191.080	0.230	−1232.105	−1191.282	−1090.836	189.931
	400.00	129.302	173.173	140.914	−1178.407	12.903	−1247.676	−1189.734	−1057.585	138.106
	500.00	134.432	202.577	150.396	−1165.220	26.090	−1266.508	−1188.132	−1024.732	107.053
	600.00	139.562	227.540	161.224	−1151.520	39.790	−1288.044	−1186.474	−992.207	86.379
	700.00	144.691	249.439	172.292	−1137.308	54.002	−1311.915	−1184.718	−959.965	71.633
	800.00	149.821	269.094	183.184	−1122.582	68.728	−1337.857	−1182.797	−927.987	60.591
	900.00	154.950	287.037	193.741	−1107.343	83.967	−1365.677	−1180.681	−896.261	52.018
	1000.00	160.080	303.628	203.910	−1091.592	99.718	−1395.220	−1180.578	−864.736	45.169

References

Phase	H / S	C_p
SOL	Nb1/e	e

Mn4N — TETRAMANGANESE MONONITRIDE — 233.759

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	124.796	142.925	142.925	−128.650	0.000	−171.263	−128.650	−104.527	18.313
	300.00	125.152	143.698	142.928	−128.419	0.231	−171.528	−128.641	−104.377	18.174
	400.00	139.910	181.938	148.041	−115.091	13.559	−187.866	−127.691	−96.412	12.590
	500.00	147.026	214.035	158.123	−100.694	27.956	−207.711	−126.432	−88.740	9.271
	600.00	149.493	241.112	169.760	−85.839	42.811	−230.506	−125.487	−81.299	7.078

References

Phase	H / S	C_p
SOL	Nb1/Pa3	Pa3

302.704 PENTAMANGANESE DINITRIDE **Mn5N2**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	175.724	187.443	187.443	−204.200	0.000	−260.086	−204.200	−155.243	27.198
	300.00	176.021	188.531	187.447	−203.875	0.325	−260.434	−204.172	−154.939	26.977
	400.00	192.087	241.370	194.543	−185.469	18.731	−282.017	−202.334	−138.787	18.124
	500.00	208.154	285.959	208.473	−165.457	38.743	−308.436	−199.847	−123.175	12.868
	600.00	224.221	325.330	224.727	−143.838	60.362	−339.036	−196.734	−108.122	9.413
	700.00	240.287	361.100	241.690	−120.613	83.587	−373.383	−192.930	−93.642	6.988
	800.00	256.354	394.235	258.711	−95.781	108.419	−411.169	−188.258	−79.767	5.208

References

Phase	H / S	C_p
SOL	Ku1/K6	Ku1

MnO MANGANESE OXIDE 70.937

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	44.102	59.710	59.710	−385.221	0.000	−403.024	−385.221	−362.898	63.578
	300.00	44.179	59.983	59.711	−385.139	0.082	−403.134	−385.215	−362.760	63.162
	400.00	47.178	73.149	61.485	−380.556	4.665	−409.815	−384.847	−355.328	46.401
	500.00	48.983	83.883	64.925	−375.742	9.479	−417.683	−384.480	−347.992	36.354
	600.00	50.319	92.936	68.858	−370.774	14.447	−426.536	−384.196	−340.723	29.663
	700.00	51.433	100.779	72.871	−365.685	19.536	−436.230	−384.011	−333.492	24.886
	800.00	52.429	107.713	76.801	−360.492	24.729	−446.662	−383.896	−326.284	21.304
	900.00	53.356	113.942	80.587	−355.202	30.019	−457.750	−383.853	−319.086	18.519
	1000.00	54.241	119.609	84.210	−349.822	35.399	−469.431	−386.116	−311.843	16.289
	1100.00	55.097	124.820	87.668	−344.355	40.866	−481.656	−386.193	−304.412	14.455
	1200.00	55.935	129.650	90.968	−338.803	46.418	−494.383	−386.247	−296.975	12.927
	1300.00	56.759	134.159	94.119	−333.168	52.053	−507.575	−386.278	−289.534	11.634
	1400.00	57.574	138.396	97.132	−327.451	57.770	−521.205	−388.565	−282.027	10.523
	1500.00	58.381	142.395	100.017	−321.654	63.567	−535.247	−391.005	−274.279	9.551
	1600.00	59.120	146.211	102.786	−315.742	69.479	−549.679	−403.588	−265.820	8.678
	1700.00	59.120	149.795	105.447	−309.830	75.391	−564.481	−404.124	−257.193	7.903
	1800.00	59.120	153.174	108.006	−303.918	81.303	−579.631	−404.673	−248.534	7.212
	1900.00	59.120	156.371	110.468	−298.006	87.215	−595.110	−405.233	−239.845	6.594
	2000.00	59.120	159.403	112.839	−292.094	93.127	−610.900	−405.804	−231.126	6.036
	2100.00	59.120	162.288	115.126	−286.182	99.039	−626.986	−406.388	−222.377	5.531
	2115.00	59.120	162.708	115.462	−285.295	99.926	−629.423	−406.476	−221.063	5.460
			20.772		43.932					
LIQ	2115.00	60.668	183.480	115.462	−241.363	143.858	−629.423	−362.544	−221.063	5.460
	2200.00	60.668	185.870	118.136	−236.206	149.015	−645.121	−362.919	−215.369	5.114
	2300.00	60.668	188.567	121.140	−230.139	155.082	−663.844	−363.369	−208.652	4.739
	2400.00	60.668	191.149	124.004	−224.073	161.148	−682.831	−588.293	−195.195	4.248
	2500.00	60.668	193.626	126.740	−218.006	167.215	−702.070	−586.267	−178.857	3.737

References

Phase	H / S	C_p
SOL	Nb1	Pa1,e
LIQ	Tk1	e

86.937

MANGANESE DIOXIDE **MnO2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL−A	298.15	54.415	53.049	53.049	−520.029	0.000	−535.846	−520.029	−465.138	81.490
	300.00	54.658	53.386	53.050	−519.928	0.101	−535.944	−520.031	−464.797	80.928
	400.00	63.493	70.487	55.321	−513.963	6.066	−542.158	−519.767	−446.409	58.295
	500.00	67.990	85.184	59.862	−507.368	12.661	−549.960	−519.148	−428.138	44.727
	600.00	70.780	97.844	65.163	−500.420	19.609	−559.127	−518.464	−410.000	35.694
	700.00	72.764	108.911	70.638	−493.238	26.791	−569.476	−517.813	−391.974	29.249
	800.00	74.318	118.732	76.048	−485.882	34.147	−580.867	−517.203	−374.039	24.422

References

Phase	H / S	C_p
SOL−A	Nb1	Pa1

157.874

DIMANGANESE TRIOXIDE **Mn2O3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	99.034	110.499	110.499	−959.002	0.000	−991.947	−959.002	−881.114	154.368
	300.00	99.277	111.113	110.501	−958.819	0.183	−992.152	−958.998	−880.631	153.332
	400.00	109.068	141.142	114.529	−948.357	10.645	−1004.814	−958.452	−854.578	111.596
	500.00	115.516	166.208	122.428	−937.112	21.890	−1020.216	−957.630	−828.702	86.574
	600.00	120.648	187.736	131.560	−925.296	33.706	−1037.938	−956.763	−802.998	69.907
	700.00	125.159	206.678	140.965	−913.002	46.000	−1057.677	−955.902	−777.438	58.013
	800.00	129.339	223.667	150.258	−900.275	58.727	−1079.209	−955.001	−752.004	49.101
	900.00	133.326	239.132	159.287	−887.141	71.861	−1102.360	−954.064	−726.685	42.176
	1000.00	137.193	253.381	167.993	−873.614	85.388	−1126.995	−957.554	−701.381	36.636
	1100.00	140.983	266.635	176.365	−859.705	99.297	−1153.003	−956.487	−675.814	32.092
	1200.00	144.719	279.062	184.410	−845.419	113.583	−1180.294	−955.188	−650.354	28.309
	1300.00	148.418	290.792	192.146	−830.762	128.240	−1208.792	−953.654	−625.011	25.113
	1400.00	152.090	301.926	199.593	−815.737	143.265	−1238.433	−956.442	−599.667	22.374

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	Pa1	Pa1	NDPT= 1350. (approx.)

Mn3O4 TRIMANGANESE TETRAOXIDE 228.812

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL−A	298.15	140.515	155.599	155.599	−1387.799	0.000	−1434.191	−1387.799	−1283.232	224.817
	300.00	140.858	156.469	155.601	−1387.539	0.260	−1434.479	−1387.794	−1282.584	223.318
	400.00	154.600	199.057	161.315	−1372.702	15.097	−1452.325	−1387.089	−1247.602	162.920
	500.00	163.566	234.569	172.513	−1356.771	31.028	−1474.056	−1386.027	−1212.850	126.706
	600.00	170.652	265.035	185.454	−1340.050	47.749	−1499.071	−1384.939	−1178.317	102.582
	700.00	176.850	291.815	198.773	−1322.670	65.129	−1526.940	−1383.895	−1143.963	85.364
	800.00	182.575	315.808	211.928	−1304.696	83.103	−1557.342	−1382.825	−1109.759	72.460
	900.00	188.025	337.629	224.701	−1286.164	101.635	−1590.030	−1381.739	−1075.691	62.431
	1000.00	193.304	357.713	237.011	−1267.096	120.703	−1624.810	−1387.330	−1041.608	54.408
	1100.00	198.472	376.380	248.842	−1247.507	140.292	−1661.525	−1386.127	−1007.092	47.823
	1200.00	203.563	393.868	260.206	−1227.404	160.395	−1700.046	−1384.618	−972.698	42.340
	1300.00	208.601	410.361	271.128	−1206.796	181.003	−1740.266	−1382.798	−938.443	37.707
	1400.00	213.600	426.004	281.637	−1185.686	202.113	−1782.090	−1387.504	−904.146	33.734
	1445.00	215.840	432.796	286.239	−1176.023	211.776	−1801.414	−1392.817	−888.476	32.117
			12.538		18.117					
SOL−B	1445.00	210.037	445.334	286.239	−1157.906	229.893	−1801.414	−1374.700	−888.476	32.117
	1500.00	210.037	453.180	292.217	−1146.354	241.445	−1826.124	−1374.709	−869.969	30.295
	1600.00	210.037	466.736	302.705	−1125.350	262.449	−1872.128	−1411.022	−834.336	27.238
	1700.00	210.037	479.469	312.732	−1104.347	283.452	−1919.444	−1411.209	−798.288	24.528
	1800.00	210.037	491.474	322.332	−1083.343	304.456	−1967.997	−1411.444	−762.227	22.119
	1835.00	210.037	495.519	325.597	−1075.992	311.807	−1985.270	−1411.538	−749.602	21.338

References

Phase	H / S	C_p	Remarks	
SOL−A	Nb1	Pa1		
SOL−B	Pa1	Pa1	Pa1	MPT= 1835.

172.899 MANGANESE DIALUMINIUM TETRAOXIDE **MnAl2O4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	126.359	129.704	129.704	−2098.569	0.000	−2137.240	−2098.569	−1988.508	348.378
	300.00	126.852	130.487	129.706	−2098.335	0.234	−2137.481	−2098.582	−1987.825	346.111
	400.00	145.103	169.803	134.943	−2084.625	13.944	−2152.546	−2098.558	−1950.876	254.758
	500.00	154.942	203.328	145.356	−2069.583	28.986	−2171.247	−2097.832	−1914.033	199.958
	600.00	161.469	232.187	157.479	−2053.744	44.825	−2193.056	−2096.927	−1877.357	163.438
	700.00	166.434	257.465	169.995	−2037.340	61.229	−2217.565	−2096.042	−1840.833	137.365
	800.00	170.564	279.965	182.360	−2020.485	78.084	−2244.457	−2095.275	−1804.429	117.817
	900.00	174.211	300.269	194.351	−2003.243	95.326	−2273.485	−2094.766	−1768.107	102.618
	1000.00	177.556	318.799	205.883	−1985.653	112.916	−2304.452	−2117.901	−1730.261	90.380
	1100.00	180.705	335.871	216.934	−1967.738	130.831	−2337.196	−2117.144	−1691.533	80.324
	1200.00	183.721	351.725	227.514	−1949.516	149.053	−2371.586	−2116.201	−1652.881	71.948
	1300.00	186.641	366.546	237.645	−1930.997	167.572	−2407.507	−2115.072	−1614.315	64.864
	1400.00	189.494	380.482	247.355	−1912.190	186.379	−2444.865	−2116.037	−1575.779	58.793
	1500.00	192.296	393.652	256.673	−1893.100	205.469	−2483.578	−2116.997	−1537.101	53.527
	1600.00	195.059	406.151	265.628	−1873.732	224.837	−2523.573	−2127.974	−1497.816	48.899
	1700.00	197.793	418.058	274.247	−1854.089	244.480	−2564.788	−2126.667	−1458.470	44.813
	1800.00	200.503	429.441	282.555	−1834.174	264.395	−2607.168	−2125.136	−1419.207	41.184
	1900.00	203.195	440.354	290.575	−1813.989	284.580	−2650.661	−2123.382	−1380.035	37.940
	2000.00	205.872	450.844	298.328	−1793.536	305.033	−2695.224	−2121.406	−1340.962	35.022
	2100.00	208.536	460.953	305.832	−1772.815	325.754	−2740.817	−2119.209	−1301.993	32.385
	2123.00	209.148	463.228	307.525	−1768.012	330.557	−2751.445	−2118.672	−1293.045	31.814

References

Phase	H / S	C_p	Remarks	
SOL	Tk1	e	Tk1	MPT= 2123.

MnSiO3 RHODONITE 131.022

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	86.442	89.098	89.098	−1320.901	0.000	−1347.466	−1320.901	−1240.565	217.342
	300.00	86.829	89.634	89.100	−1320.741	0.160	−1347.631	−1320.908	−1240.066	215.915
	400.00	100.981	116.810	92.709	−1311.261	9.640	−1357.985	−1320.737	−1213.120	158.417
	500.00	108.403	140.212	99.929	−1300.759	20.142	−1370.865	−1320.020	−1186.293	123.931
	600.00	113.177	160.425	108.366	−1289.666	31.235	−1385.921	−1319.147	−1159.628	100.955
	700.00	116.700	178.147	117.095	−1278.165	42.736	−1402.868	−1318.252	−1133.112	84.554
	800.00	119.556	193.922	125.730	−1266.348	54.553	−1421.485	−1317.360	−1106.725	72.262
	900.00	122.024	208.149	134.110	−1254.267	66.634	−1441.600	−1316.492	−1080.448	62.708
	1000.00	124.252	221.122	142.172	−1241.951	78.950	−1463.073	−1317.891	−1054.220	55.067
	1100.00	126.323	233.063	149.899	−1229.421	91.480	−1485.790	−1317.070	−1027.892	48.811
	1200.00	128.287	244.139	157.297	−1216.690	104.211	−1509.657	−1316.193	−1001.641	43.600
	1300.00	130.175	254.483	164.379	−1203.766	117.135	−1534.594	−1315.260	−975.466	39.195
	1400.00	132.008	264.197	171.166	−1190.657	130.244	−1560.533	−1316.550	−949.300	35.419
	1500.00	133.801	273.366	177.676	−1177.366	143.535	−1587.415	−1317.964	−922.965	32.140
	1559.00	134.844	278.548	181.396	−1169.441	151.460	−1603.697	−1329.740	−907.100	30.393

References

Phase	H / S	C_p	Remarks	
SOL−A	Nb1	S5	Tk1	TPT= 1273.(B), 1413(C) / DPT= 1559. (LIQ + SiO2)

201.959 TEPHROITE **Mn2SiO4**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	129.871	163.201	163.201	−1730.498	0.000	−1779.156	−1730.498	−1632.130	285.942
	300.00	130.337	164.006	163.204	−1730.257	0.241	−1779.459	−1730.501	−1631.520	284.073
	400.00	147.419	204.153	168.561	−1716.261	14.237	−1797.923	−1730.029	−1598.570	208.752
	500.00	156.373	238.097	179.167	−1701.033	29.465	−1820.082	−1729.032	−1565.817	163.580
	600.00	162.127	267.148	191.469	−1685.091	45.407	−1845.379	−1727.994	−1533.273	133.483
	700.00	166.371	292.472	204.127	−1668.657	61.841	−1873.387	−1727.070	−1500.894	111.998
	800.00	169.810	314.919	216.600	−1651.843	78.655	−1903.778	−1726.259	−1468.640	95.892
	900.00	172.780	335.095	228.664	−1634.710	95.788	−1936.295	−1725.588	−1436.479	83.371
	1000.00	175.460	353.439	240.238	−1617.296	113.202	−1970.736	−1729.530	−1404.294	73.353
	1100.00	177.950	370.281	251.305	−1599.625	130.873	−2006.933	−1729.111	−1371.791	65.141
	1200.00	180.311	385.866	261.877	−1581.711	148.787	−2044.750	−1728.658	−1339.327	58.299
	1300.00	182.580	400.389	271.979	−1563.565	166.933	−2084.071	−1728.169	−1306.902	52.512
	1400.00	184.784	414.001	281.643	−1545.197	185.301	−2124.798	−1732.203	−1274.387	47.548
	1500.00	186.938	426.823	290.898	−1526.610	203.888	−2166.845	−1736.560	−1241.427	43.230
	1600.00	189.056	438.956	299.776	−1507.810	222.688	−2210.139	−1761.282	−1207.078	39.407
	1618.00	189.433	441.073	301.336	−1504.404	226.094	−2218.060	−1761.378	−1200.843	38.767
			55.390		89.621					
LIQ	1618.00	243.090	496.463	301.336	−1414.783	315.715	−2218.060	−1671.757	−1200.843	38.767
	1700.00	243.090	508.480	311.040	−1394.850	335.648	−2259.266	−1717.993	−1176.629	36.153
	1800.00	243.090	522.375	322.399	−1370.540	359.958	−2310.816	−1713.040	−1144.927	33.225
	1900.00	243.090	535.518	333.273	−1346.231	384.267	−2363.716	−1708.134	−1113.499	30.612
	2000.00	243.090	547.987	343.699	−1321.922	408.576	−2417.897	−1703.275	−1082.328	28.268
	2100.00	243.090	559.848	353.712	−1297.613	432.885	−2473.294	−1698.461	−1051.399	26.152
	2200.00	243.090	571.156	363.341	−1273.304	457.194	−2529.848	−1693.693	−1020.699	24.234
	2300.00	243.090	581.962	372.613	−1248.995	481.503	−2587.508	−1688.970	−990.214	22.488
	2400.00	243.090	592.308	381.553	−1224.686	505.812	−2646.225	−2133.214	−946.492	20.600
	2500.00	243.090	602.231	390.183	−1200.377	530.121	−2705.956	−2123.580	−897.243	18.747
	2600.00	243.090	611.766	398.523	−1176.068	554.430	−2766.659	−2114.008	−848.379	17.044
	2700.00	243.090	620.940	406.592	−1151.759	578.739	−2828.297	−2104.498	−799.882	15.475
	2800.00	243.090	629.780	414.406	−1127.450	603.048	−2890.835	−2095.053	−751.736	14.024
	2900.00	243.090	638.311	421.981	−1103.141	627.357	−2954.242	−2085.676	−703.926	12.679
	3000.00	243.090	646.552	429.330	−1078.832	651.666	−3018.488	−2076.369	−656.438	11.430

References

Phase	H / S	C_p
SOL	Nb1	S5
LIQ	S5	S5

MnTiO3 MANGANESE TITANIUM TRIOXIDE 150.816

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	100.125	104.935	104.935	−1358.553	0.000	−1389.839	−1358.553	−1279.379	224.142
	300.00	100.445	105.555	104.937	−1358.367	0.186	−1390.034	−1358.544	−1278.887	222.674
	400.00	112.011	136.254	109.044	−1347.669	10.884	−1402.170	−1357.621	−1252.455	163.554
	500.00	117.863	161.939	117.128	−1336.148	22.405	−1417.117	−1356.306	−1226.312	128.112
	600.00	121.467	183.768	126.462	−1324.169	34.384	−1434.430	−1354.956	−1200.441	104.508
	700.00	124.008	202.693	136.030	−1311.889	46.664	−1453.774	−1353.706	−1174.789	87.664
	800.00	125.984	219.386	145.427	−1299.386	59.167	−1474.895	−1352.590	−1149.307	75.042
	900.00	127.630	234.322	154.489	−1286.703	71.850	−1497.593	−1351.640	−1123.956	65.233
	1000.00	129.072	247.845	163.159	−1273.867	84.686	−1521.712	−1353.103	−1098.655	57.388
	1100.00	130.381	260.209	171.428	−1260.893	97.660	−1547.123	−1352.488	−1073.241	50.964
	1200.00	131.599	271.607	179.307	−1247.794	110.759	−1573.722	−1355.955	−1047.760	45.608
	1300.00	132.752	282.186	186.819	−1234.576	123.977	−1601.418	−1354.972	−1022.117	41.069
	1400.00	133.859	292.065	193.987	−1221.245	137.308	−1630.135	−1356.307	−996.484	37.179
	1500.00	134.932	301.337	200.838	−1207.805	150.748	−1659.810	−1357.865	−970.674	33.802
	1600.00	135.979	310.079	207.395	−1194.259	164.294	−1690.385	−1369.675	−944.210	30.825
	1677.00	136.771	316.489	212.258	−1183.758	174.795	−1714.510	−1369.495	−923.739	28.772

References

Phase	H / S	C_p	Remarks	
SOL	Tk1	e	Tk1	MPT= 1677.

Mn2TiO4 DIMANGANESE TITANIUM TETRAOXIDE 221.754

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	144.586	170.289	170.289	−1749.879	0.000	−1800.651	−1749.879	−1650.065	289.084
	300.00	144.972	171.184	170.292	−1749.611	0.268	−1800.966	−1749.864	−1649.445	287.194
	400.00	159.139	215.087	176.181	−1734.317	15.562	−1820.351	−1748.560	−1616.148	211.047
	500.00	166.632	251.474	187.708	−1717.996	31.883	−1843.733	−1746.893	−1583.237	165.400
	600.00	171.497	282.310	200.971	−1701.076	48.803	−1870.462	−1745.285	−1550.659	134.997
	700.00	175.122	309.030	214.542	−1683.737	66.142	−1900.059	−1743.880	−1518.335	113.300
	800.00	178.085	332.613	227.856	−1666.073	83.806	−1932.164	−1742.681	−1486.199	97.039
	900.00	180.664	353.740	240.689	−1648.133	101.746	−1966.500	−1741.722	−1454.199	84.400
	1000.00	183.004	372.898	252.967	−1629.948	119.931	−2002.846	−1745.478	−1422.201	74.288
	1100.00	185.188	390.444	264.679	−1611.538	138.341	−2041.026	−1744.970	−1389.899	66.001
	1200.00	187.266	406.647	275.843	−1592.914	156.965	−2080.890	−1748.520	−1357.521	59.091
	1300.00	189.269	421.716	286.491	−1574.087	175.792	−2122.317	−1747.594	−1324.975	53.238
	1400.00	191.218	435.814	296.659	−1555.062	194.817	−2165.201	−1751.237	−1292.371	48.219
	1500.00	193.127	449.072	306.382	−1535.844	214.035	−2209.452	−1755.256	−1259.348	43.854
	1600.00	195.005	461.596	315.695	−1516.438	233.441	−2254.991	−1779.699	−1224.957	39.991
	1700.00	196.860	473.474	324.630	−1496.844	253.035	−2301.750	−1779.972	−1190.277	36.573
	1733.00	197.467	477.264	327.500	−1490.338	259.541	−2317.437	−1780.052	−1178.829	35.531

References

Phase	H / S	C_p	Remarks	
SOL	Tk1	e	Tk1	TPT= 1043., MPT= 1733.

85.912

MANGANESE MONOPHOSPHIDE

MnP

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[——— J / (K mol) ———]			[——— kJ / mol ———]					[−]
SOL	298.15	46.861	65.270	65.270	−112.968	0.000	−132.428	−112.968	−110.640	19.384
	300.00	47.001	65.561	65.271	−112.881	0.087	−132.549	−112.974	−110.626	19.262
	400.00	51.987	79.866	67.188	−107.897	5.071	−139.843	−113.971	−109.618	14.315
	500.00	54.334	91.747	70.947	−102.568	10.400	−148.441	−114.192	−108.503	11.335
	600.00	55.628	101.778	75.272	−97.064	15.904	−158.131	−114.425	−107.344	9.345
	700.00	56.423	110.417	79.690	−91.459	21.509	−168.751	−114.728	−106.141	7.920
	800.00	56.949	117.988	84.014	−85.789	27.179	−180.179	−115.101	−104.890	6.849
	900.00	57.319	124.718	88.169	−80.074	32.894	−192.320	−115.564	−103.587	6.012
	1000.00	57.591	130.772	92.132	−74.328	38.640	−205.100	−118.362	−102.181	5.337
	1100.00	57.799	136.271	95.899	−68.558	44.410	−218.456	−119.014	−100.531	4.774
	1200.00	57.964	141.308	99.476	−62.770	50.198	−232.339	−183.261	−97.732	4.254

References

Phase	H / S	C_p
SOL	Nb1/Pa3	Pa3

147.859

MANGANESE TRIPHOSPHIDE

MnP3

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[——— J / (K mol) ———]			[——— kJ / mol ———]					[−]
SOL	298.15	102.703	96.650	96.650	−213.007	0.000	−241.823	−213.007	−195.545	34.259
	300.00	102.759	97.286	96.652	−212.817	0.190	−242.003	−212.998	−195.437	34.029
	400.00	105.772	127.260	100.719	−202.390	10.617	−253.295	−215.056	−189.070	24.690
	500.00	108.784	151.186	108.498	−191.663	21.344	−267.256	−215.143	−182.561	19.072
	600.00	111.796	171.286	117.331	−180.634	32.373	−283.405	−215.116	−176.046	15.326
	700.00	114.809	188.746	126.312	−169.303	43.704	−301.425	−214.959	−169.544	12.652
	800.00	117.821	204.273	135.104	−157.672	55.335	−321.090	−214.636	−163.076	10.648
	900.00	120.834	218.324	143.582	−145.739	67.268	−342.231	−214.146	−156.659	9.092
	1000.00	123.846	231.211	151.710	−133.505	79.502	−364.717	−215.721	−150.260	7.849

References

Phase	H / S	C_p	Remarks	
SOL	Nb1/Ku1	e	Tk1	MPT= 1600.

Mn2P DIMANGANESE PHOSPHIDE 140.850

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	73.553	91.010	91.010	-171.126	0.000	-198.261	-171.126	-166.930	29.245
	300.00	73.689	91.466	91.012	-170.990	0.136	-198.430	-171.131	-166.904	29.060
	400.00	79.320	113.501	93.978	-163.317	7.809	-208.717	-172.170	-165.266	21.582
	500.00	83.272	131.643	99.750	-155.179	15.947	-221.001	-172.499	-163.502	17.081
	600.00	86.542	147.122	106.386	-146.685	24.441	-234.958	-172.846	-161.670	14.075
	700.00	89.454	160.684	113.194	-137.883	33.243	-250.362	-173.228	-159.777	11.923
	800.00	92.140	172.807	119.901	-128.801	42.325	-267.047	-173.600	-157.831	10.305
	900.00	94.662	183.806	126.399	-119.460	51.666	-284.886	-173.981	-155.837	9.045
	1000.00	97.052	193.904	132.652	-109.873	61.253	-303.778	-178.850	-153.708	8.029
	1100.00	99.331	203.262	138.651	-100.053	71.073	-323.642	-179.241	-151.174	7.179
	1200.00	101.512	211.999	144.403	-90.010	81.116	-344.410	-243.065	-147.521	6.421

References

Phase	H / S	C_p
SOL	Pa3	Pa3

87.004 MANGANESE MONOSULFIDE (GREEN) **MnS**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	49.943	78.199	78.199	−214.200	0.000	−237.515	−214.200	−218.414	38.265
	300.00	49.957	78.508	78.200	−214.108	0.092	−237.660	−214.198	−218.441	38.034
	400.00	50.710	92.983	80.168	−209.074	5.126	−246.267	−216.476	−219.764	28.698
	500.00	51.463	104.379	83.911	−203.966	10.234	−256.155	−218.187	−220.414	23.026
	600.00	52.216	113.829	88.131	−198.782	15.418	−267.079	−219.683	−220.712	19.215
	700.00	52.969	121.935	92.395	−193.522	20.678	−278.876	−221.009	−220.778	16.475
	800.00	53.723	129.057	96.541	−188.188	26.012	−291.433	−222.445	−220.650	14.407
	900.00	54.476	135.428	100.514	−182.778	31.422	−304.663	−276.786	−219.180	12.721
	1000.00	55.229	141.206	104.299	−177.293	36.907	−318.499	−279.048	−212.733	11.112
	1100.00	55.982	146.506	107.898	−171.732	42.468	−332.888	−279.119	−206.097	9.787
	1200.00	56.735	151.409	111.322	−166.096	48.104	−347.787	−279.163	−199.457	8.682
	1300.00	57.488	155.980	114.584	−160.385	53.815	−363.159	−279.180	−192.814	7.747
	1400.00	58.241	160.268	117.695	−154.599	59.601	−378.974	−281.449	−186.106	6.944
	1500.00	58.994	164.312	120.670	−148.737	65.463	−395.204	−283.870	−179.157	6.239
	1600.00	59.748	168.143	123.518	−142.800	71.400	−411.829	−296.461	−171.499	5.599
	1700.00	60.501	171.788	126.251	−136.787	77.413	−428.827	−296.924	−163.674	5.029
	1800.00	61.254	175.267	128.878	−130.700	83.500	−446.181	−297.315	−155.825	4.522
	1803.00	61.276	175.369	128.956	−130.516	83.684	−446.707	−297.326	−155.589	4.508
			14.480		26.108					
LIQ	1803.00	66.944	189.850	128.956	−104.408	109.792	−446.707	−271.218	−155.589	4.508
	1900.00	66.944	193.358	132.155	−97.914	116.286	−465.294	−271.013	−149.373	4.107
	2000.00	66.944	196.792	135.301	−91.220	122.980	−484.803	−270.806	−142.977	3.734
	2100.00	66.944	200.058	138.308	−84.525	129.675	−504.647	−270.602	−136.590	3.397
	2200.00	66.944	203.172	141.186	−77.831	136.369	−524.809	−270.402	−130.213	3.092

References

Phase	H / S	C_p
SOL	Nb1	Mi1
LIQ	Mi1	Mi1

119.070 MANGANESE DISULFIDE **MnS2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	70.075	99.914	99.914	−223.844	0.000	−253.633	−223.844	−224.975	39.415
	300.00	70.168	100.348	99.915	−223.714	0.130	−253.819	−223.847	−224.982	39.173
	400.00	74.048	121.109	102.720	−216.488	7.356	−264.932	−228.514	−225.151	29.402
	500.00	76.793	137.939	108.133	−208.941	14.903	−277.910	−231.688	−223.988	23.400
	600.00	79.091	152.148	114.315	−201.144	22.700	−292.433	−234.147	−222.199	19.344
	700.00	81.177	164.498	120.620	−193.130	30.714	−308.278	−236.028	−220.056	16.421

References

Phase	H / S	C_p
SOL	Mi1	Mi1

MnSO4 MANGANESE SULFATE 151.002

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	100.165	112.098	112.098	−1065.251	0.000	−1098.673	−1065.251	−957.243	167.705
	300.00	100.641	112.719	112.100	−1065.065	0.186	−1098.881	−1065.265	−956.573	166.554
	400.00	118.692	144.439	116.302	−1053.996	11.255	−1111.772	−1067.449	−920.223	120.169
	500.00	129.051	172.119	124.762	−1041.572	23.679	−1127.632	−1067.963	−883.366	92.285
	600.00	136.384	196.326	134.715	−1028.284	36.967	−1146.080	−1067.674	−846.460	73.691
	700.00	142.286	217.806	145.079	−1014.342	50.909	−1166.806	−1066.827	−809.653	60.417
	800.00	147.427	237.147	155.398	−999.852	65.399	−1189.570	−1065.780	−772.985	50.471
	900.00	152.125	254.786	165.476	−984.872	80.379	−1214.179	−1117.362	−735.302	42.676
	973.00	155.375	266.776	172.630	−973.647	91.604	−1233.220	−1115.193	−704.398	37.815

References

Phase	H / S	C_p	Remarks
SOL	Nb1	Ku1,e	Tk1 TPT= 673., 923. / MPT= 973.

MnSb MANGANESE ANTIMONY 176.688

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	43.706	92.466	92.466	−37.656	0.000	−65.225	−37.656	−42.109	7.377
	300.00	43.744	92.737	92.467	−37.575	0.081	−65.396	−37.671	−42.137	7.337
	400.00	45.773	105.599	94.207	−33.099	4.557	−75.339	−38.488	−43.504	5.681
	500.00	47.802	116.031	97.560	−28.421	9.235	−86.436	−39.346	−44.660	4.666
	600.00	49.831	124.926	101.397	−23.539	14.117	−98.494	−40.247	−45.639	3.973
	700.00	51.861	132.760	105.329	−18.454	19.202	−111.386	−41.197	−46.462	3.467
	800.00	53.890	139.817	109.206	−13.167	24.489	−125.020	−42.188	−47.148	3.078
	900.00	55.919	146.282	112.971	−7.676	29.980	−139.330	−43.252	−47.705	2.769
	1000.00	57.948	152.278	116.605	−1.983	35.673	−154.261	−66.480	−45.983	2.402
	1100.00	59.978	157.897	120.106	3.913	41.569	−169.773	−67.511	−43.882	2.084
	1200.00	62.007	163.202	123.478	10.013	47.669	−185.830	−68.382	−41.694	1.815

References

Phase	H / S	C_p
SOL	Tk1/Ku1	e

231.626 **2–MANGANESE ANTIMONY** **Mn2Sb**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−1	298.15	66.890	136.817	136.817	−32.635	0.000	−73.427	−32.635	−40.768	7.142
	300.00	66.944	137.231	136.818	−32.511	0.124	−73.680	−32.655	−40.819	7.107
	400.00	69.873	156.890	139.479	−25.670	6.965	−88.427	−33.838	−43.366	5.663
	500.00	72.802	172.797	144.600	−18.537	14.098	−104.935	−35.158	−45.598	4.764
	550.00	74.266	179.804	147.486	−14.860	17.775	−113.752	−35.870	−46.608	4.426
			0.000		0.000					
SOL−2	550.00	74.266	179.804	147.486	−14.860	17.775	−113.752	−35.870	−46.608	4.426
	600.00	75.730	186.329	150.454	−11.110	21.525	−122.907	−36.619	−47.551	4.140
	700.00	78.659	198.223	156.445	−3.391	29.244	−142.146	−38.209	−49.249	3.675
	800.00	81.588	208.917	162.346	4.622	37.257	−162.512	−39.886	−50.712	3.311
	900.00	84.517	218.696	168.072	12.927	45.562	−183.900	−41.679	−51.959	3.016
	1000.00	87.446	227.753	173.592	21.525	54.160	−206.227	−67.915	−50.798	2.653
	1100.00	90.374	236.224	178.905	30.416	63.051	−229.431	−69.740	−48.997	2.327
	1200.00	93.303	244.213	184.018	39.600	72.235	−253.456	−71.358	−47.038	2.048
	1221.00	93.918	245.837	185.067	41.566	74.201	−258.602	−71.671	−46.610	1.994

References

Phase	H / S	C_p	Remarks	
SOL−1	Ku1	e		
SOL−2	u	e	Tk1	MPT= 1221.

133.898 **MANGANESE SELENIDE** **MnSe**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	51.046	90.793	90.793	−171.544	0.000	−198.614	−171.544	−176.471	30.917
	300.00	51.058	91.109	90.794	−171.450	0.094	−198.782	−171.545	−176.502	30.732
	400.00	51.732	105.889	92.805	−166.310	5.234	−208.666	−171.803	−178.126	23.261
	500.00	52.406	117.505	96.624	−161.103	10.441	−219.856	−178.324	−179.558	18.758
	600.00	53.080	127.120	100.928	−155.829	15.715	−232.101	−179.669	−179.680	15.643
	700.00	53.753	135.352	105.271	−150.487	21.057	−245.234	−181.117	−179.568	13.400
	800.00	54.427	142.574	109.492	−145.078	26.466	−259.138	−182.633	−179.244	11.703
	900.00	55.101	149.024	113.532	−139.602	31.942	−273.723	−184.216	−178.726	10.373
	1000.00	55.775	154.864	117.378	−134.058	37.486	−288.922	−188.098	−177.983	9.297
	1100.00	56.449	160.212	121.032	−128.447	43.097	−304.680	−243.103	−171.935	8.165
	1200.00	57.123	165.152	124.506	−122.768	48.776	−320.951	−243.324	−165.456	7.202
	1300.00	57.796	169.751	127.811	−117.022	54.522	−337.699	−243.508	−158.959	6.387
	1400.00	58.470	174.059	130.962	−111.209	60.335	−354.891	−245.935	−152.385	5.686
	1500.00	59.144	178.116	133.972	−105.328	66.216	−372.502	−248.504	−145.559	5.069
	1600.00	59.818	181.954	136.852	−99.380	72.164	−390.507	−261.236	−138.014	4.506

References

Phase	H / S	C_p
SOL	Pa3	Pa3

MnSi MANGANESE SILICON 83.024

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	45.929	47.070	47.070	−77.822	0.000	−91.856	−77.822	−76.702	13.438
	300.00	46.042	47.354	47.071	−77.737	0.085	−91.943	−77.823	−76.695	13.354
	400.00	50.431	61.265	48.938	−72.891	4.931	−97.397	−77.829	−76.317	9.966
	500.00	53.149	72.828	52.592	−67.704	10.118	−104.118	−77.838	−75.938	7.933
	600.00	55.210	82.707	56.808	−62.283	15.539	−111.907	−77.898	−75.554	6.578
	700.00	56.959	91.352	61.138	−56.672	21.150	−120.619	−78.012	−75.155	5.608
	800.00	58.543	99.063	65.405	−50.896	26.926	−130.146	−78.155	−74.737	4.880
	900.00	60.031	106.045	69.539	−44.967	32.855	−140.407	−78.331	−74.299	4.312
	1000.00	61.459	112.444	73.514	−38.892	38.930	−151.336	−80.778	−73.795	3.855
	1100.00	62.848	118.367	77.325	−32.676	45.146	−162.880	−81.007	−73.085	3.471
	1200.00	64.210	123.894	80.978	−26.323	51.499	−174.996	−81.184	−72.357	3.150
	1300.00	65.554	129.087	84.481	−19.835	57.987	−187.648	−81.312	−71.616	2.878
	1400.00	66.883	133.993	87.844	−13.213	64.609	−200.804	−83.671	−70.802	2.642
	1500.00	68.203	138.653	91.077	−6.459	71.363	−214.438	−86.159	−69.742	2.429
	1548.00	68.834	140.811	92.586	−3.170	74.652	−221.145	−98.508	−68.965	2.327
			38.759		59.999					
LIQ	1548.00	78.722	179.570	92.586	56.829	134.651	−221.145	−38.509	−68.965	2.327
	1600.00	78.722	182.171	95.456	60.923	138.745	−230.551	−38.304	−69.992	2.285
	1700.00	78.722	186.944	100.698	68.795	146.617	−249.009	−88.118	−71.537	2.198
	1800.00	78.722	191.443	105.616	76.667	154.489	−267.931	−87.567	−70.577	2.048
	1900.00	78.722	195.700	110.246	84.539	162.361	−287.290	−87.017	−69.649	1.915
	2000.00	78.722	199.737	114.621	92.412	170.234	−307.063	−86.467	−68.749	1.796

References

Phase	H / S	C_p
SOL	Tk1	Tk1,C1
LIQ	Tk1	C1

102.683 MANGANESE 1.7–SILICON **MnSi1.7**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	58.700	55.480	55.480	−83.680	0.000	−100.221	−83.680	−81.139	14.215
	300.00	58.889	55.843	55.481	−83.571	0.109	−100.324	−83.683	−81.124	14.125
	400.00	65.703	73.849	57.890	−77.296	6.384	−106.836	−83.746	−80.257	10.481
	500.00	69.104	88.912	62.631	−70.540	13.140	−114.996	−83.781	−79.382	8.293
	600.00	71.163	101.706	68.105	−63.519	20.161	−124.543	−83.905	−78.493	6.833
	700.00	72.587	112.789	73.714	−56.328	27.352	−135.280	−84.152	−77.573	5.789
	800.00	73.674	122.555	79.221	−49.013	34.667	−147.057	−84.512	−76.610	5.002
	900.00	74.564	131.286	84.529	−41.600	42.080	−159.757	−84.997	−75.594	4.387
	1000.00	75.332	139.182	89.606	−34.104	49.576	−173.286	−87.850	−74.472	3.890
	1100.00	76.020	146.395	94.446	−26.536	57.144	−187.570	−88.585	−73.099	3.471
	1200.00	76.654	153.037	99.055	−18.902	64.778	−202.546	−89.371	−71.657	3.119
	1300.00	77.250	159.196	103.447	−11.206	72.474	−218.162	−90.211	−70.147	2.819
	1400.00	77.818	164.942	107.637	−3.453	80.227	−234.372	−93.386	−68.506	2.556
	1433.00	78.000	166.757	108.978	−0.882	82.798	−239.845	−95.749	−67.883	2.474

References

Phase	H / S	C_p	Remarks	
SOL	C1	Tk1,C1	Tk1	DPT= 1433.

192.900 3–MANGANESE SILICON **Mn3Si**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL−1	298.15	99.577	104.391	104.391	−123.846	0.000	−154.970	−123.846	−120.730	21.151
	300.00	99.877	105.008	104.393	−123.662	0.184	−155.164	−123.845	−120.711	21.018
	400.00	112.240	135.581	108.477	−113.005	10.841	−167.237	−123.500	−119.705	15.632
	500.00	120.760	161.583	116.563	−101.336	22.510	−182.128	−122.862	−118.827	12.414
	600.00	127.767	184.235	125.994	−88.902	34.944	−199.442	−122.117	−118.089	10.281
	677.00	132.654	199.954	133.524	−78.873	44.973	−214.242	−121.500	−117.609	9.074
			8.096		5.481					
SOL−2	677.00	132.654	208.050	133.524	−73.392	50.454	−214.242	−116.019	−117.609	9.074
	700.00	134.059	212.505	136.047	−70.325	53.521	−219.079	−115.817	−117.666	8.780
	800.00	139.971	230.795	146.764	−56.621	67.225	−241.257	−114.852	−117.994	7.704
	900.00	145.662	247.612	157.047	−42.338	81.508	−265.189	−113.765	−118.451	6.875
	1000.00	151.215	263.247	166.894	−27.493	96.353	−290.740	−119.264	−118.899	6.211
	1100.00	156.678	277.916	176.327	−12.098	111.748	−317.806	−117.892	−118.925	5.647
	1200.00	162.080	291.781	185.376	3.840	127.686	−346.297	−116.149	−119.094	5.184
	1300.00	167.439	304.966	194.072	20.316	144.162	−376.139	−114.037	−119.422	4.798
	1348.00	170.000	311.083	198.130	28.415	152.261	−390.925	−112.894	−119.641	4.636

References

Phase	H / S	C_p	Remarks	
SOL−1	Tk1	Tk1,C1		
SOL−2	Tk1	Tk1,C1	Tk1	DPT= 1348.

Mn5Si3 — 5–MANGANESE 3–SILICON — 358.947

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	194.557	235.559	235.559	−273.215	0.000	−343.447	−273.215	−278.898	48.862
	300.00	194.928	236.764	235.563	−272.855	0.360	−343.884	−273.210	−278.934	48.567
	400.00	209.873	295.084	243.413	−252.547	20.668	−370.580	−272.918	−280.888	36.680
	500.00	219.700	343.027	258.683	−231.043	42.172	−402.557	−272.838	−282.896	29.554
	600.00	227.512	383.793	276.221	−208.672	64.543	−438.948	−273.118	−284.888	24.802
	700.00	234.373	419.388	294.184	−185.572	87.643	−479.144	−273.743	−286.803	21.401
	800.00	240.726	451.103	311.852	−161.814	111.401	−522.696	−274.562	−288.615	18.845
	900.00	246.785	479.808	328.944	−137.437	135.778	−569.264	−275.592	−290.312	16.849
	1000.00	252.661	506.115	345.363	−112.463	160.752	−618.578	−288.005	−291.655	15.234
	1100.00	258.418	530.467	361.097	−86.908	186.307	−670.422	−289.363	−291.952	13.864
	1200.00	264.093	553.196	376.169	−60.782	212.433	−724.618	−290.493	−292.136	12.716
	1300.00	269.710	574.557	390.616	−34.092	239.123	−781.016	−291.400	−292.235	11.742
	1400.00	275.286	594.749	404.482	−6.842	266.373	−839.490	−303.483	−291.948	10.893
	1500.00	280.831	613.931	417.811	20.964	294.179	−899.932	−316.242	−290.410	10.113
	1573.00	284.864	627.371	427.226	41.612	314.827	−945.242	−378.949	−286.868	9.526
			105.065		165.268					
LIQ	1573.00	324.641	732.437	427.226	206.880	480.095	−945.242	−213.681	−286.868	9.526
	1600.00	324.641	737.962	432.424	215.646	488.861	−965.093	−213.462	−288.126	9.406
	1700.00	324.641	757.643	450.981	248.110	521.325	−1039.883	−363.260	−291.476	8.956
	1800.00	324.641	776.199	468.538	280.574	553.789	−1116.584	−361.966	−287.290	8.337
	1900.00	324.641	793.751	485.197	313.038	586.253	−1195.089	−360.673	−283.177	7.785
	2000.00	324.641	810.403	501.045	345.502	618.717	−1275.304	−359.380	−279.132	7.290

References

Phase	H / S	C_p
SOL	Tk1	Tk1,C1
LIQ	Tk1	C1

MnSn2 — MANGANESE 2–TIN — 292.358

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	79.955	130.876	130.876	−27.614	0.000	−66.635	−27.614	−26.564	4.654
	300.00	80.114	131.371	130.877	−27.466	0.148	−66.877	−27.615	−26.557	4.624
	400.00	85.772	155.307	134.102	−19.132	8.482	−81.255	−27.596	−26.207	3.422
	500.00	88.458	174.767	140.351	−10.406	17.208	−97.790	−27.735	−25.850	2.700
	600.00	89.975	191.040	147.481	−1.478	26.136	−116.102	−41.822	−22.824	1.987
	700.00	90.939	204.987	154.724	7.570	35.184	−135.921	−41.769	−19.661	1.467
	800.00	91.609	217.176	161.784	16.700	44.314	−157.041	−41.740	−16.506	1.078

References

Phase	H / S	C_p
SOL	Tk1/Ku1	e

182.538 MANGANESE TELLURIDE **MnTe**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	72.054	93.722	93.722	−108.366	0.000	−136.309	−108.366	−112.009	19.623
	300.00	73.007	94.170	93.723	−108.232	0.134	−136.483	−108.328	−112.031	19.506
	307.00	76.615	95.896	93.753	−107.708	0.658	−137.148	−108.170	−112.119	19.077
			0.000		0.000					
SOL−B	307.00	57.541	95.896	93.753	−107.708	0.658	−137.148	−108.170	−112.119	19.077
	400.00	57.798	111.154	96.102	−102.345	6.021	−146.807	−107.856	−113.367	14.804
	500.00	58.074	124.081	100.452	−96.551	11.815	−158.592	−107.886	−114.750	11.988
	600.00	58.350	134.694	105.301	−90.730	17.636	−171.546	−108.297	−116.090	10.107
	700.00	58.626	143.709	110.160	−84.881	23.485	−185.478	−109.071	−117.332	8.755
	800.00	58.902	151.556	114.854	−79.005	29.361	−200.249	−127.796	−116.561	7.611
	900.00	59.178	158.509	119.326	−73.101	35.265	−215.759	−129.202	−115.073	6.679
	1000.00	59.455	164.759	123.562	−67.169	41.197	−231.928	−132.948	−113.378	5.922
	1100.00	59.731	170.438	127.569	−61.210	47.156	−248.692	−134.544	−111.344	5.287
	1200.00	60.007	175.647	131.362	−55.223	53.143	−266.000	−136.154	−109.164	4.752
	1300.00	60.283	180.461	134.956	−49.209	59.157	−283.808	−137.780	−106.849	4.293
	1400.00	60.559	184.939	138.368	−43.166	65.200	−302.081	−188.139	−101.852	3.800
	1438.00	60.664	186.562	139.620	−40.863	67.503	−309.140	−190.253	−99.470	3.613

References

Phase	H / S	C_p	Remarks	
SOL−A	Mi1	Mi1,e		
SOL−B	u	Mi1	Mi1,Tk1	DPT= 1438.

310.138 MANGANESE DITELLURIDE **MnTe2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	77.898	145.017	145.017	−125.520	0.000	−168.757	−125.520	−129.699	22.723
	300.00	77.906	145.499	145.019	−125.376	0.144	−169.026	−125.520	−129.725	22.587
	400.00	78.324	167.969	148.080	−117.564	7.956	−184.752	−125.809	−131.099	17.120
	500.00	78.743	185.491	153.873	−109.711	15.809	−202.457	−126.685	−132.333	13.825
	600.00	79.161	199.885	160.378	−101.816	23.704	−221.747	−128.148	−133.334	11.608
	700.00	79.580	212.119	166.917	−93.879	31.641	−242.362	−130.183	−134.045	10.003

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1	Tk1	DPT= 1008. (LIQ + MnTe)

MnWO4 MANGANESE TUNGSTATE 302.786

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	124.298	140.582	140.582	−1304.998	0.000	−1346.913	−1304.998	−1205.303	211.164
	300.00	124.416	141.352	140.585	−1304.768	0.230	−1347.173	−1304.970	−1204.684	209.754
	400.00	129.859	177.926	145.535	−1292.041	12.957	−1363.212	−1303.381	−1171.491	152.981
	500.00	134.340	207.395	155.053	−1278.827	26.171	−1382.524	−1301.716	−1138.711	118.960
	600.00	138.443	232.254	165.901	−1265.186	39.812	−1404.538	−1300.057	−1106.266	96.309
	700.00	142.366	253.892	176.958	−1251.144	53.854	−1428.868	−1298.401	−1074.098	80.150
	800.00	146.195	273.153	187.800	−1236.716	68.282	−1455.238	−1296.701	−1042.170	68.047
	900.00	149.969	290.591	198.267	−1221.907	83.091	−1483.438	−1294.937	−1010.458	58.645
	1000.00	153.708	306.585	208.310	−1206.723	98.275	−1513.308	−1295.322	−978.902	51.133
	1100.00	157.424	321.409	217.926	−1191.166	113.832	−1544.717	−1293.352	−947.354	44.986
	1200.00	161.125	335.266	227.133	−1175.239	129.759	−1577.558	−1291.179	−915.994	39.872
	1300.00	164.816	348.309	235.957	−1158.941	146.057	−1611.743	−1288.792	−884.824	35.553
	1400.00	168.498	360.658	244.427	−1142.276	162.722	−1647.196	−1288.466	−853.781	31.855
	1500.00	172.175	372.408	252.571	−1125.242	179.756	−1683.854	−1288.095	−822.690	28.649

References

Phase	H / S	C_p
SOL	K7	K7

95.940 MOLYBDENUM **Mo**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	23.897	28.593	28.593	0.000	0.000	−8.525	0.000	0.000	0.000
	300.00	23.922	28.741	28.594	0.044	0.044	−8.578	0.000	0.000	0.000
	400.00	25.079	35.792	29.547	2.498	2.498	−11.819	0.000	0.000	0.000
	500.00	25.874	41.479	31.383	5.048	5.048	−15.692	0.000	0.000	0.000
	600.00	26.465	46.250	33.474	7.666	7.666	−20.084	0.000	0.000	0.000
	700.00	26.963	50.368	35.600	10.338	10.338	−24.920	0.000	0.000	0.000
	800.00	27.432	53.999	37.677	13.058	13.058	−30.142	0.000	0.000	0.000
	900.00	27.906	57.257	39.675	15.824	15.824	−35.707	0.000	0.000	0.000
	1000.00	28.380	60.222	41.583	18.638	18.638	−41.583	0.000	0.000	0.000
	1100.00	28.901	62.951	43.403	21.502	21.502	−47.744	0.000	0.000	0.000
	1200.00	29.479	65.490	45.139	24.420	24.420	−54.167	0.000	0.000	0.000
	1300.00	30.128	67.874	46.797	27.400	27.400	−60.837	0.000	0.000	0.000
	1400.00	30.851	70.133	48.384	30.448	30.448	−67.738	0.000	0.000	0.000
	1500.00	31.647	72.288	49.907	33.573	33.573	−74.860	0.000	0.000	0.000
	1600.00	32.501	74.358	51.370	36.780	36.780	−82.193	0.000	0.000	0.000
	1700.00	33.397	76.355	52.782	40.074	40.074	−89.729	0.000	0.000	0.000
	1800.00	34.367	78.297	54.146	43.473	43.473	−97.462	0.000	0.000	0.000
	1900.00	35.146	80.173	55.466	46.944	46.944	−105.386	0.000	0.000	0.000
	2000.00	36.539	82.010	56.748	50.524	50.524	−113.495	0.000	0.000	0.000
	2100.00	37.748	83.826	57.994	54.247	54.247	−121.787	0.000	0.000	0.000
	2200.00	39.070	85.612	59.209	58.086	58.086	−130.259	0.000	0.000	0.000
	2300.00	40.506	87.380	60.395	62.064	62.064	−138.909	0.000	0.000	0.000
	2400.00	42.061	89.136	61.556	66.191	66.191	−147.735	0.000	0.000	0.000
	2500.00	43.817	90.888	62.694	70.483	70.483	−156.736	0.000	0.000	0.000
	2600.00	45.892	92.645	63.813	74.965	74.965	−165.913	0.000	0.000	0.000
	2700.00	48.406	94.423	64.913	79.676	79.676	−175.266	0.000	0.000	0.000
	2800.00	51.472	96.237	65.999	84.665	84.665	−184.798	0.000	0.000	0.000
	2897.00	55.060	98.049	67.042	89.826	89.826	−194.221	0.000	0.000	0.000
			13.496		39.099					
LIQ	2897.00	40.350	111.545	67.042	128.925	128.925	−194.221	0.000	0.000	0.000
	2900.00	40.350	111.587	67.088	129.047	129.047	−194.555	0.000	0.000	0.000
	3000.00	40.350	112.955	68.594	133.082	133.082	−205.783	0.000	0.000	0.000
	3100.00	40.350	114.278	70.047	137.117	137.117	−217.145	0.000	0.000	0.000
	3200.00	40.350	115.559	71.449	141.152	141.152	−228.637	0.000	0.000	0.000
	3300.00	40.350	116.801	72.805	145.187	145.187	−240.255	0.000	0.000	0.000
	3400.00	40.350	118.005	74.116	149.222	149.222	−251.996	0.000	0.000	0.000
	3500.00	40.350	119.175	75.387	153.257	153.257	−263.855	0.000	0.000	0.000
	3600.00	40.350	120.312	76.619	157.292	157.292	−275.830	0.000	0.000	0.000
	3700.00	40.350	121.417	77.815	161.327	161.327	−287.917	0.000	0.000	0.000
	3800.00	40.350	122.493	78.977	165.362	165.362	−300.112	0.000	0.000	0.000
	3900.00	40.350	123.541	80.106	169.397	169.397	−312.414	0.000	0.000	0.000
	4000.00	40.350	124.563	81.205	173.432	173.432	−324.820	0.000	0.000	0.000

Mo MOLYBDENUM [continued] 95.940

Phase	T [K]	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
LIQ	4100.00	40.350	125.559	82.275	177.467	177.467	−337.326	0.000	0.000	0.000
	4200.00	40.350	126.532	83.317	181.502	181.502	−349.931	0.000	0.000	0.000
	4300.00	40.350	127.481	84.333	185.537	185.537	−362.632	0.000	0.000	0.000
	4400.00	40.350	128.409	85.324	189.572	189.572	−375.426	0.000	0.000	0.000
	4500.00	40.350	129.316	86.292	193.607	193.607	−388.313	0.000	0.000	0.000
	4600.00	40.350	130.202	87.237	197.642	197.642	−401.289	0.000	0.000	0.000
	4700.00	40.350	131.070	88.160	201.677	201.677	−414.353	0.000	0.000	0.000
	4800.00	40.350	131.920	89.063	205.712	205.712	−427.502	0.000	0.000	0.000
	4900.00	40.350	132.752	89.946	209.748	209.748	−440.736	0.000	0.000	0.000
	4978.00	40.350	133.389	90.622	212.895	212.895	−451.115	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks
SOL	D1	D1	
LIQ	D1	D1	D1 BPT= 4978., L= 582.2 kJ

95.940 MOLYBDENUM (GAS) **Mo[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[	J / (K mol)	]	[		kJ / mol		]	
GAS	298.15	20.786	181.950	181.950	658.499	0.000	604.251	658.499	612.776	−107.356
	300.00	20.786	182.079	181.951	658.537	0.038	603.914	658.493	612.492	−106.644
	400.00	20.786	188.059	182.766	660.616	2.117	585.393	658.118	597.212	−77.988
	500.00	20.786	192.697	184.306	662.695	4.196	566.346	657.647	582.038	−60.805
	600.00	20.786	196.487	186.030	664.773	6.274	546.881	657.107	566.966	−49.359
	700.00	20.786	199.691	187.758	666.852	8.353	527.068	656.514	551.988	−41.190
	800.00	20.786	202.467	189.427	668.931	10.432	506.957	655.873	537.099	−35.069
	900.00	20.786	204.915	191.015	671.009	12.510	486.586	655.185	522.293	−30.313
	1000.00	20.786	207.105	192.516	673.088	14.589	465.983	654.450	507.566	−26.513
	1100.00	20.788	209.086	193.934	675.166	16.667	445.172	653.665	492.916	−23.407
	1200.00	20.794	210.895	195.273	677.246	18.747	424.171	652.825	478.339	−20.822
	1300.00	20.804	212.560	196.540	679.325	20.826	402.998	651.925	463.834	−18.637
	1400.00	20.824	214.102	197.740	681.407	22.908	381.664	650.958	449.402	−16.767
	1500.00	20.857	215.540	198.879	683.491	24.992	360.181	649.918	435.040	−15.149
	1600.00	20.910	216.888	199.963	685.579	27.080	338.559	648.799	420.751	−13.736
	1700.00	20.989	218.157	200.996	687.673	29.174	316.806	647.599	406.535	−12.491
	1800.00	21.100	219.360	201.983	689.778	31.279	294.929	646.305	392.391	−11.387
	1900.00	21.249	220.505	202.928	691.895	33.396	272.936	644.951	378.322	−10.401
	2000.00	21.443	221.599	203.834	694.029	35.530	250.830	643.505	364.325	−9.515
	2100.00	21.690	222.651	204.706	696.185	37.686	228.617	641.938	350.405	−8.716
	2200.00	21.990	223.667	205.545	698.369	39.870	206.301	640.282	336.560	−7.991
	2300.00	22.345	224.652	206.354	700.585	42.086	183.885	638.521	322.794	−7.331
	2400.00	22.761	225.612	207.136	702.840	44.341	161.371	636.648	309.106	−6.728
	2500.00	23.244	226.550	207.894	705.139	46.640	138.763	634.656	295.499	−6.174
	2600.00	23.797	227.473	208.630	707.491	48.992	116.062	632.526	281.974	−5.665
	2700.00	24.422	228.382	209.344	709.901	51.402	93.269	630.225	268.535	−5.195
	2800.00	25.121	229.283	210.040	712.378	53.879	70.386	627.713	255.184	−4.761
	2900.00	25.895	230.178	210.719	714.928	56.429	47.413	585.881	241.968	−4.358
	3000.00	26.742	231.070	211.383	717.559	59.060	24.350	584.478	230.133	−4.007
	3100.00	27.662	231.961	212.032	720.279	61.780	1.199	583.162	218.344	−3.679
	3200.00	28.653	232.855	212.669	723.094	64.595	−22.042	581.942	206.595	−3.372
	3300.00	29.711	233.753	213.294	726.012	67.513	−45.372	580.825	194.883	−3.085
	3400.00	30.835	234.656	213.909	729.038	70.539	−68.793	579.817	183.203	−2.815
	3500.00	32.019	235.567	214.515	732.181	73.682	−92.304	578.924	171.551	−2.560
	3600.00	33.260	236.486	215.113	735.444	76.945	−115.906	578.152	159.923	−2.320
	3700.00	34.554	237.415	215.703	738.834	80.335	−139.601	577.507	148.315	−2.094
	3800.00	35.896	238.354	216.287	742.357	83.858	−163.390	576.995	136.723	−1.879
	3900.00	37.281	239.305	216.865	746.015	87.516	−187.273	576.618	125.142	−1.676
	4000.00	38.704	240.266	217.438	749.814	91.315	−211.251	576.382	113.569	−1.483
	4100.00	40.158	241.240	218.006	753.757	95.258	−235.326	576.290	102.000	−1.299
	4200.00	41.639	242.225	218.571	757.847	99.348	−259.500	576.344	90.431	−1.125
	4300.00	43.141	243.223	219.133	762.085	103.586	−283.772	576.548	78.860	−0.958
	4400.00	44.657	244.232	219.692	766.475	107.976	−308.144	576.903	67.282	−0.799
	4500.00	46.181	245.252	220.248	771.017	112.518	−332.619	577.410	55.694	−0.646
	4600.00	47.707	246.284	220.803	775.712	117.213	−357.195	578.069	44.093	−0.501
	4700.00	49.230	247.326	221.356	780.558	122.059	−381.876	578.881	32.477	−0.361
	4800.00	50.741	248.379	221.908	785.557	127.058	−406.661	579.845	20.841	−0.227
	4900.00	52.235	249.440	222.459	790.706	132.207	−431.552	580.958	9.184	−0.098
	5000.00	53.705	250.510	223.010	796.003	137.504	−456.549	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	D1	D1

MoAsO4 — MOLYBDENUM ARSENATE — 234.859

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	120.055	163.009	163.009	−910.689	0.000	−959.290	−910.689	−817.790	143.273
	300.00	120.373	163.752	163.011	−910.467	0.222	−959.592	−910.665	−817.214	142.290
	400.00	132.815	200.267	167.905	−897.744	12.945	−977.851	−908.845	−786.312	102.682
	500.00	140.515	230.782	177.514	−884.055	26.634	−999.446	−906.390	−755.954	78.974
	600.00	146.350	256.935	188.623	−869.702	40.987	−1023.863	−903.596	−726.125	63.215
	700.00	151.303	279.875	200.053	−854.814	55.875	−1050.726	−900.568	−696.783	51.995
	784.00	155.091	297.235	209.549	−841.943	68.746	−1074.976	−897.866	−672.483	44.805

References

Phase	H / S	C_p
SOL	G1	G1

MoC — MOLYBDENUM MONOCARBIDE (GAMMA) — 107.951

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−C	298.15	30.878	36.652	36.652	−28.451	0.000	−39.379	−28.451	−29.142	5.106
	300.00	30.957	36.843	36.652	−28.394	0.057	−39.447	−28.454	−29.146	5.075
	400.00	34.852	46.298	37.915	−25.098	3.353	−43.617	−28.648	−29.349	3.833
	500.00	38.107	54.436	40.424	−21.445	7.006	−48.663	−28.876	−29.499	3.082
	600.00	40.796	61.630	43.370	−17.495	10.956	−54.473	−29.125	−29.600	2.577
	700.00	43.003	68.090	46.448	−13.302	15.149	−60.964	−29.382	−29.659	2.213
	800.00	44.806	73.954	49.525	−8.908	19.543	−68.071	−29.632	−29.681	1.938
	900.00	46.278	79.319	52.542	−4.351	24.100	−75.739	−29.875	−29.673	1.722
	1000.00	47.495	84.260	55.470	0.339	28.790	−83.921	−30.117	−29.638	1.548
	1100.00	48.528	88.836	58.298	5.141	33.592	−92.578	−30.368	−29.578	1.405
	1200.00	49.451	93.099	61.022	10.041	38.492	−101.678	−30.632	−29.494	1.284
	1300.00	50.336	97.092	63.645	15.030	43.481	−111.189	−30.914	−29.388	1.181
	1400.00	51.255	100.855	66.170	20.109	48.560	−121.088	−31.213	−29.260	1.092

References

Phase	H / S	C_p
SOL−C	Pa3	Pa3

203.891

DIMOLYBDENUM CARBIDE

Mo2C

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	60.207	65.814	65.814	−53.137	0.000	−72.760	−53.137	−53.998	9.460
	300.00	60.358	66.187	65.815	−53.025	0.112	−72.882	−53.130	−54.003	9.403
	400.00	66.804	84.503	68.269	−46.643	6.494	−80.445	−52.692	−54.358	7.098
	500.00	71.155	99.905	73.097	−39.733	13.404	−89.686	−52.212	−54.830	5.728
	600.00	74.297	113.171	78.696	−32.452	20.685	−100.355	−51.748	−55.398	4.823
	700.00	76.636	124.808	84.469	−24.900	28.237	−112.266	−51.318	−56.040	4.182
	800.00	78.435	135.163	90.171	−17.143	35.994	−125.274	−50.924	−56.742	3.705
	900.00	79.898	144.489	95.697	−9.224	43.913	−139.264	−50.572	−57.491	3.337
	1000.00	81.210	152.975	101.007	−1.168	51.969	−154.144	−50.263	−58.277	3.044
	1100.00	82.541	160.777	106.090	7.018	60.155	−169.836	−49.993	−59.092	2.806
	1200.00	84.058	168.022	110.953	15.346	68.483	−186.280	−49.747	−59.930	2.609
	1300.00	85.923	174.821	115.607	23.841	76.978	−203.426	−49.503	−60.788	2.442
	1400.00	88.296	181.272	120.069	32.548	85.685	−221.233	−49.223	−61.666	2.301

References

Phase	H / S	C_p
SOL	Pa3	Pa3

264.002

MOLYBDENUM HEXACARBONYL

Mo(CO)6

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	242.260	325.900	325.900	−982.801	0.000	−1079.968	−982.801	−877.680	153.766
	300.00	242.546	327.400	325.905	−982.353	0.448	−1080.572	−982.655	−877.028	152.704
	400.00	258.027	399.296	335.603	−957.324	25.477	−1117.042	−975.215	−842.962	110.080

References

Phase	H / S	C_p
SOL	Nb1	Ku1,e

Mo(CO)6[g] MOLYBDENUM HEXACARBONYL (GAS) 264.002

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
GAS	298.15	211.290	490.110	490.110	−912.099	0.000	−1058.225	−912.099	−855.937	149.957
	300.00	211.976	491.419	490.114	−911.707	0.392	−1059.133	−912.010	−855.589	148.971
	400.00	237.682	556.357	498.794	−889.074	23.025	−1111.616	−906.965	−837.536	109.371
	500.00	252.045	611.058	515.926	−864.533	47.566	−1170.062	−902.138	−820.749	85.743
	600.00	261.944	657.931	535.781	−838.809	73.290	−1233.568	−897.992	−804.873	70.070
	700.00	269.734	698.913	556.219	−812.213	99.886	−1301.453	−894.501	−789.637	58.923
	800.00	276.400	735.376	576.377	−784.900	127.199	−1373.200	−891.462	−774.868	50.594
	900.00	282.414	768.283	595.901	−756.955	155.144	−1448.410	−888.696	−760.462	44.136
	1000.00	288.021	798.331	614.663	−728.430	183.669	−1526.762	−886.087	−746.355	38.986
	1100.00	293.364	826.035	632.635	−699.359	212.740	−1607.998	−883.541	−732.505	34.784
	1200.00	298.526	851.783	649.837	−669.764	242.335	−1691.904	−880.984	−718.887	31.292
	1300.00	303.561	875.878	666.308	−639.658	272.441	−1778.299	−878.358	−705.484	28.347
	1400.00	308.503	898.555	682.095	−609.055	303.044	−1867.032	−875.617	−692.288	25.830
	1500.00	313.378	920.006	697.247	−577.960	334.139	−1957.970	−872.726	−679.293	23.655
	1600.00	318.200	940.386	711.812	−546.381	365.718	−2050.998	−869.659	−666.497	21.759
	1700.00	322.982	959.820	725.833	−514.321	397.778	−2146.015	−866.394	−653.898	20.092
	1800.00	327.733	978.416	739.353	−481.785	430.314	−2242.934	−862.927	−641.497	18.616
	1900.00	332.459	996.262	752.408	−448.776	463.323	−2341.674	−859.214	−629.296	17.301
	2000.00	337.165	1013.435	765.032	−415.294	496.805	−2442.164	−855.284	−617.296	16.122

References

Phase	H / S	C_p
GAS	Nb1	e

Mo2N DIMOLYBDENUM NITRIDE 205.887

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	63.848	63.178	63.178	−81.588	0.000	−100.425	−81.588	−54.810	9.603
	300.00	64.060	63.574	63.180	−81.470	0.118	−100.542	−81.585	−54.644	9.514
	400.00	72.714	83.297	65.810	−74.593	6.995	−107.912	−81.074	−45.724	5.971
	500.00	78.401	100.168	71.036	−67.022	14.566	−117.106	−80.073	−36.994	3.865
	600.00	82.772	114.863	77.142	−58.956	22.632	−127.873	−78.735	−28.499	2.481
	700.00	86.420	127.903	83.480	−50.492	31.096	−140.024	−77.135	−20.249	1.511
	800.00	89.600	139.655	89.779	−41.687	39.901	−153.411	−75.325	−12.244	0.799
	900.00	92.435	150.375	95.925	−32.583	49.005	−167.920	−73.343	−4.476	0.260
	1000.00	94.992	160.248	101.870	−23.210	58.378	−183.458	−71.217	3.063	−0.160
	1100.00	97.309	169.413	107.599	−13.593	67.995	−199.946	−68.976	10.384	−0.493
	1200.00	99.408	177.971	113.110	−3.755	77.833	−217.320	−66.650	17.496	−0.762
	1300.00	101.305	186.004	118.412	6.282	87.870	−235.523	−64.269	24.412	−0.981
	1400.00	103.009	193.575	123.513	16.500	98.088	−254.506	−61.865	31.143	−1.162

References

Phase	H / S	C_p
SOL	Nb1/Pa3	Pa3

111.939 MOLYBDENUM MONOXIDE (GAS) **MoO[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	36.003	241.765	241.765	310.959	0.000	238.877	310.959	277.984	−48.702
	300.00	36.013	241.987	241.765	311.026	0.067	238.429	310.954	277.780	−48.366
	400.00	36.391	252.406	243.183	314.648	3.689	213.686	310.637	266.766	−34.836
	500.00	36.604	260.551	245.872	318.299	7.340	188.023	310.209	255.846	−26.728
	600.00	36.752	267.238	248.892	321.967	11.008	161.624	309.679	245.021	−21.331
	700.00	36.870	272.913	251.929	325.648	14.689	134.609	309.061	234.293	−17.483
	800.00	36.972	277.843	254.866	329.340	18.381	107.066	308.365	223.658	−14.603
	900.00	37.063	282.203	257.666	333.042	22.083	79.059	307.597	213.115	−12.369
	1000.00	37.149	286.112	260.319	336.753	25.794	50.640	306.763	202.661	−10.586
	1100.00	37.231	289.657	262.827	340.472	29.513	21.849	305.864	192.294	−9.131
	1200.00	37.311	292.900	265.200	344.199	33.240	−7.281	304.898	182.012	−7.923
	1300.00	37.388	295.890	267.447	347.934	36.975	−36.722	303.862	171.813	−6.904
	1400.00	37.465	298.663	269.579	351.677	40.718	−66.452	302.750	161.696	−6.033
	1500.00	37.540	301.250	271.605	355.427	44.468	−96.449	301.555	151.662	−5.281
	1600.00	37.615	303.676	273.535	359.185	48.226	−126.696	300.272	141.711	−4.626
	1700.00	37.689	305.958	275.375	362.950	51.991	−157.179	298.897	131.842	−4.051
	1800.00	37.762	308.115	277.135	366.722	55.763	−187.884	297.413	122.058	−3.542
	1900.00	37.835	310.158	278.820	370.502	59.543	−218.798	295.852	112.358	−3.089
	2000.00	37.908	312.101	280.436	374.289	63.330	−249.912	294.177	102.743	−2.683

References

Phase	H / S	C_p
GAS	Pa1	Pa1

MoO2 MOLYBDENUM DIOXIDE 127.939

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	55.982	46.275	46.275	−588.940	0.000	−602.737	−588.940	−533.047	93.388
	300.00	56.160	46.622	46.276	−588.836	0.104	−602.823	−588.935	−532.700	92.751
	400.00	63.360	63.860	48.578	−582.827	6.113	−608.371	−588.350	−514.029	67.125
	500.00	67.983	78.524	53.138	−576.247	12.693	−615.509	−587.379	−495.555	51.770
	600.00	71.493	91.241	58.452	−569.267	19.673	−624.011	−586.176	−477.300	41.553
	700.00	74.420	102.487	63.954	−561.967	26.973	−633.708	−584.804	−459.261	34.270
	800.00	77.003	112.596	69.413	−554.394	34.546	−644.471	−583.287	−441.428	28.822
	900.00	79.371	121.804	74.730	−546.574	42.366	−656.197	−581.639	−423.793	24.596
	1000.00	81.607	130.283	79.867	−538.524	50.416	−668.807	−579.865	−406.349	21.225
	1100.00	83.767	138.163	84.813	−530.255	58.685	−682.234	−577.969	−389.088	18.476
	1200.00	85.896	145.543	89.569	−521.772	67.168	−696.423	−575.953	−372.005	16.193
	1300.00	88.034	152.502	94.145	−513.076	75.864	−711.328	−573.819	−355.095	14.268
	1400.00	90.215	159.106	98.551	−504.164	84.776	−726.912	−571.569	−338.354	12.624
	1500.00	92.470	165.406	102.800	−495.030	93.910	−743.140	−569.201	−321.777	11.205
	1600.00	94.830	171.449	106.903	−485.666	103.274	−759.984	−566.711	−305.363	9.969
	1700.00	97.324	177.272	110.872	−476.060	112.880	−777.422	−564.091	−289.108	8.883
	1800.00	99.980	182.909	114.718	−466.196	122.744	−795.432	−561.342	−273.011	7.923
	1900.00	102.827	188.390	118.452	−456.057	132.883	−813.999	−558.414	−257.072	7.067
	2000.00	105.892	193.741	122.083	−445.623	143.317	−833.106	−555.323	−241.291	6.302

References

Phase	H / S	C_p
SOL	Pa1	Pa1

127.939 MOLYBDENUM DIOXIDE (GAS) **MoO2[g]**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[-]
GAS	298.15	43.587	276.990	276.990	-8.314	0.000	-90.899	-8.314	-21.209	3.716
	300.00	43.655	277.260	276.991	-8.233	0.081	-91.411	-8.332	-21.289	3.707
	400.00	47.355	290.337	278.748	-3.679	4.635	-119.813	-9.202	-25.471	3.326
	500.00	50.104	301.219	282.185	1.203	9.517	-149.406	-9.929	-29.453	3.077
	600.00	51.967	310.530	286.152	6.313	14.627	-180.005	-10.597	-33.294	2.899
	700.00	53.259	318.643	290.226	11.578	19.892	-211.472	-11.259	-37.025	2.763
	800.00	54.189	325.819	294.236	16.953	25.267	-243.702	-11.941	-40.660	2.655
	900.00	54.885	332.243	298.108	22.408	30.722	-276.611	-12.657	-44.207	2.566
	1000.00	55.423	338.055	301.817	27.924	36.238	-310.131	-13.417	-47.672	2.490
	1100.00	55.852	343.358	305.356	33.489	41.803	-344.205	-14.225	-51.059	2.425
	1200.00	56.203	348.233	308.728	39.092	47.406	-378.788	-15.089	-54.370	2.367
	1300.00	56.498	352.744	311.943	44.727	53.041	-413.840	-16.016	-57.606	2.315
	1400.00	56.750	356.940	315.009	50.390	58.704	-449.326	-17.015	-60.768	2.267
	1500.00	56.971	360.863	317.937	56.076	64.390	-485.219	-18.095	-63.856	2.224
	1600.00	57.166	364.547	320.736	61.783	70.097	-521.491	-19.262	-66.870	2.183
	1700.00	57.342	368.018	323.416	67.509	75.823	-558.121	-20.523	-69.807	2.145
	1800.00	57.503	371.300	325.986	73.251	81.565	-595.088	-21.895	-72.667	2.109
	1900.00	57.651	374.413	328.453	79.009	87.323	-632.375	-23.347	-75.448	2.074
	2000.00	57.789	377.374	330.826	84.781	93.095	-669.966	-24.918	-78.151	2.041
	2100.00	57.918	380.196	333.110	90.567	98.881	-707.845	-26.641	-80.770	2.009
	2200.00	58.040	382.893	335.312	96.365	104.679	-746.001	-28.491	-83.305	1.978
	2300.00	58.157	385.476	337.438	102.174	110.488	-784.420	-30.490	-85.753	1.948
	2400.00	58.269	387.954	339.491	107.996	116.310	-823.093	-32.648	-88.110	1.918
	2500.00	58.376	390.334	341.478	113.828	122.142	-862.008	-34.982	-90.373	1.888
	2600.00	58.480	392.626	343.401	119.671	127.985	-901.157	-37.518	-92.540	1.859
	2700.00	58.581	394.835	345.265	125.524	133.838	-940.530	-40.293	-94.604	1.830
	2800.00	58.679	396.967	347.074	131.387	139.701	-980.121	-43.357	-96.560	1.801
	2900.00	58.775	399.028	348.830	137.260	145.574	-1019.921	-85.823	-98.361	1.772
	3000.00	58.869	401.022	350.537	143.142	151.456	-1059.924	-87.953	-98.757	1.720

References

Phase	H / S	C_p
GAS	Ja1	Ja1

MoO3 MOLYBDENUM TRIOXIDE 143.938

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	75.032	77.739	77.739	-745.087	0.000	-768.265	-745.087	-667.993	117.030
	300.00	75.214	78.203	77.740	-744.948	0.139	-768.409	-745.074	-667.514	116.225
	400.00	82.749	100.961	80.792	-737.019	8.068	-777.404	-744.055	-641.800	83.811
	500.00	87.990	120.014	86.782	-728.471	16.616	-788.478	-742.646	-616.394	64.394
	600.00	92.327	136.448	93.721	-719.451	25.636	-801.320	-740.982	-591.296	51.477
	700.00	96.238	150.978	100.882	-710.020	35.067	-815.705	-739.106	-566.493	42.272
	800.00	99.922	164.071	107.976	-700.211	44.876	-831.468	-737.021	-541.974	35.387
	900.00	103.473	176.046	114.883	-690.040	55.047	-848.482	-734.726	-517.729	30.048
	1000.00	106.943	187.129	121.560	-679.519	65.568	-866.647	-732.211	-493.751	25.791
	1075.00	109.509	194.955	126.410	-671.402	73.685	-880.978	-730.179	-475.940	23.126
			45.499		48.911					
LIQ	1075.00	126.231	240.453	126.410	-622.491	122.596	-880.978	-681.268	-475.940	23.126
	1100.00	126.231	243.355	129.035	-619.335	125.752	-887.025	-680.155	-471.178	22.374
	1200.00	126.231	254.339	139.026	-606.712	138.375	-911.918	-675.773	-452.374	19.691
	1300.00	126.231	264.443	148.290	-594.088	150.999	-937.864	-671.504	-433.932	17.436
	1400.00	126.231	273.797	156.925	-581.465	163.622	-964.782	-667.350	-415.813	15.514

References

Phase	H / S	C_p	Remarks	
SOL	Pa1	Ja1		
LIQ	Pa1	Ja1	H5	NBPT= 1428. GAS (Mo3O9 + Mo4O12 + Mo5O15)

143.938 MOLYBDENUM TRIOXIDE (GAS) **MoO3[g]**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	59.446	283.898	283.898	-346.435	0.000	-431.079	-346.435	-330.807	57.956
	300.00	59.671	284.266	283.899	-346.325	0.110	-431.605	-346.451	-330.710	57.582
	400.00	67.770	302.697	286.357	-339.899	6.536	-460.978	-346.935	-325.374	42.490
	500.00	71.807	318.297	291.228	-332.901	13.534	-492.049	-347.075	-319.964	33.426
	600.00	74.228	331.619	296.877	-325.590	20.845	-524.561	-347.122	-314.537	27.383
	700.00	75.870	343.191	302.685	-318.080	28.355	-558.314	-347.166	-309.103	23.066
	800.00	77.084	353.405	308.399	-310.430	36.005	-593.154	-347.241	-303.661	19.827
	900.00	78.035	362.541	313.916	-302.672	43.763	-628.960	-347.358	-298.207	17.307
	1000.00	78.814	370.805	319.199	-294.829	51.606	-665.634	-347.521	-292.737	15.291
	1100.00	79.468	378.348	324.238	-286.914	59.521	-703.097	-347.733	-287.249	13.640
	1200.00	80.029	385.287	329.040	-278.938	67.497	-741.283	-348.000	-281.739	12.264
	1300.00	80.516	391.713	333.617	-270.910	75.525	-780.137	-348.326	-276.205	11.098
	1400.00	80.940	397.696	337.983	-262.837	83.598	-819.611	-348.721	-270.643	10.098
	1500.00	81.311	403.293	342.152	-254.724	91.711	-859.663	-349.194	-265.050	9.230
	1600.00	81.633	408.551	346.139	-246.577	99.858	-900.258	-349.754	-259.422	8.469
	1700.00	81.913	413.509	349.958	-238.399	108.036	-941.364	-350.409	-253.757	7.797
	1800.00	82.151	418.198	353.620	-230.195	116.240	-982.951	-351.178	-248.050	7.198
	1900.00	82.352	422.645	357.137	-221.970	124.465	-1024.995	-352.033	-242.298	6.661
	2000.00	82.516	426.873	360.519	-213.726	132.709	-1067.473	-353.014	-236.497	6.177
	2100.00	82.644	430.902	363.775	-205.468	140.967	-1110.363	-354.156	-230.644	5.737
	2200.00	82.739	434.749	366.915	-197.198	149.237	-1153.647	-355.439	-224.733	5.336
	2300.00	82.800	438.429	369.944	-188.921	157.514	-1197.307	-356.885	-218.760	4.968
	2400.00	82.829	441.953	372.872	-180.639	165.796	-1241.328	-358.510	-212.721	4.630
	2500.00	82.825	445.335	375.703	-172.357	174.078	-1285.693	-360.331	-206.609	4.317
	2600.00	82.790	448.583	378.444	-164.076	182.359	-1330.390	-362.376	-200.421	4.027
	2700.00	82.723	451.706	381.100	-155.800	190.635	-1375.406	-364.687	-194.149	3.756
	2800.00	82.625	454.713	383.676	-147.532	198.903	-1420.727	-367.315	-187.786	3.503
	2900.00	82.496	457.610	386.176	-139.276	207.159	-1466.344	-409.377	-181.282	3.265
	3000.00	82.337	460.404	388.604	-131.034	215.401	-1512.246	-411.135	-173.387	3.019

References

Phase	H / S	C_p
GAS	Ja1	Ja1

MoO2Cl2 MOLYBDENUM DICHLORIDE DIOXIDE 198.844

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	104.381	142.256	142.256	−717.100	0.000	−759.514	−717.100	−623.302	109.200
	300.00	104.581	142.902	142.258	−716.907	0.193	−759.777	−717.068	−622.720	108.425
	400.00	115.120	174.441	146.487	−705.918	11.182	−775.695	−714.972	−591.566	77.251
	500.00	125.407	201.237	154.819	−693.891	23.209	−794.509	−712.124	−561.028	58.610
	600.00	135.596	225.003	164.570	−680.840	36.260	−815.842	−708.486	−531.137	46.240

References

Phase	H / S	C_p
SOL	Nb1/e	e

MoO2Cl2[g] MOLYBDENUM DICHLORIDE DIOXIDE (GAS) 198.844

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
GAS	298.15	85.225	337.758	337.758	−633.039	0.000	−733.742	−633.039	−597.530	104.685
	300.00	85.373	338.286	337.760	−632.881	0.158	−734.367	−633.043	−597.309	104.001
	400.00	92.172	363.840	341.198	−623.982	9.057	−769.518	−633.035	−585.389	76.444
	500.00	96.596	384.919	347.896	−614.527	18.512	−806.987	−632.760	−573.506	59.914
	600.00	99.475	402.803	355.595	−604.714	28.325	−846.396	−632.360	−561.691	48.900
	700.00	101.430	418.293	363.470	−594.663	38.376	−887.468	−631.912	−549.948	41.038
	800.00	102.813	431.932	371.192	−584.447	48.592	−929.993	−631.458	−538.270	35.145
	900.00	103.823	444.103	378.630	−574.113	58.926	−973.806	−631.022	−526.648	30.566
	1000.00	104.580	455.083	385.735	−563.691	69.348	−1018.774	−630.617	−515.073	26.905
	1100.00	105.159	465.079	392.500	−553.203	79.836	−1064.790	−630.255	−503.537	23.911
	1200.00	105.608	474.249	398.936	−542.663	90.376	−1111.762	−629.947	−492.031	21.418
	1300.00	105.961	482.717	405.059	−532.084	100.955	−1159.616	−629.704	−480.548	19.309
	1400.00	106.241	490.580	410.890	−521.473	111.566	−1208.286	−629.536	−469.081	17.502
	1500.00	106.467	497.918	416.450	−510.838	122.201	−1257.714	−629.454	−457.624	15.936
	1600.00	106.651	504.795	421.759	−500.181	132.858	−1307.854	−629.468	−446.169	14.566
	1700.00	106.805	511.266	426.836	−489.508	143.531	−1358.660	−629.585	−434.709	13.357
	1800.00	106.938	517.374	431.698	−478.821	154.218	−1410.095	−629.822	−423.240	12.282
	1900.00	107.057	523.159	436.361	−468.121	164.918	−1462.124	−630.150	−411.754	11.320
	2000.00	107.170	528.654	440.839	−457.410	175.629	−1514.717	−630.607	−400.249	10.453

References

Phase	H / S	C_p
GAS	Ja1	Ja1

160.072 MOLYBDENUM DISULFIDE **MoS2**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[-]
SOL	298.15	63.548	62.593	62.593	-276.144	0.000	-294.806	-276.144	-267.166	46.806
	300.00	63.689	62.986	62.594	-276.026	0.118	-294.922	-276.155	-267.110	46.508
	400.00	68.914	82.116	65.167	-269.364	6.780	-302.211	-281.109	-263.837	34.454
	500.00	71.734	97.822	70.175	-262.320	13.824	-311.232	-284.419	-259.178	27.076
	600.00	73.608	111.076	75.916	-255.048	21.096	-321.694	-286.917	-253.876	22.102
	700.00	75.036	122.534	81.776	-247.613	28.531	-333.387	-288.773	-248.219	18.522
	800.00	76.225	132.633	87.514	-240.049	36.095	-346.155	-290.648	-242.301	15.821
	900.00	77.275	141.673	93.038	-232.373	43.771	-359.879	-398.152	-233.835	13.571
	1000.00	78.240	149.865	98.318	-224.597	51.547	-374.462	-396.860	-215.646	11.264
	1100.00	79.149	157.365	103.350	-216.727	59.417	-389.829	-395.538	-197.589	9.383
	1200.00	80.019	164.290	108.143	-208.768	67.376	-405.916	-394.195	-179.653	7.820
	1300.00	80.862	170.728	112.713	-200.724	75.420	-422.670	-392.838	-161.829	6.502
	1400.00	81.686	176.751	117.074	-192.596	83.548	-440.048	-391.477	-144.110	5.377
	1500.00	82.491	182.414	121.243	-184.387	91.757	-458.009	-390.120	-126.489	4.405
	1600.00	83.284	187.763	125.235	-176.098	100.046	-476.520	-388.775	-108.957	3.557
	1700.00	84.068	192.836	129.064	-167.731	108.413	-495.552	-387.447	-91.509	2.812
	1800.00	84.845	197.663	132.742	-159.285	116.859	-515.079	-386.153	-74.139	2.151
	1900.00	85.615	202.271	136.281	-150.762	125.382	-535.077	-384.862	-56.840	1.563
	2000.00	86.381	206.682	139.691	-142.162	133.982	-555.527	-383.612	-39.608	1.034
	2023.00	86.556	207.671	140.459	-140.173	135.971	-560.292	-383.335	-35.654	0.921

References

Phase	H / S	C_p	Remarks
SOL	Ja1	Ja1	Ja1 MPT= 2023. at p(S2) = 1.013 bar

192.138 MOLYBDENUM TRISULFIDE **MoS3**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[-]
SOL	298.15	82.597	75.312	75.312	-309.616	0.000	-332.070	-309.616	-294.873	51.660
	300.00	82.779	75.823	75.314	-309.463	0.153	-332.210	-309.634	-294.781	51.326
	400.00	90.314	100.757	78.662	-300.778	8.838	-341.081	-317.146	-289.430	37.796
	500.00	95.554	121.498	85.213	-291.474	18.142	-352.222	-322.098	-281.988	29.459
	600.00	99.891	139.312	92.779	-281.696	27.920	-365.283	-325.667	-273.599	23.819
	700.00	103.802	155.007	100.569	-271.509	38.107	-380.014	-328.080	-264.723	19.754
	800.00	107.486	169.111	108.270	-260.943	48.673	-396.232	-330.314	-255.521	16.684
	900.00	111.038	181.977	115.755	-250.016	59.600	-413.795	-490.773	-242.584	14.079
	1000.00	114.507	193.856	122.978	-238.739	70.877	-432.594	-487.814	-215.163	11.239

References

Phase	H / S	C_p
SOL	Mi1	e

Mo2S3 MOLYBDENUM SESQUISULFIDE 288.078

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	109.295	114.976	114.976	-407.103	0.000	-441.383	-407.103	-395.660	69.318
	300.00	109.489	115.653	114.978	-406.901	0.202	-441.597	-407.116	-395.589	68.878
	400.00	117.464	148.340	119.381	-395.520	11.583	-454.855	-414.385	-391.385	51.110
	500.00	122.926	175.164	127.935	-383.488	23.615	-471.070	-419.160	-385.144	40.236
	600.00	127.399	197.982	137.754	-370.966	36.137	-489.755	-422.603	-377.987	32.907
	700.00	131.405	217.925	147.812	-358.024	49.079	-510.571	-424.932	-370.360	27.637
	800.00	135.163	235.719	157.708	-344.694	62.409	-533.269	-427.122	-362.416	23.663
	900.00	138.775	251.849	167.285	-330.996	76.107	-557.660	-587.577	-350.741	20.356
	1000.00	142.298	266.653	176.492	-316.942	90.161	-583.595	-584.656	-324.580	16.954
	1100.00	145.762	280.379	185.320	-302.538	104.565	-610.955	-581.506	-298.723	14.185
	1200.00	149.186	293.209	193.781	-287.791	119.312	-639.641	-578.141	-273.162	11.890
	1300.00	152.582	305.284	201.899	-272.702	134.401	-669.571	-574.574	-247.891	9.960
	1400.00	155.957	316.715	209.695	-257.275	149.828	-700.676	-570.820	-222.901	8.317
	1500.00	159.317	327.590	217.195	-241.511	165.592	-732.896	-566.897	-198.186	6.901
	1600.00	162.666	337.979	224.422	-225.412	181.691	-766.178	-562.816	-173.737	5.672
	1700.00	166.006	347.941	231.397	-208.978	198.125	-800.477	-558.589	-149.549	4.595
	1800.00	169.339	357.524	238.139	-192.211	214.892	-835.753	-554.249	-125.612	3.645
	1900.00	172.667	366.769	244.667	-175.110	231.993	-871.971	-549.732	-101.921	2.802
	2000.00	175.990	375.710	250.997	-157.678	249.425	-909.097	-545.114	-78.471	2.049
	2080.00	178.645	382.664	255.928	-143.492	263.611	-939.433	-541.397	-59.879	1.504
			0.062		0.130					
LIQ	2080.00	156.900	382.726	255.928	-143.362	263.741	-939.433	-541.267	-59.879	1.504
	2100.00	156.900	384.228	257.143	-140.224	266.879	-947.103	-540.771	-55.253	1.374
	2200.00	156.900	391.527	263.086	-124.534	282.569	-985.893	-538.436	-32.188	0.764

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Mi1	Ja1	1/2 Mo + 3/2 MoS2 = Mo2S3, L= 9.652 kJ at T= 900.
LIQ	Ja1	Ja1	Ja1	NDPT= 2140.

152.111 MOLYBDENUM 2–SILICON **MoSi2**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	64.851	65.015	65.015	–118.826	0.000	–138.210	–118.826	–118.463	20.754
	300.00	64.964	65.417	65.016	–118.706	0.120	–138.331	–118.824	–118.461	20.626
	400.00	69.355	84.773	67.626	–111.967	6.859	–145.876	–118.784	–118.348	15.455
	500.00	72.030	100.555	72.682	–104.890	13.936	–155.167	–118.814	–118.237	12.352
	600.00	74.030	113.871	78.466	–97.583	21.243	–165.905	–118.879	–118.116	10.283
	700.00	75.711	125.411	84.366	–90.094	28.732	–177.882	–118.960	–117.982	8.804
	800.00	77.222	135.621	90.147	–82.447	36.379	–190.944	–119.049	–117.837	7.694
	900.00	78.634	144.799	95.718	–74.653	44.173	–204.972	–119.144	–117.680	6.830
	1000.00	79.986	153.154	101.050	–66.722	52.104	–219.876	–119.246	–117.512	6.138
	1100.00	81.297	160.839	106.141	–58.657	60.169	–235.581	–119.355	–117.333	5.572
	1200.00	82.580	167.968	110.999	–50.463	68.363	–252.025	–119.478	–117.144	5.099
	1300.00	83.845	174.628	115.641	–42.142	76.684	–269.159	–119.620	–116.944	4.699
	1400.00	85.095	180.888	120.080	–33.695	85.131	–286.938	–119.789	–116.732	4.355
	1500.00	86.336	186.801	124.333	–25.123	93.703	–305.325	–119.991	–116.506	4.057
	1600.00	87.568	192.412	128.414	–16.428	102.398	–324.288	–120.234	–116.266	3.796
	1700.00	88.794	197.758	132.337	–7.610	111.216	–343.798	–220.877	–115.116	3.537
	1800.00	90.016	202.868	136.114	1.331	120.157	–363.832	–220.775	–108.898	3.160
	1900.00	91.234	207.768	139.757	10.393	129.219	–384.365	–220.622	–102.686	2.823
	2000.00	92.449	212.478	143.276	19.577	138.403	–405.379	–220.458	–96.483	2.520
	2100.00	93.661	217.018	146.680	28.883	147.709	–426.855	–220.314	–90.288	2.246
	2200.00	94.871	221.403	149.978	38.310	157.136	–448.777	–220.166	–84.100	1.997
	2293.00	95.995	225.354	152.955	47.185	166.011	–469.552	–220.044	–78.351	1.785

References

Phase	H / S	C_p	Remarks	
SOL	Tk1,C1	Tk1,C1	Tk1	MPT= 2293.

Mo3Si — 3–MOLYBDENUM SILICON — 315.906

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[–]
SOL	298.15	92.968	106.274	106.274	–101.671	0.000	–133.356	–101.671	–102.170	17.900
	300.00	93.006	106.849	106.275	–101.499	0.172	–133.554	–101.669	–102.173	17.790
	400.00	95.117	133.891	109.948	–92.094	9.577	–145.650	–101.747	–102.339	13.364
	500.00	97.313	155.351	116.954	–82.473	19.198	–160.148	–102.055	–102.454	10.703
	600.00	99.541	173.289	124.888	–72.630	29.041	–176.604	–102.443	–102.498	8.923
	700.00	101.786	188.802	132.935	–62.564	39.107	–194.726	–102.841	–102.476	7.647
	800.00	104.039	202.541	140.793	–52.273	49.398	–214.306	–103.218	–102.398	6.686
	900.00	106.296	214.925	148.353	–41.756	59.915	–235.189	–103.562	–102.274	5.936
	1000.00	108.557	226.241	155.584	–31.014	70.657	–257.255	–103.871	–102.114	5.334
	1100.00	110.819	236.694	162.488	–20.045	81.626	–280.408	–104.148	–101.925	4.840
	1200.00	113.083	246.434	169.083	–8.850	92.821	–304.570	–104.408	–101.711	4.427
	1300.00	115.348	255.575	175.388	2.572	104.243	–329.675	–104.667	–101.476	4.077
	1400.00	117.614	264.206	181.426	14.220	115.891	–355.668	–104.948	–101.220	3.777
	1500.00	119.880	272.398	187.220	26.095	127.766	–382.502	–105.271	–100.943	3.515
	1600.00	122.146	280.207	192.790	38.196	139.867	–410.135	–105.656	–100.642	3.286
	1700.00	124.413	287.680	198.153	50.524	152.195	–438.532	–156.295	–99.868	3.069
	1800.00	126.680	294.855	203.328	63.079	164.750	–467.661	–156.656	–96.539	2.801
	1900.00	128.947	301.765	208.328	75.860	177.531	–497.494	–157.007	–93.190	2.562
	2000.00	131.214	308.437	213.168	88.868	190.539	–528.006	–157.460	–89.820	2.346
	2100.00	133.482	314.894	217.859	102.103	203.774	–559.174	–158.112	–86.423	2.150
	2200.00	135.749	321.156	222.412	115.564	217.235	–590.978	–158.889	–82.991	1.970
	2300.00	138.017	327.240	226.838	129.252	230.923	–623.399	–159.855	–79.520	1.806
	2303.00	138.085	327.420	226.969	129.667	231.338	–624.381	–159.887	–79.416	1.801

References

Phase	H / S	C_p	Remarks	
SOL	Tk1,e	Tk1,C1	C1	DPT= 2303.

563.957 5–MOLYBDENUM 3–SILICON **Mo5Si3**

Phase	T [K]	C_p [J / (K mol)]	S [J / (K mol)]	–(G–H298)/T [J / (K mol)]	H [kJ / mol]	H–H298 [kJ / mol]	G [kJ / mol]	ΔH_f [kJ / mol]	ΔG_f [kJ / mol]	log K_f [–]
SOL	298.15	205.851	207.342	207.342	–302.503	0.000	–364.322	–302.503	–304.863	53.411
	300.00	206.082	208.616	207.346	–302.122	0.381	–364.707	–302.454	–304.878	53.084
	400.00	215.420	269.301	215.557	–281.005	21.498	–388.726	–299.972	–306.068	39.968
	500.00	221.624	318.071	231.341	–259.138	43.365	–418.174	–297.692	–307.858	32.162
	600.00	226.594	358.929	249.292	–236.720	65.783	–452.078	–295.495	–310.098	26.996
	700.00	230.983	394.194	267.530	–213.838	88.665	–489.774	–293.318	–312.704	23.334
	800.00	235.061	425.306	285.345	–190.534	111.969	–530.779	–291.139	–315.623	20.608
	900.00	238.958	453.219	302.473	–166.832	135.671	–574.729	–288.954	–318.814	18.503
	1000.00	242.744	478.592	318.835	–142.746	159.757	–621.338	–286.766	–322.249	16.833
	1100.00	246.456	501.903	334.432	–118.286	184.217	–670.378	–284.589	–325.903	15.476
	1200.00	250.119	523.504	349.299	–93.457	209.046	–721.662	–282.450	–329.754	14.354
	1300.00	253.746	543.668	363.483	–68.263	234.240	–775.031	–280.380	–333.780	13.411
	1400.00	257.348	562.605	377.037	–42.708	259.795	–830.355	–278.418	–337.963	12.610
	1500.00	260.931	580.482	390.009	–16.794	285.709	–887.517	–276.600	–342.280	11.919
	1600.00	264.500	597.436	402.448	9.478	311.981	–946.420	–274.960	–346.713	11.319
	1700.00	268.057	613.578	414.397	36.106	338.609	–1006.977	–424.056	–349.903	10.751
	1800.00	271.606	629.000	425.894	63.089	365.592	–1069.112	–422.223	–345.594	10.029
	1900.00	275.148	643.780	436.975	90.427	392.930	–1132.756	–420.400	–341.387	9.385
	2000.00	278.685	657.983	447.673	118.118	420.621	–1197.849	–418.768	–337.272	8.809
	2100.00	282.217	671.666	458.015	146.163	448.666	–1264.335	–417.495	–333.229	8.289
	2200.00	285.745	684.876	468.029	174.562	477.065	–1332.166	–416.454	–329.242	7.817
	2300.00	289.270	697.656	477.736	203.312	505.815	–1401.296	–415.752	–325.295	7.388
	2400.00	292.793	710.042	487.159	232.416	534.919	–1471.684	–415.443	–321.371	6.994
	2453.00	294.659	716.457	492.044	247.983	550.486	–1509.487	–415.463	–319.293	6.799

References

Phase	H / S	C_p	Remarks	
SOL	Tk1/C1	Tk1,C1	Tk1	MPT= 2453.

N[g] NITROGEN (GAS) 14.007

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.786	153.300	153.300	472.683	0.000	426.977	472.683	455.541	−79.809
	300.00	20.786	153.429	153.300	472.721	0.038	426.693	472.695	455.434	−79.298
	400.00	20.786	159.408	154.116	474.800	2.117	411.037	473.314	449.587	−58.710
	500.00	20.786	164.047	155.655	476.879	4.196	394.855	473.923	443.585	−46.341
	600.00	20.786	167.836	157.379	478.957	6.274	378.255	474.510	437.461	−38.084
	700.00	20.786	171.041	159.108	481.036	8.353	361.307	475.067	431.242	−32.180
	800.00	20.786	173.816	160.777	483.114	10.431	344.062	475.591	424.945	−27.746
	900.00	20.786	176.264	162.364	485.193	12.510	326.555	476.082	418.585	−24.294
	1000.00	20.786	178.454	163.866	487.272	14.589	308.817	476.540	412.171	−21.530
	1100.00	20.786	180.435	165.283	489.350	16.667	290.871	476.970	405.713	−19.266
	1200.00	20.786	182.244	166.623	491.429	18.746	272.736	477.375	399.217	−17.377
	1300.00	20.786	183.908	167.889	493.507	20.824	254.427	477.756	392.689	−15.778
	1400.00	20.786	185.448	169.089	495.586	22.903	235.958	478.118	386.131	−14.407
	1500.00	20.786	186.882	170.228	497.665	24.982	217.341	478.462	379.549	−13.217
	1600.00	20.786	188.224	171.311	499.743	27.060	198.585	478.791	372.944	−12.175
	1700.00	20.786	189.484	172.343	501.822	29.139	179.699	479.107	366.319	−11.256
	1800.00	20.787	190.672	173.329	503.900	31.217	160.691	479.411	359.675	−10.438
	1900.00	20.788	191.796	174.272	505.979	33.296	141.567	479.705	353.015	−9.705
	2000.00	20.790	192.862	175.175	508.058	35.375	122.333	479.990	346.340	−9.045
	2100.00	20.793	193.877	176.041	510.137	37.454	102.996	480.266	339.651	−8.448
	2200.00	20.797	194.844	176.874	512.217	39.534	83.560	480.536	332.948	−7.905
	2300.00	20.804	195.769	177.676	514.297	41.614	64.029	480.800	326.234	−7.409
	2400.00	20.813	196.654	178.448	516.378	43.695	44.407	481.058	319.508	−6.954
	2500.00	20.826	197.504	179.194	518.460	45.777	24.699	481.311	312.771	−6.535
	2600.00	20.843	198.321	179.914	520.543	47.860	4.907	481.562	306.025	−6.148
	2700.00	20.864	199.108	180.610	522.628	49.945	−14.964	481.809	299.269	−5.790
	2800.00	20.891	199.868	181.284	524.716	52.033	−34.913	482.054	292.504	−5.457
	2900.00	20.924	200.601	181.938	526.807	54.124	−54.937	482.299	285.730	−5.147
	3000.00	20.963	201.311	182.572	528.901	56.218	−75.033	482.543	278.947	−4.857
	3100.00	21.010	201.999	183.188	531.000	58.317	−95.199	482.789	272.157	−4.586
	3200.00	21.064	202.667	183.786	533.103	60.420	−115.432	483.036	265.358	−4.332
	3300.00	21.127	203.316	184.368	535.213	62.530	−135.731	483.286	258.552	−4.093
	3400.00	21.197	203.948	184.935	537.329	64.646	−156.095	483.540	251.738	−3.867
	3500.00	21.277	204.564	185.487	539.452	66.769	−176.520	483.799	244.916	−3.655
	3600.00	21.365	205.164	186.025	541.584	68.901	−197.007	484.063	238.087	−3.455
	3700.00	21.462	205.751	186.550	543.726	71.043	−217.553	484.335	231.251	−3.265
	3800.00	21.569	206.325	187.063	545.877	73.194	−238.157	484.614	224.407	−3.085
	3900.00	21.684	206.886	187.564	548.040	75.357	−258.817	484.902	217.556	−2.914
	4000.00	21.809	207.437	188.054	550.214	77.531	−279.534	485.201	210.697	−2.751
	4100.00	21.941	207.977	188.534	552.402	79.719	−300.304	485.510	203.831	−2.597
	4200.00	22.083	208.508	189.003	554.603	81.920	−321.129	485.830	196.957	−2.450
	4300.00	22.232	209.029	189.462	556.819	84.136	−342.006	486.164	190.075	−2.309
	4400.00	22.388	209.542	189.913	559.049	86.366	−362.934	486.510	183.185	−2.175
	4500.00	22.552	210.047	190.355	561.296	88.613	−383.914	486.871	176.287	−2.046
	4600.00	22.722	210.544	190.788	563.560	90.877	−404.943	487.247	169.381	−1.923
	4700.00	22.899	211.035	191.214	565.841	93.158	−426.022	487.639	162.467	−1.806
	4800.00	23.081	211.519	191.632	568.140	95.457	−447.150	488.046	155.544	−1.693
	4900.00	23.269	211.997	192.043	570.457	97.774	−468.326	488.471	148.613	−1.584
	5000.00	23.461	212.469	192.446	572.794	100.111	−489.549	488.913	141.672	−1.480

References

Phase	H / S	C_p
GAS	Ja2	Ja2

28.013 NITROGEN (GAS) **N2[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	29.123	191.609	191.609	0.000	0.000	−57.128	0.000	0.000	0.000
	300.00	29.125	191.789	191.610	0.054	0.054	−57.483	0.000	0.000	0.000
	400.00	29.246	200.181	192.753	2.971	2.971	−77.101	0.000	0.000	0.000
	500.00	29.583	206.739	194.918	5.911	5.911	−97.459	0.000	0.000	0.000
	600.00	30.113	212.177	197.353	8.894	8.894	−118.412	0.000	0.000	0.000
	700.00	30.752	216.866	199.814	11.937	11.937	−139.869	0.000	0.000	0.000
	800.00	31.430	221.017	202.209	15.046	15.046	−161.767	0.000	0.000	0.000
	900.00	32.094	224.757	204.510	18.222	18.222	−184.059	0.000	0.000	0.000
	1000.00	32.696	228.171	206.708	21.463	21.463	−206.708	0.000	0.000	0.000
	1100.00	33.240	231.313	208.804	24.760	24.760	−229.684	0.000	0.000	0.000
	1200.00	33.723	234.226	210.803	28.109	28.109	−252.963	0.000	0.000	0.000
	1300.00	34.148	236.943	212.710	31.503	31.503	−276.523	0.000	0.000	0.000
	1400.00	34.519	239.487	214.533	34.936	34.936	−300.346	0.000	0.000	0.000
	1500.00	34.844	241.880	216.277	38.405	38.405	−324.416	0.000	0.000	0.000
	1600.00	35.128	244.138	217.948	41.904	41.904	−348.718	0.000	0.000	0.000
	1700.00	35.378	246.276	219.552	45.429	45.429	−373.239	0.000	0.000	0.000
	1800.00	35.598	248.304	221.094	48.978	48.978	−397.969	0.000	0.000	0.000
	1900.00	35.794	250.234	222.577	52.548	52.548	−422.897	0.000	0.000	0.000
	2000.00	35.969	252.075	224.006	56.137	56.137	−448.013	0.000	0.000	0.000
	2100.00	36.126	253.834	225.385	59.742	59.742	−473.309	0.000	0.000	0.000
	2200.00	36.267	255.517	226.717	63.361	63.361	−498.777	0.000	0.000	0.000
	2300.00	36.395	257.132	228.004	66.994	66.994	−524.410	0.000	0.000	0.000
	2400.00	36.511	258.684	229.251	70.640	70.640	−550.201	0.000	0.000	0.000
	2500.00	36.616	260.176	230.458	74.296	74.296	−576.145	0.000	0.000	0.000
	2600.00	36.713	261.615	231.629	77.963	77.963	−602.235	0.000	0.000	0.000
	2700.00	36.802	263.002	232.765	81.639	81.639	−628.466	0.000	0.000	0.000
	2800.00	36.884	264.342	233.869	85.323	85.323	−654.834	0.000	0.000	0.000
	2900.00	36.961	265.637	234.942	89.015	89.015	−681.333	0.000	0.000	0.000
	3000.00	37.031	266.892	235.987	92.715	92.715	−707.960	0.000	0.000	0.000
	3100.00	37.097	268.107	237.003	96.421	96.421	−734.710	0.000	0.000	0.000
	3200.00	37.159	269.286	237.994	100.134	100.134	−761.580	0.000	0.000	0.000
	3300.00	37.217	270.430	238.959	103.853	103.853	−788.566	0.000	0.000	0.000
	3400.00	37.272	271.542	239.901	107.578	107.578	−815.665	0.000	0.000	0.000
	3500.00	37.324	272.623	240.821	111.307	111.307	−842.873	0.000	0.000	0.000
	3600.00	37.373	273.675	241.719	115.042	115.042	−870.189	0.000	0.000	0.000
	3700.00	37.420	274.700	242.597	118.782	118.782	−897.608	0.000	0.000	0.000
	3800.00	37.464	275.698	243.455	122.526	122.526	−925.128	0.000	0.000	0.000
	3900.00	37.507	276.672	244.294	126.275	126.275	−952.746	0.000	0.000	0.000
	4000.00	37.548	277.622	245.115	130.028	130.028	−980.461	0.000	0.000	0.000
	4100.00	37.588	278.550	245.920	133.784	133.784	−1008.270	0.000	0.000	0.000
	4200.00	37.627	279.456	246.707	137.545	137.545	−1036.171	0.000	0.000	0.000
	4300.00	37.665	280.342	247.479	141.310	141.310	−1064.161	0.000	0.000	0.000
	4400.00	37.701	281.208	248.236	145.078	145.078	−1092.238	0.000	0.000	0.000
	4500.00	37.737	282.056	248.978	148.850	148.850	−1120.402	0.000	0.000	0.000
	4600.00	37.773	282.886	249.706	152.625	152.625	−1148.649	0.000	0.000	0.000
	4700.00	37.808	283.698	250.421	156.405	156.405	−1176.978	0.000	0.000	0.000
	4800.00	37.842	284.495	251.123	160.187	160.187	−1205.388	0.000	0.000	0.000
	4900.00	37.877	285.275	251.812	163.973	163.973	−1233.877	0.000	0.000	0.000
	5000.00	37.911	286.041	252.489	167.762	167.762	−1262.443	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Ja2	Ja2

NCO[g] NCO RADICAL (GAS) 42.017

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
GAS	298.15	40.064	232.238	232.238	159.410	0.000	90.168	159.410	151.026	−26.459
	300.00	40.136	232.486	232.239	159.484	0.074	89.738	159.414	150.974	−26.287
	400.00	43.866	244.554	233.859	163.688	4.278	65.867	159.637	148.127	−19.343
	500.00	46.991	254.690	237.037	168.236	8.826	40.891	159.855	145.224	−15.171
	600.00	49.545	263.491	240.729	173.067	13.657	14.973	160.034	142.281	−12.387
	700.00	51.645	271.291	244.548	178.130	18.720	−11.774	160.170	139.310	−10.395
	800.00	53.369	278.304	248.336	183.384	23.974	−39.259	160.277	136.323	−8.901
	900.00	54.763	284.673	252.025	188.793	29.383	−67.413	160.362	133.323	−7.738
	1000.00	55.857	290.502	255.586	194.326	34.916	−96.176	160.425	130.316	−6.807
	1100.00	56.758	295.870	259.007	199.959	40.549	−125.498	160.465	127.302	−6.045
	1200.00	57.501	300.841	262.289	205.673	46.263	−155.337	160.485	124.287	−5.410
	1300.00	58.114	305.469	265.434	211.454	52.044	−185.655	160.487	121.270	−4.873
	1400.00	58.623	309.795	268.450	217.292	57.882	−216.420	160.472	118.254	−4.412
	1500.00	59.048	313.854	271.343	223.176	63.766	−247.605	160.441	115.239	−4.013
	1600.00	59.407	317.677	274.121	229.100	69.690	−279.183	160.398	112.227	−3.664
	1700.00	59.712	321.288	276.790	235.056	75.646	−311.133	160.341	109.218	−3.356
	1800.00	59.973	324.708	279.358	241.040	81.630	−343.434	160.273	106.213	−3.082
	1900.00	60.197	327.957	281.831	247.049	87.639	−376.069	160.193	103.211	−2.837
	2000.00	60.393	331.050	284.215	253.079	93.669	−409.021	160.100	100.215	−2.617

References

Phase	H / S	C_p
GAS	Ja1	Ja1

16.021 IMIDOGEN–D1 (GAS) **ND**[g]

Phase	T	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[–]
GAS	298.15	29.159	187.234	187.234	375.305	0.000	319.481	375.305	369.655	–64.762
	300.00	29.160	187.414	187.235	375.359	0.054	319.135	375.305	369.620	–64.357
	400.00	29.299	195.818	188.379	378.281	2.976	299.953	375.307	367.725	–48.020
	500.00	29.656	202.390	190.548	381.226	5.921	280.031	375.318	365.828	–38.218
	600.00	30.212	207.844	192.988	384.218	8.913	259.512	375.345	363.928	–31.683
	700.00	30.891	212.551	195.454	387.273	11.968	238.487	375.388	362.022	–27.014
	800.00	31.604	216.723	197.857	390.398	15.093	217.020	375.446	360.109	–23.513
	900.00	32.296	220.485	200.165	393.593	18.288	195.156	375.514	358.188	–20.789
	1000.00	32.944	223.922	202.372	396.855	21.550	172.933	375.589	356.259	–18.609
	1100.00	33.529	227.090	204.477	400.180	24.875	150.381	375.668	354.322	–16.825
	1200.00	34.051	230.030	206.485	403.559	28.254	127.523	375.749	352.378	–15.339
	1300.00	34.513	232.774	208.403	406.988	31.683	104.381	375.829	350.427	–14.080
	1400.00	34.924	235.347	210.237	410.460	35.155	80.974	375.908	348.470	–13.002
	1500.00	35.289	237.770	211.992	413.971	38.666	57.317	375.986	346.508	–12.066
	1600.00	35.614	240.058	213.675	417.517	42.212	33.424	376.061	344.540	–11.248
	1700.00	35.905	242.226	215.292	421.093	45.788	9.309	376.133	342.568	–10.526
	1800.00	36.167	244.286	216.846	424.697	49.392	–15.017	376.203	340.591	–9.884
	1900.00	36.402	246.247	218.342	428.325	53.020	–39.545	376.271	338.611	–9.309
	2000.00	36.615	248.120	219.784	431.976	56.671	–64.264	376.337	336.627	–8.792
	2100.00	36.809	249.911	221.177	435.648	60.343	–89.166	376.400	334.640	–8.324
	2200.00	36.987	251.628	222.522	439.338	64.033	–114.243	376.461	332.650	–7.898
	2300.00	37.151	253.276	223.824	443.045	67.740	–139.489	376.519	330.658	–7.509
	2400.00	37.303	254.860	225.084	446.767	71.462	–164.896	376.576	328.662	–7.153
	2500.00	37.447	256.386	226.306	450.505	75.200	–190.459	376.631	326.665	–6.825
	2600.00	37.579	257.857	227.491	454.256	78.951	–216.172	376.684	324.665	–6.523
	2700.00	37.703	259.278	228.642	458.020	82.715	–242.029	376.734	322.664	–6.242
	2800.00	37.821	260.651	229.761	461.797	86.492	–268.026	376.783	320.660	–5.982
	2900.00	37.932	261.980	230.849	465.584	90.279	–294.158	376.831	318.655	–5.740
	3000.00	38.038	263.268	231.908	469.383	94.078	–320.420	376.876	316.648	–5.513
	3100.00	38.139	264.517	232.940	473.192	97.887	–346.810	376.920	314.640	–5.302
	3200.00	38.235	265.729	233.946	477.011	101.706	–373.322	376.961	312.630	–5.103
	3300.00	38.328	266.907	234.927	480.839	105.534	–399.954	377.001	310.619	–4.917
	3400.00	38.417	268.053	235.885	484.676	109.371	–426.703	377.038	308.607	–4.741
	3500.00	38.503	269.167	236.820	488.522	113.217	–453.564	377.074	306.594	–4.576
	3600.00	38.586	270.253	237.733	492.377	117.072	–480.535	377.108	304.579	–4.419
	3700.00	38.667	271.312	238.627	496.239	120.934	–507.614	377.139	302.564	–4.271
	3800.00	38.745	272.344	239.500	500.110	124.805	–534.797	377.168	300.548	–4.131
	3900.00	38.822	273.351	240.356	503.988	128.683	–562.082	377.194	298.532	–3.998
	4000.00	38.896	274.335	241.193	507.874	132.569	–589.466	377.219	296.514	–3.872
	4100.00	38.969	275.296	242.013	511.767	136.462	–616.948	377.240	294.497	–3.752
	4200.00	39.040	276.236	242.817	515.668	140.363	–644.525	377.259	292.478	–3.637
	4300.00	39.110	277.156	243.605	519.575	144.270	–672.194	377.276	290.459	–3.528
	4400.00	39.178	278.056	244.377	523.490	148.185	–699.955	377.290	288.440	–3.424
	4500.00	39.246	278.937	245.136	527.411	152.106	–727.805	377.301	286.421	–3.325
	4600.00	39.312	279.800	245.880	531.339	156.034	–755.742	377.310	284.401	–3.229
	4700.00	39.377	280.646	246.611	535.273	159.968	–783.764	377.316	282.381	–3.138
	4800.00	39.441	281.476	247.328	539.214	163.909	–811.871	377.320	280.361	–3.051
	4900.00	39.505	282.290	248.034	543.162	167.857	–840.059	377.321	278.341	–2.967
	5000.00	39.567	283.089	248.727	547.115	171.810	–868.328	377.321	276.321	–2.887

References

Phase	H / S	C_p
GAS	Ja2	Ja2

ND2[g] AMIDOGEN–D2 (GAS) 18.035

Phase	T	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[–]
GAS	298.15	34.421	204.291	204.291	185.351	0.000	124.442	185.351	196.226	–34.378
	300.00	34.448	204.504	204.292	185.415	0.064	124.064	185.334	196.293	–34.178
	400.00	36.062	214.626	205.661	188.937	3.586	103.087	184.476	200.080	–26.128
	500.00	37.949	222.873	208.302	192.636	7.285	81.200	183.776	204.065	–21.319
	600.00	39.953	229.968	211.335	196.531	11.180	58.550	183.231	208.176	–18.123
	700.00	41.945	236.277	214.455	200.626	15.275	35.232	182.824	212.368	–15.847
	800.00	43.815	242.002	217.546	204.916	19.565	11.314	182.535	216.610	–14.143
	900.00	45.509	247.262	220.560	209.384	24.033	–13.153	182.336	220.882	–12.820
	1000.00	47.007	252.137	223.477	214.011	28.660	–38.126	182.209	225.172	–11.762
	1100.00	48.310	256.679	226.291	218.778	33.427	–63.569	182.135	229.472	–10.897
	1200.00	49.440	260.932	229.002	223.667	38.316	–89.452	182.101	233.777	–10.176
	1300.00	50.421	264.929	231.614	228.661	43.310	–115.747	182.096	238.084	–9.566
	1400.00	51.279	268.698	234.129	233.747	48.396	–142.430	182.112	242.390	–9.044
	1500.00	52.037	272.262	236.554	238.914	53.563	–169.480	182.145	246.695	–8.591
	1600.00	52.714	275.643	238.892	244.152	58.801	–196.876	182.192	250.996	–8.194
	1700.00	53.329	278.857	241.149	249.455	64.104	–224.603	182.250	255.295	–7.844
	1800.00	53.898	281.922	243.330	254.816	69.465	–252.643	182.319	259.590	–7.533
	1900.00	54.430	284.850	245.439	260.233	74.882	–280.983	182.399	263.881	–7.255
	2000.00	54.936	287.655	247.480	265.701	80.350	–309.609	182.490	268.167	–7.004
	2100.00	55.425	290.347	249.458	271.220	85.869	–338.510	182.595	272.448	–6.777
	2200.00	55.901	292.937	251.375	276.786	91.435	–367.675	182.713	276.724	–6.570
	2300.00	56.367	295.432	253.237	282.399	97.048	–397.094	182.846	280.994	–6.382
	2400.00	56.827	297.841	255.046	288.059	102.708	–426.758	182.996	285.259	–6.208
	2500.00	57.279	300.170	256.804	293.764	108.413	–456.660	183.164	289.516	–6.049
	2600.00	57.724	302.425	258.516	299.515	114.164	–486.790	183.350	293.767	–5.902
	2700.00	58.161	304.612	260.183	305.309	119.958	–517.142	183.556	298.010	–5.765
	2800.00	58.589	306.734	261.808	311.146	125.795	–547.710	183.781	302.244	–5.638
	2900.00	59.008	308.798	263.392	317.026	131.675	–578.487	184.027	306.471	–5.520
	3000.00	59.416	310.805	264.940	322.948	137.597	–609.468	184.291	310.689	–5.410
	3100.00	59.812	312.760	266.451	328.909	143.558	–640.646	184.575	314.897	–5.306
	3200.00	60.196	314.665	267.928	334.910	149.559	–672.018	184.878	319.097	–5.209
	3300.00	60.565	316.523	269.372	340.948	155.597	–703.578	185.198	323.286	–5.117
	3400.00	60.920	318.336	270.786	347.022	161.671	–735.321	185.536	327.465	–5.031
	3500.00	61.258	320.107	272.170	353.131	167.780	–767.244	185.889	331.635	–4.949
	3600.00	61.580	321.837	273.526	359.273	173.922	–799.341	186.257	335.794	–4.872
	3700.00	61.883	323.529	274.854	365.447	180.096	–831.610	186.637	339.942	–4.799
	3800.00	62.169	325.183	276.157	371.649	186.298	–864.046	187.028	344.081	–4.730
	3900.00	62.436	326.801	277.435	377.880	192.529	–896.645	187.430	348.208	–4.664
	4000.00	62.685	328.385	278.689	384.136	198.785	–929.405	187.839	352.326	–4.601
	4100.00	62.915	329.936	279.920	390.416	205.065	–962.321	188.254	356.433	–4.541
	4200.00	63.128	331.455	281.129	396.718	211.367	–995.391	188.674	360.529	–4.484
	4300.00	63.322	332.942	282.317	403.041	217.690	–1028.611	189.097	364.616	–4.429
	4400.00	63.499	334.400	283.484	409.382	224.031	–1061.978	189.522	368.693	–4.377
	4500.00	63.659	335.829	284.631	415.740	230.389	–1095.490	189.946	372.761	–4.327
	4600.00	63.803	337.230	285.760	422.114	236.763	–1129.143	190.369	376.818	–4.279
	4700.00	63.932	338.603	286.869	428.501	243.150	–1162.935	190.789	380.867	–4.233
	4800.00	64.046	339.951	287.961	434.900	249.549	–1196.863	191.205	384.907	–4.189
	4900.00	64.146	341.272	289.036	441.309	255.958	–1230.924	191.616	388.938	–4.146
	5000.00	64.233	342.569	290.094	447.728	262.377	–1265.117	192.020	392.961	–4.105

References

Phase	H / S	C_p
GAS	Ja2	Ja2

20.049 AMMONIA–D3 (GAS) **ND3[g]**

Phase	T	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[–]
GAS	298.15	38.224	203.931	203.931	–58.576	0.000	–119.378	–58.576	–25.984	4.552
	300.00	38.306	204.168	203.932	–58.505	0.071	–119.756	–58.613	–25.782	4.489
	400.00	42.924	215.817	205.489	–54.445	4.131	–140.772	–60.394	–14.557	1.901
	500.00	47.374	225.880	208.582	–49.927	8.649	–162.867	–61.740	–2.934	0.307
	600.00	51.473	234.885	212.228	–44.982	13.594	–185.913	–62.708	8.924	–0.777
	700.00	55.209	243.105	216.060	–39.644	18.932	–209.818	–63.363	20.918	–1.561
	800.00	58.586	250.701	219.921	–33.952	24.624	–234.513	–63.762	32.989	–2.154
	900.00	61.603	257.779	223.739	–27.939	30.637	–259.941	–63.954	45.096	–2.617
	1000.00	64.257	264.411	227.478	–21.643	36.933	–286.054	–63.980	57.215	–2.989
	1100.00	66.573	270.646	231.122	–15.099	43.477	–312.810	–63.873	69.331	–3.292
	1200.00	68.593	276.527	234.663	–8.338	50.238	–340.171	–63.660	81.431	–3.545
	1300.00	70.347	282.089	238.099	–1.389	57.187	–368.105	–63.362	93.511	–3.757
	1400.00	71.871	287.359	241.431	5.723	64.299	–396.579	–62.995	105.565	–3.939
	1500.00	73.199	292.364	244.661	12.978	71.554	–425.567	–62.573	117.590	–4.095
	1600.00	74.360	297.126	247.792	20.358	78.934	–455.044	–62.107	129.586	–4.231
	1700.00	75.379	301.665	250.829	27.846	86.422	–484.985	–61.604	141.552	–4.349
	1800.00	76.276	306.000	253.775	35.429	94.005	–515.370	–61.072	153.487	–4.454
	1900.00	77.067	310.145	256.633	43.097	101.673	–546.179	–60.517	165.392	–4.547
	2000.00	77.768	314.117	259.409	50.840	109.416	–577.393	–59.942	177.267	–4.630
	2100.00	78.389	317.926	262.105	58.648	117.224	–608.997	–59.354	189.113	–4.704
	2200.00	78.941	321.586	264.726	66.515	125.091	–640.974	–58.754	200.931	–4.771
	2300.00	79.431	325.106	267.275	74.434	133.010	–673.309	–58.147	212.721	–4.831
	2400.00	79.868	328.496	269.756	82.400	140.976	–705.991	–57.534	224.485	–4.886
	2500.00	80.255	331.764	272.171	90.406	148.982	–739.004	–56.920	236.223	–4.936
	2600.00	80.600	334.919	274.524	98.449	157.025	–772.340	–56.306	247.936	–4.981
	2700.00	80.907	337.967	276.818	106.525	165.101	–805.985	–55.694	259.626	–5.023
	2800.00	81.179	340.914	279.055	114.630	173.206	–839.930	–55.087	271.294	–5.061
	2900.00	81.420	343.767	281.237	122.760	181.336	–874.164	–54.486	282.940	–5.096
	3000.00	81.633	346.531	283.368	130.913	189.489	–908.680	–53.893	294.565	–5.129
	3100.00	81.812	349.211	285.449	139.085	197.661	–943.468	–53.310	306.170	–5.159
	3200.00	81.971	351.811	287.482	147.274	205.850	–978.519	–52.740	317.757	–5.187
	3300.00	82.109	354.335	289.470	155.479	214.055	–1013.827	–52.182	329.327	–5.213
	3400.00	82.228	356.788	291.414	163.696	222.272	–1049.384	–51.639	340.880	–5.237
	3500.00	82.326	359.173	293.316	171.924	230.500	–1085.183	–51.113	352.417	–5.260
	3600.00	82.405	361.494	295.178	180.160	238.736	–1121.217	–50.604	363.939	–5.281
	3700.00	82.465	363.752	297.001	188.404	246.980	–1157.479	–50.115	375.447	–5.300
	3800.00	82.509	365.952	298.787	196.653	255.229	–1193.965	–49.647	386.942	–5.319
	3900.00	82.537	368.096	300.536	204.905	263.481	–1230.668	–49.201	398.426	–5.336
	4000.00	82.550	370.185	302.252	213.160	271.736	–1267.582	–48.779	409.898	–5.353
	4100.00	82.548	372.224	303.933	221.415	279.991	–1304.703	–48.382	421.360	–5.368
	4200.00	82.534	374.213	305.583	229.669	288.245	–1342.026	–48.011	432.812	–5.383
	4300.00	82.506	376.155	307.202	237.921	296.497	–1379.544	–47.667	444.257	–5.397
	4400.00	82.467	378.051	308.791	246.170	304.746	–1417.255	–47.352	455.693	–5.410
	4500.00	82.415	379.904	310.350	254.414	312.990	–1455.153	–47.065	467.122	–5.422
	4600.00	82.351	381.714	311.882	262.652	321.228	–1493.234	–46.809	478.546	–5.434
	4700.00	82.274	383.485	313.387	270.884	329.460	–1531.495	–46.583	489.964	–5.445
	4800.00	82.185	385.216	314.865	279.107	337.683	–1569.930	–46.389	501.378	–5.456
	4900.00	82.082	386.910	316.318	287.320	345.896	–1608.537	–46.227	512.788	–5.466
	5000.00	81.966	388.567	317.747	295.523	354.099	–1647.311	–46.099	524.195	–5.476

References

Phase	H / S	C_p
GAS	Ja2	Ja2

NH[g] IMIDOGEN (GAS) 15.015

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	29.160	181.251	181.251	376.560	0.000	322.520	376.560	370.565	−64.921
	300.00	29.167	181.432	181.252	376.614	0.054	322.184	376.560	370.528	−64.515
	400.00	29.211	189.837	182.398	379.536	2.976	303.601	376.570	368.515	−48.123
	500.00	29.252	196.357	184.562	382.457	5.897	284.279	376.561	366.502	−38.288
	600.00	29.467	201.706	186.986	385.392	8.832	264.368	376.539	364.492	−31.732
	700.00	29.817	206.273	189.423	388.355	11.795	243.964	376.512	362.486	−27.049
	800.00	30.255	210.283	191.785	391.358	14.798	223.132	376.485	360.484	−23.537
	900.00	30.748	213.874	194.043	394.408	17.848	201.921	376.459	358.486	−20.806
	1000.00	31.270	217.141	196.192	397.509	20.949	180.368	376.438	356.490	−18.621
	1100.00	31.803	220.146	198.235	400.662	24.102	158.502	376.423	354.496	−16.834
	1200.00	32.331	222.936	200.178	403.869	27.309	136.346	376.416	352.503	−15.344
	1300.00	32.844	225.544	202.030	407.128	30.568	113.920	376.418	350.510	−14.084
	1400.00	33.331	227.996	203.798	410.437	33.877	91.242	376.428	348.517	−13.003
	1500.00	33.781	230.312	205.490	413.793	37.233	68.326	376.446	346.523	−12.067
	1600.00	34.187	232.505	207.110	417.192	40.632	45.184	376.469	344.527	−11.248
	1700.00	34.541	234.589	208.666	420.629	44.069	21.828	376.497	342.530	−10.525
	1800.00	34.892	236.573	210.161	424.101	47.541	−1.730	376.527	340.531	−9.882
	1900.00	35.222	238.468	211.602	427.606	51.046	−25.483	376.562	338.531	−9.307
	2000.00	35.531	240.283	212.991	431.144	54.584	−49.421	376.600	336.528	−8.789
	2100.00	35.823	242.024	214.332	434.712	58.152	−73.537	376.643	334.523	−8.321
	2200.00	36.100	243.696	215.629	438.308	61.748	−97.824	376.690	332.517	−7.895
	2300.00	36.366	245.307	216.885	441.932	65.372	−122.275	376.741	330.508	−7.506
	2400.00	36.621	246.860	218.101	445.581	69.021	−146.883	376.797	328.496	−7.150
	2500.00	36.868	248.360	219.282	449.256	72.696	−171.645	376.859	326.482	−6.821
	2600.00	37.107	249.811	220.428	452.955	76.395	−196.554	376.925	324.466	−6.519
	2700.00	37.340	251.216	221.543	456.677	80.117	−221.605	376.998	322.447	−6.238
	2800.00	37.567	252.578	222.627	460.422	83.862	−246.795	377.076	320.425	−5.978
	2900.00	37.789	253.900	223.683	464.190	87.630	−272.120	377.161	318.401	−5.735
	3000.00	38.006	255.185	224.711	467.980	91.420	−297.574	377.252	316.373	−5.509

References

Phase	H / S	C_p
GAS	Ja1	Ja1

16.023 AMIDOGEN (GAS) **NH2**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	33.563	194.707	194.707	190.372	0.000	132.320	190.372	199.846	−35.012
	300.00	33.577	194.915	194.708	190.434	0.062	131.960	190.354	199.905	−34.807
	400.00	34.397	204.681	196.034	193.831	3.459	111.958	189.386	203.236	−26.540
	500.00	35.509	212.471	198.567	197.324	6.952	91.088	188.487	206.804	−21.605
	600.00	36.833	219.060	201.447	200.940	10.568	69.504	187.682	210.545	−18.330
	700.00	38.258	224.844	204.384	204.694	14.322	47.303	186.977	214.413	−16.000
	800.00	39.714	230.048	207.272	208.592	18.220	24.554	186.368	218.375	−14.258
	900.00	41.162	234.809	210.071	212.636	22.264	1.308	185.849	222.408	−12.908
	1000.00	42.577	239.220	212.768	216.824	26.452	−22.396	185.412	226.494	−11.831
	1100.00	43.945	243.342	215.362	221.150	30.778	−46.526	185.052	230.621	−10.951
	1200.00	45.202	247.221	217.857	225.608	35.236	−71.056	184.757	234.777	−10.220
	1300.00	46.355	250.885	220.258	230.187	39.815	−95.963	184.518	238.955	−9.601
	1400.00	47.413	254.359	222.571	234.876	44.504	−121.227	184.326	243.150	−9.072
	1500.00	48.386	257.664	224.801	239.667	49.295	−146.830	184.174	247.357	−8.614
	1600.00	49.286	260.816	226.954	244.551	54.179	−172.755	184.058	251.574	−8.213
	1700.00	50.125	263.829	229.035	249.522	59.150	−198.988	183.973	255.796	−7.860
	1800.00	50.911	266.717	231.049	254.574	64.202	−225.516	183.916	260.023	−7.546
	1900.00	51.652	269.490	233.000	259.703	69.331	−252.328	183.887	264.252	−7.265
	2000.00	52.356	272.157	234.891	264.903	74.531	−279.411	183.884	268.482	−7.012
	2100.00	53.028	274.728	236.728	270.173	79.801	−306.756	183.906	272.711	−6.783
	2200.00	53.672	277.210	238.512	275.508	85.136	−334.353	183.952	276.939	−6.575
	2300.00	54.292	279.609	240.247	280.906	90.534	−362.195	184.023	281.164	−6.385
	2400.00	54.892	281.933	241.935	286.366	95.994	−390.273	184.118	285.386	−6.211
	2500.00	55.474	284.185	243.581	291.884	101.512	−418.579	184.238	289.603	−6.051
	2600.00	56.040	286.372	245.185	297.460	107.088	−447.108	184.383	293.815	−5.903
	2700.00	56.593	288.498	246.750	303.092	112.720	−475.852	184.553	298.020	−5.766
	2800.00	57.134	290.566	248.278	308.778	118.406	−504.805	184.747	302.219	−5.638
	2900.00	57.664	292.580	249.771	314.518	124.146	−533.963	184.968	306.411	−5.519
	3000.00	58.186	294.543	251.231	320.311	129.939	−563.320	185.213	310.595	−5.408

References

Phase	H / S	C_p
GAS	Ja1	Ja1

NH3[g] AMMONIA (GAS) 17.031

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	35.650	192.778	192.779	−45.940	0.000	−103.417	−45.940	−16.409	2.875
	300.00	35.699	192.999	192.779	−45.874	0.066	−103.774	−45.981	−16.226	2.825
	400.00	38.741	203.673	194.214	−42.157	3.783	−123.626	−48.081	−5.984	0.781
	500.00	42.026	212.670	197.027	−38.118	7.822	−144.453	−49.897	4.756	−0.497
	600.00	45.259	220.620	200.308	−33.753	12.187	−166.125	−51.417	15.834	−1.379
	700.00	48.349	227.830	203.732	−29.071	16.869	−188.553	−52.663	27.145	−2.026
	800.00	51.260	234.479	207.165	−24.089	21.851	−211.672	−53.665	38.617	−2.521
	900.00	53.984	240.675	210.548	−18.826	27.114	−235.433	−54.451	50.202	−2.914
	1000.00	56.519	246.496	213.855	−13.299	32.641	−259.795	−55.050	61.864	−3.231
	1100.00	58.867	251.994	217.074	−7.528	38.412	−284.722	−55.486	73.577	−3.494
	1200.00	61.035	257.211	220.204	−1.532	44.408	−310.184	−55.781	85.325	−3.714
	1300.00	63.031	262.176	223.243	4.673	50.613	−336.156	−55.955	97.091	−3.901
	1400.00	64.861	266.915	226.194	11.069	57.009	−362.612	−56.022	108.867	−4.062
	1500.00	66.535	271.448	229.061	17.640	63.580	−389.532	−55.997	120.645	−4.201
	1600.00	68.060	275.792	231.847	24.371	70.311	−416.895	−55.893	132.418	−4.323
	1700.00	69.446	279.960	234.555	31.248	77.188	−444.684	−55.719	144.182	−4.430
	1800.00	70.702	283.966	237.190	38.256	84.196	−472.882	−55.486	155.935	−4.525
	1900.00	71.836	287.819	239.754	45.384	91.324	−501.472	−55.202	167.673	−4.610
	2000.00	72.858	291.530	242.250	52.619	98.559	−530.441	−54.876	179.395	−4.685
	2100.00	73.777	295.108	244.683	59.952	105.892	−559.774	−54.513	191.099	−4.753
	2200.00	74.602	298.559	247.054	67.372	113.312	−589.458	−54.122	202.786	−4.815
	2300.00	75.343	301.892	249.366	74.870	120.810	−619.482	−53.707	214.455	−4.870
	2400.00	76.008	305.113	251.622	82.438	128.378	−649.833	−53.274	226.105	−4.921
	2500.00	76.608	308.228	253.824	90.069	136.009	−680.501	−52.826	237.736	−4.967
	2600.00	77.150	311.243	255.975	97.758	143.698	−711.475	−52.368	249.350	−5.009
	2700.00	77.645	314.164	258.076	105.498	151.438	−742.746	−51.902	260.945	−5.048
	2800.00	78.102	316.997	260.130	113.285	159.225	−774.305	−51.430	272.524	−5.084
	2900.00	78.529	319.745	262.139	121.117	167.057	−806.143	−50.955	284.085	−5.117
	3000.00	78.938	322.414	264.104	128.990	174.930	−838.251	−50.477	295.630	−5.147

References

Phase	H / S	C_p
GAS	Co1	Ja1

32.045 HYDRAZINE (GAS) **N2H4[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	51.776	240.271	240.271	95.186	0.000	23.549	95.186	158.602	−27.786
	300.00	52.098	240.592	240.272	95.282	0.096	23.104	95.121	158.996	−27.684
	400.00	64.438	257.464	242.489	101.176	5.990	−1.809	92.286	180.746	−23.603
	500.00	71.732	272.680	247.035	108.009	12.823	−28.331	90.334	203.101	−21.218
	600.00	77.040	286.247	252.460	115.458	20.272	−56.290	88.942	225.793	−19.657
	700.00	81.410	298.460	258.174	123.386	28.200	−85.536	87.951	248.684	−18.557
	800.00	85.279	309.587	263.915	131.724	36.538	−115.946	87.274	271.696	−17.740
	900.00	88.859	319.840	269.567	140.432	45.246	−147.424	86.857	294.776	−17.108
	1000.00	92.258	329.380	275.076	149.489	54.303	−179.890	86.667	317.890	−16.605
	1100.00	95.539	338.327	280.424	158.880	63.694	−213.280	86.683	341.014	−16.193
	1200.00	98.739	346.778	285.604	168.594	73.408	−247.539	86.892	364.127	−15.850
	1300.00	101.883	354.806	290.621	178.626	83.440	−282.622	87.288	387.215	−15.558
	1400.00	104.986	362.470	295.482	188.970	93.784	−318.488	87.869	410.266	−15.307
	1500.00	108.059	369.818	300.194	199.622	104.436	−355.105	88.637	433.268	−15.088
	1600.00	111.109	376.890	304.768	210.581	115.395	−392.443	89.594	456.214	−14.894

References

Phase	H / S	C_p	Remarks
GAS	La1	La1	La1 MPT= 274.69, L= 12.66 kJ / BPT= 386.26, L= 41.80 kJ

53.491 AMMONIUM CHLORIDE **NH4Cl**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−1	298.15	86.647	94.977	94.977	−314.553	0.000	−342.870	−314.553	−203.121	35.586
	300.00	86.944	95.514	94.978	−314.392	0.161	−343.047	−314.557	−202.429	35.246
	400.00	102.968	122.720	98.580	−304.897	9.656	−353.985	−314.066	−165.087	21.558
	457.85	112.239	137.241	102.555	−298.672	15.881	−361.508	−313.097	−143.601	16.383
			8.627		3.950					
SOL−2	457.85	85.791	145.868	102.555	−294.722	19.831	−361.508	−309.147	−143.601	16.383
	500.00	90.500	153.628	106.535	−291.007	23.546	−367.821	−309.276	−128.354	13.409
	600.00	101.671	171.116	115.857	−281.398	33.155	−384.067	−308.835	−92.193	8.026
	700.00	112.842	187.627	124.941	−270.672	43.881	−402.011	−307.345	−56.190	4.193
	800.00	124.014	203.424	133.770	−258.830	55.723	−421.569	−304.815	−20.471	1.337

References

Phase	H / S	C_p	Remarks
SOL−1	Ja1	Ja1	
SOL−2	Ja1	Ja1	Ja1 NDPT= 612., MPT= 793.2

NH4ClO4 AMMONIUM PERCHLORATE 117.489

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL−1	298.15	128.103	184.180	184.180	−295.767	0.000	−350.680	−295.767	−88.601	15.523
	300.00	128.477	184.973	184.182	−295.530	0.237	−351.022	−295.803	−87.316	15.203
	400.00	148.714	224.705	189.463	−281.670	14.097	−371.552	−296.890	−17.608	2.299
	500.00	168.950	260.064	200.104	−265.787	29.980	−395.819	−296.225	52.172	−5.450

References

Phase	H / S	C_p	Remarks
SOL−1	Ja1	Ja1	Ja1 NDPT= 513.

NH4I AMMONIUM IODIDE 144.943

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	81.688	112.968	112.968	−202.087	0.000	−235.768	−202.087	−111.966	19.616
	300.00	81.821	113.474	112.970	−201.936	0.151	−235.978	−202.120	−111.407	19.398
	400.00	88.997	137.995	116.265	−193.395	8.692	−248.593	−211.669	−80.645	10.531
	500.00	96.173	158.625	122.724	−184.136	17.951	−263.449	−233.822	−45.734	4.778
	600.00	103.350	176.794	130.249	−174.160	27.927	−280.236	−233.071	−8.176	0.712
	700.00	110.526	193.264	138.092	−163.466	38.621	−298.751	−231.656	29.204	−2.179
	800.00	117.703	208.491	145.951	−152.055	50.032	−318.848	−229.591	66.337	−4.331
	824.00	119.425	211.996	147.824	−149.209	52.878	−323.894	−229.000	75.206	−4.767

References

Phase	H / S	C_p	Remarks
SOL	Ja1	Ja1	Ja1 MPT= 824., L= 20.9 kJ

132.141 AMMONIUM SULFATE **(NH4)2SO4**

Phase	T [K]	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f [–]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	187.489	220.099	220.099	–1180.850	0.000	–1246.473	–1180.850	–901.609	157.958
	300.00	188.008	221.261	220.103	–1180.503	0.347	–1246.881	–1180.921	–899.876	156.682
	400.00	216.083	279.192	227.812	–1160.298	20.552	–1271.975	–1185.781	–805.642	105.206
	500.00	244.157	330.426	243.298	–1137.286	43.564	–1302.499	–1187.419	–710.388	74.214
	600.00	272.232	377.422	261.783	–1111.467	69.383	–1337.920	–1186.194	–615.046	53.545

References

Phase	H / S	C_p
SOL	Nb1	La1

NO[g] NITRIC OXIDE (GAS) 30.006

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	29.844	210.761	210.761	90.291	0.000	27.453	90.291	86.599	−15.172
	300.00	29.841	210.946	210.762	90.346	0.055	27.062	90.292	86.576	−15.074
	400.00	29.945	219.532	211.932	93.331	3.040	5.518	90.333	85.330	−11.143
	500.00	30.489	226.267	214.148	96.350	6.059	−16.783	90.352	84.077	−8.783
	600.00	31.238	231.890	216.649	99.435	9.144	−39.698	90.366	82.821	−7.210
	700.00	32.029	236.765	219.182	102.599	12.308	−63.136	90.381	81.562	−6.086
	800.00	32.769	241.091	221.655	105.839	15.548	−87.033	90.399	80.301	−5.243
	900.00	33.416	244.989	224.035	109.149	18.858	−111.340	90.418	79.038	−4.587
	1000.00	33.983	248.539	226.310	112.520	22.229	−136.019	90.437	77.772	−4.062
	1100.00	34.469	251.802	228.481	115.943	25.652	−161.039	90.457	76.505	−3.633
	1200.00	34.880	254.819	230.552	119.411	29.120	−186.372	90.477	75.235	−3.275
	1300.00	35.229	257.625	232.528	122.917	32.626	−211.995	90.494	73.965	−2.972
	1400.00	35.527	260.247	234.415	126.456	36.165	−237.890	90.509	72.693	−2.712
	1500.00	35.783	262.707	236.220	130.021	39.730	−264.039	90.520	71.420	−2.487
	1600.00	36.004	265.024	237.949	133.611	43.320	−290.427	90.526	70.146	−2.290
	1700.00	36.196	267.212	239.606	137.221	46.930	−317.040	90.528	68.872	−2.116
	1800.00	36.365	269.286	241.198	140.849	50.558	−343.866	90.523	67.598	−1.962
	1900.00	36.515	271.256	242.729	144.494	54.203	−370.894	90.513	66.325	−1.823
	2000.00	36.647	273.133	244.202	148.152	57.861	−398.114	90.496	65.052	−1.699
	2100.00	36.767	274.924	245.623	151.823	61.532	−425.517	90.471	63.781	−1.586
	2200.00	36.874	276.637	246.994	155.505	65.214	−453.096	90.439	62.511	−1.484
	2300.00	36.971	278.278	248.319	159.197	68.906	−480.842	90.400	61.242	−1.391
	2400.00	37.060	279.853	249.600	162.899	72.608	−508.750	90.352	59.975	−1.305
	2500.00	37.142	281.368	250.841	166.609	76.318	−536.811	90.297	58.711	−1.227
	2600.00	37.217	282.826	252.043	170.327	80.036	−565.021	90.234	57.448	−1.154
	2700.00	37.286	284.232	253.209	174.052	83.761	−593.375	90.162	56.189	−1.087
	2800.00	37.351	285.589	254.342	177.784	87.493	−621.866	90.083	54.932	−1.025
	2900.00	37.412	286.901	255.442	181.522	91.231	−650.491	89.996	53.678	−0.967
	3000.00	37.469	288.170	256.512	185.266	94.975	−679.245	89.902	52.427	−0.913

References

Phase	H / S	C_p
GAS	Ja1	Ja1

46.006 NITROGEN DIOXIDE (GAS) **NO2[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	36.662	240.020	240.020	33.095	0.000	−38.467	33.095	51.262	−8.981
	300.00	36.762	240.247	240.021	33.163	0.068	−38.911	33.082	51.374	−8.945
	400.00	40.896	251.439	241.519	37.063	3.968	−63.512	32.552	57.561	−7.517
	500.00	43.674	260.879	244.471	41.299	8.204	−89.141	32.259	63.851	−6.670
	600.00	45.843	269.040	247.901	45.778	12.683	−115.646	32.087	70.187	−6.110
	700.00	47.657	276.246	251.446	50.456	17.361	−142.917	31.988	76.545	−5.712
	800.00	49.222	282.715	254.957	55.301	22.206	−170.871	31.943	82.914	−5.414
	900.00	50.590	288.593	258.373	60.293	27.198	−199.440	31.941	89.286	−5.182
	1000.00	51.788	293.987	261.668	65.414	32.319	−228.573	31.980	95.656	−4.997
	1100.00	52.830	298.973	264.836	70.646	37.551	−258.224	32.054	102.020	−4.845
	1200.00	53.726	303.609	267.876	75.975	42.880	−288.356	32.160	108.377	−4.718
	1300.00	54.481	307.940	270.793	81.386	48.291	−318.936	32.291	114.723	−4.610
	1400.00	55.100	312.001	273.593	86.867	53.772	−349.935	32.441	121.058	−4.517
	1500.00	55.585	315.820	276.282	92.402	59.307	−381.328	32.601	127.383	−4.436
	1600.00	55.798	319.417	278.867	97.975	64.880	−413.092	32.758	133.696	−4.365
	1700.00	55.925	322.803	281.352	103.561	70.466	−445.204	32.889	140.001	−4.302
	1800.00	56.053	326.004	283.745	109.160	76.065	−477.646	32.998	146.298	−4.245
	1900.00	56.181	329.038	286.050	114.772	81.677	−510.399	33.085	152.590	−4.195
	2000.00	56.308	331.923	288.272	120.396	87.301	−543.449	33.153	158.878	−4.149
	2100.00	56.436	334.673	290.416	126.034	92.939	−576.779	33.202	165.163	−4.108
	2200.00	56.563	337.301	292.488	131.684	98.589	−610.379	33.234	171.446	−4.071
	2300.00	56.691	339.818	294.492	137.346	104.251	−644.236	33.249	177.728	−4.036
	2400.00	56.819	342.234	296.431	143.022	109.927	−678.339	33.249	184.009	−4.005
	2500.00	56.946	344.556	298.310	148.710	115.615	−712.680	33.235	190.291	−3.976
	2600.00	57.074	346.792	300.132	154.411	121.316	−747.248	33.206	196.574	−3.949
	2700.00	57.202	348.948	301.900	160.125	127.030	−782.035	33.165	202.858	−3.925
	2800.00	57.329	351.031	303.618	165.851	132.756	−817.035	33.111	209.144	−3.902
	2900.00	57.457	353.045	305.288	171.591	138.496	−852.239	33.047	215.432	−3.880
	3000.00	57.584	354.995	306.912	177.343	144.248	−887.642	32.972	221.723	−3.861

References

Phase	H / S	C_p
GAS	Ja1	Ja1

NO3[g] NITROGEN TRIOXIDE (GAS) 62.005

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	47.013	252.823	252.823	71.128	0.000	−4.251	71.128	116.060	−20.333
	300.00	47.137	253.114	252.824	71.215	0.087	−4.719	71.107	116.339	−20.256
	400.00	55.577	267.805	254.769	76.342	5.214	−30.780	70.319	131.555	−17.179
	500.00	62.649	281.011	258.720	82.274	11.146	−58.232	70.192	146.891	−15.346
	600.00	67.564	292.896	263.443	88.800	17.672	−86.938	70.487	162.208	−14.121
	700.00	70.972	303.582	268.427	95.736	24.608	−116.771	71.020	177.455	−13.242
	800.00	73.397	313.226	273.434	102.961	31.833	−147.619	71.685	192.616	−12.577
	900.00	75.172	321.979	278.350	110.394	39.266	−179.387	72.422	207.688	−12.054
	1000.00	76.507	329.971	283.118	117.981	46.853	−211.990	73.196	222.677	−11.631
	1100.00	77.535	337.313	287.716	125.685	54.557	−245.359	73.987	237.587	−11.282
	1200.00	78.343	344.096	292.135	133.481	62.353	−279.434	74.785	252.424	−10.988
	1300.00	78.990	350.393	296.377	141.349	70.221	−314.162	75.581	267.195	−10.736
	1400.00	79.516	356.267	300.447	149.275	78.147	−349.498	76.371	281.905	−10.518
	1500.00	79.950	361.768	304.354	157.249	86.121	−385.403	77.149	296.559	−10.327
	1600.00	80.313	366.940	308.106	165.263	94.135	−421.841	77.912	311.161	−10.158
	1700.00	80.620	371.818	311.711	173.310	102.182	−458.781	78.659	325.716	−10.008
	1800.00	80.883	376.434	315.180	181.385	110.257	−496.196	79.386	340.228	−9.873
	1900.00	81.109	380.813	318.520	189.485	118.357	−534.060	80.091	354.700	−9.751
	2000.00	81.306	384.979	321.740	197.606	126.478	−572.351	80.774	369.135	−9.641
	2100.00	81.478	388.950	324.846	205.745	134.617	−611.049	81.433	383.537	−9.540
	2200.00	81.631	392.744	327.847	213.901	142.773	−650.135	82.066	397.908	−9.448
	2300.00	81.766	396.376	330.748	222.071	150.943	−689.593	82.674	412.250	−9.362
	2400.00	81.888	399.858	333.556	230.254	159.126	−729.406	83.255	426.567	−9.284
	2500.00	81.997	403.203	336.275	238.448	167.320	−769.560	83.809	440.860	−9.211
	2600.00	82.096	406.421	338.912	246.653	175.525	−810.042	84.336	455.132	−9.144
	2700.00	82.186	409.521	341.470	254.867	183.739	−850.840	84.836	469.384	−9.081
	2800.00	82.268	412.511	343.954	263.090	191.962	−891.943	85.310	483.617	−9.022
	2900.00	82.344	415.400	346.368	271.320	200.192	−933.339	85.758	497.835	−8.967
	3000.00	82.414	418.193	348.716	279.558	208.430	−975.019	86.180	512.037	−8.915

References

Phase	H / S	C_p
GAS	Ja1	Ja1

44.013 DINITROGEN OXIDE (GAS) **N2O[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	38.838	219.979	219.979	82.048	0.000	16.461	82.048	104.172	−18.250
	300.00	38.831	220.219	219.979	82.120	0.072	16.054	82.039	104.309	−18.162
	400.00	41.893	231.712	221.525	86.123	4.075	−6.562	81.639	111.801	−14.600
	500.00	45.881	241.503	224.563	90.518	8.470	−30.234	81.565	119.356	−12.469
	600.00	48.953	250.154	228.122	95.267	13.219	−54.825	81.751	126.900	−11.048
	700.00	51.208	257.878	231.831	100.281	18.233	−80.234	82.095	134.400	−10.029
	800.00	52.884	264.831	235.529	105.490	23.442	−106.375	82.526	141.843	−9.261
	900.00	54.162	271.137	239.140	110.845	28.797	−133.178	83.002	149.229	−8.661
	1000.00	55.164	276.897	242.632	116.313	34.265	−160.584	83.499	156.562	−8.178
	1100.00	55.970	282.194	245.991	121.871	39.823	−188.542	84.005	163.843	−7.780
	1200.00	56.635	287.093	249.215	127.502	45.454	−217.010	84.513	171.079	−7.447
	1300.00	57.194	291.649	252.306	133.195	51.147	−245.949	85.020	178.272	−7.163
	1400.00	57.675	295.906	255.270	138.939	56.891	−275.329	85.524	185.427	−6.918
	1500.00	58.095	299.900	258.113	144.728	62.680	−305.122	86.023	192.545	−6.705
	1600.00	58.468	303.661	260.844	150.556	68.508	−335.302	86.519	199.630	−6.517
	1700.00	58.803	307.216	263.468	156.420	74.372	−365.847	87.012	206.685	−6.351
	1800.00	59.109	310.586	265.993	162.316	80.268	−396.739	87.501	213.710	−6.202
	1900.00	59.390	313.789	268.425	168.241	86.193	−427.959	87.986	220.708	−6.068
	2000.00	59.652	316.842	270.770	174.193	92.145	−459.492	88.469	227.681	−5.946
	2100.00	59.898	319.759	273.034	180.171	98.123	−491.323	88.949	234.630	−5.836
	2200.00	60.130	322.551	275.221	186.172	104.124	−523.439	89.426	241.556	−5.735
	2300.00	60.351	325.228	277.338	192.196	110.148	−555.829	89.902	248.460	−5.643
	2400.00	60.562	327.801	279.387	198.242	116.194	−588.481	90.376	255.344	−5.557
	2500.00	60.765	330.278	281.374	204.309	122.261	−621.386	90.849	262.208	−5.479
	2600.00	60.961	332.665	283.301	210.395	128.347	−654.534	91.320	269.053	−5.405
	2700.00	61.151	334.969	285.172	216.501	134.453	−687.916	91.792	275.880	−5.337
	2800.00	61.336	337.197	286.990	222.625	140.577	−721.525	92.263	282.690	−5.274
	2900.00	61.517	339.352	288.759	228.768	146.720	−755.353	92.734	289.482	−5.214
	3000.00	61.693	341.441	290.480	234.928	152.880	−789.393	93.207	296.259	−5.158

References

Phase	H / S	C_p
GAS	Ja1	Ja1

N2O3[g] DINITROGEN TRIOXIDE (GAS) 76.012

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	65.908	309.349	309.349	82.843	0.000	−9.389	82.843	139.486	−24.437
	300.00	65.920	309.757	309.350	82.965	0.122	−9.962	82.830	139.837	−24.348
	400.00	71.724	329.375	311.985	89.799	6.956	−41.951	82.289	158.935	−20.755
	500.00	78.581	346.143	317.177	97.326	14.483	−75.745	82.289	178.107	−18.607
	600.00	83.751	360.953	323.263	105.457	22.614	−111.115	82.697	197.237	−17.171
	700.00	87.494	374.159	329.608	114.029	31.186	−147.882	83.344	216.278	−16.139
	800.00	90.242	386.031	335.931	122.923	40.080	−185.902	84.123	235.217	−15.358
	900.00	92.310	396.785	342.105	132.055	49.212	−225.051	84.971	254.053	−14.745
	1000.00	93.908	406.597	348.071	141.369	58.526	−265.228	85.852	272.793	−14.249
	1100.00	95.174	415.609	353.807	150.826	67.983	−306.344	86.747	291.444	−13.840
	1200.00	96.200	423.936	359.308	160.396	77.553	−348.327	87.646	310.013	−13.495
	1300.00	97.049	431.670	364.580	170.060	87.217	−391.112	88.541	328.507	−13.200
	1400.00	97.764	438.889	369.633	179.801	96.958	−434.644	89.429	346.933	−12.944
	1500.00	98.378	445.656	374.478	189.609	106.766	−478.874	90.307	365.295	−12.721
	1600.00	98.911	452.022	379.128	199.474	116.631	−523.761	91.172	383.599	−12.523
	1700.00	99.382	458.033	383.594	209.389	126.546	−569.267	92.024	401.850	−12.347
	1800.00	99.803	463.726	387.889	219.349	136.506	−615.357	92.860	420.051	−12.190
	1900.00	100.183	469.132	392.024	229.349	146.506	−662.003	93.681	438.205	−12.047
	2000.00	100.531	474.280	396.009	239.385	156.542	−709.175	94.485	456.317	−11.918
	2100.00	100.850	479.193	399.854	249.454	166.611	−756.851	95.271	474.390	−11.800
	2200.00	101.147	483.891	403.568	259.554	176.711	−805.007	96.039	492.425	−11.692
	2300.00	101.425	488.394	407.159	269.683	186.840	−853.622	96.788	510.426	−11.592
	2400.00	101.687	492.716	410.634	279.838	196.995	−902.679	97.520	528.394	−11.500
	2500.00	101.935	496.872	414.001	290.020	207.177	−952.160	98.232	546.333	−11.415
	2600.00	102.171	500.874	417.266	300.225	217.382	−1002.049	98.927	564.243	−11.336
	2700.00	102.398	504.735	420.435	310.454	227.611	−1052.330	99.604	582.127	−11.262
	2800.00	102.615	508.463	423.512	320.704	237.861	−1102.991	100.263	599.986	−11.193
	2900.00	102.825	512.067	426.504	330.976	248.133	−1154.019	100.906	617.822	−11.128
	3000.00	103.028	515.557	429.415	341.269	258.426	−1205.401	101.534	635.635	−11.067

References

Phase	H / S	C_p
GAS	Ja1	Ja1

N2O4 DINITROGEN TETRAOXIDE 92.011

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
LIQ	298.15	142.532	209.229	209.229	−19.564	0.000	−81.946	−19.564	97.512	−17.084
	300.00	142.842	210.112	209.232	−19.300	0.264	−82.334	−19.463	98.238	−17.105
	301.00	143.009	210.588	209.236	−19.157	0.407	−82.544	−19.408	98.630	−17.116

References

Phase	H / S	C_p	Remarks	
LIQ	Ja1	Ja1	Ja1,Ja2	MPT=261.95/ BPT=293.92(N2O4),L=28.91/ NDPT=301.(N2O4+NO2)

92.011 DINITROGEN TETRAOXIDE (GAS) **N2O4[g]**

Phase	T	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[–]
GAS	298.15	77.599	304.370	304.370	9.079	0.000	–81.669	9.079	97.788	–17.132
	300.00	77.662	304.850	304.371	9.223	0.144	–82.232	9.060	98.339	–17.122
	400.00	87.289	328.349	307.509	17.415	8.336	–113.925	8.393	128.222	–16.744
	500.00	97.495	348.971	313.778	26.675	17.596	–147.810	8.596	158.173	–16.524
	600.00	105.024	367.450	321.211	36.822	27.743	–183.648	9.440	188.017	–16.368
	700.00	110.415	384.067	329.024	47.609	38.530	–221.238	10.675	217.687	–16.244
	800.00	114.343	399.081	336.858	58.857	49.778	–260.408	12.140	247.162	–16.138
	900.00	117.281	412.726	344.542	70.445	61.366	–301.008	13.740	276.444	–16.044
	1000.00	119.536	425.204	351.993	82.290	73.211	–342.914	15.422	305.544	–15.960
	1100.00	121.312	436.684	359.177	94.336	85.257	–386.016	17.152	334.473	–15.883
	1200.00	122.743	447.303	366.084	106.541	97.462	–430.222	18.911	363.243	–15.812
	1300.00	123.918	457.175	372.716	118.876	109.797	–475.452	20.686	391.865	–15.745
	1400.00	124.901	466.396	379.082	131.319	122.240	–521.635	22.467	420.351	–15.683
	1500.00	125.738	475.042	385.194	143.852	134.773	–568.712	24.250	448.709	–15.625
	1600.00	126.461	483.181	391.066	156.462	147.383	–616.627	26.027	476.948	–15.571
	1700.00	127.094	490.867	396.713	169.141	160.062	–665.333	27.796	505.076	–15.519
	1800.00	127.655	498.148	402.148	181.879	172.800	–714.787	29.553	533.101	–15.470
	1900.00	128.158	505.063	407.384	194.670	185.591	–764.950	31.296	561.028	–15.424
	2000.00	128.614	511.649	412.434	207.509	198.430	–815.789	33.021	588.864	–15.380
	2100.00	129.030	517.934	417.309	220.391	211.312	–867.270	34.728	616.614	–15.337
	2200.00	129.415	523.945	422.021	233.314	224.235	–919.366	36.414	644.284	–15.297
	2300.00	129.771	529.706	426.578	246.273	237.194	–972.051	38.079	671.877	–15.259
	2400.00	130.105	535.236	430.991	259.267	250.188	–1025.300	39.722	699.398	–15.222
	2500.00	130.419	540.554	435.268	272.294	263.215	–1079.091	41.343	726.851	–15.187
	2600.00	130.717	545.675	439.417	285.351	276.272	–1133.404	42.941	754.240	–15.153
	2700.00	131.000	550.613	443.444	298.437	289.358	–1188.220	44.516	781.567	–15.120
	2800.00	131.271	555.383	447.357	311.550	302.471	–1243.521	46.070	808.837	–15.089
	2900.00	131.530	559.994	451.162	324.690	315.611	–1299.291	47.602	836.052	–15.059
	3000.00	131.781	564.457	454.865	337.856	328.777	–1355.515	49.114	863.214	–15.030

References

Phase	H / S	C_p
GAS	Ja1	Ja1

N2O5[g] DINITROGEN PENTAOXIDE (GAS) 108.010

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	96.358	346.545	346.545	11.297	0.000	-92.025	11.297	118.014	-20.676
	300.00	96.600	347.141	346.546	11.475	0.178	-92.667	11.286	118.677	-20.663
	400.00	110.610	376.872	350.504	21.844	10.547	-128.905	11.309	154.504	-20.176
	500.00	121.329	402.781	358.425	33.475	22.178	-167.916	12.353	190.198	-19.870
	600.00	128.570	425.585	367.757	45.994	34.697	-209.357	13.989	225.621	-19.642
	700.00	133.514	445.799	377.490	59.113	47.816	-252.946	15.929	260.742	-19.457
	800.00	136.989	463.867	387.179	72.648	61.351	-298.446	18.013	295.574	-19.299
	900.00	139.506	480.155	396.619	86.479	75.182	-345.660	20.154	330.141	-19.161
	1000.00	141.378	494.955	405.724	100.528	89.231	-394.427	22.308	364.468	-19.038
	1100.00	142.803	508.500	414.461	114.740	103.443	-444.610	24.450	398.581	-18.927
	1200.00	143.908	520.974	422.824	129.078	117.781	-496.092	26.567	432.499	-18.826
	1300.00	144.781	532.529	430.824	143.514	132.217	-548.774	28.651	466.242	-18.734
	1400.00	145.479	543.285	438.477	158.028	146.731	-602.571	30.698	499.826	-18.649
	1500.00	146.044	553.342	445.803	172.605	161.308	-657.408	32.704	533.264	-18.570
	1600.00	146.507	562.783	452.822	187.233	175.936	-713.219	34.666	566.571	-18.497
	1700.00	146.889	571.676	459.555	201.904	190.607	-769.946	36.581	599.756	-18.428
	1800.00	147.207	580.082	466.019	216.609	205.312	-827.538	38.447	632.830	-18.364
	1900.00	147.473	588.048	472.234	231.344	220.047	-885.948	40.263	665.801	-18.304
	2000.00	147.697	595.618	478.215	246.102	234.805	-945.134	42.027	698.679	-18.248
	2100.00	147.886	602.829	483.979	260.882	249.585	-1005.059	43.738	731.469	-18.194
	2200.00	148.047	609.713	489.539	275.679	264.382	-1065.689	45.394	764.179	-18.144
	2300.00	148.183	616.297	494.908	290.490	279.193	-1126.992	46.996	796.815	-18.096
	2400.00	148.299	622.606	500.098	305.315	294.018	-1188.939	48.543	829.382	-18.051
	2500.00	148.398	628.662	505.121	320.150	308.853	-1251.504	50.035	861.887	-18.008
	2600.00	148.481	634.484	509.985	334.994	323.697	-1314.664	51.472	894.332	-17.967
	2700.00	148.552	640.089	514.700	349.845	338.548	-1378.394	52.855	926.723	-17.929
	2800.00	148.613	645.492	519.276	364.704	353.407	-1442.675	54.184	959.064	-17.892
	2900.00	148.663	650.708	523.718	379.568	368.271	-1507.486	55.461	991.359	-17.856
	3000.00	148.705	655.749	528.036	394.436	383.139	-1572.810	56.688	1023.610	-17.823

References

Phase	H / S	C_p
GAS	Ja1	Ja1

109.910 NITROSYL BROMIDE (GAS) **NOBr[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	45.476	273.534	273.534	82.132	0.000	0.578	82.132	82.415	−14.439
	300.00	45.518	273.815	273.535	82.216	0.084	0.072	82.092	82.417	−14.350
	400.00	47.595	287.203	275.346	86.875	4.743	−28.006	66.565	85.714	−11.193
	500.00	49.292	298.012	278.832	91.722	9.590	−57.284	66.567	90.503	−9.455
	600.00	50.679	307.126	282.808	96.723	14.591	−87.553	66.638	95.284	−8.295
	700.00	51.827	315.027	286.859	101.850	19.718	−118.669	66.748	100.050	−7.466
	800.00	52.785	322.012	290.825	107.082	24.950	−150.528	66.884	104.799	−6.843
	900.00	53.585	328.277	294.644	112.402	30.270	−183.048	67.034	109.529	−6.357
	1000.00	54.252	333.958	298.296	117.795	35.663	−216.164	67.193	114.242	−5.967
	1100.00	54.805	339.156	301.777	123.248	41.116	−249.823	67.357	118.939	−5.648
	1200.00	55.261	343.945	305.094	128.752	46.620	−283.981	67.522	123.621	−5.381
	1300.00	55.634	348.383	308.256	134.298	52.166	−318.601	67.686	128.290	−5.155
	1400.00	55.938	352.518	311.271	139.877	57.745	−353.648	67.846	132.945	−4.960
	1500.00	56.187	356.386	314.151	145.484	63.352	−389.095	67.999	137.590	−4.791
	1600.00	56.392	360.019	316.906	151.113	68.981	−424.917	68.144	142.225	−4.643
	1700.00	56.566	363.443	319.544	156.761	74.629	−461.092	68.280	146.850	−4.512
	1800.00	56.721	366.681	322.073	162.426	80.294	−497.600	68.405	151.469	−4.396
	1900.00	56.869	369.751	324.502	168.105	85.973	−534.423	68.521	156.080	−4.291
	2000.00	57.021	372.672	326.838	173.799	91.667	−571.545	68.629	160.685	−4.197

References

Phase	H / S	C_p
GAS	Ja1	Ja1

NOCl[g] NITROSYL CHLORIDE (GAS) 65.459

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	44.593	261.693	261.693	51.714	0.000	−26.310	51.714	66.098	−11.580
	300.00	44.643	261.969	261.694	51.797	0.083	−26.794	51.711	66.187	−11.524
	400.00	47.122	275.164	263.476	56.389	4.675	−53.676	51.626	71.029	−9.275
	500.00	49.106	285.900	266.920	61.204	9.490	−81.746	51.656	75.878	−7.927
	600.00	50.709	295.000	270.861	66.198	14.484	−110.802	51.760	80.714	−7.027
	700.00	52.033	302.919	274.887	71.337	19.623	−140.707	51.913	85.528	−6.382
	800.00	53.143	309.942	278.838	76.597	24.883	−171.356	52.097	90.318	−5.897
	900.00	54.082	316.257	282.651	81.960	30.246	−202.672	52.306	95.083	−5.518
	1000.00	54.879	321.998	286.303	87.409	35.695	−234.589	52.534	99.824	−5.214
	1100.00	55.556	327.261	289.790	92.931	41.217	−267.055	52.776	104.542	−4.964
	1200.00	56.132	332.120	293.118	98.517	46.803	−300.027	53.031	109.236	−4.755
	1300.00	56.623	336.633	296.294	104.155	52.441	−333.468	53.294	113.910	−4.577
	1400.00	57.044	340.845	299.327	109.839	58.125	−367.344	53.564	118.562	−4.424
	1500.00	57.409	344.793	302.228	115.562	63.848	−401.628	53.838	123.195	−4.290
	1600.00	57.730	348.509	305.005	121.319	69.605	−436.295	54.114	127.810	−4.173
	1700.00	58.020	352.017	307.669	127.107	75.393	−471.323	54.391	132.408	−4.068
	1800.00	58.291	355.341	310.226	132.923	81.209	−506.692	54.669	136.989	−3.975
	1900.00	58.556	358.500	312.684	138.765	87.051	−542.386	54.948	141.555	−3.892
	2000.00	58.825	361.511	315.051	144.634	92.920	−578.387	55.229	146.106	−3.816

References

Phase	H / S	C_p
GAS	La1,Ja1	Ja1

81.458 NITRYL CHLORIDE (GAS) **NO2Cl[g]**

Phase	T	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[–]
GAS	298.15	52.807	272.069	272.069	12.134	0.000	−68.983	12.134	54.006	−9.462
	300.00	53.003	272.397	272.070	12.232	0.098	−69.487	12.119	54.266	−9.449
	400.00	60.547	288.795	274.255	17.950	5.816	−97.568	11.674	68.399	−8.932
	500.00	64.987	302.817	278.601	24.242	12.108	−127.166	11.652	82.589	−8.628
	600.00	68.120	314.956	283.671	30.905	18.771	−158.069	11.846	96.761	−8.424
	700.00	70.562	325.647	288.919	37.843	25.709	−190.109	12.170	110.889	−8.275
	800.00	72.570	335.204	294.118	45.003	32.869	−223.160	12.585	124.964	−8.159
	900.00	74.266	343.852	299.171	52.347	40.213	−257.120	13.073	138.983	−8.066
	1000.00	75.717	351.754	304.040	59.848	47.714	−291.906	13.621	152.944	−7.989
	1100.00	76.957	359.030	308.713	67.483	55.349	−327.450	14.222	166.848	−7.923
	1200.00	78.010	365.773	313.190	75.233	63.099	−363.694	14.867	180.695	−7.865
	1300.00	78.890	372.053	317.479	83.080	70.946	−400.589	15.546	194.486	−7.815
	1400.00	79.604	377.926	321.590	91.006	78.872	−438.091	16.252	208.225	−7.769
	1500.00	80.161	383.438	325.531	98.995	86.861	−476.162	16.972	221.912	−7.728
	1600.00	80.564	388.626	329.314	107.033	94.899	−514.768	17.694	235.551	−7.690
	1700.00	80.815	393.518	332.948	115.103	102.969	−553.878	18.408	249.145	−7.655
	1800.00	80.918	398.141	336.443	123.191	111.057	−593.463	19.101	262.698	−7.623
	1900.00	80.874	402.515	339.806	131.282	119.148	−633.498	19.758	276.213	−7.594
	2000.00	80.685	406.660	343.046	139.361	127.227	−673.958	20.368	289.695	−7.566
	2100.00	80.351	410.589	346.170	147.414	135.280	−714.822	20.917	303.147	−7.540
	2200.00	79.873	414.316	349.183	155.426	143.292	−756.069	21.391	316.575	−7.516
	2273.00	79.433	416.916	351.317	161.241	149.107	−786.410	21.683	326.365	−7.500

References

Phase	H / S	C_p
GAS	Ja1	Ja1

NOF[g] NITROSYL FLUORIDE (GAS) 49.005

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	40.825	248.108	248.108	−65.689	0.000	−139.662	−65.689	−50.284	8.810
	300.00	40.941	248.361	248.108	−65.613	0.076	−140.122	−65.696	−50.189	8.739
	400.00	45.247	260.805	249.776	−61.278	4.411	−165.599	−65.912	−44.979	5.874
	500.00	47.567	271.172	253.048	−56.627	9.062	−192.213	−65.942	−39.740	4.152
	600.00	49.105	279.988	256.822	−51.789	13.900	−219.782	−65.912	−34.501	3.004
	700.00	50.274	287.649	260.690	−46.818	18.871	−248.172	−65.865	−29.270	2.184
	800.00	51.246	294.427	264.492	−41.741	23.948	−277.283	−65.814	−24.045	1.570
	900.00	52.104	300.513	268.162	−36.573	29.116	−307.035	−65.760	−18.828	1.093
	1000.00	52.891	306.044	271.678	−31.323	34.366	−337.367	−65.701	−13.616	0.711
	1100.00	53.631	311.120	275.036	−25.996	39.693	−368.228	−65.632	−8.411	0.399
	1200.00	54.340	315.817	278.241	−20.598	45.091	−399.578	−65.546	−3.212	0.140
	1300.00	55.026	320.194	281.302	−15.129	50.560	−431.381	−65.439	1.978	−0.079
	1400.00	55.697	324.296	284.228	−9.593	56.096	−463.608	−65.308	7.159	−0.267
	1500.00	56.355	328.162	287.029	−3.990	61.699	−496.232	−65.148	12.330	−0.429
	1600.00	57.004	331.819	289.715	1.678	67.367	−529.233	−64.958	17.489	−0.571

References

Phase	H / S	C_p
GAS	Ja1	La1

Na SODIUM 22.990

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	28.154	51.455	51.455	0.000	0.000	−15.341	0.000	0.000	0.000
	300.00	28.204	51.629	51.456	0.052	0.052	−15.437	0.000	0.000	0.000
	370.98	31.583	57.897	52.099	2.151	2.151	−19.328	0.000	0.000	0.000
			7.017		2.603					
LIQ	370.98	31.827	64.915	52.099	4.754	4.754	−19.328	0.000	0.000	0.000
	400.00	31.510	67.300	53.116	5.673	5.673	−21.246	0.000	0.000	0.000
	500.00	30.553	74.224	56.675	8.775	8.775	−28.337	0.000	0.000	0.000
	600.00	29.806	79.725	60.074	11.791	11.791	−36.044	0.000	0.000	0.000
	700.00	29.270	84.277	63.216	14.743	14.743	−44.251	0.000	0.000	0.000
	800.00	28.947	88.162	66.097	17.652	17.652	−52.878	0.000	0.000	0.000
	900.00	28.838	91.563	68.741	20.539	20.539	−61.867	0.000	0.000	0.000
	1000.00	28.942	94.605	71.178	23.427	23.427	−71.178	0.000	0.000	0.000
	1100.00	29.260	97.377	73.436	26.335	26.335	−80.779	0.000	0.000	0.000
	1170.52	29.613	99.205	74.934	28.410	28.410	−87.712	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks
SOL	Ja2	Ja2	
LIQ	Ja2	Ja2	Ja2 BPT=1170.525 GAS(Na),L=97.022 kJ / NBPT=1156. GAS(Na+Na2)

22.990 SODIUM (GAS) **Na[g]**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	20.786	153.667	153.667	107.300	0.000	61.484	107.300	76.825	-13.460
	300.00	20.786	153.796	153.667	107.338	0.038	61.200	107.286	76.636	-13.344
	400.00	20.786	159.775	154.483	109.417	2.117	45.507	103.744	66.753	-8.717
	500.00	20.786	164.414	156.022	111.496	4.196	29.289	102.721	57.626	-6.020
	600.00	20.786	168.203	157.746	113.574	6.274	12.652	101.783	48.697	-4.239
	700.00	20.786	171.408	159.475	115.653	8.353	-4.332	100.910	39.919	-2.979
	800.00	20.786	174.183	161.144	117.731	10.431	-21.615	100.079	31.263	-2.041
	900.00	20.786	176.631	162.731	119.810	12.510	-39.158	99.271	22.709	-1.318
	1000.00	20.786	178.821	164.233	121.889	14.589	-56.933	98.462	14.246	-0.744
	1100.00	20.786	180.803	165.650	123.967	16.667	-74.915	97.632	5.864	-0.278
	1200.00	20.786	182.611	166.990	126.046	18.746	-93.087	0.000	0.000	0.000
	1300.00	20.786	184.275	168.256	128.125	20.825	-111.433	0.000	0.000	0.000
	1400.00	20.786	185.815	169.456	130.203	22.903	-129.938	0.000	0.000	0.000
	1500.00	20.786	187.250	170.595	132.282	24.982	-148.592	0.000	0.000	0.000
	1600.00	20.788	188.591	171.678	134.361	27.061	-167.385	0.000	0.000	0.000
	1700.00	20.789	189.851	172.711	136.439	29.139	-186.308	0.000	0.000	0.000
	1800.00	20.792	191.040	173.696	138.518	31.218	-205.353	0.000	0.000	0.000
	1900.00	20.797	192.164	174.639	140.598	33.298	-224.514	0.000	0.000	0.000
	2000.00	20.804	193.231	175.542	142.678	35.378	-243.784	0.000	0.000	0.000
	2100.00	20.816	194.246	176.409	144.759	37.459	-263.158	0.000	0.000	0.000
	2200.00	20.832	195.215	177.242	146.841	39.541	-282.632	0.000	0.000	0.000
	2300.00	20.855	196.141	178.043	148.926	41.626	-302.200	0.000	0.000	0.000
	2400.00	20.886	197.030	178.816	151.013	43.713	-321.859	0.000	0.000	0.000
	2500.00	20.925	197.883	179.562	153.103	45.803	-341.605	0.000	0.000	0.000
	2600.00	20.974	198.705	180.282	155.198	47.898	-361.434	0.000	0.000	0.000
	2700.00	21.033	199.497	180.979	157.298	49.998	-381.345	0.000	0.000	0.000
	2800.00	21.105	200.263	181.655	159.405	52.105	-401.333	0.000	0.000	0.000
	2900.00	21.190	201.006	182.309	161.520	54.220	-421.396	0.000	0.000	0.000
	3000.00	21.288	201.725	182.944	163.643	56.343	-441.533	0.000	0.000	0.000
	3100.00	21.402	202.425	183.562	165.778	58.478	-461.741	0.000	0.000	0.000
	3200.00	21.532	203.107	184.162	167.924	60.624	-482.018	0.000	0.000	0.000
	3300.00	21.680	203.772	184.746	170.085	62.785	-502.362	0.000	0.000	0.000
	3400.00	21.845	204.421	185.315	172.261	64.961	-522.771	0.000	0.000	0.000
	3500.00	22.030	205.057	185.870	174.454	67.154	-543.245	0.000	0.000	0.000
	3600.00	22.235	205.681	186.412	176.667	69.367	-563.782	0.000	0.000	0.000
	3700.00	22.461	206.293	186.941	178.902	71.602	-584.381	0.000	0.000	0.000
	3800.00	22.710	206.895	187.458	181.160	73.860	-605.041	0.000	0.000	0.000
	3900.00	22.981	207.488	187.964	183.445	76.145	-625.760	0.000	0.000	0.000
	4000.00	23.277	208.074	188.460	185.757	78.457	-646.538	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Ja2	Ja2

Na2[g] SODIUM (GAS) 45.980

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	37.500	230.188	230.188	137.528	0.000	68.898	137.528	99.580	−17.446
	300.00	37.508	230.420	230.188	137.597	0.069	68.472	137.493	99.345	−17.297
	400.00	37.840	241.259	231.664	141.366	3.838	44.862	130.019	87.355	−11.407
	500.00	38.080	249.729	234.461	145.162	7.634	20.298	127.613	76.972	−8.041
	600.00	38.284	256.691	237.603	148.981	11.453	−5.034	125.399	67.055	−5.838
	700.00	38.471	262.606	240.762	152.819	15.291	−31.006	123.333	57.496	−4.290
	800.00	38.649	267.755	243.822	156.675	19.147	−57.529	121.371	48.226	−3.149
	900.00	38.821	272.317	246.739	160.548	23.020	−84.537	119.469	39.197	−2.275
	1000.00	38.991	276.416	249.505	164.439	26.911	−111.977	117.585	30.379	−1.587
	1100.00	39.158	280.140	252.124	168.346	30.818	−139.808	115.676	21.751	−1.033
	1200.00	39.324	283.554	254.603	172.270	34.742	−167.995	−79.822	18.180	−0.791
	1300.00	39.488	286.709	256.952	176.211	38.683	−196.510	−80.038	26.356	−1.059
	1400.00	39.653	289.641	259.184	180.168	42.640	−225.329	−80.238	34.547	−1.289
	1500.00	39.816	292.382	261.307	184.141	46.613	−254.432	−80.422	42.753	−1.489
	1600.00	39.979	294.957	263.330	188.131	50.603	−283.800	−80.590	50.970	−1.664
	1700.00	40.142	297.386	265.263	192.137	54.609	−313.419	−80.742	59.197	−1.819
	1800.00	40.304	299.685	267.112	196.159	58.631	−343.273	−80.877	67.433	−1.957
	1900.00	40.467	301.868	268.884	200.198	62.670	−373.352	−80.998	75.676	−2.080
	2000.00	40.629	303.948	270.586	204.253	66.725	−403.643	−81.103	83.925	−2.192

References

Phase	H / S	C_p
GAS	Ja1	Ja1

NaAlCl4 SODIUM TETRACHLOROALUMINATE 191.782

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	155.041	188.280	188.280	−1142.232	0.000	−1198.368	−1142.232	−1041.552	182.476
	300.00	155.216	189.240	188.283	−1141.945	0.287	−1198.717	−1142.168	−1040.927	181.242
	400.00	164.661	235.186	194.484	−1125.951	16.281	−1220.026	−1141.236	−1007.506	131.567
	424.00	166.928	244.846	197.063	−1121.972	20.260	−1225.787	−1140.332	−999.509	123.134

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	MPT= 424.

308.667 TRISODIUM HEXACHLOROALUMINATE **Na3AlCl6**

Phase	T	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	244.153	347.690	347.690	–1979.032	0.000	–2082.696	–1979.032	–1828.675	320.376
	300.00	244.357	349.201	347.695	–1978.580	0.452	–2083.341	–1978.970	–1827.742	318.238
	400.00	254.387	420.895	357.403	–1953.635	25.397	–2121.993	–1983.797	–1777.194	232.078
	500.00	264.010	478.701	376.061	–1927.712	51.320	–2167.062	–1980.532	–1725.903	180.304
	600.00	273.006	527.643	397.347	–1900.854	78.178	–2217.440	–1976.383	–1675.353	145.852
	700.00	281.165	570.350	419.075	–1873.139	105.893	–2272.384	–1971.421	–1625.563	121.301
	780.00	287.220	601.101	436.190	–1850.402	128.630	–2319.260	–1966.949	–1586.278	106.229

References

Phase	H / S	C_p	Remarks	
SOL	Ja1,e	Ja1	Ja1	MPT= 780.

Na3AlF6 CRYOLITE 209.941

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL−A	298.15	215.695	238.446	238.446	−3309.544	0.000	−3380.637	−3309.544	−3144.793	550.955
	300.00	216.237	239.782	238.450	−3309.144	0.400	−3381.079	−3309.520	−3143.770	547.379
	400.00	234.633	304.856	247.199	−3286.481	23.063	−3408.424	−3315.868	−3088.133	403.269
	500.00	247.626	358.609	264.258	−3262.368	47.176	−3441.673	−3313.790	−3031.418	316.690
	600.00	261.875	404.985	283.929	−3236.910	72.634	−3479.901	−3310.554	−2975.226	259.016
	700.00	278.277	446.557	304.238	−3209.921	99.623	−3522.511	−3305.938	−2919.683	217.869
	800.00	296.829	484.903	324.452	−3181.183	128.361	−3569.106	−3299.747	−2864.906	187.059
	838.00	304.415	498.852	332.045	−3169.760	139.784	−3587.798	−3296.952	−2844.316	177.293
			9.835		8.242					
SOL−B	838.00	282.002	508.687	332.045	−3161.518	148.026	−3587.798	−3288.710	−2844.316	177.293
	900.00	282.002	528.815	344.916	−3144.034	165.510	−3619.968	−3285.392	−2811.557	163.179
	1000.00	282.002	558.527	364.817	−3115.834	193.710	−3674.361	−3290.840	−2758.427	144.085
	1100.00	282.002	585.405	383.668	−3087.634	221.910	−3731.579	−3285.659	−2705.437	128.471
	1153.00	282.002	598.675	393.249	−3072.688	236.856	−3762.960	−3282.988	−2677.545	121.301
			0.327		0.377					
SOL−C	1153.00	355.640	599.002	393.249	−3072.311	237.233	−3762.960	−3282.611	−2677.545	121.301
	1200.00	355.640	613.211	401.588	−3055.596	253.948	−3791.449	−3567.113	−2645.675	115.163
	1285.00	355.640	637.550	416.400	−3025.366	284.178	−3844.619	−3554.433	−2580.845	104.910
			83.485		107.278					
LIQ	1285.00	396.225	721.035	416.400	−2918.088	391.456	−3844.619	−3447.155	−2580.845	104.910
	1300.00	396.225	725.634	419.942	−2912.145	397.399	−3855.469	−3444.313	−2570.749	103.294
	1400.00	396.225	754.997	442.839	−2872.523	437.021	−3929.518	−3425.389	−2504.262	93.435
	1500.00	396.225	782.334	464.571	−2832.900	476.644	−4006.401	−3406.508	−2439.126	84.938
	1600.00	396.225	807.905	485.239	−2793.278	516.266	−4085.926	−3387.666	−2375.249	77.544
	1700.00	396.225	831.926	504.933	−2753.655	555.889	−4167.930	−3368.860	−2312.549	71.056
	1800.00	396.225	854.574	523.734	−2714.033	595.511	−4252.266	−3350.087	−2250.955	65.321
	1900.00	396.225	875.997	541.716	−2674.410	635.134	−4338.804	−3331.347	−2190.403	60.218
	2000.00	396.225	896.320	558.942	−2634.788	674.756	−4427.429	−3312.637	−2130.837	55.652
	2100.00	396.225	915.652	575.472	−2595.165	714.379	−4518.035	−3293.957	−2072.207	51.543
	2200.00	396.225	934.085	591.357	−2555.543	754.001	−4610.529	−3275.308	−2014.466	47.829
	2300.00	396.225	951.698	606.644	−2515.920	793.624	−4704.825	−3256.691	−1957.572	44.458
	2400.00	396.225	968.561	621.375	−2476.298	833.246	−4800.844	−3238.107	−1901.487	41.385
	2500.00	396.225	984.735	635.588	−2436.675	872.869	−4898.514	−3219.557	−1846.175	38.574

References

Phase	H / S	C_p
SOL−A	Ja1	Ja1
SOL−B	Ja1	Ja1
SOL−C	Ja1	Ja1
LIQ	Ja1	Ja1

143.891 **TRISODIUM ARSENIDE** **Na3As**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	97.769	129.997	129.997	−205.016	0.000	−243.775	−205.016	−187.105	32.780
	300.00	97.864	130.602	129.999	−204.835	0.181	−244.016	−205.037	−186.994	32.558
	400.00	103.010	159.460	133.899	−194.791	10.225	−258.576	−214.364	−180.162	23.527
	500.00	108.156	182.999	141.433	−184.233	20.783	−275.733	−215.676	−171.445	17.911
	600.00	113.303	203.173	150.080	−173.160	31.856	−295.064	−216.274	−162.531	14.150
	700.00	118.449	221.026	158.963	−161.572	43.444	−316.290	−216.220	−153.569	11.459
	800.00	123.595	237.178	167.746	−149.470	55.546	−339.213	−215.577	−144.656	9.445
	900.00	128.742	252.033	176.297	−136.853	68.163	−363.683	−214.405	−135.856	7.885
	1000.00	133.888	265.863	184.569	−123.722	81.294	−389.585	−212.745	−127.213	6.645

References

Phase	H / S	C_p
SOL	Nb1	e

207.888 **SODIUM ARSENATE** **Na3AsO4**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	170.129	217.945	217.945	−1540.001	0.000	−1604.981	−1540.001	−1425.982	249.826
	300.00	170.366	218.998	217.948	−1539.686	0.315	−1605.385	−1539.997	−1425.275	248.162
	400.00	180.718	269.523	224.767	−1522.099	17.902	−1629.908	−1547.722	−1386.449	181.052
	500.00	188.569	310.719	237.961	−1503.622	36.379	−1658.982	−1547.234	−1346.170	140.633
	600.00	195.434	345.716	253.075	−1484.417	55.584	−1691.846	−1546.019	−1306.060	113.703
	700.00	201.835	376.327	268.541	−1464.551	75.450	−1727.979	−1544.196	−1266.203	94.485
	780.00	206.771	398.432	280.745	−1448.206	91.795	−1758.982	−1542.348	−1234.531	82.673

References

Phase	H / S	C_p
SOL	Nb1/G1	G1

NaBO2 SODIUM METABORATE 65.800

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	65.956	73.538	73.538	−975.709	0.000	−997.634	−975.709	−919.390	161.073
	300.00	66.134	73.947	73.539	−975.587	0.122	−997.771	−975.714	−919.041	160.019
	400.00	75.385	94.274	76.248	−968.499	7.210	−1006.208	−978.583	−899.906	117.516
	500.00	82.750	111.921	81.656	−960.576	15.133	−1016.537	−978.552	−880.231	91.957
	600.00	88.551	127.541	88.027	−952.001	23.708	−1028.525	−978.133	−860.601	74.922
	700.00	93.288	141.558	94.690	−942.901	32.808	−1041.992	−977.395	−841.066	62.761
	800.00	97.240	154.280	101.356	−933.369	42.340	−1056.793	−976.392	−821.656	53.649
	900.00	100.534	165.930	107.892	−923.475	52.234	−1072.812	−975.173	−802.386	46.569
	1000.00	103.208	176.666	114.240	−913.283	62.426	−1089.949	−973.792	−783.260	40.913
	1100.00	105.249	186.604	120.373	−902.855	72.854	−1108.119	−972.311	−764.278	36.293
	1200.00	106.619	195.825	126.281	−892.255	83.454	−1127.246	−1067.561	−742.991	32.342
	1240.00	106.965	199.327	128.581	−887.983	87.726	−1135.149	−1066.600	−732.188	30.843
			26.994		33.472					
LIQ	1240.00	146.440	226.321	128.581	−854.511	121.198	−1135.149	−1033.128	−732.188	30.843
	1300.00	146.440	233.241	133.253	−845.725	129.984	−1148.938	−1029.334	−717.717	28.838
	1400.00	146.440	244.093	140.787	−831.081	144.628	−1172.811	−1023.071	−693.982	25.893
	1500.00	146.440	254.196	148.015	−816.437	159.272	−1197.732	−1016.881	−670.692	23.356
	1600.00	146.440	263.647	154.950	−801.793	173.916	−1223.629	−1010.759	−647.813	21.149
	1700.00	146.440	272.525	161.608	−787.149	188.560	−1250.442	−1004.702	−625.315	19.214
	1747.40	146.440	276.552	164.671	−780.208	195.501	−1263.456	−1001.853	−614.776	18.377

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	BPT= 1747.40, L= 239.7 kJ

65.800 SODIUM METABORATE (GAS) **NaBO2[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	58.239	287.132	287.132	−648.520	0.000	−734.128	−648.520	−655.884	114.908
	300.00	58.348	287.492	287.133	−648.412	0.108	−734.660	−648.540	−655.930	114.208
	400.00	63.495	305.020	289.488	−642.307	6.213	−764.315	−652.392	−658.013	85.928
	500.00	67.270	319.615	294.094	−635.759	12.761	−795.567	−653.735	−659.261	68.873
	600.00	70.124	332.144	299.416	−628.883	19.637	−828.170	−655.015	−660.245	57.479
	700.00	72.357	343.128	304.892	−621.755	26.765	−861.944	−656.249	−661.019	49.326
	800.00	74.135	352.910	310.294	−614.427	34.093	−896.755	−657.450	−661.618	43.199
	900.00	75.551	361.727	315.527	−606.940	41.580	−932.494	−658.638	−662.068	38.425
	1000.00	76.657	369.747	320.554	−599.327	49.193	−969.074	−659.836	−662.385	34.599
	1100.00	77.570	377.097	325.365	−591.614	56.906	−1006.421	−661.071	−662.580	31.463
	1200.00	78.312	383.880	329.962	−583.819	64.701	−1044.475	−759.124	−660.220	28.739
	1300.00	78.923	390.173	334.355	−575.956	72.564	−1083.181	−759.565	−651.960	26.196
	1400.00	79.429	396.041	338.554	−568.038	80.482	−1122.495	−760.028	−643.666	24.015
	1500.00	79.853	401.536	342.571	−560.073	88.447	−1162.377	−760.517	−635.337	22.124
	1600.00	80.211	406.701	346.420	−552.069	96.451	−1202.791	−761.035	−626.975	20.469
	1700.00	80.515	411.573	350.110	−544.033	104.487	−1243.707	−761.585	−618.580	19.007
	1800.00	80.776	416.183	353.654	−535.968	112.552	−1285.097	−762.170	−610.151	17.706
	1900.00	81.001	420.557	357.061	−527.879	120.641	−1326.936	−762.791	−601.689	16.542
	2000.00	81.196	424.716	360.341	−519.769	128.751	−1369.201	−763.452	−593.193	15.493
	2100.00	81.366	428.682	363.501	−511.640	136.880	−1411.873	−764.153	−584.663	14.543
	2200.00	81.515	432.471	366.551	−503.496	145.024	−1454.932	−764.896	−576.099	13.678
	2300.00	81.646	436.097	369.496	−495.338	153.182	−1498.362	−765.684	−567.499	12.888
	2400.00	81.762	439.575	372.344	−487.167	161.353	−1542.146	−816.776	−557.796	12.140
	2500.00	81.865	442.914	375.101	−478.986	169.534	−1586.272	−817.735	−546.986	11.429

References

Phase	H / S	C_p
GAS	Ja1	Ja1

NaB3O5 — SODIUM TRIBORATE — 135.420

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	121.834	116.106	116.106	−2290.238	0.000	−2324.855	−2290.238	−2151.388	376.914
	300.00	122.186	116.861	116.108	−2290.012	0.226	−2325.070	−2290.263	−2150.526	374.440
	400.00	141.425	154.645	121.130	−2276.832	13.406	−2338.690	−2294.226	−2103.538	274.694
	500.00	159.973	188.218	131.246	−2261.752	28.486	−2355.861	−2295.087	−2055.749	214.763
	600.00	177.088	218.922	143.335	−2244.886	45.352	−2376.239	−2295.077	−2007.867	174.800
	700.00	192.513	247.401	156.191	−2226.391	63.847	−2399.572	−2294.136	−1960.060	146.261
	800.00	206.143	274.017	169.274	−2206.443	83.795	−2425.657	−2292.289	−1912.451	124.870
	900.00	217.927	298.996	182.314	−2185.224	105.014	−2454.321	−2289.617	−1865.124	108.249
	1000.00	227.839	322.487	195.169	−2162.920	127.318	−2485.407	−2286.243	−1818.133	94.970
	1039.00	231.193	331.268	200.113	−2153.968	136.270	−2498.156	−2284.767	−1799.904	90.488

References

Phase	H / S	C_p	Remarks
SOL	Ja1	Ja1	Ja1 DPT= 1039.

Na2B4O7 — DISODIUM TETRABORATE — 201.219

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	186.712	189.489	189.489	−3276.741	0.000	−3333.237	−3276.741	−3081.526	539.871
	300.00	187.520	190.647	189.493	−3276.395	0.346	−3333.589	−3276.773	−3080.314	536.330
	400.00	213.723	248.756	197.239	−3256.134	20.607	−3355.637	−3283.613	−3014.182	393.612
	500.00	228.744	298.132	212.608	−3233.979	42.762	−3383.045	−3285.289	−2946.627	307.832
	600.00	241.348	340.976	230.509	−3210.461	66.280	−3415.046	−3286.785	−2878.750	250.617
	700.00	252.510	379.035	249.058	−3185.757	90.984	−3451.081	−3287.996	−2810.645	209.733
	800.00	262.397	413.412	267.488	−3160.002	116.739	−3490.731	−3288.870	−2742.388	179.060
	900.00	271.261	444.838	285.472	−3133.312	143.429	−3533.666	−3289.403	−2674.042	155.197
	1000.00	279.505	473.848	302.877	−3105.770	170.971	−3579.618	−3289.602	−2605.655	136.105
	1015.75	280.780	478.226	305.562	−3101.358	175.383	−3587.116	−3289.603	−2594.883	133.441
			79.911		81.170					
LIQ	1015.75	444.885	558.137	305.562	−3020.188	256.553	−3587.116	−3208.433	−2594.883	133.441
	1100.00	444.885	593.587	326.283	−2982.707	294.034	−3635.652	−3194.757	−2544.547	120.830
	1200.00	444.885	632.297	350.194	−2938.218	338.523	−3696.974	−3372.467	−2481.257	108.006
	1300.00	444.885	667.907	373.282	−2893.730	383.011	−3762.008	−3355.243	−2407.690	96.742
	1400.00	444.885	700.876	395.519	−2849.241	427.500	−3830.468	−3338.316	−2335.438	87.136
	1500.00	444.885	731.570	416.911	−2804.753	471.988	−3902.108	−3321.665	−2264.386	78.853
	1600.00	444.885	760.282	437.484	−2760.264	516.477	−3976.716	−3305.274	−2194.437	71.641
	1700.00	444.885	787.253	457.274	−2715.776	560.965	−4054.106	−3289.129	−2125.505	65.309
	1800.00	444.885	812.682	476.319	−2671.287	605.454	−4134.115	−3273.223	−2057.517	59.708
	1900.00	444.885	836.736	494.661	−2626.799	649.942	−4216.597	−3257.548	−1990.406	54.720
	2000.00	444.885	859.555	512.340	−2582.310	694.431	−4301.421	−3242.099	−1924.115	50.253

References

Phase	H / S	C_p
SOL	Ja1	Ja1
LIQ	Ja1	Ja1

102.894 SODIUM BROMIDE **NaBr**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[	kJ / mol	]			[−]
SOL	298.15	51.893	86.818	86.818	−361.414	0.000	−387.299	−361.414	−349.267	61.190
	300.00	51.918	87.139	86.819	−361.318	0.096	−387.460	−361.440	−349.191	60.800
	400.00	53.249	102.257	88.871	−356.060	5.354	−396.963	−379.044	−341.808	44.636
	500.00	54.580	114.282	92.791	−350.668	10.746	−407.809	−378.600	−332.546	34.741
	600.00	55.912	124.351	97.234	−345.144	16.270	−419.754	−377.951	−323.392	28.154
	700.00	57.243	133.070	101.744	−339.486	21.928	−432.635	−377.113	−314.363	23.458
	800.00	58.574	140.801	106.152	−333.695	27.719	−446.335	−376.105	−305.466	19.945
	900.00	59.906	147.777	110.395	−327.771	33.643	−460.770	−374.947	−296.704	17.220
	1000.00	61.237	154.157	114.457	−321.714	39.700	−475.871	−373.660	−288.078	15.048
	1020.00	61.503	155.372	115.247	−320.486	40.928	−478.966	−373.389	−286.369	14.665
			25.596		26.108					
LIQ	1020.00	62.342	180.969	115.247	−294.378	67.036	−478.966	−347.281	−286.369	14.665
	1100.00	62.342	185.676	120.200	−289.391	72.023	−493.634	−346.132	−281.636	13.374
	1200.00	62.342	191.100	125.886	−283.157	78.257	−512.477	−441.498	−273.394	11.901
	1300.00	62.342	196.090	131.097	−276.923	84.491	−531.840	−439.236	−259.477	10.426
	1400.00	62.342	200.710	135.906	−270.689	90.725	−551.683	−436.976	−245.734	9.168
	1500.00	62.342	205.011	140.372	−264.454	96.960	−571.971	−434.719	−232.153	8.084
	1600.00	62.342	209.035	144.539	−258.220	103.194	−592.676	−432.465	−218.722	7.141
	1700.00	62.342	212.814	148.445	−251.986	109.428	−613.770	−430.213	−205.432	6.312

References

Phase	H / S	C_p
SOL	Ja1	Ja1
LIQ	Ja1	Ja1

NaBr[g] SODIUM BROMIDE (GAS) 102.894

Phase	T	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[——— J / (K mol) ———]			[——— kJ / mol ———]					[–]
GAS	298.15	36.973	241.225	241.225	−143.930	0.000	−215.851	−143.930	−177.819	31.153
	300.00	36.975	241.454	241.226	−143.862	0.068	−216.298	−143.984	−178.029	30.998
	400.00	37.094	252.107	242.677	−140.158	3.772	−241.001	−163.143	−185.846	24.269
	500.00	37.212	260.397	245.423	−136.443	7.487	−266.641	−164.375	−191.378	19.993
	600.00	37.331	267.192	248.502	−132.716	11.214	−293.031	−165.523	−196.669	17.122
	700.00	37.450	272.956	251.594	−128.977	14.953	−320.046	−166.604	−201.774	15.057
	800.00	37.569	277.964	254.584	−125.226	18.704	−347.597	−167.635	−206.727	13.498
	900.00	37.688	282.396	257.433	−121.463	22.467	−375.619	−168.639	−211.553	12.278
	1000.00	37.807	286.373	260.131	−117.688	26.242	−404.061	−169.634	−216.268	11.297
	1100.00	37.925	289.982	262.683	−113.901	30.029	−432.882	−170.642	−220.883	10.489
	1200.00	38.044	293.287	265.098	−110.103	33.827	−462.047	−268.444	−222.964	9.705
	1300.00	38.163	296.337	267.385	−106.293	37.637	−491.531	−268.606	−219.168	8.806
	1400.00	38.282	299.169	269.555	−102.470	41.460	−521.308	−268.758	−215.359	8.035
	1500.00	38.401	301.815	271.619	−98.636	45.294	−551.358	−268.901	−211.540	7.366
	1600.00	38.520	304.297	273.584	−94.790	49.140	−581.665	−269.035	−207.711	6.781
	1700.00	38.638	306.636	275.460	−90.932	52.998	−612.213	−269.159	−203.874	6.264
	1800.00	38.757	308.847	277.254	−87.063	56.867	−642.988	−269.275	−200.031	5.805
	1900.00	38.876	310.946	278.973	−83.181	60.749	−673.978	−269.382	−196.181	5.393
	2000.00	38.995	312.943	280.622	−79.287	64.643	−705.174	−269.480	−192.326	5.023

References

Phase	H / S	C_p
GAS	Ja1	Ja1

205.788 DISODIUM DIBROMIDE (GAS) **Na2Br2**[g]

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	80.124	348.988	348.988	-486.348	0.000	-590.399	-486.348	-514.335	90.109
	300.00	80.160	349.484	348.990	-486.200	0.148	-591.045	-486.444	-514.508	89.584
	400.00	81.435	372.744	352.152	-478.111	8.237	-627.209	-524.080	-516.899	67.500
	500.00	82.040	390.988	358.161	-469.934	16.414	-665.428	-525.798	-514.901	53.791
	600.00	82.374	405.978	364.918	-461.712	24.636	-705.299	-527.326	-512.575	44.624
	700.00	82.577	418.693	371.715	-453.464	32.884	-746.549	-528.717	-510.005	38.057
	800.00	82.710	429.729	378.292	-445.199	41.149	-788.982	-530.018	-507.242	33.120
	900.00	82.802	439.476	384.559	-436.923	49.425	-832.452	-531.275	-504.320	29.270
	1000.00	82.867	448.204	390.495	-428.639	57.709	-876.843	-532.531	-501.258	26.183
	1100.00	82.916	456.104	396.106	-420.350	65.998	-922.065	-533.832	-498.068	23.651
	1200.00	82.953	463.320	401.411	-412.057	74.291	-968.041	-728.740	-489.875	21.324
	1300.00	82.981	469.961	406.432	-403.760	82.588	-1014.710	-728.386	-469.984	18.884
	1400.00	83.004	476.112	411.192	-395.461	90.887	-1062.017	-728.035	-450.120	16.794
	1500.00	83.023	481.839	415.713	-387.159	99.189	-1109.918	-727.688	-430.281	14.984
	1600.00	83.037	487.198	420.015	-378.856	107.492	-1158.373	-727.345	-410.465	13.400
	1700.00	83.050	492.232	424.117	-370.552	115.796	-1207.347	-727.006	-390.670	12.004
	1800.00	83.060	496.980	428.034	-362.246	124.102	-1256.810	-726.672	-370.895	10.763
	1900.00	83.069	501.471	431.782	-353.940	132.408	-1306.734	-726.342	-351.139	9.653
	2000.00	83.076	505.732	435.374	-345.633	140.715	-1357.096	-726.018	-331.400	8.655

References

Phase	H / S	C_p
GAS	Ja1	Ja1

NaCN SODIUM CYANIDE 49.008

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	68.632	118.491	118.491	−90.709	0.000	−126.037	−90.709	−80.420	14.089
	300.00	68.633	118.915	118.492	−90.582	0.127	−126.257	−90.677	−80.356	13.991
	400.00	68.711	138.671	121.185	−83.715	6.994	−139.183	−91.927	−76.937	10.047
	500.00	68.789	154.012	126.273	−76.840	13.869	−153.846	−90.954	−73.306	7.658
	600.00	68.867	166.560	131.973	−69.957	20.752	−169.893	−90.159	−69.854	6.081
	700.00	68.945	177.182	137.692	−63.066	27.643	−187.094	−89.520	−66.523	4.964
	800.00	69.023	186.393	143.217	−56.168	34.541	−205.283	−89.009	−63.273	4.131
	835.00	69.050	189.349	145.089	−53.752	36.957	−211.859	−88.857	−62.151	3.888
			10.522		8.786					
LIQ	835.00	79.496	199.872	145.089	−44.966	45.743	−211.859	−88.857	−62.151	3.888
	900.00	79.496	205.831	149.264	−39.798	50.911	−225.046	−79.148	−60.791	3.528
	1000.00	79.496	214.207	155.346	−31.849	58.860	−246.055	−77.825	−58.823	3.073
	1100.00	79.496	221.783	161.047	−23.899	66.810	−267.861	−76.622	−56.983	2.706
	1200.00	79.496	228.700	166.401	−15.950	74.759	−290.390	−172.303	−52.805	2.299
	1300.00	79.496	235.064	171.441	−8.000	82.709	−313.583	−170.421	−42.924	1.725
	1400.00	79.496	240.955	176.199	−0.050	90.659	−337.387	−168.596	−33.185	1.238
	1500.00	79.496	246.439	180.701	7.899	98.608	−361.760	−166.818	−23.575	0.821
	1600.00	79.496	251.570	184.971	15.849	106.558	−386.663	−165.081	−14.082	0.460
	1700.00	79.496	256.389	189.032	23.798	114.507	−412.064	−163.377	−4.697	0.144
	1800.00	79.496	260.933	192.902	31.748	122.457	−437.932	−161.701	4.588	−0.133
	1803.00	79.496	261.066	193.015	31.986	122.695	−438.715	−161.651	4.865	−0.141

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	NBPT= 1803. GAS (NaCN + Na2(CN)2)

49.008 SODIUM CYANIDE (GAS) **NaCN[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	50.178	243.367	243.367	94.266	0.000	21.706	94.266	67.323	−11.795
	300.00	50.223	243.678	243.368	94.359	0.093	21.256	94.264	67.156	−11.693
	400.00	51.953	258.387	245.362	99.476	5.210	−3.879	91.264	58.367	−7.622
	500.00	53.169	270.115	249.179	104.734	10.468	−30.323	90.620	50.216	−5.246
	600.00	54.238	279.905	253.506	110.105	15.839	−57.838	89.903	42.201	−3.674
	700.00	55.208	288.340	257.894	115.578	21.312	−86.260	89.125	34.312	−2.560
	800.00	56.080	295.770	262.173	121.144	26.878	−115.472	88.302	26.537	−1.733
	900.00	56.856	302.421	266.282	126.791	32.525	−145.388	87.441	18.867	−1.095
	1000.00	57.536	308.447	270.202	132.512	38.246	−175.936	86.535	11.296	−0.590
	1100.00	58.125	313.959	273.933	138.295	44.029	−207.060	85.573	3.818	−0.181
	1200.00	58.631	319.039	277.483	144.134	49.868	−238.713	−12.219	−1.128	0.049
	1300.00	59.061	323.750	280.863	150.019	55.753	−270.856	−12.401	−0.197	0.008
	1400.00	59.424	328.140	284.085	155.944	61.678	−303.453	−12.601	0.750	−0.028
	1500.00	59.730	332.251	287.160	161.902	67.636	−336.474	−12.815	1.711	−0.060
	1600.00	59.989	336.114	290.100	167.888	73.622	−369.895	−13.041	2.686	−0.088
	1700.00	60.211	339.758	292.915	173.899	79.633	−403.690	−13.277	3.676	−0.113
	1800.00	60.408	343.205	295.614	179.930	85.664	−437.840	−13.519	4.681	−0.136
	1900.00	60.589	346.476	298.206	185.980	91.714	−472.325	−13.768	5.699	−0.157
	2000.00	60.766	349.588	300.698	192.047	97.781	−507.130	−14.022	6.730	−0.176

References

Phase	H / S	C_p
GAS	Ja1	Ja1

Na2(CN)2[g] DISODIUM DICYANIDE (GAS) 98.015

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f [-]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	107.684	347.089	347.089	-8.786	0.000	-112.270	-8.786	-21.037	3.686
	300.00	107.791	347.755	347.091	-8.587	0.199	-112.913	-8.776	-21.113	3.676
	400.00	111.765	379.371	351.375	2.413	11.199	-149.336	-14.011	-24.844	3.244
	500.00	114.392	404.604	359.581	13.725	22.511	-188.577	-14.503	-27.498	2.873
	600.00	116.623	425.661	368.887	25.278	34.064	-230.118	-15.126	-30.041	2.615
	700.00	118.611	443.791	378.323	37.042	45.828	-273.612	-15.866	-32.469	2.423
	800.00	120.387	459.748	387.523	48.994	57.780	-318.804	-16.689	-34.786	2.271
	900.00	121.958	474.020	396.355	61.113	69.899	-365.505	-17.587	-36.995	2.147
	1000.00	123.332	486.942	404.778	73.379	82.165	-413.564	-18.574	-39.100	2.042
	1100.00	124.522	498.754	412.792	85.773	94.559	-462.857	-19.672	-41.100	1.952
	1200.00	125.542	509.634	420.414	98.277	107.063	-513.283	-214.429	-38.113	1.659
	1300.00	126.408	519.718	427.670	110.876	119.662	-564.757	-213.965	-23.439	0.942
	1400.00	127.139	529.113	434.584	123.554	132.340	-617.204	-213.536	-8.800	0.328
	1500.00	127.756	537.907	441.182	136.300	145.086	-670.560	-213.135	5.810	-0.202
	1600.00	128.277	546.169	447.489	149.102	157.888	-724.768	-212.757	20.394	-0.666
	1700.00	128.724	553.959	453.525	161.953	170.739	-779.778	-212.397	34.955	-1.074
	1800.00	129.118	561.328	459.311	174.846	183.632	-835.545	-212.053	49.495	-1.436
	1900.00	129.482	568.319	464.866	187.776	196.562	-892.031	-211.720	64.016	-1.760
	2000.00	129.835	574.970	470.206	200.742	209.528	-949.198	-211.397	78.520	-2.051

References

Phase	H / S	C_p
GAS	Ja1	Ja1

105.989 SODIUM CARBONATE **Na2CO3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[	J / (K mol)		] [		kJ / mol		]	
SOL−1	298.15	111.027	138.783	138.783	−1130.768	0.000	−1172.146	−1130.768	−1048.005	183.606
	300.00	111.248	139.471	138.785	−1130.562	0.206	−1172.404	−1130.764	−1047.492	182.385
	400.00	125.015	173.275	143.302	−1118.779	11.989	−1188.089	−1135.717	−1019.363	133.115
	500.00	142.346	202.967	152.312	−1105.441	25.327	−1206.924	−1134.501	−990.384	103.465
	600.00	163.214	230.711	163.084	−1090.192	40.576	−1228.618	−1131.604	−961.802	83.732
	700.00	187.591	257.656	174.674	−1072.681	58.087	−1253.040	−1126.657	−933.861	69.686
	723.00	193.691	263.818	177.412	−1068.297	62.471	−1259.037	−1125.189	−927.550	67.013
			0.954		0.690					
SOL−2	723.00	143.405	264.772	177.412	−1067.607	63.161	−1259.037	−1124.499	−927.550	67.013
	800.00	153.344	279.780	186.547	−1056.182	74.586	−1280.006	−1122.905	−906.651	59.198
	900.00	166.251	298.586	197.957	−1040.202	90.566	−1308.930	−1119.841	−879.792	51.062
	1000.00	179.159	316.771	208.934	−1022.931	107.837	−1339.702	−1115.657	−853.333	44.574
	1100.00	192.067	334.452	219.545	−1004.370	126.398	−1372.267	−1110.366	−827.348	39.287
	1123.00	195.035	338.457	221.939	−999.919	130.849	−1380.006	−1108.994	−821.444	38.208
			26.416		29.665					
LIQ	1123.00	189.535	364.873	221.939	−970.254	160.514	−1380.006	−1079.329	−821.444	38.208
	1200.00	189.535	377.442	231.518	−955.659	175.109	−1408.590	−1268.646	−799.022	34.781
	1300.00	189.535	392.613	243.335	−936.706	194.062	−1447.103	−1261.516	−760.177	30.544
	1400.00	189.535	406.659	254.505	−917.752	213.016	−1487.075	−1254.468	−721.877	26.934
	1500.00	189.535	419.736	265.090	−898.799	231.969	−1528.402	−1247.493	−684.079	23.822
	1600.00	189.535	431.968	275.141	−879.845	250.923	−1570.994	−1240.582	−646.744	21.114
	1700.00	189.535	443.459	284.708	−860.892	269.876	−1614.771	−1233.728	−609.839	18.738
	1800.00	189.535	454.292	293.831	−841.938	288.830	−1659.664	−1226.927	−573.336	16.638
	1900.00	189.535	464.540	302.549	−822.985	307.783	−1705.610	−1220.176	−537.210	14.769
	2000.00	189.535	474.262	310.893	−804.031	326.737	−1752.554	−1213.473	−501.438	13.096

References

Phase	H / S	C_p
SOL−1	Ja1	Ja1
SOL−2	Ja1	Ja1
LIQ	Ja1	Ja1

NaCl SODIUM CHLORIDE 58.442

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	50.503	72.132	72.132	−411.120	0.000	−432.626	−411.120	−384.024	67.279
	300.00	50.544	72.445	72.133	−411.027	0.093	−432.760	−411.110	−383.856	66.835
	400.00	52.374	87.250	74.139	−405.876	5.244	−440.776	−413.314	−374.636	48.922
	500.00	53.907	99.103	77.985	−400.561	10.559	−450.113	−412.886	−365.011	38.132
	600.00	55.470	109.067	82.356	−395.093	16.027	−460.534	−412.252	−355.493	30.948
	700.00	57.234	117.747	86.805	−389.460	21.660	−471.883	−411.410	−346.096	25.826
	800.00	59.321	125.522	91.167	−383.636	27.484	−484.053	−410.347	−336.836	21.993
	900.00	61.836	132.649	95.385	−377.582	33.538	−496.966	−409.043	−327.722	19.021
	1000.00	64.877	139.317	99.448	−371.251	39.869	−510.568	−407.470	−318.768	16.651
	1073.95	67.518	144.036	102.356	−366.358	44.762	−521.046	−406.112	−312.257	15.188
			26.219		28.158					
LIQ	1073.95	69.676	170.255	102.356	−338.200	72.920	−521.046	−377.954	−312.257	15.188
	1100.00	69.480	171.923	103.984	−336.387	74.733	−525.503	−377.392	−310.670	14.752
	1200.00	68.726	177.936	109.900	−329.477	81.643	−543.001	−472.074	−302.256	13.157
	1300.00	67.973	183.407	115.348	−322.642	88.478	−561.072	−469.205	−288.222	11.581
	1400.00	67.220	188.417	120.390	−315.883	95.237	−579.667	−466.414	−274.405	10.238
	1500.00	66.467	193.029	125.081	−309.198	101.922	−598.742	−463.703	−260.785	9.081
	1600.00	66.944	197.350	129.465	−302.504	108.616	−618.263	−460.985	−247.346	8.075
	1700.00	66.944	201.408	133.578	−295.809	115.311	−638.203	−458.271	−234.077	7.192
	1800.00	66.944	205.235	137.454	−289.115	122.005	−658.537	−455.561	−220.967	6.412
	1900.00	66.944	208.854	141.118	−282.421	128.699	−679.243	−452.855	−208.008	5.719
	2000.00	66.944	212.288	144.591	−275.726	135.394	−700.302	−450.153	−195.191	5.098

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	MPT= 1073.8
LIQ	Ja1	Ja1		

58.442 SODIUM CHLORIDE (GAS) **NaCl[g]**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	35.770	229.811	229.811	-181.418	0.000	-249.936	-181.418	-201.334	35.273
	300.00	35.793	230.032	229.812	-181.352	0.066	-250.362	-181.435	-201.457	35.077
	400.00	36.637	240.461	231.228	-177.725	3.693	-273.909	-185.163	-207.769	27.132
	500.00	37.068	248.687	233.926	-174.038	7.380	-298.381	-186.363	-213.280	22.281
	600.00	37.335	255.470	236.968	-170.317	11.101	-323.599	-187.476	-218.558	19.027
	700.00	37.526	261.241	240.034	-166.573	14.845	-349.441	-188.522	-223.654	16.689
	800.00	37.675	266.262	243.005	-162.813	18.605	-375.822	-189.524	-228.604	14.926
	900.00	37.801	270.706	245.841	-159.039	22.379	-402.675	-190.500	-233.431	13.548
	1000.00	37.912	274.695	248.530	-155.253	26.165	-429.948	-191.472	-238.149	12.440
	1100.00	38.013	278.313	251.076	-151.457	29.961	-457.601	-192.461	-242.769	11.528
	1200.00	38.107	281.625	253.485	-147.651	33.767	-485.601	-290.248	-244.856	10.658
	1300.00	38.197	284.679	255.769	-143.835	37.583	-513.918	-290.398	-241.068	9.686
	1400.00	38.284	287.513	257.936	-140.011	41.407	-542.529	-290.543	-237.268	8.853
	1500.00	38.368	290.157	259.997	-136.179	45.239	-571.414	-290.683	-233.457	8.130
	1600.00	38.450	292.636	261.961	-132.338	49.080	-600.555	-290.819	-229.638	7.497
	1700.00	38.531	294.969	263.834	-128.489	52.929	-629.936	-290.950	-225.810	6.938
	1800.00	38.610	297.174	265.626	-124.632	56.786	-659.544	-291.078	-221.974	6.442
	1900.00	38.689	299.263	267.342	-120.767	60.651	-689.367	-291.201	-218.132	5.997
	2000.00	38.767	301.250	268.988	-116.894	64.524	-719.394	-291.321	-214.283	5.597

References

Phase	H / S	C_p
GAS	Ja1	Ja1

Na2Cl2[g] DISODIUM DICHLORIDE (GAS) 116.885

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	78.789	325.625	325.625	−566.095	0.000	−663.180	−566.095	−565.975	99.156
	300.00	78.839	326.112	325.626	−565.949	0.146	−663.783	−566.116	−565.974	98.545
	400.00	80.661	349.078	328.745	−557.962	8.133	−697.593	−572.839	−565.313	73.822
	500.00	81.534	367.181	334.686	−549.847	16.248	−733.438	−574.498	−563.236	58.841
	600.00	82.018	382.093	341.381	−541.668	24.427	−770.924	−575.986	−560.841	48.826
	700.00	82.314	394.760	348.125	−533.450	32.645	−809.782	−577.349	−558.208	41.654
	800.00	82.508	405.765	354.657	−525.208	40.887	−849.820	−578.630	−555.385	36.263
	900.00	82.642	415.492	360.886	−516.950	49.145	−890.893	−579.873	−552.405	32.061
	1000.00	82.738	424.204	366.790	−508.681	57.414	−932.885	−581.119	−549.286	28.692
	1100.00	82.809	432.093	372.374	−500.404	65.691	−975.706	−582.412	−546.041	25.929
	1200.00	82.863	439.301	377.655	−492.120	73.975	−1019.281	−777.314	−537.793	23.410
	1300.00	82.905	445.935	382.656	−483.831	82.264	−1063.547	−776.956	−517.847	20.807
	1400.00	82.938	452.080	387.398	−475.539	90.556	−1108.452	−776.602	−497.929	18.578
	1500.00	82.965	457.804	391.903	−467.244	98.851	−1153.949	−776.253	−478.036	16.647
	1600.00	82.987	463.159	396.191	−458.946	107.149	−1200.000	−775.909	−458.166	14.958
	1700.00	83.004	468.190	400.280	−450.647	115.448	−1246.570	−775.570	−438.318	13.468
	1800.00	83.019	472.935	404.185	−442.346	123.749	−1293.629	−775.237	−418.489	12.144
	1900.00	83.032	477.424	407.923	−434.043	132.052	−1341.149	−774.911	−398.678	10.960
	2000.00	83.042	481.683	411.505	−425.739	140.356	−1389.106	−774.592	−378.885	9.895

References

Phase	H / S	C_p
GAS	Ja1	Ja1

NaClO4 SODIUM PERCHLORATE 122.440

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	111.324	142.256	142.256	−382.752	0.000	−425.166	−382.752	−254.234	44.541
	300.00	111.956	142.947	142.258	−382.545	0.207	−425.429	−382.738	−253.437	44.127
	400.00	136.064	178.841	146.989	−370.011	12.741	−441.547	−383.500	−210.362	27.470
	500.00	150.129	210.822	156.624	−355.653	27.099	−461.064	−380.147	−167.439	17.492
	581.00	158.503	233.998	165.821	−343.141	39.611	−479.094	−376.658	−133.241	11.979
			24.053		13.975					
SOL−B	581.00	158.503	258.051	165.821	−329.166	53.586	−479.094	−362.683	−133.241	11.979
	600.00	160.241	263.180	168.823	−326.138	56.614	−484.046	−361.785	−125.752	10.948
	700.00	168.487	288.517	184.144	−309.691	73.061	−511.653	−356.637	−86.811	6.478
	755.00	172.565	301.415	192.221	−300.311	82.441	−527.879	−353.531	−65.728	4.547

References

Phase	H / S	C_p	Remarks	
SOL−A	Ja1	Ja1		
SOL−B	Ja1	Ja1	Ja1	MPT= 755.

161.973 SODIUM CHROMATE **Na2CrO4**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[-]
SOL-A	298.15	142.131	176.611	176.611	-1342.198	0.000	-1394.855	-1342.198	-1234.795	216.331
	300.00	142.390	177.491	176.614	-1341.935	0.263	-1395.182	-1342.191	-1234.128	214.881
	400.00	156.390	220.371	182.366	-1326.996	15.202	-1415.144	-1346.866	-1197.774	156.413
	500.00	170.389	256.772	193.690	-1310.657	31.541	-1439.043	-1345.450	-1160.639	121.251
	600.00	184.389	289.075	206.942	-1292.918	49.280	-1466.363	-1342.813	-1123.905	97.845
	696.00	197.829	317.415	220.251	-1274.572	67.626	-1495.493	-1339.139	-1089.144	81.740
			19.838		13.807					
SOL-B	696.00	185.860	337.253	220.251	-1260.765	81.433	-1495.493	-1325.332	-1089.144	81.740
	700.00	186.067	338.318	220.922	-1260.021	82.177	-1496.844	-1325.204	-1087.787	81.172
	800.00	191.226	363.501	237.199	-1241.156	101.042	-1531.957	-1321.807	-1054.098	68.826
	900.00	196.384	386.322	252.519	-1221.776	120.422	-1569.465	-1318.075	-1020.855	59.249
	1000.00	201.543	407.280	266.961	-1201.879	140.319	-1609.159	-1314.023	-988.045	51.610
	1067.00	205.000	420.461	276.190	-1188.260	153.938	-1636.892	-1311.166	-966.298	47.305
			23.136		24.686					
LIQ	1067.00	204.598	443.597	276.190	-1163.574	178.624	-1636.892	-1286.480	-966.298	47.305
	1100.00	204.598	449.829	281.306	-1156.822	185.376	-1651.634	-1285.081	-956.416	45.416
	1200.00	204.598	467.631	296.102	-1136.363	205.835	-1697.520	-1474.596	-921.836	40.126
	1300.00	204.598	484.008	309.935	-1115.903	226.295	-1745.113	-1469.090	-875.997	35.198
	1400.00	204.598	499.170	322.917	-1095.443	246.755	-1794.281	-1463.809	-830.574	30.989
	1500.00	204.598	513.286	335.143	-1074.983	267.215	-1844.912	-1458.745	-785.521	27.354
	1600.00	204.598	526.490	346.694	-1054.524	287.674	-1896.908	-1453.924	-740.798	24.185

References

Phase	H / S	C_p
SOL-A	Nb1	Tk1,e
SOL-B	Tk1	Ku1
LIQ	Tk1	Ku1

NaF SODIUM FLUORIDE 41.988

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	46.853	51.212	51.212	-575.384	0.000	-590.653	-575.384	-545.080	95.496
	300.00	46.923	51.502	51.213	-575.297	0.087	-590.748	-575.378	-544.892	94.874
	400.00	49.598	65.410	53.091	-570.457	4.927	-596.620	-577.766	-534.565	69.807
	500.00	51.260	76.665	56.716	-565.410	9.974	-603.742	-577.502	-523.792	54.720
	600.00	52.679	86.137	60.851	-560.212	15.172	-611.894	-577.057	-513.089	44.668
	700.00	54.123	94.364	65.063	-554.873	20.511	-620.928	-576.445	-502.473	37.495
	800.00	55.710	101.693	69.192	-549.383	26.001	-630.737	-575.667	-491.957	32.121
	900.00	57.493	108.356	73.178	-543.724	31.660	-641.245	-574.720	-481.548	27.948
	1000.00	59.503	114.515	77.008	-537.877	37.507	-652.392	-573.599	-471.254	24.616
	1100.00	61.757	120.290	80.683	-531.816	43.568	-664.135	-572.300	-461.081	21.895
	1200.00	64.266	125.769	84.213	-525.517	49.867	-676.440	-667.576	-448.594	19.527
	1269.00	66.148	129.414	86.572	-521.018	54.366	-685.244	-665.803	-436.052	17.949
			26.277		33.346					
LIQ	1269.00	70.567	155.691	86.572	-487.672	87.712	-685.244	-632.457	-436.052	17.949
	1300.00	70.567	157.394	88.241	-485.485	89.899	-690.097	-631.496	-431.265	17.328
	1400.00	70.567	162.624	93.370	-478.428	96.956	-706.101	-628.399	-415.979	15.520
	1500.00	70.567	167.493	98.151	-471.371	104.013	-722.610	-625.309	-400.914	13.961
	1600.00	70.567	172.047	102.628	-464.314	111.070	-739.589	-622.226	-386.055	12.603
	1700.00	70.567	176.325	106.839	-457.258	118.126	-757.010	-619.149	-371.389	11.411
	1800.00	70.567	180.359	110.812	-450.201	125.183	-774.846	-616.078	-356.903	10.357
	1900.00	70.567	184.174	114.574	-443.144	132.240	-793.075	-613.012	-342.588	9.418
	2000.00	70.567	187.794	118.145	-436.087	139.297	-811.675	-609.952	-328.435	8.578

References

Phase	H / S	C_p
SOL	Ja1	Ja1
LIQ	Ja1	e

41.988 SODIUM FLUORIDE (GAS) **NaF[g]**

Phase	T	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[–]
GAS	298.15	34.132	217.606	217.606	–290.453	0.000	–355.332	–290.453	–309.759	54.269
	300.00	34.173	217.818	217.607	–290.390	0.063	–355.735	–290.471	–309.879	53.955
	400.00	35.652	227.880	218.969	–286.889	3.564	–378.041	–294.198	–315.985	41.263
	500.00	36.377	235.921	221.582	–283.283	7.170	–401.244	–295.376	–321.294	33.565
	600.00	36.807	242.595	224.544	–279.623	10.830	–425.180	–296.467	–326.374	28.413
	700.00	37.096	248.291	227.540	–275.927	14.526	–449.731	–297.499	–331.276	24.720
	800.00	37.311	253.260	230.451	–272.206	18.247	–474.814	–298.490	–336.033	21.941
	900.00	37.483	257.664	233.234	–268.466	21.987	–500.364	–299.461	–340.668	19.772
	1000.00	37.627	261.621	235.879	–264.710	25.743	–526.332	–300.433	–345.194	18.031
	1100.00	37.754	265.214	238.385	–260.941	29.512	–552.676	–301.425	–349.623	16.602
	1200.00	37.869	268.504	240.759	–257.160	33.293	–579.364	–399.219	–351.518	15.301
	1300.00	37.976	271.539	243.012	–253.368	37.085	–606.368	–399.379	–347.537	13.964
	1400.00	38.076	274.357	245.151	–249.565	40.888	–633.665	–399.536	–343.543	12.818
	1500.00	38.172	276.987	247.187	–245.752	44.701	–661.234	–399.691	–339.538	11.824
	1600.00	38.265	279.454	249.127	–241.931	48.522	–689.057	–399.843	–335.523	10.954
	1700.00	38.355	281.776	250.980	–238.100	52.353	–717.119	–399.991	–331.498	10.186
	1800.00	38.442	283.971	252.753	–234.260	56.193	–745.408	–400.137	–327.465	9.503
	1900.00	38.528	286.052	254.451	–230.411	60.042	–773.910	–400.279	–323.424	8.892
	2000.00	38.613	288.030	256.081	–226.554	63.899	–802.615	–400.418	–319.375	8.341
	2100.00	38.697	289.916	257.648	–222.689	67.764	–831.513	–400.555	–315.319	7.843
	2200.00	38.780	291.718	259.156	–218.815	71.638	–860.595	–400.688	–311.258	7.390
	2300.00	38.862	293.444	260.609	–214.933	75.520	–889.854	–400.820	–307.190	6.976
	2400.00	38.943	295.100	262.012	–211.042	79.411	–919.282	–400.951	–303.116	6.597
	2500.00	39.024	296.691	263.368	–207.144	83.309	–948.872	–401.081	–299.037	6.248

References

Phase	H / S	C_p
GAS	Ja1	Ja1

Na2F2[g] DISODIUM DIFLUORIDE (GAS) 83.976

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	70.817	287.550	287.550	−846.423	0.000	−932.156	−846.423	−841.010	147.341
	300.00	70.942	287.989	287.552	−846.292	0.131	−932.688	−846.454	−840.976	146.427
	400.00	75.711	309.132	290.402	−838.931	7.492	−962.584	−853.549	−838.473	109.493
	500.00	78.184	326.319	295.921	−831.224	15.199	−994.384	−855.408	−834.483	87.178
	600.00	79.616	340.711	302.220	−823.328	23.095	−1027.755	−857.018	−830.143	72.270
	700.00	80.515	353.057	308.621	−815.318	31.105	−1062.458	−858.462	−825.548	61.603
	800.00	81.114	363.849	314.864	−807.235	39.188	−1098.315	−859.803	−820.754	53.590
	900.00	81.532	373.429	320.849	−799.101	47.322	−1135.187	−861.092	−815.795	47.348
	1000.00	81.835	382.036	326.545	−790.932	55.491	−1172.968	−862.378	−810.693	42.346
	1100.00	82.061	389.847	331.950	−782.737	63.686	−1211.568	−863.705	−805.461	38.248
	1200.00	82.234	396.994	337.077	−774.522	71.901	−1250.915	−1058.640	−795.223	34.615
	1300.00	82.368	403.582	341.943	−766.292	80.131	−1290.948	−1058.314	−773.285	31.071
	1400.00	82.474	409.690	346.566	−758.049	88.374	−1331.616	−1057.992	−751.372	28.034
	1500.00	82.559	415.383	350.966	−749.797	96.626	−1372.873	−1057.674	−729.481	25.403
	1600.00	82.629	420.714	355.161	−741.538	104.885	−1414.680	−1057.362	−707.612	23.101
	1700.00	82.685	425.725	359.166	−733.272	113.151	−1457.005	−1057.055	−685.762	21.071
	1800.00	82.732	430.453	362.996	−725.001	121.422	−1499.816	−1056.755	−663.930	19.267
	1900.00	82.772	434.927	366.665	−716.726	129.697	−1543.087	−1056.462	−642.114	17.653
	2000.00	82.804	439.173	370.185	−708.447	137.976	−1586.794	−1056.175	−620.314	16.201

References

Phase	H / S	C_p
GAS	Ja1	Ja1

NaH SODIUM HYDRIDE 23.998

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	36.406	40.016	40.016	−56.442	0.000	−68.373	−56.442	−33.550	5.878
	300.00	36.522	40.241	40.016	−56.375	0.067	−68.447	−56.453	−33.408	5.817
	400.00	42.480	51.590	41.523	−52.415	4.027	−73.051	−59.568	−25.441	3.322
	500.00	47.125	61.592	44.557	−47.925	8.517	−78.720	−59.640	−16.890	1.764
	600.00	50.740	70.515	48.153	−43.025	13.417	−85.334	−59.221	−8.372	0.729
	700.00	53.713	78.566	51.932	−37.798	18.644	−92.794	−58.415	0.044	−0.003

References

Phase	H / S	C_p	Remarks
SOL	Ja1	Ja1	Ja1

NDPT= 700.

23.998

SODIUM HYDRIDE (GAS) — NaH[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
GAS	298.15	30.160	188.389	188.389	124.265	0.000	68.097	124.265	102.919	−18.031
	300.00	30.207	188.576	188.390	124.321	0.056	67.748	124.242	102.787	−17.897
	400.00	32.079	197.548	189.601	127.444	3.179	48.425	120.291	96.035	−12.541
	500.00	33.266	204.842	191.942	130.715	6.450	28.294	118.999	90.125	−9.415
	600.00	34.158	210.989	194.618	134.088	9.823	7.494	117.891	84.456	−7.353
	700.00	34.889	216.311	197.345	137.541	13.276	−13.876	116.924	78.962	−5.892
	800.00	35.515	221.011	200.015	141.062	16.797	−35.747	116.059	73.599	−4.806
	900.00	36.063	225.227	202.586	144.642	20.377	−58.063	115.264	68.340	−3.966
	1000.00	36.547	229.052	205.044	148.273	24.008	−80.779	114.506	63.167	−3.300
	1100.00	36.975	232.556	207.388	151.949	27.684	−103.862	113.755	58.069	−2.757
	1200.00	37.351	235.789	209.622	155.666	31.401	−127.282	16.221	55.482	−2.415
	1300.00	37.679	238.792	211.752	159.418	35.153	−151.012	16.334	58.749	−2.361
	1400.00	37.961	241.595	213.785	163.200	38.935	−175.033	16.456	62.007	−2.314
	1500.00	38.198	244.223	215.727	167.008	42.743	−199.326	16.582	65.256	−2.272
	1600.00	38.391	246.694	217.586	170.838	46.573	−223.873	16.707	68.497	−2.236
	1700.00	38.540	249.027	219.368	174.685	50.420	−248.660	16.828	71.730	−2.204
	1800.00	38.647	251.233	221.077	178.545	54.280	−273.674	16.942	74.957	−2.175
	1900.00	38.711	253.324	222.720	182.413	58.148	−298.903	17.045	78.177	−2.149
	2000.00	38.732	255.310	224.300	186.286	62.021	−324.335	17.132	81.392	−2.126
	2100.00	38.712	257.200	225.822	190.158	65.893	−349.961	17.201	84.603	−2.104
	2200.00	38.650	258.999	227.290	194.027	69.762	−375.772	17.248	87.811	−2.085
	2273.00	38.578	260.260	228.328	196.846	72.581	−394.725	17.265	90.153	−2.072

References

Phase	H / S	C_p
GAS	Ja1	Ja1

84.007

SODIUM HYDROGEN CARBONATE — NaHCO3

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	87.610	101.701	101.701	−950.810	0.000	−981.132	−950.810	−852.851	149.416
	300.00	87.877	102.243	101.702	−950.648	0.162	−981.321	−950.824	−852.243	148.389
	400.00	102.265	129.494	105.321	−941.141	9.669	−992.938	−953.885	−819.095	106.963
	500.00	116.654	153.860	112.629	−930.195	20.615	−1007.125	−953.421	−785.428	82.053

References

Phase	H / S	C_p
SOL	La1	La1,e

NaI SODIUM IODIDE 149.894

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	52.225	98.324	98.324	−287.859	0.000	−317.174	−287.859	−284.519	49.847
	300.00	52.260	98.647	98.325	−287.762	0.097	−317.356	−287.865	−284.498	49.536
	400.00	53.793	113.903	100.395	−282.456	5.403	−328.017	−298.999	−282.828	36.933
	500.00	55.047	126.044	104.351	−277.012	10.847	−340.034	−320.754	−276.685	28.905
	600.00	56.219	136.184	108.834	−271.449	16.410	−353.160	−320.082	−267.932	23.326
	700.00	57.360	144.937	113.381	−265.770	22.089	−367.225	−319.236	−259.304	19.350
	800.00	58.488	152.670	117.818	−259.977	27.882	−382.113	−318.239	−250.809	16.376
	900.00	59.611	159.623	122.083	−254.072	33.787	−397.733	−317.111	−242.447	14.071
	933.00	59.980	161.777	123.449	−252.099	35.760	−403.037	−316.715	−239.716	13.421
			25.293		23.598					
LIQ	933.00	64.852	187.069	123.449	−228.501	59.358	−403.037	−293.117	−239.716	13.421
	1000.00	64.852	191.567	127.864	−224.156	63.703	−415.723	−291.976	−235.922	12.323
	1100.00	64.852	197.748	133.940	−217.671	70.188	−435.193	−290.297	−230.398	10.941
	1200.00	64.852	203.391	139.496	−211.186	76.673	−455.254	−385.423	−222.584	9.689
	1300.00	64.852	208.582	144.613	−204.700	83.159	−475.856	−382.920	−209.116	8.402
	1400.00	64.852	213.388	149.356	−198.215	89.644	−496.958	−380.421	−195.840	7.307
	1500.00	64.852	217.862	153.776	−191.730	96.129	−518.523	−377.924	−182.743	6.364
	1600.00	64.852	222.047	157.914	−185.245	102.614	−540.521	−375.431	−169.812	5.544

References

Phase	H / S	C_p
SOL	Ja1	Ja1
LIQ	Ja1	Ja1

205.917 SODIUM MOLYBDATE **Na2MoO4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL−A	298.15	141.709	159.410	159.410	−1469.002	0.000	−1516.530	−1469.002	−1354.993	237.389
	300.00	141.854	160.287	159.413	−1468.740	0.262	−1516.826	−1468.997	−1354.286	235.802
	400.00	149.712	202.172	165.071	−1454.161	14.841	−1535.030	−1474.057	−1315.673	171.809
	500.00	157.569	236.424	176.014	−1438.797	30.205	−1557.009	−1473.563	−1276.119	133.315
	600.00	165.427	265.847	188.589	−1422.648	46.354	−1582.156	−1472.383	−1236.730	107.667
	700.00	173.285	291.937	201.523	−1405.712	63.290	−1610.068	−1470.533	−1197.591	89.365
	724.00	175.170	297.811	204.618	−1401.530	67.472	−1617.145	−1469.990	−1188.242	85.728
			32.362		23.430					
SOL−B	724.00	189.535	330.173	204.618	−1378.100	90.902	−1617.145	−1446.560	−1188.242	85.728
	800.00	189.535	349.092	217.459	−1363.696	105.306	−1642.969	−1443.728	−1161.271	75.823
	858.00	189.535	362.358	226.811	−1352.703	116.299	−1663.606	−1441.622	−1140.867	69.455
			2.340		2.008					
SOL−C	858.00	200.832	364.698	226.811	−1350.695	118.307	−1663.606	−1439.614	−1140.867	69.455
	900.00	200.832	374.296	233.472	−1342.260	126.742	−1679.126	−1437.645	−1126.291	65.368
	908.00	200.832	376.074	234.720	−1340.653	128.349	−1682.128	−1437.273	−1123.525	64.633
			10.045		9.121					
SOL−D	908.00	205.016	386.119	234.720	−1331.532	137.470	−1682.128	−1428.152	−1123.525	64.633
	961.00	205.016	397.749	243.394	−1320.666	148.336	−1702.903	−1425.493	−1105.820	60.106
			23.336		22.426					
LIQ	961.00	213.384	421.085	243.394	−1298.240	170.762	−1702.903	−1403.067	−1105.820	60.106
	1000.00	213.384	429.574	250.490	−1289.918	179.084	−1719.492	−1400.815	−1093.802	57.134
	1100.00	213.384	449.912	267.710	−1268.580	200.422	−1763.483	−1395.176	−1063.376	50.495
	1200.00	213.384	468.478	283.678	−1247.242	221.760	−1809.416	−1583.276	−1028.572	44.773
	1300.00	213.384	485.558	298.559	−1225.903	243.099	−1857.129	−1576.240	−982.632	39.483
	1400.00	213.384	501.372	312.488	−1204.565	264.437	−1906.485	−1569.334	−937.230	34.968
	1500.00	213.384	516.094	325.577	−1183.226	285.776	−1957.367	−1562.559	−892.317	31.073
	1600.00	213.384	529.865	337.919	−1161.888	307.114	−2009.672	−1555.920	−847.852	27.680

References

Phase	H / S	C_p
SOL−A	Tk1	Tk1,e
SOL−B	Tk1	e
SOL−C	Tk1	e
SOL−D	Tk1	e
LIQ	Tk1	e

NaNO2 SODIUM NITRITE 68.995

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	69.037	121.336	121.336	−358.987	0.000	−395.163	−358.987	−290.093	50.823
	300.00	69.400	121.764	121.337	−358.859	0.128	−395.388	−358.992	−289.666	50.435
	400.00	89.023	144.417	124.294	−350.938	8.049	−408.704	−361.122	−266.384	34.786
	500.00	108.646	166.390	130.524	−341.054	17.933	−424.249	−358.869	−242.920	25.378
	557.00	119.831	178.712	134.826	−334.543	24.444	−434.085	−356.721	−229.814	21.552
			26.817		14.937					
LIQ	557.00	121.336	205.529	134.826	−319.606	39.381	−434.085	−341.784	−229.814	21.552
	600.00	121.336	214.552	140.220	−314.388	44.599	−443.119	−339.870	−221.243	19.261
	700.00	121.336	233.256	152.210	−302.255	56.732	−465.534	−335.465	−201.820	15.060
	800.00	121.336	249.458	163.375	−290.121	68.866	−489.687	−331.132	−183.025	11.950
	900.00	121.336	263.749	173.750	−277.988	80.999	−515.362	−326.879	−164.768	9.563
	1000.00	121.336	276.533	183.400	−265.854	93.133	−542.387	−322.715	−146.980	7.677

References

Phase	H / S	C_p
SOL	Tk1	Tk1,e
LIQ	Tk1	e

NaNO3 SODIUM NITRATE 84.995

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL−1	298.15	93.040	116.315	116.315	−467.980	0.000	−502.659	−467.980	−367.007	64.298
	300.00	93.458	116.892	116.317	−467.807	0.173	−502.875	−467.968	−366.381	63.793
	400.00	116.047	146.872	120.252	−457.332	10.648	−516.081	−469.030	−332.499	43.420
	500.00	138.637	175.194	128.430	−444.598	23.382	−532.195	−465.455	−298.735	31.209
	548.00	149.480	188.392	133.106	−437.683	30.297	−540.922	−462.966	−282.842	26.960
			7.208		3.950					
SOL−2	548.00	149.480	195.600	133.106	−433.733	34.247	−540.922	−459.016	−282.842	26.960
	579.00	156.482	204.016	136.677	−428.991	38.989	−547.116	−457.144	−272.927	24.622
			26.774		15.502					
LIQ	579.00	155.603	230.790	136.677	−413.489	54.491	−547.116	−441.642	−272.927	24.622
	600.00	155.603	236.333	140.069	−410.221	57.759	−552.021	−440.325	−266.831	23.230
	700.00	155.603	260.320	155.578	−394.661	73.319	−576.885	−434.120	−238.408	17.790
	800.00	155.603	281.098	169.998	−379.101	88.879	−603.979	−428.029	−210.866	13.768
	900.00	155.603	299.425	183.381	−363.540	104.440	−633.023	−422.052	−184.081	10.684
	1000.00	155.603	315.819	195.819	−347.980	120.000	−663.799	−416.192	−157.955	8.251

References

Phase	H / S	C_p
SOL−1	St3	La1
SOL−2	St3	La1
LIQ	St3	La1

38.989

SODIUM MONOXIDE (GAS) **NaO[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
GAS	298.15	35.146	228.974	228.974	83.680	0.000	15.411	83.680	61.335	−10.746
	300.00	35.173	229.192	228.975	83.745	0.065	14.988	83.666	61.196	−10.655
	400.00	36.220	239.470	230.369	87.320	3.640	−8.468	80.134	54.040	−7.057
	500.00	36.809	247.621	233.032	90.974	7.294	−32.836	79.157	47.632	−4.976
	600.00	37.186	254.368	236.042	94.675	10.995	−57.945	78.262	41.412	−3.605
	700.00	37.455	260.121	239.081	98.408	14.728	−83.677	77.416	35.338	−2.637
	800.00	37.662	265.136	242.031	102.164	18.484	−109.945	76.594	29.383	−1.919
	900.00	37.832	269.583	244.850	105.939	22.259	−136.685	75.779	23.531	−1.366
	1000.00	37.978	273.576	247.526	109.730	26.050	−163.846	74.952	17.769	−0.928
	1100.00	38.109	277.202	250.062	113.534	29.854	−191.388	74.093	12.092	−0.574
	1200.00	38.228	280.523	252.464	117.351	33.671	−219.277	−23.575	8.936	−0.389
	1300.00	38.340	283.588	254.742	121.180	37.500	−247.484	−23.617	11.647	−0.468
	1400.00	38.445	286.433	256.905	125.019	41.339	−275.987	−23.663	14.361	−0.536
	1500.00	38.546	289.089	258.963	128.869	45.189	−304.765	−23.713	17.079	−0.595
	1600.00	38.644	291.580	260.925	132.728	49.048	−333.799	−23.765	19.800	−0.646
	1700.00	38.740	293.925	262.797	136.597	52.917	−363.076	−23.821	22.525	−0.692
	1800.00	38.833	296.142	264.589	140.476	56.796	−392.580	−23.879	25.253	−0.733
	1900.00	38.925	298.244	266.305	144.364	60.684	−422.300	−23.940	27.984	−0.769
	2000.00	39.015	300.243	267.953	148.261	64.581	−452.225	−24.005	30.718	−0.802
	2100.00	39.105	302.149	269.536	152.167	68.487	−482.346	−24.072	33.456	−0.832
	2200.00	39.193	303.970	271.060	156.082	72.402	−512.652	−24.144	36.197	−0.859

References

Phase	H / S	C_p
GAS	Ja1	Ja1

54.989

SODIUM SUPEROXIDE **NaO2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	72.133	115.897	115.897	−260.663	0.000	−295.218	−260.663	−218.712	38.317
	300.00	72.208	116.343	115.898	−260.529	0.134	−295.432	−260.636	−218.452	38.036
	400.00	76.294	137.676	118.779	−253.104	7.559	−308.175	−261.803	−204.405	26.693
	500.00	80.379	155.139	124.355	−245.271	15.392	−322.840	−260.130	−190.241	19.874
	600.00	84.464	170.155	130.764	−237.029	23.634	−339.122	−258.064	−176.451	15.361
	700.00	88.549	183.482	137.360	−228.378	32.285	−356.815	−255.619	−163.037	12.166
	800.00	92.635	195.573	143.892	−219.319	41.344	−375.777	−252.806	−149.998	9.794
	825.00	93.656	198.439	145.502	−216.990	43.673	−380.702	−252.046	−146.797	9.294

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	MPT= 825.

Na2O SODIUM OXIDE 61.979

Phase	T [K]	C_p J / (K mol)	S J / (K mol)	-(G-H298)/T J / (K mol)	H kJ / mol	H-H298 kJ / mol	G kJ / mol	ΔH_f kJ / mol	ΔG_f kJ / mol	log K_f [-]
SOL-C	298.15	68.892	75.040	75.040	-417.982	0.000	-440.355	-417.982	-379.090	66.415
	300.00	69.070	75.467	75.041	-417.854	0.128	-440.494	-417.986	-378.849	65.963
	400.00	76.424	96.432	77.850	-410.549	7.433	-449.122	-423.409	-365.368	47.712
	500.00	81.373	114.046	83.375	-402.647	15.335	-459.669	-423.238	-350.864	36.654
	600.00	85.204	129.233	89.781	-394.311	23.671	-471.851	-422.515	-336.449	29.290
	700.00	88.359	142.611	96.391	-385.628	32.354	-485.456	-421.363	-322.190	24.042
	800.00	91.021	154.588	102.930	-376.656	41.326	-500.326	-419.877	-308.121	20.118
	900.00	93.279	165.443	109.283	-367.437	50.545	-516.336	-418.137	-294.253	17.078
	1000.00	95.180	175.373	115.402	-358.012	59.970	-533.384	-416.216	-280.590	14.657
	1023.35	95.576	177.574	116.796	-355.784	62.198	-537.505	-415.750	-277.429	14.161
			1.717		1.757					
SOL-B	1023.35	95.576	179.291	116.796	-354.027	63.955	-537.505	-413.993	-277.429	14.161
	1100.00	96.749	186.237	121.395	-346.655	71.327	-551.516	-412,431	-267.257	12.691
	1200.00	98.003	194.712	127.156	-336.915	81.067	-570.569	-603.887	-249.269	10.850
	1243.35	98.451	198.198	129.572	-332.657	85.325	-579.086	-602.206	-236.488	9.935
			9.590		11.924					
SOL-A	1243.35	98.451	207.788	129.572	-320.733	97.249	-579.086	-590.282	-236.488	9.935
	1300.00	98.951	212.186	133.077	-315.141	102.841	-590.982	-588.062	-220.418	8.857
	1400.00	99.601	219.544	138.994	-305.211	112.771	-612.573	-584.096	-192.286	7.174
	1405.35	99.627	219.924	139.301	-304.678	113.304	-613.749	-583.882	-190.789	7.091
			33.940		47.698					
LIQ	1405.35	104.600	253.865	139.301	-256.980	161.002	-613.749	-536.184	-190.789	7.091
	1500.00	104.600	260.682	146.747	-247.080	170.902	-638.103	-531.942	-167.667	5.839
	1600.00	104.600	267.433	154.082	-236.620	181.362	-664.512	-527.473	-143.528	4.686
	1700.00	104.600	273.774	160.938	-226.160	191.822	-691.576	-523.017	-119.668	3.677
	1800.00	104.600	279.753	167.374	-215.700	202.282	-719.255	-518.573	-96.069	2.788
	1900.00	104.600	285.409	173.439	-205.240	212.742	-747.516	-514.142	-72.718	1.999
	2000.00	104.600	290.774	179.173	-194.780	223.202	-776.327	-509.723	-49.599	1.295
	2100.00	104.600	295.877	184.609	-184.320	233.662	-805.662	-505.318	-26.702	0.664
	2200.00	104.600	300.743	189.779	-173.860	244.122	-835.495	-500.927	-4.013	0.095
	2223.00	104.600	301.831	190.932	-171.454	246.528	-842.424	-499.919	1.176	-0.028

References

Phase	H / S	C_p	Remarks	
SOL-C	Ja1	Ja1		
SOL-B	Ja1	Ja1		
SOL-A	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	NDPT= 2223.

77.978 DISODIUM PEROXIDE **Na2O2**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL-A	298.15	89.248	94.809	94.809	-513.209	0.000	-541.476	-513.209	-449.629	78.773
	300.00	89.426	95.362	94.811	-513.044	0.165	-541.652	-513.202	-449.235	78.219
	400.00	97.720	122.287	98.426	-503.665	9.544	-552.579	-518.037	-427.563	55.834
	500.00	103.768	144.775	105.508	-493.575	19.634	-565.963	-517.209	-405.026	42.313
	600.00	108.446	164.123	113.702	-482.956	30.253	-581.430	-515.782	-382.715	33.318
	700.00	112.332	181.140	122.145	-471.912	41.297	-598.710	-513.897	-360.681	26.914
	785.00	115.251	194.180	129.249	-462.238	50.971	-614.670	-512.003	-342.184	22.769
			7.302		5.732					
SOL-B	785.00	113.596	201.482	129.249	-456.506	56.703	-614.670	-506.271	-342.184	22.769
	800.00	113.596	203.632	130.624	-454.802	58.407	-617.708	-505.942	-339.052	22.138
	900.00	113.596	217.012	139.494	-443.443	69.766	-638.753	-503.762	-318.322	18.475
	948.00	113.596	222.914	143.569	-437.990	75.219	-649.313	-502.734	-308.459	16.996

References

Phase	H / S	C_p	Remarks	
SOL-A	Ja1	Ja1		
SOL-B	Ja1	Ja1	Ja1	MPT= 948.

NaAlO2 SODIUM ALUMINATE 81.970

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	73.535	70.400	70.400	−1133.195	0.000	−1154.185	−1133.195	−1069.249	187.328
	300.00	73.811	70.856	70.401	−1133.059	0.136	−1154.315	−1133.210	−1068.852	186.104
	400.00	84.058	93.673	73.443	−1125.103	8.092	−1162.572	−1136.354	−1047.104	136.738
	500.00	89.622	113.078	79.481	−1116.397	16.798	−1172.935	−1136.448	−1024.771	107.057
	600.00	93.343	129.765	86.504	−1107.238	25.957	−1185.097	−1136.221	−1002.453	87.271
	700.00	96.194	144.375	93.749	−1097.757	35.438	−1198.819	−1135.813	−980.189	73.143
	740.00	97.190	149.749	96.632	−1093.889	39.306	−1204.703	−1135.620	−971.302	68.562
			1.753		1.297					
SOL−B	740.00	97.190	151.501	96.632	−1092.592	40.603	−1204.703	−1134.323	−971.302	68.562
	800.00	98.581	159.133	101.036	−1086.718	46.477	−1214.024	−1134.022	−958.096	62.557
	900.00	100.698	170.868	108.154	−1076.752	56.443	−1230.533	−1133.538	−936.135	54.332
	1000.00	102.648	181.580	114.969	−1066.584	66.611	−1248.164	−1143.663	−913.465	47.715
	1100.00	104.488	191.450	121.479	−1056.226	76.969	−1266.821	−1142.898	−890.482	42.285
	1200.00	106.254	200.618	127.696	−1045.689	87.506	−1286.430	−1238.795	−865.131	37.658
	1300.00	107.968	209.191	133.639	−1034.977	98.218	−1306.925	−1236.920	−834.068	33.513
	1400.00	109.643	217.253	139.326	−1024.097	109.098	−1328.251	−1234.906	−803.154	29.966
	1500.00	111.290	224.874	144.777	−1013.050	120.145	−1350.361	−1232.754	−772.389	26.897
	1600.00	112.916	232.109	150.011	−1001.839	131.356	−1373.213	−1230.464	−741.772	24.216
	1700.00	114.525	239.003	155.045	−990.467	142.728	−1396.772	−1228.037	−711.302	21.856
	1800.00	116.122	245.594	159.894	−978.935	154.260	−1421.004	−1225.475	−680.979	19.761
	1900.00	117.708	251.915	164.572	−967.243	165.952	−1445.881	−1222.777	−650.802	17.892

References

Phase	H / S	C_p
SOL−A	Ja1	Ja1
SOL−B	Ja1	Ja1

142.054 NEPHELINE **NaAlSiO4**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	115.811	124.298	124.298	−2094.661	0.000	−2131.721	−2094.661	−1980.009	346.889
	300.00	116.357	125.016	124.301	−2094.446	0.215	−2131.951	−2094.689	−1979.297	344.626
	400.00	145.896	162.536	129.217	−2081.334	13.327	−2146.348	−2097.769	−1940.502	253.404
	467.00	165.687	186.623	135.733	−2070.896	23.765	−2158.048	−2096.767	−1914.223	214.109
			0.000		0.000					
SOL−B	467.00	143.430	186.623	135.733	−2070.896	23.765	−2158.048	−2096.767	−1914.223	214.109
	500.00	145.645	196.491	139.420	−2066.126	28.535	−2164.371	−2096.700	−1901.326	198.630
	600.00	152.356	223.638	151.246	−2051.226	43.435	−2185.409	−2096.267	−1862.286	162.126
	700.00	159.067	247.628	163.333	−2035.655	59.006	−2208.994	−2095.473	−1823.347	136.060
	800.00	165.778	269.307	175.246	−2019.412	75.249	−2234.858	−2094.324	−1784.546	116.519
	900.00	172.490	289.220	186.818	−2002.499	92.162	−2262.797	−2092.858	−1745.908	101.330
	1000.00	179.201	307.741	197.994	−1984.914	109.747	−2292.655	−2101.639	−1706.691	89.148
	1100.00	185.912	325.135	208.770	−1966.659	128.002	−2324.308	−2099.141	−1667.313	79.174
	1180.00	191.281	338.373	217.111	−1951.571	143.090	−2350.852	−2193.716	−1635.204	72.385
			0.000		0.000					
SOL−C	1180.00	178.521	338.373	217.111	−1951.571	143.090	−2350.852	−2193.716	−1635.204	72.385
	1200.00	178.632	341.375	219.157	−1948.000	146.661	−2357.649	−2193.164	−1625.742	70.767
	1300.00	179.184	355.695	229.116	−1930.109	164.552	−2392.512	−2190.435	−1578.568	63.428
	1400.00	179.736	368.994	238.638	−1912.163	182.498	−2428.754	−2187.753	−1531.602	57.145
	1500.00	180.289	381.413	247.747	−1894.161	200.500	−2466.281	−2185.112	−1484.827	51.706
	1525.00	180.427	384.394	249.963	−1889.653	205.008	−2475.854	−2184.458	−1473.161	50.459

References

Phase	H / S	C_p
SOL−A	Nb1	S5
SOL−B	u	S5
SOL−C	u	S5

NaAlSi2O6 JADEITE 202.139

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	159.878	133.499	133.499	−3032.760	0.000	−3072.563	−3032.760	−2854.075	500.022
	300.00	160.654	134.490	133.502	−3032.464	0.296	−3072.811	−3032.798	−2852.966	496.746
	400.00	189.574	185.166	140.215	−3014.780	17.980	−3088.846	−3036.400	−2792.623	364.679
	500.00	205.526	229.320	153.725	−2994.963	37.797	−3109.623	−3036.060	−2731.696	285.378
	600.00	216.375	267.801	169.601	−2973.840	58.920	−3134.521	−3034.940	−2670.919	232.524
	700.00	224.813	301.811	186.106	−2951.766	80.994	−3163.034	−3033.347	−2610.369	194.788
	800.00	231.966	332.308	202.508	−2928.920	103.840	−3194.766	−3031.439	−2550.071	166.503
	900.00	238.373	360.006	218.492	−2905.398	127.362	−3229.403	−3029.332	−2490.025	144.517
	1000.00	244.316	385.431	233.932	−2881.260	151.500	−3266.692	−3037.631	−2429.462	126.902
	1100.00	249.956	408.984	248.788	−2856.545	176.215	−3306.427	−3034.837	−2368.778	112.484
	1200.00	255.390	430.967	263.064	−2831.276	201.484	−3348.436	−3128.499	−2305.921	100.374

References

Phase	H / S	C_p
SOL	Nb1	S5

NaAlSi2O6[D] DEHYDRATED ANALCITE 202.139

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	164.430	175.301	175.301	−2985.301	0.000	−3037.567	−2985.301	−2819.080	493.891
	300.00	165.206	176.321	175.304	−2984.996	0.305	−3037.892	−2985.330	−2818.048	490.666
	400.00	194.126	228.306	182.196	−2966.857	18.444	−3058.179	−2988.478	−2761.956	360.674
	500.00	210.079	273.476	196.044	−2946.585	38.716	−3083.323	−2987.682	−2705.396	282.631
	600.00	220.927	312.787	212.297	−2925.007	60.294	−3112.679	−2986.107	−2649.077	230.623
	700.00	229.365	347.499	229.180	−2902.478	82.823	−3145.727	−2984.059	−2593.062	193.497
	800.00	236.519	378.604	245.948	−2879.176	106.125	−3182.059	−2981.696	−2537.364	165.673
	900.00	242.925	406.837	262.279	−2855.199	130.102	−3221.352	−2979.133	−2481.975	144.050
	1000.00	248.869	432.743	278.048	−2830.606	154.695	−3263.349	−2986.977	−2426.120	126.727
	1100.00	254.509	456.729	293.215	−2805.435	179.866	−3307.837	−2983.728	−2370.189	112.551
	1200.00	259.942	479.108	307.784	−2779.711	205.590	−3354.641	−3076.935	−2312.126	100.644

References

Phase	H / S	C_p
SOL	Nb1	Nb1,e

262.223 ALBITE **NaAlSi3O8**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	205.099	207.400	207.400	−3936.960	0.000	−3998.796	−3936.960	−3713.533	650.596
	300.00	206.075	208.672	207.404	−3936.580	0.380	−3999.181	−3937.005	−3712.147	646.342
	400.00	242.420	273.562	216.005	−3913.937	23.023	−4023.362	−3940.742	−3636.761	474.912
	500.00	262.366	329.975	233.293	−3888.619	48.341	−4053.607	−3940.239	−3560.799	371.994
	600.00	275.858	379.066	253.588	−3861.673	75.287	−4089.113	−3938.832	−3485.032	303.399
	700.00	286.302	422.402	274.669	−3833.547	103.413	−4129.228	−3936.890	−3409.546	254.423
	800.00	295.121	461.221	295.604	−3804.466	132.494	−4173.443	−3934.594	−3334.364	217.712
	900.00	302.997	496.443	315.992	−3774.554	162.406	−4221.353	−3932.062	−3259.486	189.176
	1000.00	310.285	528.748	335.675	−3743.886	193.074	−4272.635	−3939.903	−3184.140	166.322
	1100.00	317.191	558.648	354.602	−3712.510	224.450	−4327.023	−3936.612	−3108.720	147.621
	1200.00	323.836	586.534	372.781	−3680.457	256.503	−4384.297	−4029.738	−3031.174	131.944
	1300.00	330.297	612.711	390.240	−3647.749	289.211	−4444.273	−4024.841	−2948.156	118.458
	1393.00	336.185	635.734	405.868	−3616.756	320.204	−4502.334	−4019.935	−2871.301	107.668

References

Phase	H / S	C_p	Remarks
SOL	Nb1,Tk1	S5,Tk1	Tk1 MPT= 1393.

262.223 ANALBITE **NaAlSi3O8[A]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	204.810	226.400	226.400	−3927.659	0.000	−3995.160	−3927.659	−3709.897	649.959
	300.00	206.074	227.671	226.404	−3927.279	0.380	−3995.580	−3927.705	−3708.546	645.715
	400.00	251.913	294.093	235.149	−3904.081	23.578	−4021.718	−3930.887	−3635.118	474.698
	500.00	275.324	353.061	252.967	−3877.612	50.047	−4054.142	−3929.232	−3561.335	372.050
	600.00	289.906	404.634	274.041	−3849.303	78.356	−4092.083	−3926.462	−3488.002	303.658
	700.00	300.320	450.143	296.012	−3819.767	107.892	−4134.867	−3923.110	−3415.185	254.844
	800.00	308.512	490.798	317.864	−3789.312	138.347	−4181.950	−3919.439	−3342.872	218.267
	900.00	315.413	527.544	339.153	−3758.107	169.552	−4232.897	−3915.616	−3271.030	189.846
	1000.00	321.511	561.097	359.694	−3726.256	201.403	−4287.353	−3922.273	−3198.858	167.091
	1100.00	327.085	592.005	379.427	−3693.822	233.837	−4345.028	−3917.925	−3126.725	148.476
	1200.00	332.303	620.691	398.351	−3660.851	266.808	−4405.680	−4010.132	−3052.557	132.874
	1300.00	337.269	647.487	416.496	−3627.370	300.289	−4469.104	−4004.463	−2972.987	119.456
	1400.00	342.053	672.658	433.903	−3593.403	334.256	−4535.123	−3998.553	−2893.863	107.971
	1500.00	346.701	696.416	450.619	−3558.964	368.695	−4603.588	−3992.407	−2815.170	98.033

References

Phase	H / S	C_p
SOL	Nb1,Tk1	S5,Tk1

NaAlSi2O6*H2O ANALCITE 220.154

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	204.810	209.911	209.911	-3302.866	0.000	-3365.451	-3302.866	-3077.419	539.151
	300.00	206.074	211.182	209.915	-3302.486	0.380	-3365.841	-3302.901	-3076.020	535.583
	400.00	251.913	277.604	218.660	-3279.288	23.578	-3390.330	-3305.381	-3000.118	391.775
	500.00	275.324	336.572	236.478	-3252.819	50.047	-3421.105	-3302.841	-2924.061	305.475
	600.00	289.906	388.145	257.552	-3224.510	78.356	-3457.397	-3299.043	-2848.646	247.997
	700.00	300.320	433.654	279.523	-3194.974	107.892	-3498.532	-3294.553	-2773.928	206.993
	800.00	308.512	474.310	301.376	-3164.519	138.347	-3543.967	-3289.658	-2699.883	176.284

References

Phase	H / S	C_p
SOL	Nb1	e

NaOH SODIUM HYDROXIDE 39.997

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL-A	298.15	59.570	64.434	64.434	-425.931	0.000	-445.142	-425.931	-379.737	66.528
	300.00	59.622	64.802	64.435	-425.821	0.110	-445.261	-425.927	-379.451	66.068
	400.00	64.937	82.565	66.822	-419.634	6.297	-452.660	-428.299	-363.788	47.506
	500.00	75.157	98.062	71.540	-412.670	13.261	-461.701	-427.428	-347.739	36.328
	572.00	85.552	108.828	75.557	-406.900	19.031	-469.149	-426.023	-336.352	30.715
			12.580		7.196					
SOL-B	572.00	85.552	121.409	75.557	-399.704	26.227	-469.149	-418.827	-336.352	30.715
	596.00	89.582	125.006	77.475	-397.602	28.329	-472.106	-418.179	-332.904	29.176
			11.092		6.611					
LIQ	596.00	86.102	136.099	77.475	-390.991	34.940	-472.106	-411.568	-332.904	29.176
	600.00	86.074	136.674	77.868	-390.647	35.284	-472.652	-411.466	-332.377	28.936
	700.00	85.454	149.895	87.239	-382.072	43.859	-486.998	-408.938	-319.396	23.834
	800.00	84.893	161.269	95.798	-373.555	52.376	-502.569	-406.475	-306.773	20.030
	900.00	84.326	171.235	103.638	-365.094	60.837	-519.205	-404.092	-294.454	17.090
	1000.00	83.742	180.089	110.848	-356.690	69.241	-536.779	-401.808	-282.396	14.751
	1100.00	83.146	188.043	117.511	-348.346	77.585	-555.193	-399.646	-270.560	12.848
	1200.00	82.544	195.252	123.694	-340.061	85.870	-574.363	-494.386	-256.475	11.164
	1300.00	81.944	201.835	129.455	-331.837	94.094	-594.222	-491.592	-236.763	9.513
	1400.00	81.351	207.886	134.844	-323.672	102.259	-614.713	-488.895	-217.262	8.106
	1500.00	80.772	213.479	139.902	-315.566	110.365	-635.784	-486.292	-197.951	6.893
	1600.00	80.208	218.674	144.665	-307.517	118.414	-657.395	-483.781	-178.811	5.838
	1700.00	79.664	223.520	149.163	-299.524	126.407	-679.508	-481.359	-159.825	4.911
	1800.00	79.142	228.059	153.421	-291.584	134.347	-702.089	-479.023	-140.979	4.091

References

Phase	H / S	C_p	Remarks
SOL-A	Nb1,Ja1	Ja1	
SOL-B	Ja1	Ja1	
LIQ	Ja1	Ja1	Ja1 BPT= 1827.91, L= 175.31 kJ

39.997 SODIUM HYDROXIDE (GAS) **NaOH[g]**

Phase	T [K]	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[–]
GAS	298.15	48.350	228.430	228.430	–197.485	0.000	–265.591	–197.485	–200.187	35.072
	300.00	48.415	228.730	228.431	–197.395	0.090	–266.014	–197.501	–200.203	34.859
	400.00	50.673	243.014	230.363	–192.425	5.060	–289.630	–201.091	–200.759	26.216
	500.00	51.791	254.452	234.076	–187.297	10.188	–314.523	–202.055	–200.561	20.952
	600.00	52.533	263.964	238.287	–182.079	15.406	–340.457	–202.897	–200.182	17.427
	700.00	53.125	272.107	242.550	–176.795	20.690	–367.270	–203.662	–199.668	14.899
	800.00	53.653	279.236	246.700	–171.456	26.029	–394.845	–204.376	–199.048	12.997
	900.00	54.155	285.585	250.674	–166.065	31.420	–423.092	–205.063	–198.341	11.511
	1000.00	54.650	291.316	254.456	–160.625	36.860	–451.941	–205.743	–197.557	10.319
	1100.00	55.148	296.548	258.048	–155.135	42.350	–481.338	–206.436	–196.705	9.341
	1200.00	55.655	301.368	261.460	–149.595	47.890	–511.237	–303.920	–193.348	8.416
	1300.00	56.174	305.843	264.704	–144.004	53.481	–541.600	–303.759	–184.140	7.399
	1400.00	56.628	310.023	267.794	–138.363	59.122	–572.396	–303.586	–174.945	6.527
	1500.00	57.054	313.945	270.741	–132.679	64.806	–603.596	–303.405	–165.763	5.772
	1600.00	57.448	317.640	273.558	–126.954	70.531	–635.177	–303.218	–156.593	5.112
	1700.00	57.810	321.134	276.254	–121.191	76.294	–667.118	–303.026	–147.435	4.530
	1800.00	58.142	324.447	278.841	–115.393	82.092	–699.398	–302.832	–138.288	4.013
	1900.00	58.445	327.599	281.325	–109.563	87.922	–732.002	–302.638	–129.152	3.551
	2000.00	58.721	330.604	283.714	–103.705	93.780	–764.913	–302.446	–120.026	3.135
	2100.00	58.974	333.475	286.016	–97.820	99.665	–798.118	–302.257	–110.910	2.759
	2200.00	59.204	336.224	288.236	–91.911	105.574	–831.604	–302.074	–101.802	2.417
	2300.00	59.414	338.861	290.380	–85.980	111.505	–865.359	–301.898	–92.703	2.105
	2400.00	59.606	341.393	292.453	–80.029	117.456	–899.373	–301.731	–83.611	1.820
	2500.00	59.780	343.830	294.460	–74.059	123.426	–933.635	–301.575	–74.526	1.557

References

Phase	H / S	C_p
GAS	Ja1	Ja1

Na2(OH)2[g] DISODIUM DIHYDROXIDE (GAS) 79.994

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	79.297	307.215	307.215	-607.517	0.000	-699.113	-607.517	-568.304	99.564
	300.00	79.428	307.706	307.217	-607.370	0.147	-699.682	-607.582	-568.060	98.908
	400.00	86.872	331.583	310.421	-599.052	8.465	-731.686	-616.384	-553.943	72.337
	500.00	93.121	351.667	316.714	-590.040	17.477	-765.874	-619.556	-537.950	56.199
	600.00	98.036	369.097	324.023	-580.473	27.044	-801.931	-622.110	-521.380	45.390
	700.00	101.995	384.517	331.585	-570.465	37.052	-839.626	-624.198	-504.422	37.640
	800.00	105.268	398.356	339.081	-560.097	47.420	-878.782	-625.938	-487.188	31.810
	900.00	108.026	410.919	346.376	-549.428	58.089	-919.255	-627.424	-469.753	27.264
	1000.00	110.371	422.425	353.413	-538.505	69.012	-960.930	-628.741	-452.163	23.619
	1100.00	112.482	433.046	360.176	-527.360	80.157	-1003.711	-629.961	-434.445	20.630
	1200.00	114.332	442.914	366.665	-516.017	91.500	-1047.515	-824.667	-411.737	17.922
	1300.00	115.975	452.132	372.888	-504.501	103.016	-1092.272	-824.011	-377.352	15.162
	1400.00	117.445	460.781	378.861	-492.828	114.689	-1137.922	-823.274	-343.021	12.798
	1500.00	118.766	468.930	384.596	-481.016	126.501	-1184.411	-822.469	-308.745	10.751
	1600.00	119.954	476.634	390.110	-469.079	138.438	-1231.693	-821.607	-274.524	8.962
	1700.00	121.022	483.938	395.416	-457.030	150.487	-1279.725	-820.700	-240.359	7.385
	1800.00	121.978	490.883	400.529	-444.879	162.638	-1328.469	-819.757	-206.249	5.985
	1900.00	122.828	497.502	405.460	-432.638	174.879	-1377.891	-818.787	-172.191	4.734
	2000.00	123.577	503.821	410.221	-420.317	187.200	-1427.959	-817.799	-138.185	3.609

References

Phase	H / S	C_p
GAS	Ja1	Ja1

122.063 SODIUM METASILICATE **Na2SiO3**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	111.909	113.763	113.763	−1561.511	0.000	−1595.429	−1561.511	−1467.389	257.080
	300.00	112.256	114.456	113.765	−1561.304	0.207	−1595.641	−1561.526	−1466.805	255.393
	400.00	127.771	149.017	118.372	−1549.253	12.258	−1608.860	−1567.298	−1434.728	187.356
	500.00	138.733	178.768	127.546	−1535.900	25.611	−1625.284	−1567.015	−1401.597	146.424
	600.00	147.111	204.832	138.300	−1521.592	39.919	−1644.491	−1565.854	−1368.610	119.148
	700.00	153.934	228.037	149.492	−1506.529	54.982	−1666.155	−1564.027	−1335.872	99.684
	800.00	159.744	248.981	160.640	−1490.838	70.673	−1690.023	−1561.668	−1303.434	85.106
	900.00	164.847	268.097	171.533	−1474.604	86.907	−1715.891	−1558.877	−1271.318	73.785
	1000.00	169.433	285.706	182.081	−1457.886	103.625	−1743.592	−1555.737	−1239.533	64.747
	1100.00	173.631	302.054	192.254	−1440.730	120.781	−1772.990	−1552.316	−1208.076	57.367
	1200.00	177.535	317.332	202.047	−1423.170	138.341	−1803.967	−1742.200	−1172.059	51.018
	1300.00	181.219	331.689	211.473	−1405.230	156.281	−1836.426	−1736.535	−1124.775	45.194
	1362.00	183.419	340.183	217.140	−1393.926	167.585	−1857.255	−1732.885	−1095.684	42.021
			38.031		51.798					
LIQ	1362.00	177.318	378.214	217.140	−1342.128	219.383	−1857.255	−1681.087	−1095.684	42.021
	1400.00	177.318	383.093	221.578	−1335.390	226.121	−1871.720	−1679.056	−1079.379	40.272
	1500.00	177.318	395.327	232.758	−1317.658	243.853	−1910.648	−1673.768	−1036.730	36.102
	1600.00	177.318	406.770	243.280	−1299.927	261.584	−1950.759	−1668.559	−994.431	32.465
	1700.00	177.318	417.520	253.217	−1282.195	279.316	−1991.979	−1713.607	−952.009	29.252
	1800.00	177.318	427.656	262.629	−1264.463	297.048	−2034.243	−1708.326	−907.362	26.331
	1900.00	177.318	437.243	271.569	−1246.731	314.780	−2077.492	−1703.082	−863.007	23.726
	2000.00	177.318	446.338	280.082	−1228.999	332.512	−2121.675	−1697.874	−818.927	21.388

References

Phase	H / S	C_p
SOL	Ja1	Ja1
LIQ	Ja1	Ja1

Na2Si2O5 SODIUM DISILICATE 182.148

Phase	T [K]	C_p [J / (K mol)]	S [J / (K mol)]	-(G-H298)/T [J / (K mol)]	H [kJ / mol]	H-H298 [kJ / mol]	G [kJ / mol]	ΔH_f [kJ / mol]	ΔG_f [kJ / mol]	log K_f [-]
SOL-A	298.15	157.039	164.055	164.055	-2470.066	0.000	-2518.979	-2470.066	-2324.163	407.184
	300.00	157.468	165.027	164.058	-2469.775	0.291	-2519.283	-2470.089	-2323.257	404.515
	400.00	183.200	213.864	170.541	-2452.737	17.329	-2538.282	-2475.966	-2273.773	296.924
	500.00	203.534	257.061	183.610	-2433.340	36.726	-2561.871	-2474.978	-2223.303	232.267
	600.00	217.667	295.497	199.116	-2412.237	57.829	-2589.536	-2472.559	-2173.176	189.192
	700.00	227.646	329.842	215.383	-2389.944	80.122	-2620.834	-2469.204	-2123.533	158.460
	800.00	234.956	360.741	231.654	-2366.797	103.269	-2655.389	-2465.234	-2074.417	135.446
	900.00	240.518	388.750	247.578	-2343.011	127.055	-2692.886	-2460.859	-2025.824	117.576
	951.00	242.875	402.073	255.508	-2330.683	139.383	-2713.054	-2458.522	-2001.237	109.920
			0.440		0.418					
SOL-B	951.00	292.880	402.512	255.508	-2330.265	139.801	-2713.054	-2458.104	-2001.237	109.920
	980.00	292.880	411.310	259.989	-2321.772	148.294	-2724.856	-2455.319	-1987.347	105.927
			0.641		0.628					
SOL-C	980.00	292.880	411.951	259.989	-2321.144	148.922	-2724.856	-2454.691	-1987.347	105.927
	1000.00	292.880	417.868	263.088	-2315.286	154.780	-2733.154	-2452.783	-1977.829	103.311
	1100.00	292.880	445.782	278.448	-2285.998	184.068	-2776.359	-2443.395	-1930.790	91.686
	1147.00	292.880	458.036	285.557	-2272.233	197.833	-2797.600	-2439.075	-1908.979	86.935
			31.006		35.564					
LIQ	1147.00	261.207	489.042	285.557	-2236.669	233.397	-2797.600	-2403.511	-1908.979	86.935
	1200.00	261.207	500.841	294.807	-2222.825	247.241	-2823.835	-2593.914	-1881.318	81.892
	1300.00	261.207	521.749	311.471	-2196.704	273.362	-2874.978	-2586.392	-1822.241	73.219
	1400.00	261.207	541.107	327.191	-2170.584	299.482	-2928.133	-2579.029	-1763.737	65.806
	1500.00	261.207	559.128	342.059	-2144.463	325.603	-2983.155	-2571.818	-1705.755	59.400
	1600.00	261.207	575.986	356.159	-2118.342	351.724	-3039.920	-2564.754	-1648.248	53.810
	1700.00	261.207	591.821	369.560	-2092.221	377.845	-3098.318	-2658.187	-1590.286	48.864
	1800.00	261.207	606.752	382.327	-2066.101	403.965	-3158.254	-2650.954	-1527.677	44.332
	1900.00	261.207	620.874	394.513	-2039.980	430.086	-3219.641	-2643.780	-1465.469	40.289
	2000.00	261.207	634.273	406.169	-2013.859	456.207	-3282.405	-2636.665	-1403.637	36.659

References

Phase	H / S	C_p
SOL-A	Ja1	Ja1
SOL-B	Ja1	Ja1
SOL-C	Ja1	Ja1
LIQ	Ja1	Ja1,S5

184.042 SODIUM ORTHOSILICATE **Na4SiO4**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	184.720	195.640	195.640	-2106.644	0.000	-2164.974	-2106.644	-1975.669	346.129
	300.00	184.857	196.783	195.643	-2106.302	0.342	-2165.337	-2106.656	-1974.856	343.853
	400.00	192.280	250.979	202.983	-2087.445	19.199	-2187.837	-2118.349	-1929.951	252.026
	500.00	199.702	294.683	217.087	-2067.846	38.798	-2215.188	-2119.553	-1882.695	196.684
	600.00	207.125	331.749	233.184	-2047.505	59.139	-2246.554	-2119.971	-1835.272	159.775
	700.00	214.547	364.235	249.631	-2026.421	80.223	-2281.386	-2119.654	-1787.837	133.410
	800.00	221.970	393.368	265.807	-2004.595	102.049	-2319.290	-2118.647	-1740.495	113.643
	900.00	229.392	419.941	281.478	-1982.027	124.617	-2359.974	-2117.000	-1693.319	98.278
	1000.00	236.814	444.494	296.567	-1958.717	147.927	-2403.211	-2114.772	-1646.357	85.997
	1100.00	244.237	467.413	311.068	-1934.664	171.980	-2448.819	-2112.027	-1599.645	75.961
	1200.00	251.659	488.982	325.004	-1909.870	196.774	-2496.649	-2495.873	-1543.439	67.184
	1300.00	259.082	509.419	338.410	-1884.333	222.311	-2546.577	-2488.558	-1464.362	58.839
	1393.00	265.984	527.556	350.437	-1859.917	246.727	-2594.803	-2481.182	-1391.347	52.173
			41.449		57.739					
LIQ	1393.00	259.408	569.005	350.437	-1802.178	304.466	-2594.803	-2423.443	-1391.347	52.173
	1400.00	259.408	570.306	351.533	-1800.362	306.282	-2598.790	-2422.913	-1386.162	51.718
	1500.00	259.408	588.203	366.721	-1774.421	332.223	-2656.726	-2415.393	-1312.372	45.701
	1600.00	259.408	604.945	381.093	-1748.481	358.163	-2716.392	-2407.967	-1239.080	40.452
	1700.00	259.408	620.671	394.728	-1722.540	384.104	-2777.681	-2450.809	-1165.802	35.821
	1800.00	259.408	635.499	407.696	-1696.599	410.045	-2840.497	-2443.336	-1090.430	31.643
	1900.00	259.408	649.524	420.058	-1670.658	435.986	-2904.754	-2435.911	-1015.471	27.917
	2000.00	259.408	662.830	431.867	-1644.717	461.927	-2970.378	-2428.536	-940.902	24.574

References

Phase	H / S	C_p
SOL	S5	S5
LIQ	S5	S5

306.105 HEXASODIUM DISILICON HEPTAOXIDE **Na6Si2O7**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	306.206	309.616	309.616	-3632.001	0.000	-3724.313	-3632.001	-3406.967	596.886
	300.00	306.771	311.512	309.622	-3631.434	0.567	-3724.888	-3632.011	-3405.571	592.963
	400.00	331.394	403.363	321.979	-3599.447	32.554	-3760.792	-3648.396	-3328.774	434.693
	500.00	350.117	479.386	346.071	-3565.344	66.657	-3805.036	-3648.165	-3248.857	339.406
	600.00	366.518	544.692	373.856	-3529.499	102.502	-3856.315	-3646.229	-3169.151	275.899
	700.00	381.823	602.351	402.457	-3492.076	139.925	-3913.721	-3642.806	-3089.889	230.570
	800.00	396.544	654.302	430.743	-3453.154	178.847	-3976.595	-3638.035	-3011.211	196.612
	893.00	409.926	698.636	456.363	-3415.651	216.350	-4039.533	-3632.484	-2938.644	171.891

References

Phase	H / S	C_p	Remarks	
SOL	Nb1/Tk1	e	Tk1	DPT= 893.

Na2TiO3 DISODIUM TITANIUM TRIOXIDE 141.858

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL−A	298.15	125.609	121.587	121.587	−1551.636	0.000	−1587.887	−1551.636	−1456.287	255.135
	300.00	125.770	122.364	121.589	−1551.403	0.233	−1588.113	−1551.636	−1455.695	253.459
	400.00	134.443	159.734	126.626	−1538.393	13.243	−1602.286	−1556.913	−1423.304	185.864
	500.00	143.116	190.666	136.424	−1524.515	27.121	−1619.848	−1556.527	−1389.929	145.205
	560.00	148.320	207.174	143.131	−1515.772	35.864	−1631.789	−1555.908	−1369.970	127.786
			2.989		1.674					
SOL−B	560.00	148.278	210.163	143.131	−1514.098	37.538	−1631.789	−1554.234	−1369.970	127.786
	600.00	149.775	220.445	147.946	−1508.137	43.499	−1640.404	−1553.705	−1356.826	118.122
	700.00	153.515	243.813	160.008	−1492.972	58.664	−1663.642	−1552.199	−1324.129	98.808
	800.00	157.256	264.557	171.804	−1477.434	74.202	−1689.079	−1550.455	−1291.664	84.337
	900.00	160.996	283.295	183.167	−1461.521	90.115	−1716.486	−1548.506	−1259.430	73.095
	1000.00	164.737	300.451	194.049	−1445.235	106.401	−1745.685	−1546.381	−1227.423	64.114
	1100.00	168.477	316.327	204.453	−1428.574	123.062	−1776.534	−1544.107	−1195.636	56.776
	1200.00	172.218	331.147	214.400	−1411.539	140.097	−1808.916	−1739.228	−1159.061	50.453
	1238.00	173.639	336.538	218.066	−1404.968	146.668	−1821.602	−1737.402	−1140.718	48.130

References

Phase	H / S	C_p	Remarks	
SOL−A	Tk1	Tk1,e		
SOL−B	Tk1	e	Tk1	DPT= 1238. (LIQ + Na8Ti5O14)

221.737 DISODIUM DITITANIUM PENTAOXIDE **Na2Ti2O5**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	174.390	173.803	173.803	-2539.688	0.000	-2591.507	-2539.688	-2389.572	418.643
	300.00	174.711	174.883	173.807	-2539.365	0.323	-2591.830	-2539.698	-2388.640	415.899
	400.00	187.021	227.023	180.832	-2521.212	18.476	-2612.021	-2545.393	-2337.809	305.287
	500.00	194.305	269.592	194.458	-2502.121	37.567	-2636.917	-2545.554	-2285.885	238.805
	600.00	199.611	305.506	210.051	-2482.415	57.273	-2665.719	-2545.348	-2233.966	194.484
	700.00	203.983	336.613	225.958	-2462.230	77.458	-2697.859	-2544.948	-2182.099	162.830
	800.00	207.858	364.108	241.542	-2441.635	98.053	-2732.921	-2544.456	-2130.296	139.094
	900.00	211.443	388.800	256.555	-2420.668	119.020	-2770.587	-2543.938	-2078.557	120.636
	1000.00	214.848	411.255	270.919	-2399.352	140.336	-2810.607	-2543.441	-2026.875	105.873
	1100.00	218.136	431.887	284.627	-2377.702	161.986	-2852.778	-2542.991	-1975.241	93.796
	1200.00	221.344	451.006	297.705	-2355.727	183.961	-2896.934	-2744.134	-1918.525	83.511
	1258.00	223.178	461.496	305.016	-2342.836	196.852	-2923.398	-2742.289	-1878.664	78.006
			87.272		109.788					
LIQ	1258.00	252.295	548.768	305.016	-2233.048	306.640	-2923.398	-2632.501	-1878.664	78.006
	1300.00	252.295	557.054	313.026	-2222.452	317.236	-2946.622	-2629.946	-1853.538	74.476
	1400.00	252.295	575.751	331.132	-2197.222	342.466	-3003.273	-2624.005	-1794.039	66.936
	1500.00	252.295	593.158	348.027	-2171.993	367.695	-3061.729	-2618.272	-1734.957	60.417
	1600.00	252.295	609.440	363.862	-2146.763	392.925	-3121.867	-2612.756	-1676.250	54.724
	1700.00	252.295	624.736	378.762	-2121.534	418.154	-3183.584	-2607.469	-1617.882	49.711
	1800.00	252.295	639.156	392.832	-2096.304	443.384	-3246.785	-2602.423	-1559.818	45.265
	1900.00	252.295	652.797	406.159	-2071.074	468.614	-3311.389	-2597.626	-1502.027	41.294
	2000.00	252.295	665.738	418.817	-2045.845	493.843	-3377.322	-2621.346	-1443.593	37.703

References

Phase	H / S	C_p
SOL	e/Tk1	Tk1,e
LIQ	Tk1	e

Na2Ti3O7 DISODIUM TRITITANIUM HEPTAOXIDE 301.615

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	229.487	233.927	233.927	−3479.958	0.000	−3549.703	−3479.958	−3277.432	574.193
	300.00	229.895	235.348	233.932	−3479.533	0.425	−3550.138	−3479.967	−3276.176	570.433
	400.00	245.818	303.902	243.171	−3455.665	24.293	−3577.226	−3485.507	−3207.786	418.894
	500.00	255.580	359.869	261.086	−3430.566	49.392	−3610.501	−3485.419	−3138.355	327.862
	600.00	262.916	407.139	281.590	−3404.628	75.330	−3648.912	−3484.926	−3068.984	267.179
	700.00	269.106	448.143	302.518	−3378.020	101.938	−3691.721	−3484.231	−2999.713	223.841
	800.00	274.687	484.447	323.033	−3350.827	129.131	−3738.384	−3483.448	−2930.549	191.345
	900.00	279.913	517.105	342.812	−3323.095	156.863	−3788.489	−3482.651	−2861.485	166.076
	1000.00	284.918	546.857	361.751	−3294.852	185.106	−3841.709	−3481.882	−2792.508	145.866
	1100.00	289.779	574.241	379.840	−3266.116	213.842	−3897.781	−3481.162	−2723.606	129.333
	1200.00	294.542	599.660	397.111	−3236.899	243.059	−3956.492	−3686.022	−2649.528	115.331
	1300.00	299.237	623.422	413.616	−3207.210	272.748	−4017.658	−3681.991	−2563.316	102.995
	1400.00	303.881	645.768	429.408	−3177.053	302.905	−4081.129	−3677.786	−2477.420	92.434
	1401.00	303.927	645.985	429.562	−3176.750	303.208	−4081.775	−3677.743	−2476.563	92.336

References

Phase	H / S	C_p	Remarks
SOL	Tk1	e	Tk1 DPT= 1401. (LIQ + Na2Ti6O13), L= 155,2 kJ

Na3PO4 SODIUM PHOSPHATE 163.941

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	150.038	173.799	173.799	−1917.402	0.000	−1969.220	−1917.402	−1788.622	313.359
	300.00	150.577	174.729	173.802	−1917.124	0.278	−1969.543	−1917.433	−1787.823	311.268
	400.00	176.039	221.675	180.031	−1900.744	16.658	−1989.414	−1927.111	−1743.629	227.695
	500.00	197.840	263.338	192.600	−1882.033	35.369	−2013.702	−1926.454	−1697.788	177.367
	600.00	218.202	301.222	207.591	−1861.223	56.179	−2041.957	−1923.645	−1652.285	143.844
	700.00	237.883	336.342	223.504	−1838.415	78.987	−2073.855	−1918.834	−1607.411	119.946
	800.00	257.201	369.371	239.692	−1813.658	103.744	−2109.156	−1912.111	−1563.359	102.077
	900.00	276.309	400.770	255.859	−1786.982	130.420	−2147.675	−1903.540	−1520.260	88.234

References

Phase	H / S	C_p
SOL	Nb1	e

78.046 SODIUM SULFIDE **Na2S**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL-1	298.15	82.811	96.232	96.232	-366.100	0.000	-394.792	-366.100	-354.551	62.116
	300.00	82.836	96.744	96.234	-365.947	0.153	-394.970	-366.093	-354.480	61.720
	400.00	84.294	120.771	99.500	-357.591	8.509	-405.900	-373.562	-350.130	45.722
	500.00	85.791	139.742	105.716	-349.087	17.013	-418.958	-375.162	-344.102	35.948
	600.00	87.255	155.513	112.737	-340.434	25.666	-433.742	-376.118	-337.787	29.407
	700.00	88.684	169.072	119.839	-331.637	34.463	-449.987	-376.534	-331.361	24.726
	800.00	90.082	181.005	126.754	-322.699	43.401	-467.503	-376.774	-324.891	21.213
	900.00	91.454	191.695	133.386	-313.622	52.478	-486.147	-429.678	-317.244	18.412
	1000.00	92.800	201.400	139.709	-304.409	61.691	-505.809	-428.075	-304.837	15.923
	1100.00	110.597	210.791	145.738	-294.542	71.558	-526.412	-425.867	-292.605	13.895
	1200.00	159.305	222.312	151.617	-281.265	84.835	-548.040	-613.860	-275.817	12.006
	1276.00	211.998	233.635	156.152	-267.232	98.868	-565.350	-604.395	-254.680	10.426
			0.000		0.000					
SOL-2	1276.00	211.919	233.635	156.152	-267.232	98.868	-565.350	-604.395	-254.680	10.426
	1300.00	187.652	237.359	157.618	-262.437	103.663	-571.003	-601.043	-248.135	9.970
	1400.00	137.154	249.066	163.759	-246.671	119.429	-595.363	-591.294	-221.386	8.260
	1445.00	133.888	253.322	166.482	-240.617	125.483	-606.667	-587.949	-209.550	7.575
			13.319		19.246					
LIQ	1445.00	92.048	266.641	166.482	-221.371	144.729	-606.667	-568.703	-209.550	7.575
	1500.00	92.048	270.079	170.218	-216.308	149.792	-621.428	-566.952	-195.913	6.822
	1600.00	92.048	276.020	176.647	-207.104	158.996	-648.736	-563.773	-171.280	5.592
	1700.00	92.048	281.600	182.659	-197.899	168.201	-676.620	-560.599	-146.847	4.512
	1800.00	92.048	286.862	188.303	-188.694	177.406	-705.045	-557.429	-122.600	3.558
	1900.00	92.048	291.839	193.622	-179.489	186.611	-733.982	-554.263	-98.529	2.709
	2000.00	92.048	296.560	198.652	-170.284	195.816	-763.404	-551.103	-74.625	1.949

References

Phase	H / S	C_p
SOL-1	Ja1	Ja1
SOL-2	Ja1	Ja1
LIQ	Ja1	Ja1

Na2S2 DISODIUM DISULFIDE 110.112

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	98.623	117.152	117.152	−393.296	0.000	−428.225	−393.296	−378.427	66.299
	300.00	98.726	117.762	117.154	−393.113	0.183	−428.442	−393.302	−378.335	65.874
	400.00	104.299	146.927	121.093	−382.962	10.334	−441.733	−403.556	−372.685	48.668
	500.00	109.872	170.800	128.715	−372.254	21.042	−457.653	−406.854	−364.617	38.091
	600.00	115.445	191.324	137.477	−360.988	32.308	−475.782	−408.773	−355.961	30.989
	700.00	121.018	209.539	146.494	−349.165	44.131	−495.842	−409.473	−347.092	25.900
	748.00	123.693	217.653	150.802	−343.292	50.004	−506.096	−409.587	−342.810	23.939

References

Phase	H / S	C_p	Remarks
SOL	Tk1	e	Tk1 DPT= 748. (LIQ + Na2S)

Na2S3 DISODIUM TRISULFIDE 142.178

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	125.335	101.671	101.671	−432.626	0.000	−462.939	−432.626	−403.584	70.706
	300.00	125.436	102.447	101.674	−432.394	0.232	−463.128	−432.625	−403.404	70.239
	400.00	130.917	139.283	106.659	−419.576	13.050	−475.290	−444.793	−392.965	51.316
	500.00	136.398	169.085	116.255	−406.211	26.415	−490.753	−449.337	−379.535	39.650
	600.00	141.879	194.438	127.223	−392.297	40.329	−508.960	−452.183	−365.271	31.800
	626.00	143.305	200.487	130.141	−388.589	44.037	−514.094	−452.631	−361.495	30.164
			31.414		19.665					
LIQ	626.00	155.645	231.901	130.141	−368.924	63.702	−514.094	−432.966	−361.495	30.164
	700.00	155.645	249.291	141.834	−357.407	75.219	−531.910	−433.126	−353.036	26.344
	800.00	155.645	270.074	156.594	−341.842	90.784	−557.902	−433.459	−341.577	22.303
	900.00	155.645	288.407	170.242	−326.278	106.348	−585.844	−592.289	−326.605	18.956
	1000.00	155.645	304.805	182.893	−310.713	121.913	−615.519	−588.004	−297.314	15.530

References

Phase	H / S	C_p
SOL	Mi1	e
LIQ	Mi1	e

174.244 DISODIUM TETRASULFIDE **Na2S4**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[	kJ / mol	]			[−]
SOL	298.15	152.156	167.360	167.360	−411.287	0.000	−461.185	−411.287	−392.273	68.725
	300.00	152.256	168.302	167.363	−411.005	0.282	−461.496	−411.278	−392.155	68.280
	400.00	157.653	212.842	173.399	−395.510	15.777	−480.647	−425.350	−385.044	50.282
	500.00	163.050	248.601	184.977	−379.475	31.812	−503.775	−431.127	−374.376	39.111
	573.00	166.991	271.084	194.541	−367.428	43.859	−522.759	−434.119	−365.863	33.352
			29.208		16.736					
LIQ	573.00	187.443	300.291	194.541	−350.692	60.595	−522.759	−417.383	−365.863	33.352
	600.00	187.443	308.922	199.496	−345.631	65.656	−530.984	−417.619	−363.429	31.639
	700.00	187.443	337.816	217.245	−326.887	84.400	−563.358	−418.017	−354.361	26.443
	800.00	187.443	362.846	233.916	−308.143	103.144	−598.419	−418.531	−345.238	22.542
	900.00	187.443	384.924	249.492	−289.398	121.889	−635.830	−630.387	−331.422	19.235
	1000.00	187.443	404.673	264.040	−270.654	140.633	−675.327	−624.758	−298.506	15.592

References

Phase	H / S	C_p
SOL	Tk1	e
LIQ	Mi1,e	e

Na2SO3 SODIUM SULFITE 126.044

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	120.247	145.938	145.938	-1100.802	0.000	-1144.313	-1100.802	-1012.326	177.355
	300.00	120.328	146.682	145.940	-1100.579	0.223	-1144.584	-1100.807	-1011.777	176.166
	400.00	124.679	181.894	150.712	-1088.329	12.473	-1161.087	-1108.838	-981.532	128.175
	500.00	129.030	210.183	159.866	-1075.644	25.158	-1180.735	-1110.845	-949.486	99.192
	600.00	133.382	234.092	170.294	-1062.523	38.279	-1202.979	-1112.072	-917.084	79.839
	700.00	137.733	254.980	180.931	-1048.967	51.835	-1227.453	-1112.612	-884.536	66.005
	800.00	142.084	273.656	191.374	-1034.976	65.826	-1253.901	-1112.805	-851.938	55.626
	900.00	146.436	290.642	201.474	-1020.550	80.252	-1282.128	-1165.468	-818.180	47.486
	1000.00	150.787	306.296	211.183	-1005.689	95.113	-1311.985	-1163.409	-779.700	40.727
	1100.00	155.139	320.872	220.500	-990.393	110.409	-1343.352	-1161.036	-741.442	35.208
	1184.00	158.794	332.421	228.034	-977.208	123.594	-1370.794	-1352.628	-707.247	31.202
			21.839		25.857					
LIQ	1184.00	182.004	354.259	228.034	-951.351	149.451	-1370.794	-1326.771	-707.247	31.202
	1200.00	182.004	356.703	229.733	-948.439	152.363	-1376.482	-1325.675	-698.882	30.422
	1300.00	182.004	371.271	240.068	-930.238	170.564	-1412.890	-1318.861	-646.926	25.994
	1400.00	182.004	384.759	249.927	-912.038	188.764	-1450.700	-1312.097	-595.493	22.218
	1500.00	182.004	397.316	259.339	-893.838	206.964	-1489.811	-1305.379	-544.542	18.963
	1600.00	182.004	409.062	268.334	-875.637	225.165	-1530.136	-1298.705	-494.037	16.129
	1700.00	182.004	420.096	276.940	-857.437	243.365	-1571.600	-1292.073	-443.949	13.641
	1800.00	182.004	430.499	285.185	-839.236	261.566	-1614.134	-1285.481	-394.250	11.441
	1900.00	182.004	440.339	293.094	-821.036	279.766	-1657.681	-1278.929	-344.916	9.482
	2000.00	182.004	449.675	300.692	-802.836	297.966	-1702.185	-1272.417	-295.926	7.729

References

Phase	H / S	C_p
SOL	Nb1	e
LIQ	Tk1	e

142.043 SODIUM SULFATE **Na2SO4**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol	]		[-]
SOL-5	298.15	128.151	149.595	149.595	-1387.816	0.000	-1432.418	-1387.816	-1269.848	222.472
	300.00	128.487	150.388	149.597	-1387.579	0.237	-1432.695	-1387.834	-1269.116	220.973
	400.00	145.101	189.701	154.845	-1373.874	13.942	-1449.754	-1395.895	-1228.938	160.483
	458.00	153.331	209.904	160.555	-1365.214	22.602	-1461.350	-1396.568	-1204.690	137.394
			0.557		0.255					
SOL-4	458.00	153.333	210.461	160.555	-1364.959	22.857	-1461.350	-1396.313	-1204.690	137.394
	500.00	158.909	224.157	165.327	-1358.401	29.415	-1470.480	-1396.645	-1187.100	124.015
	514.00	160.711	228.570	166.990	-1356.164	31.652	-1473.649	-1396.669	-1181.232	120.041
			21.222		10.908					
SOL-1	514.00	170.732	249.792	166.990	-1345.256	42.560	-1473.649	-1385.761	-1181.232	120.041
	600.00	175.331	276.547	180.817	-1330.378	57.438	-1496.306	-1384.549	-1147.098	99.864
	700.00	181.042	304.000	196.493	-1312.562	75.254	-1525.361	-1382.456	-1107.680	82.656
	800.00	187.276	328.570	211.493	-1294.154	93.662	-1557.010	-1379.900	-1068.597	69.772
	900.00	193.845	351.008	225.765	-1275.098	112.718	-1591.005	-1429.636	-1028.708	59.705
	1000.00	200.309	371.767	239.340	-1255.389	132.427	-1627.156	-1424.461	-984.433	51.422
	1100.00	206.731	391.159	252.269	-1235.037	152.779	-1665.312	-1418.786	-940.701	44.670
	1157.00	210.367	401.695	259.373	-1223.150	164.666	-1687.910	-1415.339	-916.015	41.355
			20.613		23.849					
LIQ	1157.00	197.033	422.307	259.373	-1199.301	188.515	-1687.910	-1391.490	-916.015	41.355
	1200.00	197.033	429.497	265.341	-1190.828	196.988	-1706.225	-1582.945	-893.500	38.893
	1300.00	197.033	445.268	278.583	-1171.125	216.691	-1749.974	-1576.419	-836.312	33.603
	1400.00	197.033	459.870	291.017	-1151.422	236.394	-1795.240	-1569.959	-779.623	29.088
	1500.00	197.033	473.464	302.732	-1131.718	256.098	-1841.914	-1563.559	-723.394	25.191
	1600.00	197.033	486.180	313.805	-1112.015	275.801	-1889.903	-1557.216	-667.590	21.795
	1700.00	197.033	498.125	324.299	-1092.312	295.504	-1939.125	-1550.926	-612.182	18.810
	1800.00	197.033	509.387	334.272	-1072.608	315.208	-1989.506	-1544.690	-557.142	16.168
	1900.00	197.033	520.040	343.772	-1052.905	334.911	-2040.982	-1538.505	-502.447	13.813
	2000.00	197.033	530.147	352.840	-1033.202	354.614	-2093.496	-1532.371	-448.076	11.703

References

Phase	H / S	C_p	Remarks
SOL-5	Ja1	Ja1	
SOL-4	Ja1	Ja2	Ja1 TPT(SOL-4 - SOL-1)= 514., L= 10.91 kJ
SOL-1	Ja1	Ja2	
LIQ	Ja1	Ja1	

Na2SO4[III] SODIUM SULFATE (III) 142.043

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−3	298.15	129.168	154.908	154.908	−1384.854	0.000	−1431.040	−1384.854	−1268.471	222.231
	300.00	129.570	155.709	154.911	−1384.615	0.239	−1431.327	−1384.870	−1267.748	220.735
	400.00	150.143	195.809	160.241	−1370.627	14.227	−1448.950	−1392.648	−1228.134	160.378
	500.00	173.167	231.709	170.992	−1354.496	30.358	−1470.350	−1392.739	−1186.970	124.002
	509.00	175.450	234.819	172.094	−1352.927	31.927	−1472.450	−1392.626	−1183.268	121.429

References

Phase	H / S	C_p	Remarks	
SOL−3	Ja1	Ja2	Ja2	TPT(SOL−3 − SOL−1)= 509., L= 6.887 +/− 0.084 kJ

NaTe SODIUM TELLURIDE 150.590

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	52.225	80.333	80.333	−175.730	0.000	−199.681	−175.730	−169.582	29.710
	300.00	52.258	80.656	80.334	−175.633	0.097	−199.830	−175.733	−169.544	29.520
	400.00	54.057	95.936	82.405	−170.318	5.412	−208.692	−178.724	−167.232	21.838
	500.00	55.856	108.192	86.376	−164.822	10.908	−218.918	−179.236	−164.299	17.164
	600.00	57.656	118.535	90.895	−159.146	16.584	−230.267	−179.703	−161.267	14.040
	633.00	58.249	121.637	92.418	−157.234	18.496	−234.230	−179.852	−160.249	13.224

References

Phase	H / S	C_p	Remarks	
SOL	Tk1	e	Tk1	DPT= 633. (LIQ + Na2Te)

405.790 SODIUM TRITELLURIDE **NaTe3**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	100.309	134.725	134.725	−125.520	0.000	−165.688	−125.520	−106.075	18.584
	300.00	100.401	135.346	134.727	−125.334	0.186	−165.938	−125.529	−105.954	18.448
	400.00	105.378	164.911	138.724	−115.045	10.475	−181.010	−128.917	−99.123	12.944
	500.00	110.354	188.960	146.437	−104.259	21.261	−198.739	−129.951	−91.556	9.565
	600.00	115.330	209.519	155.277	−92.975	32.545	−218.686	−131.064	−83.774	7.293
	700.00	120.307	227.671	164.347	−81.193	44.327	−240.563	−132.278	−75.798	5.656
	728.00	121.700	232.417	166.874	−77.805	47.715	−247.004	−185.147	−73.143	5.248
			40.231		29.288					
LIQ	728.00	122.000	272.648	166.874	−48.517	77.003	−247.004	−155.859	−73.143	5.248
	800.00	122.000	284.154	176.920	−39.733	85.787	−267.056	−157.300	−64.893	4.237
	900.00	122.000	298.523	189.648	−27.533	97.987	−296.204	−159.284	−53.223	3.089
	1000.00	122.000	311.377	201.190	−15.333	110.187	−326.710	−161.268	−41.333	2.159
	1100.00	122.000	323.005	211.744	−3.133	122.387	−358.438	−163.273	−29.242	1.389
	1200.00	122.000	333.620	221.464	9.067	134.587	−391.277	−262.081	−14.527	0.632
	1300.00	122.000	343.386	230.472	21.267	146.787	−425.134	−263.256	6.150	−0.247
	1400.00	122.000	352.427	238.864	33.467	158.987	−459.930	−403.750	34.392	−1.283
	1500.00	122.000	360.844	246.719	45.667	171.187	−495.599	−400.203	65.564	−2.283

References

Phase	H / S	C_p
SOL	Tk1	e
LIQ	Tk1	e

Na2Te SODIUM TELLURIDE 173.580

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	77.337	115.060	115.060	−313.800	0.000	−348.105	−313.800	−302.665	53.026
	300.00	77.362	115.538	115.061	−313.657	0.143	−348.318	−313.809	−302.596	52.687
	400.00	78.743	137.983	118.112	−305.852	7.948	−361.045	−319.931	−298.339	38.959
	500.00	80.124	155.703	123.919	−297.908	15.892	−375.760	−321.097	−292.803	30.589
	600.00	81.504	170.433	130.478	−289.827	23.973	−392.087	−322.175	−287.042	24.989
	700.00	82.885	183.100	137.111	−281.607	32.193	−409.778	−323.208	−281.105	20.976
	800.00	84.266	194.258	143.571	−273.250	40.550	−428.657	−341.859	−273.140	17.834
	900.00	85.646	204.263	149.768	−264.754	49.046	−448.591	−342.904	−264.486	15.350
	1000.00	87.027	213.358	155.679	−256.121	57.679	−469.479	−343.810	−255.723	13.358
	1100.00	88.408	221.718	161.308	−247.349	66.451	−491.238	−344.621	−246.874	11.723
	1200.00	89.789	229.469	166.669	−238.439	75.361	−513.802	−538.898	−233.073	10.145
	1300.00	91.169	236.711	171.781	−229.391	84.409	−537.115	−537.773	−207.632	8.343
	1308.00	91.280	237.271	172.180	−228.661	85.139	−539.011	−537.677	−205.601	8.211
			10.556		13.807					
LIQ	1308.00	96.232	247.826	172.180	−214.854	98.946	−539.011	−523.870	−205.601	8.211
	1400.00	96.232	254.368	177.368	−206.001	107.799	−562.116	−568.745	−180.778	6.745
	1500.00	96.232	261.007	182.725	−196.378	117.422	−587.888	−565.471	−153.180	5.334

References

Phase	H / S	C_p
SOL	Tk1	e
LIQ	Tk1	e

121.929 SODIUM METAVANADATE **NaVO3**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[-]
SOL-1	298.15	97.570	113.679	113.679	-1147.650	0.000	-1181.543	-1147.650	-1065.835	186.730
	300.00	97.958	114.284	113.681	-1147.469	0.181	-1181.754	-1147.649	-1065.328	185.490
	400.00	111.716	144.626	117.725	-1136.889	10.761	-1194.740	-1149.713	-1037.746	135.516
	500.00	118.252	170.334	125.747	-1125.356	22.294	-1210.524	-1148.532	-1009.879	105.501
	600.00	121.946	192.249	135.051	-1113.331	34.319	-1228.680	-1146.984	-982.290	85.516
	666.00	123.601	205.064	141.363	-1105.226	42.424	-1241.798	-1145.866	-964.233	75.625
			1.571		1.046					
SOL-2	666.00	123.601	206.634	141.363	-1104.180	43.470	-1241.798	-1144.820	-964.233	75.625
	700.00	124.298	212.806	144.685	-1099.965	47.685	-1248.929	-1144.227	-955.029	71.265
	800.00	125.935	229.517	154.265	-1087.449	60.201	-1271.062	-1142.460	-928.121	60.600
	900.00	127.156	244.423	163.470	-1074.792	72.858	-1294.773	-1140.702	-901.434	52.318
	903.00	127.188	244.846	163.739	-1074.410	73.240	-1295.507	-1140.650	-900.637	52.098
			31.369		28.326					
LIQ	903.00	142.256	276.215	163.739	-1046.084	101.566	-1295.507	-1112.324	-900.637	52.098
	1000.00	142.256	290.730	175.365	-1032.285	115.365	-1323.015	-1109.275	-878.057	45.865
	1100.00	142.256	304.288	186.479	-1018.060	129.590	-1352.777	-1106.323	-855.080	40.604
	1200.00	142.256	316.666	196.820	-1003.834	143.816	-1383.834	-1200.342	-829.922	36.126
	1300.00	142.256	328.053	206.483	-989.609	158.041	-1416.077	-1196.897	-799.194	32.112
	1400.00	142.256	338.595	215.547	-975.383	172.267	-1449.416	-1193.620	-768.726	28.682
	1500.00	142.256	348.410	224.081	-961.157	186.493	-1483.772	-1190.516	-738.485	25.716

References

Phase	H / S	C_p
SOL-1	Nb1	e
SOL-2	Tk1	e
LIQ	Tk1	e

Na3VO4 SODIUM ORTHOVANADATE 183.908

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL−C	298.15	164.849	190.000	190.000	−1763.451	0.000	−1820.099	−1763.451	−1643.126	287.869
	300.00	165.279	191.021	190.003	−1763.146	0.305	−1820.452	−1763.457	−1642.380	285.964
	400.00	181.296	241.039	196.714	−1745.721	17.730	−1842.136	−1771.405	−1601.388	209.120
	500.00	190.092	282.516	209.848	−1727.117	36.334	−1868.375	−1770.884	−1558.925	162.860
	600.00	196.045	317.728	224.968	−1707.795	55.656	−1898.432	−1769.651	−1516.640	132.035
	700.00	200.656	348.307	240.451	−1687.952	75.499	−1931.767	−1767.949	−1474.600	110.036
	800.00	204.552	375.361	255.656	−1667.687	95.764	−1967.976	−1765.919	−1432.829	93.554
	900.00	208.032	399.658	270.329	−1647.055	116.396	−2006.747	−1763.665	−1391.326	80.750
	1000.00	211.254	421.745	284.383	−1626.089	137.362	−2047.834	−1761.283	−1350.082	70.521
	1100.00	214.307	442.024	297.805	−1604.810	158.641	−2091.036	−1758.849	−1309.079	62.163
	1200.00	217.246	460.798	310.615	−1583.231	180.220	−2136.189	−2046.712	−1260.976	54.889
	1300.00	220.103	478.300	322.848	−1561.363	202.088	−2183.153	−2041.573	−1195.706	48.044
	1400.00	222.902	494.714	334.544	−1539.213	224.238	−2231.813	−2036.335	−1130.835	42.192
	1473.00	224.916	506.095	342.766	−1522.867	240.584	−2268.345	−2032.453	−1083.719	38.430

References

Phase	H / S	C_p	Remarks	
SOL−C	Nb1	e	Tk1	MPT= 1473.

Na4V2O7 SODIUM PYROVANADATE 305.838

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	269.736	318.398	318.398	−2926.281	0.000	−3021.211	−2926.281	−2728.530	478.027
	300.00	270.555	320.069	318.403	−2925.781	0.500	−3021.802	−2926.272	−2727.303	474.866
	400.00	300.330	402.535	329.445	−2897.045	29.236	−3058.059	−2935.553	−2660.316	347.402
	500.00	315.662	471.353	351.144	−2866.176	60.105	−3101.853	−2933.118	−2591.759	270.759
	600.00	325.309	529.814	376.174	−2834.097	92.184	−3151.985	−2929.607	−2523.803	219.717
	700.00	332.273	580.508	401.824	−2801.202	125.079	−3207.558	−2925.462	−2456.490	183.306
	800.00	337.805	625.249	427.010	−2767.689	158.592	−3267.889	−2920.932	−2389.800	156.038
	900.00	342.506	665.315	451.301	−2733.669	192.612	−3332.452	−2916.189	−2323.692	134.864
	933.00	343.933	677.674	459.090	−2722.342	203.939	−3354.612	−2914.605	−2301.996	128.879
			71.078		66.316					
LIQ	933.00	372.376	748.753	459.090	−2656.026	270.255	−3354.612	−2848.289	−2301.996	128.879
	1000.00	372.376	774.577	479.373	−2631.077	295.204	−3405.654	−2843.260	−2262.943	118.204
	1100.00	372.376	810.068	507.848	−2593.839	332.442	−3484.914	−2836.141	−2205.260	104.719
	1200.00	372.376	842.469	534.403	−2556.602	369.679	−3567.565	−3216.590	−2138.440	93.084
	1300.00	372.376	872.275	559.262	−2519.364	406.917	−3653.322	−3206.862	−2048.991	82.329
	1400.00	372.376	899.871	582.618	−2482.127	444.154	−3741.946	−3197.486	−1960.278	73.139
	1500.00	372.376	925.562	604.634	−2444.889	481.392	−3833.232	−3188.468	−1872.223	65.197

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	e	Tk1	TPT= 697.
LIQ	Tk1	e		

293.827 SODIUM TUNGSTATE **Na2WO4**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[-]
SOL-1	298.15	139.778	160.331	160.331	-1544.733	0.000	-1592.536	-1544.733	-1429.786	250.493
	300.00	140.121	161.197	160.334	-1544.474	0.259	-1592.833	-1544.732	-1429.073	248.824
	400.00	155.325	203.715	166.028	-1529.658	15.075	-1611.144	-1549.566	-1390.156	181.536
	500.00	167.371	239.701	177.253	-1513.509	31.224	-1633.359	-1548.252	-1350.432	141.079
	600.00	178.266	271.190	190.337	-1496.221	48.512	-1658.935	-1545.874	-1311.074	114.139
	700.00	188.647	299.454	203.939	-1477.873	66.860	-1687.490	-1542.539	-1272.192	94.932
	800.00	198.763	325.307	217.516	-1458.501	86.232	-1718.746	-1538.304	-1233.850	80.562
	864.00	205.155	340.847	226.081	-1445.575	99.158	-1740.067	-1535.137	-1209.614	73.129
			39.854		34.434					
SOL-2	864.00	209.200	380.701	226.081	-1411.141	133.592	-1740.067	-1500.703	-1209.614	73.129
	900.00	209.200	389.241	232.437	-1403.610	141.123	-1753.927	-1498.687	-1197.527	69.503
	969.00	209.200	404.695	244.160	-1389.175	155.558	-1781.324	-1494.883	-1174.581	63.317
			24.560		23.799					
LIQ	969.00	209.200	429.255	244.160	-1365.376	179.357	-1781.324	-1471.084	-1174.581	63.317
	1000.00	209.200	435.843	250.001	-1358.891	185.842	-1794.734	-1469.401	-1165.122	60.860
	1100.00	209.200	455.782	267.816	-1337.971	206.762	-1839.331	-1464.095	-1134.953	53.894
	1200.00	209.200	473.984	284.249	-1317.051	227.682	-1885.832	-1652.519	-1100.376	47.898
	1300.00	209.200	490.729	299.497	-1296.131	248.602	-1934.079	-1645.792	-1054.637	42.376
	1400.00	209.200	506.233	313.717	-1275.211	269.522	-1983.937	-1639.172	-1009.413	37.662
	1500.00	209.200	520.666	327.038	-1254.291	290.442	-2035.290	-1632.654	-964.658	33.592

References

Phase	H / S	C_p
SOL-1	Ja1	Ja1
SOL-2	Ja1	Ja1
LIQ	Ja1	e

Nb NIOBIUM 92.906

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	24.607	36.401	36.401	0.000	0.000	−10.853	0.000	0.000	0.000
	300.00	24.633	36.553	36.401	0.046	0.046	−10.920	0.000	0.000	0.000
	400.00	25.448	43.770	37.380	2.556	2.556	−14.952	0.000	0.000	0.000
	500.00	25.893	49.499	39.251	5.124	5.124	−19.625	0.000	0.000	0.000
	600.00	26.290	54.255	41.366	7.733	7.733	−24.820	0.000	0.000	0.000
	700.00	26.691	58.337	43.506	10.382	10.382	−30.454	0.000	0.000	0.000
	800.00	27.103	61.928	45.588	13.072	13.072	−36.471	0.000	0.000	0.000
	900.00	27.523	65.145	47.586	15.803	15.803	−42.827	0.000	0.000	0.000
	1000.00	27.948	68.067	49.490	18.577	18.577	−49.490	0.000	0.000	0.000
	1100.00	28.376	70.750	51.302	21.393	21.393	−56.433	0.000	0.000	0.000
	1200.00	28.806	73.238	53.028	24.252	24.252	−63.633	0.000	0.000	0.000
	1300.00	29.235	75.560	54.673	27.154	27.154	−71.075	0.000	0.000	0.000
	1400.00	29.663	77.743	56.243	30.099	30.099	−78.741	0.000	0.000	0.000
	1500.00	30.090	79.804	57.746	33.086	33.086	−86.619	0.000	0.000	0.000
	1600.00	30.515	81.759	59.186	36.117	36.117	−94.698	0.000	0.000	0.000
	1700.00	30.939	83.622	60.569	39.189	39.189	−102.968	0.000	0.000	0.000
	1800.00	31.362	85.402	61.900	42.305	42.305	−111.420	0.000	0.000	0.000
	1900.00	31.783	87.109	63.182	45.462	45.462	−120.046	0.000	0.000	0.000
	2000.00	32.204	88.750	64.420	48.661	48.661	−128.839	0.000	0.000	0.000
	2100.00	32.624	90.332	65.616	51.903	51.903	−137.794	0.000	0.000	0.000
	2200.00	33.043	91.859	66.775	55.186	55.186	−146.904	0.000	0.000	0.000
	2300.00	33.463	93.337	67.897	58.511	58.511	−156.164	0.000	0.000	0.000
	2400.00	33.883	94.770	68.987	61.878	61.878	−165.570	0.000	0.000	0.000
	2500.00	34.304	96.162	70.047	65.288	65.288	−175.117	0.000	0.000	0.000
	2600.00	34.727	97.516	71.077	68.739	68.739	−184.801	0.000	0.000	0.000
	2700.00	35.151	98.834	72.081	72.233	72.233	−194.619	0.000	0.000	0.000
	2740.00	35.321	99.352	72.475	73.643	73.643	−198.582	0.000	0.000	0.000
			9.623		26.368					
LIQ	2740.00	33.472	108.976	72.475	100.011	100.011	−198.582	0.000	0.000	0.000
	2800.00	33.472	109.701	73.265	102.019	102.019	−205.143	0.000	0.000	0.000
	2900.00	33.472	110.875	74.542	105.366	105.366	−216.172	0.000	0.000	0.000
	3000.00	33.472	112.010	75.772	108.713	108.713	−227.317	0.000	0.000	0.000
	3100.00	33.472	113.108	76.959	112.061	112.061	−238.573	0.000	0.000	0.000
	3200.00	33.472	114.170	78.105	115.408	115.408	−249.937	0.000	0.000	0.000
	3300.00	33.472	115.200	79.214	118.755	118.755	−261.406	0.000	0.000	0.000
	3400.00	33.472	116.199	80.287	122.102	122.102	−272.976	0.000	0.000	0.000
	3500.00	33.472	117.170	81.327	125.449	125.449	−284.645	0.000	0.000	0.000
	3600.00	33.472	118.113	82.336	128.797	128.797	−296.409	0.000	0.000	0.000
	3700.00	33.472	119.030	83.315	132.144	132.144	−308.266	0.000	0.000	0.000
	3800.00	33.472	119.922	84.267	135.491	135.491	−320.214	0.000	0.000	0.000
	3900.00	33.472	120.792	85.192	138.838	138.838	−332.250	0.000	0.000	0.000
	4000.00	33.472	121.639	86.093	142.185	142.185	−344.372	0.000	0.000	0.000

92.906 NIOBIUM [continued] **Nb**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
LIQ	4100.00	33.472	122.466	86.970	145.533	145.533	-356.577	0.000	0.000	0.000
	4200.00	33.472	123.272	87.825	148.880	148.880	-368.864	0.000	0.000	0.000
	4300.00	33.472	124.060	88.658	152.227	152.227	-381.231	0.000	0.000	0.000
	4400.00	33.472	124.829	89.472	155.574	155.574	-393.676	0.000	0.000	0.000
	4500.00	33.472	125.582	90.266	158.921	158.921	-406.196	0.000	0.000	0.000
	4600.00	33.472	126.317	91.042	162.269	162.269	-418.791	0.000	0.000	0.000
	4700.00	33.472	127.037	91.800	165.616	165.616	-431.459	0.000	0.000	0.000
	4800.00	33.472	127.742	92.541	168.963	168.963	-444.198	0.000	0.000	0.000
	4900.00	33.472	128.432	93.267	172.310	172.310	-457.007	0.000	0.000	0.000
	5000.00	33.472	129.108	93.977	175.657	175.657	-469.884	0.000	0.000	0.000
	5013.00	33.472	129.195	94.068	176.092	176.092	-471.563	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL-1	Hu1	Hu1		
LIQ	Hu1	Hu1	Hu1	BPT= 5013., L= 683.2 kJ

Nb[g] NIOBIUM (GAS) 92.906

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	30.166	186.256	186.256	721.322	0.000	665.790	721.322	676.643	−118.545
	300.00	30.163	186.442	186.256	721.378	0.056	665.445	721.332	676.366	−117.766
	400.00	29.614	195.058	187.435	724.371	3.049	646.348	721.815	661.300	−86.357
	500.00	28.834	201.583	189.639	727.294	5.972	626.503	722.170	646.128	−67.501
	600.00	28.080	206.772	192.077	730.139	8.817	606.076	722.406	630.895	−54.924
	700.00	27.402	211.049	194.491	732.912	11.590	585.178	722.530	615.632	−45.939
	800.00	26.807	214.668	196.793	735.622	14.300	563.888	722.550	600.359	−39.199
	900.00	26.294	217.795	198.956	738.277	16.955	542.261	722.473	585.088	−33.958
	1000.00	25.859	220.542	200.980	740.884	19.562	520.342	722.307	569.832	−29.765
	1100.00	25.500	222.989	202.872	743.451	22.129	498.163	722.058	554.595	−26.336
	1200.00	25.211	225.195	204.642	745.986	24.664	475.752	721.734	539.385	−23.479
	1300.00	24.991	227.204	206.301	748.495	27.173	453.130	721.341	524.205	−21.063
	1400.00	24.835	229.050	207.861	750.986	29.664	430.316	720.887	509.057	−18.993
	1500.00	24.740	230.760	209.331	753.464	32.142	407.325	720.378	493.944	−17.201
	1600.00	24.702	232.355	210.721	755.936	34.614	384.168	719.819	478.867	−15.633
	1700.00	24.719	233.853	212.038	758.407	37.085	360.857	719.217	463.825	−14.252
	1800.00	24.788	235.267	213.290	760.882	39.560	337.401	718.577	448.820	−13.024
	1900.00	24.905	236.610	214.482	763.366	42.044	313.806	717.904	433.852	−11.927
	2000.00	25.068	237.892	215.621	765.864	44.542	290.081	717.203	418.920	−10.941
	2100.00	25.273	239.120	216.711	768.381	47.059	266.230	716.478	404.024	−10.050
	2200.00	25.518	240.301	217.756	770.920	49.598	242.258	715.734	389.162	−9.240
	2300.00	25.799	241.441	218.761	773.486	52.164	218.171	714.975	374.335	−8.501
	2400.00	26.114	242.546	219.729	776.081	54.759	193.971	714.203	359.541	−7.825
	2500.00	26.460	243.619	220.664	778.710	57.388	169.663	713.422	344.780	−7.204
	2600.00	26.833	244.664	221.567	781.374	60.052	145.248	712.635	330.049	−6.631
	2700.00	27.231	245.684	222.441	784.077	62.755	120.731	711.844	315.350	−6.101
	2800.00	27.651	246.682	223.289	786.821	65.499	96.112	684.802	301.255	−5.620
	2900.00	28.090	247.660	224.113	789.608	68.286	71.395	684.242	287.567	−5.180
	3000.00	28.545	248.619	224.914	792.440	71.118	46.581	683.726	273.898	−4.769
	3100.00	29.013	249.563	225.694	795.317	73.995	21.672	683.257	260.245	−4.385
	3200.00	29.491	250.492	226.454	798.242	76.920	−3.331	682.835	246.606	−4.025
	3300.00	29.896	251.405	227.196	801.210	79.888	−28.426	682.455	232.980	−3.688
	3400.00	30.337	252.304	227.922	804.222	82.900	−53.612	682.119	219.364	−3.370
	3500.00	30.771	253.190	228.631	807.277	85.955	−78.886	681.828	205.758	−3.071
	3600.00	31.198	254.062	229.325	810.376	89.054	−104.249	681.579	192.160	−2.788
	3700.00	31.615	254.923	230.006	813.516	92.194	−129.698	681.373	178.568	−2.521
	3800.00	32.021	255.771	230.672	816.698	95.376	−155.233	681.207	164.981	−2.268
	3900.00	32.415	256.608	231.327	819.920	98.598	−180.852	681.082	151.398	−2.028
	4000.00	32.797	257.434	231.969	823.181	101.859	−206.554	680.995	137.817	−1.800
	4100.00	33.166	258.248	232.600	826.479	105.157	−232.339	680.946	124.239	−1.583
	4200.00	33.521	259.052	233.220	829.813	108.491	−258.204	680.934	110.660	−1.376
	4300.00	33.863	259.844	233.830	833.183	111.861	−284.149	680.956	97.082	−1.179
	4400.00	34.192	260.627	234.431	836.586	115.264	−310.172	681.011	83.503	−0.991
	4500.00	34.507	261.399	235.021	840.021	118.699	−336.274	681.099	69.923	−0.812
	4600.00	34.809	262.160	235.603	843.486	122.164	−362.452	681.218	56.340	−0.640
	4700.00	35.097	262.912	236.176	846.982	125.660	−388.705	681.366	42.754	−0.475
	4800.00	35.373	263.654	236.741	850.505	129.183	−415.034	681.543	29.165	−0.317
	4900.00	35.637	264.386	237.298	854.056	132.734	−441.436	681.746	15.571	−0.166
	5000.00	35.888	265.109	237.847	857.632	136.310	−467.911	681.975	1.974	−0.021

92.906 NIOBIUM (GAS) [continued] **Nb[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
GAS	5100.00	36.128	265.822	238.388	861.233	139.911	−494.457	0.000	0.000	0.000
	5200.00	36.357	266.525	238.922	864.858	143.536	−521.075	0.000	0.000	0.000
	5300.00	36.576	267.220	239.450	868.505	147.183	−547.762	0.000	0.000	0.000
	5400.00	36.784	267.906	239.970	872.173	150.851	−574.518	0.000	0.000	0.000
	5500.00	36.983	268.583	240.485	875.861	154.539	−601.343	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Ja1	Ja1

114.528 NIOBIUM DIBORIDE **NbB2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	47.885	37.656	37.656	−251.040	0.000	−262.267	−251.040	−247.938	43.438
	300.00	48.087	37.953	37.657	−250.951	0.089	−262.337	−251.039	−247.919	43.166
	400.00	56.516	53.035	39.656	−245.688	5.352	−266.902	−251.016	−246.885	32.240
	500.00	62.488	66.314	43.687	−239.726	11.314	−272.884	−251.083	−245.845	25.683
	600.00	67.492	78.159	48.463	−233.222	17.818	−280.118	−251.149	−244.791	21.311
	700.00	72.039	88.909	53.484	−226.243	24.797	−288.479	−251.129	−243.731	18.187
	800.00	76.343	98.811	58.539	−218.822	32.218	−297.871	−250.964	−242.683	15.846
	900.00	80.505	108.044	63.532	−210.979	40.061	−308.219	−250.617	−241.667	14.026
	1000.00	84.580	116.738	68.422	−202.724	48.316	−319.462	−250.060	−240.700	12.573
	1100.00	88.596	124.988	73.193	−194.065	56.975	−331.552	−249.277	−239.800	11.387
	1200.00	92.574	132.868	77.840	−185.006	66.034	−344.447	−248.255	−238.982	10.403
	1300.00	96.524	140.434	82.365	−175.551	75.489	−358.115	−246.985	−238.259	9.573
	1400.00	100.455	147.731	86.775	−165.702	85.338	−372.525	−245.460	−237.643	8.867

References

Phase	H / S	C_p
SOL	Ku1	Ku1

NbBr5 NIOBIUM PENTABROMIDE 492.426

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	147.904	258.780	258.780	−556.430	0.000	−633.585	−556.430	−509.279	89.224
	300.00	147.904	259.695	258.783	−556.156	0.274	−634.065	−556.552	−508.986	88.622
	400.00	147.904	302.245	264.585	−541.366	15.064	−662.264	−630.477	−477.770	62.390
	500.00	147.904	335.249	275.540	−526.575	29.855	−694.200	−627.485	−439.943	45.960
	527.00	147.904	343.027	278.800	−522.582	33.848	−703.357	−626.697	−429.836	42.604
			45.571		24.016					
LIQ	527.00	206.397	388.598	278.800	−498.566	57.864	−703.357	−602.681	−429.836	42.604
	600.00	206.397	415.374	293.823	−483.499	72.931	−732.724	−596.314	−406.316	35.373
	635.00	206.397	427.076	300.848	−476.275	80.155	−747.468	−593.277	−395.320	32.519

References

Phase	H / S	C_p	Remarks
SOL	Ja1	Ja1	
LIQ	Ja1	Ja1	Ja1 NBPT= 635.

NbBr5[g] NIOBIUM PENTABROMIDE (GAS) 492.426

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	125.803	449.262	449.262	−443.588	0.000	−577.535	−443.588	−453.229	79.404
	300.00	125.884	450.040	449.264	−443.355	0.233	−578.367	−443.751	−453.288	78.925
	400.00	128.842	486.716	454.245	−430.599	12.989	−625.286	−519.711	−440.792	57.562
	500.00	130.291	515.639	463.733	−417.635	25.953	−675.455	−518.545	−421.197	44.002
	600.00	131.105	539.472	474.429	−404.562	39.026	−728.245	−517.377	−401.838	34.983
	700.00	131.605	559.722	485.203	−391.425	52.163	−783.230	−516.227	−382.672	28.555
	800.00	131.935	577.319	495.642	−378.246	65.342	−840.101	−515.107	−363.670	23.745
	900.00	132.163	592.872	505.598	−365.041	78.547	−898.626	−514.026	−344.806	20.012
	1000.00	132.327	606.806	515.034	−351.816	91.772	−958.622	−512.989	−326.060	17.032
	1100.00	132.449	619.424	523.960	−338.577	105.011	−1019.944	−511.998	−307.415	14.598
	1200.00	132.542	630.953	532.402	−325.327	118.261	−1082.471	−511.057	−288.858	12.574
	1300.00	132.614	641.565	540.397	−312.069	131.519	−1146.104	−510.165	−270.378	10.864
	1400.00	132.671	651.395	547.978	−298.805	144.783	−1210.758	−509.324	−251.965	9.401
	1500.00	132.717	660.550	555.181	−285.535	158.053	−1276.360	−508.535	−233.610	8.135
	1600.00	132.754	669.116	562.038	−272.262	171.326	−1342.848	−507.798	−215.306	7.029
	1700.00	132.785	677.166	568.575	−258.985	184.603	−1410.166	−507.113	−197.047	6.055
	1800.00	132.810	684.756	574.821	−245.705	197.883	−1478.266	−506.481	−178.826	5.189
	1900.00	132.831	691.937	580.798	−232.423	211.165	−1547.104	−505.901	−160.639	4.416
	2000.00	132.849	698.751	586.527	−219.139	224.449	−1616.641	−505.374	−142.481	3.721

References

Phase	H / S	C_p
GAS	Ja1	Ja1

101.903 NIOBIUM 0.702–CARBIDE **NbC0.702**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	33.345	31.924	31.924	-117.152	0.000	-126.670	-117.152	-114.535	20.066
	300.00	33.435	32.130	31.925	-117.090	0.062	-126.729	-117.148	-114.519	19.940
	400.00	36.919	42.279	33.285	-113.554	3.598	-130.466	-116.899	-113.680	14.845
	500.00	39.037	50.759	35.955	-109.750	7.402	-135.130	-116.660	-112.903	11.795
	600.00	40.617	58.021	39.042	-105.764	11.388	-140.577	-116.467	-112.171	9.765
	700.00	41.944	64.384	42.217	-101.635	15.517	-146.704	-116.318	-111.467	8.318
	800.00	43.136	70.064	45.349	-97.380	19.772	-153.431	-116.194	-110.783	7.233
	900.00	44.249	75.209	48.385	-93.010	24.142	-160.699	-116.078	-110.113	6.391
	1000.00	45.313	79.927	51.307	-88.532	28.620	-168.459	-115.961	-109.457	5.717
	1100.00	46.345	84.294	54.110	-83.949	33.203	-176.673	-115.833	-108.813	5.167
	1200.00	47.355	88.370	56.797	-79.264	37.888	-185.308	-115.689	-108.181	4.709
	1300.00	48.350	92.200	59.374	-74.478	42.674	-194.339	-115.522	-107.561	4.322
	1400.00	49.334	95.819	61.849	-69.594	47.558	-203.741	-115.327	-106.956	3.991
	1500.00	50.310	99.256	64.230	-64.612	52.540	-213.496	-115.100	-106.366	3.704
	1600.00	51.280	102.534	66.522	-59.532	57.620	-223.587	-114.836	-105.792	3.454
	1700.00	52.245	105.672	68.733	-54.356	62.796	-233.999	-114.533	-105.236	3.234
	1800.00	53.206	108.686	70.870	-49.083	68.069	-244.717	-114.189	-104.699	3.038

References

Phase	H / S	C_p
SOL	Tk1	L1,e

NbC0.825 NIOBIUM 0.825–CARBIDE 103.440

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	35.186	32.928	32.928	−124.265	0.000	−134.083	−124.265	−121.729	21.326
	300.00	35.289	33.146	32.929	−124.200	0.065	−134.144	−124.259	−121.713	21.192
	400.00	39.193	43.896	34.368	−120.454	3.811	−138.012	−123.933	−120.913	15.790
	500.00	41.447	52.901	37.199	−116.414	7.851	−142.865	−123.629	−120.194	12.557
	600.00	43.052	60.606	40.474	−112.186	12.079	−148.549	−123.395	−119.530	10.406
	700.00	44.350	67.343	43.841	−107.814	16.451	−154.954	−123.232	−118.900	8.872
	800.00	45.485	73.340	47.160	−103.321	20.944	−161.993	−123.116	−118.289	7.723
	900.00	46.524	78.758	50.375	−98.720	25.545	−169.602	−123.029	−117.691	6.831
	1000.00	47.505	83.711	53.464	−94.018	30.247	−177.729	−122.959	−117.102	6.117
	1100.00	48.447	88.284	56.425	−89.220	35.045	−186.332	−122.897	−116.519	5.533
	1200.00	49.363	92.539	59.259	−84.329	39.936	−195.376	−122.835	−115.942	5.047
	1300.00	50.261	96.525	61.974	−79.348	44.917	−204.831	−122.766	−115.370	4.636
	1400.00	51.145	100.282	64.577	−74.278	49.987	−214.673	−122.683	−114.804	4.283
	1500.00	52.019	103.841	67.077	−69.119	55.146	−224.881	−122.581	−114.245	3.978
	1600.00	52.886	107.226	69.482	−63.874	60.391	−235.435	−122.457	−113.693	3.712
	1700.00	53.747	110.458	71.798	−58.542	65.723	−246.321	−122.306	−113.150	3.477
	1800.00	54.603	113.554	74.032	−53.125	71.140	−257.522	−122.127	−112.617	3.268

References

Phase	H / S	C_p
SOL	Tk1	L1,e

104.917 NIOBIUM CARBIDE **NbC**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[-]
SOL	298.15	36.858	35.401	35.401	-138.900	0.000	-149.455	-138.900	-136.890	23.983
	300.00	36.995	35.629	35.402	-138.832	0.068	-149.520	-138.893	-136.878	23.833
	400.00	42.092	47.060	36.925	-134.846	4.054	-153.670	-138.455	-136.269	17.795
	500.00	44.840	56.773	39.950	-130.488	8.412	-158.875	-137.996	-135.777	14.185
	600.00	46.663	65.119	43.466	-125.908	12.992	-164.979	-137.606	-135.371	11.785
	700.00	48.050	72.420	47.091	-121.170	17.730	-171.864	-137.294	-135.024	10.076
	800.00	49.204	78.913	50.671	-116.306	22.594	-179.436	-137.044	-134.718	8.796
	900.00	50.223	84.769	54.139	-111.334	27.566	-187.625	-136.836	-134.440	7.803
	1000.00	51.158	90.109	57.473	-106.264	32.636	-196.373	-136.659	-134.183	7.009
	1100.00	52.038	95.027	60.666	-101.104	37.796	-205.633	-136.504	-133.943	6.360
	1200.00	52.880	99.591	63.722	-95.858	43.042	-215.367	-136.363	-133.717	5.821
	1300.00	53.697	103.856	66.647	-90.529	48.371	-225.541	-136.227	-133.502	5.364
	1400.00	54.494	107.865	69.449	-85.119	53.781	-236.129	-136.091	-133.298	4.973
	1500.00	55.277	111.651	72.138	-79.630	59.270	-247.107	-135.950	-133.103	4.635
	1600.00	56.049	115.243	74.721	-74.064	64.836	-258.453	-135.798	-132.918	4.339
	1700.00	56.813	118.664	77.206	-68.421	70.479	-270.150	-135.631	-132.743	4.079
	1800.00	57.570	121.933	79.600	-62.702	76.198	-282.181	-135.448	-132.578	3.847

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	Sh1,L1	Tk1	MPT= 3660.

Nb2C — DINIOBIUM CARBIDE — 197.824

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL−A	298.15	63.514	63.999	63.999	−190.000	0.000	−209.081	−190.000	−185.664	32.528
	300.00	63.656	64.392	64.000	−189.882	0.118	−209.200	−189.989	−185.637	32.322
	400.00	69.081	83.533	66.573	−183.216	6.784	−216.629	−189.381	−184.276	24.064
	500.00	72.266	99.315	71.590	−176.138	13.862	−225.795	−188.770	−183.072	19.125
	600.00	74.570	112.703	77.354	−168.791	21.209	−236.413	−188.222	−181.985	15.843
	700.00	76.457	124.343	83.253	−161.237	28.763	−248.277	−187.744	−180.984	13.505
	800.00	78.122	134.663	89.047	−153.507	36.493	−261.237	−187.317	−180.048	11.756
	900.00	79.659	143.954	94.640	−145.617	44.383	−275.176	−186.922	−179.163	10.398
	1000.00	81.115	152.423	100.001	−137.578	52.422	−290.001	−186.550	−178.321	9.315
	1100.00	82.519	160.220	105.125	−129.396	60.604	−305.638	−186.189	−177.516	8.430
	1200.00	83.888	167.459	110.022	−121.075	68.925	−322.026	−185.832	−176.743	7.693
	1300.00	85.231	174.227	114.703	−112.619	77.381	−339.114	−185.472	−176.000	7.072
	1400.00	86.556	180.592	119.184	−104.030	85.970	−356.858	−185.101	−175.286	6.540
	1500.00	87.868	186.608	123.481	−95.308	94.692	−375.221	−184.714	−174.598	6.080
	1600.00	89.169	192.321	127.606	−86.456	103.544	−394.170	−184.307	−173.937	5.678
	1700.00	90.463	197.766	131.574	−77.475	112.525	−413.676	−183.875	−173.302	5.325
	1800.00	91.750	202.973	135.397	−68.364	121.636	−433.715	−183.415	−172.693	5.011

References

Phase	H / S	C_p	Remarks	
SOL−A	Nb1/L1	Tk1,e	Tk1	TPT= 1503.(SOL−B), 2723.(SOL−C) / DPT= 3259.(LIQ + Nb2Cx)

NbCl2 — NIOBIUM DICHLORIDE — 163.812

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	71.564	117.152	117.152	−407.103	0.000	−442.032	−407.103	−364.657	63.886
	300.00	71.658	117.595	117.153	−406.971	0.132	−442.249	−407.079	−364.393	63.447
	400.00	75.438	138.778	120.016	−399.598	7.505	−455.109	−405.684	−350.371	45.754
	500.00	77.906	155.890	125.534	−391.925	15.178	−469.870	−404.150	−336.717	35.177
	600.00	79.859	170.272	131.823	−384.034	23.069	−486.197	−402.503	−323.383	28.153
	700.00	81.568	182.713	138.224	−375.961	31.142	−503.860	−400.756	−310.334	23.157
	800.00	83.147	193.709	144.486	−367.725	39.378	−522.691	−398.915	−297.541	19.427
	900.00	84.650	203.589	150.513	−359.334	47.769	−542.565	−396.981	−284.984	16.540
	1000.00	86.107	212.584	156.277	−350.796	56.307	−563.380	−394.958	−272.648	14.242

References

Phase	H / S	C_p
SOL	Sc6/Sc3	Sc3

175.511 NIOBIUM 2.33–CHLORIDE **NbCl2.33**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[–]
SOL	298.15	79.489	130.541	130.541	–474.499	0.000	–513.420	–474.499	–425.068	74.470
	300.00	79.598	131.033	130.542	–474.352	0.147	–513.662	–474.471	–424.762	73.958
	400.00	83.952	154.587	133.724	–466.154	8.345	–527.989	–472.823	–408.435	53.336
	500.00	86.776	173.640	139.862	–457.610	16.889	–544.430	–471.007	–392.545	41.009
	600.00	88.998	189.663	146.862	–448.818	25.681	–562.616	–469.059	–377.034	32.824
	700.00	90.936	203.531	153.989	–439.820	34.679	–582.291	–466.993	–361.858	27.002
	800.00	92.723	215.791	160.963	–430.636	43.863	–603.269	–464.815	–346.986	22.656

References

Phase	H / S	C_p
SOL	Nb1/e	e

187.565 NIOBIUM 2.67–CHLORIDE **NbCl2.67**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[–]
SOL	298.15	85.419	137.235	137.235	–538.100	0.000	–579.017	–538.100	–479.357	83.981
	300.00	85.535	137.764	137.237	–537.942	0.158	–579.271	–538.071	–478.992	83.400
	400.00	90.134	163.064	140.655	–529.137	8.963	–594.362	–536.405	–459.545	60.010
	500.00	93.094	183.512	147.247	–519.967	18.133	–611.723	–534.571	–440.539	46.023
	600.00	95.409	200.696	154.760	–510.539	27.561	–630.956	–532.605	–421.915	36.731
	700.00	97.420	215.557	162.408	–500.896	37.204	–651.785	–530.519	–403.630	30.119
	800.00	99.268	228.688	169.888	–491.060	47.040	–674.010	–528.320	–385.652	25.180
	900.00	101.022	240.482	177.087	–481.045	57.055	–697.479	–526.010	–367.956	21.356
	1000.00	102.717	251.214	183.971	–470.858	67.242	–722.071	–523.590	–350.523	18.309

References

Phase	H / S	C_p
SOL	Nb1/Sc3	Sc3

NbCl3 — NIOBIUM TRICHLORIDE — 199.264

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	93.096	147.277	147.277	−581.576	0.000	−625.487	−581.576	−514.850	90.200
	300.00	93.224	147.853	147.279	−581.404	0.172	−625.760	−581.543	−514.436	89.571
	400.00	98.314	175.440	151.005	−571.802	9.774	−641.978	−579.653	−492.346	64.294
	500.00	101.546	197.745	158.194	−561.800	19.776	−660.673	−577.576	−470.756	49.180
	600.00	104.047	216.488	166.389	−551.517	30.059	−681.409	−575.354	−449.599	39.141
	700.00	106.203	232.692	174.729	−541.002	40.574	−703.886	−573.004	−428.824	31.999
	800.00	108.175	247.003	182.886	−530.282	51.294	−727.885	−570.531	−408.394	26.665

References

Phase	H / S	C_p	Remarks
SOL	Sc3	Sc3	NbCl(2.67−3.13)

NbCl3.13 — NIOBIUM 3.13−CHLORIDE — 203.873

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	97.404	151.461	151.461	−605.425	0.000	−650.583	−605.425	−535.623	93.839
	300.00	97.534	152.064	151.463	−605.245	0.180	−650.864	−605.389	−535.190	93.185
	400.00	102.665	180.896	155.359	−595.210	10.215	−667.569	−603.291	−512.100	66.873
	500.00	105.939	204.177	162.869	−584.771	20.654	−686.859	−601.008	−489.564	51.144
	600.00	108.482	223.724	171.426	−574.046	31.379	−708.280	−598.581	−467.500	40.700
	700.00	110.680	240.615	180.130	−563.086	42.339	−731.516	−596.024	−445.854	33.270
	800.00	112.693	255.527	188.641	−551.916	53.509	−756.338	−593.343	−424.582	27.722
	900.00	114.600	268.911	196.829	−540.551	64.874	−782.571	−590.539	−403.655	23.427
	1000.00	116.441	281.081	204.654	−528.998	76.427	−810.079	−587.615	−383.045	20.008

References

Phase	H / S	C_p
SOL	Sc3,Nb1	Sc3

234.717 NIOBIUM TETRACHLORIDE **NbCl4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	119.820	184.096	184.096	−694.544	0.000	−749.432	−694.544	−605.535	106.087
	300.00	119.988	184.838	184.098	−694.322	0.222	−749.773	−694.493	−604.983	105.337
	400.00	125.886	220.285	188.891	−681.986	12.558	−770.100	−691.602	−575.575	75.162
	500.00	128.616	248.703	198.107	−669.246	25.298	−793.598	−688.572	−546.917	57.136
	600.00	130.099	272.296	208.562	−656.304	38.240	−819.681	−685.509	−518.874	45.172
	700.00	130.993	292.423	219.140	−643.245	51.299	−847.942	−682.454	−491.343	36.664

References

Phase	H / S	C_p
SOL	Sc3	Sc3

234.717 NIOBIUM TETRACHLORIDE (GAS) **NbCl4[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	98.534	355.749	355.749	−560.991	0.000	−667.058	−560.991	−523.160	91.656
	300.00	98.649	356.359	355.751	−560.809	0.182	−667.716	−560.980	−522.926	91.049
	400.00	102.717	385.380	359.680	−550.711	10.280	−704.863	−560.327	−510.337	66.643
	500.00	104.600	408.526	367.214	−540.335	20.656	−744.598	−559.661	−497.918	52.017
	600.00	105.623	427.696	375.743	−529.819	31.172	−786.437	−559.025	−485.629	42.278
	700.00	106.239	444.028	384.360	−519.224	41.767	−830.043	−558.432	−473.444	35.329
	800.00	106.640	458.242	392.726	−508.578	52.413	−875.172	−557.886	−461.341	30.122
	900.00	106.914	470.819	400.718	−497.900	63.091	−921.637	−557.391	−449.303	26.077
	1000.00	107.110	482.094	408.301	−487.198	73.793	−969.292	−556.945	−437.318	22.843

References

Phase	H / S	C_p
GAS	Nb1/Sc3	Sc3

NbCl5 NIOBIUM PENTACHLORIDE 270.170

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	147.904	214.053	214.053	−797.470	0.000	−861.290	−797.470	−684.132	119.857
	300.00	147.904	214.968	214.056	−797.196	0.274	−861.687	−797.399	−683.428	118.995
	400.00	147.904	257.518	219.858	−782.406	15.064	−885.413	−793.787	−645.994	84.358
	478.90	147.904	284.145	228.321	−770.736	26.734	−906.813	−791.168	−617.087	67.307
			70.741		33.878					
LIQ	478.90	218.549	354.886	228.321	−736.858	60.612	−906.813	−791.168	−617.087	67.307
	500.00	216.435	364.264	233.862	−732.269	65.201	−914.401	−755.146	−610.957	63.826
	600.00	206.416	402.839	258.933	−711.127	86.343	−952.830	−745.700	−583.026	50.757

References

Phase	H / S	C_p	Remarks
SOL	G2,Ja1	Ja1	
LIQ	Ja1	Ja1	Ja2 NBPT= 519.2 − 520.6

NbCl5[g] NIOBIUM PENTACHLORIDE (GAS) 270.170

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	119.036	404.117	404.117	−703.330	0.000	−823.817	−703.330	−646.659	113.292
	300.00	119.180	404.853	404.119	−703.110	0.220	−824.566	−703.312	−646.307	112.532
	400.00	124.622	439.979	408.871	−690.887	12.443	−866.878	−702.268	−627.459	81.938
	500.00	127.429	468.120	418.001	−678.270	25.060	−912.330	−701.147	−608.886	63.610
	600.00	129.050	491.508	428.358	−665.440	37.890	−960.345	−700.013	−590.541	51.411
	700.00	130.065	511.483	438.841	−652.480	50.850	−1010.519	−698.895	−572.384	42.712
	800.00	130.741	528.898	449.033	−639.438	63.892	−1062.556	−697.805	−554.386	36.198
	900.00	131.213	544.326	458.780	−626.339	76.991	−1116.232	−696.752	−536.522	31.139
	1000.00	131.554	558.169	468.039	−613.200	90.130	−1171.369	−695.739	−518.773	27.098
	1100.00	131.809	570.720	476.812	−600.031	103.299	−1227.823	−694.771	−501.124	23.796
	1200.00	132.003	582.198	485.123	−586.840	116.490	−1285.477	−693.849	−483.561	21.049
	1300.00	132.154	592.770	493.002	−573.632	129.698	−1344.233	−692.975	−466.072	18.727
	1400.00	132.274	602.568	500.482	−560.410	142.920	−1404.005	−692.151	−448.650	16.739
	1500.00	132.370	611.697	507.596	−547.178	156.152	−1464.724	−691.378	−431.284	15.019
	1600.00	132.448	620.243	514.372	−533.937	169.393	−1526.325	−690.657	−413.968	13.515
	1700.00	132.513	628.275	520.838	−520.689	182.641	−1588.755	−689.990	−396.696	12.189
	1800.00	132.566	635.850	527.020	−507.435	195.895	−1651.965	−689.377	−379.461	11.012
	1900.00	132.610	643.019	532.938	−494.176	209.154	−1715.912	−688.819	−362.259	9.959
	2000.00	132.647	649.822	538.613	−480.913	222.417	−1780.557	−688.317	−345.085	9.013

References

Phase	H / S	C_p
GAS	Ja1	Ja1

187.898 NIOBIUM PENTAFLUORIDE **NbF5**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	32.170	160.247	160.247	−1813.764	0.000	−1861.542	−1813.764	−1699.530	297.751
	300.00	32.441	160.447	160.248	−1813.704	0.060	−1861.838	−1813.895	−1698.821	295.791
	350.70	39.875	166.078	160.680	−1811.871	1.893	−1870.115	−1817.346	−1679.094	250.091
			34.240		12.008					
LIQ	350.70	140.308	200.318	160.680	−1799.863	13.901	−1870.115	−1817.346	−1679.094	250.091
	400.00	145.913	219.134	166.743	−1792.808	20.956	−1880.461	−1803.543	−1661.466	216.965
	500.00	157.281	252.914	180.682	−1777.648	36.116	−1904.105	−1799.359	−1626.415	169.910

References

Phase	H / S	C_p	Remarks
SOL	L1	Pa2	
LIQ	Pa2	Pa2	Pa2 NBPT= 500. (approx.) GAS (NbF5)x

187.898 NIOBIUM PENTAFLUORIDE (GAS) **NbF5[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	103.221	382.945	382.945	−1717.532	0.000	−1831.707	−1717.532	−1669.696	292.524
	300.00	103.564	383.585	382.947	−1717.341	0.191	−1832.416	−1717.531	−1669.399	290.668
	400.00	115.673	415.284	387.187	−1706.293	11.239	−1872.407	−1717.028	−1653.411	215.913
	500.00	121.336	441.773	395.533	−1694.412	23.120	−1915.298	−1716.123	−1637.608	171.080
	600.00	124.462	464.197	405.157	−1682.108	35.424	−1960.626	−1715.111	−1621.999	141.208
	700.00	126.390	483.538	415.005	−1669.559	47.973	−2008.035	−1714.086	−1606.562	119.883
	800.00	127.679	500.505	424.654	−1656.851	60.681	−2057.255	−1713.083	−1591.270	103.899
	900.00	128.598	515.599	433.936	−1644.035	73.497	−2108.074	−1712.117	−1576.102	91.475
	1000.00	129.286	529.185	442.793	−1631.139	86.393	−2160.325	−1711.196	−1561.039	81.540
	1100.00	129.823	541.534	451.216	−1618.183	99.349	−2213.870	−1710.322	−1546.066	73.417
	1200.00	130.257	552.849	459.221	−1605.178	112.354	−2268.597	−1709.497	−1531.170	66.650
	1300.00	130.620	563.290	466.830	−1592.134	125.398	−2324.411	−1708.721	−1516.341	60.927
	1400.00	130.930	572.981	474.070	−1579.056	138.476	−2381.230	−1707.995	−1501.571	56.024
	1500.00	131.201	582.024	480.969	−1565.949	151.583	−2438.985	−1707.318	−1486.850	51.777
	1600.00	131.443	590.499	487.552	−1552.817	164.715	−2497.616	−1706.691	−1472.173	48.062
	1700.00	131.661	598.475	493.845	−1539.661	177.871	−2557.068	−1706.112	−1457.533	44.785
	1800.00	131.863	606.006	499.869	−1526.485	191.047	−2617.296	−1705.582	−1442.927	41.873
	1900.00	132.049	613.141	505.644	−1513.289	204.243	−2678.256	−1705.101	−1428.348	39.268
	2000.00	132.225	619.918	511.190	−1500.076	217.456	−2739.912	−1704.668	−1413.793	36.924

References

Phase	H / S	C_p
GAS	L1	e

NbFe2 — NIOBIUM 2–IRON — 204.600

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	54.402	100.002	100.002	−46.401	0.000	−76.217	−46.401	−49.097	8.602
	300.00	54.451	100.338	100.003	−46.300	0.101	−76.402	−46.438	−49.113	8.551
	400.00	57.086	116.364	102.170	−40.723	5.678	−87.269	−48.624	−49.683	6.488
	500.00	59.722	129.386	106.350	−34.883	11.518	−99.576	−51.056	−49.671	5.189
	600.00	62.358	140.507	111.137	−28.779	17.622	−113.083	−53.737	−49.147	4.279
	700.00	64.994	150.318	116.047	−22.411	23.990	−127.634	−56.677	−48.153	3.593
	800.00	67.630	159.169	120.893	−15.780	30.621	−143.115	−59.968	−46.716	3.050
	900.00	70.266	167.286	125.602	−8.885	37.516	−159.443	−63.868	−44.834	2.602
	1000.00	72.902	174.826	130.152	−1.727	44.674	−176.553	−69.035	−42.458	2.218
	1100.00	75.538	181.898	134.538	5.695	52.096	−194.393	−75.529	−39.456	1.874
	1200.00	78.174	188.584	138.766	13.381	59.782	−212.920	−80.960	−35.974	1.566
	1300.00	80.810	194.945	142.844	21.330	67.731	−232.099	−82.800	−32.150	1.292

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	Nb1,e	Hu1	NbFe(1.7−2.3), MPT(NbFe2)= 1928.

NbI5 — NIOBIUM PENTAIODIDE — 727.429

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	155.655	343.088	343.088	−268.600	0.000	−370.892	−268.600	−273.469	47.911
	300.00	155.816	344.051	343.091	−268.312	0.288	−371.527	−268.609	−273.500	47.621
	400.00	164.548	390.073	349.307	−252.294	16.306	−408.323	−309.198	−273.656	35.736
	500.00	173.280	427.729	361.333	−235.402	33.198	−449.267	−415.359	−254.582	26.596
	600.00	182.012	460.093	375.156	−217.638	50.962	−493.694	−409.582	−222.955	19.410
			62.760		37.656					
LIQ	600.00	184.096	522.853	375.156	−179.982	88.618	−493.694	−371.926	−222.955	19.410
	619.00	184.096	528.593	379.778	−176.484	92.116	−503.683	−370.713	−218.257	18.418

References

Phase	H / S	C_p	Remarks	
SOL	Nb1/A2	A2		
LIQ	A2	A2	A2	BPT= 619., L= 59. kJ

106.913 NIOBIUM NITRIDE **NbN**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL−A	298.15	38.991	34.518	34.518	−235.099	0.000	−245.391	−235.099	−205.973	36.086
	300.00	39.033	34.759	34.519	−235.027	0.072	−245.455	−235.099	−205.793	35.832
	400.00	41.292	46.298	36.077	−231.011	4.088	−249.530	−235.052	−196.027	25.599
	500.00	43.551	55.754	39.093	−226.768	8.331	−254.646	−234.848	−186.291	19.462
	600.00	45.811	63.894	42.563	−222.300	12.799	−260.637	−234.481	−176.611	15.375
	700.00	50.746	71.651	46.177	−217.267	17.832	−267.423	−233.618	−167.035	12.464
	800.00	51.576	78.482	49.797	−212.151	22.948	−274.937	−232.746	−157.582	10.289
	900.00	52.407	84.604	53.330	−206.952	28.147	−283.096	−231.866	−148.239	8.604
	1000.00	53.237	90.169	56.740	−201.670	33.429	−291.839	−230.978	−138.995	7.260
	1100.00	54.068	95.282	60.014	−196.305	38.794	−301.115	−230.077	−129.840	6.166
	1200.00	54.898	100.022	63.153	−190.856	44.243	−310.883	−229.163	−120.768	5.257
	1300.00	55.729	104.449	66.161	−185.325	49.774	−321.109	−228.230	−111.773	4.491
	1400.00	56.559	108.609	69.046	−179.711	55.388	−331.764	−227.278	−102.850	3.837
	1500.00	57.390	112.540	71.816	−174.013	61.086	−342.823	−226.302	−93.996	3.273
	1600.00	58.220	116.270	74.479	−168.233	66.866	−354.265	−225.301	−85.208	2.782
	1643.00	58.577	117.819	75.593	−165.721	69.378	−359.298	−224.863	−81.449	2.589
			2.547		4.184					
SOL−B	1643.00	62.760	120.366	75.593	−161.537	73.562	−359.298	−220.679	−81.449	2.589
	1700.00	62.760	122.506	77.130	−157.960	77.139	−366.220	−219.864	−76.633	2.355
	1800.00	62.760	126.093	79.752	−151.684	83.415	−378.652	−218.478	−68.248	1.980
	1900.00	62.760	129.487	82.281	−145.408	89.691	−391.433	−217.144	−59.938	1.648
	2000.00	62.760	132.706	84.722	−139.132	95.967	−404.544	−215.862	−51.698	1.350
	2100.00	62.760	135.768	87.081	−132.856	102.243	−417.968	−214.629	−43.520	1.082
	2200.00	62.760	138.687	89.361	−126.580	108.519	−431.692	−213.447	−35.400	0.840
	2300.00	62.760	141.477	91.566	−120.304	114.795	−445.702	−212.313	−27.332	0.621
	2323.00	62.760	142.102	92.064	−118.861	116.238	−448.963	−212.059	−25.484	0.573
			19.812		46.024					
LIQ	2323.00	62.760	161.914	92.064	−72.837	162.262	−448.963	−166.035	−25.484	0.573
	2400.00	62.760	163.961	94.338	−68.004	167.095	−461.509	−165.203	−20.839	0.454
	2500.00	62.760	166.522	97.174	−61.728	173.371	−478.034	−164.164	−14.845	0.310
	2600.00	62.760	168.984	99.889	−55.452	179.647	−494.811	−163.173	−8.892	0.179
	2700.00	62.760	171.353	102.492	−49.176	185.923	−511.828	−162.229	−2.976	0.058
	2800.00	62.760	173.635	104.993	−42.900	192.199	−529.078	−187.581	3.482	−0.065
	2900.00	62.760	175.837	107.398	−36.624	198.475	−546.552	−186.498	10.286	−0.185
	3000.00	62.760	177.965	109.715	−30.348	204.751	−564.243	−185.419	17.053	−0.297

References

Phase	H / S	C_p
SOL−A	Nb1	Sh1,e
SOL−B	Sh1	Sh1
LIQ	Sh1	Sh1

Nb2N DINIOBIUM NITRIDE 199.819

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	67.488	66.944	66.944	-250.601	0.000	-270.560	-250.601	-220.290	38.594
	300.00	67.520	67.362	66.945	-250.476	0.125	-270.685	-250.594	-220.102	38.323
	400.00	69.231	87.020	69.614	-243.639	6.962	-278.447	-250.237	-209.992	27.422
	500.00	70.942	102.652	74.710	-236.630	13.971	-287.956	-249.834	-199.976	20.891
	600.00	72.653	115.738	80.487	-229.450	21.151	-298.893	-249.364	-190.048	16.545
	700.00	74.363	127.066	86.349	-222.099	28.502	-311.045	-248.832	-180.203	13.447
	800.00	76.074	137.107	92.078	-214.578	36.023	-324.263	-248.244	-170.438	11.128
	900.00	77.785	146.166	97.593	-206.885	43.716	-338.434	-247.602	-160.750	9.330
	1000.00	79.496	154.450	102.870	-199.020	51.581	-353.471	-246.905	-151.137	7.895
	1100.00	80.371	162.068	107.910	-191.027	59.574	-369.302	-246.193	-141.595	6.724
	1200.00	81.247	169.099	112.720	-182.946	67.655	-385.865	-245.504	-132.117	5.751
	1300.00	82.122	175.637	117.311	-174.778	75.823	-403.106	-244.837	-122.695	4.930
	1400.00	82.997	181.755	121.698	-166.522	84.079	-420.978	-244.188	-113.324	4.228
	1500.00	83.872	187.511	125.896	-158.178	92.423	-439.444	-243.554	-103.998	3.622
	1600.00	84.748	192.952	129.918	-149.747	100.854	-458.470	-242.933	-94.715	3.092
	1700.00	85.623	198.116	133.779	-141.229	109.372	-478.026	-242.322	-85.470	2.626
	1800.00	86.498	203.035	137.491	-132.623	117.978	-498.085	-241.721	-76.261	2.213
	1900.00	87.374	207.735	141.065	-123.929	126.672	-518.625	-241.127	-67.085	1.844
	2000.00	88.249	212.239	144.512	-115.148	135.453	-539.625	-240.539	-57.940	1.513
	2100.00	89.124	216.566	147.841	-106.279	144.322	-561.067	-239.955	-48.825	1.214
	2200.00	90.000	220.732	151.060	-97.323	153.278	-582.933	-239.376	-39.737	0.943
	2300.00	90.875	224.752	154.177	-88.279	162.322	-605.209	-238.799	-30.675	0.697
	2400.00	91.750	228.638	157.199	-79.148	171.453	-627.879	-238.225	-21.639	0.471
	2500.00	92.625	232.401	160.132	-69.929	180.672	-650.932	-237.653	-12.626	0.264
	2600.00	93.501	236.051	162.983	-60.623	189.978	-674.356	-237.083	-3.636	0.073
	2673.00	94.140	238.649	165.014	-53.774	196.827	-691.682	-236.668	2.913	-0.057

References

Phase	H / S	C_p	Remarks
SOL	Nb1/Ku1	Sh1	MPT= 2673.

108.906 NIOBIUM MONOXIDE **NbO**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	41.114	46.024	46.024	-419.655	0.000	-433.377	-419.655	-391.942	68.667
	300.00	41.186	46.279	46.025	-419.579	0.076	-433.462	-419.652	-391.770	68.213
	400.00	44.031	58.557	47.680	-415.304	4.351	-438.727	-419.373	-382.513	49.951
	500.00	45.823	68.586	50.889	-410.806	8.849	-445.099	-418.973	-373.343	39.003
	600.00	47.202	77.066	54.563	-406.153	13.502	-452.393	-418.508	-364.260	31.712
	700.00	48.385	84.433	58.315	-401.372	18.283	-460.476	-418.004	-355.258	26.510
	800.00	49.463	90.965	61.996	-396.479	23.176	-469.252	-417.469	-346.330	22.613
	900.00	50.482	96.851	65.547	-391.482	28.173	-478.647	-416.905	-337.472	19.586
	1000.00	51.462	102.220	68.950	-386.384	33.271	-488.605	-416.312	-328.677	17.168
	1100.00	52.418	107.170	72.202	-381.190	38.465	-499.077	-415.689	-319.944	15.193
	1200.00	53.358	111.772	75.310	-375.901	43.754	-510.027	-415.034	-311.268	13.549
	1300.00	54.285	116.079	78.282	-370.519	49.136	-521.422	-414.345	-302.649	12.161
	1400.00	55.204	120.136	81.128	-365.044	54.611	-533.234	-413.622	-294.084	10.972
	1500.00	56.117	123.976	83.858	-359.478	60.177	-545.442	-412.864	-285.571	9.944
	1600.00	57.024	127.626	86.480	-353.821	65.834	-558.023	-412.071	-277.111	9.047
	1700.00	57.928	131.111	89.004	-348.074	71.581	-570.961	-411.242	-268.701	8.256
	1800.00	58.830	134.447	91.436	-342.236	77.419	-584.240	-410.377	-260.341	7.555
	1900.00	59.728	137.652	93.785	-336.308	83.347	-597.846	-409.476	-252.030	6.929
	2000.00	60.625	140.738	96.056	-330.290	89.365	-611.767	-408.539	-243.768	6.367
	2100.00	61.521	143.718	98.255	-324.183	95.472	-625.991	-407.566	-235.553	5.859
	2200.00	62.415	146.601	100.387	-317.986	101.669	-640.507	-406.556	-227.385	5.399
	2210.00	62.504	146.884	100.597	-317.361	102.294	-641.975	-406.453	-226.571	5.355
			38.622		85.354					
LIQ	2210.00	62.760	185.506	100.597	-232.007	187.648	-641.975	-321.099	-226.571	5.355
	2300.00	62.760	188.011	103.969	-226.359	193.296	-658.784	-320.170	-222.740	5.059
	2400.00	62.760	190.682	107.527	-220.083	199.572	-677.719	-319.188	-218.525	4.756
	2500.00	62.760	193.244	110.905	-213.807	205.848	-696.916	-318.258	-214.350	4.479
	2600.00	62.760	195.705	114.119	-207.531	212.124	-716.365	-317.382	-210.212	4.223
	2700.00	62.760	198.074	117.185	-201.255	218.400	-736.054	-316.559	-206.105	3.987
	2800.00	62.760	200.356	120.115	-194.979	224.676	-755.977	-342.037	-201.453	3.758
	2900.00	62.760	202.559	122.920	-188.703	230.952	-776.123	-341.087	-196.449	3.538
	3000.00	62.760	204.686	125.610	-182.427	237.228	-796.486	-340.147	-191.477	3.334

References

Phase	H / S	C_p
SOL	Ja1	Ja1
LIQ	Ja1	Ja1

NbO2 NIOBIUM DIOXIDE 124.905

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL-A	298.15	57.449	54.517	54.517	-794.960	0.000	-811.214	-794.960	-739.197	129.504
	300.00	57.606	54.873	54.519	-794.854	0.106	-811.316	-794.953	-738.851	128.645
	400.00	63.546	72.346	56.861	-788.766	6.194	-817.704	-794.348	-720.229	94.052
	500.00	67.739	86.987	61.461	-782.197	12.763	-825.690	-793.405	-701.803	73.317
	600.00	71.652	99.684	66.796	-775.227	19.733	-835.037	-792.204	-683.591	59.512
	700.00	75.554	111.022	72.317	-767.867	27.093	-845.582	-790.747	-665.601	49.668
	800.00	79.496	121.368	77.811	-760.115	34.845	-857.209	-789.022	-647.837	42.299
	900.00	83.480	130.961	83.190	-751.966	42.994	-869.831	-787.010	-630.307	36.582
	1000.00	87.500	139.964	88.421	-743.417	51.543	-883.381	-784.697	-613.016	32.021
	1090.00	91.142	147.659	92.997	-735.379	59.581	-896.327	-782.347	-597.666	28.641
			3.140		3.423					
SOL-B	1090.00	92.885	150.800	92.997	-731.956	63.004	-896.327	-778.924	-597.666	28.641
	1100.00	92.885	151.648	93.527	-731.027	63.933	-897.839	-778.632	-596.004	28.302
	1200.00	92.885	159.730	98.712	-721.738	73.222	-913.414	-775.751	-579.530	25.226
			0.000		0.000					
SOL-C	1200.00	83.052	159.730	98.712	-721.738	73.222	-913.414	-775.751	-579.530	25.226
	1300.00	83.052	166.378	103.664	-713.433	81.527	-929.724	-773.931	-563.252	22.632
	1400.00	83.052	172.532	108.367	-705.128	89.832	-946.673	-772.184	-547.112	20.413
	1500.00	83.052	178.262	112.837	-696.823	98.137	-964.216	-770.507	-531.094	18.494
	1600.00	83.052	183.622	117.096	-688.517	106.443	-982.313	-768.900	-515.186	16.819
	1700.00	83.052	188.658	121.159	-680.212	114.748	-1000.930	-767.359	-499.377	15.344
	1800.00	83.052	193.405	125.042	-671.907	123.053	-1020.035	-765.885	-483.656	14.035
	1900.00	83.052	197.895	128.759	-663.602	131.358	-1039.602	-764.476	-468.015	12.867
	2000.00	83.052	202.155	132.323	-655.296	139.664	-1059.607	-763.133	-452.447	11.817
	2100.00	83.052	206.207	135.746	-646.991	147.969	-1080.026	-761.855	-436.945	10.868
	2175.00	83.052	209.122	138.226	-640.762	154.198	-1095.602	-760.938	-425.357	10.215
			42.321		92.048					
LIQ	2175.00	94.140	251.443	138.226	-548.714	246.246	-1095.602	-668.890	-425.357	10.215
	2200.00	94.140	252.518	139.519	-546.361	248.599	-1101.901	-668.316	-422.561	10.033
	2300.00	94.140	256.703	144.523	-536.947	258.013	-1127.364	-666.058	-411.441	9.344
	2400.00	94.140	260.710	149.282	-527.533	267.427	-1153.236	-663.864	-400.418	8.715
	2500.00	94.140	264.553	153.816	-518.119	276.841	-1179.500	-661.734	-389.485	8.138
	2600.00	94.140	268.245	158.147	-508.705	286.255	-1206.142	-659.668	-378.636	7.607
	2700.00	94.140	271.798	162.291	-499.291	295.669	-1233.145	-657.665	-367.866	7.117
	2800.00	94.140	275.221	166.263	-489.877	305.083	-1260.497	-681.974	-356.592	6.652
	2900.00	94.140	278.525	170.078	-480.463	314.497	-1288.185	-679.865	-345.008	6.214
	3000.00	94.140	281.716	173.746	-471.049	323.911	-1316.198	-677.775	-333.497	5.807

References

Phase	H / S	C_p
SOL-A	Ja1	Ja1
SOL-B	Ja1	Ja1
SOL-C	Sh1	Ja1
LIQ	Sh1	Ja1

265.810 DINIOBIUM PENTAOXIDE **Nb2O5**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL-A	298.15	132.025	137.319	137.319	-1899.536	0.000	-1940.478	-1899.536	-1765.860	309.371
	300.00	132.294	138.136	137.321	-1899.292	0.244	-1940.732	-1899.518	-1765.031	307.319
	400.00	144.863	178.010	142.673	-1885.401	14.135	-1956.605	-1898.077	-1720.394	224.660
	500.00	153.990	211.369	153.166	-1870.435	29.101	-1976.119	-1895.894	-1676.213	175.113
	600.00	160.763	240.072	165.314	-1854.681	44.855	-1998.724	-1893.258	-1632.519	142.123
	700.00	165.936	265.260	177.829	-1838.335	61.201	-2024.017	-1890.346	-1589.290	118.594
	800.00	169.951	287.690	190.186	-1821.532	78.004	-2051.685	-1887.265	-1546.491	100.975
	900.00	173.087	307.896	202.161	-1804.374	95.162	-2081.481	-1884.082	-1504.084	87.295
	1000.00	175.532	326.265	213.667	-1786.938	112.598	-2113.203	-1880.848	-1462.035	76.369
	1100.00	177.429	343.088	224.678	-1769.286	130.250	-2146.682	-1877.602	-1420.311	67.445
	1200.00	178.891	358.591	235.200	-1751.467	148.069	-2181.776	-1874.373	-1378.882	60.021
	1300.00	180.015	372.957	245.251	-1733.519	166.017	-2218.363	-1871.187	-1337.721	53.750
	1400.00	180.890	386.331	254.856	-1715.472	184.064	-2256.335	-1868.063	-1296.802	48.384
	1500.00	181.597	398.836	264.042	-1697.346	202.190	-2295.600	-1865.016	-1256.105	43.741
	1600.00	182.212	410.575	272.838	-1679.156	220.380	-2336.076	-1862.053	-1215.608	39.686
	1700.00	182.809	421.640	281.268	-1660.905	238.631	-2377.692	-1859.177	-1175.294	36.112
	1785.00	183.357	430.572	288.167	-1645.343	254.193	-2413.914	-1856.799	-1141.158	33.394
			58.412		104.265					
LIQ	1785.00	242.254	488.984	288.167	-1541.078	358.458	-2413.914	-1752.534	-1141.158	33.394
	1800.00	242.254	491.011	289.849	-1537.444	362.092	-2421.264	-1751.237	-1136.026	32.967
	1900.00	242.254	504.109	300.784	-1513.219	386.317	-2471.026	-1742.675	-1102.082	30.298
	2000.00	242.254	516.535	311.264	-1488.994	410.542	-2522.064	-1734.255	-1068.585	27.909
	2100.00	242.254	528.355	321.322	-1464.768	434.768	-2574.313	-1725.976	-1035.506	25.757
	2200.00	242.254	539.624	330.991	-1440.543	458.993	-2627.716	-1717.838	-1002.817	23.810
	2300.00	242.254	550.393	340.298	-1416.317	483.219	-2682.221	-1709.839	-970.496	22.041
	2400.00	242.254	560.703	349.268	-1392.092	507.444	-2737.779	-1701.981	-938.520	20.426
	2500.00	242.254	570.592	357.925	-1367.867	531.669	-2794.348	-1694.261	-906.868	18.948

References

Phase	H / S	C_p
SOL-A	Ja1,Nb1	Ja1
LIQ	Sh1	Ja1,Sh1

NbOCl2 NIOBIUM DICHLORIDE OXIDE 179.811

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	93.220	121.336	121.336	−774.500	0.000	−810.676	−774.500	−702.719	123.113
	300.00	93.350	121.913	121.338	−774.327	0.173	−810.901	−774.463	−702.274	122.277
	400.00	98.481	149.542	125.070	−764.711	9.789	−824.528	−772.310	−678.528	88.607
	500.00	101.755	171.889	132.270	−754.691	19.809	−840.635	−769.958	−655.351	68.464
	600.00	104.298	190.673	140.480	−744.384	30.116	−858.788	−767.475	−632.661	55.078
	700.00	106.496	206.919	148.836	−733.842	40.658	−878.685	−764.887	−610.395	45.548
	800.00	108.509	221.272	157.011	−723.091	51.409	−900.109	−762.199	−588.507	38.426
	900.00	110.416	234.164	164.879	−712.144	62.356	−922.891	−759.411	−566.962	32.906
	1000.00	112.257	245.893	172.403	−701.010	73.490	−946.903	−756.523	−545.733	28.506

References

Phase	H / S	C_p
SOL	Nb1/e	e

NbOCl3 NIOBIUM TRICHLORIDE OXIDE 215.264

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	119.820	142.001	142.001	−879.477	0.000	−921.815	−879.477	−780.596	136.757
	300.00	119.988	142.742	142.003	−879.255	0.222	−922.078	−879.422	−779.983	135.807
	400.00	125.886	178.190	146.796	−866.919	12.558	−938.195	−876.283	−747.302	97.588
	500.00	128.616	206.608	156.012	−854.179	25.298	−957.483	−872.997	−715.435	74.741
	600.00	130.099	230.201	166.467	−841.237	38.240	−979.357	−869.696	−684.233	59.568
	700.00	130.993	250.328	177.045	−828.178	51.299	−1003.408	−866.429	−653.582	48.771
	702.00	131.007	250.702	177.254	−827.916	51.561	−1003.909	−866.365	−652.974	48.587

References

Phase	H / S	C_p	Remarks	
SOL	Sc4/Nb1	Sc4	Tk1	NSPT= 550. / MPT= 702.

215.264 NIOBIUM TRICHLORIDE OXIDE (GAS) **NbOCl3[g]**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	92.002	358.302	358.302	-752.300	0.000	-859.128	-752.300	-717.909	125.775
	300.00	92.118	358.871	358.303	-752.130	0.170	-859.791	-752.297	-717.696	124.962
	400.00	96.186	386.013	361.976	-742.685	9.615	-897.091	-752.049	-706.197	92.220
	500.00	98.069	407.702	369.026	-732.962	19.338	-936.813	-751.780	-694.765	72.582
	600.00	99.092	425.681	377.013	-723.100	29.200	-978.508	-751.559	-683.384	59.494
	700.00	99.708	441.006	385.087	-713.157	39.143	-1021.861	-751.408	-672.035	50.148
	800.00	100.108	454.348	392.929	-703.165	49.135	-1066.643	-751.332	-660.702	43.139
	900.00	100.383	466.156	400.422	-693.140	59.160	-1112.680	-751.329	-649.374	37.689
	1000.00	100.579	476.743	407.534	-683.091	69.209	-1159.834	-751.397	-638.043	33.328

References

Phase	H / S	C_p
GAS	Nb1	Sc4e

160.358 NIOBIUM CHLORIDE DIOXIDE **NbO2Cl**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	93.096	88.701	88.701	-983.240	0.000	-1009.686	-983.240	-904.408	158.448
	300.00	93.224	89.277	88.703	-983.068	0.172	-1009.851	-983.199	-903.918	157.386
	400.00	98.314	116.864	92.429	-973.466	9.774	-1020.212	-980.813	-877.843	114.635
	500.00	101.546	139.169	99.618	-963.464	19.776	-1033.049	-978.223	-852.398	89.049
	600.00	104.047	157.912	107.813	-953.181	30.059	-1047.928	-975.526	-827.485	72.039
	700.00	106.203	174.116	116.153	-942.666	40.574	-1064.547	-972.753	-803.029	59.923
	800.00	108.175	188.427	124.310	-931.946	51.294	-1082.688	-969.913	-778.976	50.862
	900.00	110.040	201.277	132.160	-921.035	62.205	-1102.184	-967.001	-755.283	43.835
	1000.00	111.838	212.964	139.665	-909.940	73.300	-1122.905	-964.012	-731.918	38.231

References

Phase	H / S	C_p
SOL	A3	e

NbSi2 NIOBIUM 2–SILICON 149.077

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	64.612	69.873	69.873	–125.520	0.000	–146.353	–125.520	–124.277	21.773
	300.00	64.680	70.273	69.874	–125.400	0.120	–146.482	–125.520	–124.270	21.637
	400.00	67.574	89.304	72.449	–118.778	6.742	–154.500	–125.653	–123.839	16.172
	500.00	69.738	104.623	77.401	–111.909	13.611	–164.221	–125.910	–123.357	12.887
	600.00	71.615	117.507	83.040	–104.840	20.680	–175.344	–126.203	–122.819	10.692
	700.00	73.357	128.678	88.779	–97.590	27.930	–187.665	–126.500	–122.231	9.121
	800.00	75.026	138.583	94.397	–90.171	35.349	–201.037	–126.787	–121.602	7.940
	900.00	76.653	147.514	99.810	–82.587	42.933	–215.349	–127.057	–120.937	7.019
	1000.00	78.254	155.673	104.994	–74.841	50.679	–230.514	–127.304	–120.244	6.281
	1100.00	79.838	163.206	109.948	–66.936	58.584	–246.463	–127.526	–119.527	5.676
	1200.00	81.411	170.221	114.682	–58.874	66.646	–263.138	–127.720	–118.791	5.171
	1300.00	82.975	176.799	119.210	–50.654	74.866	–280.493	–127.887	–118.040	4.743
	1400.00	84.533	183.005	123.547	–42.279	83.241	–298.486	–128.024	–117.277	4.376
	1500.00	86.087	188.890	127.709	–33.748	91.772	–317.083	–128.130	–116.505	4.057
	1600.00	87.638	194.496	131.709	–25.062	100.458	–336.255	–128.205	–115.728	3.778
	1700.00	89.186	199.855	135.561	–16.220	109.300	–355.974	–228.604	–114.053	3.504
	1800.00	90.732	204.997	139.277	–7.225	118.295	–376.218	–228.162	–107.326	3.115
	1900.00	92.276	209.943	142.867	1.926	127.446	–396.967	–227.608	–100.628	2.766
	2000.00	93.819	214.716	146.341	11.231	136.751	–418.201	–226.942	–93.962	2.454

References

Phase	H / S	C_p	Remarks	
SOL	Tk1/Ku1	Ku1	Tk1	MPT= 2223.

548.788 5–NIOBIUM 3–SILICON **Nb5Si3**

Phase	T	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	181.373	251.040	251.040	–510.448	0.000	–585.296	–510.448	–514.198	90.085
	300.00	181.639	252.163	251.043	–510.112	0.336	–585.761	–510.451	–514.221	89.534
	400.00	192.047	305.993	258.312	–491.376	19.072	–613.773	–510.635	–515.450	67.311
	500.00	198.518	349.585	272.346	–471.829	38.619	–646.621	–510.765	–516.637	53.973
	600.00	203.439	386.229	288.353	–451.722	58.726	–683.460	–510.834	–517.804	45.079
	700.00	207.628	417.911	304.649	–431.165	79.283	–723.702	–510.867	–518.962	38.725
	800.00	211.428	445.887	320.588	–410.209	100.239	–766.919	–510.886	–520.117	33.960
	900.00	215.001	470.997	335.929	–388.887	121.561	–812.784	–510.902	–521.271	30.254
	1000.00	218.432	493.828	350.594	–367.214	143.234	–861.042	–510.926	–522.421	27.288
	1100.00	221.772	514.805	364.582	–345.203	165.245	–911.488	–510.962	–523.569	24.862
	1200.00	225.050	534.242	377.920	–322.862	187.586	–963.952	–511.014	–524.713	22.840
	1300.00	228.283	552.384	390.650	–300.195	210.253	–1018.293	–511.082	–525.852	21.129
	1400.00	231.484	569.418	402.817	–277.206	233.242	–1074.392	–511.169	–526.985	19.662
	1500.00	234.661	585.498	414.465	–253.899	256.549	–1132.145	–511.275	–528.111	18.390
	1600.00	237.820	600.743	425.635	–230.275	280.173	–1191.464	–511.399	–529.230	17.278
	1700.00	240.966	615.255	436.366	–206.335	304.113	–1252.269	–662.073	–529.000	16.254
	1800.00	244.100	629.117	446.692	–182.082	328.366	–1314.493	–661.554	–521.186	15.124
	1900.00	247.226	642.399	456.645	–157.515	352.933	–1378.074	–660.932	–513.405	14.114
	2000.00	250.345	655.159	466.254	–132.637	377.811	–1442.956	–660.209	–505.658	13.206

References

Phase	H / S	C_p
SOL	Tk1/e	Ku1

Nd NEODYMIUM 144.240

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	27.415	71.086	71.086	0.000	0.000	−21.194	0.000	0.000	0.000
	300.00	27.438	71.256	71.087	0.051	0.051	−21.326	0.000	0.000	0.000
	400.00	28.761	79.326	72.178	2.859	2.859	−28.871	0.000	0.000	0.000
	500.00	30.294	85.905	74.284	5.810	5.810	−37.142	0.000	0.000	0.000
	600.00	32.079	91.582	76.704	8.927	8.927	−46.022	0.000	0.000	0.000
	700.00	34.131	96.677	79.199	12.235	12.235	−55.439	0.000	0.000	0.000
	800.00	36.454	101.384	81.681	15.762	15.762	−65.345	0.000	0.000	0.000
	900.00	39.052	105.825	84.119	19.535	19.535	−75.707	0.000	0.000	0.000
	1000.00	41.927	110.085	86.504	23.581	23.581	−86.504	0.000	0.000	0.000
	1100.00	45.079	114.227	88.837	27.929	27.929	−97.720	0.000	0.000	0.000
	1128.00	46.011	115.372	89.481	29.205	29.205	−100.935	0.000	0.000	0.000
			2.685		3.029					
SOL−B	1128.00	44.560	118.057	89.481	32.234	32.234	−100.935	0.000	0.000	0.000
	1200.00	44.560	120.814	91.279	35.442	35.442	−109.535	0.000	0.000	0.000
	1289.00	44.560	124.002	93.430	39.408	39.408	−120.431	0.000	0.000	0.000
			5.508		7.100					
LIQ	1289.00	48.785	129.510	93.430	46.508	46.508	−120.431	0.000	0.000	0.000
	1300.00	48.785	129.925	93.737	47.044	47.044	−121.858	0.000	0.000	0.000
	1400.00	48.785	133.540	96.453	51.923	51.923	−135.034	0.000	0.000	0.000
	1500.00	48.785	136.906	99.039	56.801	56.801	−148.558	0.000	0.000	0.000
	1600.00	48.785	140.055	101.505	61.680	61.680	−162.408	0.000	0.000	0.000
	1700.00	48.785	143.012	103.860	66.558	66.558	−176.562	0.000	0.000	0.000
	1800.00	48.785	145.801	106.114	71.437	71.437	−191.004	0.000	0.000	0.000
	1900.00	48.785	148.438	108.272	76.316	76.316	−205.718	0.000	0.000	0.000
	2000.00	48.785	150.941	110.344	81.194	81.194	−220.688	0.000	0.000	0.000
	2100.00	48.785	153.321	112.334	86.073	86.073	−235.902	0.000	0.000	0.000
	2200.00	48.785	155.591	114.249	90.951	90.951	−251.348	0.000	0.000	0.000
	2300.00	48.785	157.759	116.094	95.830	95.830	−267.016	0.000	0.000	0.000
	2400.00	48.785	159.835	117.874	100.708	100.708	−282.897	0.000	0.000	0.000
	2500.00	48.785	161.827	119.592	105.587	105.587	−298.981	0.000	0.000	0.000
	2600.00	48.785	163.740	121.254	110.465	110.465	−315.260	0.000	0.000	0.000
	2700.00	48.785	165.582	122.862	115.344	115.344	−331.726	0.000	0.000	0.000
	2800.00	48.785	167.356	124.419	120.222	120.222	−348.374	0.000	0.000	0.000
	2900.00	48.785	169.068	125.929	125.101	125.101	−365.195	0.000	0.000	0.000
	3000.00	48.785	170.722	127.395	129.980	129.980	−382.185	0.000	0.000	0.000
	3100.00	48.785	172.321	128.819	134.858	134.858	−399.338	0.000	0.000	0.000
	3200.00	48.785	173.870	130.202	139.737	139.737	−416.648	0.000	0.000	0.000
	3300.00	48.785	175.371	131.549	144.615	144.615	−434.110	0.000	0.000	0.000
	3337.00	48.785	175.915	132.038	146.420	146.420	−440.609	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL − A	Hu1	Hu1		double hcp
SOL − B	Hu1	Hu1		bcc
LIQ	Hu1,e	Hu1	Hu1	BPT = 3337., L = 273.0 kJ

144.240 NEODYMIUM (GAS) **Nd[g]**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	22.098	189.406	189.406	327.607	0.000	271.136	327.607	292.330	-51.215
	300.00	22.118	189.543	189.407	327.648	0.041	270.785	327.597	292.111	-50.861
	400.00	23.722	196.115	190.292	329.936	2.329	251.490	327.077	280.362	-36.611
	500.00	25.199	201.575	192.017	332.386	4.779	231.598	326.576	268.741	-28.075
	600.00	26.305	206.272	194.011	334.964	7.357	211.201	326.037	257.223	-22.393
	700.00	27.138	210.392	196.063	337.638	10.031	190.363	325.403	245.803	-18.342
	800.00	27.786	214.060	198.087	340.385	12.778	169.137	324.623	234.482	-15.310
	900.00	28.308	217.364	200.049	343.191	15.584	147.563	323.656	223.271	-12.958
	1000.00	28.742	220.369	201.933	346.044	18.437	125.674	322.462	212.178	-11.083
	1100.00	29.112	223.127	203.736	348.937	21.330	103.498	321.008	201.218	-9.555
	1200.00	29.434	225.674	205.459	351.865	24.258	81.056	316.423	190.591	-8.296
	1300.00	29.718	228.041	207.106	354.822	27.215	58.369	307.778	180.227	-7.242
	1400.00	29.968	230.252	208.681	357.807	30.200	35.453	305.884	170.487	-6.361
	1500.00	30.231	232.329	210.189	360.817	33.210	12.323	304.015	160.881	-5.602
	1600.00	30.484	234.288	211.635	363.852	36.245	-11.009	302.172	151.399	-4.943
	1700.00	30.716	236.143	213.022	366.913	39.306	-34.531	300.354	142.031	-4.364
	1800.00	30.926	237.905	214.356	369.995	42.388	-58.234	298.558	132.770	-3.853
	1900.00	31.115	239.582	215.640	373.097	45.490	-82.109	296.782	123.608	-3.398
	2000.00	31.287	241.183	216.878	376.217	48.610	-106.148	295.023	114.539	-2.991
	2100.00	31.445	242.713	218.072	379.354	51.747	-130.344	293.281	105.558	-2.626
	2200.00	31.596	244.179	219.225	382.506	54.899	-154.689	291.555	96.659	-2.295
	2300.00	31.742	245.587	220.341	385.673	58.066	-179.178	289.843	87.839	-1.995
	2400.00	31.887	246.941	221.421	388.854	61.247	-203.804	288.146	79.092	-1.721
	2500.00	32.035	248.246	222.468	392.050	64.443	-228.564	286.464	70.416	-1.471
	2600.00	32.190	249.505	223.484	395.262	67.655	-253.452	284.796	61.808	-1.242
	2700.00	32.355	250.723	224.471	398.489	70.882	-278.464	283.145	53.262	-1.030
	2800.00	32.530	251.903	225.429	401.733	74.126	-303.595	281.511	44.778	-0.835
	2900.00	32.720	253.048	226.362	404.995	77.388	-328.843	279.894	36.352	-0.655
	3000.00	32.926	254.161	227.270	408.278	80.671	-354.204	278.298	27.981	-0.487
	3100.00	33.150	255.244	228.155	411.581	83.974	-379.674	276.723	19.664	-0.331
	3200.00	33.392	256.300	229.018	414.908	87.301	-405.252	275.172	11.396	-0.186
	3300.00	33.656	257.331	229.861	418.260	90.653	-430.934	273.645	3.177	-0.050
	3400.00	33.941	258.340	230.684	421.640	94.033	-456.717	0.000	0.000	0.000
	3500.00	34.249	259.329	231.488	425.049	97.442	-482.601	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

NdBr3 NEODYMIUM BROMIDE 383.952

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	99.136	194.138	194.138	−873.201	0.000	−931.083	−873.201	−841.817	147.483
	300.00	99.233	194.751	194.139	−873.018	0.183	−931.443	−873.278	−841.622	146.539
	400.00	103.611	223.931	198.088	−862.864	10.337	−952.436	−917.656	−821.840	107.321
	500.00	107.137	247.439	205.682	−852.323	20.878	−976.042	−915.604	−798.121	83.379
	600.00	110.329	267.258	214.335	−841.447	31.754	−1001.802	−913.423	−774.827	67.455
	700.00	113.362	284.494	223.153	−830.262	42.939	−1029.408	−911.149	−751.906	56.108
	800.00	116.311	299.825	231.796	−818.778	54.423	−1058.638	−908.813	−729.316	47.619
	900.00	119.211	313.692	240.137	−807.001	66.200	−1089.324	−906.446	−707.021	41.034
	955.00	120.793	320.810	244.580	−800.401	72.800	−1106.775	−905.141	−694.873	38.007
			47.448		45.313					
LIQ	955.00	154.808	368.258	244.580	−755.088	118.113	−1106.775	−859.828	−694.873	38.007
	1000.00	154.808	375.386	250.307	−748.122	125.079	−1123.508	−857.261	−687.160	35.894
	1100.00	154.808	390.141	262.359	−732.641	140.560	−1161.796	−851.788	−670.418	31.835
	1200.00	154.808	403.611	273.577	−717.160	156.041	−1201.493	−849.489	−653.971	28.467
	1300.00	154.808	416.002	284.062	−701.679	171.522	−1242.482	−851.289	−637.834	25.628

References

Phase	H / S	C_p
SOL	Pa2	Pa2
LIQ	Pa2	Pa2

383.952 NEODYMIUM BROMIDE (GAS) **NdBr3**[g]

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	80.048	401.874	401.874	-578.229	0.000	-698.048	-578.229	-608.781	106.656
	300.00	80.113	402.369	401.875	-578.081	0.148	-698.792	-578.342	-608.971	106.031
	400.00	82.508	425.785	405.052	-569.936	8.293	-740.250	-624.728	-609.654	79.613
	500.00	83.826	444.350	411.119	-561.614	16.615	-783.789	-624.895	-605.867	63.295
	600.00	84.722	459.716	417.975	-553.184	25.045	-829.014	-625.159	-602.039	52.412
	700.00	85.417	472.830	424.897	-544.676	33.553	-875.657	-625.563	-598.155	44.635
	800.00	86.006	484.276	431.619	-536.104	42.125	-923.524	-626.139	-594.203	38.797
	900.00	86.533	494.436	438.045	-527.477	50.752	-972.470	-626.921	-590.166	34.252
	1000.00	87.021	503.579	444.149	-518.799	59.430	-1022.378	-627.938	-586.030	30.611
	1100.00	87.484	511.895	449.935	-510.073	68.156	-1073.158	-629.220	-581.780	27.626
	1200.00	87.930	519.526	455.421	-501.303	76.926	-1124.734	-633.631	-577.212	25.125
	1300.00	88.364	526.582	460.627	-492.488	85.741	-1177.044	-642.097	-572.396	22.999
	1400.00	88.789	533.146	465.575	-483.630	94.599	-1230.034	-643.805	-566.970	21.154
	1500.00	89.208	539.286	470.287	-474.730	103.499	-1283.659	-645.479	-561.423	19.550
	1600.00	89.622	545.056	474.781	-465.789	112.440	-1337.879	-647.120	-555.765	18.144
	1700.00	90.032	550.502	479.077	-456.806	121.423	-1392.659	-648.728	-550.006	16.900
	1800.00	90.439	555.660	483.189	-447.782	130.447	-1447.970	-650.302	-544.153	15.791
	1900.00	90.843	560.560	487.134	-438.718	139.511	-1503.783	-651.843	-538.214	14.797
	2000.00	91.246	565.230	490.923	-429.614	148.615	-1560.074	-653.352	-532.194	13.899

References

Phase	H / S	C_p
GAS	Pa2	Pa2

NdCl3 NEODYMIUM CHLORIDE 250.598

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	99.102	153.427	153.427	−1041.816	0.000	−1087.560	−1041.816	−966.583	169.341
	300.00	99.185	154.041	153.429	−1041.633	0.183	−1087.845	−1041.778	−966.116	168.216
	400.00	103.681	183.189	157.373	−1031.489	10.327	−1104.765	−1039.644	−941.214	122.910
	500.00	108.192	206.810	164.969	−1020.896	20.920	−1124.301	−1037.357	−916.867	95.784
	600.00	112.710	226.935	173.659	−1009.851	31.965	−1146.012	−1034.882	−892.998	77.742
	700.00	117.230	244.648	182.560	−998.354	43.462	−1169.608	−1032.208	−869.560	64.887
	800.00	121.752	260.598	191.333	−986.405	55.411	−1194.883	−1029.344	−846.518	55.272
	900.00	126.274	275.199	199.852	−974.003	67.813	−1221.682	−1026.304	−823.845	47.815
	1000.00	130.798	288.737	208.071	−961.150	80.666	−1249.887	−1023.109	−801.520	41.867
	1032.00	132.245	292.880	210.637	−956.941	84.875	−1259.193	−1022.057	−794.445	40.211
			48.651		50.208					
LIQ	1032.00	146.440	341.531	210.637	−906.733	135.083	−1259.193	−971.849	−794.445	40.211
	1100.00	146.440	350.876	219.020	−896.775	145.041	−1282.739	−968.713	−782.858	37.175
	1200.00	146.440	363.618	230.547	−882.131	159.685	−1318.472	−967.227	−765.967	33.342
	1300.00	146.440	375.339	241.240	−867.487	174.329	−1355.428	−969.845	−749.319	30.108

References

Phase	H / S	C_p
SOL	Pa2	Pa2
LIQ	Dw1	Dw1

250.598 NEODYMIUM CHLORIDE (GAS) **NdCl3[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	78.326	374.381	374.381	−718.811	0.000	−830.433	−718.811	−709.455	124.294
	300.00	78.386	374.865	374.382	−718.666	0.145	−831.126	−718.811	−709.397	123.517
	400.00	80.659	397.759	377.488	−710.703	8.108	−869.806	−718.857	−706.255	92.227
	500.00	82.276	415.936	383.422	−702.554	16.257	−910.522	−719.015	−703.088	73.451
	600.00	83.701	431.065	390.136	−694.254	24.557	−952.893	−719.284	−699.880	60.930
	700.00	84.967	444.065	396.933	−685.819	32.992	−996.664	−719.673	−696.616	51.982
	800.00	86.066	455.484	403.553	−677.266	41.545	−1041.653	−720.205	−693.288	45.267
	900.00	86.991	465.677	409.899	−668.611	50.200	−1087.721	−720.912	−689.883	40.040
	1000.00	87.745	474.883	415.945	−659.873	58.938	−1134.756	−721.832	−686.388	35.853
	1100.00	88.335	483.275	421.690	−651.068	67.743	−1182.670	−723.005	−682.789	32.423
	1200.00	88.773	490.981	427.148	−642.211	76.600	−1231.388	−727.307	−678.883	29.551
	1300.00	89.074	498.099	432.335	−633.318	85.493	−1280.847	−735.676	−674.737	27.111
	1400.00	89.255	504.707	437.271	−624.400	94.411	−1330.991	−737.308	−669.988	24.998
	1500.00	89.333	510.869	441.975	−615.470	103.341	−1381.773	−738.940	−665.123	23.162
	1600.00	89.327	516.634	446.463	−606.537	112.274	−1433.151	−740.579	−660.148	21.552
	1700.00	89.257	522.048	450.751	−597.607	121.204	−1485.088	−742.232	−655.071	20.128
	1800.00	89.141	527.146	454.855	−588.687	130.124	−1537.550	−743.906	−649.895	18.859
	1900.00	89.001	531.962	458.788	−579.780	139.031	−1590.508	−745.604	−644.626	17.722
	2000.00	88.856	536.524	462.562	−570.887	147.924	−1643.934	−747.327	−639.267	16.696

References

Phase	H / S	C_p
GAS	Pa2	Pa2

NdF3 NEODYMIUM FLUORIDE 201.235

Phase	T [K]	C_p J / (K mol)	S J / (K mol)	−(G−H298)/T J / (K mol)	H kJ / mol	H−H298 kJ / mol	G kJ / mol	ΔH_f kJ / mol	ΔG_f kJ / mol	log K_f [−]
SOL	298.15	92.420	120.792	120.792	−1679.458	0.000	−1715.472	−1679.458	−1603.583	280.941
	300.00	92.552	121.364	120.794	−1679.287	0.171	−1715.696	−1679.425	−1603.112	279.127
	400.00	98.034	148.805	124.498	−1669.735	9.723	−1729.257	−1677.502	−1577.960	206.060
	500.00	101.829	171.107	131.659	−1659.734	19.724	−1745.287	−1675.496	−1553.306	162.273
	600.00	104.961	189.956	139.844	−1649.391	30.067	−1763.364	−1673.479	−1529.057	133.116
	700.00	107.780	206.350	148.199	−1638.752	40.706	−1783.197	−1671.474	−1505.146	112.315
	800.00	110.432	220.917	156.394	−1627.840	51.618	−1804.574	−1669.498	−1481.520	96.733
	900.00	112.987	234.072	164.306	−1616.669	62.789	−1827.333	−1667.571	−1458.139	84.628
	1000.00	115.481	246.106	171.893	−1605.245	74.213	−1851.351	−1665.714	−1434.969	74.955
	1100.00	117.936	257.228	179.151	−1593.574	85.884	−1876.524	−1663.951	−1411.981	67.049
	1200.00	120.365	267.594	186.094	−1581.658	97.800	−1902.771	−1665.140	−1388.960	60.460
	1300.00	122.774	277.323	192.741	−1569.501	109.957	−1930.022	−1670.206	−1365.967	54.885
	1400.00	125.170	286.510	199.114	−1557.104	122.354	−1958.218	−1668.331	−1342.633	50.094
	1500.00	127.555	295.227	205.233	−1544.468	134.990	−1987.308	−1666.239	−1319.440	45.947
	1600.00	129.933	303.535	211.120	−1531.593	147.865	−2017.249	−1663.928	−1296.395	42.323
	1650.00	131.120	307.551	213.981	−1525.067	154.391	−2032.527	−1662.690	−1284.928	40.677
			33.218		54.810					
LIQ	1650.00	172.775	340.770	213.981	−1470.257	209.201	−2032.527	−1607.880	−1284.928	40.677
	1700.00	172.807	345.928	217.786	−1461.617	217.841	−2049.695	−1604.533	−1275.192	39.182
	1800.00	172.809	355.806	225.182	−1444.336	235.122	−2084.786	−1597.849	−1256.012	36.449

References

Phase	H / S	C_p
SOL	Pa2	Pa2
LIQ	S3	S3

201.235 NEODYMIUM FLUORIDE (GAS) **NdF3[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	72.197	340.766	340.767	−1238.882	0.000	−1340.482	−1238.882	−1228.592	215.244
	300.00	72.302	341.213	340.768	−1238.748	0.134	−1341.112	−1238.886	−1228.528	213.906
	400.00	76.574	362.652	343.662	−1231.286	7.596	−1376.347	−1239.053	−1225.049	159.975
	500.00	79.430	380.062	349.255	−1223.479	15.403	−1413.510	−1239.241	−1221.528	127.612
	600.00	81.628	394.746	355.645	−1215.422	23.460	−1452.269	−1239.510	−1217.962	106.033
	700.00	83.399	407.466	362.159	−1207.167	31.715	−1492.394	−1239.889	−1214.342	90.615
	800.00	84.843	418.700	368.538	−1198.753	40.129	−1533.713	−1240.410	−1210.659	79.048
	900.00	86.013	428.763	374.681	−1190.208	48.674	−1576.095	−1241.110	−1206.900	70.047
	1000.00	86.946	437.876	380.552	−1181.558	57.324	−1619.434	−1242.027	−1203.052	62.841
	1100.00	87.670	446.198	386.147	−1172.825	66.057	−1663.644	−1243.202	−1199.100	56.941
	1200.00	88.211	453.851	391.474	−1164.030	74.852	−1708.651	−1247.512	−1194.840	52.010
	1300.00	88.593	460.928	396.548	−1155.188	83.694	−1754.395	−1255.893	−1190.340	47.828
	1400.00	88.839	467.503	401.384	−1146.316	92.566	−1800.820	−1257.543	−1185.235	44.222
	1500.00	88.969	473.637	405.999	−1137.425	101.457	−1847.880	−1259.195	−1180.013	41.092
	1600.00	89.006	479.381	410.408	−1128.525	110.357	−1895.534	−1260.859	−1174.680	38.349
	1700.00	88.972	484.776	414.625	−1119.626	119.256	−1943.745	−1262.541	−1169.242	35.926
	1800.00	88.886	489.859	418.665	−1110.732	128.150	−1992.479	−1264.245	−1163.705	33.770
	1900.00	88.771	494.662	422.540	−1101.849	137.033	−2041.708	−1265.975	−1158.072	31.838
	2000.00	88.647	499.212	426.261	−1092.978	145.904	−2091.403	−1267.731	−1152.348	30.096

References

Phase	H / S	C_p
GAS	Pa2	Pa2

146.256 NEODYMIUM DIHYDRIDE **NdH2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	43.044	58.911	58.911	−192.000	0.000	−209.564	−192.000	−149.408	26.176
	300.00	43.074	59.177	58.912	−191.920	0.080	−209.673	−192.024	−149.143	25.968
	400.00	44.685	71.789	60.620	−187.532	4.468	−216.248	−193.351	−134.650	17.583
	500.00	46.296	81.934	63.900	−182.983	9.017	−223.950	−194.675	−119.821	12.518
	600.00	47.907	90.517	67.639	−178.273	13.727	−232.583	−196.011	−104.725	9.117
	700.00	49.518	98.023	71.454	−173.402	18.598	−242.018	−197.386	−89.403	6.671
	800.00	51.128	104.740	75.202	−168.370	23.630	−252.162	−198.833	−73.879	4.824
	900.00	52.739	110.855	78.829	−163.176	28.824	−262.946	−200.387	−58.168	3.376
	1000.00	54.350	116.495	82.317	−157.822	34.178	−274.317	−202.083	−42.276	2.208
	1100.00	55.961	121.751	85.665	−152.306	39.694	−286.232	−203.954	−26.207	1.244
	1200.00	57.572	126.689	88.880	−146.630	45.370	−298.656	−208.868	−9.770	0.425

References

Phase	H / S	C_p
SOL	Nb1/B2	B2,e

NdI3 NEODYMIUM IODIDE 524.953

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL-A	298.15	98.742	230.538	230.538	-639.298	0.000	-708.033	-639.298	-634.897	111.231
	300.00	98.876	231.150	230.540	-639.115	0.183	-708.460	-639.317	-634.870	110.541
	400.00	104.634	260.440	234.495	-628.920	10.378	-733.096	-664.388	-632.396	82.582
	500.00	108.922	284.264	242.139	-618.235	21.063	-760.367	-728.945	-618.189	64.582
	600.00	112.636	304.457	250.884	-607.154	32.144	-789.829	-726.607	-596.255	51.909
	700.00	116.081	322.081	259.822	-595.717	43.581	-821.174	-724.122	-574.724	42.886
	800.00	119.383	337.798	268.604	-583.943	55.355	-854.181	-721.533	-553.557	36.144
	847.00	120.904	344.657	272.636	-578.296	61.002	-870.220	-720.291	-543.724	33.532
			16.301		13.807					
SOL-B	847.00	117.098	360.958	272.636	-564.489	74.809	-870.220	-706.484	-543.724	33.532
	900.00	117.098	368.065	278.048	-558.283	81.015	-889.541	-705.317	-533.576	30.968
	1000.00	117.098	380.402	287.678	-546.573	92.725	-926.976	-703.335	-514.603	26.880
	1060.00	117.098	387.226	293.121	-539.547	99.751	-950.006	-702.294	-503.310	24.802
			39.156		41.505					
LIQ	1060.00	155.745	426.381	293.121	-498.042	141.256	-950.006	-660.789	-503.310	24.802
	1100.00	155.745	432.150	298.072	-491.812	147.486	-967.178	-658.614	-497.408	23.620
	1200.00	155.745	445.702	309.818	-476.238	163.060	-1011.080	-656.254	-482.797	21.016
	1300.00	155.745	458.168	320.757	-460.663	178.635	-1056.282	-657.994	-468.501	18.825

References

Phase	H / S	C_p
SOL-A	Nb1/Pa2	Dw4,Pa2
SOL-B	Dw4	Pa2
LIQ	Dw4	Dw4

524.953 NEODYMIUM IODIDE (GAS) **NdI3[g]**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[-]
GAS	298.15	81.579	430.643	430.643	-366.518	0.000	-494.914	-366.518	-421.778	73.894
	300.00	81.625	431.148	430.645	-366.367	0.151	-495.711	-366.569	-422.121	73.498
	400.00	83.384	454.899	433.871	-358.107	8.411	-540.066	-393.575	-439.366	57.375
	500.00	84.406	473.623	440.015	-349.714	16.804	-586.525	-460.424	-444.347	46.421
	600.00	85.138	489.080	446.941	-341.235	25.283	-634.683	-460.688	-441.109	38.402
	700.00	85.733	502.250	453.925	-332.691	33.827	-684.265	-461.096	-437.816	32.670
	800.00	86.255	513.732	460.698	-324.091	42.427	-735.077	-461.682	-434.453	28.367
	900.00	86.735	523.920	467.168	-315.441	51.077	-786.969	-462.475	-431.004	25.015
	1000.00	87.189	533.082	473.309	-306.745	59.773	-839.827	-463.507	-427.454	22.328
	1100.00	87.625	541.412	479.127	-298.004	68.514	-893.558	-464.806	-423.788	20.124
	1200.00	88.050	549.055	484.640	-289.220	77.298	-948.086	-469.236	-419.803	18.274
	1300.00	88.466	556.119	489.870	-280.394	86.124	-1003.349	-477.725	-415.568	16.698
	1400.00	88.877	562.690	494.840	-271.527	94.991	-1059.294	-479.457	-410.722	15.324
	1500.00	89.283	568.836	499.570	-262.619	103.899	-1115.873	-481.157	-405.752	14.130
	1600.00	89.685	574.611	504.082	-253.671	112.847	-1173.049	-482.827	-400.671	13.081
	1700.00	90.085	580.060	508.392	-244.682	121.836	-1230.785	-484.465	-395.486	12.152
	1800.00	90.483	585.221	512.518	-235.654	130.864	-1289.051	-486.072	-390.205	11.323
	1900.00	90.880	590.123	516.475	-226.586	139.932	-1347.820	-487.648	-384.836	10.580
	2000.00	91.275	594.795	520.275	-217.478	149.040	-1407.068	-489.194	-379.385	9.909

References

Phase	H / S	C_p
GAS	Pa2	Pa2

Nd_2O_3 NEODYMIUM OXIDE 336.478

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL−A	298.15	111.332	158.574	158.574	−1807.906	0.000	−1855.185	−1807.906	−1721.049	301.521
	300.00	111.550	159.263	158.576	−1807.700	0.206	−1855.479	−1807.883	−1720.510	299.567
	400.00	120.230	192.660	163.070	−1796.070	11.836	−1873.134	−1806.327	−1691.607	220.901
	500.00	125.860	220.125	171.816	−1783.751	24.155	−1893.814	−1804.498	−1663.136	173.747
	600.00	130.289	243.476	181.861	−1770.937	36.969	−1917.023	−1802.656	−1635.038	142.343
	700.00	134.152	263.855	192.149	−1757.712	50.194	−1942.411	−1800.930	−1607.241	119.934
	800.00	137.712	282.003	202.267	−1744.117	63.789	−1969.720	−1799.394	−1579.678	103.142
	900.00	141.097	298.420	212.053	−1730.175	77.731	−1998.754	−1798.106	−1552.294	90.093
	1000.00	144.372	313.457	221.452	−1715.901	92.005	−2029.358	−1797.118	−1525.037	79.660
	1100.00	147.577	327.368	230.456	−1701.303	106.603	−2061.408	−1796.480	−1497.863	71.128
	1200.00	150.732	340.344	239.079	−1686.387	121.519	−2094.800	−1801.913	−1470.354	64.003
	1300.00	153.854	352.532	247.342	−1671.158	136.748	−2129.450	−1815.262	−1442.638	57.966
	1395.00	156.796	363.486	254.881	−1656.402	151.504	−2163.466	−1814.924	−1415.419	52.999
			0.420		0.586					
SOL−B	1395.00	155.645	363.907	254.881	−1655.816	152.090	−2163.466	−1814.338	−1415.419	52.999
	1400.00	155.645	364.463	255.272	−1655.038	152.868	−2165.286	−1814.319	−1413.989	52.757
	1500.00	155.645	375.202	262.913	−1639.473	168.433	−2202.276	−1813.974	−1385.406	48.244
	1600.00	155.645	385.247	270.249	−1623.909	183.997	−2240.304	−1813.667	−1356.845	44.296
	1700.00	155.645	394.683	277.293	−1608.344	199.562	−2279.305	−1813.397	−1328.302	40.814
	1800.00	155.645	403.579	284.065	−1592.780	215.126	−2319.222	−1813.164	−1299.774	37.718
	1900.00	155.645	411.994	290.578	−1577.215	230.691	−2360.005	−1812.966	−1271.258	34.949
	2000.00	155.645	419.978	296.850	−1561.651	246.255	−2401.607	−1812.802	−1242.752	32.457

References

Phase	H / S	C_p	Remarks	
SOL−A	Pa1	Pa1		
SOL−B	Pa1	Pa1	Ku1	MPT= 2545.

NdOCl NEODYMIUM CHLORIDE OXIDE 195.692

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	69.847	94.558	94.558	−999.976	0.000	−1028.169	−999.976	−943.131	165.233
	300.00	69.937	94.991	94.560	−999.847	0.129	−1028.344	−999.956	−942.778	164.152
	400.00	73.782	115.677	97.354	−992.647	7.329	−1038.918	−998.784	−923.891	120.648
	500.00	76.588	132.453	102.748	−985.123	14.853	−1051.350	−997.526	−905.313	94.577
	600.00	78.986	146.633	108.911	−977.343	22.633	−1065.322	−996.259	−886.990	77.219
	700.00	81.191	158.976	115.200	−969.333	30.643	−1080.616	−995.023	−868.876	64.836
	800.00	83.293	169.956	121.370	−961.108	38.868	−1097.072	−993.846	−850.937	55.560
	900.00	85.336	179.885	127.329	−952.676	47.300	−1114.572	−992.753	−833.140	48.354
	1000.00	87.341	188.980	133.045	−944.042	55.934	−1133.021	−991.767	−815.459	42.595
	1100.00	89.322	197.397	138.518	−935.209	64.767	−1152.345	−990.913	−797.870	37.888

References

Phase	H / S	C_p
SOL	Nb1/e	e

582.924 NEODYMIUM ZIRCONIUM HEPTAOXIDE **Nd2Zr2O7**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	223.387	259.408	259.408	−4046.924	0.000	−4124.266	−4046.924	−3844.624	673.562
	300.00	224.025	260.792	259.412	−4046.510	0.414	−4124.748	−4046.895	−3843.369	669.190
	400.00	248.028	328.929	268.539	−4022.768	24.156	−4154.340	−4044.288	−3775.872	493.078
	500.00	261.542	385.839	286.470	−3997.239	49.685	−4190.159	−4040.617	−3709.182	387.496
	600.00	270.928	434.394	307.177	−3970.594	76.330	−4231.230	−4036.645	−3643.266	317.175
	700.00	278.365	476.734	328.439	−3943.118	103.806	−4276.831	−4032.707	−3578.016	266.995
	800.00	284.763	514.331	349.369	−3914.955	131.969	−4326.419	−4028.977	−3513.318	229.396
	900.00	290.557	548.210	369.611	−3886.185	160.739	−4379.574	−4025.568	−3449.069	200.179
	1000.00	295.976	579.106	389.038	−3856.856	190.068	−4435.962	−4022.560	−3385.179	176.824
	1100.00	301.150	607.560	407.627	−3826.998	219.926	−4495.314	−4020.023	−3321.568	157.728
	1200.00	306.157	633.979	425.402	−3796.631	250.293	−4557.406	−4031.107	−3257.345	141.789
	1300.00	311.047	658.679	442.407	−3765.770	281.154	−4622.052	−4041.729	−3192.890	128.292
	1400.00	315.851	681.906	458.692	−3734.425	312.499	−4689.093	−4038.608	−3127.710	116.696

References

Phase	H / S	C_p
SOL	Ku1	e

176.306 NEODYMIUM MONOSULFIDE **NdS**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	48.686	77.822	77.822	−451.872	0.000	−475.075	−451.872	−444.323	77.844
	300.00	48.702	78.124	77.823	−451.782	0.090	−475.219	−451.875	−444.276	77.355
	400.00	49.539	92.249	79.744	−446.870	5.002	−483.769	−454.353	−441.621	57.670
	500.00	50.375	103.393	83.397	−441.874	9.998	−493.571	−456.210	−438.247	45.783
	600.00	51.212	112.651	87.523	−436.795	15.077	−504.386	−457.823	−434.497	37.826
	700.00	52.049	120.609	91.694	−431.632	20.240	−516.058	−459.278	−430.495	32.124
	800.00	52.886	127.613	95.755	−426.385	25.487	−528.476	−460.918	−426.274	27.833
	900.00	53.723	133.891	99.649	−421.055	30.817	−541.556	−515.567	−420.681	24.416
	1000.00	54.559	139.594	103.363	−415.641	36.231	−555.235	−516.035	−410.115	21.422
	1100.00	55.396	144.834	106.898	−410.143	41.729	−569.460	−516.727	−399.491	18.970
	1200.00	56.233	149.690	110.264	−404.561	47.311	−584.189	−520.506	−388.606	16.916
	1300.00	57.070	154.224	113.473	−398.896	52.976	−599.387	−528.298	−377.527	15.169
	1400.00	57.907	158.484	116.537	−393.147	58.725	−615.024	−529.287	−365.891	13.652
	1500.00	58.743	162.507	119.469	−387.315	64.557	−631.076	−530.196	−354.188	12.334
	1600.00	59.580	166.325	122.279	−381.399	70.473	−647.519	−531.027	−342.426	11.179
	1700.00	60.417	169.962	124.978	−375.399	76.473	−664.335	−531.778	−330.615	10.159
	1800.00	61.254	173.439	127.575	−369.315	82.557	−681.506	−532.450	−318.763	9.250
	1900.00	62.091	176.774	130.077	−363.148	88.724	−699.018	−533.042	−306.875	8.437
	2000.00	62.927	179.980	132.492	−356.897	94.975	−716.857	−533.554	−294.957	7.703

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1	Mi1	MPT= 2400.

Nd2S3 NEODYMIUM SULFIDE 384.678

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	122.512	185.272	185.272	-1188.001	0.000	-1243.240	-1188.001	-1172.179	205.361
	300.00	122.537	186.030	185.274	-1187.774	0.227	-1243.583	-1188.002	-1172.080	204.077
	400.00	123.872	221.464	190.096	-1175.454	12.547	-1264.040	-1195.043	-1166.465	152.325
	500.00	125.206	249.249	199.247	-1163.000	25.001	-1287.624	-1200.197	-1158.797	121.059
	600.00	126.541	272.194	209.547	-1150.413	37.588	-1313.729	-1204.570	-1150.084	100.124
	700.00	127.876	291.801	219.931	-1137.692	50.309	-1341.952	-1208.395	-1140.702	85.120
	800.00	129.210	308.963	230.009	-1124.838	63.163	-1372.008	-1212.674	-1130.749	73.830
	900.00	130.545	324.259	239.647	-1111.850	76.151	-1403.683	-1375.852	-1116.764	64.815
	1000.00	131.880	338.083	248.810	-1098.729	89.272	-1436.811	-1376.329	-1087.955	56.829
	1100.00	133.214	350.715	257.508	-1085.474	102.527	-1471.260	-1377.297	-1059.075	50.291
	1200.00	134.549	362.363	265.767	-1072.086	115.915	-1506.921	-1384.479	-1029.707	44.822
	1300.00	135.884	373.185	273.619	-1058.564	129.437	-1543.705	-1399.724	-999.982	40.180
	1400.00	137.218	383.304	281.096	-1044.909	143.092	-1581.535	-1401.404	-969.169	36.160
	1500.00	138.553	392.817	288.230	-1031.120	156.881	-1620.346	-1402.964	-938.240	32.672
	1600.00	139.888	401.802	295.050	-1017.198	170.803	-1660.081	-1404.403	-907.211	29.617
	1700.00	141.223	410.322	301.582	-1003.143	184.858	-1700.691	-1405.723	-876.095	26.919
	1800.00	142.557	418.432	307.850	-988.954	199.047	-1742.132	-1406.921	-844.905	24.519
	1900.00	143.892	426.176	313.876	-974.631	213.370	-1784.365	-1407.997	-813.652	22.369
	2000.00	145.227	433.590	319.677	-960.175	227.826	-1827.356	-1408.952	-782.346	20.433

References

Phase	H / S	C_p	Remarks
SOL	Nb1/Mi1	Mi1	Mi1 MPT= 2480.

Nd2(SO4)3 NEODYMIUM SULFATE 576.671

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	272.638	288.278	288.278	-3899.488	0.000	-3985.438	-3899.488	-3547.389	621.488
	300.00	273.006	289.965	288.283	-3898.983	0.505	-3985.973	-3899.537	-3545.204	617.275
	400.00	292.880	371.226	299.228	-3870.689	28.799	-4019.179	-3908.431	-3426.467	447.451
	500.00	312.754	438.715	320.554	-3840.407	59.081	-4059.765	-3914.111	-3305.365	345.309
	600.00	332.628	497.494	345.244	-3808.138	91.350	-4106.634	-3917.759	-3183.231	277.125
	700.00	352.502	550.261	370.823	-3773.882	125.606	-4159.064	-3919.576	-3060.649	228.388
	800.00	372.376	598.628	396.316	-3737.638	161.850	-4216.541	-3920.487	-2937.875	191.824
	900.00	392.250	643.635	421.323	-3699.406	200.082	-4278.678	-4078.854	-2811.578	163.180
	1000.00	412.124	685.992	445.692	-3659.188	240.300	-4345.180	-4073.005	-2671.073	139.523
	1100.00	431.998	726.203	469.379	-3616.982	282.506	-4415.805	-4066.077	-2531.207	120.197

References

Phase	H / S	C_p
SOL	Ku1	e

223.200 NEODYMIUM MONOSELENIDE **NdSe**

Phase	T [K]	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[–]
SOL	298.15	49.360	90.374	90.374	−359.824	0.000	−386.769	−359.824	−352.975	61.840
	300.00	49.371	90.680	90.375	−359.733	0.091	−386.937	−359.830	−352.933	61.451
	400.00	49.999	104.969	92.319	−354.764	5.060	−396.752	−360.338	−350.566	45.779
	500.00	50.626	116.193	96.011	−349.733	10.091	−407.830	−367.068	−347.950	36.350
	600.00	51.254	125.479	100.171	−344.639	15.185	−419.926	−368.605	−343.984	29.946
	700.00	51.882	133.427	104.367	−339.482	20.342	−432.881	−370.271	−339.750	25.352
	800.00	52.509	140.396	108.444	−334.263	25.561	−446.579	−372.093	−335.268	21.891
	900.00	53.137	146.617	112.346	−328.980	30.844	−460.935	−374.098	−330.546	19.184
	1000.00	53.764	152.248	116.059	−323.635	36.189	−475.883	−376.314	−325.590	17.007
	1100.00	54.392	157.401	119.586	−318.227	41.597	−491.369	−432.081	−315.447	14.979
	1200.00	55.020	162.161	122.938	−312.757	47.067	−507.350	−436.190	−304.602	13.259
	1300.00	55.647	166.590	126.128	−307.223	52.601	−523.790	−444.315	−293.535	11.794
	1400.00	56.275	170.737	129.168	−301.627	58.197	−540.659	−445.642	−281.886	10.517
	1500.00	56.902	174.641	132.070	−295.969	63.855	−557.929	−446.893	−270.145	9.407
	1600.00	57.530	178.333	134.847	−290.247	69.577	−575.580	−448.069	−258.323	8.433
	1700.00	58.158	181.840	137.509	−284.463	75.361	−593.590	−449.169	−246.430	7.572
	1800.00	58.785	185.182	140.066	−278.615	81.209	−611.942	−450.194	−234.474	6.804
	1900.00	59.413	188.377	142.525	−272.705	87.119	−630.621	−451.143	−222.464	6.116
	2000.00	60.040	191.440	144.895	−266.733	93.091	−649.613	−452.017	−210.405	5.495

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1	Mi1	MPT= 2100.

Nd2Se3 NEODYMIUM SELENIDE 525.360

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[-]
SOL	298.15	130.159	185.268	185.268	-941.400	0.000	-996.638	-941.400	-916.451	160.558
	300.00	130.185	186.073	185.270	-941.159	0.241	-996.981	-941.402	-916.296	159.541
	400.00	131.587	223.717	190.393	-928.071	13.329	-1017.557	-941.933	-907.871	118.556
	500.00	132.988	253.230	200.114	-914.842	26.558	-1041.457	-961.037	-898.959	93.914
	600.00	134.390	277.600	211.055	-901.473	39.927	-1068.033	-964.445	-886.227	77.153
	700.00	135.792	298.422	222.085	-887.964	53.436	-1096.859	-968.096	-872.906	65.137
	800.00	137.193	316.646	232.789	-874.315	67.085	-1127.631	-972.044	-859.042	56.090
	900.00	138.595	332.886	243.025	-860.525	80.875	-1160.123	-976.344	-844.663	49.023
	1000.00	139.997	347.561	252.757	-846.596	94.804	-1194.157	-981.052	-829.783	43.343
	1100.00	141.398	360.970	261.993	-832.526	108.874	-1229.593	-1146.156	-799.547	37.967
	1200.00	142.800	373.333	270.763	-818.316	123.084	-1266.316	-1153.175	-767.605	33.413
	1300.00	144.202	384.819	279.100	-803.966	137.434	-1304.230	-1168.197	-735.322	29.546
	1400.00	145.603	395.556	287.039	-789.476	151.924	-1343.255	-1169.596	-701.971	26.191
	1500.00	147.005	405.650	294.613	-774.845	166.555	-1383.320	-1170.817	-668.525	23.280
	1600.00	148.406	415.182	301.854	-760.075	181.325	-1424.366	-1171.860	-635.004	20.731
	1700.00	149.808	424.221	308.788	-745.164	196.236	-1466.340	-1172.726	-601.423	18.479
	1800.00	151.210	432.824	315.442	-730.113	211.287	-1509.195	-1173.412	-567.796	16.477
	1830.00	151.630	435.326	317.387	-725.570	215.830	-1522.218	-1173.583	-557.701	15.919

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1	Mi1	MPT= 1830.

271.840 NEODYMIUM MONOTELLURIDE **NdTe**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	50.188	97.487	97.487	−301.248	0.000	−330.314	−301.248	−294.362	51.571
	300.00	50.200	97.798	97.488	−301.155	0.093	−330.494	−301.253	−294.319	51.246
	400.00	50.810	112.323	99.464	−296.105	5.143	−341.034	−301.697	−291.949	38.125
	500.00	51.421	123.727	103.217	−290.993	10.255	−352.856	−302.442	−289.432	30.237
	600.00	52.032	133.156	107.443	−285.820	15.428	−365.714	−303.513	−286.735	24.963
	700.00	52.643	141.222	111.706	−280.587	20.661	−379.442	−304.936	−283.832	21.180
	800.00	53.254	148.292	115.846	−275.292	25.956	−393.925	−324.359	−278.819	18.205
	900.00	53.865	154.599	119.808	−269.936	31.312	−409.075	−326.541	−272.997	15.844
	1000.00	54.476	160.306	123.577	−264.519	36.729	−424.825	−328.936	−266.921	13.943
	1100.00	55.087	165.527	127.157	−259.041	42.207	−441.120	−331.572	−260.595	12.375
	1200.00	55.697	170.346	130.558	−253.501	47.747	−457.917	−337.311	−253.828	11.049
	1300.00	56.308	174.829	133.793	−247.901	53.347	−475.179	−347.078	−246.703	9.913
	1400.00	56.919	179.024	136.875	−242.240	59.008	−492.873	−396.501	−236.379	8.819
	1500.00	57.530	182.972	139.818	−236.517	64.731	−510.975	−397.848	−224.894	7.832
	1600.00	58.141	186.704	142.633	−230.734	70.514	−529.461	−399.127	−213.322	6.964
	1700.00	58.752	190.247	145.330	−224.889	76.359	−548.310	−400.340	−201.671	6.197
	1800.00	59.363	193.623	147.920	−218.983	82.265	−567.504	−401.487	−189.951	5.512
	1900.00	59.973	196.849	150.411	−213.017	88.231	−587.029	−402.565	−178.170	4.898
	2000.00	60.584	199.940	152.811	−206.989	94.259	−606.870	−403.570	−166.333	4.344
	2028.00	60.755	200.784	153.467	−205.290	95.958	−612.480	−403.840	−163.010	4.199

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1	Mi1	MPT= 2028.

Nd2Te3 NEODYMIUM TELLURIDE 671.280

Phase	T [K]	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[–]
SOL	298.15	132.741	253.383	253.383	−794.960	0.000	−870.506	−794.960	−783.845	137.326
	300.00	132.767	254.204	253.386	−794.714	0.246	−870.976	−794.959	−783.776	136.468
	400.00	134.164	292.590	258.610	−781.368	13.592	−898.404	−795.285	−780.021	101.860
	500.00	135.562	322.678	268.521	−767.882	27.078	−929.221	−796.419	−776.091	81.078
	600.00	136.959	347.517	279.677	−754.256	40.704	−962.766	−798.407	−771.853	67.196
	700.00	138.357	368.735	290.920	−740.490	54.470	−998.604	−801.302	−767.212	57.250
	800.00	139.754	387.301	301.831	−726.584	68.376	−1036.425	−858.023	−756.450	49.391
	900.00	141.151	403.842	312.263	−712.539	82.421	−1075.997	−862.820	−743.470	43.150
	1000.00	142.549	418.786	322.180	−698.354	96.606	−1117.140	−868.025	−729.933	38.128
	1100.00	143.946	432.438	331.592	−684.029	110.931	−1159.711	−873.693	−715.854	33.993
	1200.00	145.344	445.023	340.527	−669.565	125.395	−1203.592	−885.550	−700.859	30.508
	1300.00	146.741	456.712	349.020	−654.960	140.000	−1248.686	−905.448	−685.119	27.528
	1400.00	148.139	467.638	357.107	−640.216	154.744	−1294.909	−1051.076	−660.459	24.642
	1500.00	149.536	477.906	364.821	−625.333	169.627	−1342.192	−1052.524	−632.506	22.026
	1600.00	150.934	487.601	372.195	−610.309	184.651	−1390.472	−1053.809	−604.462	19.734
	1650.00	151.632	492.257	375.763	−602.745	192.215	−1414.969	−1054.393	−590.411	18.691

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1	Mi1	MPT= 1650.

20.180 NEON (MONOATOMIC GAS) **Ne[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.786	146.324	146.324	0.000	0.000	−43.626	0.000	0.000	0.000
	300.00	20.786	146.452	146.324	0.038	0.038	−43.897	0.000	0.000	0.000
	400.00	20.786	152.432	147.139	2.117	2.117	−58.856	0.000	0.000	0.000
	500.00	20.786	157.070	148.679	4.196	4.196	−74.339	0.000	0.000	0.000
	600.00	20.786	160.860	150.403	6.274	6.274	−90.242	0.000	0.000	0.000
	700.00	20.786	164.064	152.131	8.353	8.353	−106.492	0.000	0.000	0.000
	800.00	20.786	166.840	153.800	10.432	10.432	−123.040	0.000	0.000	0.000
	900.00	20.786	169.288	155.388	12.510	12.510	−139.849	0.000	0.000	0.000
	1000.00	20.786	171.478	156.889	14.589	14.589	−156.889	0.000	0.000	0.000
	1100.00	20.786	173.459	158.307	16.667	16.667	−174.138	0.000	0.000	0.000
	1200.00	20.786	175.268	159.646	18.746	18.746	−191.575	0.000	0.000	0.000
	1300.00	20.786	176.932	160.913	20.825	20.825	−209.186	0.000	0.000	0.000
	1400.00	20.786	178.472	162.113	22.903	22.903	−226.958	0.000	0.000	0.000
	1500.00	20.786	179.906	163.252	24.982	24.982	−244.877	0.000	0.000	0.000
	1600.00	20.786	181.248	164.335	27.060	27.060	−262.936	0.000	0.000	0.000
	1700.00	20.786	182.508	165.367	29.139	29.139	−281.124	0.000	0.000	0.000
	1800.00	20.786	183.696	166.353	31.218	31.218	−299.435	0.000	0.000	0.000
	1900.00	20.786	184.820	167.295	33.296	33.296	−317.861	0.000	0.000	0.000
	2000.00	20.786	185.886	168.198	35.375	35.375	−336.397	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

Ni NICKEL 58.690

Phase	T [K]	C_p J / (K mol)	S J / (K mol)	-(G-H298)/T J / (K mol)	H kJ / mol	H-H298 kJ / mol	G kJ / mol	ΔH_f kJ / mol	ΔG_f kJ / mol	log K_f [-]
SOL	298.15	26.067	29.874	29.874	0.000	0.000	-8.907	0.000	0.000	0.000
	300.00	26.100	30.035	29.874	0.048	0.048	-8.962	0.000	0.000	0.000
	400.00	28.467	37.878	30.927	2.780	2.780	-12.371	0.000	0.000	0.000
	500.00	30.863	44.465	32.992	5.737	5.737	-16.496	0.000	0.000	0.000
	600.00	34.772	50.419	35.405	9.008	9.008	-21.243	0.000	0.000	0.000
	700.00	30.835	55.546	37.938	12.326	12.326	-26.557	0.000	0.000	0.000
	800.00	31.129	59.675	40.403	15.418	15.418	-32.322	0.000	0.000	0.000
	900.00	31.966	63.386	42.753	18.569	18.569	-38.478	0.000	0.000	0.000
	1000.00	32.966	66.806	44.990	21.817	21.817	-44.990	0.000	0.000	0.000
	1100.00	33.927	69.993	47.120	25.161	25.161	-51.831	0.000	0.000	0.000
	1200.00	34.888	72.987	49.152	28.602	28.602	-58.982	0.000	0.000	0.000
	1300.00	35.723	75.814	51.095	32.135	32.135	-66.423	0.000	0.000	0.000
	1400.00	36.181	78.481	52.957	35.734	35.734	-74.139	0.000	0.000	0.000
	1500.00	36.192	80.978	54.743	39.354	39.354	-82.114	0.000	0.000	0.000
	1600.00	36.192	83.314	56.456	42.973	42.973	-90.330	0.000	0.000	0.000
	1700.00	36.192	85.508	58.101	46.592	46.592	-98.772	0.000	0.000	0.000
	1726.00	36.192	86.057	58.518	47.533	47.533	-101.002	0.000	0.000	0.000
			10.123		17.472					
LIQ	1726.00	43.095	96.180	58.518	65.005	65.005	-101.002	0.000	0.000	0.000
	1800.00	43.095	97.989	60.104	68.194	68.194	-108.187	0.000	0.000	0.000
	1900.00	43.095	100.319	62.160	72.503	72.503	-118.104	0.000	0.000	0.000
	2000.00	43.095	102.530	64.123	76.813	76.813	-128.247	0.000	0.000	0.000
	2100.00	43.095	104.633	66.003	81.122	81.122	-138.606	0.000	0.000	0.000
	2200.00	43.095	106.637	67.805	85.432	85.432	-149.170	0.000	0.000	0.000
	2300.00	43.095	108.553	69.535	89.742	89.742	-159.930	0.000	0.000	0.000
	2400.00	43.095	110.387	71.199	94.051	94.051	-170.878	0.000	0.000	0.000
	2500.00	43.095	112.146	72.802	98.361	98.361	-182.005	0.000	0.000	0.000
	2600.00	43.095	113.837	74.348	102.670	102.670	-193.305	0.000	0.000	0.000
	2700.00	43.095	115.463	75.841	106.980	106.980	-204.771	0.000	0.000	0.000
	2800.00	43.095	117.030	77.284	111.289	111.289	-216.396	0.000	0.000	0.000
	2900.00	43.095	118.543	78.681	115.599	115.599	-228.175	0.000	0.000	0.000
	3000.00	43.095	120.004	80.034	119.908	119.908	-240.103	0.000	0.000	0.000
	3100.00	43.095	121.417	81.346	124.218	124.218	-252.174	0.000	0.000	0.000
	3184.00	43.095	122.569	82.419	127.838	127.838	-262.422	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks
SOL	Hu1	Hu1	CURIE - PT= 631.
LIQ	Hu1	Hu1	BPT= 3184., L= 369.24 kJ

58.690 NICKEL (GAS) **Ni[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
GAS	298.15	23.362	182.189	182.189	430.115	0.000	375.795	430.115	384.702	−67.398
	300.00	23.370	182.333	182.189	430.158	0.043	375.458	430.110	384.421	−66.934
	400.00	23.883	189.125	183.112	432.520	2.405	356.870	429.740	369.241	−48.218
	500.00	24.368	194.508	184.871	434.934	4.819	337.680	429.197	354.175	−37.000
	600.00	24.732	198.985	186.861	437.390	7.275	317.999	428.381	339.242	−29.534
	700.00	24.940	202.816	188.873	439.875	9.760	297.904	427.549	324.461	−24.212
	800.00	24.980	206.150	190.829	442.372	12.257	277.452	426.954	309.774	−20.226
	900.00	24.921	209.090	192.698	444.868	14.753	256.687	426.298	295.165	−17.131
	1000.00	24.810	211.710	194.470	447.355	17.240	235.645	425.538	280.634	−14.659
	1100.00	24.668	214.068	196.147	449.829	19.714	214.354	424.667	266.185	−12.640
	1200.00	24.509	216.208	197.731	452.288	22.173	192.838	423.685	251.820	−10.961
	1300.00	24.341	218.163	199.228	454.730	24.615	171.118	422.596	237.542	−9.545
	1400.00	24.171	219.961	200.646	457.156	27.041	149.211	421.422	223.350	−8.333
	1500.00	24.001	221.623	201.990	459.564	29.449	127.131	420.211	209.244	−7.287
	1600.00	23.834	223.166	203.266	461.956	31.841	104.890	418.983	195.220	−6.373
	1700.00	23.673	224.606	204.479	464.331	34.216	82.501	417.740	181.273	−5.570
	1800.00	23.519	225.955	205.635	466.691	36.576	59.972	398.497	168.159	−4.880
	1900.00	23.372	227.223	206.738	469.035	38.920	37.312	396.532	155.416	−4.273
	2000.00	23.234	228.418	207.793	471.366	41.251	14.530	394.553	142.777	−3.729
	2100.00	23.106	229.548	208.802	473.683	43.568	−8.369	392.560	130.237	−3.239
	2200.00	22.987	230.621	209.769	475.987	45.872	−31.378	390.555	117.792	−2.797
	2300.00	22.878	231.640	210.698	478.280	48.165	−54.491	388.539	105.439	−2.395
	2400.00	22.780	232.611	211.591	480.563	50.448	−77.704	386.512	93.174	−2.028
	2500.00	22.692	233.540	212.451	482.837	52.722	−101.012	384.476	80.993	−1.692
	2600.00	22.615	234.428	213.279	485.102	54.987	−124.411	382.432	68.894	−1.384
	2700.00	22.549	235.280	214.078	487.360	57.245	−147.897	380.381	56.874	−1.100
	2800.00	22.494	236.099	214.850	489.612	59.497	−171.466	378.323	44.930	−0.838
	2900.00	22.450	236.888	215.597	491.859	61.744	−195.115	376.261	33.059	−0.595
	3000.00	22.418	237.648	216.319	494.103	63.988	−218.842	374.195	21.260	−0.370
	3100.00	22.397	238.383	217.019	496.343	66.228	−242.644	372.126	9.530	−0.161
	3200.00	22.387	239.094	217.698	498.582	68.467	−266.518	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

NiAs — NICKEL ARSENIDE — 133.612

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[——— J / (K mol) ———]			[——— kJ / mol ———]					[−]
SOL	298.15	56.001	45.380	45.380	−73.291	0.000	−86.821	−73.291	−67.268	11.785
	300.00	56.132	45.727	45.381	−73.187	0.104	−86.905	−73.281	−67.231	11.706
	400.00	60.959	62.622	47.652	−67.303	5.988	−92.352	−72.635	−65.307	8.528
	500.00	63.541	76.526	52.078	−61.067	12.224	−99.330	−71.923	−63.558	6.640
	600.00	65.238	88.269	57.157	−54.623	18.668	−107.585	−71.373	−61.941	5.392
	700.00	66.518	98.426	62.343	−48.033	25.258	−116.931	−70.778	−60.406	4.508
	800.00	67.576	107.379	67.424	−41.327	31.964	−127.230	−69.896	−58.984	3.851
	900.00	68.504	115.393	72.316	−34.522	38.769	−138.376	−69.025	−57.673	3.347
	1000.00	69.351	122.655	76.993	−27.629	45.662	−150.284	−68.189	−56.457	2.949
	1100.00	70.147	129.302	81.450	−20.654	52.637	−162.886	−67.396	−55.323	2.627
	1200.00	70.906	135.439	85.697	−13.601	59.690	−176.127	−66.735	−54.256	2.362
	1237.00	71.181	137.596	87.217	−10.972	62.319	−181.179	−66.556	−53.874	2.275

References

Phase	H / S	C_p	Remarks	
SOL	S2	S2	Tk1	MPT= 1237.

Ni5As2 — 5−NICKEL 2−ARSENIDE — 443.293

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[——— J / (K mol) ———]			[——— kJ / mol ———]					[−]
SOL	298.15	215.983	190.631	190.631	−251.103	0.000	−307.940	−251.103	−242.114	42.417
	300.00	216.245	191.968	190.636	−250.703	0.400	−308.294	−251.036	−242.058	42.146
	400.00	226.587	255.742	199.261	−228.511	22.592	−330.807	−247.517	−239.605	31.289
	500.00	233.093	307.043	215.853	−205.508	45.595	−359.030	−244.430	−237.998	24.863
	600.00	238.089	349.997	234.727	−181.941	69.162	−391.939	−242.465	−236.922	20.626
	700.00	242.373	387.027	253.900	−157.914	93.189	−428.833	−240.380	−236.112	17.619
	800.00	246.276	419.650	272.619	−133.479	117.624	−469.198	−236.871	−235.740	15.392
	900.00	249.959	448.871	290.607	−108.666	142.437	−512.650	−233.379	−235.810	13.686
	1000.00	253.504	475.391	307.780	−83.492	167.611	−558.883	−230.062	−236.260	12.341
	1100.00	256.960	499.715	324.138	−57.968	193.135	−607.655	−226.936	−237.033	11.256
	1200.00	260.354	522.220	339.719	−32.102	219.001	−658.765	−224.176	−238.076	10.363
	1266.00	262.570	536.218	349.600	−14.845	236.258	−693.697	−222.711	−238.882	9.856

References

Phase	H / S	C_p	Remarks	
SOL	S2	S2	S2/Tk2	MPT= 1266./1271.

Part VII
The Tables

12 Tables of thermochemical data of pure substances

1020.198 **11–NICKEL 8–ARSENIDE** **Ni11As8**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f [–]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	552.005	468.880	468.880	–774.036	0.000	–913.833	–774.036	–762.628	133.609
	300.00	553.053	472.298	468.891	–773.014	1.022	–914.703	–773.773	–762.558	132.773
	400.00	592.360	637.449	491.141	–715.513	58.523	–970.492	–758.858	–761.044	99.382
	500.00	614.356	772.178	534.295	–655.094	118.942	–1041.183	–743.793	–763.348	79.746
	600.00	629.538	885.598	583.642	–592.863	181.173	–1124.221	–730.661	–768.543	66.908
	700.00	641.502	983.569	633.934	–529.292	244.744	–1217.790	–716.969	–775.824	57.893
	800.00	651.752	1069.913	683.141	–464.619	309.417	–1320.549	–699.973	–785.386	51.280
	900.00	661.005	1147.220	730.485	–398.974	375.062	–1431.472	–682.905	–797.091	46.262
	1000.00	669.638	1217.315	775.717	–332.438	441.598	–1549.753	–666.140	–810.679	42.346
	1100.00	677.867	1281.527	818.821	–265.060	508.976	–1674.739	–649.738	–825.931	39.220
	1103.00	678.110	1283.373	820.082	–263.026	511.010	–1678.587	–649.255	–826.413	39.136

References

Phase	H / S	C_p
SOL	S2	S2

453.908 **NICKEL ARSENATE** **Ni3(AsO4)2**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f [–]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	265.413	344.803	344.803	–1849.244	0.000	–1952.047	–1849.244	–1659.377	290.716
	300.00	265.987	346.447	344.808	–1848.752	0.492	–1952.687	–1849.206	–1658.199	288.718
	400.00	289.050	426.429	355.557	–1820.895	28.349	–1991.467	–1846.442	–1594.915	208.275
	500.00	304.181	492.639	376.543	–1791.196	58.048	–2037.515	–1842.981	–1532.427	160.092
	600.00	316.190	549.190	400.717	–1760.160	89.084	–2089.674	–1839.643	–1470.638	128.030
	700.00	326.726	598.736	425.538	–1728.006	121.238	–2147.121	–1835.815	–1409.404	105.171
	800.00	336.476	643.007	450.003	–1694.841	154.403	–2209.246	–1830.739	–1348.829	88.069

References

Phase	H / S	C_p
SOL	G1	G1

NiB — NICKEL MONOBORIDE — 69.501

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	34.633	30.125	30.125	−100.416	0.000	−109.398	−100.416	−98.753	17.301
	300.00	34.816	30.340	30.125	−100.352	0.064	−109.454	−100.421	−98.742	17.193
	400.00	41.751	41.418	31.589	−96.484	3.932	−113.052	−100.651	−98.148	12.817
	500.00	45.748	51.195	34.554	−92.095	8.321	−117.693	−100.948	−97.491	10.185
	600.00	48.588	59.799	38.059	−87.372	13.044	−123.251	−101.478	−96.754	8.423
	700.00	50.882	67.466	41.722	−82.396	18.020	−129.622	−101.973	−95.918	7.157
	800.00	52.884	74.393	45.380	−77.206	23.210	−136.720	−102.159	−95.039	6.205
	900.00	54.718	80.729	48.961	−71.824	28.592	−144.480	−102.311	−94.140	5.464
	1000.00	56.446	86.584	52.434	−66.265	34.151	−152.850	−102.462	−93.224	4.870
	1100.00	58.106	92.043	55.789	−60.537	39.879	−161.784	−102.608	−92.293	4.383
	1200.00	59.719	97.168	59.026	−54.646	45.770	−171.247	−102.747	−91.349	3.976
	1300.00	61.299	102.011	62.148	−48.595	51.821	−181.208	−102.869	−90.394	3.632

References

Phase	H / S	C_p	Remarks
SOL	Ku1	Ku1	Tk1 DPT= 1873. (LIQ + SOL)

Ni4B3 — TETRANICKEL TRIBORIDE — 267.193

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	128.123	114.642	114.642	−311.708	0.000	−345.888	−311.708	−305.046	53.443
	300.00	128.736	115.436	114.644	−311.470	0.238	−346.101	−311.726	−305.005	53.106
	400.00	152.014	156.038	120.022	−297.302	14.406	−359.717	−312.581	−302.635	39.520
	500.00	165.427	191.505	130.854	−281.382	30.326	−377.135	−313.679	−300.032	31.344
	600.00	174.957	222.547	143.604	−264.342	47.366	−397.870	−315.667	−297.136	25.868
	700.00	182.653	250.111	156.887	−246.451	65.257	−421.529	−317.509	−293.860	21.928
	800.00	189.372	274.947	170.117	−227.844	83.864	−447.802	−318.121	−290.437	18.964
	900.00	195.523	297.612	183.042	−208.595	103.113	−476.446	−318.624	−286.946	16.654
	1000.00	201.322	318.515	195.557	−188.751	122.957	−507.265	−319.157	−283.398	14.803
	1100.00	206.889	337.965	207.629	−168.339	143.369	−540.100	−319.713	−279.796	13.286
	1200.00	212.300	356.200	219.258	−147.378	164.330	−574.818	−320.283	−276.142	12.020
	1300.00	217.600	373.403	230.460	−125.882	185.826	−611.306	−320.841	−272.440	10.947
	1400.00	222.820	389.720	241.258	−103.861	207.847	−649.469	−321.287	−268.699	10.025

References

Phase	H / S	C_p	Remarks
SOL	Ku1	Ku1	Tk1 MPT= 1853.

138.594

NICKEL MONOBROMIDE (GAS) **NiBr[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	36.172	262.484	262.484	184.096	0.000	105.836	184.096	137.434	−24.078
	300.00	36.218	262.708	262.485	184.163	0.067	105.351	184.045	137.145	−23.879
	400.00	37.846	273.382	263.929	187.877	3.781	78.524	167.786	124.804	−16.298
	500.00	38.645	281.922	266.702	191.706	7.610	50.745	166.812	114.167	−11.927
	600.00	39.118	289.012	269.846	195.596	11.500	22.188	165.571	103.749	−9.032
	700.00	39.436	295.068	273.027	199.524	15.428	−7.023	164.315	93.554	−6.981
	800.00	39.673	300.350	276.120	203.480	19.384	−36.800	163.304	83.514	−5.453
	900.00	39.861	305.034	279.077	207.457	23.361	−67.073	162.251	73.603	−4.272
	1000.00	40.020	309.242	281.887	211.451	27.355	−97.791	161.115	63.814	−3.333
	1100.00	40.160	313.063	284.550	215.461	31.365	−128.909	159.894	54.142	−2.571
	1200.00	40.286	316.563	287.074	219.483	35.387	−160.393	158.585	44.585	−1.941
	1300.00	40.404	319.792	289.468	223.518	39.422	−192.212	157.195	35.141	−1.412
	1400.00	40.514	322.791	291.742	227.564	43.468	−224.343	155.745	25.806	−0.963
	1500.00	40.619	325.589	293.907	231.620	47.524	−256.764	154.284	16.576	−0.577
	1600.00	40.721	328.214	295.970	235.687	51.591	−289.456	152.831	7.443	−0.243
	1700.00	40.820	330.686	297.940	239.764	55.668	−322.402	151.385	−1.599	0.049
	1800.00	40.916	333.022	299.825	243.851	59.755	−355.588	131.963	−9.797	0.284
	1900.00	41.011	335.237	301.631	247.947	63.851	−389.002	129.841	−17.615	0.484
	2000.00	41.104	337.343	303.364	252.053	67.957	−422.632	127.726	−25.321	0.661

References

Phase	H / S	C_p
GAS	Pa2	Pa2

218.498

NICKEL BROMIDE **NiBr2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	75.397	122.424	122.424	−211.878	0.000	−248.379	−211.878	−194.090	34.004
	300.00	75.440	122.890	122.425	−211.738	0.140	−248.606	−211.927	−193.980	33.775
	400.00	77.456	144.881	125.410	−204.090	7.788	−262.042	−241.492	−181.854	23.748
	500.00	79.175	162.352	131.110	−196.257	15.621	−277.433	−240.308	−167.084	17.455
	600.00	80.776	176.930	137.564	−188.259	23.619	−294.417	−239.300	−152.538	13.280
	700.00	82.323	189.499	144.106	−180.103	31.775	−312.752	−238.197	−138.154	10.309
	800.00	83.840	200.591	150.487	−171.795	40.083	−332.267	−236.729	−123.961	8.094
	900.00	85.340	210.552	156.616	−163.336	48.542	−352.833	−235.178	−109.958	6.382
	1000.00	86.830	219.621	162.470	−154.727	57.151	−374.348	−233.583	−96.129	5.021
	1100.00	88.312	227.966	168.050	−145.970	65.908	−396.733	−231.943	−82.463	3.916

References

Phase	H / S	C_p	Remarks	
SOL	Pa2	Pa2	Tk1	MPT= 1236. (p= 2.2 bar)

NiBr2[g] NICKEL BROMIDE (GAS) 218.498

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	63.194	321.064	321.064	11.715	0.000	−84.010	11.715	−29.722	5.207
	300.00	63.248	321.455	321.065	11.832	0.117	−84.605	11.644	−29.979	5.220
	400.00	65.140	339.949	323.574	18.265	6.550	−117.715	−19.138	−37.527	4.901
	500.00	66.015	354.589	328.364	24.827	13.112	−152.467	−19.224	−42.118	4.400
	600.00	66.491	366.671	333.771	31.455	19.740	−188.548	−19.586	−46.669	4.063
	700.00	66.777	376.944	339.223	38.119	26.404	−225.741	−19.974	−51.143	3.816
	800.00	66.964	385.874	344.508	44.807	33.092	−263.892	−20.126	−55.585	3.629
	900.00	67.091	393.769	349.552	51.510	39.795	−302.882	−20.332	−60.006	3.483
	1000.00	67.182	400.842	354.333	58.224	46.509	−342.618	−20.631	−64.399	3.364
	1100.00	67.250	407.249	358.857	64.946	53.231	−383.028	−21.027	−68.758	3.265
	1200.00	67.301	413.103	363.137	71.674	59.959	−424.050	−21.520	−73.076	3.181
	1300.00	67.341	418.491	367.191	78.406	66.691	−465.633	−22.106	−77.349	3.108
	1400.00	67.373	423.483	371.035	85.142	73.427	−507.735	−22.761	−81.575	3.044
	1500.00	67.399	428.132	374.689	91.880	80.165	−550.318	−23.439	−85.752	2.986
	1600.00	67.420	432.483	378.166	98.621	86.906	−593.351	−24.119	−89.884	2.934
	1700.00	67.437	436.571	381.483	105.364	93.649	−636.806	−24.803	−93.973	2.887
	1800.00	67.452	440.426	384.651	112.108	100.393	−680.657	−43.474	−97.262	2.822
	1900.00	67.464	444.073	387.684	118.854	107.139	−724.884	−44.856	−100.213	2.755
	2000.00	67.474	447.534	390.590	125.601	113.886	−769.466	−46.241	−103.091	2.692

References

Phase	H / S	C_p
GAS	Pa2	Pa2

Ni3C TRINICKEL CARBIDE 188.081

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	106.653	106.274	106.274	67.404	0.000	35.719	67.404	64.151	−11.239
	300.00	106.692	106.933	106.276	67.601	0.197	35.521	67.441	64.130	−11.166
	400.00	108.784	137.913	110.485	78.375	10.971	23.210	68.981	62.771	−8.197
	500.00	110.876	162.413	118.504	89.358	21.954	8.152	69.764	61.112	−6.384
	600.00	112.968	182.813	127.569	100.550	33.146	−9.137	69.561	59.381	−5.170
	700.00	115.060	200.384	136.744	111.952	44.548	−28.317	69.233	57.739	−4.309
	800.00	117.152	215.884	145.686	123.562	56.158	−49.145	69.642	56.069	−3.661

References

Phase	H / S	C_p
SOL	Nb1/e	e

118.699 NICKEL CARBONATE **NiCO3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	86.191	86.190	86.190	−694.544	0.000	−720.242	−694.544	−617.876	108.249
	300.00	86.434	86.724	86.192	−694.384	0.160	−720.402	−694.530	−617.401	107.499
	400.00	96.325	113.068	89.717	−685.204	9.340	−730.431	−693.575	−591.827	77.285
	500.00	102.993	135.313	96.670	−675.222	19.322	−742.879	−692.469	−566.517	59.184
	600.00	108.393	154.581	104.751	−664.646	29.898	−757.395	−691.484	−541.423	47.135
	700.00	113.194	171.656	113.112	−653.563	40.981	−773.722	−690.379	−516.489	38.541

References

Phase	H / S	C_p
SOL	Tk1	Tk1,e

170.732 NICKEL TETRACARBONYL (GAS) **Ni(CO)4[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	149.285	410.602	410.602	−602.910	0.000	−725.331	−602.910	−587.249	102.884
	300.00	149.562	411.526	410.605	−602.634	0.276	−726.091	−602.854	−587.152	102.232
	400.00	160.375	456.184	416.620	−587.085	15.825	−769.558	−600.127	−582.346	76.047
	500.00	167.492	492.772	428.301	−570.675	32.235	−817.061	−598.116	−578.151	60.399
	600.00	173.173	523.828	441.699	−553.633	49.277	−867.929	−596.986	−574.279	49.995
	700.00	177.992	550.894	455.405	−536.068	66.842	−921.694	−596.360	−570.540	42.574
	800.00	182.133	574.939	468.872	−518.057	84.853	−978.008	−595.811	−566.892	37.014
	900.00	185.665	596.600	481.880	−499.662	103.248	−1036.602	−595.509	−563.298	32.693
	1000.00	188.618	616.320	494.353	−480.943	121.967	−1097.263	−595.439	−559.724	29.237
	1100.00	191.124	634.418	506.275	−461.952	140.958	−1159.812	−595.567	−556.148	26.409
	1200.00	193.239	651.141	517.659	−442.731	160.179	−1224.101	−595.867	−552.552	24.052
	1300.00	195.026	666.681	528.532	−423.315	179.595	−1290.001	−596.317	−548.926	22.056
	1400.00	196.543	681.191	538.924	−403.735	199.175	−1357.403	−596.879	−545.260	20.344
	1500.00	197.836	694.797	548.866	−384.014	218.896	−1426.209	−597.497	−541.551	18.858
	1600.00	198.947	707.601	558.391	−364.174	238.736	−1496.336	−598.146	−537.800	17.557
	1700.00	199.908	719.692	567.527	−344.230	258.680	−1567.706	−598.821	−534.008	16.408
	1800.00	200.743	731.142	576.301	−324.196	278.714	−1640.253	−617.503	−529.416	15.363
	1900.00	201.475	742.016	584.740	−304.085	298.825	−1713.915	−618.918	−524.484	14.419
	2000.00	202.120	752.367	592.864	−283.904	319.006	−1788.638	−620.361	−519.476	13.567

References

Phase	H / S	C_p
GAS	Nb1	Ja1

NiCl[g] NICKEL MONOCHLORIDE (GAS) 94.143

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	35.340	251.405	251.405	179.912	0.000	104.956	179.912	147.124	−25.775
	300.00	35.393	251.623	251.405	179.977	0.065	104.490	179.898	146.920	−25.581
	400.00	37.298	262.104	252.821	183.625	3.713	78.783	179.080	136.048	−17.766
	500.00	38.225	270.537	255.549	187.406	7.494	52.137	178.119	125.397	−13.100
	600.00	38.767	277.558	258.648	191.258	11.346	24.723	176.881	114.963	−10.008
	700.00	39.128	283.562	261.789	195.153	15.241	−3.340	175.621	104.753	−7.817
	800.00	39.391	288.805	264.845	199.080	19.168	−31.964	174.603	94.698	−6.183
	900.00	39.599	293.457	267.771	203.030	23.118	−61.082	173.539	84.773	−4.920
	1000.00	39.771	297.638	270.552	206.998	27.086	−90.640	172.389	74.971	−3.916
	1100.00	39.921	301.436	273.190	210.983	31.071	−120.597	171.153	65.288	−3.100
	1200.00	40.054	304.916	275.691	214.982	35.070	−150.917	169.828	55.722	−2.426
	1300.00	40.177	308.127	278.064	218.994	39.082	−181.571	168.421	46.270	−1.859
	1400.00	40.292	311.108	280.319	223.017	43.105	−212.534	166.954	36.928	−1.378
	1500.00	40.402	313.892	282.465	227.052	47.140	−243.786	165.476	27.692	−0.964
	1600.00	40.506	316.503	284.512	231.097	51.185	−275.307	164.004	18.555	−0.606
	1700.00	40.608	318.961	286.467	235.153	55.241	−307.081	162.539	9.509	−0.292
	1800.00	40.706	321.285	288.337	239.219	59.307	−339.095	143.097	1.309	−0.038
	1900.00	40.802	323.489	290.130	243.294	63.382	−371.334	140.955	−6.509	0.179
	2000.00	40.897	325.584	291.850	247.379	67.467	−403.789	138.818	−14.215	0.371

References

Phase	H / S	C_p
GAS	Pa2	Pa2

129.595 NICKEL CHLORIDE **NiCl2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	71.681	98.006	98.006	−305.348	0.000	−334.568	−305.348	−259.139	45.400
	300.00	71.772	98.450	98.007	−305.215	0.133	−334.750	−305.326	−258.853	45.070
	400.00	75.425	119.646	100.873	−297.839	7.509	−345.697	−304.149	−243.539	31.803
	500.00	77.821	136.747	106.392	−290.170	15.178	−358.544	−303.008	−228.520	23.873
	600.00	79.721	151.108	112.680	−282.291	23.057	−372.956	−302.035	−213.719	18.606
	700.00	81.388	163.525	119.076	−274.234	31.114	−388.701	−300.972	−199.072	14.855
	800.00	82.931	174.494	125.331	−266.017	39.331	−405.613	−299.553	−184.610	12.054
	900.00	84.401	184.348	131.350	−257.650	47.698	−423.563	−298.063	−170.332	9.886
	1000.00	85.826	193.314	137.105	−249.138	56.210	−442.453	−296.540	−156.221	8.160
	1100.00	87.222	201.560	142.594	−240.486	64.862	−462.202	−294.986	−142.264	6.756
	1200.00	88.597	209.208	147.831	−231.695	73.653	−482.745	−293.400	−128.450	5.591
	1300.00	89.959	216.354	152.830	−222.767	82.581	−504.027	−291.777	−114.769	4.611
	1304.00	90.013	216.630	153.025	−222.407	82.941	−504.893	−291.711	−114.225	4.576
			59.253		77.266					
LIQ	1304.00	99.998	275.883	153.025	−145.141	160.207	−504.893	−214.445	−114.225	4.576
	1400.00	99.998	282.987	161.696	−135.541	169.807	−531.723	−211.932	−106.937	3.990

References

Phase	H / S	C_p	Remarks	
SOL	Pa2	Pa2	Pa2	SPT= 1229., L= 220.5 kJ
LIQ	Pa2	Pa2		

NiCl2[g] NICKEL CHLORIDE (GAS) 129.595

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	60.613	298.228	298.228	−70.291	0.000	−159.208	−70.291	−83.779	14.678
	300.00	60.702	298.603	298.229	−70.179	0.112	−159.760	−70.290	−83.862	14.602
	400.00	63.796	316.555	300.656	−63.931	6.360	−190.553	−70.241	−88.396	11.543
	500.00	65.176	330.958	305.324	−57.474	12.817	−222.953	−70.312	−92.930	9.708
	600.00	65.881	342.910	310.621	−50.918	19.373	−256.664	−70.662	−97.426	8.482
	700.00	66.268	353.097	315.979	−44.309	25.982	−291.476	−71.047	−101.847	7.600
	800.00	66.485	361.961	321.185	−37.670	32.621	−327.239	−71.206	−106.237	6.937
	900.00	66.603	369.800	326.160	−31.015	39.276	−363.835	−71.428	−110.603	6.419
	1000.00	66.660	376.820	330.881	−24.351	45.940	−401.172	−71.753	−114.940	6.004
	1100.00	66.677	383.175	335.350	−17.684	52.607	−439.177	−72.184	−119.238	5.662
	1200.00	66.666	388.976	339.581	−11.017	59.274	−477.788	−72.722	−123.493	5.376
	1300.00	66.637	394.311	343.589	−4.352	65.939	−516.956	−73.362	−127.699	5.131
	1400.00	66.593	399.248	347.390	2.310	72.601	−556.637	−74.081	−131.852	4.919
	1500.00	66.539	403.841	351.002	8.967	79.258	−596.794	−74.832	−135.952	4.734
	1600.00	66.478	408.133	354.440	15.618	85.909	−637.395	−75.597	−140.002	4.571
	1700.00	66.410	412.161	357.718	22.262	92.553	−678.412	−76.374	−144.004	4.425
	1800.00	66.337	415.955	360.849	28.899	99.190	−719.820	−95.149	−147.199	4.272
	1900.00	66.261	419.540	363.845	35.529	105.820	−761.596	−96.647	−150.050	4.125
	2000.00	66.182	422.937	366.715	42.152	112.443	−803.722	−98.159	−152.822	3.991

References

Phase	H / S	C_p
GAS	Pa2	Pa2

77.688 NICKEL MONOFLUORIDE (GAS) **NiF**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	32.614	239.639	239.639	104.600	0.000	33.152	104.600	72.290	−12.665
	300.00	32.691	239.841	239.640	104.660	0.060	32.708	104.583	72.090	−12.552
	400.00	35.446	249.676	240.962	108.086	3.486	8.215	103.670	61.395	−8.017
	500.00	36.812	257.748	243.537	111.705	7.105	−17.169	102.651	50.940	−5.322
	600.00	37.630	264.537	246.486	115.430	10.830	−43.292	101.368	40.713	−3.544
	700.00	38.191	270.382	249.492	119.223	14.623	−70.045	100.068	30.716	−2.292
	800.00	38.614	275.510	252.431	123.064	18.464	−97.344	99.014	20.881	−1.363
	900.00	38.956	280.079	255.253	126.943	22.343	−125.128	97.918	11.179	−0.649
	1000.00	39.249	284.199	257.945	130.854	26.254	−153.345	96.741	1.604	−0.084
	1100.00	39.510	287.952	260.505	134.792	30.192	−181.956	95.481	−7.850	0.373
	1200.00	39.748	291.400	262.938	138.755	34.155	−210.926	94.139	−17.185	0.748
	1300.00	39.971	294.591	265.252	142.741	38.141	−240.227	92.719	−26.405	1.061
	1400.00	40.183	297.561	267.455	146.749	42.149	−269.836	91.246	−35.513	1.325
	1500.00	40.386	300.340	269.555	150.777	46.177	−299.733	89.767	−44.516	1.550
	1600.00	40.583	302.953	271.562	154.826	50.226	−329.899	88.301	−53.420	1.744
	1700.00	40.775	305.419	273.481	158.894	54.294	−360.319	86.849	−62.233	1.912
	1800.00	40.963	307.755	275.321	162.980	58.380	−390.978	67.428	−70.201	2.037
	1900.00	41.148	309.975	277.087	167.086	62.486	−421.866	65.313	−77.790	2.139
	2000.00	41.330	312.090	278.785	171.210	66.610	−452.970	63.211	−85.267	2.227

References

Phase	H / S	C_p
GAS	Pa2	Pa2

NiF2 NICKEL FLUORIDE 96.687

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	64.025	73.597	73.597	−657.725	0.000	−679.668	−657.725	−610.298	106.922
	300.00	64.220	73.993	73.598	−657.606	0.119	−679.804	−657.713	−610.003	106.211
	400.00	69.152	93.319	76.200	−650.877	6.848	−688.205	−656.929	−594.217	77.597
	500.00	71.168	108.976	81.240	−643.857	13.868	−698.345	−656.229	−578.623	60.448
	600.00	73.019	122.116	86.986	−636.647	21.078	−709.917	−655.764	−563.151	49.027
	700.00	74.798	133.507	92.836	−629.256	28.469	−722.710	−655.239	−547.746	40.873
	800.00	76.415	143.602	98.563	−621.693	36.032	−736.575	−654.375	−532.447	34.765
	900.00	77.867	152.688	104.080	−613.978	43.747	−751.397	−653.459	−517.261	30.021
	1000.00	79.235	160.963	109.361	−606.123	51.602	−767.086	−652.532	−502.178	26.231
	1100.00	80.658	168.580	114.403	−598.129	59.596	−783.568	−651.589	−487.188	23.135
	1200.00	82.315	175.667	119.216	−589.983	67.742	−800.784	−650.612	−472.285	20.558
	1300.00	84.406	182.335	123.817	−581.652	76.073	−818.687	−649.560	−457.466	18.381
	1400.00	87.149	188.686	128.225	−573.081	84.644	−837.241	−648.351	−442.734	16.519
	1500.00	90.770	194.816	132.461	−564.193	93.532	−856.417	−646.859	−428.097	14.908
	1600.00	95.506	200.819	136.547	−554.889	102.836	−876.199	−644.965	−413.572	13.502

References

Phase	H / S	C_p	Remarks	
SOL	Pa2	Pa2	Tk1	MPT= 1747.

96.687 NICKELFLUORIDE (GAS) **NiF2**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	52.544	273.065	273.065	−335.557	0.000	−416.971	−335.557	−347.601	60.898
	300.00	52.613	273.390	273.066	−335.460	0.097	−417.477	−335.566	−347.676	60.536
	400.00	56.630	289.081	275.178	−329.996	5.561	−445.628	−336.048	−351.640	45.919
	500.00	59.747	302.074	279.295	−324.167	11.390	−475.204	−336.539	−355.482	37.137
	600.00	61.857	313.167	284.038	−318.080	17.477	−505.980	−337.196	−359.214	31.272
	700.00	63.267	322.815	288.904	−311.819	23.738	−537.790	−337.803	−362.825	27.074
	800.00	64.199	331.328	293.685	−305.443	30.114	−570.505	−338.125	−366.378	23.922
	900.00	64.800	338.928	298.298	−298.990	36.567	−604.025	−338.471	−369.889	21.468
	1000.00	65.164	345.775	302.709	−292.490	43.067	−638.266	−338.899	−373.358	19.502
	1100.00	65.353	351.996	306.911	−285.963	49.594	−673.159	−339.423	−376.779	17.892
	1200.00	65.414	357.686	310.909	−279.424	56.133	−708.647	−340.053	−380.148	16.547
	1300.00	65.383	362.921	314.711	−272.884	62.673	−744.681	−340.792	−383.460	15.408
	1400.00	65.288	367.764	318.330	−266.350	69.207	−781.219	−341.620	−386.712	14.428
	1500.00	65.151	372.263	321.777	−259.827	75.730	−818.223	−342.494	−389.902	13.578
	1600.00	64.994	376.463	325.065	−253.320	82.237	−855.661	−343.396	−393.034	12.831
	1700.00	64.835	380.399	328.206	−246.829	88.728	−893.506	−344.325	−396.108	12.171
	1800.00	64.691	384.100	331.209	−240.353	95.204	−931.733	−363.264	−398.366	11.560
	1900.00	64.578	387.595	334.086	−233.889	101.668	−970.320	−364.933	−400.271	11.004
	2000.00	64.511	390.905	336.845	−227.435	108.122	−1009.246	−366.621	−402.087	10.501

References

Phase	H / S	C_p
GAS	Pa2	Pa2

NiI[g] NICKEL MONOIODIDE (GAS) 185.594

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	36.626	270.220	270.220	246.856	0.000	166.290	246.856	192.511	−33.727
	300.00	36.666	270.447	270.221	246.924	0.068	165.790	246.825	192.174	−33.460
	400.00	38.102	281.219	271.680	250.672	3.816	138.184	237.022	174.498	−22.787
	500.00	38.812	289.806	274.476	254.521	7.665	109.618	213.818	161.126	−16.833
	600.00	39.237	296.922	277.641	258.425	11.569	80.272	212.575	150.699	−13.119
	700.00	39.527	302.994	280.840	262.364	15.508	50.268	211.315	140.495	−10.484
	800.00	39.746	308.287	283.947	266.328	19.472	19.699	210.301	130.447	−8.517
	900.00	39.922	312.979	286.917	270.312	23.456	−11.369	209.243	120.528	−6.995
	1000.00	40.073	317.193	289.737	274.312	27.456	−42.881	208.101	110.731	−5.784
	1100.00	40.206	321.019	292.410	278.326	31.470	−74.795	206.874	101.053	−4.799
	1200.00	40.328	324.522	294.942	282.353	35.497	−107.074	205.559	91.490	−3.982
	1300.00	40.442	327.755	297.343	286.391	39.535	−139.690	204.161	82.041	−3.296
	1400.00	40.550	330.756	299.624	290.441	43.585	−172.618	202.704	72.701	−2.713
	1500.00	40.654	333.557	301.794	294.501	47.645	−205.835	201.235	63.467	−2.210
	1600.00	40.754	336.184	303.862	298.572	51.716	−239.323	199.773	54.330	−1.774
	1700.00	40.852	338.658	305.837	302.652	55.796	−273.066	198.319	45.284	−1.391
	1800.00	40.948	340.996	307.726	306.742	59.886	−307.050	178.887	37.084	−1.076
	1900.00	41.042	343.212	309.536	310.841	63.985	−341.262	176.755	29.264	−0.805
	2000.00	41.135	345.320	311.272	314.950	68.094	−375.689	174.630	21.557	−0.563

References

Phase	H / S	C_p
GAS	Pa2	Pa2

NiI2 NICKEL IODIDE 312.499

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	77.404	138.700	138.700	−78.199	0.000	−119.552	−78.199	−76.018	13.318
	300.00	77.465	139.179	138.701	−78.056	0.143	−119.809	−78.205	−76.004	13.233
	400.00	79.834	161.826	141.773	−70.178	8.021	−134.908	−94.698	−74.651	9.748
	500.00	81.229	179.801	147.643	−62.120	16.079	−152.020	−137.790	−65.500	6.843
	600.00	82.240	194.704	154.279	−53.944	24.255	−170.767	−136.637	−51.156	4.454

References

Phase	H / S	C_p	Remarks	
SOL	Nb1/Pa2	e	Ku1	MPT= 1070.

74.689 NICKEL OXIDE **NiO**

Phase	T [K]	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL–A	298.15	44.309	37.991	37.991	–239.701	0.000	–251.028	–239.701	–211.539	37.061
	300.00	44.476	38.265	37.992	–239.619	0.082	–251.098	–239.694	–211.364	36.802
	400.00	51.505	52.041	39.824	–234.814	4.887	–255.631	–239.107	–201.998	26.378
	500.00	64.978	64.746	43.536	–229.096	10.605	–261.469	–237.875	–192.842	20.146
	525.00	70.752	68.051	44.624	–227.402	12.299	–263.129	–237.353	–190.603	18.964
			0.000		0.000					
SOL–B	525.00	54.686	68.051	44.624	–227.402	12.299	–263.129	–237.353	–190.603	18.964
	565.00	61.422	72.311	46.433	–225.080	14.621	–265.935	–236.961	–187.054	17.293
			0.000		0.000					
SOL–C	565.00	53.761	72.311	46.433	–225.080	14.621	–265.935	–236.961	–187.054	17.293
	600.00	53.646	75.538	48.037	–223.200	16.501	–268.523	–236.831	–183.967	16.016
	700.00	53.380	83.786	52.571	–217.850	21.851	–276.501	–236.425	–175.180	13.072
	800.00	53.345	90.909	56.928	–212.516	27.185	–285.243	–235.852	–166.471	10.869
	900.00	53.604	97.204	61.060	–207.171	32.530	–294.655	–235.361	–157.828	9.160
	1000.00	54.154	102.877	64.962	–201.786	37.915	–304.663	–234.954	–149.236	7.795
	1100.00	54.959	108.075	68.649	–196.332	43.369	–315.214	–234.599	–140.682	6.680
	1200.00	55.970	112.899	72.137	–190.787	48.914	–326.266	–234.270	–132.158	5.753
	1300.00	57.128	117.424	75.449	–185.133	54.568	–337.784	–233.940	–123.662	4.969
	1400.00	58.369	121.703	78.601	–179.359	60.342	–349.742	–233.572	–115.193	4.298
	1500.00	59.627	125.773	81.611	–173.459	66.242	–362.118	–233.112	–106.753	3.717
	1600.00	60.832	129.660	84.494	–167.435	72.266	–374.891	–232.541	–98.347	3.211
	1700.00	61.915	133.381	87.261	–161.297	78.404	–388.044	–231.867	–89.980	2.765
	1800.00	62.805	136.946	89.923	–155.059	84.642	–401.562	–249.089	–80.895	2.348
	1900.00	63.431	140.360	92.488	–148.744	90.957	–415.428	–248.954	–71.554	1.967
	2000.00	63.722	143.623	94.964	–142.384	97.317	–429.629	–248.784	–62.222	1.625
	2100.00	63.604	146.731	97.356	–136.014	103.687	–444.148	–248.617	–52.898	1.316
	2200.00	63.006	149.678	99.668	–129.679	110.022	–458.970	–248.495	–43.581	1.035
	2228.00	62.742	150.473	100.301	–127.918	111.783	–463.172	–248.477	–40.973	0.961
			24.413		54.392					
LIQ	2228.00	54.392	174.886	100.301	–73.526	166.175	–463.172	–194.085	–40.973	0.961
	2300.00	54.392	176.616	102.663	–69.610	170.091	–475.826	–194.651	–36.016	0.818
	2400.00	54.392	178.931	105.793	–64.171	175.530	–493.604	–195.448	–29.102	0.633
	2500.00	54.392	181.151	108.763	–58.732	180.969	–511.609	–196.256	–22.154	0.463

References

Phase	H / S	C_p
SOL–A	Nb1	Pa1
SOL–B	Pa1	Pa1
SOL–C	Pa1	Pa1
LIQ	e	e

NiO[g] NICKEL OXIDE (GAS) 74.689

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	33.849	241.359	241.359	309.616	0.000	237.655	309.616	277.144	−48.554
	300.00	33.931	241.569	241.360	309.679	0.063	237.208	309.603	276.943	−48.220
	400.00	36.863	251.789	242.733	313.238	3.622	212.523	308.945	266.155	−34.756
	500.00	38.303	260.185	245.410	317.004	7.388	186.911	308.225	255.538	−26.696
	600.00	39.155	267.250	248.477	320.880	11.264	160.530	307.249	245.086	−21.337
	700.00	39.731	273.331	251.603	324.826	15.210	133.494	306.251	234.814	−17.522
	800.00	40.158	278.665	254.659	328.821	19.205	105.889	305.485	224.661	−14.669
	900.00	40.499	283.416	257.595	332.854	23.238	77.780	304.665	214.607	−12.455
	1000.00	40.787	287.698	260.395	336.919	27.303	49.221	303.751	204.648	−10.690
	1100.00	41.040	291.598	263.057	341.011	31.395	20.253	302.743	194.786	−9.250
	1200.00	41.270	295.179	265.587	345.126	35.510	−9.088	301.644	185.020	−8.054
	1300.00	41.483	298.490	267.992	349.264	39.648	−38.773	300.457	175.348	−7.046
	1400.00	41.683	301.572	270.282	353.422	43.806	−68.778	299.209	165.771	−6.185
	1500.00	41.875	304.454	272.465	357.600	47.984	−99.081	297.948	156.284	−5.442
	1600.00	42.059	307.163	274.550	361.797	52.181	−129.663	296.692	146.881	−4.795
	1700.00	42.239	309.718	276.544	366.012	56.396	−160.509	295.442	137.556	−4.227
	1800.00	42.414	312.137	278.455	370.245	60.629	−191.602	276.214	129.064	−3.745
	1900.00	42.586	314.435	280.288	374.495	64.879	−222.932	274.285	120.942	−3.325
	2000.00	42.756	316.624	282.051	378.762	69.146	−254.486	272.361	112.921	−2.949

References

Phase	H / S	C_p
GAS	Pa1	Pa1

176.651 NICKEL DIALUMINIUM TETRAOXIDE **NiAl2O4**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	131.567	98.324	98.324	−1915.900	0.000	−1945.215	−1915.900	−1797.119	314.848
	300.00	132.036	99.139	98.327	−1915.656	0.244	−1945.398	−1915.903	−1796.382	312.778
	400.00	149.320	139.799	103.753	−1901.482	14.418	−1957.401	−1915.416	−1756.586	229.387
	500.00	158.574	174.199	114.496	−1886.049	29.851	−1973.148	−1914.339	−1716.998	179.374
	600.00	164.667	203.680	126.962	−1869.869	46.031	−1992.077	−1913.261	−1677.635	146.051
	700.00	169.268	229.422	139.799	−1853.164	62.736	−2013.759	−1912.116	−1638.444	122.262
	800.00	173.074	252.280	152.457	−1836.042	79.858	−2037.866	−1910.764	−1599.442	104.433
	900.00	176.417	272.861	164.711	−1818.564	97.336	−2064.140	−1909.625	−1560.598	90.575
	1000.00	179.473	291.609	176.477	−1800.768	115.132	−2092.377	−1929.890	−1520.347	79.415
	1100.00	182.341	308.850	187.738	−1782.676	133.224	−2122.411	−1928.511	−1479.459	70.254
	1200.00	185.082	324.834	198.504	−1764.304	151.596	−2154.105	−1927.027	−1438.701	62.625
	1300.00	187.732	339.754	208.802	−1745.663	170.237	−2187.343	−1925.434	−1398.070	56.175
	1400.00	190.318	353.761	218.661	−1726.760	189.140	−2222.026	−1923.707	−1357.568	50.651
	1500.00	192.855	366.979	228.112	−1707.601	208.299	−2258.069	−1921.799	−1317.195	45.869
	1600.00	195.355	379.505	237.186	−1688.190	227.710	−2295.398	−1919.691	−1276.955	41.688
	1700.00	197.827	391.423	245.911	−1668.531	247.369	−2333.949	−1917.385	−1236.854	38.004
	1800.00	200.276	402.800	254.314	−1648.626	267.274	−2373.665	−1932.863	−1196.134	34.711
	1900.00	202.708	413.693	262.417	−1628.476	287.424	−2414.493	−1930.852	−1155.259	31.760
	2000.00	205.126	424.152	270.244	−1608.084	307.816	−2456.389	−1928.645	−1114.494	29.108

References

Phase	H / S	C_p	Remarks	
SOL	Nb1/e	e	Tk1	MPT= 2383.

Ni2SiO4 DINICKEL ORTHOSILICATE 209.463

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	142.503	110.039	110.039	−1403.439	0.000	−1436.247	−1403.439	−1290.493	226.089
	300.00	142.885	110.922	110.042	−1403.175	0.264	−1436.452	−1403.417	−1289.792	224.573
	400.00	157.295	154.240	115.850	−1388.083	15.356	−1449.779	−1401.854	−1252.137	163.512
	500.00	165.534	190.289	127.237	−1371.913	31.526	−1467.057	−1399.994	−1214.922	126.922
	600.00	171.451	221.014	140.369	−1355.051	48.388	−1487.660	−1398.371	−1178.068	102.560
	700.00	176.365	247.821	153.844	−1337.655	65.784	−1511.130	−1396.567	−1141.472	85.178
	800.00	180.827	271.666	167.109	−1319.793	83.646	−1537.126	−1394.073	−1105.197	72.162
	900.00	185.099	293.212	179.942	−1301.496	101.943	−1565.387	−1391.450	−1069.245	62.057
	1000.00	189.322	312.933	192.269	−1282.775	120.664	−1595.708	−1388.757	−1033.588	53.989
	1100.00	193.572	331.176	204.077	−1263.631	139.808	−1627.924	−1385.976	−998.204	47.401
	1200.00	197.899	348.204	215.386	−1244.058	159.381	−1661.902	−1383.082	−963.079	41.922
	1300.00	202.330	364.218	226.225	−1224.048	179.391	−1697.531	−1380.044	−928.201	37.296
	1400.00	206.887	379.378	236.628	−1203.588	199.851	−1734.718	−1376.794	−893.564	33.339
	1500.00	211.582	393.811	246.629	−1182.666	220.773	−1773.383	−1373.217	−859.170	29.919
	1600.00	216.424	407.620	256.263	−1161.267	242.172	−1813.459	−1369.256	−825.027	26.934
	1700.00	221.421	420.890	265.559	−1139.376	264.063	−1854.889	−1415.071	−790.698	24.295
	1800.00	226.576	433.691	274.546	−1116.977	286.462	−1897.621	−1446.028	−752.592	21.840
	1818.00	227.522	435.951	276.133	−1112.890	290.549	−1905.448	−1445.325	−745.662	21.424

References

Phase	H / S	C_p	Remarks	
SOL	S5	S5	S5	MPT= 1818.

154.568

NICKEL TITANIUM TRIOXIDE **NiTiO3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	99.252	85.772	85.772	−1202.440	0.000	−1228.013	−1202.440	−1118.188	195.902
	300.00	99.535	86.387	85.774	−1202.256	0.184	−1228.172	−1202.432	−1117.666	194.603
	400.00	110.041	116.644	89.828	−1191.714	10.726	−1238.371	−1201.668	−1089.510	142.275
	500.00	115.763	141.864	97.786	−1180.401	22.039	−1251.333	−1200.600	−1061.593	110.904
	600.00	119.601	163.328	106.965	−1168.622	33.818	−1266.619	−1199.617	−1033.887	90.008
	700.00	122.550	181.994	116.379	−1156.509	45.931	−1283.906	−1198.576	−1006.338	75.094
	800.00	125.025	198.524	125.634	−1144.128	58.312	−1302.947	−1197.263	−978.965	63.920
	900.00	127.224	213.379	134.572	−1131.514	70.926	−1323.555	−1195.989	−951.755	55.238
	1000.00	129.252	226.890	143.138	−1118.689	83.751	−1345.578	−1194.799	−924.682	48.300
	1100.00	131.168	239.299	151.324	−1105.667	96.773	−1368.896	−1193.691	−897.725	42.629
	1200.00	133.009	250.792	159.140	−1092.458	109.982	−1393.408	−1196.657	−870.746	37.903
	1300.00	134.795	261.509	166.607	−1079.067	123.373	−1419.029	−1195.160	−843.647	33.898
	1400.00	136.543	271.562	173.748	−1065.500	136.940	−1445.687	−1193.662	−816.664	30.470
	1500.00	138.262	281.042	180.588	−1051.759	150.681	−1473.322	−1192.120	−789.789	27.503
	1600.00	139.959	290.019	187.149	−1037.848	164.592	−1501.879	−1190.523	−763.019	24.910
	1700.00	141.639	298.555	193.454	−1023.768	178.672	−1531.311	−1188.878	−736.350	22.625

References

Phase	H / S	C_p	Remarks	
SOL	Tk1	e	Tk1	MPT= 2048.

148.354

DINICKEL PHOSPHIDE **Ni2P**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	64.809	77.404	77.404	−184.096	0.000	−207.174	−184.096	−177.115	31.030
	300.00	64.852	77.805	77.405	−183.976	0.120	−207.318	−184.117	−177.072	30.831
	400.00	67.153	96.777	79.976	−177.376	6.720	−216.087	−186.232	−174.345	22.767
	500.00	69.454	112.009	84.908	−170.545	13.551	−226.550	−187.947	−171.180	17.883
	600.00	71.756	124.875	90.524	−163.485	20.611	−238.410	−190.062	−167.637	14.594
	700.00	74.057	136.109	96.250	−156.194	27.902	−251.471	−192.039	−163.722	12.217
	800.00	76.358	146.149	101.870	−148.674	35.422	−265.592	−193.336	−159.586	10.420
	900.00	78.659	155.275	107.305	−140.923	43.173	−280.670	−194.520	−155.295	9.013
	1000.00	80.960	163.682	112.527	−132.942	51.154	−296.623	−195.666	−150.875	7.881
	1100.00	83.262	171.506	117.537	−124.731	59.365	−313.387	−196.777	−146.342	6.949
	1200.00	85.563	178.849	122.344	−116.289	67.807	−330.909	−261.421	−140.620	6.121
	1300.00	87.864	185.789	126.960	−107.618	76.478	−349.144	−261.673	−130.543	5.245
	1383.00	89.774	191.285	130.656	−100.246	83.850	−364.794	−261.816	−122.166	4.614

References

Phase	H / S	C_p	Remarks	
SOL	Tk1/Ku1	e	Tk1	MPT= 1383.

Ni3P — TRINICKEL PHOSPHIDE — 207.044

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	87.802	106.274	106.274	−219.660	0.000	−251.345	−219.660	−212.380	37.208
	300.00	87.864	106.817	106.275	−219.498	0.162	−251.543	−219.686	−212.335	36.971
	400.00	91.211	132.552	109.762	−210.544	9.116	−263.565	−222.181	−209.452	27.352
	500.00	94.558	153.265	116.456	−201.255	18.405	−277.888	−224.394	−206.022	21.523
	600.00	97.906	170.801	124.088	−191.632	28.028	−294.113	−227.218	−202.096	17.594
	700.00	101.253	186.144	131.879	−181.674	37.986	−311.975	−229.844	−197.669	14.750
	800.00	104.600	199.883	139.535	−171.382	48.278	−331.288	−231.462	−192.960	12.599
	900.00	107.947	212.397	146.946	−160.754	58.906	−351.911	−232.921	−188.058	10.915
	1000.00	111.294	223.943	154.075	−149.792	69.868	−373.735	−234.333	−182.998	9.559
	1100.00	114.642	234.708	160.922	−138.495	81.165	−396.674	−235.703	−177.797	8.443
	1200.00	117.989	244.826	167.496	−126.864	92.796	−420.656	−300.598	−171.385	7.460
	1243.00	119.428	249.006	170.244	−121.759	97.901	−431.273	−300.818	−166.751	7.007

References

Phase	H / S	C_p	Remarks
SOL	Tk1/Ku1	e	Tk1 DPT= 1243. (LIQ + Ni5P2)

Ni5P2 — PENTANICKEL DIPHOSPHIDE — 355.398

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	151.984	184.933	184.933	−435.136	0.000	−490.274	−435.136	−421.249	73.801
	300.00	152.088	185.873	184.936	−434.855	0.281	−490.617	−435.184	−421.163	73.331
	400.00	157.737	230.400	190.969	−419.363	15.773	−511.523	−439.857	−415.670	54.281
	500.00	163.385	266.205	202.547	−403.307	31.829	−536.410	−443.848	−409.174	42.746
	600.00	169.034	296.493	215.743	−386.686	48.450	−564.582	−448.850	−401.793	34.979
	700.00	174.682	322.973	229.209	−369.501	65.635	−595.582	−453.515	−393.527	29.365
	800.00	180.330	346.668	242.435	−351.750	83.386	−629.084	−456.492	−384.749	25.122
	900.00	185.979	368.234	255.232	−333.435	101.701	−664.845	−459.198	−375.617	21.800
	1000.00	191.627	388.121	267.539	−314.554	120.582	−702.675	−461.820	−366.189	19.128
	1100.00	197.276	406.650	279.353	−295.109	140.027	−742.424	−464.363	−356.502	16.929
	1200.00	202.924	424.057	290.693	−275.099	160.037	−783.968	−593.966	−344.409	14.992
	1300.00	208.572	440.523	301.591	−254.524	180.612	−827.204	−594.769	−323.579	13.002
	1400.00	214.221	456.186	312.078	−233.385	201.751	−872.046	−595.353	−302.694	11.294
	1453.00	217.214	464.202	317.482	−221.952	213.184	−896.437	−595.488	−291.612	10.483

References

Phase	H / S	C_p	Remarks
SOL	Tk1/Ku1	e	Tk1 TPT= 1298. /MPT= 1453.

85.625 NICKEL 0.84−SULFIDE **NiS0.84**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	43.093	48.953	48.953	−82.425	0.000	−97.020	−82.425	−80.085	14.031
	300.00	43.137	49.219	48.954	−82.345	0.080	−97.111	−82.429	−80.071	13.942
	400.00	45.522	61.956	50.674	−77.912	4.513	−102.695	−84.576	−79.171	10.339
	500.00	47.907	72.370	54.002	−73.241	9.184	−109.426	−86.139	−77.658	8.113
	600.00	50.292	81.315	57.825	−68.331	14.094	−117.120	−87.505	−75.829	6.601
	700.00	52.677	89.247	61.758	−63.183	19.242	−125.655	−88.453	−73.794	5.507
	800.00	55.061	96.436	65.650	−57.796	24.629	−134.945	−88.981	−71.663	4.679
	833.00	55.848	98.678	66.914	−55.966	26.459	−138.164	−89.150	−70.945	4.449

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1	Mi1	Ni7S6−Ni6S5, DPT= 833.

NiS NICKEL SULFIDE 90.756

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−B	298.15	47.116	53.011	53.011	−87.864	0.000	−103.669	−87.864	−85.205	14.928
	300.00	47.191	53.303	53.012	−87.777	0.087	−103.768	−87.867	−85.188	14.833
	400.00	50.501	67.362	54.907	−82.882	4.982	−109.827	−90.286	−84.178	10.993
	500.00	53.053	78.913	58.586	−77.701	10.163	−117.157	−91.963	−82.480	8.617
	600.00	55.313	88.788	62.816	−72.281	15.583	−125.554	−93.391	−80.444	7.003
	652.00	56.429	93.431	65.075	−69.375	18.489	−130.293	−94.032	−79.293	6.352
			9.882		6.443					
SOL−A	652.00	53.152	103.313	65.075	−62.932	24.932	−130.293	−87.589	−79.293	6.352
	700.00	54.518	107.137	67.829	−60.348	27.516	−135.344	−88.085	−78.664	5.870
	800.00	57.363	114.603	73.215	−54.754	33.110	−146.436	−88.943	−77.258	5.044
	900.00	60.208	121.523	78.203	−48.876	38.988	−158.247	−142.423	−74.601	4.330
	1000.00	63.053	128.014	82.863	−42.713	45.151	−170.727	−141.342	−67.121	3.506
	1100.00	65.898	134.157	87.249	−36.265	51.599	−183.838	−140.081	−59.758	2.838
	1200.00	68.743	140.013	91.404	−29.533	58.331	−197.549	−138.639	−52.519	2.286
	1249.00	70.137	142.792	93.365	−26.131	61.733	−204.477	−137.864	−49.018	2.050
			24.119		30.125					
LIQ	1249.00	76.776	166.911	93.365	3.994	91.858	−204.477	−107.739	−49.018	2.050
	1300.00	76.776	169.984	96.311	7.910	95.774	−213.069	−106.582	−46.643	1.874
	1400.00	76.776	175.673	101.779	15.588	103.452	−230.355	−104.363	−42.116	1.571
	1500.00	76.776	180.970	106.884	23.265	111.129	−248.190	−102.168	−37.746	1.314
	1600.00	76.776	185.925	111.671	30.943	118.807	−266.538	−99.978	−33.523	1.094
	1700.00	76.776	190.580	116.177	38.621	126.485	−285.366	−97.792	−29.437	0.904
	1800.00	76.776	194.968	120.434	46.298	134.162	−304.645	−113.593	−24.719	0.717
	1900.00	76.776	199.120	124.467	53.976	141.840	−324.351	−112.106	−19.822	0.545
	2000.00	76.776	203.058	128.299	61.653	149.517	−344.462	−110.622	−15.003	0.392

References

Phase	H / S	C_p
SOL−B	Ja1	Ja1
SOL−A	Ja1	Ja1
LIQ	Ja1	Ja1

122.822 NICKEL DISULFIDE **NiS2**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol	]		[-]
SOL	298.15	70.625	71.965	71.965	-131.378	0.000	-152.834	-131.378	-124.812	21.867
	300.00	70.664	72.402	71.966	-131.247	0.131	-152.968	-131.380	-124.772	21.725
	400.00	72.739	93.015	74.763	-124.077	7.301	-161.283	-136.104	-122.357	15.978
	500.00	74.814	109.469	80.112	-116.700	14.678	-171.434	-139.487	-118.576	12.388
	600.00	76.889	123.292	86.186	-109.114	22.264	-183.090	-142.326	-114.113	9.934
	700.00	78.965	135.301	92.363	-101.322	30.056	-196.032	-144.469	-109.228	8.151
	800.00	81.040	145.981	98.410	-93.321	38.057	-210.106	-146.281	-104.071	6.795
	900.00	83.115	155.646	104.241	-85.114	46.264	-225.195	-253.638	-96.380	5.594
	1000.00	85.190	164.510	109.830	-76.698	54.680	-241.208	-252.140	-78.987	4.126
	1100.00	87.266	172.727	115.179	-68.076	63.302	-258.075	-250.547	-61.748	2.932
	1200.00	89.341	180.409	120.298	-59.245	72.133	-275.736	-248.854	-44.658	1.944
	1280.00	91.001	186.228	124.238	-52.032	79.346	-290.403	-247.425	-31.091	1.269
			51.320		65.689					
LIQ	1280.00	91.002	237.547	124.238	13.657	145.035	-290.403	-181.736	-31.091	1.269
	1300.00	91.002	238.958	125.993	15.477	146.855	-295.168	-181.372	-28.740	1.155
	1400.00	91.002	245.702	134.305	24.578	155.956	-319.405	-179.589	-17.067	0.637
	1500.00	91.002	251.981	141.944	33.678	165.056	-344.293	-177.836	-5.519	0.192
	1600.00	91.002	257.854	149.006	42.778	174.156	-369.788	-176.091	5.912	-0.193
	1700.00	91.002	263.371	155.573	51.878	183.256	-395.852	-174.355	17.234	-0.530
	1800.00	91.002	268.572	161.708	60.978	192.356	-422.452	-190.611	29.214	-0.848
	1900.00	91.002	273.493	167.463	70.079	201.457	-449.557	-189.581	41.398	-1.138
	2000.00	91.002	278.160	172.882	79.179	210.557	-477.142	-188.560	53.528	-1.398

References

Phase	H / S	C_p
SOL	Ja1	Ja1
LIQ	Ja1	Ja1

Ni3S2 TRINICKEL DISULFIDE 240.202

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL−1	298.15	117.735	133.888	133.888	−216.313	0.000	−256.232	−216.313	−210.396	36.861
	300.00	117.948	134.617	133.890	−216.095	0.218	−256.480	−216.324	−210.359	36.627
	400.00	127.115	169.893	138.638	−203.811	12.502	−271.768	−221.399	−208.101	27.175
	500.00	133.970	199.019	147.884	−190.746	25.567	−290.255	−225.007	−204.405	21.354
	600.00	139.914	223.979	158.535	−177.047	39.266	−311.434	−228.275	−199.971	17.409
	700.00	145.428	245.964	169.485	−162.777	53.536	−334.952	−230.576	−195.034	14.554
	800.00	150.713	265.731	180.300	−147.969	68.344	−360.553	−231.765	−189.874	12.397
	829.00	152.218	271.124	183.383	−143.576	72.737	−368.338	−232.111	−188.349	11.868
			67.832		56.233					
SOL−2	829.00	188.615	338.956	183.383	−87.343	128.970	−368.338	−175.878	−188.349	11.868
	900.00	188.615	354.455	196.276	−73.951	142.362	−392.961	−279.614	−187.191	10.864
	1000.00	188.615	374.328	213.105	−55.090	161.223	−429.418	−274.165	−177.217	9.257
	1062.00	188.615	385.674	222.852	−43.396	172.917	−452.982	−270.941	−171.305	8.426
			18.595		19.748					
LIQ	1062.00	191.795	404.269	222.852	−23.648	192.665	−452.982	−251.193	−171.305	8.426
	1100.00	191.795	411.012	229.236	−16.360	199.953	−468.473	−249.153	−168.482	8.001
	1200.00	191.795	427.700	245.089	2.820	219.133	−510.420	−243.994	−161.379	7.025
	1300.00	191.795	443.052	259.735	21.999	238.312	−553.968	−239.120	−154.694	6.216
	1400.00	191.795	457.265	273.343	41.179	257.492	−598.993	−234.457	−148.375	5.536
	1500.00	191.795	470.498	286.050	60.358	276.671	−645.389	−229.863	−142.387	4.958
	1600.00	191.795	482.876	297.969	79.538	295.851	−693.064	−225.277	−136.705	4.463
	1700.00	191.795	494.503	309.192	98.717	315.030	−741.939	−220.700	−131.309	4.035
	1800.00	191.795	505.466	319.794	117.897	334.210	−791.943	−270.080	−123.903	3.596
	1900.00	191.795	515.836	329.842	137.076	353.389	−843.012	−267.591	−115.850	3.185
	2000.00	191.795	525.674	339.389	156.255	372.568	−895.092	−265.109	−107.928	2.819

References

Phase	H / S	C_p
SOL−1	Ja1	Ja1
SOL−2	Ja1	Ja1
LIQ	Ja1	Ja1

Ni3S4 TRINICKEL TETRASULFIDE 304.334

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	164.814	186.606	186.606	−301.248	0.000	−356.885	−301.248	−291.934	51.146
	300.00	165.080	187.627	186.610	−300.943	0.305	−357.231	−301.256	−291.876	50.820
	400.00	179.448	237.085	193.256	−283.716	17.532	−378.550	−310.551	−288.328	37.652
	500.00	193.815	278.671	206.282	−265.053	36.195	−404.389	−316.366	−282.177	29.479
	600.00	208.183	315.278	221.453	−244.953	56.295	−434.120	−320.385	−274.924	23.934

References

Phase	H / S	C_p	Remarks
SOL	Ja1	Ja1	Ja1

DPT= 629. (Ni(1−x)S + NiS2)

154.754 NICKEL SULFATE **NiSO4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	137.999	92.002	92.002	−872.908	0.000	−900.338	−872.908	−759.545	133.069
	300.00	138.076	92.856	92.005	−872.653	0.255	−900.509	−872.852	−758.842	132.126
	400.00	142.227	133.146	97.470	−858.637	14.271	−911.896	−872.092	−721.202	94.179
	500.00	146.377	165.329	107.928	−844.207	28.701	−926.872	−870.638	−683.671	71.423
	600.00	150.528	192.384	119.807	−829.362	43.546	−944.792	−868.960	−646.430	56.277
	700.00	154.678	215.899	131.890	−814.102	58.806	−965.231	−866.836	−609.496	45.481
	800.00	158.829	236.825	143.723	−798.426	74.482	−987.886	−864.286	−572.906	37.407
	900.00	162.979	255.772	155.136	−782.336	90.572	−1012.531	−914.365	−535.491	31.079
	1000.00	167.130	273.158	166.081	−765.831	107.077	−1038.989	−909.866	−493.633	25.785
	1100.00	171.280	289.282	176.557	−748.910	123.998	−1067.120	−905.150	−452.236	21.475
	1200.00	175.431	304.363	186.585	−731.574	141.334	−1096.810	−900.202	−411.279	17.902

References

Phase	H / S	C_p
SOL	Nb1	Nb1,e

180.440 NICKEL ANTIMONY **NiSb**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	49.701	78.241	78.241	−83.680	0.000	−107.007	−83.680	−84.528	14.809
	300.00	49.723	78.548	78.242	−83.588	0.092	−107.153	−83.683	−84.534	14.719
	400.00	50.886	93.012	80.206	−78.558	5.122	−115.762	−83.948	−84.782	11.071
	500.00	52.049	104.492	83.953	−73.411	10.269	−125.657	−84.377	−84.945	8.874
	600.00	53.212	114.084	88.197	−68.148	15.532	−136.598	−85.064	−85.000	7.400
	700.00	54.375	122.374	92.501	−62.768	20.912	−148.430	−85.761	−84.924	6.337
	800.00	55.538	129.711	96.702	−57.273	26.407	−161.042	−86.226	−84.773	5.535
	900.00	56.702	136.320	100.743	−51.661	32.019	−174.348	−86.774	−84.560	4.908
	1000.00	57.865	142.354	104.606	−45.932	37.748	−188.286	−107.304	−82.168	4.292
	1100.00	59.028	147.924	108.294	−40.088	43.592	−202.804	−107.942	−79.624	3.781
	1200.00	60.191	153.109	111.815	−34.127	49.553	−217.858	−108.560	−77.022	3.353

References

Phase	H / S	C_p	Remarks	
SOL	P2/Ku1	e	Tk1	MPT= 1433.

NiSe1.05 NICKEL 1.05–SELENIDE 141.598

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	53.397	75.187	75.187	–74.894	0.000	–97.311	–74.894	–75.175	13.170
	300.00	53.400	75.517	75.188	–74.795	0.099	–97.450	–74.893	–75.176	13.089
	400.00	54.528	90.996	77.291	–69.412	5.482	–105.810	–75.043	–75.259	9.828
	500.00	56.628	103.379	81.308	–63.859	11.035	–115.548	–81.697	–75.178	7.854
	600.00	59.112	113.919	85.885	–58.074	16.820	–126.425	–82.874	–73.766	6.422
	700.00	61.776	123.230	90.567	–52.030	22.864	–138.291	–83.838	–72.158	5.385
	800.00	64.536	131.658	95.185	–45.715	29.179	–151.042	–84.306	–70.455	4.600
	900.00	67.352	139.422	99.674	–39.121	35.773	–164.601	–84.553	–68.707	3.988
	1000.00	70.203	146.665	104.015	–32.244	42.650	–178.909	–84.613	–66.941	3.497
	1100.00	73.077	153.491	108.205	–25.080	49.814	–193.920	–140.461	–59.977	2.848

References

Phase	H / S	C_p	Remarks
SOL	Mi1	Mi1	Tk1 TPT= 503.

NiSe1.143 NICKEL 1.143–SELENIDE 148.704

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	55.070	77.153	77.153	–79.705	0.000	–102.708	–79.705	–79.438	13.917
	300.00	55.164	77.494	77.154	–79.603	0.102	–102.851	–79.705	–79.436	13.831
	400.00	60.221	94.056	79.378	–73.834	5.871	–111.456	–79.709	–79.347	10.362
	500.00	94.021	108.619	83.753	–67.272	12.433	–121.581	–86.147	–79.165	8.270
	600.00	62.049	120.192	88.914	–60.938	18.767	–133.053	–87.091	–77.701	6.764
	700.00	64.726	129.958	94.093	–54.599	25.106	–145.570	–88.076	–76.045	5.675
	800.00	67.404	138.776	99.136	–47.992	31.713	–159.013	–88.569	–74.290	4.851
	900.00	70.082	146.870	103.996	–41.118	38.587	–173.301	–88.852	–72.486	4.207
	1000.00	72.760	154.392	108.663	–33.976	45.729	–188.368	–88.964	–70.660	3.691

References

Phase	H / S	C_p	Remarks
SOL	Mi1	Mi1	Ni7Se8

157.390 NICKEL 1.25–SELENIDE **NiSe1.25**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[–]
SOL–A	298.15	56.860	80.082	80.082	–83.052	0.000	–106.928	–83.052	–82.272	14.414
	300.00	56.940	80.434	80.083	–82.947	0.105	–107.077	–83.054	–82.267	14.324
	400.00	60.509	97.331	82.363	–77.065	5.987	–115.997	–83.238	–81.983	10.706
	500.00	63.349	111.146	86.779	–70.868	12.184	–126.441	–91.011	–81.523	8.517
	589.00	81.002	122.930	91.339	–64.445	18.607	–136.851	–91.389	–79.784	7.076
			0.000		0.000					
SOL–B	589.00	67.883	122.930	91.339	–64.445	18.607	–136.851	–91.389	–79.784	7.076
	600.00	67.742	124.185	91.930	–63.699	19.353	–138.210	–91.507	–79.566	6.927
	700.00	68.328	134.633	97.302	–56.920	26.132	–151.163	–92.438	–77.492	5.783
	800.00	71.162	143.924	102.558	–49.959	33.093	–165.098	–92.963	–75.318	4.918
	900.00	75.302	152.534	107.637	–42.645	40.407	–179.926	–93.193	–73.095	4.242
	995.00	79.992	160.317	112.298	–35.273	47.779	–194.788	–93.077	–70.977	3.726
			0.000		0.000					
SOL–C	995.00	78.324	160.317	112.298	–35.273	47.779	–194.788	–93.077	–70.977	3.726
	1000.00	78.483	160.710	112.539	–34.881	48.171	–195.591	–93.070	–70.866	3.702
	1100.00	81.678	168.340	117.268	–26.873	56.179	–212.047	–159.439	–62.464	2.966

References

Phase	H / S	C_p	Remarks	
SOL–A	Mi1	Mi1	Mi1	Ni4Se5
SOL–B	u	Mi1		
SOL–C	u	Mi1		

216.610 NICKEL DISELENIDE **NiSe2**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[–]
SOL	298.15	75.479	103.512	103.512	–108.784	0.000	–139.646	–108.784	–105.541	18.490
	300.00	75.560	103.979	103.514	–108.644	0.140	–139.838	–108.787	–105.520	18.373
	400.00	79.123	126.235	106.524	–100.899	7.885	–151.394	–109.109	–104.394	13.632
	500.00	81.883	144.196	112.319	–92.845	15.939	–164.943	–121.632	–102.972	10.757
	600.00	84.327	159.344	118.926	–84.533	24.251	–180.140	–123.621	–99.056	8.624
	700.00	86.622	172.517	125.661	–75.985	32.799	–196.747	–125.419	–94.807	7.075
	800.00	88.837	184.229	132.263	–67.211	41.573	–214.595	–126.767	–90.340	5.899
	900.00	91.006	194.818	138.635	–58.219	50.565	–233.555	–127.955	–85.714	4.975
	1000.00	93.146	204.518	144.745	–49.011	59.773	–253.529	–129.023	–80.962	4.229
	1100.00	95.268	213.495	150.592	–39.590	69.194	–274.435	–236.599	–66.200	3.144
	1123.00	95.754	215.471	151.900	–37.394	71.390	–279.368	–236.139	–62.642	2.914

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1	Tk1	MPT= 1123.

NiSeO3 NICKEL SELENITE 185.648

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	97.335	103.345	103.345	-567.350	0.000	-598.162	-567.350	-484.909	84.954
	300.00	97.445	103.947	103.347	-567.170	0.180	-598.354	-567.347	-484.398	84.341
	400.00	103.428	132.800	107.240	-557.126	10.224	-610.246	-567.159	-456.776	59.649
	500.00	109.412	156.522	114.790	-546.484	20.866	-624.745	-572.872	-429.119	44.830
	600.00	115.395	176.999	123.489	-535.244	32.106	-641.443	-573.158	-400.340	34.853
	700.00	121.378	195.237	132.458	-523.405	43.945	-660.071	-573.033	-371.531	27.724
	800.00	127.361	211.835	141.358	-510.968	56.382	-680.436	-572.208	-342.796	22.382

References

Phase	H / S	C_p
SOL	Tk1	e

NiSi NICKEL SILICON 86.775

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	44.767	46.861	46.861	-85.354	0.000	-99.326	-85.354	-84.808	14.858
	300.00	44.868	47.138	46.862	-85.271	0.083	-99.412	-85.356	-84.804	14.766
	400.00	48.649	60.629	48.675	-80.573	4.781	-104.824	-85.512	-84.599	11.047
	500.00	50.728	71.726	52.209	-75.596	9.758	-111.459	-85.771	-84.344	8.811
	600.00	52.137	81.106	56.264	-70.449	14.905	-119.112	-86.272	-84.017	7.314
	700.00	53.229	89.228	60.406	-65.179	20.175	-127.638	-86.768	-83.591	6.238
	800.00	54.153	96.398	64.465	-59.808	25.546	-136.926	-86.999	-83.122	5.427
	900.00	54.979	102.824	68.377	-54.351	31.003	-146.893	-87.254	-82.622	4.795
	1000.00	55.744	108.657	72.117	-48.815	36.539	-157.471	-87.574	-82.091	4.288
	1100.00	56.470	114.004	75.686	-43.204	42.150	-168.608	-87.963	-81.525	3.871
	1200.00	57.168	118.948	79.087	-37.522	47.832	-180.259	-88.421	-80.920	3.522
	1265.00	57.611	121.975	81.214	-33.791	51.563	-188.090	-88.755	-80.505	3.324
			34.729		43.932					
LIQ	1265.00	79.496	156.704	81.214	10.141	95.495	-188.090	-44.823	-80.505	3.324
	1300.00	79.496	158.874	83.276	12.923	98.277	-193.612	-44.251	-81.500	3.275
	1400.00	79.496	164.765	88.889	20.873	106.227	-209.798	-42.685	-84.424	3.150
	1500.00	79.496	170.249	94.132	28.822	114.176	-226.552	-41.179	-87.459	3.046
	1600.00	79.496	175.380	99.051	36.772	122.126	-243.836	-39.714	-90.592	2.958
	1700.00	79.496	180.199	103.684	44.722	130.076	-261.617	-88.467	-93.369	2.869
	1800.00	79.496	184.743	108.063	52.671	138.025	-279.867	-104.839	-92.944	2.697

References

Phase	H / S	C_p
SOL	Tk1	Tk1,C1
LIQ	Tk1	C1

775.942

7–NICKEL 13–SILICON **Ni7Si13**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	436.714	436.726	436.726	–586.053	0.000	–716.263	–586.053	–580.971	101.784
	300.00	437.849	439.431	436.734	–585.244	0.809	–717.073	–586.063	–580.939	101.151
	400.00	480.326	571.933	454.512	–539.085	46.968	–767.858	–586.620	–579.153	75.630
	500.00	503.951	681.854	489.309	–489.781	96.272	–830.707	–587.638	–577.186	60.298
	600.00	520.155	775.240	529.377	–438.535	147.518	–903.679	–590.189	–574.892	50.049
	700.00	532.856	856.408	570.424	–385.864	200.189	–985.350	–592.573	–572.083	42.689
	800.00	543.690	928.284	610.749	–332.025	254.028	–1074.652	–592.992	–569.125	37.160
	900.00	553.437	992.892	649.680	–277.162	308.891	–1170.765	–593.482	–566.115	32.856
	1000.00	562.511	1051.677	686.984	–221.360	364.693	–1273.037	–594.336	–563.033	29.410
	1100.00	571.144	1105.698	722.626	–164.674	421.379	–1380.942	–595.580	–559.845	26.585
	1200.00	579.478	1155.753	756.660	–107.141	478.912	–1494.045	–597.223	–556.527	24.225
	1253.00	583.804	1180.890	774.075	–76.314	509.739	–1555.970	–598.252	–554.708	23.124

References

Phase	H / S	C_p	Remarks	
SOL	Tk1	Tk1,C1	Tk1	DPT= 1253. (LIQ + Si)

294.780

3–NICKEL TIN **Ni3Sn**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	99.601	131.378	131.378	–93.701	0.000	–132.871	–93.701	–90.887	15.923
	300.00	99.680	131.994	131.380	–93.517	0.184	–133.115	–93.711	–90.869	15.822
	400.00	103.947	161.254	135.340	–83.335	10.366	–147.837	–94.519	–89.813	11.728
	500.00	108.215	184.908	142.961	–72.727	20.974	–165.181	–95.754	–88.504	9.246
	600.00	112.483	205.015	151.667	–61.692	32.009	–184.701	–104.489	–85.583	7.451
	700.00	116.750	222.675	160.575	–50.231	43.470	–206.103	–105.839	–82.290	6.141
	800.00	121.018	238.543	169.345	–38.342	55.359	–229.177	–106.073	–78.906	5.152
	900.00	125.286	253.044	177.850	–26.027	67.674	–253.766	–106.057	–75.510	4.382

References

Phase	H / S	C_p	Remarks	
SOL	Nb1/Ku1	Nb1,e	Hu1,Tk1	TPT= 1250., MPT= 1447., L= 94.98 kJ

Ni3Sn2 — 3–NICKEL 2–TIN — 413.490

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	108.670	173.636	173.636	–156.900	0.000	–208.670	–156.900	–151.421	26.528
	300.00	108.742	174.308	173.638	–156.699	0.201	–208.991	–156.944	–151.387	26.359
	400.00	112.633	206.125	177.950	–145.630	11.270	–228.080	–159.657	–149.145	19.476
	500.00	116.524	231.676	186.220	–134.172	22.728	–250.010	–163.015	–146.143	15.267
	600.00	120.416	253.265	195.640	–122.325	34.575	–274.284	–180.894	–139.776	12.169
	700.00	124.307	272.119	205.246	–110.089	46.811	–300.573	–184.329	–132.617	9.896
	800.00	128.198	288.972	214.677	–97.464	59.436	–328.641	–186.671	–125.066	8.166
	900.00	132.089	304.296	223.796	–84.450	72.450	–358.316	–188.801	–117.236	6.804
	1000.00	135.980	318.414	232.561	–71.046	85.854	–389.461	–190.830	–109.175	5.703
	1100.00	139.871	331.557	240.970	–57.254	99.646	–421.967	–192.761	–100.915	4.792
	1200.00	143.762	343.894	249.038	–43.072	113.828	–455.745	–194.593	–92.484	4.026
	1300.00	147.653	355.555	256.787	–28.501	128.399	–490.723	–196.310	–83.904	3.371
	1400.00	151.544	366.640	264.241	–13.541	143.359	–526.837	–197.839	–75.199	2.806

References

Phase	H / S	C_p	Remarks
SOL	Nb1/Ku1	e	Hu1,Tk1 TPT= 873., MPT= 1537., L= 127.6 kJ

NiTe1.1 — NICKEL 1.1–TELLURIDE — 199.050

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	54.787	84.057	84.057	–58.158	0.000	–83.219	–58.158	–58.079	10.175
	300.00	54.856	84.396	84.058	–58.056	0.101	–83.375	–58.157	–58.079	10.112
	400.00	57.517	100.581	86.246	–52.424	5.734	–92.656	–58.210	–58.051	7.581
	500.00	59.131	113.600	90.458	–46.586	11.571	–103.386	–58.526	–57.981	6.057
	600.00	60.332	124.492	95.247	–40.611	17.547	–115.306	–59.262	–57.811	5.033
	700.00	61.339	133.869	100.110	–34.526	23.631	–128.235	–60.177	–57.489	4.290
	800.00	62.242	142.120	104.856	–28.346	29.811	–142.042	–80.400	–54.982	3.590
	900.00	63.085	149.500	109.413	–22.080	36.078	–156.630	–81.427	–51.743	3.003
	1000.00	63.890	156.188	113.761	–15.731	42.427	–171.919	–82.467	–48.390	2.528

References

Phase	H / S	C_p
SOL	Tk1,Mi1	Mi1

106.570 NICKEL TITANIUM **NiTi**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	46.749	53.137	53.137	−67.781	0.000	−83.624	−67.781	−65.546	11.483
	300.00	46.879	53.426	53.138	−67.694	0.087	−83.722	−67.789	−65.532	11.410
	400.00	51.787	67.666	55.046	−62.733	5.048	−89.799	−68.149	−64.723	8.452
	500.00	54.576	79.545	58.792	−57.405	10.376	−97.177	−68.477	−63.830	6.668
	600.00	56.530	89.676	63.115	−51.845	15.936	−105.650	−68.974	−62.858	5.472
	700.00	58.091	98.511	67.554	−46.111	21.670	−115.069	−69.430	−61.792	4.611
	800.00	59.442	106.358	71.923	−40.233	27.548	−125.320	−69.616	−60.689	3.963
	900.00	60.670	113.431	76.149	−34.227	33.554	−136.315	−69.841	−59.560	3.457
	1000.00	61.823	119.883	80.204	−28.102	39.679	−147.985	−70.158	−58.402	3.051
	1100.00	62.926	125.828	84.085	−21.864	45.917	−160.274	−70.570	−57.207	2.717
	1200.00	63.995	131.349	87.796	−15.518	52.263	−173.137	−75.076	−55.851	2.431
	1300.00	65.041	136.513	91.347	−9.066	58.715	−186.532	−75.143	−54.247	2.180
	1400.00	66.070	141.371	94.748	−2.510	65.271	−200.429	−75.236	−52.636	1.964
	1500.00	67.085	145.964	98.011	4.148	71.929	−214.798	−75.316	−51.019	1.777
	1583.00	67.921	149.599	100.621	9.750	77.531	−227.065	−75.362	−49.673	1.639

References

Phase	H / S	C_p	Remarks	
SOL	Hu1/Ku1	e	Hu1	MPT= 1583.

154.450 NICKEL 2−TITANIUM **NiTi2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	74.976	83.680	83.680	−80.333	0.000	−105.282	−80.333	−78.034	13.671
	300.00	75.019	84.144	83.681	−80.194	0.139	−105.437	−80.335	−78.019	13.584
	400.00	77.362	106.046	86.652	−72.575	7.758	−114.994	−80.626	−77.212	10.083
	500.00	79.705	123.561	92.339	−64.722	15.611	−126.502	−81.130	−76.304	7.971
	600.00	82.048	138.300	98.802	−56.634	23.699	−139.614	−81.884	−75.273	6.553
	700.00	84.391	151.124	105.380	−48.312	32.021	−154.099	−82.624	−74.103	5.530
	800.00	86.734	162.546	111.824	−39.756	40.577	−169.792	−83.103	−72.853	4.757
	900.00	89.077	172.897	118.044	−30.965	49.368	−186.572	−83.624	−71.541	4.152
	1000.00	91.420	182.403	124.011	−21.940	58.393	−204.344	−84.236	−70.166	3.665
	1100.00	93.763	191.226	129.725	−12.681	67.652	−223.030	−84.932	−68.726	3.264
	1200.00	96.106	199.485	135.198	−3.188	77.145	−242.570	−93.702	−66.981	2.916

References

Phase	H / S	C_p	Remarks	
SOL	Nb1/Ku1	e	Hu1	DPT= 1257. (NiTi + LIQ)

Ni3Ti — 3–NICKEL TITANIUM — 223.950

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	93.504	104.600	104.600	−138.909	0.000	−170.095	−138.909	−134.204	23.512
	300.00	93.787	105.179	104.602	−138.736	0.173	−170.290	−138.927	−134.175	23.362
	400.00	104.321	133.785	108.430	−128.767	10.142	−182.281	−139.744	−132.463	17.298
	500.00	110.102	157.735	115.964	−118.023	20.886	−196.891	−140.569	−130.552	13.639
	600.00	114.013	178.174	124.671	−106.807	32.102	−213.712	−141.953	−128.433	11.181
	700.00	117.040	195.984	133.613	−95.250	43.659	−232.438	−143.220	−126.048	9.406
	800.00	119.597	211.783	142.416	−83.415	55.494	−252.842	−143.633	−123.566	8.068
	900.00	121.880	226.004	150.926	−71.339	67.570	−274.743	−144.092	−121.032	7.025
	1000.00	123.993	238.955	159.091	−59.045	79.864	−298.000	−144.734	−118.437	6.187
	1100.00	125.995	250.868	166.900	−46.544	92.365	−322.499	−145.573	−115.768	5.497
	1200.00	127.921	261.914	174.363	−33.848	105.061	−348.145	−150.611	−112.896	4.914
	1300.00	129.794	272.227	181.499	−20.962	117.947	−374.858	−151.309	−109.725	4.409
	1400.00	131.629	281.913	188.329	−7.891	131.018	−402.569	−152.085	−106.497	3.973
	1500.00	133.435	291.057	194.875	5.363	144.272	−431.222	−152.808	−103.215	3.594
	1600.00	135.219	299.725	201.160	18.796	157.705	−460.765	−153.426	−99.888	3.261
	1653.00	136.157	304.147	204.391	25.987	164.896	−476.768	−153.716	−98.110	3.100

References

Phase	H / S	C_p	Remarks	
SOL	Hu1/Ku1	e	Hu1	MPT= 1653.

NiWO4 — NICKEL TUNGSTATE — 306.538

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	121.438	125.520	125.520	−1127.170	0.000	−1164.594	−1127.170	−1023.620	179.334
	300.00	121.491	126.271	125.522	−1126.945	0.225	−1164.827	−1127.147	−1022.978	178.116
	400.00	124.332	161.611	130.322	−1114.654	12.516	−1179.299	−1125.996	−988.433	129.076
	500.00	127.173	189.660	139.478	−1102.079	25.091	−1196.909	−1125.009	−954.160	99.680
	600.00	130.014	213.098	149.847	−1089.220	37.950	−1217.078	−1124.299	−920.063	80.099
	700.00	132.855	233.353	160.362	−1076.076	51.094	−1239.423	−1123.582	−886.070	66.119
	800.00	135.695	251.278	170.627	−1062.649	64.521	−1263.671	−1122.566	−852.208	55.643
	900.00	138.536	267.425	180.500	−1048.937	78.233	−1289.620	−1121.505	−818.477	47.503
	1000.00	141.377	282.168	189.940	−1034.941	92.229	−1317.110	−1120.415	−784.865	40.997
	1100.00	144.218	295.776	198.950	−1020.662	106.508	−1346.016	−1119.277	−751.365	35.679
	1200.00	147.059	308.447	207.553	−1006.098	121.072	−1376.234	−1118.076	−717.970	31.252
	1300.00	149.900	320.330	215.776	−991.250	135.920	−1407.679	−1116.797	−684.680	27.511
	1400.00	152.741	331.543	223.648	−976.118	151.052	−1440.277	−1115.407	−651.491	24.307
	1500.00	155.582	342.178	231.199	−960.702	166.468	−1473.968	−1113.855	−618.407	21.535

References

Phase	H / S	C_p
SOL	Tk1	e

237.048 NEPTUNIUM **Np**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol	]		[−]
SOL−A	298.15	29.624	50.459	50.459	0.000	0.000	−15.044	0.000	0.000	0.000
	300.00	29.666	50.642	50.460	0.055	0.055	−15.138	0.000	0.000	0.000
	400.00	34.019	59.693	51.665	3.212	3.212	−20.666	0.000	0.000	0.000
	500.00	40.444	67.953	54.103	6.925	6.925	−27.052	0.000	0.000	0.000
	553.00	44.216	72.213	55.635	9.168	9.168	−30.766	0.000	0.000	0.000
			10.139		5.607					
SOL−B	553.00	39.325	82.352	55.635	14.775	14.775	−30.766	0.000	0.000	0.000
	600.00	39.325	85.560	57.855	16.623	16.623	−34.713	0.000	0.000	0.000
	700.00	39.325	91.622	62.257	20.555	20.555	−43.580	0.000	0.000	0.000
	800.00	39.325	96.873	66.263	24.488	24.488	−53.011	0.000	0.000	0.000
	849.00	39.325	99.211	68.098	26.415	26.415	−57.815	0.000	0.000	0.000
			6.210		5.272					
SOL−C	849.00	36.392	105.421	68.098	31.687	31.687	−57.815	0.000	0.000	0.000
	900.00	36.392	107.543	70.274	33.543	33.543	−63.246	0.000	0.000	0.000
	912.00	36.392	108.026	70.767	33.980	33.980	−64.540	0.000	0.000	0.000
			5.689		5.188					
LIQ	912.00	45.396	113.714	70.767	39.168	39.168	−64.540	0.000	0.000	0.000
	1000.00	45.396	117.896	74.733	43.162	43.162	−74.733	0.000	0.000	0.000
	1100.00	45.396	122.223	78.857	47.702	47.702	−86.743	0.000	0.000	0.000
	1200.00	45.396	126.173	82.638	52.242	52.242	−99.165	0.000	0.000	0.000
	1300.00	45.396	129.806	86.128	56.781	56.781	−111.967	0.000	0.000	0.000
	1400.00	45.396	133.170	89.370	61.321	61.321	−125.118	0.000	0.000	0.000
	1500.00	45.396	136.302	92.395	65.861	65.861	−138.593	0.000	0.000	0.000
	1600.00	45.396	139.232	95.232	70.400	70.400	−152.371	0.000	0.000	0.000
	1700.00	45.396	141.984	97.902	74.940	74.940	−166.434	0.000	0.000	0.000
	1800.00	45.396	144.579	100.424	79.480	79.480	−180.763	0.000	0.000	0.000
	1900.00	45.396	147.034	102.813	84.019	84.019	−195.345	0.000	0.000	0.000
	2000.00	45.396	149.362	105.083	88.559	88.559	−210.166	0.000	0.000	0.000
	2100.00	45.396	151.577	107.244	93.099	93.099	−225.213	0.000	0.000	0.000
	2200.00	45.396	153.689	109.308	97.638	97.638	−240.478	0.000	0.000	0.000
	2300.00	45.396	155.707	111.282	102.178	102.178	−255.948	0.000	0.000	0.000
	2400.00	45.396	157.639	113.173	106.717	106.717	−271.616	0.000	0.000	0.000
	2500.00	45.396	159.492	114.989	111.257	111.257	−287.473	0.000	0.000	0.000
	2600.00	45.396	161.273	116.735	115.797	115.797	−303.512	0.000	0.000	0.000
	2700.00	45.396	162.986	118.417	120.336	120.336	−319.726	0.000	0.000	0.000
	2800.00	45.396	164.637	120.038	124.876	124.876	−336.107	0.000	0.000	0.000
	2900.00	45.396	166.230	121.604	129.416	129.416	−352.651	0.000	0.000	0.000
	3000.00	45.396	167.769	123.117	133.955	133.955	−369.351	0.000	0.000	0.000
	3100.00	45.396	169.257	124.582	138.495	138.495	−386.203	0.000	0.000	0.000
	3200.00	45.396	170.699	126.000	143.035	143.035	−403.201	0.000	0.000	0.000
	3300.00	45.396	172.096	127.376	147.574	147.574	−420.341	0.000	0.000	0.000
	3400.00	45.396	173.451	128.711	152.114	152.114	−437.619	0.000	0.000	0.000
	3500.00	45.396	174.767	130.009	156.653	156.653	−455.030	0.000	0.000	0.000

Np NEPTUNIUM [continued] 237.048

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
LIQ	3600.00	45.396	176.046	131.270	161.193	161.193	−472.571	0.000	0.000	0.000
	3700.00	45.396	177.289	132.497	165.733	165.733	−490.238	0.000	0.000	0.000
	3800.00	45.396	178.500	133.692	170.272	170.272	−508.028	0.000	0.000	0.000
	3900.00	45.396	179.679	134.856	174.812	174.812	−525.937	0.000	0.000	0.000
	4000.00	45.396	180.829	135.991	179.352	179.352	−543.963	0.000	0.000	0.000
	4100.00	45.396	181.950	137.098	183.891	183.891	−562.102	0.000	0.000	0.000
	4200.00	45.396	183.043	138.179	188.431	188.431	−580.352	0.000	0.000	0.000
	4300.00	45.396	184.112	139.235	192.971	192.971	−598.710	0.000	0.000	0.000
	4352.44	45.396	184.662	139.779	195.351	195.351	−608.379	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL − A	Oe2	Oe2		orthorhombic
SOL − B	Oe2	Oe2		tetragonal
SOL − C	Oe2	Oe2	Hu1	bcc (uncertain)
LIQ	Oe2	Oe2	e	BPT = 4352.44, L = 423.367 kJ

237.048 NEPTUNIUM (GAS) **Np[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.816	197.716	197.716	464.842	0.000	405.893	464.842	420.937	−73.746
	300.00	20.830	197.844	197.716	464.881	0.039	405.527	464.826	420.665	−73.244
	400.00	21.078	203.879	198.537	466.979	2.137	385.427	463.767	406.093	−53.030
	500.00	21.573	208.626	200.096	469.107	4.265	364.794	462.182	391.845	−40.936
	600.00	22.493	212.636	201.860	471.308	6.466	343.726	454.685	378.439	−32.946
	700.00	23.670	216.189	203.657	473.614	8.772	322.282	453.059	365.862	−27.301
	800.00	24.973	219.434	205.429	476.046	11.204	300.499	451.558	353.509	−23.082
	900.00	26.322	222.453	207.155	478.610	13.768	278.403	445.067	341.649	−19.829
	1000.00	27.668	225.296	208.828	481.310	16.468	256.014	438.148	330.747	−17.276
	1100.00	28.984	227.995	210.449	484.143	19.301	233.348	436.441	320.091	−15.200
	1200.00	30.251	230.572	212.019	487.105	22.263	210.419	434.863	309.584	−13.476
	1300.00	31.462	233.042	213.542	490.191	25.349	187.237	433.410	299.204	−12.022
	1400.00	32.611	235.416	215.020	493.395	28.553	163.814	432.074	288.931	−10.780
	1500.00	33.697	237.703	216.457	496.711	31.869	140.157	430.851	278.750	−9.707
	1600.00	34.720	239.911	217.854	500.133	35.291	116.276	429.732	268.647	−8.770
	1700.00	35.682	242.045	219.214	503.653	38.811	92.177	428.713	258.611	−7.946
	1800.00	36.587	244.110	220.541	507.267	42.425	67.869	427.788	248.632	−7.215
	1900.00	37.437	246.111	221.834	510.969	46.127	43.357	426.950	238.702	−6.562
	2000.00	38.236	248.052	223.097	514.753	49.911	18.649	426.194	228.814	−5.976
	2100.00	38.991	249.936	224.330	518.615	53.773	−6.251	425.516	218.962	−5.446
	2200.00	39.704	251.766	225.536	522.550	57.708	−31.337	424.911	209.141	−4.966
	2300.00	40.380	253.546	226.715	526.554	61.712	−56.603	424.376	199.345	−4.527
	2400.00	41.026	255.279	227.869	530.625	65.783	−82.044	423.907	189.572	−4.126
	2500.00	41.646	256.966	229.000	534.758	69.916	−107.657	423.501	179.816	−3.757
	2600.00	42.185	258.610	230.107	538.950	74.108	−133.436	423.154	170.076	−3.417
	2700.00	42.682	260.212	231.192	543.194	78.352	−159.377	422.858	160.348	−3.102
	2800.00	43.146	261.772	232.257	547.486	82.644	−185.477	422.610	150.630	−2.810
	2900.00	43.582	263.294	233.301	551.822	86.980	−211.731	422.407	140.920	−2.538
	3000.00	43.994	264.779	234.326	556.201	91.359	−238.135	422.246	131.217	−2.285
	3100.00	44.385	266.228	235.331	560.620	95.778	−264.685	422.126	121.518	−2.048
	3200.00	44.756	267.643	236.319	565.078	100.236	−291.379	422.043	111.822	−1.825
	3300.00	45.111	269.025	237.289	569.571	104.729	−318.213	421.997	102.129	−1.617
	3400.00	45.451	270.377	238.243	574.099	109.257	−345.183	421.986	92.436	−1.420
	3500.00	45.776	271.699	239.180	578.661	113.819	−372.287	422.007	82.743	−1.235
	3600.00	46.088	272.993	240.101	583.254	118.412	−399.522	422.061	73.049	−1.060
	3700.00	46.388	274.260	241.007	587.878	123.036	−426.885	422.145	63.353	−0.894
	3800.00	46.676	275.501	241.899	592.531	127.689	−454.373	422.259	53.655	−0.738
	3900.00	46.953	276.717	242.776	597.213	132.371	−481.984	422.401	43.953	−0.589
	4000.00	47.219	277.909	243.639	601.922	137.080	−509.716	422.570	34.247	−0.447
	4100.00	47.475	279.078	244.490	606.656	141.814	−537.565	422.765	24.536	−0.313
	4200.00	47.720	280.225	245.327	611.416	146.574	−565.531	422.985	14.821	−0.184
	4300.00	47.955	281.351	246.152	616.200	151.358	−593.610	423.229	5.100	−0.062
	4400.00	48.180	282.456	246.964	621.007	156.165	−621.800	0.000	0.000	0.000
	4500.00	48.396	283.541	247.765	625.836	160.994	−650.100	0.000	0.000	0.000
	4600.00	48.602	284.607	248.554	630.686	165.844	−678.508	0.000	0.000	0.000
	4700.00	48.798	285.655	249.333	635.556	170.714	−707.021	0.000	0.000	0.000
	4800.00	48.985	286.684	250.100	640.445	175.603	−735.638	0.000	0.000	0.000
	4900.00	49.162	287.696	250.857	645.352	180.510	−764.357	0.000	0.000	0.000
	5000.00	49.330	288.691	251.604	650.277	185.435	−793.177	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Pa1	Pa1,e

NpCl3 NEPTUNIUM TRICHLORIDE 343.406

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	101.617	160.247	160.247	−903.744	0.000	−951.522	−903.744	−836.694	146.585
	300.00	101.671	160.876	160.249	−903.556	0.188	−951.819	−903.705	−836.278	145.609
	400.00	104.600	190.526	164.272	−893.242	10.502	−969.453	−901.749	−814.107	106.311
	500.00	107.529	214.181	171.965	−882.636	21.108	−989.727	−900.212	−792.384	82.780
	600.00	110.458	234.045	180.700	−871.737	32.007	−1012.164	−904.464	−770.460	67.074
	700.00	113.386	251.292	189.579	−860.544	43.200	−1036.449	−902.719	−748.260	55.836
	800.00	116.315	266.624	198.268	−849.059	54.685	−1062.359	−900.724	−726.328	47.424
	900.00	119.244	280.493	206.646	−837.281	66.463	−1089.725	−903.590	−704.349	40.879
	1000.00	122.173	293.208	214.675	−825.211	78.533	−1118.419	−906.751	−681.822	35.615

References

Phase	H / S	C_p
SOL	Ku1/e	e

NpCl4 NEPTUNIUM TETRACHLORIDE 378.859

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	120.777	199.577	199.577	−987.424	0.000	−1046.928	−987.424	−898.839	157.473
	300.00	120.889	200.324	199.579	−987.200	0.224	−1047.298	−987.381	−898.290	156.406
	400.00	126.082	235.846	204.387	−974.840	12.584	−1069.179	−985.112	−868.939	113.472
	500.00	130.411	264.455	213.630	−962.012	25.412	−1094.239	−983.138	−840.132	87.768
	600.00	134.401	288.588	224.163	−948.769	38.655	−1121.922	−986.864	−811.221	70.623
	700.00	138.230	309.595	234.898	−935.137	52.287	−1151.853	−984.518	−782.128	58.363
	800.00	141.974	328.298	245.425	−921.126	66.298	−1183.764	−981.850	−753.394	49.192

References

Phase	H / S	C_p
SOL	Ku1	e

294.043 NEPTUNIUM TRIFLUORIDE **NpF3**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	108.524	118.407	118.407	−1506.240	0.000	−1541.543	−1506.240	−1435.804	251.547
	300.00	108.575	119.079	118.409	−1506.039	0.201	−1541.763	−1506.181	−1435.367	249.920
	400.00	111.294	150.686	122.700	−1495.046	11.194	−1555.320	−1503.165	−1412.228	184.418
	500.00	114.014	175.813	130.894	−1483.780	22.460	−1571.687	−1500.657	−1389.796	145.191
	600.00	116.734	196.841	140.179	−1472.243	33.997	−1590.347	−1504.027	−1367.350	119.038
	700.00	119.453	215.039	149.602	−1460.434	45.806	−1610.961	−1501.476	−1344.769	100.348
	800.00	122.173	231.168	158.808	−1448.352	57.888	−1633.286	−1498.736	−1322.567	86.355
	900.00	124.892	245.715	167.669	−1435.999	70.241	−1657.142	−1500.909	−1300.409	75.474
	1000.00	127.612	259.014	176.148	−1423.374	82.866	−1682.388	−1503.424	−1277.777	66.744

References

Phase	H / S	C_p
SOL	Ku1	e

351.039 NEPTUNIUM HEXAFLUORIDE **NpF6**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	167.442	229.095	229.095	−1985.308	0.000	−2053.613	−1985.308	−1857.178	325.370
	300.00	168.089	230.133	229.098	−1984.998	0.310	−2054.037	−1985.226	−1856.384	323.225
	327.91	177.847	245.513	229.844	−1980.170	5.138	−2060.676	−1983.879	−1844.456	293.814
			53.438		17.523					
LIQ	327.91	186.500	298.951	229.844	−1962.647	22.661	−2060.676	−1966.356	−1844.456	293.814
	350.00	188.903	311.188	234.595	−1958.501	26.807	−2067.416	−1965.011	−1836.288	274.051

References

Phase	H / S	C_p
SOL	Pa2	Pa2
LIQ	Pa2	Pa2

NpF6[g] NEPTUNIUM HEXAFLUORIDE (GAS) 351.039

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	129.069	376.632	376.632	-1937.192	0.000	-2049.485	-1937.192	-1853.050	324.647
	300.00	129.365	377.431	376.634	-1936.953	0.239	-2050.182	-1937.182	-1852.528	322.554
	400.00	140.028	416.312	381.863	-1923.412	13.780	-2089.937	-1936.438	-1824.419	238.245
	500.00	145.351	448.188	392.039	-1909.118	28.074	-2133.212	-1935.947	-1796.482	187.677
	600.00	148.572	474.994	403.691	-1894.410	42.782	-2179.407	-1941.356	-1768.124	153.929
	700.00	150.801	498.073	415.564	-1879.436	57.756	-2228.087	-1940.965	-1739.283	129.787
	800.00	152.500	518.325	427.169	-1864.267	72.925	-2278.927	-1940.547	-1710.500	111.684
	900.00	153.892	536.369	438.318	-1848.946	88.246	-2331.678	-1945.224	-1681.458	97.589
	1000.00	155.093	552.647	448.950	-1833.495	103.697	-2386.142	-1950.434	-1651.654	86.274

References

Phase	H / S	C_p
GAS	Pa2	Pa2

NpO2 NEPTUNIUM DIOXIDE 269.047

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	63.715	80.333	80.333	-1029.264	0.000	-1053.215	-1029.264	-977.006	171.167
	300.00	63.957	80.728	80.334	-1029.146	0.118	-1053.364	-1029.255	-976.682	170.055
	400.00	72.689	100.489	82.969	-1022.256	7.008	-1062.452	-1028.493	-959.263	125.267
	500.00	77.094	117.228	88.193	-1014.746	14.518	-1073.360	-1027.755	-942.047	98.415
	600.00	79.797	131.540	94.254	-1006.892	22.372	-1085.816	-1032.759	-924.477	80.483
	700.00	81.696	143.991	100.489	-998.813	30.451	-1099.607	-1031.867	-906.499	67.644
	800.00	83.166	154.999	106.628	-990.567	38.697	-1114.567	-1030.891	-888.655	58.023
	900.00	84.388	164.867	112.560	-982.188	47.076	-1130.568	-1034.972	-870.625	50.530
	1000.00	85.454	173.814	118.245	-973.695	55.569	-1147.509	-1039.560	-851.901	44.499
	1100.00	86.419	182.005	123.675	-965.101	64.163	-1165.306	-1039.015	-833.161	39.564
	1200.00	87.316	189.563	128.854	-956.413	72.851	-1183.889	-1038.416	-814.473	35.453
	1300.00	88.164	196.586	133.798	-947.639	81.625	-1203.201	-1037.764	-795.837	31.977
	1400.00	88.977	203.150	138.519	-938.782	90.482	-1223.191	-1037.060	-777.254	29.000
	1500.00	89.764	209.315	143.036	-929.845	99.419	-1243.818	-1036.304	-758.722	26.421

References

Phase	H / S	C_p
SOL	Ku1	e

323.953 NEPTUNIUM DICHLORIDE OXIDE **NpOCl2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	92.605	140.164	140.164	−1028.427	0.000	−1070.217	−1028.427	−958.068	167.850
	300.00	92.778	140.737	140.166	−1028.256	0.171	−1070.477	−1028.400	−957.632	166.738
	400.00	99.590	168.457	143.899	−1018.604	9.823	−1085.987	−1026.858	−934.272	122.003
	500.00	103.889	191.169	151.150	−1008.418	20.009	−1104.002	−1025.486	−911.292	95.202
	600.00	107.199	210.412	159.464	−997.858	30.569	−1124.105	−1029.839	−888.085	77.315
	700.00	110.042	227.155	167.964	−986.993	41.434	−1146.002	−1028.211	−864.585	64.516
	800.00	112.636	242.020	176.309	−975.858	52.569	−1169.474	−1026.382	−841.333	54.933

References

Phase	H / S	C_p
SOL	Ku1	e

303.062 NEPTUNIUM TRIOXIDE HYDRATE **NpO3*H2O**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	117.943	137.235	137.235	−1390.762	0.000	−1431.679	−1390.762	−1255.343	219.931
	300.00	118.370	137.966	137.237	−1390.543	0.219	−1431.933	−1390.760	−1254.503	218.428
	400.00	135.677	174.611	142.117	−1377.764	12.998	−1447.609	−1389.986	−1209.170	157.901
	500.00	147.193	206.186	151.848	−1363.593	27.169	−1466.686	−1388.568	−1164.123	121.615
	600.00	156.430	233.861	163.257	−1348.399	42.363	−1488.716	−1392.321	−1118.915	97.410
	700.00	164.592	258.598	175.141	−1332.342	58.420	−1513.360	−1389.643	−1073.550	80.109
	800.00	172.179	281.076	186.998	−1315.500	75.262	−1540.361	−1386.360	−1028.611	67.161

References

Phase	H / S	C_p
SOL	Ku1	e

O[g] OXYGEN (GAS) 15.999

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	21.911	161.058	161.058	249.173	0.000	201.154	249.173	231.736	−40.599
	300.00	21.901	161.194	161.058	249.214	0.041	200.855	249.186	231.628	−40.330
	400.00	21.482	167.430	161.912	251.380	2.207	184.408	249.868	225.670	−29.469
	500.00	21.257	172.197	163.511	253.516	4.343	167.418	250.474	219.549	−22.936
	600.00	21.124	176.060	165.290	255.635	6.462	149.999	251.013	213.312	−18.570
	700.00	21.040	179.309	167.067	257.743	8.570	132.226	251.493	206.990	−15.446
	800.00	20.984	182.115	168.777	259.844	10.671	114.152	251.926	200.602	−13.098
	900.00	20.944	184.584	170.399	261.940	12.767	95.814	252.320	194.163	−11.269
	1000.00	20.915	186.789	171.929	264.033	14.860	77.244	252.681	187.681	−9.803
	1100.00	20.893	188.782	173.372	266.123	16.950	58.463	253.017	181.165	−8.603
	1200.00	20.877	190.599	174.733	268.212	19.039	39.493	253.331	174.619	−7.601
	1300.00	20.864	192.269	176.019	270.299	21.126	20.349	253.627	168.047	−6.752
	1400.00	20.853	193.815	177.235	272.385	23.212	1.043	253.906	161.453	−6.024
	1500.00	20.845	195.254	178.389	274.469	25.296	−18.411	254.170	154.840	−5.392
	1600.00	20.838	196.599	179.486	276.554	27.381	−38.004	254.421	148.210	−4.839
	1700.00	20.833	197.862	180.530	278.637	29.464	−57.728	254.658	141.565	−4.350
	1800.00	20.830	199.052	181.526	280.720	31.547	−77.574	254.884	134.906	−3.915
	1900.00	20.827	200.179	182.479	282.803	33.630	−97.536	255.097	128.234	−3.525
	2000.00	20.826	201.247	183.390	284.886	35.713	−117.608	255.298	121.552	−3.175
	2100.00	20.828	202.263	184.265	286.968	37.795	−137.784	255.488	114.860	−2.857
	2200.00	20.832	203.232	185.105	289.051	39.878	−158.059	255.667	108.159	−2.568
	2300.00	20.836	204.158	185.914	291.135	41.962	−178.429	255.835	101.450	−2.304
	2400.00	20.842	205.045	186.693	293.219	44.046	−198.889	255.992	94.735	−2.062
	2500.00	20.850	205.896	187.444	295.303	46.130	−219.437	256.139	88.013	−1.839
	2600.00	20.861	206.714	188.169	297.389	48.216	−240.067	256.277	81.285	−1.633
	2700.00	20.876	207.501	188.871	299.476	50.303	−260.778	256.405	74.552	−1.442
	2800.00	20.893	208.261	189.550	301.564	52.391	−281.567	256.525	67.814	−1.265
	2900.00	20.913	208.994	190.208	303.654	54.481	−302.430	256.636	61.073	−1.100
	3000.00	20.936	209.704	190.846	305.747	56.574	−323.365	256.740	54.327	−0.946
	3100.00	20.962	210.391	191.465	307.842	58.669	−344.370	256.837	47.579	−0.802
	3200.00	20.991	211.057	192.067	309.939	60.766	−365.442	256.928	40.827	−0.666
	3300.00	21.023	211.703	192.653	312.040	62.867	−386.580	257.013	34.072	−0.539
	3400.00	21.057	212.331	193.222	314.144	64.971	−407.782	257.093	27.315	−0.420
	3500.00	21.093	212.942	193.777	316.251	67.078	−429.046	257.169	20.556	−0.307
	3600.00	21.131	213.537	194.318	318.363	69.190	−450.370	257.240	13.795	−0.200
	3700.00	21.172	214.116	194.845	320.478	71.305	−471.753	257.308	7.031	−0.099
	3800.00	21.214	214.682	195.359	322.597	73.424	−493.193	257.373	0.266	−0.004
	3900.00	21.257	215.233	195.862	324.720	75.547	−514.689	257.436	−6.500	0.087
	4000.00	21.302	215.772	196.353	326.848	77.675	−536.239	257.496	−13.269	0.173
	4100.00	21.349	216.298	196.833	328.981	79.808	−557.843	257.554	−20.039	0.255
	4200.00	21.396	216.813	197.303	331.118	81.945	−579.498	257.611	−26.810	0.333
	4300.00	21.445	217.318	197.762	333.260	84.087	−601.205	257.666	−33.582	0.408
	4400.00	21.494	217.811	198.212	335.407	86.234	−622.962	257.720	−40.356	0.479
	4500.00	21.544	218.295	198.653	337.559	88.386	−644.767	257.773	−47.131	0.547
	4600.00	21.595	218.769	199.085	339.716	90.543	−666.620	257.825	−53.908	0.612
	4700.00	21.645	219.234	199.509	341.878	92.705	−688.520	257.876	−60.685	0.674
	4800.00	21.696	219.690	199.925	344.045	94.872	−710.467	257.925	−67.463	0.734
	4900.00	21.747	220.138	200.333	346.217	97.044	−732.458	257.974	−74.243	0.791
	5000.00	21.798	220.578	200.733	348.395	99.222	−754.494	258.020	−81.023	0.846

References

Phase	H / S	C_p
GAS	Ja2	Ja2

31.999 OXYGEN (GAS) **O2**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	29.376	205.147	205.147	0.000	0.000	−61.165	0.000	0.000	0.000
	300.00	29.385	205.329	205.148	0.054	0.054	−61.544	0.000	0.000	0.000
	400.00	30.106	213.871	206.307	3.025	3.025	−82.523	0.000	0.000	0.000
	500.00	31.091	220.693	208.524	6.084	6.084	−104.262	0.000	0.000	0.000
	600.00	32.089	226.451	211.044	9.244	9.244	−126.626	0.000	0.000	0.000
	700.00	32.981	231.466	213.611	12.499	12.499	−149.528	0.000	0.000	0.000
	800.00	33.734	235.921	216.126	15.836	15.836	−172.901	0.000	0.000	0.000
	900.00	34.354	239.931	218.552	19.241	19.241	−196.697	0.000	0.000	0.000
	1000.00	34.870	243.578	220.875	22.703	22.703	−220.875	0.000	0.000	0.000
	1100.00	35.302	246.922	223.093	26.212	26.212	−245.402	0.000	0.000	0.000
	1200.00	35.667	250.010	225.209	29.761	29.761	−270.251	0.000	0.000	0.000
	1300.00	35.987	252.878	227.228	33.344	33.344	−295.397	0.000	0.000	0.000
	1400.00	36.276	255.555	229.157	36.957	36.957	−320.820	0.000	0.000	0.000
	1500.00	36.543	258.067	231.002	40.598	40.598	−346.503	0.000	0.000	0.000
	1600.00	36.797	260.434	232.768	44.266	44.266	−372.429	0.000	0.000	0.000
	1700.00	37.041	262.672	234.462	47.957	47.957	−398.585	0.000	0.000	0.000
	1800.00	37.278	264.796	236.089	51.673	51.673	−424.959	0.000	0.000	0.000
	1900.00	37.511	266.818	237.653	55.413	55.413	−451.541	0.000	0.000	0.000
	2000.00	37.741	268.748	239.160	59.176	59.176	−478.320	0.000	0.000	0.000
	2100.00	37.969	270.595	240.613	62.961	62.961	−505.288	0.000	0.000	0.000
	2200.00	38.194	272.366	242.017	66.769	66.769	−532.436	0.000	0.000	0.000
	2300.00	38.418	274.069	243.373	70.600	70.600	−559.759	0.000	0.000	0.000
	2400.00	38.638	275.709	244.687	74.453	74.453	−587.248	0.000	0.000	0.000
	2500.00	38.855	277.290	245.959	78.327	78.327	−614.898	0.000	0.000	0.000
	2600.00	39.069	278.818	247.194	82.224	82.224	−642.704	0.000	0.000	0.000
	2700.00	39.277	280.297	248.393	86.141	86.141	−670.660	0.000	0.000	0.000
	2800.00	39.479	281.729	249.558	90.079	90.079	−698.762	0.000	0.000	0.000
	2900.00	39.675	283.118	250.691	94.037	94.037	−727.005	0.000	0.000	0.000
	3000.00	39.862	284.466	251.795	98.013	98.013	−755.384	0.000	0.000	0.000
	3100.00	40.047	285.776	252.870	102.009	102.009	−783.897	0.000	0.000	0.000
	3200.00	40.224	287.050	253.918	106.023	106.023	−812.538	0.000	0.000	0.000
	3300.00	40.395	288.291	254.941	110.054	110.054	−841.306	0.000	0.000	0.000
	3400.00	40.559	289.499	255.940	114.101	114.101	−870.195	0.000	0.000	0.000
	3500.00	40.717	290.677	256.916	118.165	118.165	−899.204	0.000	0.000	0.000
	3600.00	40.868	291.826	257.869	122.245	122.245	−928.330	0.000	0.000	0.000
	3700.00	41.014	292.948	258.802	126.339	126.339	−957.569	0.000	0.000	0.000
	3800.00	41.154	294.044	259.715	130.447	130.447	−986.919	0.000	0.000	0.000
	3900.00	41.290	295.114	260.609	134.569	134.569	−1016.377	0.000	0.000	0.000
	4000.00	41.421	296.161	261.485	138.705	138.705	−1045.941	0.000	0.000	0.000
	4100.00	41.549	297.186	262.343	142.854	142.854	−1075.608	0.000	0.000	0.000
	4200.00	41.674	298.189	263.185	147.015	147.015	−1105.377	0.000	0.000	0.000
	4300.00	41.797	299.171	264.011	151.188	151.188	−1135.245	0.000	0.000	0.000
	4400.00	41.919	300.133	264.821	155.374	155.374	−1165.211	0.000	0.000	0.000
	4500.00	42.041	301.076	265.616	159.572	159.572	−1195.271	0.000	0.000	0.000
	4600.00	42.164	302.002	266.397	163.782	163.782	−1225.425	0.000	0.000	0.000
	4700.00	42.288	302.910	267.164	168.005	168.005	−1255.671	0.000	0.000	0.000
	4800.00	42.414	303.801	267.918	172.240	172.240	−1286.007	0.000	0.000	0.000
	4900.00	42.543	304.677	268.659	176.488	176.488	−1316.431	0.000	0.000	0.000
	5000.00	42.676	305.538	269.388	180.748	180.748	−1346.942	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Ja2	Ja2

O3[g] OZONE (GAS) 47.998

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	39.250	238.932	238.932	143.093	0.000	71.855	143.093	163.602	−28.662
	300.00	39.322	239.175	238.933	143.166	0.073	71.413	143.084	163.730	−28.508
	400.00	43.714	251.087	240.527	147.317	4.224	46.882	142.779	170.667	−22.287
	500.00	47.301	261.249	243.680	151.877	8.784	21.253	142.751	177.646	−18.559
	600.00	49.876	270.113	247.362	156.743	13.650	−5.324	142.877	184.615	−16.072
	700.00	51.741	277.949	251.183	161.829	18.736	−32.735	143.081	191.556	−14.294
	800.00	53.130	284.953	254.975	167.076	23.983	−60.887	143.323	198.465	−12.958
	900.00	54.190	291.275	258.662	172.444	29.351	−89.703	143.583	205.342	−11.918
	1000.00	55.015	297.029	262.216	177.906	34.813	−119.123	143.852	212.190	−11.084
	1100.00	55.667	302.304	265.624	183.441	40.348	−149.093	144.123	219.011	−10.400
	1200.00	56.190	307.171	268.886	189.035	45.942	−179.570	144.394	225.807	−9.829
	1300.00	56.614	311.686	272.006	194.676	51.583	−210.515	144.660	232.580	−9.345
	1400.00	56.961	315.894	274.993	200.355	57.262	−241.897	144.919	239.333	−8.930
	1500.00	57.250	319.834	277.852	206.066	62.973	−273.685	145.169	246.069	−8.569
	1600.00	57.495	323.537	280.593	211.804	68.711	−305.856	145.406	252.787	−8.253
	1700.00	57.710	327.029	283.223	217.564	74.471	−338.386	145.628	259.492	−7.973
	1800.00	57.904	330.334	285.749	223.345	80.252	−371.255	145.835	266.184	−7.724
	1900.00	58.087	333.469	288.179	229.145	86.052	−404.447	146.025	272.865	−7.502
	2000.00	58.269	336.453	290.519	234.963	91.870	−437.944	146.199	279.536	−7.301

References

Phase	H / S	C_p
GAS	La1,Ja1	Ja1

18.013 HYDROXYL–D1 (GAS) **OD**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	29.989	189.651	189.651	36.602	0.000	−19.942	36.602	32.250	−5.650
	300.00	29.980	189.836	189.652	36.657	0.055	−20.293	36.603	32.223	−5.610
	400.00	29.704	198.415	190.823	39.639	3.037	−39.727	36.638	30.755	−4.016
	500.00	29.741	205.042	193.029	42.609	6.007	−59.912	36.614	29.286	−3.060
	600.00	30.026	210.487	195.498	45.595	8.993	−80.697	36.547	27.827	−2.423
	700.00	30.489	215.148	197.980	48.620	12.018	−101.984	36.454	26.380	−1.969
	800.00	31.057	219.256	200.387	51.697	15.095	−123.708	36.350	24.948	−1.629
	900.00	31.657	222.948	202.692	54.832	18.230	−145.821	36.244	23.530	−1.366
	1000.00	32.251	226.315	204.889	58.028	21.426	−168.287	36.141	22.122	−1.156
	1100.00	32.815	229.415	206.979	61.282	24.680	−191.075	36.044	20.725	−0.984
	1200.00	33.336	232.293	208.970	64.590	27.988	−214.162	35.953	19.337	−0.842
	1300.00	33.809	234.981	210.869	67.947	31.345	−237.528	35.868	17.956	−0.721
	1400.00	34.237	237.502	212.682	71.350	34.748	−261.153	35.788	16.581	−0.619
	1500.00	34.621	239.877	214.417	74.793	38.191	−285.023	35.711	15.212	−0.530
	1600.00	34.967	242.123	216.079	78.273	41.671	−309.124	35.636	13.847	−0.452
	1700.00	35.279	244.253	217.674	81.785	45.183	−333.444	35.562	12.488	−0.384
	1800.00	35.560	246.277	219.207	85.328	48.726	−357.971	35.487	11.133	−0.323
	1900.00	35.814	248.207	220.683	88.896	52.294	−382.696	35.410	9.782	−0.269
	2000.00	36.043	250.050	222.106	92.489	55.887	−407.610	35.330	8.435	−0.220
	2100.00	36.252	251.813	223.479	96.104	59.502	−432.703	35.247	7.092	−0.176
	2200.00	36.443	253.504	224.805	99.739	63.137	−457.970	35.159	5.754	−0.137
	2300.00	36.619	255.128	226.089	103.393	66.791	−483.402	35.065	4.419	−0.100
	2400.00	36.781	256.690	227.331	107.063	70.461	−508.993	34.965	3.089	−0.067
	2500.00	36.933	258.195	228.536	110.748	74.146	−534.738	34.859	1.763	−0.037
	2600.00	37.071	259.646	229.705	114.449	77.847	−560.631	34.746	0.441	−0.009
	2700.00	37.201	261.047	230.840	118.162	81.560	−586.666	34.625	−0.876	0.017
	2800.00	37.323	262.403	231.943	121.889	85.287	−612.838	34.498	−2.189	0.041
	2900.00	37.438	263.714	233.016	125.627	89.025	−639.145	34.362	−3.496	0.063
	3000.00	37.546	264.985	234.061	129.376	92.774	−665.580	34.220	−4.799	0.084
	3100.00	37.648	266.218	235.078	133.136	96.534	−692.140	34.070	−6.098	0.103
	3200.00	37.745	267.415	236.070	136.905	100.303	−718.822	33.912	−7.391	0.121
	3300.00	37.838	268.578	237.038	140.685	104.083	−745.622	33.746	−8.679	0.137
	3400.00	37.926	269.709	237.982	144.473	107.871	−772.537	33.573	−9.962	0.153
	3500.00	38.011	270.809	238.904	148.270	111.668	−799.563	33.393	−11.240	0.168
	3600.00	38.092	271.881	239.805	152.075	115.473	−826.698	33.205	−12.513	0.182
	3700.00	38.171	272.926	240.687	155.888	119.286	−853.938	33.009	−13.780	0.195
	3800.00	38.246	273.945	241.548	159.709	123.107	−881.282	32.806	−15.042	0.207
	3900.00	38.320	274.939	242.392	163.537	126.935	−908.727	32.596	−16.298	0.218
	4000.00	38.391	275.911	243.218	167.373	130.771	−936.269	32.379	−17.549	0.229
	4100.00	38.460	276.859	244.027	171.215	134.613	−963.908	32.154	−18.794	0.239
	4200.00	38.528	277.787	244.820	175.065	138.463	−991.640	31.922	−20.034	0.249
	4300.00	38.594	278.694	245.597	178.921	142.319	−1019.465	31.682	−21.269	0.258
	4400.00	38.659	279.582	246.359	182.784	146.182	−1047.379	31.436	−22.497	0.267
	4500.00	38.722	280.452	247.107	186.653	150.051	−1075.380	31.182	−23.720	0.275
	4600.00	38.785	281.304	247.841	190.528	153.926	−1103.468	30.921	−24.937	0.283
	4700.00	38.846	282.138	248.562	194.409	157.807	−1131.641	30.652	−26.149	0.291
	4800.00	38.907	282.957	249.270	198.297	161.695	−1159.896	30.377	−27.354	0.298
	4900.00	38.967	283.760	249.966	202.191	165.589	−1188.231	30.093	−28.554	0.304
	5000.00	39.026	284.547	250.650	206.090	169.488	−1216.647	29.803	−29.748	0.311

References

Phase	H / S	C_p
GAS	Ja2	Ja2

OF2[g] OXYGEN DIFLUORIDE (GAS) 53.996

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	43.092	247.468	247.468	24.518	0.000	−49.264	24.518	41.781	−7.320
	300.00	43.224	247.734	247.468	24.598	0.080	−49.722	24.513	41.888	−7.293
	400.00	48.091	260.923	249.233	29.194	4.676	−75.175	24.410	47.704	−6.229
	500.00	50.664	271.956	252.706	34.143	9.625	−101.835	24.466	53.522	−5.591
	600.00	52.302	281.347	256.717	39.296	14.778	−129.512	24.567	59.324	−5.165
	700.00	53.473	289.502	260.831	44.588	20.070	−158.063	24.681	65.108	−4.858
	800.00	54.370	296.703	264.873	49.982	25.464	−187.381	24.800	70.876	−4.628
	900.00	55.088	303.150	268.774	55.456	30.938	−217.379	24.924	76.628	−4.447
	1000.00	55.675	308.985	272.508	60.995	36.477	−247.990	25.052	82.366	−4.302
	1100.00	56.158	314.315	276.070	66.588	42.070	−279.159	25.183	88.091	−4.183
	1200.00	56.556	319.219	279.464	72.224	47.706	−310.839	25.317	93.804	−4.083
	1300.00	56.877	323.759	282.699	77.896	53.378	−342.991	25.451	99.505	−3.998
	1400.00	57.129	327.984	285.785	83.597	59.079	−375.580	25.582	105.197	−3.925
	1500.00	57.317	331.932	288.731	89.320	64.802	−408.578	25.708	110.879	−3.861
	1600.00	57.445	335.636	291.548	95.058	70.540	−441.959	25.823	116.554	−3.805
	1700.00	57.513	339.121	294.245	100.807	76.289	−475.698	25.924	122.221	−3.755
	1800.00	57.525	342.409	296.830	106.559	82.041	−509.776	26.005	127.883	−3.711
	1900.00	57.481	345.518	299.312	112.310	87.792	−544.174	26.064	133.541	−3.671
	2000.00	57.382	348.464	301.696	118.054	93.536	−578.875	26.093	139.197	−3.635
	2100.00	57.229	351.260	303.990	123.785	99.267	−613.862	26.090	144.852	−3.603
	2200.00	57.023	353.918	306.200	129.498	104.980	−649.122	26.048	150.508	−3.574
	2273.00	56.840	355.777	307.763	133.654	109.136	−675.026	25.991	154.639	−3.554

References

Phase	H / S	C_p
GAS	Ja1	Ja1

17.007 HYDROXYL (GAS) **OH[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	29.986	183.708	183.708	38.987	0.000	−15.786	38.987	34.278	−6.005
	300.00	29.977	183.893	183.709	39.042	0.055	−16.126	38.989	34.249	−5.963
	400.00	29.651	192.466	184.880	42.022	3.035	−34.965	39.029	32.660	−4.265
	500.00	29.519	199.066	187.082	44.979	5.992	−54.554	38.996	31.070	−3.246
	600.00	29.527	204.446	189.541	47.930	8.943	−74.738	38.903	29.493	−2.568
	700.00	29.665	209.007	192.004	50.889	11.902	−95.416	38.765	27.935	−2.085
	800.00	29.917	212.983	194.383	53.867	14.880	−116.520	38.598	26.400	−1.724
	900.00	30.263	216.526	196.650	56.875	17.888	−137.998	38.417	24.886	−1.444
	1000.00	30.675	219.735	198.801	59.922	20.935	−159.814	38.230	23.392	−1.222
	1100.00	31.126	222.680	200.839	63.011	24.024	−181.936	38.046	21.917	−1.041
	1200.00	31.585	225.408	202.775	66.147	27.160	−204.342	37.868	20.459	−0.891
	1300.00	32.044	227.954	204.615	69.329	30.342	−227.012	37.698	19.015	−0.764
	1400.00	32.491	230.345	206.368	72.556	33.569	−249.928	37.536	17.584	−0.656
	1500.00	32.918	232.602	208.042	75.826	36.839	−273.077	37.382	16.164	−0.563
	1600.00	33.320	234.739	209.645	79.138	40.151	−296.445	37.235	14.755	−0.482
	1700.00	33.695	236.771	211.181	82.489	43.502	−320.021	37.093	13.354	−0.410
	1800.00	34.044	238.707	212.657	85.876	46.889	−343.795	36.956	11.962	−0.347
	1900.00	34.369	240.556	214.077	89.297	50.310	−367.759	36.820	10.577	−0.291
	2000.00	34.670	242.327	215.446	92.749	53.762	−391.904	36.686	9.199	−0.240
	2100.00	34.949	244.025	216.766	96.230	57.243	−416.222	36.552	7.828	−0.195
	2200.00	35.208	245.657	218.043	99.738	60.751	−440.707	36.416	6.463	−0.153
	2300.00	35.449	247.227	219.278	103.271	64.284	−465.352	36.278	5.105	−0.116
	2400.00	35.673	248.741	220.474	106.828	67.841	−490.150	36.137	3.752	−0.082
	2500.00	35.881	250.201	221.634	110.406	71.419	−515.098	35.993	2.406	−0.050
	2600.00	36.076	251.613	222.760	114.003	75.016	−540.189	35.844	1.065	−0.021
	2700.00	36.257	252.977	223.854	117.620	78.633	−565.419	35.690	−0.269	0.005
	2800.00	36.427	254.299	224.918	121.255	82.268	−590.783	35.531	−1.598	0.030
	2900.00	36.586	255.580	225.953	124.905	85.918	−616.277	35.366	−2.921	0.053
	3000.00	36.736	256.823	226.962	128.571	89.584	−641.898	35.195	−4.239	0.074
	3100.00	36.878	258.030	227.944	132.252	93.265	−667.641	35.018	−5.550	0.094
	3200.00	37.012	259.203	228.903	135.947	96.960	−693.503	34.834	−6.856	0.112
	3300.00	37.139	260.344	229.839	139.654	100.667	−719.480	34.645	−8.156	0.129
	3400.00	37.261	261.454	230.752	143.374	104.387	−745.571	34.449	−9.450	0.145
	3500.00	37.377	262.536	231.645	147.106	108.119	−771.770	34.246	−10.738	0.160
	3600.00	37.486	263.591	232.518	150.849	111.862	−798.077	34.037	−12.020	0.174
	3700.00	37.592	264.619	233.372	154.603	115.616	−824.488	33.822	−13.297	0.188
	3800.00	37.693	265.623	234.207	158.368	119.381	−851.000	33.600	−14.567	0.200
	3900.00	37.791	266.603	235.025	162.142	123.155	−877.611	33.371	−15.832	0.212
	4000.00	37.885	267.561	235.827	165.926	126.939	−904.320	33.136	−17.091	0.223
	4100.00	37.976	268.498	236.612	169.719	130.732	−931.123	32.895	−18.343	0.234
	4200.00	38.064	269.414	237.382	173.521	134.534	−958.019	32.647	−19.590	0.244
	4300.00	38.150	270.311	238.138	177.332	138.345	−985.005	32.392	−20.831	0.253
	4400.00	38.233	271.189	238.879	181.151	142.164	−1012.080	32.130	−22.065	0.262
	4500.00	38.315	272.049	239.607	184.978	145.991	−1039.242	31.862	−23.294	0.270
	4600.00	38.394	272.892	240.321	188.814	149.827	−1066.490	31.587	−24.517	0.278
	4700.00	38.472	273.719	241.023	192.657	153.670	−1093.820	31.306	−25.733	0.286
	4800.00	38.549	274.529	241.712	196.508	157.521	−1121.233	31.018	−26.944	0.293
	4900.00	38.625	275.325	242.390	200.367	161.380	−1148.726	30.722	−28.149	0.300
	5000.00	38.699	276.106	243.057	204.233	165.246	−1176.297	30.421	−29.347	0.307

References

Phase	H / S	C_p
GAS	Ja2	Ja2

Os OSMIUM 190.200

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	24.708	32.635	32.635	0.000	0.000	−9.730	0.000	0.000	0.000
	300.00	24.715	32.788	32.636	0.046	0.046	−9.791	0.000	0.000	0.000
	400.00	25.096	39.950	33.610	2.536	2.536	−13.444	0.000	0.000	0.000
	500.00	25.476	45.591	35.461	5.065	5.065	−17.731	0.000	0.000	0.000
	600.00	25.857	50.270	37.550	7.632	7.632	−22.530	0.000	0.000	0.000
	700.00	26.238	54.284	39.661	10.236	10.236	−27.763	0.000	0.000	0.000
	800.00	26.619	57.813	41.714	12.879	12.879	−33.371	0.000	0.000	0.000
	900.00	26.999	60.970	43.681	15.560	15.560	−39.313	0.000	0.000	0.000
	1000.00	27.380	63.834	45.555	18.279	18.279	−45.555	0.000	0.000	0.000
	1100.00	27.761	66.462	47.338	21.036	21.036	−52.072	0.000	0.000	0.000
	1200.00	28.142	68.893	49.034	23.831	23.831	−58.841	0.000	0.000	0.000
	1300.00	28.522	71.161	50.650	26.664	26.664	−65.845	0.000	0.000	0.000
	1400.00	28.903	73.289	52.192	29.536	29.536	−73.069	0.000	0.000	0.000
	1500.00	29.284	75.296	53.666	32.445	32.445	−80.499	0.000	0.000	0.000
	1600.00	29.665	77.198	55.078	35.392	35.392	−88.124	0.000	0.000	0.000
	1700.00	30.045	79.008	56.432	38.378	38.378	−95.935	0.000	0.000	0.000
	1800.00	30.426	80.736	57.735	41.402	41.402	−103.923	0.000	0.000	0.000
	1900.00	30.807	82.391	58.989	44.463	44.463	−112.080	0.000	0.000	0.000
	2000.00	31.188	83.981	60.200	47.563	47.563	−120.399	0.000	0.000	0.000
	2100.00	31.569	85.512	61.369	50.701	50.701	−128.874	0.000	0.000	0.000
	2200.00	31.949	86.989	62.500	53.877	53.877	−137.500	0.000	0.000	0.000
	2300.00	32.330	88.418	63.596	57.091	57.091	−146.270	0.000	0.000	0.000
	2400.00	32.711	89.802	64.659	60.343	60.343	−155.182	0.000	0.000	0.000
	2500.00	33.092	91.145	65.692	63.633	63.633	−164.229	0.000	0.000	0.000
	2600.00	33.472	92.450	66.696	66.961	66.961	−173.410	0.000	0.000	0.000
	2700.00	33.853	93.721	67.673	70.327	70.327	−182.718	0.000	0.000	0.000
	2800.00	34.234	94.959	68.626	73.732	73.732	−192.153	0.000	0.000	0.000
	2900.00	34.615	96.167	69.555	77.174	77.174	−201.709	0.000	0.000	0.000
	3000.00	34.995	97.346	70.462	80.655	80.655	−211.385	0.000	0.000	0.000
	3100.00	35.376	98.500	71.348	84.173	84.173	−221.177	0.000	0.000	0.000
	3200.00	35.757	99.629	72.214	87.730	87.730	−231.084	0.000	0.000	0.000
	3300.00	36.138	100.735	73.061	91.324	91.324	−241.103	0.000	0.000	0.000
			9.623		31.757					
LIQ	3300.00	35.982	110.359	73.061	123.081	123.081	−241.103	0.000	0.000	0.000
	3400.00	35.982	111.433	74.174	126.680	126.680	−252.192	0.000	0.000	0.000
	3500.00	35.982	112.476	75.254	130.278	130.278	−263.388	0.000	0.000	0.000
	3600.00	35.982	113.490	76.302	133.876	133.876	−274.687	0.000	0.000	0.000
	3700.00	35.982	114.476	77.320	137.474	137.474	−286.085	0.000	0.000	0.000
	3800.00	35.982	115.435	78.311	141.073	141.073	−297.581	0.000	0.000	0.000
	3900.00	35.982	116.370	79.275	144.671	144.671	−309.171	0.000	0.000	0.000
	4000.00	35.982	117.281	80.214	148.269	148.269	−320.854	0.000	0.000	0.000
	4100.00	35.982	118.169	81.128	151.867	151.867	−332.627	0.000	0.000	0.000
	4200.00	35.982	119.036	82.021	155.466	155.466	−344.487	0.000	0.000	0.000
	4300.00	35.982	119.883	82.891	159.064	159.064	−356.433	0.000	0.000	0.000
	4400.00	35.982	120.710	83.742	162.662	162.662	−368.463	0.000	0.000	0.000
	4500.00	35.982	121.519	84.572	166.260	166.260	−380.575	0.000	0.000	0.000

190.200 OSMIUM [continued] **Os**

Phase	T [K]	C_p [J / (K mol)]	S [J / (K mol)]	−(G−H298)/T [J / (K mol)]	H [kJ / mol]	H−H298 [kJ / mol]	G [kJ / mol]	ΔH_f [kJ / mol]	ΔG_f [kJ / mol]	log K_f [−]
LIQ	4600.00	35.982	122.310	85.384	169.859	169.859	−392.766	0.000	0.000	0.000
	4700.00	35.982	123.084	86.178	173.457	173.457	−405.036	0.000	0.000	0.000
	4800.00	35.982	123.841	86.955	177.055	177.055	−417.383	0.000	0.000	0.000
	4900.00	35.982	124.583	87.715	180.653	180.653	−429.804	0.000	0.000	0.000
	5000.00	35.982	125.310	88.460	184.252	184.252	−442.299	0.000	0.000	0.000
	5100.00	35.982	126.023	89.189	187.850	187.850	−454.865	0.000	0.000	0.000
	5200.00	35.982	126.721	89.904	191.448	191.448	−467.503	0.000	0.000	0.000
	5281.00	35.982	127.277	90.473	194.363	194.363	−477.790	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL	Hu1	Hu1		
LIQ	Hu1	Hu1	Hu1	BPT= 5281., L= 746.0 kJ

Os[g] OSMIUM (GAS) 190.200

Phase	T	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[–]
GAS	298.15	20.784	192.569	192.569	788.266	0.000	730.851	788.266	740.582	−129.747
	300.00	20.788	192.698	192.570	788.304	0.038	730.495	788.259	740.286	−128.895
	400.00	20.823	198.687	193.386	790.386	2.120	710.912	787.850	724.355	−94.591
	500.00	20.885	203.337	194.928	792.471	4.205	690.802	787.406	708.533	−74.020
	600.00	21.092	207.161	196.658	794.568	6.302	670.271	786.937	692.802	−60.314
	700.00	21.440	210.437	198.397	796.694	8.428	649.388	786.457	677.150	−50.530
	800.00	21.908	213.329	200.087	798.860	10.594	628.197	785.981	661.568	−43.196
	900.00	22.472	215.941	201.705	801.078	12.812	606.731	785.518	646.044	−37.495
	1000.00	23.110	218.341	203.250	803.357	15.091	585.016	785.078	630.571	−32.938
	1100.00	23.801	220.576	204.725	805.702	17.436	563.068	784.666	615.140	−29.211
	1200.00	24.522	222.678	206.134	808.118	19.852	540.905	784.287	599.746	−26.106
	1300.00	25.254	224.669	207.484	810.607	22.341	518.537	783.943	584.382	−23.481
	1400.00	25.976	226.568	208.780	813.169	24.903	495.974	783.633	569.043	−21.231
	1500.00	26.669	228.384	210.027	815.801	27.535	473.226	783.356	553.724	−19.282
	1600.00	27.311	230.126	211.229	818.501	30.235	450.300	783.108	538.424	−17.578
	1700.00	27.883	231.799	212.390	821.261	32.995	427.203	782.883	523.138	−16.074
	1800.00	28.366	233.407	213.513	824.074	35.808	403.942	782.673	507.865	−14.738
	1900.00	28.863	234.954	214.601	826.937	38.671	380.524	782.473	492.604	−13.543
	2000.00	29.292	236.446	215.656	829.845	41.579	356.953	782.282	477.352	−12.467
	2100.00	29.677	237.884	216.681	832.794	44.528	333.236	782.093	462.110	−11.494
	2200.00	30.030	239.273	217.676	835.779	47.513	309.378	781.902	446.878	−10.610
	2300.00	30.360	240.616	218.645	838.799	50.533	285.383	781.708	431.654	−9.803
	2400.00	30.673	241.914	219.587	841.851	53.585	261.256	781.508	416.438	−9.064
	2500.00	30.973	243.173	220.506	844.933	56.667	237.002	781.300	401.231	−8.383
	2600.00	31.263	244.393	221.401	848.045	59.779	212.623	781.084	386.033	−7.755
	2700.00	31.546	245.578	222.275	851.185	62.919	188.124	780.858	370.843	−7.174
	2800.00	31.822	246.731	223.128	854.354	66.088	163.508	780.622	355.661	−6.635
	2900.00	32.093	247.852	223.961	857.550	69.284	138.779	780.376	340.488	−6.133
	3000.00	32.358	248.944	224.776	860.772	72.506	113.939	780.118	325.324	−5.664
	3100.00	32.620	250.010	225.573	864.021	75.755	88.991	779.848	310.169	−5.226
	3200.00	32.877	251.049	226.353	867.296	79.030	63.938	779.566	295.022	−4.816
	3300.00	33.129	252.065	227.116	870.596	82.330	38.782	779.272	279.885	−4.430
	3400.00	33.378	253.058	227.865	873.922	85.656	13.526	747.242	265.718	−4.082
	3500.00	33.622	254.029	228.599	877.272	89.006	−11.829	746.994	251.559	−3.754
	3600.00	33.861	254.979	229.318	880.646	92.380	−37.279	746.770	237.407	−3.445
	3700.00	34.095	255.910	230.024	884.044	95.778	−62.824	746.569	223.261	−3.152
	3800.00	34.325	256.823	230.718	887.465	99.199	−88.461	746.392	209.120	−2.875
	3900.00	34.549	257.717	231.398	890.909	102.643	−114.188	746.238	194.983	−2.612
	4000.00	34.767	258.594	232.067	894.374	106.108	−140.004	746.105	180.851	−2.362
	4100.00	34.979	259.456	232.725	897.862	109.596	−165.906	745.994	166.721	−2.124
	4200.00	35.185	260.301	233.371	901.370	113.104	−191.894	745.904	152.593	−1.898
	4300.00	35.385	261.131	234.007	904.899	116.633	−217.966	745.835	138.467	−1.682
	4400.00	35.577	261.947	234.633	908.447	120.181	−244.120	745.785	124.343	−1.476
	4500.00	35.763	262.749	235.249	912.014	123.748	−270.355	745.753	110.220	−1.279

190.200 OSMIUM (GAS) [continued] **Os[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	4600.00	35.941	263.537	235.855	915.599	127.333	−296.669	745.740	96.097	−1.091
	4700.00	36.112	264.311	236.453	919.202	130.936	−323.062	745.745	81.974	−0.911
	4800.00	36.274	265.073	237.041	922.821	134.555	−349.531	745.766	67.852	−0.738
	4900.00	36.429	265.823	237.621	926.456	138.190	−376.076	745.803	53.728	−0.573
	5000.00	36.574	266.560	238.192	930.107	141.841	−402.695	745.855	39.603	−0.414
	5100.00	36.711	267.286	238.756	933.771	145.505	−429.388	745.921	25.478	−0.261
	5200.00	36.839	268.000	239.311	937.449	149.183	−456.152	746.001	11.351	−0.114
	5300.00	36.957	268.703	239.859	941.138	152.872	−482.987	0.000	0.000	0.000
	5400.00	37.066	269.395	240.400	944.840	156.574	−509.892	0.000	0.000	0.000
	5500.00	37.165	270.076	240.933	948.551	160.285	−536.866	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

222.199 OSMIUM DIOXIDE **OsO2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	57.094	51.882	51.882	−294.972	0.000	−310.440	−294.972	−239.546	41.967
	300.00	57.310	52.235	51.883	−294.866	0.106	−310.537	−294.966	−239.202	41.649
	400.00	65.242	69.951	54.244	−288.689	6.283	−316.670	−294.251	−220.703	28.821
	500.00	69.471	85.003	58.931	−281.936	13.036	−324.438	−293.085	−202.445	21.149
	600.00	72.242	97.929	64.379	−274.842	20.130	−333.600	−291.718	−184.443	16.057
	700.00	74.325	109.227	69.996	−267.510	27.462	−343.969	−290.245	−166.679	12.438
	800.00	76.041	119.267	75.539	−259.989	34.983	−355.403	−288.704	−149.131	9.737
	900.00	77.544	128.312	80.908	−252.309	42.663	−367.790	−287.110	−131.780	7.648
	1000.00	78.914	136.554	86.067	−244.485	50.487	−381.039	−285.467	−114.609	5.987
	1100.00	80.198	144.136	91.006	−236.529	58.443	−395.078	−283.777	−97.604	4.635
	1200.00	81.423	151.167	95.730	−228.447	66.525	−409.848	−282.039	−80.756	3.515

References

Phase	H / S	C_p
SOL	F2	F2

OsO4 OSMIUM TETRAOXIDE (YELLOW) 254.198

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	151.461	143.900	143.900	−394.099	0.000	−437.003	−394.099	−304.944	53.425
	300.00	151.461	144.837	143.903	−393.819	0.280	−437.270	−393.973	−304.391	52.999
	304.00	151.461	146.843	143.929	−393.213	0.886	−437.853	−393.701	−303.198	52.097
			46.931		14.267					
LIQ	304.00	157.737	193.774	143.929	−378.946	15.153	−437.853	−379.434	−303.198	52.097
	400.00	157.737	237.063	161.324	−363.803	30.296	−458.628	−372.390	−280.139	36.582

References

Phase	H / S	C_p
SOL	Nb1	e
LIQ	Tk1	e

OsO4[g] OSMIUM TETRAOXIDE (GAS) 254.198

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	74.164	293.801	293.801	−337.201	0.000	−424.798	−337.201	−292.738	51.287
	300.00	74.423	294.261	293.803	−337.064	0.137	−425.342	−337.218	−292.463	50.922
	400.00	84.234	317.175	296.860	−329.075	8.126	−455.945	−337.662	−277.455	36.232
	500.00	89.872	336.621	302.919	−320.350	16.851	−488.661	−337.583	−262.406	27.413
	600.00	93.868	353.376	309.965	−311.154	26.047	−523.180	−337.273	−247.397	21.538
	700.00	97.087	368.095	317.239	−301.602	35.599	−559.268	−336.835	−232.450	17.346
	800.00	99.894	381.246	324.432	−291.750	45.451	−596.747	−336.300	−217.574	14.206
	900.00	102.459	393.161	331.417	−281.631	55.570	−635.476	−335.673	−202.770	11.768
	1000.00	104.876	404.083	338.145	−271.263	65.938	−675.346	−334.948	−188.041	9.822

References

Phase	H / S	C_p
GAS	Nb1	Ku1,e

252.148

OSMIUM DIPHOSPHIDE

OsP2

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	71.141	82.006	82.006	−152.298	0.000	−176.748	−152.298	−142.528	24.970
	300.00	71.170	82.447	82.008	−152.166	0.132	−176.900	−152.300	−142.467	24.806
	400.00	72.718	103.133	84.818	−144.972	7.326	−186.225	−154.099	−138.782	18.123
	500.00	74.266	119.526	90.175	−137.623	14.675	−197.386	−154.544	−134.899	14.093
	600.00	75.814	133.203	96.237	−130.119	22.179	−210.040	−154.872	−130.937	11.399
	700.00	77.362	145.006	102.380	−122.460	29.838	−223.964	−155.083	−126.930	9.472
	800.00	78.910	155.437	108.373	−114.646	37.652	−238.996	−155.177	−122.900	8.025
	900.00	80.458	164.821	114.132	−106.678	45.620	−255.017	−155.155	−118.866	6.899
	1000.00	82.006	173.378	119.635	−98.555	53.743	−271.933	−155.016	−114.840	5.999
	1100.00	83.554	181.267	124.884	−90.277	62.021	−289.670	−154.760	−110.834	5.263
	1200.00	85.103	188.603	129.891	−81.844	70.454	−308.168	−281.530	−104.678	4.556
	1300.00	86.651	195.476	134.675	−73.256	79.042	−327.375	−279.491	−90.022	3.617
	1400.00	88.199	201.954	139.251	−64.514	87.784	−347.250	−277.345	−75.527	2.818

References

Phase	H / S	C_p
SOL	Tk1/Ku1	e

254.332

OSMIUM DISULFIDE

OsS2

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	62.180	54.392	54.392	−147.695	0.000	−163.912	−147.695	−135.067	23.663
	300.00	62.323	54.777	54.393	−147.580	0.115	−164.013	−147.710	−134.988	23.504
	400.00	67.779	73.542	56.915	−141.044	6.651	−170.461	−152.827	−130.462	17.037
	500.00	70.940	89.030	61.835	−134.097	13.598	−178.612	−156.213	−124.519	13.008
	600.00	73.198	102.172	67.490	−126.886	20.809	−188.189	−158.720	−117.925	10.266
	700.00	75.029	113.597	73.278	−119.472	28.223	−198.990	−160.530	−110.979	8.281
	800.00	76.634	123.723	78.963	−111.887	35.808	−210.865	−162.308	−103.781	6.776
	900.00	78.106	132.835	84.451	−104.149	43.546	−223.701	−269.664	−94.052	5.459
	1000.00	79.496	141.137	89.710	−96.269	51.426	−237.405	−268.173	−74.618	3.898
	1100.00	80.833	148.776	94.737	−88.252	59.443	−251.906	−266.598	−55.338	2.628
	1200.00	82.133	155.866	99.539	−80.103	67.592	−267.142	−264.941	−36.205	1.576
	1300.00	83.407	162.490	104.130	−71.826	75.869	−283.064	−263.205	−17.214	0.692
	1400.00	84.663	168.717	108.523	−63.423	84.272	−299.627	−261.391	1.641	−0.061

References

Phase	H / S	C_p
SOL	Mi1	Mi1

OsSe2 OSMIUM DISELENIDE 348.120

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	65.626	81.588	81.588	−120.081	0.000	−144.406	−120.081	−109.478	19.180
	300.00	65.663	81.994	81.589	−119.960	0.121	−144.558	−120.099	−109.412	19.050
	400.00	66.588	101.053	84.181	−113.332	6.749	−153.754	−121.298	−105.681	13.801
	500.00	66.421	115.905	89.097	−106.677	13.404	−164.629	−134.792	−101.423	10.596
	600.00	65.824	127.967	94.602	−100.062	20.019	−176.842	−137.773	−94.471	8.224
	700.00	65.023	138.055	100.109	−93.519	26.562	−190.157	−140.863	−87.012	6.493
	800.00	64.115	146.679	105.405	−87.061	33.020	−204.405	−144.078	−79.101	5.165
	900.00	63.143	154.175	110.416	−80.698	39.383	−219.456	−147.424	−70.779	4.108
	1000.00	62.132	160.776	115.129	−74.434	45.647	−235.210	−150.908	−62.078	3.243
	1100.00	61.096	166.650	119.551	−68.272	51.809	−251.587	−261.156	−43.112	2.047
	1200.00	60.043	171.921	123.699	−62.215	57.866	−268.520	−262.030	−23.252	1.012

References

Phase	H / S	C_p
SOL	Mi1	Mi1

P PHOSPHORUS (WHITE) 30.974

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	23.836	41.070	41.070	0.000	0.000	−12.245	0.000	0.000	0.000
	300.00	23.866	41.218	41.070	0.044	0.044	−12.321	0.000	0.000	0.000
	317.30	24.139	42.563	41.115	0.459	0.459	−13.046	0.000	0.000	0.000
			2.077		0.659					
LIQ	317.30	26.326	44.640	41.115	1.118	1.118	−13.046	0.000	0.000	0.000
	400.00	26.326	50.738	42.499	3.296	3.296	−17.000	0.000	0.000	0.000
	500.00	26.326	56.612	44.756	5.928	5.928	−22.378	0.000	0.000	0.000
	600.00	26.326	61.412	47.144	8.561	8.561	−28.286	0.000	0.000	0.000
	700.00	26.326	65.470	49.480	11.193	11.193	−34.636	0.000	0.000	0.000
	800.00	26.326	68.985	51.703	13.826	13.826	−41.362	0.000	0.000	0.000
	900.00	26.326	72.086	53.799	16.459	16.459	−48.419	0.000	0.000	0.000
	1000.00	26.326	74.860	55.769	19.091	19.091	−55.769	0.000	0.000	0.000
	1100.00	26.326	77.369	57.620	21.724	21.724	−63.382	0.000	0.000	0.000
	1180.01	26.326	79.217	59.023	23.830	23.830	−69.647	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL − A	Ja2	Ja1	Hu1	complex cubic
LIQ	Ja2	Ja2	Ja2	BPT = 1180.008 GAS (P2), L = 63.728 / NBPT = 550., GAS (P4)

30.974 PHOSPHORUS (GAS) **P[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	20.786	163.198	163.198	316.390	0.000	267.733	316.390	279.978	−49.051
	300.00	20.786	163.327	163.198	316.428	0.038	267.430	316.384	279.752	−48.709
	400.00	20.786	169.306	164.014	318.507	2.117	250.785	315.212	267.784	−34.969
	500.00	20.786	173.945	165.553	320.586	4.196	233.613	314.658	255.991	−26.743
	600.00	20.786	177.734	167.277	322.664	6.274	216.024	314.104	244.310	−21.269
	700.00	20.786	180.939	169.006	324.743	8.353	198.086	313.550	232.722	−17.366
	800.00	20.786	183.714	170.675	326.822	10.432	179.850	312.996	221.213	−14.444
	900.00	20.786	186.162	172.262	328.900	12.510	161.354	312.442	209.773	−12.175
	1000.00	20.786	188.352	173.764	330.979	14.589	142.626	311.888	198.395	−10.363
	1100.00	20.789	190.334	175.181	333.058	16.668	123.690	311.334	187.073	−8.883
	1200.00	20.792	192.143	176.521	335.137	18.747	104.565	247.209	176.890	−7.700
	1300.00	20.798	193.807	177.787	337.216	20.826	85.267	247.431	171.021	−6.872
	1400.00	20.811	195.349	178.987	339.296	22.906	65.808	247.648	165.135	−6.161
	1500.00	20.833	196.785	180.126	341.378	24.988	46.200	247.864	159.234	−5.545
	1600.00	20.867	198.131	181.210	343.463	27.073	26.454	248.078	153.318	−5.005
	1700.00	20.916	199.397	182.243	345.552	29.162	6.577	248.293	147.389	−4.529
	1800.00	20.982	200.595	183.230	347.647	31.257	−13.423	248.512	141.447	−4.105
	1900.00	21.070	201.731	184.174	349.749	33.359	−33.540	248.735	135.493	−3.725
	2000.00	21.180	202.815	185.079	351.862	35.472	−53.768	248.966	129.527	−3.383

References

Phase	H / S	C_p
GAS	Ja2	Ja1

30.974 PHOSPHORUS (RED) **P[R]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL−5	298.15	21.191	22.850	22.850	−17.460	0.000	−24.273	−17.460	−12.028	2.107
	300.00	21.247	22.981	22.850	−17.421	0.039	−24.315	−17.465	−11.994	2.088
	400.00	23.180	29.394	23.712	−15.187	2.273	−26.945	−18.483	−9.945	1.299
	500.00	24.484	34.709	25.395	−12.803	4.657	−30.157	−18.731	−7.779	0.813
	600.00	25.795	39.288	27.337	−10.290	7.170	−33.862	−18.850	−5.576	0.485
	700.00	27.196	43.368	29.341	−7.641	9.819	−37.998	−18.834	−3.363	0.251
	800.00	28.689	47.096	31.330	−4.847	12.613	−42.524	−18.673	−1.162	0.076
	870.00	29.782	49.547	32.698	−2.801	14.659	−45.907	−18.470	0.363	−0.022

References

Phase	H / S	C_p	Remarks	
SOL−5	Ja2	Ja1	Ja2	NSPT = 704. GAS (P4), L = 128.74 kJ / MPT = 870., L = 18.8 kJ complex, undetermined crystal structure

P2[g] PHOSPHORUS (GAS) 61.948

Phase	T [K]	C_p J / (K mol)	S J / (K mol)	−(G−H298)/T J / (K mol)	H kJ / mol	H−H298 kJ / mol	G kJ / mol	ΔH_f kJ / mol	ΔG_f kJ / mol	log K_f [−]
GAS	298.15	32.039	218.130	218.130	143.650	0.000	78.615	143.650	103.105	−18.063
	300.00	32.071	218.328	218.131	143.709	0.059	78.211	143.621	102.853	−17.908
	400.00	33.673	227.784	219.409	147.000	3.350	55.886	140.409	89.885	−11.738
	500.00	34.778	235.426	221.872	150.427	6.777	32.714	138.570	77.470	−8.093
	600.00	35.507	241.835	224.680	153.943	10.293	8.842	136.822	65.415	−5.695
	700.00	36.004	247.348	227.534	157.520	13.870	−15.623	135.134	53.648	−4.003
	800.00	36.357	252.180	230.319	161.139	17.489	−40.605	133.487	42.120	−2.750
	900.00	36.618	256.478	232.991	164.789	21.139	−66.042	131.872	30.796	−1.787
	1000.00	36.818	260.347	235.536	168.461	24.811	−91.886	130.279	19.651	−1.026
	1100.00	36.975	263.864	237.954	172.151	28.501	−118.099	128.703	8.665	−0.411
	1200.00	37.102	267.087	240.249	175.855	32.205	−144.649	0.000	0.000	0.000
	1300.00	37.208	270.061	242.430	179.571	35.921	−171.509	0.000	0.000	0.000
	1400.00	37.297	272.822	244.503	183.296	39.646	−198.654	0.000	0.000	0.000
	1500.00	37.374	275.397	246.478	187.030	43.380	−226.067	0.000	0.000	0.000
	1600.00	37.441	277.812	248.362	190.770	47.120	−253.728	0.000	0.000	0.000
	1700.00	37.501	280.083	250.161	194.518	50.868	−281.624	0.000	0.000	0.000
	1800.00	37.555	282.228	251.884	198.270	54.620	−309.741	0.000	0.000	0.000
	1900.00	37.604	284.260	253.535	202.028	58.378	−338.066	0.000	0.000	0.000
	2000.00	37.649	286.190	255.120	205.791	62.141	−366.590	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Ja2	Ja1

123.895

PHOSPHORUS (GAS) **P4**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	67.156	280.000	280.000	58.900	0.000	−24.582	58.900	24.398	−4.274
	300.00	67.309	280.416	280.001	59.024	0.124	−25.100	58.848	24.184	−4.211
	400.00	73.278	300.692	282.725	66.087	7.187	−54.190	52.905	13.808	−1.803
	500.00	76.486	317.422	288.042	73.590	14.690	−85.121	49.877	4.391	−0.459
	600.00	78.378	331.548	294.147	81.341	22.441	−117.588	47.098	−4.442	0.387
	700.00	79.578	343.727	300.380	89.243	30.343	−151.366	44.470	−12.823	0.957
	800.00	80.384	354.409	306.479	97.243	38.343	−186.283	41.940	−20.834	1.360
	900.00	80.949	363.911	312.342	105.312	46.412	−222.208	39.478	−28.532	1.656
	1000.00	81.360	372.462	317.934	113.428	54.528	−259.034	37.064	−35.959	1.878
	1100.00	81.667	380.232	323.250	121.580	62.680	−296.675	34.685	−43.146	2.049
	1200.00	81.902	387.348	328.299	129.759	70.859	−335.059	−221.951	−45.760	1.992
	1300.00	82.085	393.911	333.097	137.959	79.059	−374.126	−221.182	−31.109	1.250
	1400.00	82.230	400.000	337.661	146.175	87.275	−413.825	−220.417	−16.516	0.616
	1500.00	82.347	405.677	342.008	154.404	95.504	−454.112	−219.655	−1.979	0.069
	1600.00	82.442	410.995	346.155	162.644	103.744	−494.949	−218.897	12.508	−0.408
	1700.00	82.519	415.996	350.118	170.892	111.992	−536.301	−218.143	26.948	−0.828
	1800.00	82.584	420.714	353.910	179.147	120.247	−578.138	−217.394	41.343	−1.200
	1900.00	82.637	425.181	357.545	187.408	128.508	−620.435	−216.649	55.697	−1.531
	2000.00	82.682	429.421	361.033	195.674	136.774	−663.167	−215.908	70.012	−1.829

References

Phase	H / S	C_p
GAS	Ja2	Ja1

PBr3[g] PHOSPHORUS TRIBROMIDE (GAS) 270.686

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	75.957	348.243	348.243	−145.896	0.000	−249.725	−145.896	−169.408	29.680
	300.00	76.043	348.713	348.245	−145.755	0.141	−250.369	−146.009	−169.553	29.522
	400.00	79.044	371.062	351.271	−137.980	7.916	−286.405	−193.208	−167.680	21.897
	500.00	80.442	388.868	357.071	−129.998	15.898	−324.432	−193.397	−161.274	16.848
	600.00	81.210	403.608	363.634	−121.912	23.984	−364.077	−193.521	−154.837	13.480
	700.00	81.680	416.165	370.264	−113.765	32.131	−405.081	−193.611	−148.383	11.072
	800.00	81.991	427.093	376.699	−105.581	40.315	−447.255	−193.680	−141.917	9.266
	900.00	82.210	436.764	382.846	−97.370	48.526	−490.457	−193.738	−135.443	7.861
	1000.00	82.372	445.434	388.679	−89.141	56.755	−534.575	−193.790	−128.963	6.736
	1100.00	82.496	453.291	394.201	−80.897	64.999	−579.517	−193.838	−122.477	5.816
	1200.00	82.594	460.473	399.429	−72.643	73.253	−625.211	−257.456	−114.899	5.001
	1300.00	82.675	467.088	404.382	−64.379	81.517	−671.593	−256.729	−103.048	4.141
	1400.00	82.743	473.217	409.083	−56.108	89.788	−718.612	−256.008	−91.254	3.405
	1500.00	82.801	478.928	413.551	−47.831	98.065	−766.222	−255.293	−79.511	2.769
	1600.00	82.851	484.273	417.806	−39.548	106.348	−814.385	−254.585	−67.815	2.214
	1700.00	82.896	489.298	421.865	−31.261	114.635	−863.066	−253.883	−56.163	1.726
	1800.00	82.937	494.037	425.744	−22.969	122.927	−912.235	−253.187	−44.553	1.293
	1900.00	82.974	498.522	429.458	−14.673	131.223	−961.865	−252.497	−32.981	0.907
	2000.00	83.008	502.779	433.018	−6.374	139.522	−1011.932	−251.814	−21.445	0.560

References

Phase	H / S	C_p
GAS	Ja1	Ja1

137.332 PHOSPHORUS TRICHLORIDE (GAS) **PCl3**[g]

Phase	T	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[–]
GAS	298.15	71.579	311.692	311.692	–288.570	0.000	–381.501	–288.570	–269.473	47.210
	300.00	71.691	312.135	311.693	–288.437	0.133	–382.078	–288.576	–269.354	46.899
	400.00	76.048	333.427	314.567	–281.026	7.544	–414.397	–289.616	–262.717	34.307
	500.00	78.368	350.670	320.118	–273.294	15.276	–448.629	–289.874	–255.960	26.740
	600.00	79.729	365.089	326.445	–265.384	23.186	–484.437	–290.049	–249.160	21.691
	700.00	80.590	377.448	332.869	–257.365	31.205	–521.579	–290.177	–242.334	18.083
	800.00	81.167	388.250	339.131	–249.275	39.295	–559.875	–290.278	–235.492	15.376
	900.00	81.572	397.835	345.131	–241.137	47.433	–599.188	–290.361	–228.639	13.270
	1000.00	81.866	406.445	350.839	–232.964	55.606	–639.409	–290.433	–221.777	11.584
	1100.00	82.085	414.258	356.255	–224.766	63.804	–680.451	–290.498	–214.908	10.205
	1200.00	82.253	421.408	361.391	–216.549	72.021	–722.239	–354.130	–206.944	9.008
	1300.00	82.384	427.998	366.264	–208.317	80.253	–764.714	–353.416	–194.708	7.823
	1400.00	82.488	434.107	370.895	–200.073	88.497	–807.823	–352.706	–182.526	6.810
	1500.00	82.572	439.801	375.301	–191.820	96.750	–851.521	–352.003	–170.395	5.934
	1600.00	82.640	445.132	379.500	–183.559	105.011	–895.771	–351.307	–158.311	5.168
	1700.00	82.695	450.144	383.510	–175.292	113.278	–940.537	–350.618	–146.270	4.494

References

Phase	H / S	C_p
GAS	Ja1	Ja1

PCl5[g] PHOSPHORUS PENTACHLORIDE (GAS) 208.237

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	111.619	364.117	364.117	−374.886	0.000	−483.448	−374.886	−304.897	53.417
	300.00	111.868	364.809	364.120	−374.679	0.207	−484.122	−374.880	−304.463	53.012
	400.00	120.629	398.370	368.636	−362.992	11.894	−522.340	−375.113	−280.874	36.678
	500.00	124.728	425.777	377.410	−350.702	24.184	−563.591	−374.383	−257.394	26.890
	600.00	126.992	448.736	387.437	−338.106	36.780	−607.348	−373.507	−234.077	20.378
	700.00	128.391	468.425	397.634	−325.332	49.554	−653.230	−372.558	−210.913	15.739
	800.00	129.327	485.634	407.581	−312.443	62.443	−700.951	−371.565	−187.888	12.268
	900.00	129.995	500.907	417.118	−299.476	75.410	−750.292	−370.544	−164.990	9.576
	1000.00	130.496	514.631	426.195	−286.450	88.436	−801.081	−369.504	−142.206	7.428
	1100.00	130.888	527.087	434.809	−273.380	101.506	−853.176	−368.450	−119.527	5.676
	1200.00	131.206	538.490	442.981	−260.275	114.611	−906.463	−430.959	−95.855	4.172
	1300.00	131.472	549.003	450.737	−247.141	127.745	−960.845	−429.115	−68.005	2.732
	1400.00	131.700	558.755	458.109	−233.982	140.904	−1016.238	−427.271	−40.296	1.503
	1500.00	131.900	567.848	465.125	−220.801	154.085	−1072.574	−425.430	−12.719	0.443
	1600.00	132.079	576.367	471.814	−207.602	167.284	−1129.789	−423.591	14.735	−0.481
	1700.00	132.241	584.379	478.202	−194.386	180.500	−1187.830	−421.757	42.074	−1.293
	1800.00	132.390	591.942	484.313	−181.155	193.731	−1246.650	−419.927	69.305	−2.011
	1900.00	132.529	599.103	490.168	−167.909	206.977	−1306.205	−418.104	96.435	−2.651
	2000.00	132.659	605.904	495.786	−154.649	220.237	−1366.458	−416.288	123.469	−3.225

References

Phase	H / S	C_p
GAS	Nb1/Ja1	Ja1

87.969 PHOSPHORUS TRIFLUORIDE (GAS) **PF3**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	58.704	273.032	273.032	−958.429	0.000	−1039.833	−958.429	−936.893	164.140
	300.00	58.851	273.395	273.033	−958.320	0.109	−1040.339	−958.451	−936.760	163.104
	400.00	66.008	291.357	275.433	−952.059	6.370	−1068.602	−960.262	−929.177	121.338
	500.00	70.854	306.646	280.186	−945.199	13.230	−1098.522	−961.079	−921.305	96.248
	600.00	74.004	319.863	285.722	−937.945	20.484	−1129.862	−961.667	−913.292	79.509
	700.00	76.117	331.439	291.444	−930.432	27.997	−1162.440	−962.112	−905.192	67.546
	800.00	77.590	341.705	297.097	−922.743	35.686	−1196.107	−962.464	−897.036	58.570
	900.00	78.652	350.908	302.574	−914.928	43.501	−1230.745	−962.754	−888.839	51.587
	1000.00	79.442	359.238	307.830	−907.021	51.408	−1266.259	−963.000	−880.613	45.999
	1100.00	80.045	366.839	312.854	−899.046	59.383	−1302.569	−963.217	−872.364	41.425
	1200.00	80.514	373.825	317.648	−891.017	67.412	−1339.607	−1026.984	−863.006	37.566
	1300.00	80.887	380.285	322.221	−882.946	75.483	−1377.316	−1026.391	−849.365	34.128
	1400.00	81.189	386.291	326.585	−874.842	83.587	−1415.649	−1025.793	−835.770	31.183
	1500.00	81.435	391.901	330.755	−866.710	91.719	−1454.561	−1025.194	−822.218	28.632
	1600.00	81.640	397.163	334.743	−858.556	99.873	−1494.017	−1024.595	−808.706	26.402
	1700.00	81.811	402.118	338.562	−850.383	108.046	−1533.984	−1023.999	−795.231	24.434
	1800.00	81.956	406.798	342.224	−842.195	116.234	−1574.432	−1023.405	−781.791	22.687
	1900.00	82.080	411.233	345.740	−833.993	124.436	−1615.335	−1022.817	−768.384	21.124
	2000.00	82.187	415.446	349.121	−825.779	132.650	−1656.671	−1022.233	−755.008	19.719

References

Phase	H / S	C_p
GAS	Ja1	Ja1

PF5[g] PHOSPHORUS PENTAFLUORIDE (GAS) 125.966

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	84.870	300.814	300.814	−1594.397	0.000	−1684.085	−1594.397	−1520.681	266.417
	300.00	85.153	301.339	300.815	−1594.240	0.157	−1684.642	−1594.429	−1520.224	264.694
	400.00	99.081	327.838	304.333	−1584.995	9.402	−1716.130	−1596.469	−1495.087	195.238
	500.00	108.597	351.046	311.406	−1574.577	19.820	−1750.100	−1597.092	−1469.657	153.534
	600.00	114.807	371.433	319.747	−1563.385	31.012	−1786.245	−1597.215	−1444.151	125.725
	700.00	118.982	389.464	328.444	−1551.683	42.714	−1824.308	−1597.021	−1418.653	105.861
	800.00	121.899	405.554	337.096	−1539.631	54.766	−1864.074	−1596.616	−1393.197	90.966
	900.00	124.007	420.039	345.520	−1527.330	67.067	−1905.365	−1596.068	−1367.801	79.385
	1000.00	125.579	433.190	353.640	−1514.847	79.550	−1948.037	−1595.418	−1342.472	70.124
	1100.00	126.780	445.218	361.426	−1502.226	92.171	−1991.966	−1594.696	−1317.212	62.549
	1200.00	127.719	456.291	368.876	−1489.500	104.897	−2037.049	−1657.494	−1290.931	56.193
	1300.00	128.468	466.545	376.000	−1476.689	117.708	−2083.197	−1655.907	−1260.448	50.645
	1400.00	129.074	476.088	382.812	−1463.811	130.586	−2130.334	−1654.299	−1230.088	45.895
	1500.00	129.573	485.011	389.331	−1450.878	143.519	−2178.394	−1652.675	−1199.844	41.782
	1600.00	129.988	493.387	395.576	−1437.899	156.498	−2227.318	−1651.041	−1169.709	38.187
	1700.00	130.338	501.278	401.564	−1424.882	169.515	−2277.055	−1649.402	−1139.676	35.018
	1800.00	130.636	508.737	407.312	−1411.833	182.564	−2327.559	−1647.761	−1109.739	32.204
	1900.00	130.893	515.807	412.838	−1398.756	195.641	−2378.789	−1646.120	−1079.894	29.688
	2000.00	131.115	522.527	418.156	−1385.656	208.741	−2430.709	−1644.482	−1050.135	27.427

References

Phase	H / S	C_p
GAS	Ja1	Ja1

33.998

PHOSPHINE (GAS) **PH3**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[——— J / (K mol) ———]			[——— kJ / mol ———]					[−]
GAS	298.15	37.111	210.314	210.314	5.565	0.000	−57.140	5.565	13.548	−2.374
	300.00	37.183	210.543	210.314	5.634	0.069	−57.529	5.510	13.598	−2.368
	400.00	41.746	221.845	211.824	9.573	4.008	−79.165	1.839	16.925	−2.210
	500.00	46.515	231.677	214.831	13.988	8.423	−101.850	−0.763	21.008	−2.195
	600.00	50.953	240.556	218.389	18.865	13.300	−125.469	−2.912	25.571	−2.226
	700.00	54.946	248.716	222.147	24.164	18.599	−149.938	−4.653	30.461	−2.273
	800.00	58.481	256.289	225.947	29.839	24.274	−175.192	−6.040	35.576	−2.323
	900.00	61.578	263.360	229.715	35.845	30.280	−201.179	−7.128	40.846	−2.371
	1000.00	64.266	269.990	233.415	42.141	36.576	−227.850	−7.970	46.224	−2.414
	1100.00	66.579	276.227	237.026	48.686	43.121	−255.164	−8.616	51.676	−2.454
	1200.00	68.556	282.107	240.540	55.445	49.880	−283.083	−72.678	58.269	−2.536
	1300.00	70.234	287.663	243.953	62.387	56.822	−311.574	−72.275	69.165	−2.779
	1400.00	71.652	292.921	247.265	69.484	63.919	−340.606	−71.787	80.028	−2.986
	1500.00	72.849	297.906	250.476	76.710	71.145	−370.149	−71.240	90.853	−3.164
	1600.00	73.864	302.641	253.590	84.047	78.482	−400.179	−70.650	101.640	−3.318
	1700.00	74.736	307.146	256.609	91.478	85.913	−430.670	−70.032	112.389	−3.453
	1800.00	75.506	311.440	259.537	98.991	93.426	−461.601	−69.397	123.102	−3.572
	1900.00	76.211	315.541	262.377	106.577	101.012	−492.951	−68.749	133.778	−3.678
	2000.00	76.892	319.468	265.134	114.232	108.667	−524.703	−68.090	144.421	−3.772

References

Phase	H / S	C_p
GAS	Ja1	Ja1

411.687

PHOSPHORUS TRIIODIDE (GAS) **PI3**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[——— J / (K mol) ———]			[——— kJ / mol ———]					[−]
GAS	298.15	78.367	374.368	374.368	−17.991	0.000	−129.609	−17.991	−65.422	11.462
	300.00	78.420	374.853	374.370	−17.846	0.145	−130.302	−18.041	−65.716	11.442
	400.00	80.291	397.708	377.473	−9.897	8.094	−168.980	−45.802	−80.152	10.467
	500.00	81.157	415.728	383.386	−1.820	16.171	−209.684	−112.648	−82.270	8.595
	600.00	81.628	430.570	390.049	6.322	24.313	−252.021	−112.766	−76.183	6.632

References

Phase	H / S	C_p	Remarks	
GAS	Tk1	Nb1,e	Tk1	MPT= 334.15

PN[g] PHOSPHORUS MONONITRIDE (GAS) 44.981

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	29.697	211.188	211.188	109.746	0.000	46.780	109.746	87.589	−15.345
	300.00	29.704	211.372	211.189	109.801	0.055	46.389	109.730	87.452	−15.227
	400.00	30.748	220.040	212.363	112.817	3.071	24.801	108.036	80.351	−10.493
	500.00	31.981	227.037	214.620	115.954	6.208	2.436	107.071	73.543	−7.683
	600.00	33.008	232.962	217.196	119.206	9.460	−20.571	106.198	66.921	−5.826
	700.00	33.832	238.114	219.824	122.549	12.803	−44.131	105.388	60.440	−4.510
	800.00	34.493	242.677	222.401	125.967	16.221	−68.175	104.618	54.072	−3.531
	900.00	35.026	246.771	224.885	129.444	19.698	−92.650	103.874	47.798	−2.774
	1000.00	35.458	250.485	227.262	132.969	23.223	−117.516	103.146	41.607	−2.173
	1100.00	35.808	253.881	229.530	136.533	26.787	−142.737	102.429	35.488	−1.685
	1200.00	36.092	257.010	231.691	140.128	30.382	−168.283	38.146	30.523	−1.329
	1300.00	36.322	259.908	233.752	143.749	34.003	−194.131	38.213	29.885	−1.201
	1400.00	36.510	262.607	235.717	147.391	37.645	−220.258	38.275	29.242	−1.091
	1500.00	36.663	265.131	237.595	151.050	41.304	−246.647	38.333	28.594	−0.996
	1600.00	36.791	267.501	239.391	154.723	44.977	−273.279	38.386	27.943	−0.912
	1700.00	36.903	269.735	241.111	158.408	48.662	−300.142	38.434	27.289	−0.838
	1800.00	37.005	271.848	242.760	162.103	52.357	−327.223	38.479	26.632	−0.773
	1900.00	37.104	273.851	244.344	165.809	56.063	−354.508	38.520	25.973	−0.714
	2000.00	37.209	275.757	245.868	169.524	59.778	−381.989	38.560	25.312	−0.661

References

Phase	H / S	C_p
GAS	Nb1	Ja1

46.973 PHOSPHORUS MONOXIDE (GAS) **PO**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	31.770	222.774	222.774	−23.556	0.000	−89.976	−23.556	−47.149	8.260
	300.00	31.762	222.970	222.774	−23.497	0.059	−90.388	−23.569	−47.295	8.235
	400.00	32.290	232.150	224.022	−20.305	3.251	−113.165	−25.113	−54.904	7.170
	500.00	33.228	239.457	226.402	−17.028	6.528	−136.757	−25.999	−62.248	6.503
	600.00	34.035	245.589	229.103	−13.664	9.892	−161.018	−26.847	−69.418	6.043
	700.00	34.680	250.886	231.845	−10.227	13.329	−185.847	−27.670	−76.448	5.705
	800.00	35.195	255.552	234.522	−6.732	16.824	−211.174	−28.476	−83.361	5.443
	900.00	35.612	259.722	237.095	−3.191	20.365	−236.941	−29.270	−90.174	5.234
	1000.00	35.952	263.493	239.549	0.388	23.944	−263.105	−30.055	−96.899	5.061
	1100.00	36.231	266.933	241.884	3.997	27.553	−289.629	−30.833	−103.545	4.917
	1200.00	36.463	270.095	244.105	7.632	31.188	−316.482	−95.176	−109.032	4.746
	1300.00	36.655	273.022	246.218	11.288	34.844	−343.640	−95.169	−110.187	4.427
	1400.00	36.815	275.744	248.231	14.962	38.518	−371.080	−95.164	−111.343	4.154
	1500.00	36.949	278.289	250.151	18.651	42.207	−398.783	−95.163	−112.498	3.918
	1600.00	37.061	280.677	251.985	22.351	45.907	−426.732	−95.167	−113.654	3.710
	1700.00	37.156	282.927	253.740	26.062	49.618	−454.914	−95.175	−114.809	3.528
	1800.00	37.237	285.053	255.421	29.782	53.338	−483.314	−95.190	−115.964	3.365
	1900.00	37.307	287.068	257.034	33.509	57.065	−511.921	−95.211	−117.117	3.220
	2000.00	37.370	288.984	258.584	37.243	60.799	−540.724	−95.240	−118.269	3.089
	2100.00	37.429	290.808	260.075	40.983	64.539	−569.714	−95.276	−119.420	2.970
	2200.00	37.486	292.551	261.512	44.729	68.285	−598.883	−95.320	−120.569	2.863
	2300.00	37.545	294.219	262.898	48.481	72.037	−628.222	−95.372	−121.715	2.764
	2400.00	37.607	295.818	264.237	52.238	75.794	−657.724	−95.430	−122.859	2.674
	2500.00	37.675	297.354	265.531	56.002	79.558	−687.384	−95.494	−124.001	2.591

References

Phase	H / S	C_p
GAS	Ja1	Ja1

PO2[g] PHOSPHORUS DIOXIDE (GAS) 62.973

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	41.433	253.660	253.660	−314.511	0.000	−390.140	−314.511	−316.730	55.490
	300.00	41.497	253.916	253.661	−314.434	0.077	−390.609	−314.533	−316.744	55.150
	400.00	45.548	266.405	255.336	−310.083	4.428	−416.645	−316.404	−317.123	41.412
	500.00	48.819	276.942	258.630	−305.355	9.156	−443.826	−317.368	−317.186	33.136
	600.00	51.071	286.054	262.459	−300.354	14.157	−471.986	−318.158	−317.074	27.604
	700.00	52.628	294.051	266.413	−295.164	19.347	−501.000	−318.856	−316.837	23.643
	800.00	53.737	301.155	270.320	−289.843	24.668	−530.767	−319.504	−316.503	20.666
	900.00	54.549	307.534	274.106	−284.427	30.084	−561.207	−320.126	−316.091	18.345
	1000.00	55.162	313.314	277.743	−278.940	35.571	−592.254	−320.734	−315.610	16.486
	1100.00	55.637	318.595	281.220	−273.399	41.112	−623.853	−321.334	−315.068	14.961
	1200.00	56.011	323.452	284.540	−267.816	46.695	−655.959	−385.504	−313.383	13.641
	1300.00	56.313	327.948	287.708	−262.199	52.312	−688.531	−385.328	−307.380	12.351
	1400.00	56.561	332.131	290.733	−256.555	57.956	−721.538	−385.160	−301.390	11.245
	1500.00	56.767	336.040	293.625	−250.888	63.623	−754.948	−385.001	−295.412	10.287
	1600.00	56.941	339.710	296.392	−245.202	69.309	−788.738	−384.853	−289.445	9.449
	1700.00	57.090	343.166	299.042	−239.501	75.010	−822.883	−384.717	−283.486	8.710
	1800.00	57.219	346.433	301.585	−233.785	80.726	−857.365	−384.594	−277.535	8.054
	1900.00	57.332	349.530	304.028	−228.057	86.454	−892.164	−384.484	−271.590	7.467
	2000.00	57.431	352.473	306.377	−222.319	92.192	−927.266	−384.390	−265.651	6.938

References

Phase	H / S	C_p
GAS	Ja1	Ja1

141.945 DIPHOSPHORUS PENTAOXIDE (LIQID) **P2O5**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol	]		[−]
LIQ	298.15	156.900	117.243	117.243	−1498.120	0.000	−1533.076	−1498.120	−1355.675	237.509
	300.00	156.900	118.214	117.246	−1497.830	0.290	−1533.294	−1498.054	−1354.791	235.890
	400.00	156.900	163.351	123.400	−1482.140	15.980	−1547.480	−1496.294	−1307.174	170.699
	500.00	156.900	198.362	135.022	−1466.450	31.670	−1565.631	−1493.517	−1260.220	131.654
	600.00	156.900	226.969	148.035	−1450.760	47.360	−1586.941	−1490.991	−1213.802	105.671
	700.00	156.900	251.155	161.083	−1435.070	63.050	−1610.878	−1488.703	−1167.788	87.141
	800.00	156.900	272.106	173.681	−1419.380	78.740	−1637.064	−1486.620	−1122.087	73.265
	900.00	156.900	290.586	185.663	−1403.690	94.430	−1665.217	−1484.709	−1076.637	62.486
	1000.00	156.900	307.117	196.997	−1388.000	110.120	−1695.117	−1482.939	−1031.392	53.874
	1100.00	156.900	322.071	207.698	−1372.310	125.810	−1726.588	−1481.287	−986.318	46.836
	1200.00	156.900	335.723	217.806	−1356.620	141.500	−1759.488	−1606.877	−939.211	40.883
	1300.00	156.900	348.282	227.366	−1340.930	157.190	−1793.696	−1603.860	−883.695	35.507
	1400.00	156.900	359.910	236.424	−1325.240	172.880	−1829.113	−1600.929	−828.408	30.908
	1500.00	156.900	370.735	245.021	−1309.550	188.570	−1865.652	−1598.075	−773.328	26.930
	1600.00	156.900	380.861	253.198	−1293.860	204.260	−1903.237	−1595.294	−718.436	23.455

References

Phase	H / S	C_p	Remarks
LIQ	e,Ja2,Tk1	e	metastable, SOL−LIQ transitions see Gmelin and Tk1

P4O6[g] TETRAPHOSPHORUS HEXAOXIDE (GAS) 219.891

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	143.981	345.708	345.708	-2214.089	0.000	-2317.162	-2214.089	-2084.688	365.229
	300.00	144.581	346.600	345.711	-2213.822	0.267	-2317.802	-2214.162	-2083.885	362.837
	400.00	172.065	392.215	351.742	-2197.900	16.189	-2354.786	-2220.159	-2039.219	266.295
	500.00	189.695	432.656	363.966	-2179.744	34.345	-2396.072	-2221.710	-1993.774	208.288
	600.00	200.931	468.308	378.447	-2160.172	53.917	-2441.157	-2222.147	-1948.132	169.600
	700.00	208.390	499.879	393.584	-2139.682	74.407	-2489.598	-2221.951	-1902.472	141.964
	800.00	213.556	528.063	408.664	-2118.570	95.519	-2541.020	-2221.380	-1856.868	121.241
	900.00	217.267	553.441	423.364	-2097.019	117.070	-2595.117	-2220.576	-1811.350	105.128
	1000.00	220.017	576.482	437.542	-2075.149	138.940	-2651.631	-2219.622	-1765.930	92.243
	1100.00	222.110	597.554	451.144	-2053.038	161.051	-2710.348	-2218.569	-1720.612	81.705
	1200.00	223.738	616.953	464.164	-2030.742	183.347	-2771.086	-2471.735	-1671.034	72.738
	1300.00	225.029	634.915	476.616	-2008.301	205.788	-2833.690	-2467.474	-1604.482	64.469
	1400.00	226.070	651.630	488.527	-1985.745	228.344	-2898.027	-2463.208	-1538.258	57.393
	1500.00	226.922	667.258	499.927	-1963.094	250.995	-2963.980	-2458.948	-1472.339	51.271
	1600.00	227.627	681.926	510.849	-1940.365	273.724	-3031.447	-2454.702	-1406.704	45.924
	1700.00	228.218	695.744	521.322	-1917.572	296.517	-3100.337	-2450.479	-1341.333	41.214
	1800.00	228.718	708.803	531.379	-1894.725	319.364	-3170.570	-2446.286	-1276.210	37.035
	1900.00	229.145	721.181	541.045	-1871.831	342.258	-3242.075	-2442.126	-1211.320	33.302
	2000.00	229.513	732.944	550.349	-1848.898	365.191	-3314.786	-2438.006	-1146.647	29.947

References

Phase	H / S	C_p
GAS	Ja1	Ja1

P4O10 TETRAPHOSPHORUS DECAOXIDE 283.889

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	211.710	228.781	228.781	-3009.936	0.000	-3078.147	-3009.936	-2723.344	477.119
	300.00	212.673	230.094	228.785	-3009.543	0.393	-3078.572	-3009.992	-2721.566	473.867
	400.00	260.245	298.027	237.725	-2985.815	24.121	-3105.026	-3014.125	-2624.413	342.713
	500.00	299.993	360.465	256.114	-2957.760	52.176	-3137.993	-3011.895	-2527.171	264.012
	600.00	335.975	418.387	278.388	-2925.937	83.999	-3176.969	-3006.399	-2430.691	211.610
	632.00	346.796	436.124	285.927	-2915.011	94.925	-3190.642	-3004.002	-2400.048	198.363

References

Phase	H / S	C_p	Remarks
SOL	Ja2	Ja2	Ja1 SPT= 632., L= 106.0

283.889 TETRAPHOSPHORUSDECAOXIDE (GAS) **P4O10**[g]

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	188.804	403.964	403.964	-2904.081	0.000	-3024.523	-2904.081	-2669.720	467.724
	300.00	189.638	405.134	403.968	-2903.731	0.350	-3025.271	-2904.179	-2668.265	464.586
	400.00	227.511	465.202	411.900	-2882.760	21.321	-3068.841	-2911.070	-2588.228	337.988
	500.00	253.807	518.973	428.040	-2858.614	45.467	-3118.101	-2912.749	-2507.279	261.934
	600.00	272.134	566.965	447.270	-2832.264	71.817	-3172.443	-2912.726	-2426.165	211.216
	700.00	285.128	609.946	467.494	-2804.365	99.716	-3231.327	-2911.631	-2345.146	174.997
	800.00	294.544	648.667	487.761	-2775.357	128.724	-3294.290	-2909.838	-2264.336	147.846
	900.00	301.519	683.781	507.621	-2745.537	158.544	-3360.940	-2907.576	-2183.780	126.743
	1000.00	306.800	715.835	526.864	-2715.109	188.972	-3430.945	-2904.988	-2103.494	109.875
	1100.00	310.878	745.276	545.399	-2684.217	219.864	-3504.020	-2902.172	-2023.480	96.087
	1200.00	314.081	772.468	563.203	-2652.963	251.118	-3579.925	-3153.477	-1939.371	84.419
	1300.00	316.638	797.713	580.283	-2621.422	282.659	-3658.449	-3147.283	-1838.447	73.870
	1400.00	318.708	821.257	596.664	-2589.651	314.430	-3739.411	-3141.030	-1738.001	64.846
	1500.00	320.406	843.305	612.380	-2557.693	346.388	-3822.651	-3134.744	-1638.004	57.040
	1600.00	321.815	864.030	627.467	-2525.580	378.501	-3908.028	-3128.448	-1538.427	50.224
	1700.00	322.995	883.576	641.963	-2493.338	410.743	-3995.417	-3122.160	-1439.243	44.223
	1800.00	323.993	902.067	655.904	-2460.987	443.094	-4084.708	-3115.895	-1340.429	38.898
	1900.00	324.845	919.608	669.325	-2428.544	475.537	-4175.799	-3109.665	-1241.962	34.144
	2000.00	325.577	936.289	682.260	-2396.022	508.059	-4268.601	-3103.482	-1143.822	29.874
	2100.00	326.210	952.190	694.738	-2363.432	540.649	-4363.031	-3097.353	-1045.990	26.018
	2200.00	326.762	967.378	706.788	-2330.782	573.299	-4459.015	-3091.287	-948.449	22.519
	2300.00	327.246	981.915	718.436	-2298.081	606.000	-4556.485	-3085.289	-851.181	19.331
	2400.00	327.672	995.851	729.707	-2265.335	638.746	-4655.378	-3079.364	-754.173	16.414
	2500.00	328.050	1009.235	740.622	-2232.549	671.532	-4755.637	-3073.515	-657.411	13.736

References

Phase	H / S	C_p
GAS	Ja2	Ja2

POBr3[g] PHOSPHORUS TRIBROMIDE OXIDE (GAS) 286.685

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	89.892	359.841	359.841	−406.559	0.000	−513.846	−406.559	−402.946	70.595
	300.00	89.996	360.398	359.843	−406.393	0.166	−514.512	−406.674	−402.924	70.155
	400.00	95.126	387.025	363.439	−397.124	9.435	−551.934	−453.866	−391.949	51.183
	500.00	98.641	408.657	370.386	−387.424	19.135	−591.752	−453.865	−376.464	39.329
	600.00	100.945	426.860	378.322	−377.436	29.123	−633.552	−453.668	−361.000	31.428
	700.00	102.503	442.545	386.402	−367.259	39.300	−677.041	−453.354	−345.579	25.787
	800.00	103.600	456.308	394.298	−356.951	49.608	−721.997	−452.968	−330.208	21.560
	900.00	104.401	468.559	401.881	−346.549	60.010	−768.252	−452.537	−314.889	18.276
	1000.00	105.006	479.591	409.109	−336.077	70.482	−815.668	−452.078	−299.619	15.650
	1100.00	105.474	489.622	415.980	−325.552	81.007	−864.137	−451.599	−284.396	13.505
	1200.00	105.847	498.816	422.505	−314.986	91.573	−913.565	−514.680	−268.128	11.671
	1300.00	106.150	507.301	428.706	−304.385	102.174	−963.876	−513.408	−247.633	9.950
	1400.00	106.401	515.177	434.604	−293.757	112.802	−1015.005	−512.136	−227.237	8.478
	1500.00	106.612	522.525	440.223	−283.106	123.453	−1066.894	−510.868	−206.931	7.206
	1600.00	106.793	529.412	445.585	−272.436	134.123	−1119.495	−509.606	−186.710	6.095
	1700.00	106.950	535.891	450.708	−261.749	144.810	−1172.763	−508.349	−166.567	5.118
	1800.00	107.087	542.008	455.612	−251.047	155.512	−1226.661	−507.101	−146.498	4.251
	1900.00	107.210	547.801	460.313	−240.332	166.227	−1281.154	−505.862	−126.499	3.478
	2000.00	107.320	553.303	464.826	−229.605	176.954	−1336.211	−504.633	−106.564	2.783

References

Phase	H / S	C_p
GAS	Ja1	Ja1

POCl3 PHOSPHORUS TRICHLORIDE OXIDE 153.331

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
LIQ	298.15	138.783	222.459	222.459	−597.099	0.000	−663.425	−597.099	−520.815	91.245
	300.00	138.783	223.318	222.462	−596.842	0.257	−663.838	−597.008	−520.341	90.600
	383.00	138.783	257.216	226.470	−585.323	11.776	−683.837	−593.826	−499.490	68.122

References

Phase	H / S	C_p	Remarks	
LIQ	Nb1	Tk1	Tk1	BPT= 383., L= 34.48 kJ

153.331 PHOSPHORUS TRICHLORIDE OXIDE (GAS) **POCl3**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	84.952	325.499	325.499	−559.694	0.000	−656.742	−559.694	−514.131	90.074
	300.00	85.092	326.025	325.501	−559.537	0.157	−657.344	−559.702	−513.848	89.469
	400.00	91.811	351.477	328.925	−550.673	9.021	−691.264	−560.777	−498.323	65.074
	500.00	96.303	372.483	335.597	−541.251	18.443	−727.493	−560.873	−482.692	50.427
	600.00	99.219	390.317	343.269	−531.465	28.229	−765.655	−560.752	−467.065	40.662
	700.00	101.181	405.769	351.119	−521.439	38.255	−805.477	−560.501	−451.469	33.689
	800.00	102.557	419.375	358.817	−511.248	48.446	−846.748	−560.169	−435.915	28.462
	900.00	103.558	431.515	366.232	−500.940	58.754	−889.303	−559.785	−420.406	24.400
	1000.00	104.310	442.466	373.317	−490.545	69.149	−933.011	−559.365	−404.941	21.152
	1100.00	104.892	452.437	380.063	−480.083	79.611	−977.764	−558.921	−389.520	18.497
	1200.00	105.352	461.584	386.481	−469.570	90.124	−1023.471	−622.032	−373.051	16.238
	1300.00	105.725	470.032	392.587	−459.016	100.678	−1070.057	−620.787	−352.353	14.158
	1400.00	106.033	477.879	398.403	−448.427	111.267	−1117.458	−619.539	−331.751	12.378
	1500.00	106.291	485.203	403.948	−437.811	121.883	−1165.616	−618.293	−311.238	10.838
	1600.00	106.510	492.070	409.243	−427.171	132.523	−1214.483	−617.051	−290.809	9.494
	1700.00	106.700	498.533	414.307	−416.510	143.184	−1264.016	−615.814	−270.456	8.310
	1800.00	106.866	504.637	419.158	−405.831	153.863	−1314.178	−614.586	−250.177	7.260
	1900.00	107.012	510.419	423.810	−395.137	164.557	−1364.933	−613.367	−229.965	6.322
	2000.00	107.144	515.911	428.279	−384.429	175.265	−1416.252	−612.159	−209.817	5.480

References

Phase	H / S	C_p
GAS	Ja1	Ja1

PS[g] PHOSPHORUS MONOSULFIDE (GAS) 63.040

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	35.152	234.300	234.300	152.298	0.000	82.441	152.298	104.244	−18.263
	300.00	35.177	234.518	234.301	152.363	0.065	82.008	152.277	103.946	−18.099
	400.00	36.101	244.783	235.694	155.933	3.635	58.020	148.014	88.297	−11.530
	500.00	36.556	252.892	238.351	159.568	7.270	33.122	145.115	73.681	−7.697
	600.00	36.825	259.583	241.349	163.238	10.940	7.489	142.576	59.642	−5.192
	700.00	37.007	265.274	244.370	166.930	14.632	−18.761	140.326	45.999	−3.432
	800.00	37.142	270.224	247.299	170.638	18.340	−45.541	138.041	32.677	−2.134
	900.00	37.251	274.606	250.095	174.358	22.060	−72.787	82.922	20.800	−1.207
	1000.00	37.342	278.535	252.745	178.088	25.790	−100.447	82.184	13.937	−0.728
	1100.00	37.423	282.098	255.254	181.826	29.528	−128.482	81.448	7.148	−0.339
	1200.00	37.496	285.358	257.629	185.572	33.274	−156.857	17.141	1.516	−0.066
	1300.00	37.564	288.362	259.879	189.325	37.027	−185.545	17.183	0.212	−0.009
	1400.00	37.628	291.148	262.014	193.085	40.787	−214.522	17.220	−1.095	0.041
	1500.00	37.689	293.746	264.044	196.851	44.553	−243.768	17.256	−2.405	0.084
	1600.00	37.748	296.180	265.977	200.622	48.324	−273.266	17.289	−3.716	0.121
	1700.00	37.805	298.470	267.822	204.400	52.102	−302.999	17.320	−5.030	0.155
	1800.00	37.862	300.633	269.585	208.183	55.885	−332.956	17.351	−6.346	0.184
	1900.00	37.917	302.681	271.274	211.972	59.674	−363.122	17.380	−7.663	0.211
	2000.00	37.971	304.628	272.893	215.767	63.469	−393.488	17.408	−8.982	0.235

References

Phase	H / S	C_p
GAS	Pa3	Mi1

P4S3 TETRAPHOSPHORUS TRISULFIDE 220.093

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	162.619	203.342	203.342	−224.179	0.000	−284.806	−224.179	−207.153	36.292
	300.00	163.514	204.351	203.346	−223.877	0.302	−285.183	−224.180	−207.047	36.050
	313.90	170.245	211.908	203.557	−221.558	2.621	−288.076	−224.150	−206.254	34.322
			32.842		10.309					
SOL−B	313.90	180.745	244.750	203.557	−211.249	12.930	−288.076	−213.841	−206.254	34.322
	400.00	185.644	289.130	217.372	−195.476	28.703	−311.128	−222.528	−203.298	26.548
	446.00	188.262	309.479	225.839	−186.876	37.303	−324.903	−223.754	−201.043	23.546
			45.217		20.167					
LIQ	446.00	230.120	354.696	225.839	−166.709	57.470	−324.903	−203.587	−201.043	23.546
	500.00	230.120	380.996	241.203	−154.282	69.897	−344.780	−203.572	−200.726	20.970
	600.00	230.120	422.952	268.104	−131.270	92.909	−385.042	−201.818	−200.296	17.437
	677.55	230.120	450.924	287.461	−113.425	110.754	−418.948	−199.850	−200.219	15.436

References

Phase	H / S	C_p	Remarks
SOL−A	Mi1	Mi1	
SOL−B	Mi1	Mi1	
LIQ	Mi1	e	Mi1 NBPT= 677.551 GAS(P4S2 + P4S3 + ...)

284.225 TETRAPHOSPHORUS PENTASULFIDE **P4S5**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	211.111	252.714	252.714	−304.930	0.000	−380.277	−304.930	−283.509	49.670
	300.00	211.334	254.020	252.718	−304.539	0.391	−380.745	−304.926	−283.376	49.340
	400.00	223.384	316.467	261.151	−282.803	22.127	−409.390	−319.102	−275.005	35.912

References

Phase	H / S	C_p
SOL	Mi1	e

316.291 TETRAPHOSPHORUS HEXASULFIDE **P4S6**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	223.443	281.583	281.583	−312.461	0.000	−396.415	−312.461	−290.090	50.823
	300.00	223.844	282.967	281.587	−312.047	0.414	−396.937	−312.477	−289.951	50.485
	400.00	245.517	350.331	290.626	−288.579	23.882	−428.711	−329.502	−281.049	36.701
	500.00	267.190	407.445	308.410	−262.944	49.517	−466.666	−337.810	−268.068	28.005
	503.00	267.840	409.045	309.006	−262.141	50.320	−467.891	−338.019	−267.649	27.794
			58.577		29.464					
LIQ	503.00	334.720	467.621	309.006	−232.677	79.784	−467.891	−308.555	−267.649	27.794
	600.00	334.720	526.646	339.560	−200.209	112.252	−516.197	−307.061	−259.852	22.622
	700.00	334.720	578.243	370.067	−166.737	145.724	−571.508	−303.977	−252.221	18.821

References

Phase	H / S	C_p
SOL	Mi1	Mi1
LIQ	Mi1	Mi1

P4S7 TETRAPHOSPHORUS HEPTASULFIDE 348.357

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	242.331	307.524	307.524	−323.340	0.000	−415.028	−323.340	−299.146	52.409
	300.00	242.672	309.024	307.529	−322.891	0.449	−415.599	−323.363	−298.996	52.060
	400.00	261.082	381.358	317.267	−297.704	25.636	−450.247	−343.249	−289.307	37.780
	500.00	279.491	441.594	336.264	−270.675	52.665	−491.472	−354.067	−274.693	28.697
	581.00	294.403	484.649	353.999	−247.432	75.908	−529.013	−359.866	−261.338	23.495
			63.012		36.610					
LIQ	581.00	368.192	547.661	353.999	−210.822	112.518	−529.013	−359.866	−261.338	23.495
	600.00	368.192	559.509	360.320	−203.827	119.513	−539.532	−322.780	−259.320	22.576
	700.00	368.192	616.266	392.934	−167.007	156.333	−598.394	−319.659	−248.983	18.579

References

Phase	H / S	C_p
SOL	Mi1	Mi1
LIQ	Mi1	Mi1

P4S10 TETRAPHOSPHORUS DECASULFIDE 444.555

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	295.951	381.748	381.748	−309.200	0.000	−423.018	−309.200	−278.463	48.786
	300.00	296.470	383.580	381.754	−308.652	0.548	−423.726	−309.250	−278.272	48.452
	400.00	324.528	472.712	393.718	−277.602	31.598	−466.687	−337.018	−265.915	34.725
	500.00	352.586	548.143	417.236	−243.746	65.454	−517.818	−352.715	−246.495	25.751
	560.00	369.420	589.037	433.476	−222.086	87.114	−551.947	−359.401	−233.331	21.764
			73.370		41.087					
LIQ	560.00	587.434	662.406	433.476	−180.999	128.201	−551.947	−318.314	−233.331	21.764
	600.00	587.434	702.935	450.105	−157.502	151.698	−579.263	−312.760	−227.451	19.801
	700.00	587.434	793.488	492.858	−98.759	210.441	−654.200	−297.643	−214.418	16.000
	800.00	587.434	871.929	535.448	−40.015	269.185	−737.558	−283.029	−203.544	13.290

References

Phase	H / S	C_p
SOL	Pa3	Mi1
LIQ	Mi1	Mi1

231.036 PROTACTINIUM **Pa**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	27.619	51.882	51.882	0.000	0.000	−15.468	0.000	0.000	0.000
	300.00	27.642	52.053	51.882	0.051	0.051	−15.565	0.000	0.000	0.000
	400.00	28.880	60.174	52.981	2.877	2.877	−21.192	0.000	0.000	0.000
	500.00	30.121	66.752	55.097	5.827	5.827	−27.549	0.000	0.000	0.000
	600.00	31.364	72.353	57.518	8.901	8.901	−34.511	0.000	0.000	0.000
	700.00	32.608	77.282	59.996	12.100	12.100	−41.997	0.000	0.000	0.000
	800.00	33.851	81.717	62.438	15.423	15.423	−49.950	0.000	0.000	0.000
	900.00	35.095	85.776	64.809	18.870	18.870	−58.328	0.000	0.000	0.000
	1000.00	36.339	89.538	67.096	22.442	22.442	−67.096	0.000	0.000	0.000
	1100.00	37.583	93.060	69.298	26.138	26.138	−76.227	0.000	0.000	0.000
	1200.00	38.828	96.383	71.418	29.959	29.959	−85.701	0.000	0.000	0.000
	1300.00	40.072	99.540	73.460	33.904	33.904	−95.499	0.000	0.000	0.000
	1400.00	41.316	102.555	75.432	37.973	37.973	−105.604	0.000	0.000	0.000
	1443.00	41.851	103.813	76.259	39.761	39.761	−110.041	0.000	0.000	0.000
			4.602		6.640					
SOL−B	1443.00	39.748	108.415	76.259	46.401	46.401	−110.041	0.000	0.000	0.000
	1500.00	39.748	109.955	77.510	48.667	48.667	−116.265	0.000	0.000	0.000
	1600.00	39.748	112.520	79.619	52.642	52.642	−127.390	0.000	0.000	0.000
	1700.00	39.748	114.930	81.626	56.616	56.616	−138.764	0.000	0.000	0.000
	1800.00	39.748	117.202	83.540	60.591	60.591	−150.372	0.000	0.000	0.000
	1845.00	39.748	118.183	84.373	62.380	62.380	−155.668	0.000	0.000	0.000
			6.690		12.343					
LIQ	1845.00	47.279	124.873	84.373	74.723	74.723	−155.668	0.000	0.000	0.000
	1900.00	47.279	126.262	85.565	77.323	77.323	−162.574	0.000	0.000	0.000
	2000.00	47.279	128.687	87.661	82.051	82.051	−175.323	0.000	0.000	0.000
	2100.00	47.279	130.994	89.670	86.779	86.779	−188.308	0.000	0.000	0.000
	2200.00	47.279	133.193	91.599	91.507	91.507	−201.518	0.000	0.000	0.000
	2300.00	47.279	135.295	93.454	96.235	96.235	−214.943	0.000	0.000	0.000
	2400.00	47.279	137.307	95.239	100.963	100.963	−228.574	0.000	0.000	0.000
	2500.00	47.279	139.237	96.961	105.691	105.691	−242.402	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL − A	Pa1	Pa1	Oe2	bct
SOL − B	Pa1	Pa1		bcc
LIQ	Pa1	Pa1		

Pa[g] PROTACTINIUM (GAS) 231.036

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)		] [		kJ / mol			] [−]
GAS	298.15	22.905	198.046	198.046	606.680	0.000	547.633	606.680	563.101	−98.653
	300.00	22.941	198.188	198.047	606.722	0.042	547.266	606.671	562.831	−97.998
	400.00	24.340	204.998	198.966	609.093	2.413	527.094	606.216	548.286	−71.599
	500.00	25.421	210.546	200.743	611.581	4.901	506.308	605.754	533.857	−55.772
	600.00	26.467	215.274	202.781	614.176	7.496	485.012	605.274	519.522	−45.228
	700.00	27.488	219.431	204.868	616.874	10.194	463.272	604.774	505.269	−37.704
	800.00	28.468	223.166	206.926	619.672	12.992	441.139	604.249	491.090	−32.065
	900.00	29.393	226.573	208.922	622.566	15.886	418.650	603.695	476.978	−27.683
	1000.00	30.255	229.715	210.846	625.549	18.869	395.834	603.107	462.929	−24.181
	1100.00	31.053	232.636	212.696	628.615	21.935	372.714	602.476	448.942	−21.318
	1200.00	31.786	235.370	214.473	631.757	25.077	349.313	601.798	435.014	−18.936
	1300.00	32.456	237.941	216.180	634.970	28.290	325.646	601.066	421.144	−16.922
	1400.00	33.067	240.369	217.822	638.246	31.566	301.729	600.273	407.334	−15.198
	1500.00	33.623	242.670	219.403	641.581	34.901	277.576	592.914	393.841	−13.715
	1600.00	34.130	244.856	220.926	644.969	38.289	253.199	592.328	380.589	−12.425
	1700.00	34.591	246.940	222.395	648.406	41.726	228.608	591.789	367.372	−11.288
	1800.00	35.014	248.929	223.814	651.886	45.206	203.814	591.295	354.186	−10.278
	1900.00	35.403	250.833	225.187	655.407	48.727	178.825	578.084	341.400	−9.386
	2000.00	35.765	252.658	226.515	658.966	52.286	153.650	576.915	328.973	−8.592
	2100.00	36.105	254.411	227.802	662.560	55.880	128.296	575.780	316.604	−7.875
	2200.00	36.430	256.098	229.050	666.186	59.506	102.770	574.679	304.288	−7.225
	2300.00	36.746	257.725	230.261	669.845	63.165	77.079	573.610	292.022	−6.632
	2400.00	37.060	259.295	231.439	673.536	66.856	51.227	572.573	279.801	−6.090
	2500.00	37.377	260.814	232.583	677.257	70.577	25.221	571.567	267.623	−5.592

References

Phase	H / S	C_p
GAS	Pa1	Pa1

207.200 LEAD **Pb**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	26.835	64.785	64.785	0.000	0.000	−19.316	0.000	0.000	0.000
	300.00	26.854	64.951	64.786	0.050	0.050	−19.436	0.000	0.000	0.000
	400.00	27.723	72.801	65.850	2.780	2.780	−26.340	0.000	0.000	0.000
	500.00	28.539	79.074	67.888	5.593	5.593	−33.944	0.000	0.000	0.000
	600.00	29.405	84.353	70.203	8.490	8.490	−42.122	0.000	0.000	0.000
	600.60	29.410	84.383	70.217	8.508	8.508	−42.173	0.000	0.000	0.000
			7.942		4.770					
LIQ	600.60	30.671	92.325	70.217	13.278	13.278	−42.173	0.000	0.000	0.000
	700.00	30.335	96.997	73.697	16.309	16.309	−51.588	0.000	0.000	0.000
	800.00	30.013	101.026	76.868	19.327	19.327	−61.494	0.000	0.000	0.000
	900.00	29.701	104.543	79.752	22.312	22.312	−71.776	0.000	0.000	0.000
	1000.00	29.396	107.657	82.389	25.267	25.267	−82.389	0.000	0.000	0.000
	1100.00	29.064	110.443	84.815	28.191	28.191	−93.297	0.000	0.000	0.000
	1200.00	28.801	112.960	87.058	31.083	31.083	−104.469	0.000	0.000	0.000
	1300.00	28.657	115.259	89.140	33.955	33.955	−115.882	0.000	0.000	0.000
	1400.00	28.621	117.381	91.082	36.818	36.818	−127.515	0.000	0.000	0.000
	1500.00	28.670	119.356	92.902	39.682	39.682	−139.353	0.000	0.000	0.000
	1600.00	28.780	121.210	94.614	42.554	42.554	−151.382	0.000	0.000	0.000
	1700.00	28.932	122.959	96.230	45.439	45.439	−163.591	0.000	0.000	0.000
	1800.00	29.108	124.618	97.762	48.341	48.341	−175.971	0.000	0.000	0.000
	1900.00	29.298	126.197	99.217	51.261	51.261	−188.512	0.000	0.000	0.000
	2000.00	29.496	127.704	100.604	54.201	54.201	−201.208	0.000	0.000	0.000
	2019.02	29.534	127.984	100.861	54.762	54.762	−203.640	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja2	MPT= 600.6
LIQ	Ja2	Ja1	Ja2	BPT= 2019.022, L= 177.582 kJ, GAS (Pb)

Pb[g] LEAD (GAS) 207.200

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.786	175.374	175.374	195.200	0.000	142.912	195.200	162.228	−28.422
	300.00	20.786	175.503	175.374	195.238	0.038	142.588	195.189	162.023	−28.211
	400.00	20.786	181.482	176.190	197.317	2.117	124.724	194.537	151.064	−19.727
	500.00	20.786	186.121	177.729	199.396	4.196	106.335	193.803	140.279	−14.655
	600.00	20.786	189.910	179.453	201.474	6.274	87.528	192.984	129.650	−11.287
	700.00	20.786	193.115	181.182	203.553	8.353	68.373	187.243	119.961	−8.952
	800.00	20.809	195.892	182.851	205.633	10.433	48.919	186.306	110.414	−7.209
	900.00	20.810	198.343	184.439	207.714	12.514	29.205	185.402	100.982	−5.861
	1000.00	20.824	200.536	185.941	209.795	14.595	9.259	184.528	91.649	−4.787
	1100.00	20.877	202.523	187.359	211.880	16.680	−10.895	183.689	82.402	−3.913
	1200.00	20.986	204.344	188.700	213.973	18.773	−31.240	182.890	73.229	−3.188
	1300.00	21.160	206.030	189.969	216.079	20.879	−51.760	182.125	64.122	−2.576
	1400.00	21.409	207.607	191.173	218.207	23.007	−72.442	181.389	55.073	−2.055
	1500.00	21.737	209.094	192.319	220.364	25.164	−93.278	180.682	46.075	−1.604
	1600.00	22.148	210.510	193.412	222.557	27.357	−114.259	180.004	37.123	−1.212
	1700.00	22.645	211.867	194.458	224.796	29.596	−135.378	179.357	28.213	−0.867
	1800.00	23.231	213.178	195.461	227.089	31.889	−156.631	178.748	19.340	−0.561
	1900.00	23.906	214.451	196.428	229.446	34.246	−178.012	178.184	10.500	−0.289
	2000.00	24.673	215.697	197.360	231.874	36.674	−199.520	177.673	1.688	−0.044
	2100.00	25.531	216.921	198.262	234.383	39.183	−221.151	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Ja2	Hu1

414.400 LEAD (GAS) **Pb2[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	36.923	281.334	281.334	332.600	0.000	248.720	332.600	287.352	−50.343
	300.00	36.937	281.562	281.335	332.668	0.068	248.200	332.569	287.071	−49.983
	400.00	37.505	292.274	282.791	336.393	3.793	219.483	330.832	272.164	−35.541
	500.00	37.865	300.684	285.559	340.163	7.563	189.821	328.976	257.708	−26.923
	600.00	38.136	307.613	288.674	343.963	11.363	159.396	326.983	243.640	−21.211
	700.00	38.366	313.509	291.811	347.789	15.189	128.332	315.170	231.509	−17.275
	800.00	38.571	318.646	294.851	351.636	19.036	96.719	312.982	219.708	−14.345
	900.00	38.764	323.200	297.753	355.502	22.902	64.622	310.878	208.175	−12.082
	1000.00	38.948	327.294	300.506	359.388	26.788	32.094	308.854	196.873	−10.284
	1100.00	39.126	331.014	303.113	363.292	30.692	−0.824	306.911	185.770	−8.821
	1200.00	39.300	334.426	305.582	367.213	34.613	−34.098	305.047	174.840	−7.611
	1300.00	39.472	337.579	307.923	371.152	38.552	−67.700	303.242	164.063	−6.592
	1400.00	39.642	340.510	310.148	375.108	42.508	−101.607	301.472	153.423	−5.724
	1500.00	39.811	343.251	312.264	379.080	46.480	−135.796	299.717	142.910	−4.977
	1600.00	39.979	345.826	314.282	383.070	50.470	−170.251	297.962	132.513	−4.326
	1700.00	40.145	348.254	316.210	387.076	54.476	−204.956	296.198	122.227	−3.756
	1800.00	40.312	350.554	318.054	391.099	58.499	−239.898	294.417	112.044	−3.251
	1900.00	40.477	352.738	319.823	395.138	62.538	−275.063	292.616	101.961	−2.803
	2000.00	40.642	354.818	321.521	399.194	66.594	−310.442	290.792	91.974	−2.402
	2100.00	40.807	356.805	323.154	403.267	70.667	−346.024	−65.500	96.278	−2.395

References

Phase	H / S	C_p
GAS	Ja2	Ja1

899.438 LEAD ARSENATE **Pb3(AsO4)2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	258.002	324.595	324.595	−1780.208	0.000	−1876.986	−1780.208	−1553.089	272.095
	300.00	258.550	326.192	324.600	−1779.730	0.478	−1877.588	−1780.188	−1551.680	270.171
	400.00	280.108	403.834	335.039	−1752.690	27.518	−1914.224	−1778.237	−1475.764	192.715
	500.00	293.604	467.875	355.390	−1723.966	56.242	−1957.903	−1775.321	−1400.471	146.306
	600.00	303.926	522.349	378.789	−1694.072	86.136	−2007.481	−1772.000	−1325.809	115.422
	700.00	312.749	569.875	402.763	−1663.230	116.978	−2062.142	−1782.990	−1249.331	93.226
	800.00	320.774	612.168	426.343	−1631.549	148.659	−2121.283	−1779.173	−1173.348	76.612
	900.00	328.335	650.389	449.147	−1599.090	181.118	−2184.441	−1774.858	−1097.874	63.719
	1000.00	335.607	685.361	471.044	−1565.891	214.317	−2251.252	−1769.991	−1022.909	53.431
	1100.00	342.691	717.681	492.015	−1531.975	248.233	−2321.425	−1764.556	−948.460	45.039
	1200.00	349.646	747.798	512.089	−1497.357	282.851	−2394.715	−1758.712	−874.525	38.067
	1300.00	356.512	776.057	531.319	−1462.049	318.159	−2470.922	−1752.827	−801.083	32.188
	1315.00	357.535	780.153	534.134	−1456.693	323.515	−2482.594	−1751.971	−790.106	31.385

References

Phase	H / S	C_p
SOL	G1	G1

PbBr[g] LEAD MONOBROMIDE (GAS) 287.104

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	36.922	272.488	272.488	70.919	0.000	-10.323	70.919	31.683	-5.551
	300.00	36.928	272.716	272.489	70.987	0.068	-10.828	70.868	31.440	-5.474
	400.00	37.246	283.386	273.941	74.697	3.778	-38.657	54.605	21.591	-2.819
	500.00	37.452	291.721	276.694	78.433	7.514	-67.428	53.682	13.442	-1.404
	600.00	37.584	298.562	279.785	82.185	11.266	-96.952	52.679	5.487	-0.478
	700.00	37.677	304.363	282.893	85.948	15.029	-127.106	46.755	-1.497	0.112
	800.00	37.752	309.399	285.898	89.720	18.801	-157.799	45.635	-8.313	0.543
	900.00	37.821	313.849	288.761	93.498	22.579	-188.966	44.550	-14.991	0.870
	1000.00	37.893	317.838	291.473	97.284	26.365	-220.554	43.498	-21.550	1.126
	1100.00	37.971	321.453	294.037	101.077	30.158	-252.521	42.481	-28.005	1.330
	1200.00	38.058	324.761	296.461	104.879	33.960	-284.834	41.500	-34.369	1.496
	1300.00	38.156	327.811	298.757	108.689	37.770	-317.465	40.546	-40.653	1.633
	1400.00	38.267	330.642	300.934	112.510	41.591	-350.389	39.608	-46.864	1.749
	1500.00	38.392	333.287	303.004	116.343	45.424	-383.587	38.679	-53.008	1.846
	1600.00	38.530	335.769	304.975	120.189	49.270	-417.041	37.751	-59.090	1.929
	1700.00	38.683	338.109	306.856	124.050	53.131	-450.736	36.823	-65.114	2.001
	1800.00	38.851	340.325	308.654	127.926	57.007	-484.659	35.891	-71.084	2.063
	1900.00	39.034	342.430	310.377	131.820	60.901	-518.798	34.956	-77.001	2.117
	2000.00	39.233	344.438	312.030	135.733	64.814	-553.142	34.018	-82.870	2.164

References

Phase	H / S	C_p
GAS	Ja1	Ja1

367.008 LEAD DIBROMIDE **PbBr2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	79.598	161.128	161.128	−277.399	0.000	−325.439	−277.399	−260.742	45.681
	300.00	79.593	161.620	161.130	−277.252	0.147	−325.738	−277.441	−260.639	45.381
	400.00	81.255	184.674	164.262	−269.234	8.165	−343.104	−306.637	−248.947	32.509
	500.00	84.683	203.156	170.248	−260.945	16.454	−362.523	−304.853	−234.726	24.522
	600.00	88.785	218.951	177.079	−252.276	25.123	−383.646	−302.798	−220.889	19.230
	644.00	90.717	225.301	180.158	−248.327	29.072	−393.421	−306.607	−214.572	17.404
			25.533		16.443					
LIQ	644.00	112.131	250.834	180.158	−231.884	45.515	−393.421	−290.164	−214.572	17.404
	700.00	112.131	260.183	186.191	−225.605	51.794	−407.733	−287.682	−208.103	15.529
	800.00	112.131	275.157	196.397	−214.391	63.008	−434.517	−283.234	−197.038	12.865
	900.00	112.131	288.364	205.896	−203.178	74.221	−462.706	−278.764	−186.532	10.826
	1000.00	112.131	300.178	214.744	−191.965	85.434	−492.143	−274.271	−176.525	9.221
	1100.00	112.131	310.865	223.004	−180.752	96.647	−522.704	−269.754	−166.968	7.929
	1184.00	112.131	319.117	229.534	−171.333	106.066	−549.167	−265.941	−159.261	7.026

References

Phase	H / S	C_p	Remarks
SOL	Ja2	Ja1	
LIQ	Ja2	Ja1	BPT= 1184., L= 118.1 kJ GAS (PbBr2)

PbBr2[g] LEAD DIBROMIDE (GAS) 367.008

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	56.916	339.386	339.386	−104.391	0.000	−205.579	−104.391	−140.882	24.682
	300.00	56.931	339.738	339.387	−104.286	0.105	−206.207	−104.475	−141.108	24.569
	400.00	57.472	356.201	341.628	−98.562	5.829	−241.042	−135.964	−146.886	19.181
	500.00	57.730	369.056	345.875	−92.800	11.591	−277.328	−136.708	−149.532	15.621
	600.00	57.872	379.595	350.643	−87.020	17.371	−314.777	−137.542	−152.020	13.234
	700.00	57.958	388.523	355.433	−81.228	23.163	−353.194	−143.305	−153.564	11.459
	800.00	58.015	396.267	360.064	−75.429	28.962	−392.442	−144.271	−154.964	10.118
	900.00	58.054	403.102	364.474	−69.625	34.766	−432.417	−145.211	−156.244	9.068
	1000.00	58.082	409.220	368.648	−63.819	40.572	−473.039	−146.124	−157.420	8.223
	1100.00	58.102	414.757	372.592	−58.009	46.382	−514.242	−147.011	−158.507	7.527
	1200.00	58.118	419.813	376.319	−52.198	52.193	−555.974	−147.872	−159.514	6.943
	1300.00	58.130	424.466	379.846	−46.386	58.005	−598.191	−148.717	−160.449	6.447
	1400.00	58.139	428.774	383.189	−40.572	63.819	−640.856	−149.558	−161.320	6.019
	1500.00	58.147	432.785	386.363	−34.758	69.633	−683.936	−150.405	−162.131	5.646
	1600.00	58.153	436.538	389.383	−28.943	75.448	−727.404	−151.265	−162.885	5.318
	1700.00	58.159	440.064	392.262	−23.127	81.264	−771.236	−152.142	−163.584	5.026
	1800.00	58.163	443.388	395.011	−17.311	87.080	−815.411	−153.041	−164.232	4.766
	1900.00	58.166	446.533	397.641	−11.495	92.896	−859.908	−153.963	−164.828	4.531
	2000.00	58.169	449.517	400.160	−5.678	98.713	−904.712	−154.908	−165.376	4.319

References

Phase	H / S	C_p
GAS	Ja2	Ja1

526.816 LEAD TETRABROMIDE (GAS) **PbBr4[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	104.630	426.208	426.208	−456.474	0.000	−583.548	−456.474	−473.470	82.950
	300.00	104.670	426.855	426.210	−456.280	0.194	−584.337	−456.610	−473.575	82.457
	400.00	106.121	457.194	430.337	−445.731	10.743	−628.609	−517.756	−466.635	60.936
	500.00	106.814	480.957	438.170	−435.080	21.394	−675.559	−517.302	−453.910	47.420
	600.00	107.196	500.469	446.976	−424.378	32.096	−724.659	−516.933	−441.267	38.416
	700.00	107.430	517.012	455.829	−413.646	42.828	−775.554	−521.491	−427.883	31.929
	800.00	107.583	531.368	464.394	−402.895	53.579	−827.989	−521.253	−414.527	27.066
	900.00	107.688	544.046	472.554	−392.131	64.343	−881.772	−520.989	−401.201	23.285
	1000.00	107.764	555.396	480.280	−381.358	75.116	−936.754	−520.703	−387.907	20.262
	1100.00	107.820	565.670	487.583	−370.579	85.895	−992.816	−520.393	−374.642	17.790
	1200.00	107.862	575.053	494.487	−359.795	96.679	−1049.859	−520.060	−361.406	15.732
	1300.00	107.895	583.688	501.021	−349.007	107.467	−1107.801	−519.715	−348.199	13.991
	1400.00	107.922	591.685	507.215	−338.216	118.258	−1166.575	−519.370	−335.019	12.500
	1500.00	107.943	599.132	513.097	−327.423	129.051	−1226.120	−519.035	−321.863	11.208
	1600.00	107.960	606.099	518.695	−316.628	139.846	−1286.385	−518.717	−308.728	10.079
	1700.00	107.974	612.644	524.030	−305.831	150.643	−1347.326	−518.421	−295.613	9.083
	1800.00	107.986	618.816	529.126	−295.033	161.441	−1408.902	−518.151	−282.515	8.198
	1900.00	107.996	624.655	534.002	−284.234	172.240	−1471.078	−517.908	−269.431	7.407
	2000.00	108.004	630.194	538.674	−273.434	183.040	−1533.823	−517.694	−256.358	6.695

References

Phase	H / S	C_p
GAS	Ja1	Ja1

267.209 LEAD CARBONATE **PbCO3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	87.400	131.001	131.001	−699.100	0.000	−738.158	−699.100	−625.384	109.565
	300.00	87.621	131.542	131.003	−698.938	0.162	−738.401	−699.085	−624.927	108.809
	400.00	99.588	158.388	134.582	−689.578	9.522	−752.933	−697.949	−600.360	78.399
	500.00	111.554	181.896	141.737	−679.021	20.079	−769.969	−696.124	−576.159	60.191
	600.00	123.520	203.292	150.237	−667.267	31.833	−789.242	−693.587	−552.392	48.090
	700.00	135.486	223.232	159.255	−654.317	44.783	−810.579	−695.116	−528.314	39.423
	800.00	147.453	242.105	168.442	−640.170	58.930	−833.853	−690.916	−504.760	32.957

References

Phase	H / S	C_p
SOL	Nb1	Ku1

PbCl[g] LEAD MONOCHLORIDE (GAS) 242.653

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	36.236	259.601	259.601	15.062	0.000	−62.338	15.062	−9.761	1.710
	300.00	36.250	259.825	259.602	15.129	0.067	−62.819	15.048	−9.915	1.726
	400.00	36.827	270.340	261.031	18.785	3.723	−89.351	14.240	−18.117	2.366
	500.00	37.165	278.597	263.748	22.487	7.425	−116.812	13.343	−26.104	2.727
	600.00	37.370	285.393	266.806	26.214	11.152	−145.022	12.356	−33.903	2.951
	700.00	37.507	291.164	269.884	29.958	14.896	−173.857	6.442	−40.732	3.039
	800.00	37.610	296.180	272.864	33.714	18.652	−203.229	5.329	−47.395	3.095
	900.00	37.697	300.615	275.706	37.480	22.418	−233.073	4.246	−53.920	3.129
	1000.00	37.780	304.591	278.399	41.254	26.192	−263.337	3.194	−60.327	3.151
	1100.00	37.866	308.196	280.947	45.036	29.974	−293.979	2.176	−66.629	3.164
	1200.00	37.958	311.494	283.357	48.827	33.765	−324.966	1.193	−72.840	3.171
	1300.00	38.059	314.537	285.640	52.628	37.566	−356.270	0.235	−78.971	3.173
	1400.00	38.172	317.361	287.806	56.439	41.377	−387.866	−0.707	−85.028	3.172
	1500.00	38.297	319.999	289.865	60.263	45.201	−419.736	−1.642	−91.019	3.170
	1600.00	38.435	322.475	291.827	64.099	49.037	−451.861	−2.575	−96.947	3.165
	1700.00	38.588	324.809	293.699	67.950	52.888	−484.226	−3.511	−102.816	3.159
	1800.00	38.755	327.020	295.489	71.817	56.755	−516.818	−4.451	−108.630	3.152
	1900.00	38.937	329.120	297.204	75.702	60.640	−549.626	−5.396	−114.392	3.145
	2000.00	39.134	331.122	298.851	79.605	64.543	−582.639	−6.345	−120.105	3.137

References

Phase	H / S	C_p
GAS	Ja1	Ja1

278.105 LEAD DICHLORIDE **PbCl2**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	77.093	135.980	135.980	-359.406	0.000	-399.948	-359.406	-314.111	55.031
	300.00	77.149	136.457	135.981	-359.263	0.143	-400.200	-359.376	-313.830	54.643
	400.00	80.095	159.058	139.043	-351.400	8.006	-415.023	-357.710	-298.896	39.032
	500.00	82.987	177.242	144.921	-343.246	16.160	-431.867	-355.940	-284.395	29.711
	600.00	85.878	192.627	151.622	-334.803	24.603	-450.379	-354.029	-270.263	23.529
	700.00	88.773	206.083	158.460	-326.070	33.336	-470.328	-356.792	-255.667	19.078
	774.00	90.919	215.110	163.450	-319.422	39.984	-485.917	-355.119	-245.061	16.538
			28.269		21.880					
LIQ	774.00	111.504	243.379	163.450	-297.542	61.864	-485.917	-333.239	-245.061	16.538
	800.00	111.504	247.063	166.108	-294.642	64.764	-492.293	-332.087	-242.118	15.809
	900.00	111.504	260.196	175.847	-283.492	75.914	-517.668	-327.648	-231.139	13.415
	1000.00	111.504	271.944	184.880	-272.342	87.064	-544.286	-323.194	-220.654	11.526
	1100.00	111.504	282.571	193.285	-261.191	98.215	-572.020	-318.721	-210.616	10.001
	1200.00	111.504	292.273	201.136	-250.041	109.365	-600.769	-314.226	-200.987	8.749
	1225.00	111.504	294.573	203.019	-247.253	112.153	-608.105	-313.101	-198.639	8.470

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja2	Ja1	Ja1	BPT= 1225., L= 126.4 kJ

PbCl2[g] LEAD DICHLORIDE (GAS) 278.105

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	55.182	317.205	317.205	−174.054	0.000	−268.629	−174.054	−182.791	32.024
	300.00	55.216	317.546	317.206	−173.952	0.102	−269.216	−174.064	−182.845	31.836
	400.00	56.445	333.622	319.390	−168.361	5.693	−301.810	−174.671	−185.683	24.248
	500.00	57.049	346.290	323.548	−162.683	11.371	−335.828	−175.377	−188.356	19.677
	600.00	57.390	356.724	328.233	−156.960	17.094	−370.994	−176.186	−190.878	16.617
	700.00	57.600	365.587	332.952	−151.209	22.845	−407.120	−181.932	−192.460	14.362
	800.00	57.738	373.288	337.523	−145.442	28.612	−444.073	−182.887	−193.898	12.660
	900.00	57.834	380.095	341.883	−139.663	34.391	−481.748	−183.819	−195.219	11.330
	1000.00	57.903	386.192	346.014	−133.876	40.178	−520.068	−184.728	−196.436	10.261
	1100.00	57.955	391.713	349.922	−128.083	45.971	−558.968	−185.612	−197.564	9.382
	1200.00	57.994	396.758	353.617	−122.286	51.768	−598.395	−186.471	−198.612	8.645
	1300.00	58.024	401.401	357.117	−116.485	57.569	−638.306	−187.315	−199.590	8.020
	1400.00	58.048	405.702	360.435	−110.681	63.373	−678.664	−188.156	−200.503	7.481
	1500.00	58.068	409.708	363.588	−104.875	69.179	−719.436	−189.002	−201.355	7.012
	1600.00	58.084	413.456	366.589	−99.068	74.986	−760.597	−189.863	−202.151	6.600
	1700.00	58.097	416.977	369.451	−93.258	80.796	−802.120	−190.742	−202.892	6.234
	1800.00	58.107	420.298	372.184	−87.448	86.606	−843.985	−191.644	−203.581	5.908
	1900.00	58.116	423.440	374.800	−81.637	92.417	−886.174	−192.571	−204.219	5.614
	2000.00	58.124	426.422	377.307	−75.825	98.229	−928.668	−193.523	−204.807	5.349

References

Phase	H / S	C_p
GAS	Ja2	Ja1

349.011 LEAD TETRACHLORIDE (GAS) **$PbCl_4$[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	100.533	381.659	381.659	−552.403	0.000	−666.195	−552.403	−513.835	90.022
	300.00	100.616	382.281	381.661	−552.217	0.186	−666.901	−552.392	−513.595	89.425
	400.00	103.665	411.700	385.651	−541.983	10.420	−706.664	−551.824	−500.750	65.391
	500.00	105.181	435.013	393.273	−531.533	20.870	−749.040	−551.328	−488.041	50.985
	600.00	106.038	454.272	401.881	−520.969	31.434	−793.532	−550.931	−475.422	41.389
	700.00	106.568	470.661	410.566	−510.336	42.067	−839.799	−555.472	−462.066	34.480
	800.00	106.919	484.915	418.988	−499.661	52.742	−887.593	−555.224	−448.739	29.300
	900.00	107.162	497.523	427.027	−488.956	63.447	−936.727	−554.956	−435.444	25.273
	1000.00	107.337	508.823	434.651	−478.231	74.172	−987.054	−554.668	−422.180	22.052
	1100.00	107.467	519.060	441.867	−467.490	84.913	−1038.457	−554.358	−408.946	19.419
	1200.00	107.566	528.415	448.695	−456.739	95.664	−1090.837	−554.027	−395.741	17.226
	1300.00	107.643	537.028	455.163	−445.978	106.425	−1144.115	−553.684	−382.565	15.372
	1400.00	107.704	545.008	461.299	−435.210	117.193	−1198.222	−553.342	−369.415	13.783
	1500.00	107.753	552.440	467.130	−424.438	127.965	−1253.098	−553.010	−356.289	12.407
	1600.00	107.792	559.396	472.682	−413.660	138.743	−1308.694	−552.697	−343.184	11.204
	1700.00	107.825	565.932	477.977	−402.879	149.524	−1364.963	−552.408	−330.099	10.143
	1800.00	107.852	572.096	483.036	−392.095	160.308	−1421.868	−552.146	−317.029	9.200
	1900.00	107.875	577.928	487.878	−381.309	171.094	−1479.372	−551.915	−303.974	8.357
	2000.00	107.893	583.461	492.520	−370.521	181.882	−1537.443	−551.716	−290.929	7.598

References

Phase	H / S	C_p
GAS	Ja2	Ja1

PbF[g] LEAD MONOFLUORIDE (GAS) 226.198

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	34.401	249.936	249.936	-80.249	0.000	-154.767	-80.249	-105.220	18.434
	300.00	34.429	250.149	249.937	-80.185	0.064	-155.230	-80.264	-105.375	18.347
	400.00	35.609	260.230	251.303	-76.678	3.571	-180.770	-81.095	-113.622	14.837
	500.00	36.304	268.257	253.918	-73.080	7.169	-207.208	-81.990	-121.651	12.709
	600.00	36.727	274.916	256.879	-69.426	10.823	-234.376	-82.970	-129.493	11.273
	700.00	37.003	280.600	259.872	-65.739	14.510	-262.159	-88.877	-136.367	10.176
	800.00	37.198	285.555	262.779	-62.028	18.221	-290.472	-89.987	-143.075	9.342
	900.00	37.349	289.945	265.558	-58.301	21.948	-319.251	-91.069	-149.646	8.685
	1000.00	37.477	293.887	268.197	-54.559	25.690	-348.446	-92.123	-156.098	8.154
	1100.00	37.594	297.464	270.698	-50.806	29.443	-378.017	-93.146	-162.445	7.714
	1200.00	37.708	300.740	273.067	-47.041	33.208	-407.929	-94.137	-168.701	7.343
	1300.00	37.826	303.763	275.313	-43.264	36.985	-438.156	-95.105	-174.876	7.027
	1400.00	37.950	306.571	277.447	-39.475	40.774	-468.675	-96.061	-180.976	6.752
	1500.00	38.082	309.194	279.477	-35.674	44.575	-499.464	-97.012	-187.008	6.512
	1600.00	38.226	311.656	281.412	-31.859	48.390	-530.508	-97.964	-192.977	6.300
	1700.00	38.382	313.978	283.260	-28.028	52.221	-561.791	-98.920	-198.886	6.111
	1800.00	38.550	316.176	285.028	-24.182	56.067	-593.299	-99.881	-204.738	5.941
	1900.00	38.732	318.266	286.723	-20.318	59.931	-625.022	-100.849	-210.537	5.788
	2000.00	38.929	320.257	288.350	-16.435	63.814	-656.949	-101.822	-216.285	5.649

References

Phase	H / S	C_p
GAS	Ja1	Ja1

245.197 LEAD DIFLUORIDE **PbF2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol	]		[−]
SOL−A	298.15	72.285	112.968	112.968	−676.971	0.000	−710.652	−676.971	−630.873	110.526
	300.00	72.355	113.415	112.969	−676.837	0.134	−710.862	−676.945	−630.587	109.795
	400.00	76.067	134.742	115.852	−669.415	7.556	−723.312	−675.467	−615.354	80.357
	500.00	79.705	152.107	121.418	−661.626	15.345	−737.680	−673.854	−600.510	62.735
	583.00	82.706	164.573	126.691	−654.886	22.085	−750.832	−672.389	−588.448	52.723
			2.509		1.463					
SOL−B	583.00	81.547	167.082	126.691	−653.423	23.548	−750.832	−670.926	−588.448	52.723
	600.00	91.128	169.563	127.871	−651.955	25.016	−753.693	−670.553	−586.048	51.020
	700.00	147.486	187.843	135.062	−640.025	36.946	−771.515	−669.992	−571.519	42.647
	800.00	105.939	204.825	142.803	−627.353	49.618	−791.213	−663.944	−557.913	36.428
	900.00	94.433	216.638	150.376	−617.335	59.636	−812.309	−660.559	−544.875	31.624
	1000.00	94.433	226.588	157.508	−607.892	69.079	−834.479	−657.751	−532.172	27.798
	1100.00	94.433	235.588	164.204	−598.448	78.523	−857.595	−654.937	−519.750	24.681
	1103.00	94.433	235.845	164.398	−598.165	78.806	−858.302	−654.853	−519.381	24.596
			13.353		14.728					
LIQ	1103.00	109.202	249.198	164.398	−583.437	93.534	−858.302	−640.125	−519.381	24.596
	1200.00	109.202	258.402	171.630	−572.844	104.127	−882.927	−635.954	−508.941	22.154
	1300.00	109.202	267.143	178.646	−561.924	115.047	−909.210	−631.652	−498.531	20.031
	1400.00	109.202	275.236	185.260	−551.004	125.967	−936.334	−627.358	−488.452	18.224
	1500.00	109.202	282.770	191.512	−540.084	136.887	−964.239	−623.078	−478.680	16.669
	1565.00	109.202	287.403	195.399	−532.985	143.986	−982.771	−620.308	−472.482	15.770

References

Phase	H / S	C_p	Remarks	
SOL−A	Ja1	Ja1		
SOL−B	Ja2	Ja1		
LIQ	Ja2	Ja1	Ja2	NBPT= 1565., GAS (PbF4, PbF2, PbF, Pb)

PbF2[g] LEAD DIFLUORIDE (GAS) 245.197

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	50.949	292.692	292.692	−435.136	0.000	−522.402	−435.136	−442.623	77.546
	300.00	51.015	293.007	292.693	−435.042	0.094	−522.944	−435.149	−442.670	77.076
	400.00	53.654	308.084	294.731	−429.795	5.341	−553.028	−435.847	−445.071	58.120
	500.00	55.114	320.228	298.655	−424.350	10.786	−584.464	−436.577	−447.294	46.728
	600.00	55.985	330.360	303.119	−418.791	16.345	−617.007	−437.389	−449.362	39.120
	700.00	56.540	339.035	307.645	−413.163	21.973	−650.487	−443.130	−450.491	33.616
	800.00	56.914	346.611	312.052	−407.489	27.647	−684.778	−444.080	−451.478	29.478
	900.00	57.175	353.330	316.272	−401.784	33.352	−719.781	−445.008	−452.347	26.254
	1000.00	57.365	359.365	320.285	−396.056	39.080	−755.421	−445.915	−453.113	23.668
	1100.00	57.507	364.839	324.090	−390.312	44.824	−791.635	−446.801	−453.790	21.549
	1200.00	57.616	369.848	327.698	−384.556	50.580	−828.373	−447.665	−454.387	19.779
	1300.00	57.700	374.463	331.120	−378.790	56.346	−865.592	−448.518	−454.912	18.279
	1400.00	57.768	378.742	334.371	−373.016	62.120	−903.255	−449.370	−455.372	16.990
	1500.00	57.822	382.729	337.463	−367.237	67.899	−941.331	−450.232	−455.771	15.871
	1600.00	57.867	386.462	340.410	−361.452	73.684	−979.792	−451.109	−456.112	14.891
	1700.00	57.905	389.972	343.223	−355.664	79.472	−1018.616	−452.007	−456.397	14.023
	1800.00	57.937	393.282	345.913	−349.872	85.264	−1057.780	−452.930	−456.629	13.251
	1900.00	57.964	396.416	348.490	−344.077	91.059	−1097.266	−453.878	−456.809	12.559
	2000.00	57.988	399.389	350.961	−338.279	96.857	−1137.058	−454.852	−456.938	11.934

References

Phase	H / S	C_p
GAS	Ja2	Ja1

283.194 LEAD TETRAFLUORIDE (GAS) **PbF4**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
GAS	298.15	90.933	333.602	333.602	−1133.446	0.000	−1232.909	−1133.446	−1092.667	191.431
	300.00	91.088	334.165	333.604	−1133.278	0.168	−1233.527	−1133.443	−1092.414	190.206
	400.00	97.290	361.311	337.263	−1123.827	9.619	−1268.351	−1133.150	−1078.776	140.874
	500.00	100.731	383.425	344.353	−1113.910	19.536	−1305.623	−1132.773	−1065.226	111.283
	600.00	102.789	401.987	352.454	−1103.726	29.720	−1344.918	−1132.431	−1051.750	91.563
	700.00	104.107	417.938	360.696	−1093.377	40.069	−1385.933	−1137.002	−1037.529	77.421
	800.00	104.998	431.901	368.742	−1082.919	50.527	−1428.440	−1136.773	−1023.334	66.817
	900.00	105.625	444.307	376.462	−1072.386	61.060	−1472.262	−1136.521	−1009.169	58.571
	1000.00	106.082	455.460	383.813	−1061.799	71.647	−1517.259	−1136.250	−995.033	51.975
	1100.00	106.425	465.588	390.794	−1051.173	82.273	−1563.320	−1135.961	−980.925	46.580
	1200.00	106.688	474.860	397.419	−1040.517	92.929	−1610.348	−1135.653	−966.845	42.086
	1300.00	106.893	483.408	403.709	−1029.838	103.608	−1658.267	−1135.339	−952.790	38.284
	1400.00	107.056	491.335	409.688	−1019.140	114.306	−1707.009	−1135.030	−938.760	35.026
	1500.00	107.187	498.726	415.380	−1008.427	125.019	−1756.517	−1134.735	−924.751	32.203
	1600.00	107.293	505.647	420.808	−997.703	135.743	−1806.739	−1134.463	−910.761	29.733
	1700.00	107.381	512.155	425.992	−986.969	146.477	−1857.632	−1134.218	−896.787	27.555
	1800.00	107.453	518.294	430.951	−976.228	157.218	−1909.158	−1134.003	−882.827	25.619
	1900.00	107.514	524.106	435.702	−965.479	167.967	−1961.280	−1133.820	−868.878	23.887
	2000.00	107.564	529.622	440.261	−954.725	178.721	−2013.969	−1133.671	−854.937	22.329

References

Phase	H / S	C_p
GAS	Ja2	Ja1

PbH[g] LEAD MONOHYDRIDE (GAS) 208.208

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	29.332	220.761	220.761	236.396	0.000	170.576	236.396	209.373	−36.681
	300.00	29.360	220.943	220.762	236.450	0.054	170.168	236.374	209.205	−36.426
	400.00	30.621	229.571	221.930	239.453	3.057	147.624	235.193	200.328	−26.160
	500.00	31.612	236.514	224.174	242.566	6.170	124.309	234.032	191.746	−20.032
	600.00	32.471	242.355	226.730	245.771	9.375	100.358	232.875	183.398	−15.966
	700.00	33.245	247.419	229.332	249.057	12.661	75.864	226.873	176.040	−13.136
	800.00	33.953	251.905	231.879	252.418	16.022	50.893	225.740	168.856	−11.025
	900.00	34.605	255.943	234.332	255.846	19.450	25.497	224.695	161.809	−9.391
	1000.00	35.205	259.620	236.679	259.337	22.941	−0.283	223.730	154.874	−8.090
	1100.00	35.757	263.002	238.921	262.885	26.489	−26.417	222.835	148.033	−7.029
	1200.00	36.262	266.135	241.060	266.487	30.091	−52.876	222.005	141.269	−6.149
	1300.00	36.722	269.056	243.102	270.136	33.740	−79.637	221.223	134.573	−5.407
	1400.00	37.136	271.793	245.055	273.830	37.434	−106.681	220.471	127.936	−4.773
	1500.00	37.506	274.368	246.924	277.562	41.166	−133.990	219.735	121.353	−4.226
	1600.00	37.831	276.799	248.716	281.329	44.933	−161.549	219.005	114.818	−3.748
	1700.00	38.112	279.101	250.436	285.127	48.731	−189.345	218.270	108.328	−3.329
	1800.00	38.349	281.287	252.090	288.950	52.554	−217.366	217.525	101.883	−2.957
	1900.00	38.543	283.365	253.682	292.795	56.399	−245.599	216.763	95.479	−2.625
	2000.00	38.693	285.346	255.216	296.657	60.261	−274.036	215.981	89.115	−2.327

References

Phase	H / S	C_p
GAS	Ja1	Ja1

334.104 LEAD MONOIODIDE (GAS) **PbI[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	37.155	280.094	280.094	107.738	0.000	24.228	107.738	60.858	−10.662
	300.00	37.159	280.324	280.095	107.807	0.069	23.710	107.707	60.567	−10.546
	400.00	37.367	291.043	281.555	111.533	3.795	−4.884	97.883	45.399	−5.929
	500.00	37.516	299.398	284.318	115.278	7.540	−34.421	74.718	34.535	−3.608
	600.00	37.613	306.248	287.420	119.035	11.297	−64.714	73.703	26.592	−2.315
	700.00	37.682	312.051	290.534	122.800	15.062	−95.636	67.767	19.622	−1.464
	800.00	37.740	317.087	293.546	126.571	18.833	−127.099	66.635	12.822	−0.837
	900.00	37.795	321.535	296.413	130.348	22.610	−159.034	65.536	6.162	−0.358
	1000.00	37.855	325.520	299.128	134.130	26.392	−191.390	64.469	−0.378	0.020
	1100.00	37.922	329.131	301.694	137.919	30.181	−224.126	63.437	−6.812	0.323
	1200.00	38.000	332.434	304.120	141.715	33.977	−257.206	62.441	−13.154	0.573
	1300.00	38.090	335.479	306.417	145.519	37.781	−290.604	61.469	−19.414	0.780
	1400.00	38.192	338.306	308.595	149.333	41.595	−324.295	60.513	−25.600	0.955
	1500.00	38.309	340.945	310.664	153.158	45.420	−358.259	59.564	−31.718	1.105
	1600.00	38.439	343.421	312.635	156.996	49.258	−392.478	58.616	−37.773	1.233
	1700.00	38.585	345.756	314.515	160.847	53.109	−426.938	57.666	−43.768	1.345
	1800.00	38.745	347.966	316.313	164.713	56.975	−461.625	56.712	−49.707	1.442
	1900.00	38.921	350.065	318.035	168.596	60.858	−496.528	55.753	−55.593	1.528
	2000.00	39.112	352.066	319.686	172.498	64.760	−531.635	54.790	−61.428	1.604

References

Phase	H / S	C_p
GAS	Ja2	Ja1

PbI2 LEAD DIIODIDE 461.009

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	77.561	174.836	174.836	−175.393	0.000	−227.520	−175.393	−173.577	30.410
	300.00	77.624	175.316	174.837	−175.249	0.144	−227.844	−175.400	−173.566	30.220
	400.00	78.855	197.868	177.905	−167.408	7.985	−246.555	−191.927	−172.329	22.504
	500.00	80.392	215.599	183.731	−159.459	15.934	−267.258	−234.985	−163.290	17.059
	600.00	83.713	230.522	190.315	−151.269	24.124	−289.582	−233.443	−149.093	12.980
	683.00	87.769	241.614	195.884	−144.160	31.233	−309.182	−236.760	−136.862	10.467
			34.305		23.430					
LIQ	683.00	108.575	275.918	195.884	−120.730	54.663	−309.182	−213.330	−136.862	10.467
	700.00	108.575	278.588	197.861	−118.884	56.509	−313.895	−212.640	−134.967	10.071
	800.00	108.575	293.086	208.878	−108.027	67.366	−342.495	−208.572	−124.148	8.106
	900.00	108.575	305.874	218.959	−97.169	78.224	−372.456	−204.481	−113.841	6.607
	1000.00	108.575	317.314	228.232	−86.312	89.081	−403.625	−200.366	−103.990	5.432
	1100.00	108.575	327.662	236.808	−75.454	99.939	−435.882	−196.226	−94.552	4.490
	1104.00	108.575	328.056	237.138	−75.020	100.373	−437.194	−196.060	−94.183	4.456

References

Phase	H / S	C_p	Remarks	
SOL	Ja2	Ja1		
LIQ	Ja2	Ja1	Ja2	BPT= 1104., L= 118.57 kJ

461.009 LEAD DIIODIDE (GAS) **PbI2[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	57.614	359.552	359.552	−3.180	0.000	−110.380	−3.180	−56.437	9.888
	300.00	57.622	359.908	359.553	−3.073	0.107	−111.046	−3.224	−56.767	9.884
	400.00	57.871	376.524	361.817	2.703	5.883	−147.907	−21.817	−73.681	9.622
	500.00	57.988	389.452	366.099	8.497	11.677	−186.229	−67.030	−82.262	8.594
	600.00	58.052	400.031	370.899	14.299	17.479	−225.719	−67.875	−85.230	7.420
	700.00	58.091	408.983	375.717	20.106	23.286	−266.182	−73.650	−87.253	6.511
	800.00	58.117	416.741	380.370	25.917	29.097	−307.476	−74.629	−89.129	5.820
	900.00	58.134	423.588	384.799	31.729	34.909	−349.500	−75.582	−90.884	5.275
	1000.00	58.147	429.713	388.990	37.543	40.723	−392.170	−76.511	−92.535	4.834
	1100.00	58.156	435.256	392.948	43.359	46.539	−435.423	−77.414	−94.093	4.468
	1200.00	58.163	440.316	396.688	49.175	52.355	−479.205	−78.291	−95.571	4.160
	1300.00	58.169	444.972	400.225	54.991	58.171	−523.473	−79.154	−96.975	3.897
	1400.00	58.173	449.283	403.577	60.808	63.988	−568.188	−80.014	−98.314	3.668
	1500.00	58.177	453.297	406.760	66.626	69.806	−613.319	−80.881	−99.591	3.468
	1600.00	58.180	457.051	409.787	72.444	75.624	−658.839	−81.761	−100.810	3.291
	1700.00	58.182	460.579	412.672	78.262	81.442	−704.722	−82.660	−101.973	3.133
	1800.00	58.184	463.904	415.427	84.080	87.260	−750.948	−83.582	−103.082	2.991
	1900.00	58.186	467.050	418.062	89.898	93.078	−797.497	−84.528	−104.140	2.863
	2000.00	58.187	470.035	420.586	95.717	98.897	−844.352	−85.498	−105.147	2.746

References

Phase	H / S	C_p
GAS	Ja2	Ja1

PbI4[g] LEAD TETRAIODIDE (GAS) 714.818

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	106.311	466.266	466.266	−224.467	0.000	−363.484	−224.467	−274.913	48.164
	300.00	106.333	466.924	466.268	−224.270	0.197	−364.347	−224.522	−275.226	47.921
	400.00	107.090	497.633	470.450	−213.594	10.873	−412.647	−259.853	−290.535	37.940
	500.00	107.444	521.572	478.368	−202.865	21.602	−463.651	−348.325	−289.659	30.260
	600.00	107.639	541.180	487.252	−192.110	32.357	−516.818	−347.969	−277.961	24.199
	700.00	107.756	557.782	496.172	−181.340	43.127	−571.787	−352.544	−265.519	19.813
	800.00	107.833	572.176	504.793	−170.560	53.907	−628.301	−352.325	−253.101	16.526
	900.00	107.886	584.880	512.999	−159.774	64.693	−686.166	−352.085	−240.713	13.971
	1000.00	107.923	596.249	520.766	−148.984	75.483	−745.233	−351.825	−228.352	11.928
	1100.00	107.951	606.537	528.103	−138.190	86.277	−805.380	−351.544	−216.018	10.258
	1200.00	107.973	615.931	535.036	−127.394	97.073	−866.510	−351.242	−203.710	8.867
	1300.00	107.989	624.574	541.596	−116.595	107.872	−928.541	−350.932	−191.429	7.692
	1400.00	108.003	632.577	547.812	−105.796	118.671	−991.404	−350.623	−179.171	6.685
	1500.00	108.013	640.029	553.714	−94.995	129.472	−1055.038	−350.326	−166.935	5.813
	1600.00	108.022	647.000	559.329	−84.193	140.274	−1119.394	−350.049	−154.718	5.051
	1700.00	108.029	653.549	564.681	−73.391	151.076	−1184.424	−349.796	−142.517	4.379
	1800.00	108.035	659.724	569.791	−62.587	161.880	−1250.091	−349.570	−130.331	3.782
	1900.00	108.041	665.565	574.679	−51.784	172.683	−1316.358	−349.375	−118.157	3.248
	2000.00	108.045	671.107	579.363	−40.979	183.488	−1383.194	−349.210	−105.992	2.768

References

Phase	H / S	C_p
GAS	Ja2	Ja1

Pb2I4[g] DILEAD TETRAIODIDE (GAS) 922.018

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	130.774	540.808	540.808	−138.687	0.000	−299.929	−138.687	−192.042	33.645
	300.00	130.802	541.617	540.810	−138.445	0.242	−300.930	−138.746	−192.373	33.495
	400.00	131.785	579.401	545.955	−125.309	13.378	−357.069	−174.348	−208.618	27.243
	500.00	132.237	608.862	555.698	−112.105	26.582	−416.536	−263.158	−208.600	21.792
	600.00	132.482	632.996	566.631	−98.868	39.819	−478.665	−263.217	−197.686	17.210
	700.00	132.627	653.430	577.608	−85.612	53.075	−543.013	−273.125	−185.156	13.817
	800.00	132.721	671.146	588.218	−72.344	66.343	−609.261	−273.436	−172.567	11.267
	900.00	132.784	686.782	598.318	−59.069	79.618	−677.173	−273.692	−159.943	9.283
	1000.00	132.827	700.775	607.876	−45.788	92.899	−746.563	−273.897	−147.292	7.694
	1100.00	132.859	713.436	616.906	−32.504	106.183	−817.283	−274.048	−134.624	6.393
	1200.00	132.882	724.997	625.439	−19.217	119.470	−889.213	−274.148	−121.944	5.308

References

Phase	H / S	C_p
GAS	H3	H3

367.138 LEAD MOLYBDATE **PbMoO4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	119.700	166.105	166.105	−1052.318	0.000	−1101.842	−1052.318	−951.672	166.729
	300.00	119.989	166.846	166.107	−1052.096	0.222	−1102.150	−1052.299	−951.048	165.592
	400.00	131.616	203.111	170.973	−1039.463	12.855	−1120.707	−1050.792	−917.502	119.813
	500.00	139.223	233.341	180.508	−1025.901	26.417	−1142.572	−1048.711	−884.412	92.394
	600.00	145.247	259.272	191.525	−1011.669	40.649	−1167.233	−1046.313	−851.774	74.153
	700.00	150.523	282.065	202.863	−996.876	55.442	−1194.322	−1048.521	−818.759	61.097
	800.00	155.402	302.486	214.061	−981.578	70.740	−1223.567	−1045.633	−786.129	51.329
	900.00	160.049	321.060	224.933	−965.804	86.514	−1254.758	−1042.422	−753.880	43.754
	1000.00	164.553	338.157	235.412	−949.573	102.745	−1287.730	−1038.884	−722.007	37.714
	1100.00	168.962	354.048	245.483	−932.896	119.422	−1322.349	−1035.013	−690.504	32.789
	1200.00	173.307	368.936	255.157	−915.782	136.536	−1358.506	−1030.807	−659.368	28.702

References

Phase	H / S	C_p
SOL	Nb1	e

PbO LEAD OXIDE (YELLOW, MASSICOT) 223.199

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−Y	298.15	45.772	68.699	68.699	−218.062	0.000	−238.545	−218.062	−188.647	33.050
	300.00	45.835	68.982	68.700	−217.977	0.085	−238.672	−218.054	−188.464	32.815
	400.00	48.526	82.566	70.534	−213.249	4.813	−246.275	−217.542	−178.674	23.332
	500.00	50.463	93.610	74.078	−208.296	9.766	−255.101	−216.931	−169.026	17.658
	600.00	52.104	102.959	78.132	−203.166	14.896	−264.941	−216.278	−159.506	13.886
	700.00	53.604	111.104	82.273	−197.880	20.182	−275.653	−220.439	−149.301	11.141
	800.00	55.029	118.356	86.338	−192.448	25.614	−287.133	−219.692	−139.188	9.088
	900.00	56.410	124.917	90.266	−186.876	31.186	−299.301	−218.808	−129.176	7.497
	1000.00	57.763	130.931	94.036	−181.167	36.895	−312.098	−217.785	−119.271	6.230
	1100.00	59.100	136.499	97.646	−175.324	42.738	−325.473	−216.620	−109.475	5.199
	1159.00	59.884	139.607	99.704	−171.814	46.248	−333.618	−215.864	−103.747	4.676
			22.021		25.522					
LIQ	1159.00	65.000	161.628	99.704	−146.292	71.770	−333.618	−190.342	−103.747	4.676
	1200.00	65.000	163.888	101.858	−143.627	74.435	−340.292	−189.590	−100.697	4.383
	1300.00	65.000	169.090	106.832	−137.127	80.935	−356.944	−187.753	−93.364	3.751
	1400.00	65.000	173.908	111.454	−130.627	87.435	−374.097	−185.923	−86.172	3.215
	1500.00	65.000	178.392	115.768	−124.127	93.935	−391.715	−184.107	−79.110	2.755
	1600.00	65.000	182.587	119.815	−117.627	100.435	−409.766	−182.313	−72.169	2.356
	1700.00	65.000	186.528	123.624	−111.127	106.935	−428.224	−180.544	−65.340	2.008
	1800.00	65.000	190.243	127.223	−104.627	113.435	−447.064	−178.804	−58.613	1.701
	1900.00	65.000	193.757	130.633	−98.127	119.935	−466.265	−177.094	−51.983	1.429
	2000.00	65.000	197.091	133.874	−91.627	126.435	−485.809	−175.415	−45.441	1.187

References

Phase	H / S	C_p	Remarks	
SOL−Y	Ja2,e	Ja2	Ja2	Metastable below 762 K
LIQ	Ja2	Ja1	Ja2	Vapor. to (PbO)x, x= 1 to 6

223.199 LEAD OXIDE (GAS) **PbO[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	32.510	240.039	240.039	70.291	0.000	−1.277	70.291	48.621	−8.518
	300.00	32.544	240.240	240.040	70.351	0.060	−1.721	70.274	48.487	−8.442
	400.00	34.124	249.833	241.337	73.690	3.399	−26.244	69.396	41.358	−5.401
	500.00	35.152	257.567	243.834	77.157	6.866	−51.626	68.522	34.449	−3.599
	600.00	35.821	264.039	246.677	80.708	10.417	−77.715	67.596	27.720	−2.413
	700.00	36.279	269.597	249.564	84.314	14.023	−104.404	61.756	21.948	−1.638
	800.00	36.606	274.464	252.378	87.960	17.669	−131.612	60.715	16.333	−1.066
	900.00	36.851	278.791	255.077	91.633	21.342	−159.279	59.700	10.846	−0.630
	1000.00	37.040	282.683	257.646	95.328	25.037	−187.355	58.709	5.472	−0.286
	1100.00	37.192	286.221	260.086	99.040	28.749	−215.803	57.743	0.195	−0.009
	1200.00	37.316	289.463	262.401	102.765	32.474	−244.590	56.802	−4.995	0.217
	1300.00	37.421	292.454	264.599	106.502	36.211	−273.688	55.876	−10.107	0.406
	1400.00	37.511	295.230	266.689	110.249	39.958	−303.073	54.953	−15.148	0.565
	1500.00	37.590	297.821	268.679	114.004	43.713	−332.727	54.023	−20.123	0.701
	1600.00	37.661	300.249	270.577	117.767	47.476	−362.632	53.080	−25.036	0.817
	1700.00	37.726	302.535	272.390	121.536	51.245	−392.773	52.118	−29.889	0.918
	1800.00	37.786	304.693	274.126	125.312	55.021	−423.135	51.134	−34.684	1.007
	1900.00	37.843	306.737	275.789	129.094	58.803	−453.707	50.126	−39.425	1.084
	2000.00	37.898	308.680	277.385	132.881	62.590	−484.479	49.092	−44.111	1.152
	2100.00	37.951	310.530	278.920	136.673	66.382	−515.440	−129.191	−41.645	1.036
	2200.00	38.003	312.297	280.397	140.471	70.180	−546.582	−129.897	−37.460	0.889
	2300.00	38.056	313.987	281.821	144.274	73.983	−577.897	−130.709	−33.241	0.755
	2400.00	38.109	315.608	283.195	148.082	77.791	−609.377	−131.636	−28.984	0.631
	2500.00	38.163	317.165	284.523	151.895	81.604	−641.017	−132.687	−24.685	0.516

References

Phase	H / S	C_p
GAS	Ja2	Ja2

223.199 LEAD OXIDE (RED) **PbO[R]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−R	298.15	45.763	66.324	66.324	−219.402	0.000	−239.177	−219.402	−189.279	33.161
	300.00	45.876	66.607	66.325	−219.317	0.085	−239.299	−219.394	−189.092	32.924
	400.00	50.373	80.474	68.185	−214.487	4.915	−246.676	−218.780	−179.075	23.385
	500.00	53.433	92.064	71.834	−209.287	10.115	−255.319	−217.922	−169.244	17.681
	600.00	55.392	101.994	76.053	−203.837	15.565	−265.034	−216.949	−159.599	13.894
	700.00	56.654	110.632	80.390	−198.232	21.170	−275.675	−220.791	−149.323	11.143
	762.00	57.429	115.472	83.049	−194.696	24.706	−282.686	−220.159	−143.019	9.804

References

Phase	H / S	C_p	Remarks	
SOL−R	Ja2,e	Ja2	Ja2	TPT= 762. (PbO red − yellow), L= 0.167

PbO2 LEAD DIOXIDE 239.199

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	61.119	71.797	71.797	−274.470	0.000	−295.876	−274.470	−215.396	37.737
	300.00	61.285	72.176	71.799	−274.357	0.113	−296.010	−274.461	−215.030	37.440
	400.00	67.772	90.792	74.293	−267.870	6.600	−304.187	−273.676	−195.324	25.507
	500.00	71.635	106.360	79.193	−260.887	13.583	−314.066	−272.564	−175.860	18.372
	600.00	74.295	119.669	84.857	−253.583	20.887	−325.384	−271.317	−156.636	13.636
	700.00	76.239	131.275	90.677	−246.051	28.419	−337.944	−274.859	−136.828	10.210
	800.00	77.671	141.554	96.406	−238.352	36.118	−351.595	−273.514	−117.200	7.652
	900.00	78.689	150.765	101.943	−230.531	43.939	−366.219	−272.084	−97.746	5.673
	1000.00	79.343	159.092	107.248	−222.626	51.844	−381.718	−270.596	−78.454	4.098
	1100.00	79.662	166.672	112.311	−214.673	59.797	−398.012	−269.076	−59.313	2.817
	1200.00	79.664	173.606	117.134	−206.704	67.766	−415.031	−267.548	−40.311	1.755

References

Phase	H / S	C_p
SOL	Ja1	Ja1

Pb3O4 TRILEAD TETRAOXIDE 685.598

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	154.933	211.961	211.961	−718.686	0.000	−781.882	−718.686	−601.606	105.399
	300.00	155.325	212.921	211.964	−718.399	0.287	−782.275	−718.657	−600.880	104.622
	400.00	173.180	260.235	218.293	−701.909	16.777	−806.003	−716.301	−561.937	73.381
	500.00	183.935	300.140	230.781	−684.006	34.680	−834.076	−712.954	−523.720	54.713
	600.00	190.557	334.303	245.257	−665.259	53.427	−865.840	−709.216	−486.221	42.329
	700.00	195.303	364.048	260.148	−645.956	72.730	−900.790	−719.881	−446.970	33.353
	800.00	199.357	390.396	274.814	−626.220	92.466	−938.537	−715.872	−408.252	26.656
	900.00	203.287	414.103	288.995	−606.089	112.597	−978.781	−711.507	−370.058	21.478
	1000.00	207.332	435.729	302.602	−585.559	133.127	−1021.288	−706.766	−332.370	17.361
	1100.00	211.548	455.687	315.623	−564.616	154.070	−1065.872	−701.612	−295.176	14.017
	1200.00	215.885	474.279	328.079	−543.245	175.441	−1112.380	−696.016	−258.471	11.251
	1300.00	220.229	491.731	340.003	−521.439	197.247	−1160.690	−689.991	−222.251	8.930
	1400.00	224.429	508.207	351.434	−499.204	219.482	−1210.694	−683.572	−186.509	6.959
	1500.00	228.306	523.826	362.411	−476.564	242.122	−1262.302	−676.806	−151.239	5.267

References

Phase	H / S	C_p
SOL	Ja1	Ja1

292.820

LEAD DIBORATE

PbB2O4

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	107.570	130.541	130.541	−1556.448	0.000	−1595.369	−1556.448	−1450.247	254.077
	300.00	107.713	131.207	130.543	−1556.249	0.199	−1595.611	−1556.449	−1449.589	252.396
	400.00	127.800	164.623	134.961	−1544.583	11.865	−1610.433	−1556.186	−1413.981	184.647
	500.00	149.048	195.518	144.019	−1530.699	25.749	−1628.457	−1554.693	−1378.576	144.019
	600.00	164.969	224.176	155.022	−1514.956	41.492	−1649.461	−1552.128	−1343.579	116.969
	700.00	176.635	250.527	166.811	−1497.846	58.602	−1673.215	−1553.657	−1308.278	97.625
	800.00	185.387	274.711	178.808	−1479.726	76.722	−1699.494	−1549.794	−1273.481	83.150
	900.00	192.167	296.954	190.716	−1460.834	95.614	−1728.093	−1545.463	−1239.198	71.921
	1000.00	197.591	317.491	202.380	−1441.337	115.111	−1758.828	−1540.769	−1205.417	62.965
	1100.00	202.059	336.540	213.721	−1421.348	135.100	−1791.541	−1535.782	−1172.121	55.659
	1200.00	205.838	354.287	224.704	−1400.948	155.500	−1826.093	−1530.550	−1139.290	49.592
	1300.00	209.110	370.895	235.318	−1380.197	176.251	−1862.361	−1525.120	−1106.904	44.476
	1400.00	212.001	386.500	245.565	−1359.139	197.309	−1900.239	−1519.530	−1074.942	40.107
	1500.00	214.599	401.216	255.456	−1337.807	218.641	−1939.631	−1513.813	−1043.384	36.334

References

Phase	H / S	C_p
SOL	Ja1	Ja1

362.440

LEAD TETRABORATE

PbB4O7

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	168.128	166.942	166.942	−2857.672	0.000	−2907.446	−2857.672	−2667.101	467.265
	300.00	168.922	167.984	166.945	−2857.360	0.312	−2907.755	−2857.684	−2665.919	464.178
	400.00	206.970	221.993	174.051	−2838.495	19.177	−2927.293	−2857.408	−2601.991	339.785
	500.00	238.333	271.647	188.673	−2816.185	41.487	−2952.009	−2855.539	−2538.321	265.177
	600.00	264.801	317.508	206.373	−2790.991	66.681	−2981.496	−2852.222	−2475.166	215.482
	700.00	286.989	360.047	225.325	−2763.367	94.305	−3015.400	−2852.429	−2411.876	179.976
	800.00	305.153	399.598	244.667	−2733.727	123.945	−3053.406	−2846.618	−2349.323	153.395
	900.00	319.415	436.401	263.951	−2702.466	155.206	−3095.228	−2839.791	−2287.562	132.767
	1000.00	329.840	470.628	282.928	−2669.972	187.700	−3140.600	−2832.218	−2226.604	116.306
	1100.00	336.464	502.406	301.454	−2636.625	221.047	−3189.272	−2824.197	−2166.428	102.875
	1200.00	349.690	532.709	319.480	−2601.796	255.876	−3241.047	−2815.036	−2107.036	91.717
	1300.00	352.489	560.810	336.976	−2566.687	290.985	−3295.740	−2805.906	−2048.406	82.306
	1400.00	355.289	587.035	353.911	−2531.298	326.374	−3353.147	−2796.785	−1990.479	74.266
	1500.00	358.088	611.643	370.281	−2495.629	362.043	−3413.093	−2787.660	−1933.204	67.320
	1600.00	360.887	634.843	386.098	−2459.681	397.991	−3475.429	−2778.523	−1876.538	61.263
	1700.00	363.686	656.805	401.382	−2423.452	434.220	−3540.021	−2769.366	−1820.444	55.935
	1800.00	366.485	677.672	416.156	−2386.943	470.729	−3606.753	−2760.183	−1764.890	51.216
	1900.00	369.284	697.562	430.448	−2350.155	507.517	−3675.523	−2750.970	−1709.847	47.007
	2000.00	372.083	716.575	444.282	−2313.087	544.585	−3746.236	−2741.721	−1655.291	43.232

References

Phase	H / S	C_p
SOL	Ja1	Ja1

PbO*PbCO3 DILEAD OXIDE CARBONATE 490.409

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	133.366	204.221	204.221	−918.388	0.000	−979.276	−918.388	−816.604	143.066
	300.00	133.637	205.047	204.224	−918.141	0.247	−979.655	−918.365	−815.973	142.074
	400.00	148.281	245.497	209.640	−904.045	14.343	−1002.244	−916.710	−782.069	102.128
	500.00	162.925	280.158	220.352	−888.485	29.903	−1028.564	−914.224	−748.680	78.214
	600.00	177.569	311.158	232.944	−871.460	46.928	−1058.155	−910.892	−715.869	62.322
	700.00	192.213	339.630	246.177	−852.971	65.417	−1090.712	−916.329	−682.095	50.899

References

Phase	H / S	C_p
SOL	Nb1	e

PbO*PbSO4 DILEAD OXIDE SULFATE 526.463

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	149.717	223.317	223.317	−1157.453	0.000	−1224.035	−1157.453	−1022.935	179.212
	300.00	149.778	224.243	223.320	−1157.176	0.277	−1224.449	−1157.454	−1022.100	177.961
	400.00	156.886	268.160	229.260	−1141.893	15.560	−1249.157	−1159.640	−976.892	127.567
	500.00	167.787	304.298	240.748	−1125.678	31.775	−1277.827	−1160.601	−931.103	97.270
	600.00	180.183	335.970	254.028	−1108.287	49.166	−1309.870	−1160.478	−885.193	77.062
	700.00	193.283	364.723	267.816	−1089.618	67.835	−1344.924	−1168.894	−837.804	62.517
	800.00	206.759	391.409	281.616	−1069.618	87.835	−1382.746	−1166.631	−790.639	51.623
	900.00	220.454	416.551	295.224	−1048.259	109.194	−1423.155	−1215.964	−742.692	43.104
	1000.00	234.284	440.493	308.563	−1025.523	131.930	−1466.016	−1209.627	−690.433	36.064
	1100.00	248.203	463.475	321.608	−1001.399	156.054	−1511.221	−1201.965	−638.874	30.337
	1200.00	262.182	485.670	334.360	−975.881	181.572	−1558.685	−1192.952	−588.072	25.598

References

Phase	H / S	C_p	Remarks	
SOL	Ke	Ke	La1	MPT= 1243.

749.662 TRILEAD DIOXIDE SULFATE **2PbO*PbSO4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	208.564	294.244	294.244	−1373.059	0.000	−1460.788	−1373.059	−1209.790	211.950
	300.00	208.698	295.535	294.248	−1372.673	0.386	−1461.333	−1373.027	−1208.777	210.467
	400.00	219.154	356.882	302.542	−1351.323	21.736	−1494.076	−1373.364	−1154.210	150.724
	500.00	232.822	407.219	318.580	−1328.740	44.319	−1532.349	−1372.298	−1099.550	114.869
	600.00	247.754	450.975	337.073	−1304.718	68.341	−1575.303	−1370.021	−1045.191	90.992
	700.00	263.282	490.327	356.199	−1279.169	93.890	−1622.398	−1381.004	−988.927	73.795
	800.00	279.129	526.515	375.255	−1252.051	121.008	−1673.263	−1376.308	−933.221	60.933
	900.00	295.160	560.316	393.959	−1223.337	149.722	−1727.622	−1422.975	−877.034	50.902
	1000.00	311.307	592.249	412.205	−1193.015	180.044	−1785.264	−1413.737	−816.855	42.668

References

Phase	H / S	C_p	Remarks
SOL	Ke	Ke	La1 MPT= 1223.

972.862 TETRALEAD TRIOXIDE SULFATE **3PbO*PbSO4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	240.528	340.578	340.578	−1626.739	0.000	−1728.282	−1626.739	−1427.386	250.072
	300.00	240.912	342.067	340.582	−1626.294	0.445	−1728.914	−1626.725	−1426.149	248.315
	400.00	259.388	413.990	350.264	−1601.249	25.490	−1766.845	−1627.583	−1359.377	177.516
	500.00	275.599	473.636	369.135	−1574.488	52.251	−1811.307	−1626.682	−1292.433	135.020
	600.00	290.919	525.247	390.945	−1546.158	80.581	−1861.306	−1624.573	−1225.759	106.712
	700.00	305.818	571.215	413.471	−1516.318	110.421	−1916.169	−1640.712	−1156.346	86.288
	800.00	320.493	613.011	435.839	−1485.001	141.738	−1975.410	−1636.503	−1087.424	71.001

References

Phase	H / S	C_p
SOL	Nb1	e

4PbO*PbSO4 PENTALEAD TETRAOXIDE SULFATE 1196.061

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	293.782	424.592	424.592	−1828.944	0.000	−1955.536	−1828.944	−1604.742	281.140
	300.00	294.043	426.410	424.598	−1828.400	0.544	−1956.323	−1828.908	−1603.351	279.165
	400.00	309.583	513.073	436.309	−1798.239	30.705	−2003.468	−1828.867	−1528.399	199.586
	500.00	326.597	583.966	458.951	−1766.437	62.507	−2058.420	−1827.266	−1453.471	151.841
	600.00	344.191	645.061	484.988	−1732.900	96.044	−2119.937	−1824.427	−1378.955	120.047
	700.00	362.059	699.458	511.808	−1697.589	131.355	−2187.210	−1844.542	−1301.034	97.083
	800.00	380.074	748.979	538.404	−1660.484	168.460	−2259.667	−1839.231	−1223.736	79.901
	900.00	398.173	794.789	564.376	−1621.572	207.372	−2336.882	−1885.075	−1146.044	66.514
	1000.00	416.324	837.680	589.584	−1580.847	248.097	−2418.528	−1874.807	−1064.464	55.601
	1100.00	434.510	878.213	613.996	−1538.306	290.638	−2504.340	−1862.762	−983.998	46.726
	1168.00	446.891	904.643	630.152	−1508.338	320.606	−2564.962	−1853.535	−929.950	41.588

References

Phase	H / S	C_p	Remarks
SOL	Ke	Ke	Ke MPT= 1168.

PbSiO3 LEAD METASILICATE 283.284

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	90.069	109.926	109.926	−1144.993	0.000	−1177.767	−1144.993	−1061.094	185.899
	300.00	90.308	110.484	109.928	−1144.826	0.167	−1177.971	−1144.994	−1060.573	184.662
	400.00	102.781	138.226	113.625	−1135.153	9.840	−1190.443	−1144.631	−1032.464	134.826
	500.00	112.108	162.224	121.000	−1124.381	20.612	−1205.493	−1143.539	−1004.537	104.943
	600.00	118.673	183.278	129.662	−1112.823	32.170	−1222.790	−1141.994	−976.876	85.045
	700.00	123.325	201.942	138.680	−1100.710	44.283	−1242.069	−1145.031	−948.700	70.793
	800.00	126.613	218.637	147.650	−1088.203	56.790	−1263.113	−1143.056	−920.785	60.121
	900.00	128.866	233.689	156.388	−1075.422	69.571	−1285.742	−1140.929	−893.127	51.836
	1000.00	130.281	247.346	164.811	−1062.458	82.535	−1309.804	−1138.722	−865.712	45.220
	1037.00	130.619	252.086	167.841	−1057.631	87.362	−1319.044	−1137.898	−855.625	43.099
			33.286		34.518					
LIQ	1037.00	130.122	285.372	167.841	−1023.113	121.880	−1319.044	−1103.380	−855.625	43.099
	1100.00	130.122	293.047	174.794	−1014.915	130.078	−1337.267	−1102.022	−840.614	39.917
	1200.00	130.122	304.369	185.127	−1001.903	143.090	−1367.146	−1099.925	−816.943	35.561
	1300.00	130.122	314.784	194.706	−988.891	156.102	−1398.110	−1097.901	−793.444	31.881
	1400.00	130.122	324.427	203.631	−975.879	169.114	−1430.077	−1095.955	−770.098	28.733
	1500.00	130.122	333.405	211.987	−962.866	182.127	−1462.974	−1094.094	−746.888	26.009
	1600.00	130.122	341.803	219.841	−949.854	195.139	−1496.739	−1092.320	−723.799	23.630
	1700.00	130.122	349.691	227.250	−936.842	208.151	−1531.317	−1140.814	−700.372	21.520
	1800.00	130.122	357.129	234.261	−923.830	221.163	−1566.662	−1138.997	−674.516	19.574

References

Phase	H / S	C_p
SOL	Ja1	Ja1
LIQ	S5	S5

506.483 DILEAD ORTHOSILICATE **Pb2SiO4**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)		] [		kJ / mol		]	[−]
SOL	298.15	136.920	186.263	186.263	−1363.520	0.000	−1419.054	−1363.520	−1252.483	219.430
	300.00	137.297	187.111	186.266	−1363.266	0.254	−1419.400	−1363.511	−1251.794	217.957
	400.00	151.993	228.783	191.849	−1348.747	14.773	−1440.260	−1362.518	−1214.679	158.621
	500.00	163.764	263.994	202.844	−1332.945	30.575	−1464.942	−1360.739	−1177.911	123.056
	600.00	173.357	294.740	215.651	−1316.067	47.453	−1492.911	−1358.349	−1141.561	99.382
	700.00	180.079	322.005	228.935	−1298.371	65.149	−1523.774	−1365.250	−1104.053	82.385
	800.00	184.213	346.346	242.118	−1280.138	83.382	−1557.214	−1362.235	−1066.942	69.664
	900.00	186.755	368.199	254.934	−1261.582	101.938	−1592.961	−1359.022	−1030.221	59.792
	1000.00	189.116	387.993	267.266	−1242.793	120.727	−1630.786	−1355.676	−993.866	51.914
	1016.00	189.586	390.998	269.191	−1239.764	123.756	−1637.018	−1355.126	−988.082	50.799
			52.712		53.555					
LIQ	1016.00	189.075	443.710	269.191	−1186.209	177.311	−1637.018	−1301.571	−988.082	50.799
	1100.00	189.075	458.729	283.099	−1170.326	193.194	−1674.928	−1298.730	−962.278	45.695
	1200.00	189.075	475.181	298.430	−1151.419	212.101	−1721.636	−1295.404	−931.839	40.562
	1300.00	189.075	490.315	312.616	−1132.511	231.009	−1769.921	−1292.148	−901.674	36.230
	1400.00	189.075	504.327	325.815	−1113.604	249.916	−1819.661	−1288.977	−871.757	32.526
	1500.00	189.075	517.372	338.156	−1094.696	268.824	−1870.754	−1285.904	−842.063	29.323
	1600.00	189.075	529.574	349.742	−1075.789	287.731	−1923.108	−1282.941	−812.571	26.528
	1700.00	189.075	541.037	360.661	−1056.881	306.639	−1976.644	−1330.271	−782.814	24.053
	1800.00	189.075	551.844	370.985	−1037.974	325.546	−2031.293	−1327.319	−750.696	21.785

References

Phase	H / S	C_p
SOL	Nb1	Ja1
LIQ	S5	S5

Pb4SiO6 TETRALEAD SILICATE 952.882

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	229.729	331.080	331.080	−1805.229	0.000	−1903.940	−1805.229	−1637.573	286.896
	300.00	230.125	332.502	331.084	−1804.804	0.425	−1904.554	−1805.202	−1636.533	284.946
	400.00	247.086	401.197	340.336	−1780.884	24.345	−1941.363	−1803.242	−1580.580	206.403
	500.00	259.634	457.728	358.325	−1755.527	49.702	−1984.391	−1800.592	−1525.210	159.338
	600.00	270.444	506.038	379.013	−1729.014	76.215	−2032.637	−1797.521	−1470.417	128.011
	700.00	280.435	548.484	400.250	−1701.465	103.764	−2085.404	−1813.462	−1412.979	105.438
	800.00	289.988	586.558	421.199	−1672.941	132.288	−2142.188	−1809.527	−1356.026	88.539
	900.00	299.287	621.253	441.527	−1643.476	161.753	−2202.604	−1804.782	−1299.615	75.428
	998.00	308.246	652.643	460.736	−1613.706	191.523	−2265.043	−1799.329	−1244.887	65.157
			108.583		108.366					
LIQ	998.00	308.361	761.226	460.736	−1505.340	299.889	−2265.043	−1690.963	−1244.887	65.157
	1000.00	308.361	761.843	461.338	−1504.723	300.506	−2266.567	−1690.843	−1243.993	64.980
	1100.00	308.361	791.233	490.013	−1473.887	331.342	−2344.244	−1684.884	−1199.597	56.964
	1200.00	308.361	818.064	516.249	−1443.051	362.178	−2424.728	−1678.963	−1155.742	50.308
	1300.00	308.361	842.746	540.428	−1412.215	393.014	−2507.785	−1673.105	−1112.378	44.696
	1400.00	308.361	865.598	562.848	−1381.379	423.850	−2593.216	−1667.345	−1069.462	39.902
	1500.00	308.361	886.873	583.749	−1350.543	454.686	−2680.852	−1661.713	−1026.953	35.762
	1600.00	308.361	906.774	603.323	−1319.707	485.522	−2770.545	−1656.232	−984.816	32.151
	1700.00	308.361	925.468	621.728	−1288.871	516.358	−2862.167	−1701.097	−942.569	28.962
	1800.00	308.361	943.094	639.097	−1258.035	547.194	−2955.603	−1695.735	−898.105	26.062

References

Phase	H / S	C_p	Remarks	
SOL	M3	M3	M3	incongr. MPT= 998.
LIQ	S5	M3		

303.078 LEAD TITANIUM TRIOXIDE **PbTiO3**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	104.402	111.922	111.922	−1198.716	0.000	−1232.086	−1198.716	−1111.852	194.792
	300.00	104.686	112.569	111.924	−1198.523	0.193	−1232.293	−1198.700	−1111.313	193.497
	400.00	115.325	144.324	116.181	−1187.459	11.257	−1245.189	−1197.413	−1082.359	141.342
	500.00	121.210	170.741	124.528	−1175.609	23.107	−1260.980	−1195.665	−1053.792	110.089
	600.00	125.226	193.214	134.150	−1163.277	35.439	−1279.206	−1193.754	−1025.595	89.286
	700.00	128.358	212.761	144.014	−1150.593	48.123	−1299.526	−1196.644	−996.926	74.392
	763.00	130.074	223.896	150.156	−1142.452	56.264	−1313.285	−1195.407	−979.006	67.022
			7.402		5.648					
SOL−B	763.00	124.183	231.299	150.156	−1136.804	61.912	−1313.285	−1189.759	−979.006	67.022
	800.00	125.234	237.204	154.046	−1132.189	66.527	−1321.953	−1189.234	−968.798	63.256
	900.00	127.952	252.113	164.127	−1119.529	79.187	−1346.430	−1187.747	−941.332	54.633
	1000.00	130.545	265.729	173.616	−1106.603	92.113	−1372.332	−1186.164	−914.036	47.744
	1100.00	133.057	278.290	182.568	−1093.423	105.293	−1399.541	−1184.476	−886.904	42.116
	1200.00	135.513	289.973	191.038	−1079.994	118.722	−1427.961	−1186.674	−859.812	37.427
	1300.00	137.931	300.915	199.073	−1066.321	132.395	−1457.511	−1184.235	−832.671	33.457
	1400.00	140.320	311.225	206.719	−1052.408	146.308	−1488.123	−1181.654	−805.724	30.062
	1500.00	142.688	320.987	214.015	−1038.258	160.458	−1519.738	−1178.947	−778.966	27.126
	1559.00	144.077	326.518	218.168	−1029.798	168.918	−1538.840	−1177.296	−763.265	25.573

References

Phase	H / S	C_p	Remarks	
SOL−A	Ku1	e		
SOL−B	Tk1	e	Tk1	MPT= 1559.

PbS LEAD SULFIDE 239.266

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	49.436	91.343	91.343	−98.633	0.000	−125.867	−98.633	−96.994	16.993
	300.00	49.456	91.649	91.344	−98.542	0.091	−126.036	−98.633	−96.984	16.886
	400.00	50.467	106.016	93.296	−93.545	5.088	−135.951	−100.949	−96.334	12.580
	500.00	51.442	117.383	97.015	−88.449	10.184	−147.141	−102.568	−95.016	9.926
	600.00	52.402	126.847	101.220	−83.257	15.376	−159.365	−103.848	−93.376	8.129
	700.00	53.355	134.996	105.476	−77.969	20.664	−172.466	−109.690	−90.754	6.772
	800.00	54.305	142.183	109.624	−72.586	26.047	−186.332	−110.684	−87.982	5.745
	900.00	55.252	148.634	113.606	−67.108	31.525	−200.879	−164.398	−83.934	4.871
	1000.00	56.198	154.504	117.407	−61.536	37.097	−216.040	−163.615	−75.034	3.919
	1100.00	57.144	159.905	121.028	−55.869	42.764	−231.764	−162.714	−66.219	3.144
	1200.00	58.088	164.917	124.479	−50.107	48.526	−248.008	−161.693	−57.491	2.503
	1300.00	59.033	169.604	127.772	−44.251	54.382	−264.736	−160.563	−48.852	1.963
	1386.50	59.849	173.433	130.502	−39.109	59.524	−279.574	−159.506	−41.453	1.562
			13.581		18.830					
LIQ	1386.50	66.944	187.014	130.502	−20.279	78.354	−279.574	−140.676	−41.453	1.562
	1400.00	66.944	187.663	131.050	−19.375	79.258	−282.103	−140.410	−40.489	1.511
	1500.00	66.944	192.281	134.980	−12.681	85.952	−301.103	−138.443	−33.420	1.164
	1600.00	66.944	196.602	138.698	−5.987	92.646	−320.550	−136.489	−26.482	0.865
	1700.00	66.944	200.660	142.225	0.708	99.341	−340.415	−134.552	−19.666	0.604
	1800.00	66.944	204.487	145.578	7.402	106.035	−360.674	−132.636	−12.964	0.376
	1900.00	66.944	208.106	148.775	14.097	112.730	−381.305	−130.743	−6.367	0.175
	2000.00	66.944	211.540	151.828	20.791	119.424	−402.289	−128.873	0.131	−0.003

References

Phase	H / S	C_p	Remarks
SOL	Ke/Ja2	Ja1	
LIQ	Ja2	Ja1	DEC., NSPT= 1593. GAS (PbS)

239.266 LEAD SULFIDE (GAS) **PbS**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	35.080	251.412	251.412	131.487	0.000	56.529	131.487	85.402	−14.962
	300.00	35.106	251.629	251.413	131.552	0.065	56.063	131.460	85.116	−14.820
	400.00	36.088	261.880	252.804	135.118	3.631	30.366	127.714	69.983	−9.139
	500.00	36.598	269.993	255.459	138.754	7.267	3.758	124.636	55.883	−5.838
	600.00	36.905	276.695	258.456	142.431	10.944	−23.586	121.839	42.402	−3.691
	700.00	37.110	282.400	261.479	146.132	14.645	−51.548	114.411	30.164	−2.251
	800.00	37.259	287.366	264.411	149.851	18.364	−80.042	111.753	18.309	−1.195
	900.00	37.375	291.761	267.211	153.583	22.096	−109.002	56.293	7.942	−0.461
	1000.00	37.469	295.704	269.866	157.325	25.838	−138.379	55.245	2.626	−0.137
	1100.00	37.550	299.279	272.380	161.076	29.589	−168.131	54.231	−2.586	0.123
	1200.00	37.621	302.550	274.760	164.835	33.348	−198.225	53.249	−7.708	0.336
	1300.00	37.685	305.563	277.015	168.600	37.113	−228.632	52.288	−12.748	0.512
	1400.00	37.745	308.358	279.155	172.372	40.885	−259.330	51.337	−17.716	0.661
	1500.00	37.800	310.964	281.190	176.149	44.662	−290.298	50.387	−22.615	0.788
	1600.00	37.853	313.406	283.128	179.931	48.444	−321.518	49.429	−27.450	0.896
	1700.00	37.903	315.702	284.977	183.719	52.232	−352.974	48.459	−32.226	0.990
	1800.00	37.952	317.870	286.745	187.512	56.025	−384.654	47.473	−36.944	1.072
	1900.00	37.999	319.923	288.438	191.310	59.823	−416.544	46.470	−41.606	1.144
	2000.00	38.045	321.873	290.061	195.112	63.625	−448.635	45.448	−46.215	1.207

References

Phase	H / S	C_p
GAS	Ja2,e	Ja1

PbSO4 LEAD SULFATE 303.264

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)		] [		kJ / mol		]	[-]
SOL-A	298.15	104.213	148.490	148.490	-923.137	0.000	-967.409	-923.137	-816.207	142.994
	300.00	104.210	149.135	148.492	-922.944	0.193	-967.685	-923.144	-815.544	141.997
	400.00	108.638	179.544	152.609	-912.363	10.774	-984.181	-925.817	-779.517	101.793
	500.00	117.654	204.706	160.572	-901.070	22.067	-1003.423	-927.358	-742.774	77.596
	600.00	128.477	227.095	169.823	-888.773	34.364	-1025.031	-927.852	-705.789	61.444
	700.00	140.152	247.769	179.498	-875.347	47.790	-1048.785	-932.065	-668.018	49.847
	800.00	152.282	267.272	189.261	-860.728	62.409	-1074.546	-930.497	-630.393	41.160
	900.00	164.676	285.922	198.972	-844.882	78.255	-1102.212	-980.653	-591.874	34.351
	1000.00	177.234	303.921	208.571	-827.787	95.350	-1131.708	-975.273	-548.953	28.674
	1100.00	189.900	321.407	218.038	-809.431	113.706	-1162.979	-968.700	-506.630	24.058
	1139.00	194.860	328.109	221.692	-801.929	121.208	-1175.644	-965.809	-490.296	22.485
			14.914		16.987					
SOL-B	1139.00	194.000	343.023	221.693	-784.942	138.195	-1175.645	-948.822	-490.264	22.483
	1200.00	194.000	353.144	228.120	-773.108	150.029	-1196.881	-944.216	-465.862	20.278
	1300.00	194.000	368.672	238.342	-753.708	169.429	-1232.982	-936.708	-426.304	17.129
	1400.00	194.000	383.049	248.172	-734.308	188.829	-1270.577	-929.257	-387.322	14.451
	1443.00	194.000	388.918	252.279	-725.966	197.171	-1287.175	-926.072	-370.726	13.420
			27.835		40.166					
LIQ	1443.00	186.000	416.753	252.278	-685.800	237.337	-1287.175	-885.906	-370.726	13.420
	1500.00	186.000	423.959	258.666	-675.198	247.939	-1311.136	-882.157	-350.448	12.204
	1600.00	186.000	435.963	269.376	-656.598	266.539	-1354.139	-875.631	-315.214	10.291
	1700.00	186.000	447.239	279.510	-637.998	285.139	-1398.305	-869.173	-280.386	8.615
	1800.00	186.000	457.871	289.127	-619.398	303.739	-1443.565	-862.784	-245.936	7.137

References

Phase	H / S	C_p
SOL-A	Ke	Ke
SOL-B	Tk1	e
LIQ	Tk1	e

286.160 LEAD SELENIDE **PbSe**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	50.219	102.508	102.508	−99.998	0.000	−130.561	−99.998	−98.646	17.282
	300.00	50.237	102.819	102.509	−99.905	0.093	−130.751	−100.002	−98.637	17.174
	400.00	51.237	117.408	104.491	−94.831	5.167	−141.795	−100.326	−98.140	12.816
	500.00	52.237	128.949	108.268	−89.658	10.340	−154.132	−106.776	−97.450	10.181
	600.00	53.237	138.561	112.538	−84.384	15.614	−167.521	−107.913	−95.478	8.312
	700.00	54.237	146.843	116.860	−79.010	20.988	−181.800	−113.874	−92.520	6.904
	800.00	55.237	154.150	121.073	−73.536	26.462	−196.857	−114.932	−89.396	5.837
	900.00	56.237	160.714	125.119	−67.963	32.035	−212.605	−115.858	−86.147	5.000
	1000.00	57.237	166.691	128.982	−62.289	37.709	−228.980	−116.654	−82.802	4.325
	1100.00	58.237	172.193	132.663	−56.515	43.483	−245.928	−170.630	−74.429	3.534
	1200.00	59.237	177.303	136.173	−50.642	49.356	−263.406	−169.716	−65.723	2.861
	1300.00	60.237	182.084	139.523	−44.668	55.330	−281.378	−168.670	−57.099	2.294
	1359.00	60.827	184.771	141.429	−41.097	58.901	−292.200	−167.996	−52.050	2.001
			26.877		36.526					
LIQ	1359.00	62.760	211.648	141.429	−4.571	95.427	−292.200	−131.470	−52.050	2.001
	1400.00	62.760	213.513	143.513	−1.997	98.001	−300.916	−130.907	−49.662	1.853

References

Phase	H / S	C_p
SOL	Mi1	Mi1
LIQ	Pa3	e

PbSe[g] LEAD SELENIDE (GAS) 286.160

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	36.228	263.614	263.614	126.357	0.000	47.761	126.357	79.676	−13.959
	300.00	36.243	263.838	263.614	126.424	0.067	47.273	126.327	79.386	−13.822
	400.00	36.751	274.344	265.043	130.077	3.720	20.340	124.582	63.994	−8.357
	500.00	36.987	282.573	267.756	133.766	7.409	−7.521	116.647	49.161	−5.136
	600.00	37.114	289.329	270.805	137.471	11.114	−36.126	113.942	35.916	−3.127
	700.00	37.191	295.057	273.871	141.187	14.830	−65.353	106.323	23.927	−1.785
	800.00	37.242	300.026	276.837	144.909	18.552	−95.112	103.513	12.348	−0.806
	900.00	37.276	304.415	279.662	148.635	22.278	−125.339	100.739	1.120	−0.065
	1000.00	37.300	308.343	282.337	152.363	26.006	−155.980	97.998	−9.802	0.512
	1100.00	37.319	311.899	284.865	156.094	29.737	−186.995	41.980	−15.497	0.736
	1200.00	37.332	315.147	287.256	159.827	33.470	−218.350	40.753	−20.667	0.900
	1300.00	37.343	318.136	289.518	163.561	37.204	−250.016	39.558	−25.737	1.034
	1400.00	37.352	320.904	291.662	167.296	40.939	−281.970	38.386	−30.716	1.146
	1500.00	37.358	323.481	293.698	171.031	44.674	−314.190	37.226	−35.611	1.240
	1600.00	37.364	325.892	295.636	174.767	48.410	−346.660	36.071	−40.429	1.320
	1700.00	37.369	328.157	297.483	178.504	52.147	−379.364	34.916	−45.175	1.388
	1800.00	37.373	330.293	299.247	182.241	55.884	−412.287	33.758	−49.853	1.447
	1900.00	37.376	332.314	300.935	185.978	59.621	−445.419	32.595	−54.466	1.497
	2000.00	37.379	334.231	302.552	189.716	63.359	−478.747	31.425	−59.018	1.541

References

Phase	H / S	C_p
GAS	Mi1	Mi1

PbSeO3 LEAD SELENITE 334.158

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	99.494	128.449	128.449	−538.016	0.000	−576.313	−538.016	−452.651	79.303
	300.00	99.579	129.065	128.451	−537.832	0.184	−576.551	−538.010	−452.121	78.721
	400.00	104.182	158.342	132.412	−527.644	10.372	−590.981	−537.677	−423.542	55.309
	500.00	108.784	182.084	140.043	−516.996	21.020	−608.037	−543.240	−394.963	41.261
	600.00	113.386	202.324	148.776	−505.887	32.129	−627.282	−543.282	−365.300	31.802
	700.00	117.989	220.149	157.723	−494.318	43.698	−648.422	−547.930	−334.851	24.987
	800.00	122.591	236.204	166.546	−482.289	55.727	−671.253	−547.438	−304.441	19.878
	900.00	127.194	250.909	175.114	−469.800	68.216	−695.618	−546.557	−274.115	15.909

References

Phase	H / S	C_p
SOL	Nb1/Ku1	e

350.158 LEAD SELENATE **PbSeO4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	104.023	167.799	167.799	−609.617	0.000	−659.646	−609.617	−505.402	88.544
	300.00	104.215	168.443	167.801	−609.424	0.193	−659.957	−609.630	−504.756	87.886
	400.00	114.616	199.849	172.013	−598.483	11.134	−678.422	−610.029	−469.722	61.339
	500.00	125.018	226.542	180.310	−586.501	23.116	−699.772	−615.788	−434.566	45.399
	600.00	135.419	250.255	190.025	−573.479	36.138	−723.632	−615.497	−398.337	34.678
	700.00	145.821	271.911	200.197	−559.417	50.200	−749.755	−619.278	−361.420	26.970
	800.00	156.222	292.062	210.434	−544.315	65.302	−777.964	−617.381	−324.702	21.201
	900.00	166.624	311.062	220.569	−528.173	81.444	−808.129	−614.550	−288.277	16.731

References

Phase	H / S	C_p
SOL	Nb1	e

334.800 LEAD TELLURIDE **PbTe**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	50.551	110.039	110.039	−68.618	0.000	−101.426	−68.618	−67.353	11.800
	300.00	50.572	110.352	110.040	−68.524	0.094	−101.630	−68.622	−67.345	11.726
	400.00	51.698	125.055	112.037	−63.411	5.207	−113.433	−68.924	−66.879	8.734
	500.00	52.823	136.712	115.846	−58.185	10.433	−126.541	−69.417	−66.315	6.928
	600.00	53.948	146.442	120.156	−52.846	15.772	−140.712	−70.103	−65.634	5.714
	700.00	55.074	154.843	124.524	−47.395	21.223	−155.785	−75.819	−64.026	4.778
	800.00	56.199	162.270	128.787	−41.832	26.786	−171.648	−94.463	−60.392	3.943
	900.00	57.325	168.955	132.885	−36.155	32.463	−188.214	−95.538	−56.067	3.254
	1000.00	58.450	175.053	136.801	−30.367	38.251	−205.419	−96.470	−51.630	2.697
	1100.00	59.576	180.676	140.537	−24.465	44.153	−223.209	−97.258	−47.107	2.237
	1197.00	60.668	185.756	143.998	−18.633	49.985	−240.984	−97.884	−42.656	1.861
			47.887		57.321					
LIQ	1197.00	62.760	233.644	143.998	38.688	107.306	−240.984	−40.563	−40.563	1.861
	1200.00	62.760	233.801	144.223	38.876	107.494	−241.685	−40.574	−42.662	1.857
	1300.00	62.760	238.824	151.309	45.152	113.770	−265.320	−40.936	−42.821	1.721
	1400.00	62.760	243.475	157.728	51.428	120.046	−289.437	−87.728	−40.461	1.510
	1500.00	62.760	247.805	163.591	57.704	126.322	−314.004	−86.507	−37.128	1.293
	1600.00	62.760	251.856	168.982	63.980	132.598	−338.989	−85.287	−33.876	1.106
	1700.00	62.760	255.660	173.970	70.256	138.874	−364.367	−84.076	−30.700	0.943

References

Phase	H / S	C_p
SOL	Mi1	Mi1
LIQ	Mi1	e

PbTe[g] LEAD TELLURIDE (GAS) 334.800

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	36.746	271.672	271.672	155.226	0.000	74.227	155.226	108.300	−18.974
	300.00	36.754	271.899	271.673	155.294	0.068	73.724	155.197	108.009	−18.806
	400.00	37.039	282.518	273.119	158.986	3.760	45.979	153.472	92.532	−12.083
	500.00	37.171	290.798	275.857	162.697	7.471	17.298	151.465	77.523	−8.099
	600.00	37.242	297.582	278.929	166.418	11.192	−12.132	149.162	62.946	−5.480
	700.00	37.285	303.327	282.015	170.144	14.918	−42.184	141.721	49.575	−3.699
	800.00	37.313	308.308	284.997	173.874	18.648	−72.772	121.243	38.484	−2.513
	900.00	37.333	312.704	287.836	177.607	22.381	−103.826	118.224	28.321	−1.644
	1000.00	37.346	316.638	290.523	181.341	26.115	−135.297	115.237	18.492	−0.966
	1100.00	37.357	320.198	293.061	185.076	29.850	−167.142	112.284	8.961	−0.426
	1200.00	37.364	323.449	295.460	188.812	33.586	−199.326	109.362	−0.303	0.013
	1300.00	37.370	326.440	297.730	192.549	37.323	−231.823	106.461	−9.324	0.375
	1400.00	37.375	329.209	299.881	196.286	41.060	−264.607	57.130	−15.631	0.583
	1500.00	37.379	331.788	301.923	200.024	44.798	−297.658	55.812	−20.782	0.724
	1600.00	37.382	334.200	303.865	203.762	48.536	−330.959	54.495	−25.845	0.844
	1700.00	37.385	336.467	305.717	207.500	52.274	−364.493	53.169	−30.826	0.947
	1800.00	37.387	338.604	307.485	211.239	56.013	−398.248	51.831	−35.728	1.037
	1900.00	37.389	340.625	309.177	214.978	59.752	−432.210	50.484	−40.556	1.115
	2000.00	37.390	342.543	310.798	218.716	63.490	−466.369	49.128	−45.312	1.183

References

Phase	H / S	C_p
GAS	Mi1	Mi1

PbWO4 LEAD TUNGSTATE 455.048

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	119.870	168.197	168.197	−1121.730	0.000	−1171.878	−1121.730	−1020.495	178.787
	300.00	120.206	168.939	168.199	−1121.508	0.222	−1172.190	−1121.711	−1019.867	177.575
	400.00	133.020	205.480	173.094	−1108.776	12.954	−1190.968	−1120.117	−986.132	128.776
	500.00	140.510	236.024	182.711	−1095.074	26.656	−1213.086	−1117.861	−952.889	99.548
	600.00	145.905	262.139	193.826	−1080.742	40.988	−1238.025	−1115.302	−920.131	80.105
	700.00	150.311	284.971	205.249	−1065.925	55.805	−1265.405	−1117.415	−887.020	66.190
	800.00	154.189	305.299	216.508	−1050.697	71.033	−1294.936	−1114.523	−854.301	55.780
	900.00	157.760	323.669	227.410	−1035.097	86.633	−1326.399	−1111.409	−821.958	47.705
	1000.00	161.141	340.467	237.888	−1019.151	102.579	−1359.618	−1108.075	−789.973	41.264
	1100.00	164.398	355.979	247.927	−1002.873	118.857	−1394.450	−1104.518	−758.333	36.010
	1200.00	167.570	370.420	257.540	−986.274	135.456	−1430.778	−1100.733	−727.027	31.647
	1300.00	170.682	383.956	266.749	−969.361	152.369	−1468.504	−1096.729	−696.046	27.967
	1398.00	173.690	396.469	275.408	−952.487	169.243	−1506.750	−1092.599	−665.991	24.884

References

Phase	H / S	C_p	Remarks	
SOL	Tk1	Nb1,e	Tk1	TPT= 1150. / MPT= 1398.

106.420 PALLADIUM **Pd**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	25.982	37.823	37.823	0.000	0.000	−11.277	0.000	0.000	0.000
	300.00	25.996	37.984	37.824	0.048	0.048	−11.347	0.000	0.000	0.000
	400.00	26.735	45.564	38.852	2.685	2.685	−15.541	0.000	0.000	0.000
	500.00	27.238	51.580	40.817	5.382	5.382	−20.408	0.000	0.000	0.000
	600.00	27.771	56.593	43.040	8.132	8.132	−25.824	0.000	0.000	0.000
	700.00	28.304	60.914	45.292	10.936	10.936	−31.704	0.000	0.000	0.000
	800.00	28.837	64.729	47.487	13.793	13.793	−37.990	0.000	0.000	0.000
	900.00	29.370	68.156	49.597	16.703	16.703	−44.637	0.000	0.000	0.000
	1000.00	29.903	71.278	51.611	19.667	19.667	−51.611	0.000	0.000	0.000
	1100.00	30.436	74.153	53.531	22.684	22.684	−58.884	0.000	0.000	0.000
	1200.00	30.969	76.824	55.362	25.754	25.754	−66.435	0.000	0.000	0.000
	1300.00	31.502	79.324	57.110	28.878	28.878	−74.243	0.000	0.000	0.000
	1400.00	32.035	81.678	58.782	32.055	32.055	−82.295	0.000	0.000	0.000
	1500.00	32.643	83.909	60.383	35.288	35.288	−90.575	0.000	0.000	0.000
	1600.00	33.397	86.039	61.921	38.589	38.589	−99.073	0.000	0.000	0.000
	1700.00	34.281	88.089	63.400	41.972	41.972	−107.780	0.000	0.000	0.000
	1800.00	35.268	90.076	64.827	45.449	45.449	−116.689	0.000	0.000	0.000
	1825.00	35.528	90.565	65.176	46.334	46.334	−118.947	0.000	0.000	0.000
			9.622		17.560					
LIQ	1825.00	34.727	100.186	65.176	63.894	63.894	−118.947	0.000	0.000	0.000
	1900.00	34.727	101.585	66.586	66.498	66.498	−126.513	0.000	0.000	0.000
	2000.00	34.727	103.366	68.381	69.971	69.971	−136.762	0.000	0.000	0.000
	2100.00	34.727	105.061	70.088	73.443	73.443	−147.184	0.000	0.000	0.000
	2200.00	34.727	106.676	71.714	76.916	76.916	−157.771	0.000	0.000	0.000
	2300.00	34.727	108.220	73.268	80.389	80.389	−168.517	0.000	0.000	0.000
	2400.00	34.727	109.698	74.755	83.862	83.862	−179.413	0.000	0.000	0.000
	2500.00	34.727	111.115	76.182	87.334	87.334	−190.454	0.000	0.000	0.000
	2600.00	34.727	112.477	77.552	90.807	90.807	−201.634	0.000	0.000	0.000
	2700.00	34.727	113.788	78.870	94.280	94.280	−212.948	0.000	0.000	0.000
	2800.00	34.727	115.051	80.139	97.753	97.753	−224.390	0.000	0.000	0.000
	2900.00	34.727	116.270	81.364	101.225	101.225	−235.957	0.000	0.000	0.000
	3000.00	34.727	117.447	82.548	104.698	104.698	−247.643	0.000	0.000	0.000
	3100.00	34.727	118.586	83.692	108.171	108.171	−259.445	0.000	0.000	0.000
	3200.00	34.727	119.688	84.800	111.643	111.643	−271.359	0.000	0.000	0.000
	3234.00	34.727	120.055	85.168	112.824	112.824	−275.434	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL	Hu1	Hu1		
LIQ	Hu1	Hu1	Hu1	BPT= 3234., L= 357.55 kJ

Pd[g] PALLADIUM (GAS) 106.420

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.786	167.059	167.059	376.560	0.000	326.751	376.560	338.028	−59.221
	300.00	20.786	167.188	167.060	376.598	0.038	326.442	376.550	337.789	−58.814
	400.00	20.786	173.168	167.875	378.677	2.117	309.410	375.992	324.951	−42.434
	500.00	20.786	177.806	169.415	380.756	4.196	291.853	375.374	312.261	−32.622
	600.00	20.757	181.587	171.138	382.829	6.269	273.877	374.697	299.701	−26.091
	700.00	20.837	184.794	172.865	384.910	8.350	255.554	373.974	287.258	−21.435
	800.00	20.876	187.579	174.534	386.995	10.435	236.933	373.202	274.922	−17.951
	900.00	20.976	190.042	176.123	389.087	12.527	218.049	372.384	262.686	−15.246
	1000.00	21.241	192.264	177.628	391.196	14.636	198.932	371.529	250.543	−13.087
	1100.00	21.741	194.310	179.053	393.343	16.783	179.602	370.659	238.486	−11.325
	1200.00	22.512	196.233	180.405	395.553	18.993	160.074	369.799	226.509	−9.860
	1300.00	23.560	198.074	181.694	397.855	21.295	140.358	368.977	214.602	−8.623
	1400.00	24.874	199.866	182.928	400.274	23.714	120.461	368.220	202.756	−7.565
	1500.00	26.429	201.634	184.116	402.837	26.277	100.386	367.549	190.961	−6.650
	1600.00	28.191	203.395	185.266	405.567	29.007	80.134	366.978	179.207	−5.851
	1700.00	30.119	205.161	186.384	408.481	31.921	59.707	366.509	167.487	−5.146
	1800.00	32.165	206.940	187.477	411.595	35.035	39.102	366.146	155.790	−4.521
	1900.00	34.148	208.733	188.548	414.911	38.351	18.318	348.413	144.832	−3.982
	2000.00	36.097	210.535	189.603	418.424	41.864	−2.645	348.453	134.117	−3.503
	2100.00	37.918	212.341	190.642	422.126	45.566	−23.789	348.683	123.395	−3.069
	2200.00	39.526	214.143	191.670	426.001	49.441	−45.113	349.084	112.658	−2.675
	2300.00	40.883	215.931	192.686	430.023	53.463	−66.617	349.634	101.900	−2.314
	2400.00	41.974	217.695	193.691	434.168	57.608	−88.299	350.307	91.115	−1.983
	2500.00	42.803	219.426	194.686	438.409	61.849	−110.155	351.075	80.299	−1.678
	2600.00	43.383	221.117	195.670	442.721	66.161	−132.182	351.914	69.452	−1.395
	2700.00	43.731	222.761	196.643	447.078	70.518	−154.377	352.798	58.571	−1.133
	2800.00	43.869	224.355	197.605	451.460	74.900	−176.733	353.707	47.658	−0.889
	2900.00	43.819	225.894	198.554	455.846	79.286	−199.246	354.621	36.711	−0.661
	3000.00	43.601	227.376	199.490	460.218	83.658	−221.910	355.520	25.733	−0.448
	3100.00	43.236	228.800	200.413	464.561	88.001	−244.719	356.390	14.726	−0.248
	3200.00	42.746	230.165	201.321	468.861	92.301	−267.668	357.218	3.691	−0.060
	3300.00	42.148	231.472	202.215	473.107	96.547	−290.750	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

177.325 PALLADIUM CHLORIDE **PdCl2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	75.273	104.182	104.182	−198.698	0.000	−229.760	−198.698	−151.960	26.623
	300.00	75.312	104.647	104.183	−198.559	0.139	−229.953	−198.670	−151.671	26.408
	400.00	77.404	126.600	107.162	−190.923	7.775	−241.563	−197.137	−136.235	17.790
	500.00	79.496	144.097	112.857	−183.078	15.620	−255.126	−195.561	−121.190	12.661
	600.00	81.588	158.775	119.318	−175.024	23.674	−270.289	−193.892	−106.471	9.269
	700.00	83.680	171.509	125.884	−166.760	31.938	−286.817	−192.109	−92.040	6.868
	800.00	85.772	182.820	132.307	−158.288	40.410	−304.544	−190.199	−77.874	5.085
	900.00	87.864	193.043	138.496	−149.606	49.092	−323.345	−188.153	−63.954	3.712
	952.00	88.952	198.009	141.612	−145.009	53.689	−333.513	−187.034	−56.810	3.117
			19.338		18.410					
LIQ	952.00	94.140	217.347	141.612	−126.599	72.099	−333.513	−168.624	−56.810	3.117
	1000.00	94.140	221.978	145.360	−122.080	76.618	−344.058	−167.332	−51.205	2.675
	1100.00	94.140	230.950	152.739	−112.666	86.032	−366.711	−164.689	−39.720	1.886
	1200.00	94.140	239.142	159.603	−103.252	95.446	−390.222	−162.109	−28.474	1.239
	1300.00	94.140	246.677	166.015	−93.838	104.860	−414.518	−159.591	−17.440	0.701
	1400.00	94.140	253.653	172.029	−84.424	114.274	−439.539	−157.135	−6.598	0.246
	1500.00	94.140	260.148	177.690	−75.010	123.688	−465.232	−154.744	4.071	−0.142
	1600.00	94.140	266.224	183.035	−65.596	133.102	−491.554	−152.426	14.582	−0.476

References

Phase	H / S	C_p
SOL	Nb1/Be1,e	e
LIQ	Be1	e

144.417 PALLADIUM FLUORIDE **PdF2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	65.944	88.701	88.701	−468.608	0.000	−495.054	−468.608	−423.314	74.163
	300.00	65.982	89.109	88.702	−468.486	0.122	−495.219	−468.592	−423.033	73.657
	400.00	68.032	108.371	91.315	−461.785	6.823	−505.134	−467.741	−407.975	53.276
	500.00	70.082	123.772	96.316	−454.880	13.728	−516.766	−466.896	−393.131	41.070
	600.00	72.132	136.731	101.999	−447.769	20.839	−529.808	−466.009	−378.461	32.948
	700.00	74.182	148.004	107.783	−440.453	28.155	−544.056	−465.047	−363.944	27.158
	800.00	76.232	158.044	113.449	−432.932	35.676	−559.367	−463.989	−349.572	22.825
	900.00	78.283	167.141	118.917	−425.207	43.401	−575.634	−462.822	−335.339	19.463
	1000.00	80.333	175.495	124.163	−417.276	51.332	−592.771	−461.535	−321.242	16.780
	1100.00	82.383	183.248	129.186	−409.140	59.468	−610.713	−460.122	−307.280	14.591

References

Phase	H / S	C_p
SOL	Ku1/e	e

PdI2 PALLADIUM IODIDE 360.229

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL−A	298.15	75.060	179.996	179.996	−63.220	0.000	−116.886	−63.220	−70.981	12.436
	300.00	75.103	180.460	179.997	−63.081	0.139	−117.219	−63.230	−71.029	12.367
	400.00	77.404	202.381	182.970	−55.456	7.764	−136.408	−79.880	−72.981	9.530
	500.00	79.705	219.900	188.661	−47.600	15.620	−157.551	−122.915	−67.118	7.012
	600.00	82.006	234.636	195.127	−39.515	23.705	−180.296	−121.331	−56.105	4.884
	700.00	84.308	247.450	201.706	−31.199	32.021	−204.414	−119.582	−45.370	3.386
	800.00	86.609	258.858	208.149	−22.653	40.567	−229.740	−117.665	−34.897	2.279
	833.00	87.368	262.374	210.228	−19.783	43.437	−238.340	−116.996	−31.496	1.975
			0.000		0.000					
SOL−B	833.00	87.368	262.374	210.228	−19.783	43.437	−238.340	−116.996	−31.496	1.975
	900.00	88.910	269.192	214.367	−13.877	49.343	−256.150	−115.580	−24.674	1.432

References

Phase	H / S	C_p
SOL−A	Nb1	e
SOL−B	u	e

PdO PALLADIUM OXIDE 122.419

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	31.381	38.911	38.911	−115.478	0.000	−127.079	−115.478	−85.220	14.930
	300.00	31.445	39.106	38.912	−115.420	0.058	−127.152	−115.495	−85.032	14.805
	400.00	34.911	48.626	40.187	−112.102	3.376	−131.553	−116.299	−74.750	9.761
	500.00	38.378	56.789	42.708	−108.438	7.040	−136.832	−116.862	−64.293	6.717
	600.00	41.844	64.092	45.673	−104.427	11.051	−142.882	−117.181	−53.745	4.679
	700.00	45.311	70.803	48.790	−100.069	15.409	−149.631	−117.254	−43.163	3.221
	800.00	48.777	77.080	51.938	−95.364	20.114	−157.028	−117.075	−32.588	2.128
	900.00	52.244	83.025	55.064	−90.313	25.165	−165.036	−116.637	−22.051	1.280
	1000.00	55.710	88.709	58.147	−84.916	30.562	−173.625	−115.934	−11.576	0.605
	1100.00	59.176	94.181	61.175	−79.171	36.307	−182.771	−114.961	−1.185	0.056
	1200.00	62.643	99.479	64.147	−73.080	42.398	−192.455	−113.715	9.105	−0.396

References

Phase	H / S	C_p
SOL	Tk1,Be5	Be5,e

138.486 PALLADIUM SULFIDE **PdS**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	43.406	56.484	56.484	−70.710	0.000	−87.551	−70.710	−66.716	11.688
	300.00	43.480	56.753	56.485	−70.630	0.080	−87.655	−70.720	−66.691	11.612
	400.00	46.684	69.730	58.233	−66.111	4.599	−94.003	−73.419	−65.185	8.512
	500.00	49.091	80.415	61.631	−61.318	9.392	−101.526	−75.226	−62.936	6.575
	600.00	51.184	89.553	65.541	−56.303	14.407	−110.035	−76.537	−60.344	5.253
	700.00	53.129	97.591	69.557	−51.086	19.624	−119.400	−77.433	−57.572	4.296
	800.00	54.994	104.807	73.520	−45.680	25.030	−129.526	−78.244	−54.679	3.570
	900.00	56.814	111.390	77.367	−40.089	30.621	−140.340	−131.770	−50.535	2.933
	1000.00	58.605	117.469	81.077	−34.318	36.392	−151.787	−130.797	−41.560	2.171
	1100.00	60.378	123.138	84.646	−28.369	42.341	−163.820	−129.707	−32.688	1.552
	1200.00	62.138	128.467	88.078	−22.243	48.467	−176.403	−128.500	−23.921	1.041
	1243.00	62.892	130.668	89.513	−19.555	51.155	−181.975	−127.945	−20.183	0.848

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1	Tk1	MPT= 1243.

170.552 PALLADIUM DISULFIDE **PdS2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	65.889	87.864	87.864	−78.241	0.000	−104.438	−78.241	−74.046	12.972
	300.00	66.009	88.272	87.865	−78.119	0.122	−104.601	−78.251	−74.020	12.888
	400.00	70.780	107.981	90.520	−71.257	6.984	−114.449	−83.188	−72.353	9.448
	500.00	73.835	124.121	95.675	−64.018	14.223	−126.078	−86.451	−69.308	7.241
	600.00	76.215	137.800	101.584	−56.512	21.729	−139.192	−88.847	−65.635	5.714
	700.00	78.277	149.706	107.627	−48.785	29.456	−153.580	−90.543	−61.628	4.599
	800.00	80.168	160.284	113.560	−40.862	37.379	−169.089	−92.197	−57.386	3.747
	900.00	81.961	169.830	119.290	−32.755	45.486	−185.602	−199.413	−50.629	2.938
	1000.00	83.693	178.556	124.787	−24.472	53.769	−203.028	−197.764	−34.185	1.786
	1100.00	85.384	186.612	130.046	−16.018	62.223	−221.291	−196.011	−17.911	0.851
	1200.00	87.048	194.113	135.075	−7.396	70.845	−240.332	−194.157	−1.801	0.078
	1245.00	87.790	197.331	137.268	−3.462	74.779	−249.139	−193.289	5.396	−0.226

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1	Mi1	MPT= 1245.

Pd4S — TETRAPALLADIUM SULFIDE — 457.746

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	114.961	180.665	180.665	−69.036	0.000	−122.901	−69.036	−68.236	11.955
	300.00	115.052	181.377	180.667	−68.823	0.213	−123.236	−69.058	−68.231	11.880
	400.00	119.930	215.143	185.238	−57.074	11.962	−143.131	−72.436	−67.690	8.839
	500.00	124.809	242.429	194.031	−44.837	24.199	−166.052	−74.890	−66.237	6.920
	600.00	129.687	265.615	204.076	−32.112	36.924	−191.482	−76.743	−64.320	5.600
	700.00	134.566	285.973	214.350	−18.900	50.136	−219.081	−78.055	−62.141	4.637
	800.00	139.444	304.260	224.464	−5.199	63.837	−248.607	−79.142	−59.792	3.904
	900.00	144.323	320.966	234.271	8.989	78.025	−279.880	−132.802	−56.165	3.260
	1000.00	149.201	336.424	243.723	23.665	92.701	−312.759	−131.815	−47.700	2.492
	1100.00	154.080	350.874	252.814	38.829	107.865	−347.132	−130.561	−39.347	1.868

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1	Tk1	DPT= 1034. (LIQ + Pd)

PdTe — PALLADIUM TELLURIDE — 234.020

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	51.301	89.621	89.621	−37.656	0.000	−64.377	−37.656	−38.342	6.717
	300.00	51.325	89.939	89.622	−37.561	0.095	−64.543	−37.657	−38.346	6.677
	400.00	52.618	104.881	91.651	−32.364	5.292	−74.316	−37.781	−38.562	5.036
	500.00	53.911	116.761	95.524	−27.037	10.619	−85.418	−38.058	−38.728	4.046
	600.00	55.204	126.705	99.914	−21.582	16.074	−97.605	−38.480	−38.825	3.380
	700.00	56.497	135.312	104.370	−15.997	21.659	−110.715	−39.047	−38.840	2.898
	800.00	57.789	142.940	108.723	−10.282	27.374	−124.634	−57.380	−36.883	2.408
	900.00	59.082	149.821	112.913	−4.439	33.217	−139.278	−58.213	−34.270	1.989
	993.00	60.285	155.689	116.648	1.112	38.768	−153.488	−58.919	−31.760	1.671

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1	Tk1	MPT= 993.

140.908 **PRASEODYMIUM** **Pr**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)		] [		kJ / mol			] [−]
SOL−A	298.15	27.475	73.931	73.931	0.000	0.000	−22.043	0.000	0.000	0.000
	300.00	27.478	74.101	73.932	0.051	0.051	−22.180	0.000	0.000	0.000
	400.00	28.300	82.093	75.016	2.831	2.831	−30.006	0.000	0.000	0.000
	500.00	29.791	88.561	77.097	5.732	5.732	−38.548	0.000	0.000	0.000
	600.00	31.546	94.145	79.482	8.798	8.798	−47.689	0.000	0.000	0.000
	700.00	33.424	99.148	81.940	12.045	12.045	−57.358	0.000	0.000	0.000
	800.00	35.659	103.752	84.382	15.496	15.496	−67.506	0.000	0.000	0.000
	900.00	37.969	108.085	86.777	19.177	19.177	−78.100	0.000	0.000	0.000
	1000.00	40.279	112.205	89.116	23.090	23.090	−89.116	0.000	0.000	0.000
	1068.00	41.850	114.906	90.672	25.882	25.882	−96.838	0.000	0.000	0.000
			2.965		3.167					
SOL−B	1068.00	38.451	117.872	90.672	29.049	29.049	−96.838	0.000	0.000	0.000
	1100.00	38.451	119.007	91.480	30.280	30.280	−100.628	0.000	0.000	0.000
	1200.00	38.451	122.353	93.915	34.125	34.125	−112.698	0.000	0.000	0.000
	1204.00	38.451	122.481	94.010	34.278	34.278	−113.188	0.000	0.000	0.000
			5.720		6.887					
LIQ	1204.00	42.970	128.201	94.010	41.165	41.165	−113.188	0.000	0.000	0.000
	1300.00	42.970	131.497	96.658	45.291	45.291	−125.656	0.000	0.000	0.000
	1400.00	42.970	134.681	99.262	49.588	49.588	−138.967	0.000	0.000	0.000
	1500.00	42.970	137.646	101.723	53.884	53.884	−152.585	0.000	0.000	0.000
	1600.00	42.970	140.419	104.056	58.181	58.181	−166.489	0.000	0.000	0.000
	1700.00	42.970	143.024	106.272	62.478	62.478	−180.663	0.000	0.000	0.000
	1800.00	42.970	145.480	108.383	66.775	66.775	−195.089	0.000	0.000	0.000
	1900.00	42.970	147.804	110.397	71.072	71.072	−209.754	0.000	0.000	0.000
	2000.00	42.970	150.008	112.323	75.369	75.369	−224.646	0.000	0.000	0.000
	2100.00	42.970	152.104	114.168	79.666	79.666	−239.752	0.000	0.000	0.000
	2200.00	42.970	154.103	115.938	83.963	83.963	−255.064	0.000	0.000	0.000
	2300.00	42.970	156.013	117.639	88.260	88.260	−270.570	0.000	0.000	0.000
	2400.00	42.970	157.842	119.276	92.557	92.557	−286.263	0.000	0.000	0.000
	2500.00	42.970	159.596	120.854	96.854	96.854	−302.136	0.000	0.000	0.000
	2600.00	42.970	161.281	122.377	101.151	101.151	−318.180	0.000	0.000	0.000
	2700.00	42.970	162.903	123.848	105.448	105.448	−334.390	0.000	0.000	0.000
	2800.00	42.970	164.466	125.271	109.745	109.745	−350.759	0.000	0.000	0.000
	2900.00	42.970	165.974	126.649	114.042	114.042	−367.281	0.000	0.000	0.000
	3000.00	42.970	167.430	127.984	118.339	118.339	−383.952	0.000	0.000	0.000
	3100.00	42.970	168.839	129.279	122.636	122.636	−400.766	0.000	0.000	0.000
	3200.00	42.970	170.204	130.537	126.933	126.933	−417.718	0.000	0.000	0.000
	3300.00	42.970	171.526	131.759	131.230	131.230	−434.805	0.000	0.000	0.000
	3400.00	42.970	172.809	132.948	135.527	135.527	−452.022	0.000	0.000	0.000
	3500.00	42.970	174.054	134.104	139.824	139.824	−469.366	0.000	0.000	0.000
	3600.00	42.970	175.265	135.231	144.121	144.121	−486.832	0.000	0.000	0.000
	3700.00	42.970	176.442	136.329	148.418	148.418	−504.418	0.000	0.000	0.000
	3780.00	42.970	177.361	137.188	151.855	151.855	−518.570	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL − A	Hu1	Hu1		double hcp
SOL − B	Hu1	Hu1		bcc
LIQ	Hu1	Hu1	Hu1	BPT = 3780., L = 296.78 kJ

Pr[g] PRASEODYMIUM (GAS) 140.908

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	21.379	189.808	189.808	355.640	0.000	299.049	355.640	321.091	−56.254
	300.00	21.388	189.940	189.808	355.680	0.040	298.698	355.629	320.877	−55.870
	400.00	22.527	196.229	190.658	357.868	2.228	279.377	355.038	309.383	−40.401
	500.00	23.896	201.405	192.304	360.191	4.551	259.488	354.458	298.036	−31.136
	600.00	25.079	205.869	194.201	362.641	7.001	239.119	353.843	286.809	−24.969
	700.00	26.051	209.811	196.155	365.199	9.559	218.332	353.154	275.690	−20.572
	800.00	26.831	213.343	198.086	367.845	12.205	197.171	352.349	264.676	−17.282
	900.00	27.439	216.540	199.962	370.560	14.920	175.674	351.383	253.774	−14.729
	1000.00	27.891	219.455	201.768	373.328	17.688	153.872	350.238	242.988	−12.692
	1100.00	28.195	222.129	203.499	376.133	20.493	131.791	345.854	232.419	−11.037
	1200.00	28.360	224.590	205.155	378.962	23.322	109.454	344.837	222.152	−9.670
	1300.00	28.389	226.862	206.739	381.801	26.161	86.879	336.510	212.535	−8.540
	1400.00	28.392	228.967	208.252	384.640	29.000	64.087	335.053	203.053	−7.576
	1500.00	28.315	230.924	209.699	387.476	31.836	41.091	333.592	193.675	−6.744
	1600.00	28.196	232.747	211.084	390.302	34.662	17.906	332.121	184.396	−6.020
	1700.00	28.055	234.453	212.409	393.115	37.475	−5.455	330.636	175.208	−5.383
	1800.00	27.905	236.052	213.678	395.913	40.273	−28.981	329.137	166.109	−4.820
	1900.00	27.753	237.557	214.896	398.696	43.056	−52.662	327.623	157.093	−4.319
	2000.00	27.604	238.976	216.065	401.463	45.823	−76.489	326.094	148.157	−3.869
	2100.00	27.461	240.320	217.188	404.217	48.577	−100.455	324.550	139.298	−3.465
	2200.00	27.323	241.594	218.269	406.956	51.316	−124.551	322.993	130.513	−3.099
	2300.00	27.192	242.806	219.309	409.681	54.041	−148.771	321.421	121.799	−2.766
	2400.00	27.067	243.960	220.313	412.394	56.754	−173.110	319.837	113.153	−2.463
	2500.00	26.949	245.063	221.281	415.095	59.455	−197.562	318.241	104.574	−2.185
	2600.00	26.836	246.117	222.216	417.784	62.144	−222.121	316.633	96.059	−1.930
	2700.00	26.729	247.128	223.120	420.462	64.822	−246.784	315.014	87.607	−1.695
	2800.00	26.627	248.098	223.995	423.130	67.490	−271.545	313.385	79.214	−1.478
	2900.00	26.529	249.031	224.842	425.788	70.148	−296.402	311.746	70.879	−1.277
	3000.00	26.435	249.929	225.663	428.436	72.796	−321.350	310.097	62.602	−1.090
	3100.00	26.344	250.794	226.460	431.075	75.435	−346.387	308.439	54.379	−0.916
	3200.00	26.257	251.629	227.234	433.705	78.065	−371.508	306.772	46.210	−0.754
	3300.00	26.172	252.436	227.985	436.326	80.686	−396.712	305.097	38.094	−0.603
	3400.00	26.090	253.216	228.716	438.939	83.299	−421.994	303.413	30.028	−0.461
	3500.00	26.009	253.971	229.427	441.544	85.904	−447.354	301.721	22.012	−0.329
	3600.00	25.930	254.703	230.119	444.141	88.501	−472.788	300.021	14.044	−0.204
	3700.00	25.853	255.412	230.793	446.731	91.091	−498.294	298.313	6.124	−0.086
	3800.00	25.777	256.100	231.450	449.312	93.672	−523.869	0.000	0.000	0.000
	3900.00	25.702	256.769	232.091	451.886	96.246	−549.513	0.000	0.000	0.000
	4000.00	25.627	257.419	232.716	454.452	98.812	−575.223	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

380.620 PRASEODYMIUM BROMIDE **PrBr3**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	101.679	192.464	192.464	−891.192	0.000	−948.575	−891.192	−858.461	150.399
	300.00	101.787	193.093	192.466	−891.004	0.188	−948.932	−891.265	−858.257	149.436
	400.00	106.612	223.077	196.521	−880.570	10.622	−969.801	−935.334	−838.069	109.441
	500.00	110.390	247.283	204.329	−869.715	21.477	−993.357	−932.918	−814.029	85.041
	600.00	113.756	267.711	213.234	−858.505	32.687	−1019.132	−930.352	−790.490	68.818
	700.00	116.927	285.487	222.313	−846.970	44.222	−1046.811	−927.667	−767.390	57.263
	800.00	119.995	301.301	231.216	−835.123	56.069	−1076.164	−924.892	−744.682	48.623
	900.00	123.003	315.609	239.810	−822.973	68.219	−1107.021	−922.060	−722.326	41.923
	966.00	124.966	324.382	245.291	−814.790	76.402	−1128.143	−920.160	−707.746	38.270
			48.943		47.279					
LIQ	966.00	146.440	373.326	245.291	−767.511	123.681	−1128.143	−872.881	−707.746	38.270
	1000.00	146.440	378.391	249.731	−762.532	128.660	−1140.923	−871.180	−701.964	36.667
	1100.00	146.440	392.348	262.072	−747.888	143.304	−1179.471	−869.385	−685.185	32.537
	1200.00	146.440	405.090	273.467	−733.244	157.948	−1219.352	−864.255	−668.667	29.106
	1300.00	146.440	416.812	284.049	−718.600	172.592	−1260.455	−866.456	−652.009	26.198

References

Phase	H / S	C_p
SOL	Pa2	Pa2
LIQ	Pa2	Pa2

PrBr3[g] PRASEODYMIUM BROMIDE (GAS) 380.620

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	80.043	401.154	401.154	-594.546	0.000	-714.150	-594.546	-624.036	109.328
	300.00	80.088	401.649	401.156	-594.398	0.148	-714.893	-594.659	-624.218	108.686
	400.00	81.612	424.926	404.319	-586.303	8.243	-756.274	-641.067	-624.542	81.557
	500.00	82.714	443.256	410.338	-578.087	16.459	-799.715	-641.290	-620.387	64.811
	600.00	83.827	458.435	417.124	-569.760	24.786	-844.821	-641.606	-616.178	53.643
	700.00	84.928	471.440	423.977	-561.322	33.224	-891.330	-642.019	-611.909	45.661
	800.00	85.967	482.849	430.637	-552.776	41.770	-939.056	-642.545	-607.574	39.670
	900.00	86.908	493.030	437.014	-544.132	50.414	-987.859	-643.218	-603.163	35.007
	1000.00	87.734	502.230	443.083	-535.399	59.147	-1037.629	-644.046	-598.670	31.271
	1100.00	88.438	510.626	448.847	-526.589	67.957	-1088.278	-648.086	-593.992	28.206
	1200.00	89.018	518.347	454.322	-517.715	76.831	-1139.732	-648.726	-589.046	25.641
	1300.00	89.479	525.492	459.525	-508.789	85.757	-1191.928	-656.645	-583.482	23.445
	1400.00	89.827	532.136	464.477	-499.823	94.723	-1244.814	-657.663	-577.816	21.559
	1500.00	90.071	538.342	469.197	-490.827	103.719	-1298.341	-658.660	-572.078	19.922
	1600.00	90.220	544.161	473.702	-481.812	112.734	-1352.469	-659.645	-566.274	18.487
	1700.00	90.285	549.633	478.009	-472.786	121.760	-1407.161	-660.628	-560.408	17.219
	1800.00	90.277	554.793	482.133	-463.757	130.789	-1462.385	-661.615	-554.484	16.091
	1900.00	90.208	559.673	486.087	-454.733	139.813	-1518.111	-662.615	-548.505	15.079
	2000.00	90.090	564.297	489.883	-445.717	148.829	-1574.311	-663.631	-542.473	14.168

References

Phase	H / S	C_p
GAS	Pa2	Pa2

247.266 PRASEODYMIUM CHLORIDE **PrCl3**

Phase	T [K]	C_p [J / (K mol)]	S [J / (K mol)]	−(G−H298)/T [J / (K mol)]	H [kJ / mol]	H−H298 [kJ / mol]	G [kJ / mol]	ΔH_f [kJ / mol]	ΔG_f [kJ / mol]	log K_f [−]
SOL	298.15	98.970	153.302	153.302	−1056.899	0.000	−1102.606	−1056.899	−980.780	171.829
	300.00	99.138	153.915	153.304	−1056.716	0.183	−1102.890	−1056.861	−980.308	170.687
	400.00	105.494	183.381	157.279	−1046.458	10.441	−1119.811	−1054.584	−955.124	124.726
	500.00	110.731	207.489	164.980	−1035.645	21.254	−1139.389	−1052.028	−930.549	97.214
	600.00	115.560	228.113	173.823	−1024.325	32.574	−1161.193	−1049.227	−906.513	78.919
	700.00	119.825	246.253	182.900	−1012.552	44.347	−1184.929	−1046.217	−882.962	65.887
	800.00	123.732	262.510	191.853	−1000.373	56.526	−1210.381	−1043.046	−859.855	56.143
	900.00	127.780	277.313	200.538	−987.801	69.098	−1237.383	−1039.744	−837.153	48.587
	1000.00	132.641	291.017	208.908	−974.790	82.109	−1265.807	−1036.257	−814.828	42.562
	1059.00	136.199	298.719	213.698	−966.862	90.037	−1283.206	−1034.066	−801.826	39.550
			47.805		50.626					
LIQ	1059.00	133.888	346.525	213.698	−916.236	140.663	−1283.206	−983.440	−801.826	39.550
	1100.00	133.888	351.610	218.745	−910.747	146.152	−1297.518	−985.034	−794.730	37.739
	1200.00	133.888	363.260	230.309	−897.358	159.541	−1333.270	−981.137	−777.602	33.848
	1300.00	133.888	373.977	240.954	−883.969	172.930	−1370.139	−984.573	−760.232	30.546
	1400.00	133.888	383.899	250.814	−870.580	186.319	−1408.039	−981.153	−743.103	27.726
	1500.00	133.888	393.136	259.998	−857.191	199.708	−1446.896	−977.744	−726.219	25.289

References

Phase	H / S	C_p
SOL	Nb1/Pa2	Pa2
LIQ	Dw1	Dw1

PrCl3[g] PRASEODYMIUM CHLORIDE (GAS) 247.266

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	78.370	373.962	373.962	−731.363	0.000	−842.860	−731.363	−721.034	126.322
	300.00	78.432	374.447	373.964	−731.218	0.145	−843.552	−731.363	−720.970	125.532
	400.00	80.603	397.347	377.072	−723.253	8.110	−882.192	−731.379	−717.505	93.697
	500.00	82.042	415.492	383.003	−715.119	16.244	−922.865	−731.502	−714.025	74.594
	600.00	83.351	430.567	389.709	−706.848	24.515	−965.188	−731.750	−710.508	61.855
	700.00	84.574	443.509	396.492	−698.451	32.912	−1008.907	−732.116	−706.941	52.753
	800.00	85.693	454.876	403.094	−689.937	41.426	−1053.838	−732.610	−703.312	45.922
	900.00	86.691	465.028	409.421	−681.317	50.046	−1099.842	−733.260	−699.613	40.604
	1000.00	87.558	474.208	415.448	−672.603	58.760	−1146.811	−734.070	−695.832	36.347
	1100.00	88.292	482.589	421.176	−663.810	67.553	−1194.657	−738.097	−691.869	32.854
	1200.00	88.895	490.298	426.620	−654.949	76.414	−1243.307	−738.728	−687.638	29.932
	1300.00	89.374	497.433	431.796	−646.035	85.328	−1292.698	−746.639	−682.791	27.435
	1400.00	89.737	504.070	436.724	−637.078	94.285	−1342.777	−747.651	−677.841	25.291
	1500.00	89.992	510.271	441.423	−628.091	103.272	−1393.497	−748.644	−672.820	23.430
	1600.00	90.150	516.084	445.909	−619.083	112.280	−1444.818	−749.627	−667.733	21.799
	1700.00	90.223	521.552	450.200	−610.064	121.299	−1496.702	−750.609	−662.585	20.359
	1800.00	90.222	526.710	454.308	−601.041	130.322	−1549.118	−751.599	−657.378	19.077
	1900.00	90.158	531.586	458.248	−592.021	139.342	−1602.035	−752.602	−652.116	17.928
	2000.00	90.045	536.208	462.032	−583.011	148.352	−1655.427	−753.626	−646.801	16.893

References

Phase	H / S	C_p
GAS	Pa2	Pa2

197.903 PRASEODYMIUM FLUORIDE **PrF3**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	92.634	121.211	121.211	−1689.081	0.000	−1725.220	−1689.081	−1612.482	282.500
	300.00	92.785	121.784	121.212	−1688.909	0.172	−1725.445	−1689.047	−1612.007	280.675
	400.00	99.650	149.472	124.941	−1679.269	9.812	−1739.057	−1687.007	−1586.625	207.192
	500.00	104.684	172.276	132.193	−1669.040	20.041	−1755.178	−1684.724	−1561.790	163.159
	600.00	108.438	191.711	140.533	−1658.374	30.707	−1773.401	−1682.333	−1537.427	133.845
	700.00	111.209	208.646	149.080	−1647.385	41.696	−1793.437	−1679.917	−1513.467	112.936
	800.00	113.219	223.635	157.481	−1636.158	52.923	−1815.065	−1677.549	−1489.851	97.277
	900.00	114.668	237.058	165.590	−1624.760	64.321	−1838.112	−1675.304	−1466.525	85.115
	1000.00	115.741	249.198	173.353	−1613.237	75.844	−1862.434	−1673.214	−1443.441	75.398
	1100.00	116.621	260.271	180.759	−1601.618	87.463	−1887.916	−1674.345	−1420.465	67.452
	1200.00	117.486	270.455	187.815	−1589.913	99.168	−1914.459	−1672.078	−1397.485	60.831
	1300.00	118.513	279.898	194.539	−1578.115	110.966	−1941.982	−1677.066	−1374.130	55.213
	1400.00	119.880	288.728	200.955	−1566.199	122.882	−1970.418	−1675.091	−1350.900	50.403
	1500.00	121.762	297.059	207.087	−1554.122	134.959	−1999.711	−1672.976	−1327.817	46.239
	1600.00	124.335	304.996	212.960	−1541.824	147.257	−2029.817	−1670.659	−1304.880	42.600
	1672.00	126.713	310.519	217.043	−1532.789	156.292	−2051.976	−1668.822	−1288.461	40.253
			34.283		57.321					
LIQ	1672.00	130.750	344.802	217.043	−1475.468	213.613	−2051.976	−1611.501	−1288.461	40.253
	1700.00	130.750	346.973	219.165	−1471.807	217.274	−2061.661	−1610.642	−1283.058	39.424
	1800.00	130.750	354.447	226.475	−1458.732	230.349	−2096.736	−1607.583	−1263.877	36.677

References

Phase	H / S	C_p
SOL	Pa2	Pa2
LIQ	Pa2	Pa2

PrF3[g] PRASEODYMIUM FLUORIDE (GAS) 197.903

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	72.391	339.444	339.444	−1258.129	0.000	−1359.334	−1258.129	−1246.597	218.399
	300.00	72.498	339.893	339.446	−1257.995	0.134	−1359.963	−1258.133	−1246.525	217.039
	400.00	76.638	361.376	342.347	−1250.517	7.612	−1395.068	−1258.255	−1242.635	162.272
	500.00	79.287	378.777	347.948	−1242.714	15.415	−1432.103	−1258.398	−1238.715	129.408
	600.00	81.348	393.422	354.338	−1234.679	23.450	−1470.732	−1258.638	−1234.758	107.495
	700.00	83.061	406.094	360.847	−1226.456	31.673	−1510.722	−1258.988	−1230.752	91.840
	800.00	84.514	417.283	367.216	−1218.075	40.054	−1551.901	−1259.467	−1226.687	80.094
	900.00	85.747	427.310	373.345	−1209.561	48.568	−1594.140	−1260.105	−1222.553	70.955
	1000.00	86.786	436.400	379.203	−1200.932	57.197	−1637.332	−1260.910	−1218.339	63.640
	1100.00	87.649	444.713	384.786	−1192.209	65.920	−1681.394	−1264.936	−1213.943	57.645
	1200.00	88.352	452.371	390.103	−1183.408	74.721	−1726.253	−1265.572	−1209.279	52.639
	1300.00	88.910	459.466	395.170	−1174.544	83.585	−1771.849	−1273.494	−1203.997	48.377
	1400.00	89.335	466.071	400.001	−1165.630	92.499	−1818.130	−1274.522	−1198.612	44.721
	1500.00	89.641	472.246	404.613	−1156.681	101.448	−1865.049	−1275.535	−1193.155	41.549
	1600.00	89.842	478.038	409.023	−1147.706	110.423	−1912.566	−1276.541	−1187.630	38.772
	1700.00	89.950	483.488	413.245	−1138.715	119.414	−1960.645	−1277.550	−1182.042	36.320
	1800.00	89.978	488.631	417.292	−1129.718	128.411	−2009.254	−1278.569	−1176.395	34.138
	1900.00	89.939	493.495	421.175	−1120.722	137.407	−2058.362	−1279.604	−1170.690	32.185
	2000.00	89.846	498.106	424.908	−1111.732	146.397	−2107.944	−1280.660	−1164.931	30.425

References

Phase	H / S	C_p
GAS	Pa2	Pa2

PrH2 PRASEODYMIUM DIHYDRIDE 142.924

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	41.094	56.902	56.902	−198.322	0.000	−215.287	−198.322	−154.283	27.030
	300.00	41.129	57.157	56.903	−198.246	0.076	−215.393	−198.350	−154.009	26.815
	400.00	43.012	69.247	58.539	−194.039	4.283	−221.738	−199.829	−139.004	18.152
	500.00	44.894	79.047	61.690	−189.644	8.678	−229.167	−201.258	−123.632	12.916
	600.00	46.777	87.398	65.295	−185.060	13.262	−237.499	−202.669	−107.974	9.400
	700.00	48.660	94.750	68.988	−180.288	18.034	−246.613	−204.082	−92.080	6.871
	800.00	50.543	101.371	72.628	−175.328	22.994	−256.425	−205.525	−75.982	4.961
	900.00	52.426	107.433	76.163	−170.180	28.142	−266.869	−207.033	−59.699	3.465
	1000.00	54.308	113.054	79.575	−164.843	33.479	−277.897	−208.613	−43.245	2.259
	1100.00	56.191	118.318	82.860	−159.318	39.004	−289.468	−213.316	−26.535	1.260
	1200.00	58.074	123.288	86.024	−153.605	44.717	−301.550	−214.526	−9.500	0.414

References

Phase	H / S	C_p
SOL	Nb1,B2	B2,e

521.621 PRASEODYMIUM IODIDE **PrI3**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	99.724	228.865	228.865	−654.378	0.000	−722.614	−654.378	−648.630	113.637
	300.00	99.847	229.482	228.867	−654.193	0.185	−723.038	−654.395	−648.594	112.930
	400.00	105.381	259.009	232.855	−643.916	10.462	−747.520	−679.356	−645.685	84.318
	500.00	109.621	282.996	240.558	−633.159	21.219	−774.657	−743.791	−631.073	65.928
	600.00	113.231	303.308	249.366	−622.013	32.365	−803.998	−741.337	−608.757	52.997
	700.00	116.500	321.011	258.363	−610.524	43.854	−835.232	−738.740	−586.864	43.792
	800.00	119.583	336.770	267.196	−598.719	55.659	−868.135	−736.044	−565.350	36.914
	900.00	122.581	351.029	275.731	−586.610	67.768	−902.536	−733.287	−544.179	31.583
	1000.00	125.571	364.098	283.923	−574.203	80.175	−938.301	−730.473	−523.317	27.335
	1011.00	125.902	365.474	284.803	−572.820	81.558	−942.314	−730.160	−521.040	26.920
			52.559		53.137					
LIQ	1011.00	142.256	418.033	284.803	−519.683	134.695	−942.314	−677.023	−521.040	26.920
	1100.00	142.256	430.035	296.075	−507.022	147.356	−980.060	−676.174	−507.383	24.094
	1200.00	142.256	442.413	307.762	−492.797	161.581	−1023.692	−671.496	−492.245	21.427
	1300.00	142.256	453.799	318.563	−478.571	175.807	−1068.510	−674.147	−476.931	19.163

References

Phase	H / S	C_p
SOL	Nb1/Pa2	Pa2,e
LIQ	Dw1	Pa2,Dw1

PrI3[g] PRASEODYMIUM IODIDE (GAS) 521.621

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	81.558	430.187	430.187	−379.070	0.000	−507.330	−379.070	−433.346	75.920
	300.00	81.587	430.692	430.189	−378.919	0.151	−508.127	−379.121	−433.683	75.511
	400.00	82.495	454.303	433.402	−370.709	8.361	−552.431	−406.149	−450.596	58.842
	500.00	83.292	472.794	439.497	−362.421	16.649	−598.819	−473.053	−455.234	47.558
	600.00	84.233	488.062	446.355	−354.046	25.024	−646.883	−473.370	−451.642	39.319
	700.00	85.229	501.121	453.268	−345.573	33.497	−696.358	−473.789	−447.989	33.429
	800.00	86.197	512.566	459.980	−337.001	42.069	−747.054	−474.326	−444.269	29.008
	900.00	87.091	522.771	466.400	−328.336	50.734	−798.830	−475.013	−440.472	25.564
	1000.00	87.883	531.989	472.505	−319.586	59.484	−851.575	−475.857	−436.591	22.805
	1100.00	88.561	540.397	478.300	−310.763	68.307	−905.200	−479.915	−432.523	20.539
	1200.00	89.122	548.128	483.802	−301.878	77.192	−959.632	−480.577	−428.185	18.638
	1300.00	89.568	555.280	489.028	−292.943	86.127	−1014.807	−488.519	−423.228	17.006
	1400.00	89.904	561.931	494.001	−283.968	95.102	−1070.671	−489.563	−418.166	15.602
	1500.00	90.138	568.142	498.739	−274.965	104.105	−1127.178	−490.587	−413.031	14.383
	1600.00	90.279	573.964	503.260	−265.944	113.126	−1184.287	−491.601	−407.827	13.314
	1700.00	90.337	579.440	507.582	−256.912	122.158	−1241.960	−492.615	−402.560	12.369
	1800.00	90.324	584.603	511.719	−247.879	131.191	−1300.164	−493.635	−397.233	11.527
	1900.00	90.250	589.485	515.685	−238.850	140.220	−1358.871	−494.669	−391.850	10.773
	2000.00	90.128	594.111	519.491	−229.830	149.240	−1418.053	−495.722	−386.411	10.092

References

Phase	H / S	C_p
GAS	Pa2	Pa2

PrO1.833 PRASEODYMIUM 1.833−OXIDE 170.187

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	63.268	79.914	79.914	−943.576	0.000	−967.402	−943.576	−889.394	155.818
	300.00	63.448	80.306	79.916	−943.459	0.117	−967.551	−943.559	−889.058	154.799
	400.00	70.875	99.663	82.505	−936.712	6.864	−976.578	−942.312	−871.063	113.749
	500.00	76.032	116.057	87.617	−929.356	14.220	−987.385	−940.656	−853.437	89.158
	600.00	80.297	130.305	93.570	−921.535	22.041	−999.718	−938.791	−836.165	72.795
	700.00	84.140	142.975	99.739	−913.311	30.265	−1013.393	−936.792	−819.218	61.131
	760.00	86.330	149.984	103.432	−908.196	35.380	−1022.184	−935.544	−809.192	55.616
			2.092		1.590					
SOL−B	760.00	87.162	152.076	103.432	−906.606	36.970	−1022.184	−933.954	−809.192	55.616
	800.00	89.186	156.599	105.978	−903.079	40.497	−1028.358	−933.065	−802.648	52.408
	900.00	94.224	167.394	112.208	−893.908	49.668	−1044.563	−930.691	−786.486	45.646
	1000.00	99.239	177.581	118.241	−884.235	59.341	−1061.817	−928.098	−770.600	40.252
	1100.00	104.241	187.275	124.079	−874.061	69.515	−1080.063	−928.325	−754.892	35.847

References

Phase	H / S	C_p
SOL−A	Fi4/We1	Pa1
SOL−B	Pa1	Pa1

172.906 PRASEODYMIUM DIOXIDE **PrO2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	72.935	79.914	79.914	−949.350	0.000	−973.176	−949.350	−889.969	155.919
	300.00	73.130	80.366	79.916	−949.215	0.135	−973.325	−949.320	−889.601	154.893
	400.00	80.859	102.571	82.891	−941.478	7.872	−982.506	−947.334	−869.977	113.607
	500.00	85.780	121.172	88.738	−933.133	16.217	−993.719	−944.949	−850.909	88.894
	600.00	89.597	137.160	95.507	−924.358	24.992	−1006.654	−942.399	−832.338	72.461
	700.00	92.891	151.224	102.482	−915.230	34.120	−1021.087	−939.774	−814.201	60.756
	800.00	95.907	163.827	109.375	−905.789	43.561	−1036.850	−937.120	−796.444	52.002
	900.00	98.762	175.289	116.072	−896.054	53.296	−1053.815	−934.472	−779.018	45.213
	1000.00	101.516	185.838	122.528	−886.040	63.310	−1071.878	−931.832	−761.887	39.797
	1100.00	104.205	195.640	128.734	−875.753	73.597	−1090.957	−932.245	−744.927	35.374

References

Phase	H / S	C_p
SOL	Nb1/We1	e

329.814 PRASEODYMIUM OXIDE **Pr2O3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	117.984	155.645	155.645	−1809.664	0.000	−1856.069	−1809.664	−1720.237	301.378
	300.00	118.172	156.375	155.647	−1809.446	0.218	−1856.358	−1809.629	−1719.683	299.423
	400.00	125.671	191.500	160.385	−1797.218	12.446	−1873.818	−1807.418	−1690.021	220.694
	500.00	130.505	220.091	169.556	−1784.396	25.268	−1894.442	−1804.987	−1660.952	173.518
	600.00	134.290	244.230	180.041	−1771.151	38.513	−1917.689	−1802.612	−1632.370	142.110
	700.00	137.580	265.182	190.740	−1757.555	52.109	−1943.182	−1800.393	−1604.174	119.705
	800.00	140.606	283.753	201.228	−1743.644	66.020	−1970.646	−1798.389	−1576.283	102.921
	900.00	143.479	300.481	211.342	−1729.438	80.226	−1999.871	−1796.654	−1548.627	89.880
	1000.00	146.256	315.742	221.030	−1714.951	94.713	−2030.694	−1795.185	−1521.150	79.457
	1100.00	148.971	329.810	230.287	−1700.189	109.475	−2062.980	−1800.066	−1493.621	70.926
	1200.00	151.644	342.887	239.132	−1685.158	124.506	−2096.623	−1798.049	−1465.849	63.807
	1300.00	154.287	355.130	247.589	−1669.861	139.803	−2131.530	−1810.458	−1437.123	57.744
	1400.00	156.908	366.659	255.686	−1654.301	155.363	−2167.625	−1808.912	−1408.461	52.550
	1500.00	159.513	377.574	263.451	−1638.480	171.184	−2204.841	−1807.147	−1379.918	48.053
	1600.00	162.106	387.952	270.911	−1622.399	187.265	−2243.122	−1805.160	−1351.500	44.122
	1700.00	164.690	397.857	278.089	−1606.059	203.605	−2282.416	−1802.952	−1323.212	40.657
	1800.00	167.266	407.343	285.008	−1589.462	220.202	−2322.679	−1800.522	−1295.061	37.582

References

Phase	H / S	C_p
SOL	Fi4,Pa1	Pa1

Pr7O12 — 7–PRASEODYMIUM 12–OXIDE — 1178.346

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	422.875	560.656	560.656	−6509.999	0.000	−6677.159	−6509.999	−6155.873	1078.483
	300.00	423.488	563.274	560.664	−6509.216	0.783	−6678.198	−6509.898	−6153.676	1071.450
	400.00	448.692	688.861	577.616	−6465.501	44.498	−6741.046	−6503.470	−6035.863	788.203
	500.00	465.943	790.922	610.387	−6419.732	90.267	−6815.192	−6496.363	−5919.782	618.435
	600.00	480.063	877.152	647.844	−6372.414	137.585	−6898.705	−6489.461	−5805.121	505.381
	700.00	492.705	952.117	686.071	−6323.767	186.232	−6990.249	−6483.076	−5691.577	424.711
	800.00	504.559	1018.689	723.564	−6273.899	236.100	−7088.850	−6477.383	−5578.904	364.265
	900.00	515.955	1078.778	759.747	−6222.871	287.128	−7193.771	−6472.557	−5466.893	317.290
	1000.00	527.067	1133.717	794.435	−6170.718	339.281	−7304.434	−6468.563	−5355.374	279.736
	1100.00	537.993	1184.465	827.615	−6117.463	392.536	−7420.375	−6486.693	−5243.565	248.996

References

Phase	H / S	C_p
SOL	Nb1/We1	We1

PrS — PRASEODYMIUM MONOSULFIDE — 172.974

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	53.278	77.822	77.822	−451.872	0.000	−475.075	−451.872	−443.475	77.695
	300.00	53.286	78.152	77.823	−451.773	0.099	−475.219	−451.866	−443.423	77.207
	400.00	53.726	93.542	79.919	−446.423	5.449	−483.839	−453.877	−440.556	57.531
	500.00	54.166	105.577	83.890	−441.028	10.844	−493.817	−455.286	−437.088	45.662
	600.00	54.606	115.492	88.355	−435.590	16.282	−504.885	−456.489	−433.329	37.725
	700.00	55.046	123.943	92.850	−430.107	21.765	−516.867	−457.564	−429.385	32.041
	800.00	55.487	131.322	97.207	−424.580	27.292	−529.638	−458.847	−425.276	27.768
	900.00	55.927	137.883	101.369	−419.010	32.862	−543.104	−513.164	−419.836	24.367
	1000.00	56.367	143.798	105.321	−413.395	38.477	−557.193	−513.297	−409.461	21.388
	1100.00	56.807	149.191	109.068	−407.736	44.136	−571.846	−516.671	−398.970	18.946
	1200.00	57.247	154.153	112.621	−402.034	49.838	−587.017	−516.662	−388.270	16.901
	1300.00	57.687	158.752	115.994	−396.287	55.585	−602.665	−523.935	−377.007	15.148
	1400.00	58.127	163.043	119.203	−390.496	61.376	−618.757	−524.300	−365.691	13.644
	1500.00	58.568	167.069	122.262	−384.661	67.211	−635.265	−524.626	−354.350	12.340
	1600.00	59.008	170.863	125.182	−378.783	73.089	−652.163	−524.912	−342.988	11.197
	1700.00	59.448	174.453	127.975	−372.860	79.012	−669.430	−525.159	−331.610	10.189
	1800.00	59.888	177.864	130.653	−366.893	84.979	−687.048	−525.366	−320.219	9.293
	1900.00	60.328	181.113	133.224	−360.882	90.990	−704.998	−525.533	−308.817	8.490
	2000.00	60.768	184.219	135.697	−354.827	97.045	−723.265	−525.659	−297.408	7.767

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1	Mi1	MPT= 2500.

550.987 TRIPRASEODYMIUM TETRASULFIDE **Pr3S4**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	179.163	256.061	256.061	−1554.356	0.000	−1630.701	−1554.356	−1526.343	267.409
	300.00	179.192	257.169	256.064	−1554.025	0.331	−1631.175	−1554.346	−1526.169	265.730
	400.00	180.766	308.935	263.112	−1536.027	18.329	−1659.601	−1563.013	−1516.472	198.031
	500.00	182.339	349.441	276.472	−1517.871	36.485	−1692.592	−1569.170	−1504.222	157.145
	600.00	183.912	382.824	291.496	−1499.559	54.797	−1729.253	−1574.358	−1490.718	129.779
	700.00	185.485	411.292	306.625	−1481.089	73.267	−1768.994	−1578.870	−1476.423	110.172
	800.00	187.058	436.163	321.295	−1462.462	91.894	−1811.392	−1584.033	−1461.449	95.423
	900.00	188.631	458.286	335.310	−1443.677	110.679	−1856.135	−1801.119	−1441.164	83.643
	1000.00	190.205	478.242	348.622	−1424.736	129.620	−1902.978	−1801.255	−1401.167	73.189
	1100.00	191.778	496.444	361.245	−1405.636	148.720	−1951.725	−1811.094	−1360.849	64.621
	1200.00	193.351	513.198	373.218	−1386.380	167.976	−2002.218	−1810.767	−1319.931	57.455
	1300.00	194.924	528.737	384.591	−1366.966	187.390	−2054.324	−1832.267	−1277.348	51.324
	1400.00	196.497	543.240	395.411	−1347.395	206.961	−2107.931	−1833.023	−1234.633	46.065
	1500.00	198.071	556.850	405.724	−1327.667	226.689	−2162.943	−1833.641	−1191.868	41.505
	1600.00	199.644	569.684	415.575	−1307.781	246.575	−2219.275	−1834.119	−1149.067	37.513
	1700.00	201.217	581.834	425.000	−1287.738	266.618	−2276.857	−1834.457	−1106.240	33.991
	1800.00	202.790	593.380	434.037	−1267.538	286.818	−2335.622	−1834.654	−1063.397	30.859
	1900.00	204.363	604.387	442.715	−1247.180	307.176	−2395.515	−1834.710	−1020.548	28.057
	2000.00	205.936	614.909	451.064	−1226.665	327.691	−2456.483	−1834.624	−977.699	25.535

References

Phase	H / S	C_p
SOL	Mi1	Mi1

Pt PLATINUM 195.080

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	25.852	41.631	41.631	0.000	0.000	−12.412	0.000	0.000	0.000
	300.00	25.864	41.791	41.631	0.048	0.048	−12.489	0.000	0.000	0.000
	400.00	26.446	49.313	42.653	2.664	2.664	−17.061	0.000	0.000	0.000
	500.00	26.989	55.272	44.601	5.336	5.336	−22.300	0.000	0.000	0.000
	600.00	27.518	60.240	46.805	8.061	8.061	−28.083	0.000	0.000	0.000
	700.00	28.042	64.521	49.037	10.839	10.839	−34.326	0.000	0.000	0.000
	800.00	28.565	68.300	51.213	13.669	13.669	−40.970	0.000	0.000	0.000
	900.00	29.088	71.695	53.303	16.552	16.552	−47.973	0.000	0.000	0.000
	1000.00	29.613	74.786	55.299	19.487	19.487	−55.299	0.000	0.000	0.000
	1100.00	30.140	77.634	57.202	22.475	22.475	−62.922	0.000	0.000	0.000
	1200.00	30.669	80.279	59.016	25.515	25.515	−70.819	0.000	0.000	0.000
	1300.00	31.257	82.758	60.748	28.613	28.613	−78.972	0.000	0.000	0.000
	1400.00	31.759	85.093	62.404	31.764	31.764	−87.366	0.000	0.000	0.000
	1500.00	32.258	87.301	63.991	34.965	34.965	−95.987	0.000	0.000	0.000
	1600.00	32.781	89.399	65.514	38.216	38.216	−104.823	0.000	0.000	0.000
	1700.00	33.322	91.403	66.978	41.521	41.521	−113.863	0.000	0.000	0.000
	1800.00	33.864	93.323	68.389	44.881	44.881	−123.100	0.000	0.000	0.000
	1900.00	34.386	95.168	69.750	48.294	48.294	−132.525	0.000	0.000	0.000
	2000.00	34.863	96.944	71.066	51.756	51.756	−142.132	0.000	0.000	0.000
	2045.00	35.058	97.722	71.644	53.330	53.330	−146.512	0.000	0.000	0.000
			9.616		19.665					
LIQ	2045.00	34.727	107.338	71.644	72.995	72.995	−146.512	0.000	0.000	0.000
	2100.00	34.727	108.260	72.591	74.905	74.905	−152.441	0.000	0.000	0.000
	2200.00	34.727	109.875	74.249	78.377	78.377	−163.348	0.000	0.000	0.000
	2300.00	34.727	111.419	75.832	81.850	81.850	−174.413	0.000	0.000	0.000
	2400.00	34.727	112.897	77.346	85.323	85.323	−185.630	0.000	0.000	0.000
	2500.00	34.727	114.315	78.796	88.796	88.796	−196.991	0.000	0.000	0.000
	2600.00	34.727	115.677	80.189	92.268	92.268	−208.491	0.000	0.000	0.000
	2700.00	34.727	116.987	81.528	95.741	95.741	−220.124	0.000	0.000	0.000
	2800.00	34.727	118.250	82.817	99.214	99.214	−231.887	0.000	0.000	0.000
	2900.00	34.727	119.469	84.060	102.686	102.686	−243.773	0.000	0.000	0.000
	3000.00	34.727	120.646	85.260	106.159	106.159	−255.779	0.000	0.000	0.000
	3100.00	34.727	121.785	86.420	109.632	109.632	−267.901	0.000	0.000	0.000
	3200.00	34.727	122.887	87.542	113.105	113.105	−280.135	0.000	0.000	0.000
	3300.00	34.727	123.956	88.629	116.577	116.577	−292.477	0.000	0.000	0.000
	3400.00	34.727	124.993	89.684	120.050	120.050	−304.925	0.000	0.000	0.000
	3500.00	34.727	125.999	90.707	123.523	123.523	−317.475	0.000	0.000	0.000
	3600.00	34.727	126.978	91.701	126.996	126.996	−330.124	0.000	0.000	0.000
	3700.00	34.727	127.929	92.667	130.468	130.468	−342.869	0.000	0.000	0.000
	3800.00	34.727	128.855	93.608	133.941	133.941	−355.709	0.000	0.000	0.000
	3900.00	34.727	129.757	94.523	137.414	137.414	−368.639	0.000	0.000	0.000
	4000.00	34.727	130.636	95.415	140.886	140.886	−381.659	0.000	0.000	0.000
	4096.00	34.727	131.460	96.250	144.220	144.220	−394.240	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL	Hu1	Hu1	Hu1	MPT= 2045. (IPTS REF.PT.)
LIQ	Hu1	Hu1	Hu1	BPT= 4096., L= 509.82 kJ

195.080 PLATINUM (GAS) **Pt**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	25.542	192.406	192.406	564.840	0.000	507.474	564.840	519.886	−91.082
	300.00	25.596	192.564	192.407	564.887	0.047	507.118	564.839	519.607	−90.472
	400.00	27.051	200.186	193.436	567.540	2.700	487.466	564.876	504.527	−65.884
	500.00	26.908	206.224	195.413	570.246	5.406	467.134	564.910	489.434	−51.131
	600.00	26.207	211.072	197.632	572.904	8.064	446.261	564.843	474.343	−41.295
	700.00	25.382	215.050	199.845	575.483	10.643	424.948	564.644	459.274	−34.271
	800.00	24.612	218.388	201.960	577.982	13.142	403.272	564.313	444.242	−29.006
	900.00	23.967	221.248	203.948	580.410	15.570	381.287	563.858	429.259	−24.914
	1000.00	23.463	223.746	205.806	582.780	17.940	359.034	563.293	414.333	−21.643
	1100.00	23.088	225.964	207.539	585.107	20.267	336.547	562.632	399.469	−18.969
	1200.00	22.813	227.960	209.159	587.401	22.561	313.849	561.886	384.668	−16.744
	1300.00	22.604	229.778	210.677	589.672	24.832	290.961	561.059	369.933	−14.864
	1400.00	22.418	231.446	212.101	591.923	27.083	267.898	560.159	355.264	−13.255
	1500.00	22.296	232.988	213.443	594.158	29.318	244.676	559.193	340.662	−11.863
	1600.00	22.226	234.425	214.710	596.384	31.544	221.304	558.167	326.127	−10.647
	1700.00	22.197	235.771	215.910	598.605	33.765	197.794	557.083	311.657	−9.576
	1800.00	22.200	237.040	217.049	600.824	35.984	174.152	555.944	297.253	−8.626
	1900.00	22.227	238.241	218.133	603.045	38.205	150.388	554.752	282.913	−7.778
	2000.00	22.273	239.382	219.167	605.270	40.430	126.506	553.514	268.638	−7.016
	2100.00	22.334	240.470	220.156	607.500	42.660	102.513	532.596	254.954	−6.342
	2200.00	22.406	241.511	221.103	609.737	44.897	78.414	531.360	241.762	−5.740
	2300.00	22.489	242.509	222.012	611.982	47.142	54.212	530.132	228.626	−5.192
	2400.00	22.578	243.468	222.886	614.235	49.395	29.913	528.913	215.543	−4.691
	2500.00	22.674	244.391	223.728	616.498	51.658	5.520	527.702	202.511	−4.231
	2600.00	22.774	245.282	224.540	618.770	53.930	−18.964	526.502	189.527	−3.808
	2700.00	22.877	246.144	225.324	621.053	56.213	−43.535	525.312	176.589	−3.416
	2800.00	22.983	246.978	226.083	623.346	58.506	−68.192	524.132	163.695	−3.054
	2900.00	23.091	247.786	226.817	625.650	60.810	−92.930	522.963	150.843	−2.717
	3000.00	23.200	248.571	227.529	627.964	63.124	−117.748	521.805	138.031	−2.403
	3100.00	23.310	249.333	228.220	630.290	65.450	−142.643	520.658	125.257	−2.111
	3200.00	23.420	250.075	228.892	632.626	67.786	−167.614	519.522	112.521	−1.837
	3300.00	23.531	250.797	229.545	634.974	70.134	−192.658	518.396	99.819	−1.580
	3400.00	23.640	251.502	230.180	637.332	72.492	−217.773	517.282	87.152	−1.339
	3500.00	23.750	252.188	230.799	639.702	74.862	−242.958	516.179	74.517	−1.112
	3600.00	23.858	252.859	231.403	642.082	77.242	−268.210	515.087	61.914	−0.898
	3700.00	23.965	253.514	231.992	644.473	79.633	−293.529	514.005	49.340	−0.697
	3800.00	24.071	254.155	232.566	646.875	82.035	−318.912	512.934	36.796	−0.506
	3900.00	24.176	254.781	233.128	649.287	84.447	−344.359	511.874	24.280	−0.325
	4000.00	24.279	255.395	233.677	651.710	86.870	−369.868	510.824	11.791	−0.154
	4100.00	24.267	255.994	234.214	654.137	89.297	−395.438	0.000	0.000	0.000
	4200.00	24.267	256.579	234.740	656.564	91.724	−421.066	0.000	0.000	0.000
	4300.00	24.267	257.150	235.254	658.990	94.150	−446.753	0.000	0.000	0.000
	4400.00	24.267	257.708	235.758	661.417	96.577	−472.496	0.000	0.000	0.000
	4500.00	24.267	258.253	236.252	663.844	99.004	−498.294	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1,e

PtBr2 PLATINUM DIBROMIDE 354.888

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	75.897	53.430	53.430	−100.416	0.000	−116.346	−100.416	−58.553	10.258
	300.00	75.940	53.899	53.431	−100.276	0.140	−116.445	−100.463	−58.293	10.150
	400.00	78.241	76.061	56.437	−92.567	7.849	−122.991	−129.852	−38.113	4.977
	500.00	80.542	93.767	62.190	−84.627	15.789	−131.511	−128.277	−15.358	1.604
	600.00	82.843	108.655	68.725	−76.458	23.958	−141.651	−126.552	7.067	−0.615
	700.00	85.144	121.598	75.374	−68.059	32.357	−153.177	−124.666	29.190	−2.178
	800.00	87.446	133.118	81.884	−59.429	40.987	−165.924	−122.614	51.031	−3.332

References

Phase	H / S	C_p
SOL	Tk1	e

PtBr3 PLATINUM TRIBROMIDE 434.792

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	100.370	111.294	111.294	−130.959	0.000	−164.141	−130.959	−83.657	14.656
	300.00	100.416	111.915	111.296	−130.773	0.186	−164.348	−131.031	−83.363	14.515
	400.00	102.926	141.147	115.265	−120.606	10.353	−177.065	−175.203	−58.279	7.610
	500.00	105.437	164.384	122.842	−110.188	20.771	−192.380	−172.995	−29.300	3.061
	600.00	107.947	183.829	131.429	−99.519	31.440	−209.816	−170.629	−0.781	0.068
	700.00	110.458	200.658	140.143	−88.599	42.360	−229.059	−168.090	27.329	−2.039
	800.00	112.968	215.572	148.657	−77.427	53.532	−249.885	−165.370	55.062	−3.595
	900.00	115.478	229.022	156.851	−66.005	64.954	−272.125	−162.466	82.444	−4.785
	1000.00	117.989	241.319	164.692	−54.332	76.627	−295.651	−159.377	109.492	−5.719

References

Phase	H / S	C_p
SOL	Tk1	e

514.696 PLATINUM TETRABROMIDE **PtBr4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	125.536	163.544	163.544	−158.992	0.000	−207.753	−158.992	−104.578	18.322
	300.00	125.728	164.321	163.547	−158.760	0.232	−208.056	−159.087	−104.240	18.150
	400.00	136.084	201.909	168.602	−145.669	13.323	−226.433	−217.577	−73.738	9.629
	500.00	146.440	233.388	178.490	−131.543	27.449	−248.237	−213.507	−38.231	3.994

References

Phase	H / S	C_p
SOL	Tk1	e

265.985 PLATINUM DICHLORIDE **PtCl2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	75.411	219.618	219.618	−106.692	0.000	−172.171	−106.692	−93.237	16.335
	300.00	75.479	220.085	219.620	−106.552	0.140	−172.578	−106.663	−93.153	16.219
	400.00	79.161	242.303	222.624	−98.820	7.872	−195.742	−105.014	−88.894	11.608
	500.00	82.843	260.363	228.419	−90.720	15.972	−220.902	−103.157	−85.074	8.888
	600.00	86.525	275.793	235.059	−82.252	24.440	−247.727	−101.049	−81.651	7.108
	700.00	90.207	289.407	241.869	−73.415	33.277	−276.000	−98.667	−78.602	5.865

References

Phase	H / S	C_p
SOL	Tk1	e

PtCl3 PLATINUM TRICHLORIDE 301.438

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	121.336	246.910	246.910	−168.197	0.000	−241.813	−168.197	−129.618	22.708
	300.00	121.336	247.661	246.913	−167.973	0.224	−242.271	−168.115	−129.379	22.527
	400.00	121.336	282.567	251.672	−155.839	12.358	−268.866	−163.798	−117.124	15.295
	500.00	121.336	309.642	260.659	−143.705	24.492	−298.527	−159.692	−105.935	11.067

References

Phase	H / S	C_p
SOL	Tk1	e

PtCl4 PLATINUM TETRACHLORIDE 336.891

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	125.519	267.885	267.885	−229.283	0.000	−309.153	−229.283	−163.696	28.679
	300.00	125.899	268.662	267.887	−229.050	0.233	−309.649	−229.224	−163.289	28.431
	400.00	146.439	307.694	273.071	−215.434	13.849	−338.511	−225.157	−141.876	18.527

References

Phase	H / S	C_p
SOL	Tk1	e

702.698 PLATINUM TETRAIODIDE **PtI4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	125.522	180.749	180.749	−72.802	0.000	−126.692	−72.802	−45.025	7.888
	300.00	125.715	181.526	180.751	−72.570	0.232	−127.027	−72.819	−44.852	7.809
	400.00	136.126	219.118	185.807	−59.478	13.324	−147.125	−105.620	−34.292	4.478
	500.00	146.538	250.612	195.696	−45.344	27.458	−170.650	−190.546	−8.302	0.867
	600.00	156.950	278.249	207.196	−30.170	42.632	−197.119	−185.600	27.698	−2.411
	700.00	167.362	303.225	219.157	−13.954	58.848	−226.212	−179.688	62.794	−4.686

References

Phase	H / S	C_p
SOL	Nb1/e	e

227.079 PLATINUM DIOXIDE (GAS) **PtO2[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	43.118	259.517	259.517	170.707	0.000	93.332	170.707	166.909	−29.242
	300.00	43.281	259.785	259.518	170.787	0.080	92.852	170.685	166.885	−29.057
	400.00	49.084	273.146	261.300	175.445	4.738	66.187	169.756	165.771	−21.647
	500.00	51.882	284.431	264.830	180.508	9.801	38.292	169.088	164.855	−17.222
	600.00	53.497	294.045	268.918	185.783	15.076	9.356	168.478	164.065	−14.283
	700.00	54.554	302.376	273.116	191.189	20.482	−20.474	167.851	163.379	−12.191
	800.00	55.314	309.713	277.241	196.684	25.977	−51.086	167.179	162.786	−10.629
	900.00	55.900	316.263	281.219	202.246	31.539	−82.390	166.453	162.279	−9.418
	1000.00	56.379	322.178	285.024	207.861	37.154	−114.317	165.671	161.857	−8.455
	1100.00	56.788	327.571	288.651	213.520	42.813	−146.809	164.833	161.516	−7.670
	1200.00	57.149	332.528	292.103	219.217	48.510	−179.817	163.940	161.253	−7.019
	1300.00	57.477	337.116	295.392	224.948	54.241	−213.302	162.991	161.067	−6.472
	1400.00	57.780	341.386	298.526	230.711	60.004	−247.230	161.990	160.957	−6.005
	1500.00	58.065	345.383	301.518	236.504	65.797	−281.570	160.941	160.919	−5.604
	1600.00	58.336	349.139	304.378	242.324	71.617	−316.298	159.842	160.953	−5.255
	1700.00	58.596	352.683	307.116	248.170	77.463	−351.391	158.692	161.058	−4.949
	1800.00	58.848	356.040	309.742	254.043	83.336	−386.828	157.488	161.231	−4.679
	1900.00	59.094	359.228	312.263	259.940	89.233	−422.593	156.233	161.473	−4.439
	2000.00	59.334	362.265	314.688	265.861	95.154	−458.669	154.929	161.783	−4.225

References

Phase	H / S	C_p
GAS	Tk1	e

PtS — PLATINUM MONOSULFIDE — 227.146

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	43.406	55.061	55.061	−83.094	0.000	−99.511	−83.094	−77.541	13.585
	300.00	43.480	55.330	55.062	−83.014	0.080	−99.613	−83.104	−77.506	13.495
	400.00	46.684	68.308	56.810	−78.495	4.599	−105.818	−85.782	−75.479	9.857
	500.00	49.091	78.992	60.209	−73.702	9.392	−113.198	−87.564	−72.717	7.597
	600.00	51.184	88.131	64.119	−68.687	14.407	−121.565	−88.849	−69.616	6.061
	700.00	53.129	96.168	68.134	−63.470	19.624	−130.788	−89.721	−66.338	4.950
	800.00	54.994	103.385	72.097	−58.064	25.030	−140.772	−90.504	−62.945	4.110
	900.00	56.814	109.968	75.944	−52.473	30.621	−151.444	−144.003	−58.303	3.384
	1000.00	58.605	116.046	79.654	−46.702	36.392	−162.748	−143.002	−48.833	2.551
	1100.00	60.378	121.715	83.223	−40.753	42.341	−174.640	−141.882	−39.470	1.874
	1200.00	62.138	127.044	86.655	−34.627	48.467	−187.080	−140.645	−30.213	1.315
	1300.00	63.889	132.087	89.958	−28.325	54.769	−200.039	−139.295	−21.064	0.846
	1400.00	65.633	136.886	93.140	−21.849	61.245	−213.489	−137.829	−12.024	0.449
	1500.00	67.373	141.474	96.210	−15.199	67.895	−227.409	−136.244	−3.092	0.108

References

Phase	H / S	C_p
SOL	Tk1,Mi1	Mi1

PtS2 — PLATINUM DISULFIDE — 259.212

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	65.889	74.684	74.684	−110.458	0.000	−132.725	−110.458	−101.198	17.729
	300.00	66.009	75.092	74.686	−110.336	0.122	−132.864	−110.468	−101.140	17.610
	400.00	70.780	94.801	77.340	−103.474	6.984	−141.394	−115.384	−97.778	12.769
	500.00	73.835	110.942	82.495	−96.235	14.223	−151.706	−118.622	−93.043	9.720
	600.00	76.215	124.621	88.405	−88.729	21.729	−163.501	−120.993	−87.685	7.634
	700.00	78.277	136.527	94.447	−81.002	29.456	−176.571	−122.664	−81.997	6.119
	800.00	80.168	147.104	100.380	−73.079	37.379	−190.762	−124.290	−76.079	4.967
	900.00	81.961	156.651	106.111	−64.972	45.486	−205.958	−231.479	−67.648	3.926
	1000.00	83.693	165.376	111.607	−56.689	53.769	−222.065	−229.801	−49.534	2.587
	1100.00	85.384	173.433	116.866	−48.235	62.223	−239.011	−228.019	−31.593	1.500
	1200.00	87.048	180.934	121.896	−39.613	70.845	−256.733	−226.135	−13.818	0.601
	1300.00	88.693	187.966	126.710	−30.826	79.632	−275.182	−224.153	3.795	−0.152
	1400.00	90.324	194.599	131.325	−21.875	88.583	−294.313	−222.071	21.252	−0.793
	1500.00	91.944	200.886	135.755	−12.761	97.697	−314.090	−219.886	38.557	−1.343

References

Phase	H / S	C_p
SOL	Tk1,Mi1	Mi1

1291.240 PENTAPLATINUM TETRASELENIDE **Pt5Se4**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	211.670	336.812	336.812	-242.672	0.000	-343.092	-242.672	-230.634	40.406
	300.00	211.815	338.122	336.816	-242.280	0.392	-343.717	-242.707	-230.559	40.144
	400.00	219.660	400.132	345.218	-220.707	21.965	-380.759	-244.885	-226.196	29.538
	500.00	227.505	449.990	361.343	-198.348	44.324	-423.343	-271.127	-220.890	23.076
	600.00	235.350	492.163	379.718	-175.206	67.466	-470.503	-275.669	-210.408	18.318
	700.00	243.195	529.031	398.469	-151.278	91.394	-521.600	-279.690	-199.206	14.865
	800.00	251.040	562.017	416.885	-126.567	116.105	-576.180	-283.189	-187.463	12.240
	900.00	258.885	592.039	434.703	-101.070	141.602	-633.905	-286.164	-175.313	10.175
	1000.00	266.730	619.721	451.838	-74.790	167.882	-694.510	-288.617	-162.860	8.507
	1100.00	274.575	645.511	468.286	-47.724	194.948	-757.786	-503.794	-130.370	6.191

References

Phase	H / S	C_p
SOL	Mi1	Mi1

Pu PLUTONIUM 244.064

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	31.965	51.463	51.463	0.000	0.000	−15.344	0.000	0.000	0.000
	300.00	32.010	51.661	51.464	0.059	0.059	−15.439	0.000	0.000	0.000
	395.00	34.308	60.769	52.644	3.209	3.209	−20.794	0.000	0.000	0.000
			8.473		3.347					
SOL−B	395.00	33.463	69.242	52.644	6.556	6.556	−20.794	0.000	0.000	0.000
	400.00	33.611	69.664	52.854	6.724	6.724	−21.142	0.000	0.000	0.000
	480.00	35.983	76.002	56.194	9.508	9.508	−26.973	0.000	0.000	0.000
			1.221		0.586					
SOL−C	480.00	34.741	77.223	56.194	10.094	10.094	−26.973	0.000	0.000	0.000
	500.00	35.669	78.660	57.064	10.798	10.798	−28.532	0.000	0.000	0.000
	588.00	39.750	84.764	60.757	14.116	14.116	−35.725	0.000	0.000	0.000
			0.925		0.544					
SOL−D	588.00	37.656	85.689	60.757	14.660	14.660	−35.725	0.000	0.000	0.000
	600.00	37.656	86.450	61.263	15.112	15.112	−36.758	0.000	0.000	0.000
	700.00	37.656	92.255	65.286	18.878	18.878	−45.701	0.000	0.000	0.000
	730.00	37.656	93.835	66.427	20.007	20.007	−48.492	0.000	0.000	0.000
			0.115		0.084					
S.−D1	730.00	37.656	93.950	66.427	20.091	20.091	−48.492	0.000	0.000	0.000
	753.00	37.656	95.118	67.286	20.957	20.957	−50.666	0.000	0.000	0.000
			2.445		1.841					
SOL−E	753.00	35.146	97.563	67.286	22.798	22.798	−50.666	0.000	0.000	0.000
	800.00	35.146	99.691	69.128	24.450	24.450	−55.302	0.000	0.000	0.000
	900.00	35.146	103.830	72.758	27.965	27.965	−65.482	0.000	0.000	0.000
	913.00	35.146	104.334	73.204	28.422	28.422	−66.836	0.000	0.000	0.000
			3.116		2.845					
LIQ	913.00	41.840	107.451	73.204	31.267	31.267	−66.836	0.000	0.000	0.000
	1000.00	41.840	111.259	76.352	34.907	34.907	−76.352	0.000	0.000	0.000
	1100.00	41.840	115.247	79.709	39.091	39.091	−87.680	0.000	0.000	0.000
	1200.00	41.840	118.887	82.825	43.275	43.275	−99.390	0.000	0.000	0.000
	1300.00	41.840	122.236	85.729	47.459	47.459	−111.448	0.000	0.000	0.000
	1400.00	41.840	125.337	88.449	51.643	51.643	−123.829	0.000	0.000	0.000
	1500.00	41.840	128.223	91.006	55.827	55.827	−136.508	0.000	0.000	0.000
	1600.00	41.840	130.924	93.417	60.011	60.011	−149.467	0.000	0.000	0.000
	1700.00	41.840	133.460	95.699	64.195	64.195	−162.688	0.000	0.000	0.000
	1800.00	41.840	135.852	97.864	68.379	68.379	−176.154	0.000	0.000	0.000
	1900.00	41.840	138.114	99.923	72.563	72.563	−189.854	0.000	0.000	0.000
	2000.00	41.840	140.260	101.887	76.747	76.747	−203.773	0.000	0.000	0.000
	2100.00	41.840	142.301	103.763	80.931	80.931	−217.902	0.000	0.000	0.000
	2200.00	41.840	144.248	105.559	85.115	85.115	−232.230	0.000	0.000	0.000
	2300.00	41.840	146.108	107.282	89.299	89.299	−246.749	0.000	0.000	0.000
	2400.00	41.840	147.888	108.937	93.483	93.483	−261.449	0.000	0.000	0.000
	2500.00	41.840	149.596	110.530	97.667	97.667	−276.324	0.000	0.000	0.000

244.064 PLUTONIUM [continued] **Pu**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
LIQ	2600.00	41.840	151.237	112.064	101.851	101.851	−291.366	0.000	0.000	0.000
	2700.00	41.840	152.816	113.544	106.035	106.035	−306.570	0.000	0.000	0.000
	2800.00	41.840	154.338	114.974	110.219	110.219	−321.928	0.000	0.000	0.000
	2900.00	41.840	155.806	116.357	114.403	114.403	−337.435	0.000	0.000	0.000
	3000.00	41.840	157.225	117.696	118.587	118.587	−353.087	0.000	0.000	0.000
	3100.00	41.840	158.597	118.993	122.771	122.771	−368.879	0.000	0.000	0.000
	3200.00	41.840	159.925	120.252	126.955	126.955	−384.805	0.000	0.000	0.000
	3300.00	41.840	161.213	121.473	131.139	131.139	−400.862	0.000	0.000	0.000
	3400.00	41.840	162.462	122.661	135.323	135.323	−417.046	0.000	0.000	0.000
	3498.00	41.840	163.650	123.793	139.423	139.423	−433.026	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL − A	Hu1	Hu1		monoclinic (simple)
SOL − B	Hu1	Hu1		monoclinic-bc
SOL − C	Hu1	Hu1		fc-orthorhombic
SOL − D	Hu1	Hu1		fcc
S. − D1	Hu1	Hu1		bct
SOL − E	Hu1	Hu1		bcc
LIQ	Hu1	Hu1	Hu1	BPT = 3498., L = 260.01 kJ

Pu[g] PLUTONIUM (GAS) 244.064

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.853	177.164	177.164	351.874	0.000	299.053	351.874	314.396	−55.081
	300.00	20.864	177.293	177.164	351.913	0.039	298.725	351.853	314.164	−54.701
	400.00	21.355	183.355	177.988	354.021	2.147	280.679	347.297	301.821	−39.414
	500.00	22.558	188.235	179.563	356.210	4.336	262.093	345.412	290.625	−30.361
	600.00	24.367	192.501	181.370	358.553	6.679	243.052	343.441	279.810	−24.360
	700.00	26.461	196.412	183.243	361.093	9.219	223.604	342.215	269.305	−20.096
	800.00	28.627	200.087	185.121	363.847	11.973	203.777	339.397	259.080	−16.916
	900.00	30.768	203.585	186.979	366.819	14.945	183.592	338.854	249.075	−14.456
	1000.00	32.784	206.932	188.809	369.997	18.123	163.065	335.090	239.417	−12.506
	1100.00	34.783	210.150	190.603	373.375	21.501	142.210	334.285	229.891	−10.917
	1200.00	36.763	213.262	192.362	376.953	25.079	121.039	333.678	220.429	−9.595
	1300.00	38.696	216.281	194.087	380.726	28.852	99.561	333.268	211.009	−8.478
	1400.00	40.542	219.217	195.777	384.689	32.815	77.786	333.046	201.614	−7.522
	1500.00	42.266	222.074	197.436	388.831	36.957	55.720	333.004	192.229	−6.694
	1600.00	43.839	224.852	199.063	393.137	41.263	33.373	333.127	182.841	−5.969
	1700.00	45.233	227.553	200.660	397.593	45.719	10.753	333.398	173.440	−5.329
	1800.00	46.428	230.173	202.227	402.177	50.303	−12.134	333.798	164.020	−4.760
	1900.00	47.407	232.711	203.765	406.871	54.997	−35.279	334.308	154.574	−4.250
	2000.00	48.156	235.162	205.274	411.651	59.777	−58.674	334.904	145.100	−3.790
	2100.00	48.721	237.527	206.754	416.497	64.623	−82.309	335.567	135.593	−3.373
	2200.00	49.027	239.801	208.205	421.387	69.513	−106.176	336.272	126.054	−2.993
	2300.00	49.133	241.984	209.626	426.296	74.422	−130.266	336.997	116.483	−2.645
	2400.00	49.083	244.074	211.018	431.208	79.334	−154.570	337.725	106.880	−2.326
	2500.00	48.914	246.075	212.381	436.109	84.235	−179.078	338.442	97.246	−2.032
	2600.00	48.657	247.988	213.714	440.988	89.114	−203.782	339.137	87.585	−1.760
	2700.00	48.335	249.819	215.017	445.838	93.964	−228.673	339.803	77.897	−1.507
	2800.00	47.969	251.570	216.292	450.654	98.780	−253.743	340.435	68.185	−1.272
	2900.00	47.574	253.247	217.537	455.431	103.557	−278.984	341.028	58.451	−1.053
	3000.00	47.166	254.853	218.755	460.168	108.294	−304.390	341.581	48.697	−0.848
	3100.00	46.756	256.393	219.944	464.864	112.990	−329.953	342.093	38.926	−0.656
	3200.00	46.354	257.871	221.106	469.520	117.646	−355.666	342.565	29.139	−0.476
	3300.00	45.969	259.291	222.242	474.135	122.261	−381.525	342.997	19.338	−0.306
	3400.00	45.606	260.658	223.352	478.714	126.840	−407.523	343.391	9.524	−0.146
	3500.00	45.274	261.975	224.437	483.258	131.384	−433.655	0.000	0.000	0.000
	3600.00	44.976	263.246	225.497	487.770	135.896	−459.916	0.000	0.000	0.000
	3700.00	44.719	264.475	226.534	492.254	140.380	−486.303	0.000	0.000	0.000
	3800.00	44.505	265.664	227.548	496.715	144.841	−512.810	0.000	0.000	0.000
	3900.00	44.339	266.818	228.541	501.157	149.283	−539.434	0.000	0.000	0.000
	4000.00	44.223	267.939	229.512	505.585	153.711	−566.172	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

483.776 PLUTONIUM TRIBROMIDE **PuBr3**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	107.867	192.882	192.882	−793.286	0.000	−850.794	−793.286	−767.378	134.441
	300.00	107.905	193.550	192.884	−793.086	0.200	−851.151	−793.356	−767.217	133.584
	400.00	109.997	224.879	197.142	−782.191	11.095	−872.143	−840.848	−749.276	97.845
	500.00	112.089	249.649	205.251	−771.087	22.199	−895.911	−839.356	−726.600	75.907
	600.00	114.181	270.270	214.416	−759.773	33.513	−921.935	−837.934	−704.225	61.308
	700.00	116.273	288.028	223.692	−748.251	45.035	−949.870	−835.780	−682.108	50.899
	800.00	118.365	303.691	232.732	−736.519	56.767	−979.471	−835.242	−660.193	43.106
	900.00	120.457	317.753	241.410	−724.578	68.708	−1010.555	−832.452	−638.477	37.056
	954.00	121.587	324.805	245.933	−718.042	75.244	−1027.906	−833.983	−626.751	34.317
			58.769		56.066					
LIQ	954.00	138.072	383.574	245.933	−661.976	131.310	−1027.906	−777.917	−626.751	34.317
	1000.00	138.072	390.076	252.415	−655.625	137.661	−1045.701	−776.090	−619.506	32.360
	1100.00	138.072	403.236	265.537	−641.818	151.468	−1085.377	−772.126	−604.039	28.683
	1200.00	138.072	415.249	277.520	−628.011	165.275	−1126.310	−768.172	−588.933	25.636
	1300.00	138.072	426.301	288.545	−614.203	179.083	−1168.395	−764.227	−574.157	23.070
	1400.00	138.072	436.533	298.755	−600.396	192.890	−1211.543	−760.291	−559.683	20.882
	1500.00	138.072	446.059	308.261	−586.589	206.697	−1255.678	−756.364	−545.491	18.996

References

Phase	H / S	C_p
SOL	Pa2/Oe1	Oe1
LIQ	Pa2	Oe1

PuC0.88 PLUTONIUM 0.88–CARBIDE 254.634

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	47.692	72.718	72.718	–47.698	0.000	–69.379	–47.698	–52.529	9.203
	300.00	47.768	73.013	72.719	–47.610	0.088	–69.514	–47.683	–52.559	9.151
	400.00	49.642	87.092	74.626	–42.711	4.987	–77.548	–50.362	–54.252	7.085
	500.00	49.889	98.204	78.271	–37.731	9.967	–86.833	–50.627	–55.245	5.771
	600.00	50.249	107.324	82.375	–32.729	14.969	–97.123	–51.329	–56.151	4.888
	700.00	51.319	115.139	86.510	–27.658	20.040	–108.255	–51.589	–56.935	4.249
	800.00	53.347	122.112	90.531	–22.433	25.265	–120.123	–53.630	–57.562	3.758
	900.00	56.453	128.564	94.402	–16.952	30.746	–132.660	–53.452	–58.062	3.370
	1000.00	60.697	134.721	98.128	–11.104	36.594	–145.826	–56.411	–58.298	3.045
	1100.00	66.115	140.751	101.729	–4.774	42.924	–159.600	–56.191	–58.493	2.778
	1200.00	72.728	146.779	105.232	2.158	49.856	–173.976	–55.419	–58.732	2.557
	1300.00	80.549	152.901	108.662	9.812	57.510	–188.959	–53.966	–59.062	2.373
	1400.00	89.585	159.193	112.046	18.309	66.007	–204.562	–51.703	–59.533	2.221
	1500.00	99.844	165.717	115.405	27.770	75.468	–220.805	–48.502	–60.198	2.096
	1600.00	111.327	172.521	118.760	38.318	86.016	–237.715	–44.236	–61.111	1.995
	1700.00	124.039	179.645	122.131	50.076	97.774	–255.320	–38.777	–62.326	1.915
	1800.00	137.979	187.124	125.532	63.167	110.865	–273.655	–32.000	–63.900	1.854

References

Phase	H / S	C_p	Remarks
SOL	Pa3	Pa3	H298 acc. Campbell(1971),Ondracer(1975),Shunk(1969)

268.086 PLUTONIUM DICARBIDE **PuC2**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	55.020	100.834	100.834	−28.451	0.000	−58.515	−28.451	−39.748	6.964
	300.00	55.188	101.175	100.835	−28.349	0.102	−58.702	−28.440	−39.818	6.933
	400.00	62.258	118.101	103.095	−22.449	6.002	−69.689	−31.278	−43.650	5.700
	500.00	67.068	132.537	107.576	−15.970	12.481	−82.239	−31.536	−46.762	4.885
	600.00	70.792	145.107	112.806	−9.071	19.380	−96.135	−32.111	−49.800	4.335
	700.00	73.869	156.257	118.232	−1.833	26.618	−111.213	−32.196	−52.741	3.936
	800.00	76.497	166.297	123.623	5.688	34.139	−127.349	−34.095	−55.551	3.627
	900.00	78.779	175.442	128.880	13.455	41.906	−144.443	−33.908	−58.244	3.380
	1000.00	80.778	183.848	133.962	21.435	49.886	−162.413	−37.109	−60.661	3.169
	1100.00	82.536	191.631	138.855	29.602	58.053	−181.191	−37.503	−62.997	2.991
	1200.00	84.080	198.880	143.558	37.935	66.386	−200.721	−37.846	−65.299	2.842
	1300.00	85.437	205.665	148.078	46.412	74.863	−220.952	−38.136	−67.575	2.715
	1400.00	86.625	212.041	152.421	55.017	83.468	−241.840	−38.374	−69.830	2.605
	1500.00	87.663	218.053	156.598	63.732	92.183	−263.348	−38.561	−72.070	2.510
	1600.00	88.566	223.741	160.618	72.545	100.996	−285.440	−38.700	−74.299	2.426
	1700.00	89.351	229.134	164.491	81.441	109.892	−308.086	−38.795	−76.521	2.351
	1800.00	90.031	234.261	168.226	90.411	118.862	−331.258	−38.850	−78.738	2.285
	1900.00	90.622	239.145	171.831	99.445	127.896	−354.930	−38.870	−80.954	2.226
	2000.00	91.136	243.807	175.314	108.533	136.984	−379.080	−38.860	−83.169	2.172
	2100.00	91.588	248.264	178.683	117.670	146.121	−403.685	−38.826	−85.385	2.124
	2200.00	91.991	252.534	181.943	126.849	155.300	−428.726	−38.770	−87.603	2.080
	2300.00	92.358	256.632	185.102	136.067	164.518	−454.186	−38.695	−89.825	2.040
	2400.00	92.702	260.570	188.165	145.320	173.771	−480.047	−38.601	−92.050	2.003

References

Phase	H / S	C_p
SOL	Pa3	Pa3

Pu2C3 DIPLUTONIUM TRICARBIDE 524.161

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	114.002	150.001	150.001	−169.452	0.000	−214.175	−169.452	−178.353	31.247
	300.00	114.233	150.707	150.003	−169.241	0.211	−214.453	−169.407	−178.408	31.064
	400.00	121.759	184.784	154.598	−157.378	12.074	−231.291	−173.984	−181.662	23.723
	500.00	125.016	212.338	163.481	−145.023	24.429	−251.192	−173.771	−183.711	19.192
	600.00	127.445	235.347	173.593	−132.400	37.052	−273.608	−174.517	−185.727	16.169
	700.00	130.227	255.193	183.864	−119.522	49.930	−298.157	−174.505	−187.599	13.999
	800.00	133.854	272.808	193.901	−106.326	63.126	−324.572	−178.226	−189.224	12.355
	900.00	138.562	288.834	203.571	−92.715	76.737	−352.666	−177.742	−190.626	11.064
	1000.00	144.475	303.728	212.850	−78.574	90.878	−382.302	−183.842	−191.499	10.003
	1100.00	151.664	317.825	221.757	−63.778	105.674	−413.385	−183.981	−192.253	9.129
	1200.00	160.172	331.376	230.330	−48.197	121.255	−445.849	−183.505	−193.021	8.402
	1300.00	170.025	344.577	238.613	−31.698	137.754	−479.648	−182.250	−193.859	7.789
	1400.00	181.243	357.579	246.647	−14.146	155.306	−514.757	−180.053	−194.827	7.269
	1500.00	193.837	370.505	254.473	4.596	174.048	−551.162	−176.757	−195.991	6.825
	1600.00	207.816	383.454	262.130	24.667	194.119	−588.859	−172.206	−197.414	6.445
	1700.00	223.186	396.507	269.649	46.206	215.658	−627.856	−166.247	−199.164	6.120
	1800.00	239.953	409.732	277.064	69.351	238.803	−668.166	−158.731	−201.310	5.842
	1900.00	258.119	423.186	284.399	94.243	263.695	−709.810	−149.511	−203.918	5.606
	2000.00	277.688	436.917	291.680	121.022	290.474	−752.813	−138.442	−207.060	5.408
	2100.00	298.662	450.967	298.930	149.827	319.279	−797.204	−125.382	−210.803	5.243
	2200.00	321.044	465.372	306.166	180.801	350.253	−843.018	−110.186	−215.218	5.110

References

Phase	H / S	C_p
SOL	Pa3	Pa3

350.422 PLUTONIUM TRICHLORIDE **PuCl3**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)		] [		kJ / mol			] [-]
SOL	298.15	102.867	158.992	158.992	-961.483	0.000	-1008.886	-961.483	-893.759	156.583
	300.00	102.909	159.628	158.994	-961.293	0.190	-1009.181	-961.446	-893.339	155.544
	400.00	105.351	189.562	163.059	-950.882	10.601	-1026.707	-962.901	-870.885	113.726
	500.00	107.941	213.347	170.817	-940.218	21.265	-1046.891	-961.667	-848.068	88.597
	600.00	110.589	233.261	179.608	-929.292	32.191	-1069.248	-960.508	-825.499	71.866
	700.00	113.265	250.509	188.532	-918.099	43.384	-1093.455	-958.596	-803.146	59.931
	800.00	115.956	265.809	197.253	-906.638	54.845	-1119.285	-958.266	-780.963	50.992
	900.00	118.655	279.622	205.649	-894.908	66.575	-1146.567	-955.638	-758.955	44.049
	1000.00	121.359	292.263	213.687	-882.907	78.576	-1175.170	-956.191	-736.955	38.495
	1033.00	122.253	296.218	216.261	-878.887	82.596	-1184.881	-955.409	-729.733	36.900
			61.565		63.597					
LIQ	1033.00	133.888	357.783	216.261	-815.290	146.193	-1184.881	-891.812	-729.733	36.900
	1100.00	133.888	366.197	225.140	-806.320	155.163	-1209.137	-889.419	-719.297	34.157
	1200.00	133.888	377.847	237.387	-792.931	168.552	-1246.348	-885.860	-703.988	30.644
	1300.00	133.888	388.564	248.610	-779.542	181.941	-1284.675	-882.315	-688.976	27.683
	1400.00	133.888	398.486	258.965	-766.154	195.329	-1324.034	-878.782	-674.236	25.156
	1500.00	133.888	407.723	268.578	-752.765	208.718	-1364.350	-875.260	-659.749	22.974

References

Phase	H / S	C_p
SOL	Oe1	Oe1
LIQ	Pa2	Oe1

PuF3 PLUTONIUM TRIFLUORIDE 301.059

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	92.647	126.110	126.110	−1552.264	0.000	−1589.864	−1552.264	−1483.825	259.960
	300.00	92.776	126.683	126.112	−1552.092	0.172	−1590.098	−1552.239	−1483.400	258.283
	400.00	98.868	154.250	129.829	−1542.496	9.768	−1604.196	−1554.127	−1460.628	190.738
	500.00	103.496	176.830	137.038	−1532.368	19.896	−1620.783	−1553.118	−1437.412	150.165
	600.00	107.253	196.041	145.310	−1521.825	30.439	−1639.450	−1552.099	−1414.408	123.135
	700.00	110.512	212.824	153.781	−1510.934	41.330	−1659.911	−1550.298	−1391.598	103.842
	800.00	113.472	227.777	162.112	−1499.733	52.531	−1681.954	−1550.079	−1368.943	89.383
	900.00	116.243	241.303	170.172	−1488.246	64.018	−1705.418	−1547.578	−1346.449	78.146
	1000.00	118.892	253.688	177.913	−1476.488	75.776	−1730.177	−1548.283	−1323.947	69.156
	1100.00	121.456	265.141	185.328	−1464.470	87.794	−1756.125	−1546.009	−1301.622	61.809
	1200.00	123.962	275.817	192.429	−1452.199	100.065	−1783.179	−1543.514	−1279.513	55.696
	1300.00	126.424	285.837	199.233	−1439.679	112.585	−1811.267	−1540.798	−1257.622	50.532
	1400.00	128.855	295.295	205.760	−1426.915	125.349	−1840.327	−1537.862	−1235.948	46.114
	1500.00	131.261	304.267	212.030	−1413.909	138.355	−1870.309	−1534.705	−1214.491	42.292
	1600.00	133.650	312.815	218.064	−1400.663	151.601	−1901.167	−1531.328	−1193.253	38.956
	1699.00	136.000	320.908	223.823	−1387.316	164.948	−1932.539	−1527.768	−1172.441	36.046
			32.014		54.392					
LIQ	1699.00	146.440	352.922	223.823	−1332.924	219.340	−1932.539	−1473.376	−1172.441	36.046
	1700.00	146.440	353.009	223.899	−1332.777	219.487	−1932.892	−1473.329	−1172.264	36.019
	1800.00	146.440	361.379	231.306	−1318.133	234.131	−1968.615	−1468.588	−1154.691	33.508
	1900.00	146.440	369.297	238.362	−1303.489	248.775	−2005.153	−1463.862	−1137.381	31.269
	2000.00	146.440	376.808	245.098	−1288.845	263.419	−2042.461	−1459.151	−1120.320	29.260

References

Phase	H / S	C_p
SOL	Pa2	Pa2
LIQ	Oe1	Oe1

320.058

PLUTONIUM TETRAFLUORIDE **PuF4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	116.193	147.252	147.252	−1778.200	0.000	−1822.103	−1778.200	−1685.833	295.351
	300.00	116.368	147.971	147.254	−1777.985	0.215	−1822.376	−1778.160	−1685.260	293.430
	400.00	122.867	182.450	151.911	−1765.984	12.216	−1838.964	−1779.251	−1654.588	216.067
	500.00	126.449	210.283	160.892	−1753.505	24.695	−1858.646	−1777.572	−1623.662	169.623
	600.00	128.883	233.564	171.117	−1740.732	37.468	−1880.870	−1776.059	−1593.066	138.689
	700.00	130.775	253.578	181.501	−1727.746	50.454	−1905.250	−1773.939	−1562.734	116.613
	800.00	132.378	271.147	191.630	−1714.586	63.614	−1931.504	−1773.565	−1532.591	100.068
	900.00	133.813	286.823	201.352	−1701.276	76.924	−1959.417	−1771.064	−1502.618	87.210
	1000.00	135.143	300.992	210.619	−1687.827	90.373	−1988.819	−1771.918	−1472.630	76.922
	1100.00	136.406	313.932	219.431	−1674.249	103.951	−2019.574	−1769.937	−1442.797	68.513
	1200.00	137.622	325.853	227.809	−1660.548	117.652	−2051.571	−1767.876	−1413.147	61.513
	1300.00	138.805	336.916	235.782	−1646.726	131.474	−2084.716	−1765.732	−1383.673	55.597
	1310.00	138.922	337.980	236.558	−1645.338	132.862	−2088.091	−1765.513	−1380.735	55.055
			32.578		42.677					
LIQ	1310.00	171.544	370.558	236.558	−1602.661	175.539	−2088.091	−1722.836	−1380.735	55.055
	1400.00	171.544	381.956	245.543	−1587.222	190.978	−2121.960	−1717.936	−1357.396	50.645
	1500.00	171.544	393.791	255.036	−1570.067	208.133	−2160.754	−1712.520	−1331.832	46.379

References

Phase	H / S	C_p
SOL	Pa2	Pa2
LIQ	Oe1	Oe1

358.055

PLUTONIUM HEXAFLUORIDE **PuF6**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	167.364	221.752	221.752	−1799.120	0.000	−1865.235	−1799.120	−1668.502	292.315
	300.00	167.855	222.789	221.755	−1798.810	0.310	−1865.647	−1799.043	−1667.691	290.371
	324.74	174.413	236.346	222.354	−1794.576	4.544	−1871.327	−1797.948	−1656.902	266.514
			57.412		18.644					
LIQ	324.74	188.280	293.759	222.354	−1775.932	23.188	−1871.327	−1779.304	−1656.902	266.514
	400.00	188.280	333.004	239.609	−1761.762	37.358	−1894.964	−1778.301	−1628.970	212.722

References

Phase	H / S	C_p
SOL	Pa2	Oe1
LIQ	Oe1	Oe1

PuF6[g] PLUTONIUM HEXAFLUORIDE (GAS) 358.055

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	129.420	369.532	369.532	−1748.912	0.000	−1859.088	−1748.912	−1662.354	291.238
	300.00	129.677	370.333	369.534	−1748.672	0.240	−1859.772	−1748.905	−1661.817	289.348
	400.00	139.948	409.196	374.763	−1735.139	13.773	−1898.817	−1751.677	−1632.823	213.225
	500.00	145.673	441.097	384.937	−1720.832	28.080	−1941.380	−1751.534	−1603.170	167.482
	600.00	149.106	467.984	396.597	−1706.079	42.833	−1986.870	−1751.515	−1573.543	136.989
	700.00	151.306	491.146	408.488	−1691.051	57.861	−2034.854	−1750.903	−1543.929	115.209
	800.00	152.793	511.453	420.116	−1675.842	73.070	−2085.004	−1752.084	−1514.285	98.873
	900.00	153.842	529.514	431.286	−1660.507	88.405	−2137.070	−1751.207	−1484.613	86.165
	1000.00	154.608	545.764	441.935	−1645.083	103.829	−2190.847	−1753.765	−1454.740	75.988
	1100.00	155.181	560.528	452.055	−1629.592	119.320	−2246.173	−1753.578	−1424.847	67.660
	1200.00	155.622	574.050	461.666	−1614.051	134.861	−2302.911	−1753.406	−1394.970	60.721
	1300.00	155.966	586.521	470.797	−1598.471	150.441	−2360.948	−1753.249	−1365.107	54.851
	1400.00	156.239	598.090	479.481	−1582.860	166.052	−2420.186	−1753.111	−1335.255	49.819
	1500.00	156.459	608.877	487.752	−1567.225	181.687	−2480.540	−1752.991	−1305.412	45.458
	1600.00	156.638	618.980	495.641	−1551.570	197.342	−2541.938	−1752.889	−1275.577	41.643
	1700.00	156.785	628.481	503.179	−1535.898	213.014	−2604.316	−1752.807	−1245.748	38.277
	1800.00	156.907	637.446	510.391	−1520.213	228.699	−2667.616	−1752.743	−1215.923	35.285
	1900.00	157.009	645.932	517.304	−1504.518	244.394	−2731.789	−1752.700	−1186.100	32.608
	2000.00	157.094	653.988	523.938	−1488.812	260.100	−2796.789	−1752.676	−1156.280	30.199

References

Phase	H / S	C_p
GAS	Pa2	Pa2

PuH2 PLUTONIUM DIHYDRIDE 246.080

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	39.018	59.831	59.831	−139.327	0.000	−157.166	−139.327	−102.860	18.021
	300.00	39.113	60.073	59.832	−139.255	0.072	−157.277	−139.367	−102.633	17.870
	400.00	43.043	71.911	61.419	−135.130	4.197	−163.895	−144.814	−90.026	11.756
	500.00	45.727	81.817	64.535	−130.686	8.641	−171.595	−147.366	−76.076	7.948
	600.00	47.921	90.353	68.143	−126.001	13.326	−180.213	−149.924	−61.619	5.364
	700.00	49.883	97.890	71.864	−121.109	18.218	−189.632	−151.736	−46.756	3.489
	800.00	51.722	104.672	75.548	−116.028	23.299	−199.766	−155.180	−31.526	2.058
	900.00	53.489	110.866	79.133	−110.767	28.560	−210.547	−156.408	−15.994	0.928
	1000.00	55.212	116.591	82.596	−105.332	33.995	−221.923	−160.919	−0.035	0.002

References

Phase	H / S	C_p
SOL	Oe1	Oe1

247.088 PLUTONIUM TRIHYDRIDE **PuH3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	43.242	64.852	64.852	−138.072	0.000	−157.408	−138.072	−83.621	14.650
	300.00	43.304	65.120	64.853	−137.992	0.080	−157.528	−138.131	−83.282	14.501
	400.00	46.652	78.036	66.591	−133.494	4.578	−164.709	−144.657	−64.476	8.420
	500.00	49.999	88.806	69.985	−128.662	9.410	−173.064	−148.282	−44.052	4.602

References

Phase	H / S	C_p
SOL	Oe1	Oe1

624.778 PLUTONIUM TRIIODIDE **PuI3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	111.825	214.221	214.221	−579.902	0.000	−643.772	−579.902	−576.487	100.998
	300.00	111.863	214.913	214.223	−579.695	0.207	−644.169	−579.905	−576.465	100.372
	400.00	113.922	247.376	218.635	−568.406	11.496	−667.356	−607.739	−574.386	75.007
	500.00	115.980	273.018	227.035	−556.911	22.991	−693.420	−672.608	−559.852	58.487
	600.00	118.039	294.345	236.525	−545.210	34.692	−721.817	−670.848	−537.508	46.794
	700.00	120.098	312.696	246.126	−533.303	46.599	−752.190	−668.351	−515.479	38.466
	800.00	122.156	328.867	255.477	−521.190	58.712	−784.284	−667.469	−493.702	32.235
	900.00	124.215	343.374	264.451	−508.872	71.030	−817.908	−664.336	−472.168	27.404
	1000.00	126.273	356.568	273.013	−496.347	83.555	−852.915	−664.435	−450.694	23.542
	1050.00	127.302	362.753	277.140	−490.008	89.894	−870.899	−663.032	−440.041	21.891
			47.817		50.208					
LIQ	1050.00	142.256	410.571	277.140	−439.800	140.102	−870.899	−612.824	−440.041	21.891
	1100.00	142.256	417.188	283.357	−432.687	147.215	−891.594	−610.651	−431.865	20.508
	1200.00	142.256	429.566	295.032	−418.462	161.440	−933.941	−606.311	−415.803	18.099
	1300.00	142.256	440.953	305.825	−404.236	175.666	−977.474	−601.981	−400.103	16.076
	1400.00	142.256	451.495	315.858	−390.010	189.892	−1022.103	−597.660	−384.736	14.355
	1500.00	142.256	461.310	325.232	−375.785	204.117	−1067.749	−593.348	−369.678	12.873

References

Phase	H / S	C_p
SOL	Pa2	Oe1
LIQ	Oe1	Oe1

PuN PLUTONIUM NITRIDE 258.071

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	49.600	64.810	64.810	−299.198	0.000	−318.521	−299.198	−274.613	48.111
	300.00	49.628	65.117	64.811	−299.106	0.092	−318.641	−299.192	−274.461	47.788
	400.00	51.170	79.605	66.776	−294.066	5.132	−325.908	−302.276	−266.216	34.764
	500.00	52.713	91.189	70.538	−288.872	10.326	−334.467	−302.625	−257.206	26.870
	600.00	54.255	100.936	74.813	−283.524	15.674	−344.086	−303.083	−248.122	21.601
	700.00	55.797	109.416	79.163	−278.021	21.177	−354.612	−302.867	−238.977	17.833
	800.00	57.339	116.967	83.425	−272.364	26.834	−365.938	−304.338	−229.752	15.001
	900.00	58.881	123.810	87.538	−266.553	32.645	−377.982	−303.630	−220.470	12.796
	1000.00	60.423	130.093	91.483	−260.588	38.610	−390.681	−306.226	−210.975	11.020
	1100.00	61.965	135.924	95.261	−254.469	44.729	−403.986	−305.940	−201.463	9.567
	1200.00	63.508	141.382	98.880	−248.195	51.003	−417.854	−305.524	−191.982	8.357
	1300.00	65.050	146.526	102.349	−241.767	57.431	−432.252	−304.977	−182.542	7.335
	1400.00	66.592	151.404	105.680	−235.185	64.013	−447.150	−304.296	−173.149	6.460
	1500.00	68.134	156.051	108.884	−228.449	70.749	−462.525	−303.478	−163.809	5.704
	1600.00	69.676	160.497	111.972	−221.558	77.640	−478.354	−302.521	−154.528	5.045

References

Phase	H / S	C_p
SOL	Pa3	Pa3

260.064 PLUTONIUM OXIDE **PuO**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	51.269	70.710	70.710	−564.840	0.000	−585.922	−564.840	−539.996	94.605
	300.00	51.323	71.027	70.711	−564.745	0.095	−586.053	−564.831	−539.842	93.995
	400.00	53.932	86.162	72.757	−559.478	5.362	−593.943	−567.714	−531.539	69.412
	500.00	56.087	98.435	76.703	−553.974	10.866	−603.191	−567.814	−522.528	54.588
	600.00	57.951	108.829	81.212	−548.270	16.570	−613.567	−568.004	−513.496	44.704
	700.00	59.604	117.889	85.818	−542.391	22.449	−624.913	−567.518	−504.449	37.642
	800.00	61.092	125.947	90.340	−536.354	28.486	−637.112	−568.723	−495.359	32.344
	900.00	62.438	133.222	94.707	−530.177	34.663	−650.076	−567.762	−486.245	28.221
	1000.00	63.659	139.864	98.895	−523.871	40.969	−663.735	−570.129	−476.946	24.913
	1100.00	64.767	145.984	102.902	−517.449	47.391	−678.032	−569.646	−467.650	22.207
	1200.00	65.772	151.664	106.731	−510.921	53.919	−692.918	−569.076	−458.402	19.954
	1300.00	66.679	156.965	110.394	−504.298	60.542	−708.352	−568.429	−449.205	18.049
	1400.00	67.497	161.937	113.900	−497.588	67.252	−724.300	−567.710	−440.061	16.419
	1500.00	68.231	166.619	117.260	−490.801	74.039	−740.730	−566.927	−430.970	15.008
	1600.00	68.886	171.044	120.484	−483.945	80.895	−757.615	−566.088	−421.933	13.775
	1700.00	69.468	175.238	123.583	−477.026	87.814	−774.931	−565.200	−412.950	12.688
	1800.00	69.981	179.223	126.564	−470.053	94.787	−792.655	−564.269	−404.021	11.724
	1900.00	70.432	183.019	129.436	−463.032	101.808	−810.769	−563.302	−395.145	10.863
	2000.00	70.824	186.642	132.207	−455.969	108.871	−829.253	−562.304	−386.320	10.090
	2100.00	71.163	190.106	134.882	−448.869	115.971	−848.092	−561.281	−377.546	9.391
	2173.00	71.380	192.542	136.778	−443.666	121.174	−862.059	−560.521	−371.172	8.922

References

Phase	H / S	C_p	Remarks	
SOL	Pa1	Pa1	Pa1	MPT= 2173.

PuO2 PLUTONIUM DIOXIDE 276.063

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	66.242	66.128	66.128	-1055.832	0.000	-1075.548	-1055.832	-999.040	175.028
	300.00	66.583	66.539	66.129	-1055.709	0.123	-1075.671	-1055.823	-998.687	173.887
	400.00	78.237	87.548	68.915	-1048.379	7.453	-1083.398	-1058.128	-979.733	127.940
	500.00	83.347	105.622	74.497	-1040.270	15.562	-1093.080	-1057.152	-960.286	100.320
	600.00	86.069	121.081	81.005	-1031.787	24.045	-1104.435	-1056.143	-941.051	81.926
	700.00	87.776	134.485	87.709	-1023.089	32.743	-1117.228	-1054.465	-922.000	68.800
	800.00	89.024	146.291	94.308	-1014.246	41.586	-1131.279	-1054.532	-903.075	58.965
	900.00	90.076	156.838	100.681	-1005.290	50.542	-1146.444	-1052.496	-884.265	51.321
	1000.00	91.067	166.380	106.781	-996.233	59.599	-1162.613	-1053.843	-865.386	45.203
	1100.00	92.072	175.106	112.601	-987.076	68.756	-1179.693	-1052.379	-846.611	40.202
	1200.00	93.139	183.163	118.150	-977.817	78.015	-1197.612	-1050.852	-827.971	36.041
	1300.00	94.295	190.663	123.443	-968.446	87.386	-1216.307	-1049.248	-809.462	32.525
	1400.00	95.560	197.696	128.498	-958.954	96.878	-1235.729	-1047.554	-791.080	29.516
	1500.00	96.945	204.336	133.334	-949.330	106.502	-1255.833	-1045.755	-772.823	26.912
	1600.00	98.459	210.640	137.971	-939.561	116.271	-1276.585	-1043.837	-754.689	24.638
	1700.00	100.109	216.658	142.424	-929.633	126.199	-1297.952	-1041.786	-736.679	22.635
	1800.00	101.900	222.430	146.709	-919.534	136.298	-1319.908	-1039.586	-718.795	20.859
	1900.00	103.835	227.991	150.842	-909.248	146.584	-1342.431	-1037.224	-701.036	19.273
	2000.00	105.916	233.369	154.834	-898.762	157.070	-1365.500	-1034.685	-683.407	17.849
	2100.00	108.146	238.590	158.699	-888.060	167.772	-1389.100	-1031.952	-665.910	16.564
	2200.00	110.526	243.675	162.446	-877.128	178.704	-1413.214	-1029.012	-648.547	15.398
	2300.00	113.057	248.644	166.086	-865.950	189.882	-1437.831	-1025.849	-631.323	14.338
	2400.00	115.741	253.512	169.628	-854.512	201.320	-1462.939	-1022.447	-614.242	13.369
	2500.00	118.579	258.293	173.079	-842.797	213.035	-1488.530	-1018.791	-597.308	12.480
	2600.00	118.826	262.954	176.447	-830.914	224.918	-1514.594	-1014.989	-580.523	11.663
	2700.00	118.826	267.438	179.734	-819.032	236.800	-1541.115	-1011.207	-563.885	10.909
	2715.00	118.826	268.097	180.221	-817.249	238.583	-1545.132	-1010.642	-561.402	10.801
			27.739		75.312					
LIQ	2715.00	104.600	295.836	180.221	-741.937	313.895	-1545.132	-935.330	-561.402	10.801
	2800.00	104.600	299.060	183.780	-733.046	322.786	-1570.415	-933.344	-549.726	10.255
	2900.00	104.600	302.731	187.819	-722.586	333.246	-1600.506	-931.026	-536.066	9.656
	3000.00	104.600	306.277	191.708	-712.126	343.706	-1630.957	-928.727	-522.486	9.097

References

Phase	H / S	C_p
SOL	Pa1	Pa1,e
LIQ	Pa1	e

536.127 DIPLUTONIUM TRIOXIDE (ALPHA) **Pu2O3**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	133.249	153.553	153.553	−1799.120	0.000	−1844.902	−1799.120	−1722.467	301.769
	300.00	133.659	154.378	153.555	−1798.873	0.247	−1845.187	−1799.073	−1721.992	299.825
	400.00	148.475	195.131	159.011	−1784.672	14.448	−1862.725	−1802.658	−1696.657	221.561
	500.00	156.584	229.200	169.739	−1769.389	29.731	−1883.989	−1800.112	−1670.532	174.519
	600.00	162.280	258.276	182.131	−1753.433	45.687	−1908.399	−1797.523	−1644.943	143.205
	700.00	166.819	283.643	194.859	−1736.971	62.149	−1935.521	−1793.475	−1619.829	120.873
	800.00	170.670	306.176	207.391	−1720.092	79.028	−1965.033	−1792.746	−1595.077	104.148
	900.00	174.041	326.477	219.514	−1702.853	96.267	−1996.682	−1787.644	−1570.672	91.159
	1000.00	177.040	344.972	231.148	−1685.296	113.824	−2030.268	−1789.164	−1546.252	80.768
	1100.00	179.730	361.974	242.279	−1667.455	131.665	−2065.627	−1784.955	−1522.163	72.281
	1200.00	182.150	377.718	252.918	−1649.359	149.761	−2102.621	−1780.551	−1498.465	65.227
	1300.00	184.329	392.386	263.088	−1631.033	168.087	−2141.135	−1775.967	−1475.143	59.272
	1400.00	186.288	406.119	272.820	−1612.501	186.619	−2181.067	−1771.223	−1452.180	54.181
	1500.00	188.047	419.033	282.141	−1593.783	205.337	−2222.331	−1766.334	−1429.561	49.782
	1600.00	189.620	431.220	291.081	−1574.898	224.222	−2264.850	−1761.318	−1407.272	45.943
	1700.00	191.022	442.758	299.667	−1555.864	243.256	−2308.554	−1756.190	−1385.301	42.565
	1800.00	192.267	453.713	307.923	−1536.699	262.421	−2353.382	−1750.966	−1363.634	39.572
	1900.00	193.367	464.138	315.873	−1517.416	281.704	−2399.279	−1745.661	−1342.260	36.901
	2000.00	194.334	474.082	323.537	−1498.030	301.090	−2446.194	−1740.287	−1321.167	34.505

References

Phase	H / S	C_p
SOL	Pa1	Pa1

Pu2O3[B] DIPLUTONIUM TRIOXIDE (BETA) 536.127

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	131.157	138.909	138.909	−1715.440	0.000	−1756.856	−1715.440	−1634.421	286.344
	300.00	131.567	139.721	138.911	−1715.197	0.243	−1757.113	−1715.397	−1633.919	284.491
	400.00	146.383	179.872	144.285	−1701.205	14.235	−1773.154	−1719.191	−1607.086	209.864
	500.00	154.492	213.474	154.858	−1686.132	29.308	−1792.869	−1716.854	−1579.412	165.000
	600.00	160.188	242.169	167.076	−1670.385	45.055	−1815.686	−1714.475	−1552.231	135.134
	700.00	164.727	267.214	179.630	−1654.132	61.308	−1841.181	−1710.635	−1525.489	113.833
	800.00	168.578	289.467	191.995	−1637.462	77.978	−1869.036	−1710.116	−1499.080	97.880
	900.00	171.949	309.522	203.957	−1620.432	95.008	−1899.002	−1705.223	−1472.991	85.490
	1000.00	174.948	327.796	215.441	−1603.085	112.355	−1930.881	−1706.953	−1446.865	75.576
	1100.00	177.638	344.599	226.429	−1585.453	129.987	−1964.512	−1702.953	−1421.048	67.480
	1200.00	180.058	360.161	236.933	−1567.566	147.874	−1999.760	−1698.757	−1395.604	60.749
	1300.00	182.237	374.661	246.976	−1549.449	165.991	−2036.509	−1694.383	−1370.517	55.068
	1400.00	184.196	388.239	256.586	−1531.126	184.314	−2074.661	−1689.848	−1345.773	50.211
	1500.00	185.955	401.009	265.793	−1512.617	202.823	−2114.130	−1685.168	−1321.359	46.014
	1600.00	187.528	413.061	274.624	−1493.941	221.499	−2154.839	−1680.361	−1297.261	42.351
	1700.00	188.930	424.473	283.106	−1475.117	240.323	−2196.721	−1675.443	−1273.468	39.129
	1800.00	190.175	435.308	291.263	−1456.160	259.280	−2239.714	−1670.428	−1249.966	36.273
	1900.00	191.275	445.620	299.118	−1437.087	278.353	−2283.765	−1665.332	−1226.746	33.726
	2000.00	192.242	455.456	306.691	−1417.910	297.530	−2328.822	−1660.167	−1203.796	31.440

References

Phase	H / S	C_p
SOL	Pa1	Pa1

PuOBr PLUTONIUM BROMIDE OXIDE 339.968

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	87.791	119.244	119.244	−888.682	0.000	−924.235	−888.682	−855.618	149.901
	300.00	87.835	119.787	119.246	−888.520	0.162	−924.456	−888.676	−855.413	148.941
	400.00	90.224	145.383	122.719	−879.617	9.065	−937.770	−905.164	−841.458	109.883
	500.00	92.613	165.772	129.358	−870.475	18.207	−953.361	−903.472	−825.772	86.268
	600.00	95.002	182.869	136.889	−861.094	27.588	−970.815	−901.844	−810.427	70.554
	700.00	97.391	197.693	144.539	−851.474	37.208	−989.859	−899.485	−795.374	59.352
	800.00	99.780	210.854	152.021	−841.616	47.066	−1010.299	−898.742	−780.554	50.965
	900.00	102.169	222.744	159.229	−831.518	57.164	−1031.988	−895.740	−765.958	44.455
	1000.00	104.558	233.632	166.132	−821.182	67.500	−1054.814	−895.960	−751.410	39.250
	1100.00	106.947	243.710	172.732	−810.607	78.075	−1078.687	−893.209	−737.087	35.001
	1200.00	109.336	253.118	179.043	−799.793	88.889	−1103.534	−890.243	−723.023	31.472
	1300.00	111.725	261.964	185.085	−788.740	99.942	−1129.292	−887.059	−709.215	28.497
	1400.00	114.114	270.331	190.878	−777.448	111.234	−1155.911	−883.653	−695.662	25.955
	1500.00	116.503	278.285	196.442	−765.917	122.765	−1183.345	−880.025	−682.359	23.762

References

Phase	H / S	C_p
SOL	Oe1	Oe1

295.516

PLUTONIUM CHLORIDE OXIDE

PuOCl

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	83.648	108.784	108.784	−931.777	0.000	−964.211	−931.777	−885.024	155.052
	300.00	83.693	109.302	108.786	−931.622	0.155	−964.413	−931.740	−884.734	154.046
	400.00	86.082	133.706	112.097	−923.134	8.643	−976.616	−933.135	−869.319	113.521
	500.00	88.471	153.171	118.429	−914.406	17.371	−990.991	−931.796	−853.565	89.171
	600.00	90.860	169.512	125.616	−905.439	26.338	−1007.147	−930.542	−838.079	72.961
	700.00	93.249	183.698	132.922	−896.234	35.543	−1024.822	−928.567	−822.822	61.400
	800.00	95.638	196.305	140.071	−886.790	44.987	−1043.834	−928.217	−807.741	52.740
	900.00	98.027	207.708	146.962	−877.106	54.671	−1064.043	−925.614	−792.836	46.015
	1000.00	100.416	218.159	153.567	−867.184	64.593	−1085.344	−926.235	−777.933	40.635
	1100.00	102.805	227.842	159.884	−857.023	74.754	−1107.650	−923.889	−763.215	36.242
	1200.00	105.194	236.890	165.928	−846.623	85.154	−1130.891	−921.330	−748.719	32.591
	1300.00	107.583	245.404	171.718	−835.984	95.793	−1155.010	−918.553	−734.446	29.510
	1400.00	109.972	253.464	177.271	−825.107	106.670	−1179.957	−915.556	−720.395	26.878
	1500.00	112.361	261.133	182.608	−813.990	117.787	−1205.690	−912.339	−706.566	24.605

References

Phase	H / S	C_p
SOL	Oe1,Ra2	Oe1

279.062

PLUTONIUM FLUORIDE OXIDE

PuOF

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	79.464	91.630	91.630	−1128.843	0.000	−1156.162	−1128.843	−1080.005	189.212
	300.00	79.509	92.121	91.631	−1128.696	0.147	−1156.332	−1128.811	−1079.702	187.993
	400.00	81.898	115.322	94.778	−1120.626	8.217	−1166.754	−1130.498	−1063.542	138.884
	500.00	84.287	133.853	100.800	−1112.316	16.527	−1179.243	−1129.474	−1046.967	109.376
	600.00	86.676	149.432	107.641	−1103.768	25.075	−1193.427	−1128.556	−1030.595	89.721
	700.00	89.065	162.972	114.598	−1094.981	33.862	−1209.062	−1126.937	−1014.394	75.695
	800.00	91.454	175.021	121.412	−1085.955	42.888	−1225.972	−1126.955	−998.317	65.183
	900.00	93.843	185.931	127.984	−1076.691	52.152	−1244.028	−1124.732	−982.368	57.015
	1000.00	96.232	195.942	134.286	−1067.187	61.656	−1263.129	−1125.741	−966.380	50.479
	1100.00	98.621	205.226	140.318	−1057.444	71.399	−1283.192	−1123.790	−950.536	45.137
	1200.00	101.010	213.909	146.092	−1047.463	81.380	−1304.154	−1121.631	−934.880	40.694
	1300.00	103.399	222.089	151.626	−1037.242	91.601	−1325.957	−1119.260	−919.412	36.942
	1400.00	105.788	229.839	156.939	−1026.783	102.060	−1348.557	−1116.672	−904.135	33.734
	1500.00	108.177	237.219	162.047	−1016.084	112.759	−1371.913	−1113.867	−889.050	30.959

References

Phase	H / S	C_p	Remarks
SOL	Oe1	Oe1	MPT 1500

PuOI PLUTONIUM IODIDE OXIDE 386.968

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	92.016	126.357	126.357	−827.595	0.000	−865.268	−827.595	−802.028	140.512
	300.00	92.061	126.926	126.359	−827.425	0.170	−865.503	−827.561	−801.870	139.618
	400.00	94.450	153.737	129.998	−818.099	9.496	−879.594	−837.206	−793.248	103.588
	500.00	96.839	175.070	136.950	−808.535	19.060	−896.070	−857.341	−780.395	81.527
	600.00	99.228	192.937	144.831	−798.731	28.864	−914.494	−855.308	−765.239	66.620
	700.00	101.617	208.412	152.833	−788.689	38.906	−934.578	−852.540	−750.444	55.999
	800.00	104.006	222.137	160.654	−778.408	49.187	−956.118	−851.386	−735.939	48.052
	900.00	106.395	234.525	168.184	−767.888	59.707	−978.961	−847.973	−721.711	41.887
	1000.00	108.784	245.859	175.393	−757.129	70.466	−1002.988	−847.781	−707.576	36.960
	1100.00	111.173	256.339	182.281	−746.131	81.464	−1028.104	−844.619	−693.706	32.941
	1200.00	113.562	266.115	188.864	−734.895	92.700	−1054.232	−841.241	−680.134	29.605
	1300.00	115.951	275.299	195.164	−723.419	104.176	−1081.308	−837.645	−666.853	26.794
	1400.00	118.340	283.979	201.200	−711.704	115.891	−1109.275	−833.828	−653.857	24.396
	1500.00	120.729	292.225	206.996	−699.751	127.844	−1138.089	−829.789	−641.142	22.327

References

Phase	H / S	C_p
SOL	Oe1	Oe1

276.130 PLUTONIUM MONOSULFIDE **PuS**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	53.974	78.241	78.241	−439.320	0.000	−462.647	−439.320	−437.746	76.691
	300.00	54.067	78.575	78.242	−439.220	0.100	−462.793	−439.321	−437.736	76.217
	400.00	58.236	94.727	80.416	−433.596	5.724	−471.486	−444.943	−437.067	57.075
	500.00	61.813	108.112	84.653	−427.590	11.730	−481.647	−446.914	−434.934	45.437
	600.00	65.052	119.674	89.547	−421.244	18.076	−493.048	−448.458	−432.424	37.646
	700.00	67.938	129.923	94.597	−414.592	24.728	−505.538	−448.881	−429.713	32.066
	800.00	70.497	139.165	99.599	−407.668	31.652	−519.000	−450.889	−426.841	27.870
	900.00	72.798	147.603	104.471	−400.501	38.819	−533.344	−503.443	−422.693	24.532
	1000.00	74.940	155.385	109.178	−393.113	46.207	−548.498	−504.833	−413.531	21.601
	1100.00	77.038	162.626	113.712	−385.514	53.806	−564.403	−503.260	−404.475	19.207
	1200.00	78.966	169.412	118.074	−377.714	61.606	−581.008	−501.492	−395.571	17.219
	1300.00	80.802	175.806	122.271	−369.725	69.595	−598.272	−499.541	−386.822	15.543
	1400.00	82.451	181.856	126.313	−361.560	77.760	−616.158	−497.419	−378.230	14.112
	1500.00	83.884	187.594	130.209	−353.242	86.078	−634.633	−495.149	−369.795	12.877
	1600.00	85.107	193.048	133.967	−344.790	94.530	−653.668	−492.750	−361.515	11.802
	1700.00	86.139	198.240	137.597	−336.227	103.093	−673.234	−490.242	−353.389	10.858
	1800.00	87.004	203.188	141.104	−327.568	111.752	−693.307	−487.645	−345.414	10.024
	1900.00	87.727	207.912	144.497	−318.831	120.489	−713.864	−484.972	−337.585	9.281
	2000.00	88.336	212.428	147.782	−310.027	129.293	−734.883	−482.236	−329.898	8.616
	2100.00	88.852	216.751	150.964	−301.166	138.154	−756.344	−479.448	−322.349	8.018
	2200.00	89.300	220.895	154.049	−292.258	147.062	−778.227	−476.616	−314.935	7.478
	2300.00	89.700	224.873	157.042	−283.308	156.012	−800.517	−473.746	−307.650	6.987
	2400.00	90.072	228.699	159.949	−274.319	165.001	−823.197	−470.841	−300.490	6.540
	2500.00	90.433	232.383	162.773	−265.294	174.026	−846.252	−467.903	−293.453	6.131
	2600.00	90.800	235.937	165.519	−256.233	183.087	−869.669	−464.932	−286.533	5.757
	2623.00	90.887	236.737	166.140	−254.143	185.177	−875.105	−464.244	−284.958	5.675

References

Phase	H / S	C_p	Remarks	
SOL	Oe1	Oe1	Oe1	MPT= 2623.

Pu2S3 DIPLUTONIUM TRISULFIDE 584.326

Phase	T [K]	C_p J / (K mol)	S J / (K mol)	−(G−H298)/T J / (K mol)	H kJ / mol	H−H298 kJ / mol	G kJ / mol	ΔH_f kJ / mol	ΔG_f kJ / mol	log K_f [−]
SOL	298.15	129.651	192.464	192.464	−989.516	0.000	−1046.899	−989.516	−987.539	173.013
	300.00	129.713	193.266	192.466	−989.276	0.240	−1047.256	−989.521	−987.527	171.944
	400.00	133.054	231.040	197.594	−976.138	13.378	−1068.554	−1003.456	−986.438	128.816
	500.00	136.399	261.089	207.388	−962.665	26.851	−1093.210	−1009.838	−981.603	102.547
	600.00	139.745	286.254	218.490	−948.858	40.658	−1120.610	−1015.387	−975.494	84.924
	700.00	143.092	308.047	229.761	−934.716	54.800	−1150.349	−1018.705	−968.576	72.276
	800.00	146.439	327.373	240.777	−920.239	69.277	−1182.137	−1025.453	−960.963	62.744
	900.00	149.786	344.814	251.383	−905.428	84.088	−1215.761	−1186.290	−949.291	55.095
	1000.00	153.134	360.769	261.535	−890.282	99.234	−1251.051	−1190.534	−922.499	48.186
	1100.00	156.481	375.521	271.235	−874.801	114.715	−1287.874	−1188.948	−895.770	42.537
	1200.00	159.829	389.280	280.505	−858.986	130.530	−1326.122	−1187.046	−869.199	37.835
	1300.00	163.176	402.205	289.374	−842.836	146.680	−1365.703	−1184.825	−842.799	33.864
	1400.00	166.524	414.420	297.874	−826.351	163.165	−1406.539	−1182.286	−816.583	30.467
	1500.00	169.871	426.024	306.034	−809.531	179.985	−1448.566	−1179.425	−790.559	27.530

References

Phase	H / S	C_p
SOL	Oe1	Oe1

Pu(SO4)2 PLUTONIUM DISULFATE 436.191

Phase	T [K]	C_p J / (K mol)	S J / (K mol)	−(G−H298)/T J / (K mol)	H kJ / mol	H−H298 kJ / mol	G kJ / mol	ΔH_f kJ / mol	ΔG_f kJ / mol	log K_f [−]
SOL	298.15	181.815	163.176	163.176	−2200.784	0.000	−2249.435	−2200.784	−1970.318	345.192
	300.00	182.213	164.302	163.179	−2200.447	0.337	−2249.738	−2200.808	−1968.888	342.814
	400.00	203.761	219.672	170.584	−2181.149	19.635	−2269.018	−2209.221	−1891.229	246.969
	500.00	225.308	267.455	185.277	−2159.695	41.089	−2293.423	−2211.882	−1811.480	189.244
	600.00	246.856	310.438	202.610	−2136.087	64.697	−2322.350	−2212.378	−1731.353	150.728
	700.00	268.404	350.109	220.881	−2110.324	90.460	−2355.401	−2210.018	−1651.342	123.225
	800.00	289.951	387.356	239.384	−2082.406	118.378	−2392.291	−2207.741	−1571.672	102.620
	900.00	311.499	422.752	257.807	−2052.334	148.450	−2432.810	−2307.217	−1490.204	86.489
	1000.00	333.046	456.687	276.009	−2020.106	180.678	−2476.793	−2299.450	−1399.709	73.113
	1100.00	354.594	489.440	293.931	−1985.724	215.060	−2524.108	−2286.973	−1310.323	62.222
	1200.00	376.142	521.217	311.554	−1949.188	251.596	−2574.649	−2272.513	−1222.159	53.199
	1300.00	397.689	552.176	328.877	−1910.496	290.288	−2628.325	−2256.045	−1135.284	45.616
	1400.00	419.237	582.436	345.912	−1869.650	331.134	−2685.061	−2237.555	−1049.752	39.167
	1500.00	440.784	612.095	362.672	−1826.649	374.135	−2744.792	−2217.030	−965.613	33.626

References

Phase	H / S	C_p
SOL	Oe1	Oe1

85.468 RUBIDIUM **Rb**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol	]		[−]
SOL	298.15	31.063	76.780	76.780	0.000	0.000	−22.892	0.000	0.000	0.000
	300.00	31.234	76.973	76.781	0.058	0.058	−23.034	0.000	0.000	0.000
	312.65	32.403	78.287	76.815	0.460	0.460	−24.016	0.000	0.000	0.000
			6.985		2.184					
LIQ	312.65	34.404	85.272	76.815	2.644	2.644	−24.016	0.000	0.000	0.000
	400.00	32.860	93.560	79.611	5.580	5.580	−31.844	0.000	0.000	0.000
	500.00	31.436	100.733	83.150	8.792	8.792	−41.575	0.000	0.000	0.000
	600.00	30.330	106.362	86.567	11.877	11.877	−51.940	0.000	0.000	0.000
	700.00	29.523	110.973	89.734	14.868	14.868	−62.814	0.000	0.000	0.000
	800.00	29.008	114.879	92.639	17.792	17.792	−74.111	0.000	0.000	0.000
	900.00	28.781	118.279	95.303	20.679	20.679	−85.773	0.000	0.000	0.000
	970.39	28.793	120.446	97.049	22.704	22.704	−94.175	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks
SOL	Hu1,Ja2	Hu1	
LIQ	Ja2	Hu1	Ja2

BPT=970.385 GAS(Rb),L=71.787 / NBPT=961. (Rb+Rb2),L=72.22

Rb[g] RUBIDIUM (GAS) 85.468

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	20.786	170.093	170.093	80.900	0.000	30.187	80.900	53.079	−9.299
	300.00	20.786	170.222	170.093	80.938	0.038	29.872	80.881	52.906	−9.212
	400.00	20.786	176.201	170.909	83.017	2.117	12.537	77.437	44.381	−5.796
	500.00	20.786	180.840	172.448	85.096	4.196	−5.324	76.304	36.251	−3.787
	600.00	20.786	184.629	174.172	87.174	6.274	−23.603	75.297	28.337	−2.467
	700.00	20.786	187.834	175.901	89.253	8.353	−42.231	74.385	20.583	−1.536
	800.00	20.786	190.609	177.570	91.332	10.432	−61.156	73.540	12.955	−0.846
	900.00	20.786	193.057	179.157	93.410	12.510	−80.342	72.731	5.431	−0.315
	1000.00	20.786	195.247	180.659	95.489	14.589	−99.759	0.000	0.000	0.000
	1100.00	20.786	197.229	182.076	97.567	16.667	−119.384	0.000	0.000	0.000
	1200.00	20.786	199.037	183.416	99.646	18.746	−139.199	0.000	0.000	0.000
	1300.00	20.786	200.701	184.682	101.725	20.825	−159.187	0.000	0.000	0.000
	1400.00	20.786	202.241	185.882	103.803	22.903	−179.335	0.000	0.000	0.000
	1500.00	20.786	203.676	187.021	105.882	24.982	−199.632	0.000	0.000	0.000
	1600.00	20.786	205.017	188.104	107.960	27.060	−220.067	0.000	0.000	0.000
	1700.00	20.786	206.277	189.137	110.039	29.139	−240.632	0.000	0.000	0.000
	1800.00	20.786	207.465	190.122	112.118	31.218	−261.320	0.000	0.000	0.000
	1900.00	20.786	208.589	191.065	114.196	33.296	−282.123	0.000	0.000	0.000
	2000.00	20.786	209.655	191.968	116.275	35.375	−303.036	0.000	0.000	0.000
	2100.00	20.786	210.669	192.835	118.353	37.453	−324.052	0.000	0.000	0.000
	2200.00	20.786	211.636	193.667	120.432	39.532	−345.168	0.000	0.000	0.000
	2300.00	20.786	212.560	194.469	122.511	41.611	−366.378	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Ja2	Hu1,e

170.936 RUBIDIUM (GAS) **Rb2**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	38.115	271.070	271.070	113.290	0.000	32.470	113.290	78.254	−13.710
	300.00	38.124	271.306	271.071	113.361	0.071	31.969	113.245	78.037	−13.587
	400.00	38.440	282.321	272.571	117.190	3.900	4.262	106.031	67.950	−8.873
	500.00	38.631	290.923	275.412	121.046	7.756	−24.416	103.462	58.734	−6.136
	600.00	38.475	297.959	278.602	124.905	11.615	−53.871	101.150	50.009	−4.354
	700.00	37.845	303.849	281.800	128.724	15.434	−83.970	98.989	41.657	−3.109
	800.00	36.797	308.838	284.876	132.460	19.170	−114.611	96.876	33.611	−2.195
	900.00	35.494	313.099	287.781	136.076	22.786	−145.713	94.718	25.832	−1.499
	1000.00	34.080	316.766	290.501	139.555	26.265	−177.211	−51.423	22.307	−1.165
	1100.00	32.694	319.948	293.037	142.893	29.603	−209.050	−52.242	29.718	−1.411
	1200.00	31.399	322.737	295.398	146.097	32.807	−241.187	−53.195	37.210	−1.620
	1300.00	30.224	325.203	297.598	149.177	35.887	−273.587	−54.272	44.787	−1.800
	1400.00	29.177	327.404	299.649	152.146	38.856	−306.219	−55.461	52.450	−1.957
	1500.00	28.257	329.384	301.567	155.016	41.726	−339.060	−56.747	60.203	−2.096
	1600.00	27.454	331.182	303.363	157.801	44.511	−372.090	−58.120	68.044	−2.221
	1700.00	26.759	332.825	305.048	160.511	47.221	−405.292	−59.567	75.973	−2.334
	1800.00	26.155	334.337	306.634	163.156	49.866	−438.651	−61.079	83.989	−2.437
	1900.00	25.629	335.737	308.129	165.745	52.455	−472.155	−62.648	92.091	−2.532
	2000.00	25.163	337.039	309.542	168.284	54.994	−505.795	−64.266	100.277	−2.619
	2100.00	24.762	338.257	310.881	170.780	57.490	−539.560	−65.927	108.545	−2.700
	2200.00	24.408	339.401	312.152	173.238	59.948	−573.444	−67.626	116.893	−2.775
	2300.00	24.096	340.479	313.360	175.663	62.373	−607.438	−69.359	125.318	−2.846
	2400.00	23.821	341.498	314.511	178.058	64.768	−641.537	−71.120	133.820	−2.913
	2500.00	23.577	342.466	315.610	180.428	67.138	−675.736	−72.908	142.396	−2.975
	2600.00	23.360	343.386	316.661	182.774	69.484	−710.029	−74.719	151.044	−3.035
	2700.00	23.166	344.264	317.667	185.101	71.811	−744.412	−76.550	159.762	−3.091
	2800.00	22.992	345.103	318.632	187.408	74.118	−778.880	−78.399	168.548	−3.144
	2900.00	22.836	345.907	319.559	189.700	76.410	−813.431	−80.265	177.400	−3.195
	3000.00	22.695	346.679	320.450	191.976	78.686	−848.061	−82.146	186.317	−3.244
	3100.00	22.568	347.421	321.308	194.239	80.949	−882.766	−84.040	195.297	−3.291
	3200.00	22.453	348.136	322.136	196.490	83.200	−917.544	−85.946	204.339	−3.335
	3300.00	22.348	348.825	322.934	198.730	85.440	−952.392	−87.864	213.440	−3.378
	3400.00	22.253	349.491	323.705	200.960	87.670	−987.308	−89.791	222.599	−3.420
	3500.00	22.166	350.134	324.451	203.181	89.891	−1022.290	−91.727	231.815	−3.460
	3600.00	22.086	350.758	325.173	205.393	92.103	−1057.335	−93.672	241.087	−3.498
	3700.00	22.013	351.362	325.873	207.598	94.308	−1092.441	−95.624	250.412	−3.535
	3800.00	21.945	351.948	326.552	209.796	96.506	−1127.606	−97.584	259.791	−3.571
	3900.00	21.883	352.517	327.210	211.987	98.697	−1162.830	−99.549	269.221	−3.606
	4000.00	21.826	353.071	327.850	214.173	100.883	−1198.109	−101.521	278.702	−3.639
	4100.00	21.773	353.609	328.472	216.353	103.063	−1233.443	−103.499	288.232	−3.672
	4200.00	21.724	354.133	329.076	218.528	105.238	−1268.831	−105.481	297.810	−3.704
	4300.00	21.679	354.644	329.665	220.698	107.408	−1304.269	−107.468	307.436	−3.735
	4400.00	21.636	355.141	330.238	222.864	109.574	−1339.759	−109.460	317.108	−3.765
	4500.00	21.597	355.627	330.797	225.025	111.735	−1375.297	−111.455	326.825	−3.794
	4600.00	21.560	356.101	331.342	227.183	113.893	−1410.884	−113.455	336.587	−3.822
	4700.00	21.526	356.565	331.874	229.337	116.047	−1446.517	−115.457	346.392	−3.850
	4800.00	21.493	357.018	332.393	231.488	118.198	−1482.196	−117.464	356.240	−3.877
	4900.00	21.463	357.460	332.900	233.636	120.346	−1517.920	−119.473	366.129	−3.903
	5000.00	21.435	357.894	333.396	235.781	122.491	−1553.688	−121.486	376.060	−3.929

References

Phase	H / S	C_p
GAS	Ja2	Ja2

Rb3AsO4 — RUBIDIUM ARSENATE — 395.323

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	175.283	267.065	267.065	−1668.998	0.000	−1748.623	−1668.998	−1546.972	271.023
	300.00	175.483	268.150	267.068	−1668.674	0.324	−1749.118	−1669.001	−1546.215	269.220
	400.00	184.872	319.973	274.071	−1650.637	18.361	−1778.626	−1675.979	−1503.374	196.320
	500.00	192.841	362.098	287.590	−1631.744	37.254	−1812.793	−1675.407	−1460.268	152.553
	600.00	200.250	397.917	303.065	−1612.087	56.911	−1850.837	−1673.948	−1417.364	123.393
	635.00	202.773	409.341	308.610	−1605.034	63.964	−1864.966	−1673.252	−1402.416	115.362

References

Phase	H / S	C_p
SOL	G1	G1

RbBr — RUBIDIUM BROMIDE — 165.372

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	52.761	109.960	109.960	−394.589	0.000	−427.373	−394.589	−381.791	66.888
	300.00	52.781	110.286	109.961	−394.491	0.098	−427.577	−394.619	−381.711	66.462
	400.00	53.848	125.616	112.044	−389.160	5.429	−439.406	−412.051	−373.654	48.794
	500.00	54.915	137.747	116.012	−383.722	10.867	−452.595	−411.670	−364.094	38.037
	600.00	55.982	147.853	120.500	−378.177	16.412	−466.889	−411.071	−354.631	30.873
	700.00	57.049	156.563	125.044	−372.525	22.064	−482.120	−410.277	−345.285	25.765
	800.00	58.116	164.251	129.473	−366.767	27.822	−498.168	−409.317	−336.064	21.943
	900.00	59.183	171.157	133.728	−360.902	33.687	−514.944	−408.218	−326.973	18.977
	965.00	59.876	175.308	136.390	−357.033	37.556	−526.205	−407.442	−321.132	17.383
			24.150		23.305					
LIQ	965.00	66.944	199.458	136.390	−333.728	60.861	−526.205	−384.137	−321.132	17.383
	1000.00	66.944	201.843	138.639	−331.385	63.204	−533.228	−455.393	−316.855	16.551
	1100.00	66.944	208.224	144.680	−324.690	69.899	−553.737	−452.663	−303.133	14.395
	1200.00	66.944	214.049	150.221	−317.996	76.593	−574.855	−449.937	−289.660	12.609
	1300.00	66.944	219.407	155.340	−311.302	83.287	−596.531	−447.214	−276.414	11.106
	1400.00	66.944	224.368	160.096	−304.607	89.982	−618.723	−444.494	−263.378	9.827
	1500.00	66.944	228.987	164.536	−297.913	96.676	−641.393	−441.777	−250.536	8.724
	1600.00	66.944	233.307	168.701	−291.218	103.371	−664.510	−439.063	−237.875	7.766

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	Ku1,e	Tk1	p(GAS)= 1.013 bar at T= 965.
LIQ	Tk1	e		

165.372 RUBIDIUM BROMIDE (GAS) **RbBr[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	37.195	261.019	261.020	−182.799	0.000	−260.622	−182.799	−215.039	37.674
	300.00	37.205	261.250	261.020	−182.730	0.069	−261.105	−182.858	−215.239	37.476
	400.00	37.588	272.011	262.485	−178.988	3.811	−287.793	−201.879	−222.040	28.995
	500.00	37.811	280.425	265.262	−175.218	7.581	−315.430	−203.166	−226.929	23.707
	600.00	37.972	287.333	268.382	−171.428	11.371	−343.828	−204.322	−231.571	20.160
	700.00	38.102	293.197	271.519	−167.624	15.175	−372.862	−205.376	−236.028	17.613
	800.00	38.217	298.292	274.554	−163.808	18.991	−402.442	−206.358	−240.339	15.693
	900.00	38.323	302.800	277.447	−159.981	22.818	−432.501	−207.296	−244.530	14.192
	1000.00	38.423	306.843	280.187	−156.144	26.655	−462.986	−280.152	−246.613	12.882
	1100.00	38.520	310.509	282.780	−152.297	30.502	−493.857	−280.270	−243.254	11.551
	1200.00	38.614	313.865	285.233	−148.440	34.359	−525.078	−280.381	−239.884	10.442
	1300.00	38.706	316.959	287.556	−144.574	38.225	−556.621	−280.487	−236.504	9.503
	1400.00	38.796	319.831	289.760	−140.699	42.100	−588.462	−280.586	−233.117	8.698
	1500.00	38.886	322.511	291.855	−136.815	45.984	−620.581	−280.679	−229.723	8.000
	1600.00	38.975	325.023	293.850	−132.922	49.877	−652.959	−280.766	−226.324	7.389
	1700.00	39.064	327.389	295.754	−129.020	53.779	−685.581	−280.846	−222.918	6.849
	1800.00	39.152	329.624	297.574	−125.109	57.690	−718.433	−280.921	−219.509	6.370
	1900.00	39.239	331.743	299.317	−121.189	61.610	−751.502	−280.989	−216.095	5.941
	2000.00	39.327	333.758	300.989	−117.261	65.538	−784.778	−281.051	−212.678	5.555

References

Phase	H / S	C_p
GAS	Nb1	e

Rb2CO3 RUBIDIUM CARBONATE 230.945

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL-1	298.15	117.612	181.330	181.330	-1136.002	0.000	-1190.066	-1136.002	-1050.823	184.100
	300.00	117.906	182.059	181.333	-1135.784	0.218	-1190.402	-1135.997	-1050.295	182.873
	400.00	131.066	217.885	186.128	-1123.299	12.703	-1210.453	-1140.049	-1020.532	133.268
	500.00	141.495	248.281	195.594	-1109.658	26.344	-1233.799	-1138.752	-990.783	103.506
	576.00	148.663	268.803	203.920	-1098.629	37.373	-1253.460	-1137.202	-968.399	87.819
			2.179		1.255					
SOL-2	576.00	148.663	270.982	203.920	-1097.374	38.628	-1253.460	-1135.947	-968.399	87.819
	600.00	150.848	277.095	206.725	-1093.780	42.222	-1260.037	-1135.365	-961.429	83.700
	700.00	159.694	301.017	218.515	-1078.250	57.752	-1288.962	-1132.475	-932.658	69.596
	800.00	168.269	322.904	230.214	-1061.850	74.152	-1320.173	-1128.853	-904.351	59.048
	900.00	176.688	343.210	241.654	-1044.601	91.401	-1353.490	-1124.519	-876.542	50.873
	1000.00	185.008	362.257	252.771	-1026.516	109.486	-1388.773	-1263.366	-845.243	44.151
	1100.00	193.265	380.278	263.551	-1007.602	128.400	-1425.908	-1256.062	-803.779	38.168
	1146.00	197.047	388.273	268.397	-998.625	137.377	-1443.585	-1252.466	-784.939	35.777
			25.557		29.288					
LIQ	1146.00	188.280	413.829	268.397	-969.337	166.665	-1443.585	-1223.178	-784.939	35.777
	1200.00	188.280	422.498	275.138	-959.170	176.832	-1466.168	-1219.356	-764.378	33.272
	1300.00	188.280	437.569	287.061	-940.342	195.660	-1509.181	-1212.351	-726.747	29.201
	1400.00	188.280	451.522	298.316	-921.514	214.488	-1553.644	-1205.430	-689.653	25.731
	1500.00	188.280	464.512	308.968	-902.686	233.316	-1599.453	-1198.580	-653.052	22.741

References

Phase	H / S	C_p
SOL-1	Nb1	e
SOL-2	Tk1	e
LIQ	Tk1	

120.921 RUBIDIUM CHLORIDE **RbCl**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[	J / (K mol)	]	[		kJ / mol		]	
SOL	298.15	52.260	95.902	95.902	−435.349	0.000	−463.942	−435.349	−407.789	71.443
	300.00	52.279	96.225	95.902	−435.252	0.097	−464.120	−435.341	−407.618	70.973
	400.00	53.321	111.407	97.966	−429.972	5.377	−474.535	−437.317	−397.797	51.947
	500.00	54.363	123.417	101.896	−424.588	10.761	−486.297	−436.930	−387.958	40.530
	600.00	55.405	133.421	106.339	−419.100	16.249	−499.152	−436.345	−378.216	32.927
	700.00	56.446	142.040	110.837	−413.507	21.842	−512.935	−435.581	−368.585	27.504
	800.00	57.488	149.645	115.222	−407.810	27.539	−527.527	−434.661	−359.076	23.445
	900.00	58.530	156.477	119.433	−402.010	33.339	−542.838	−433.610	−349.689	20.295
	996.00	59.530	162.458	123.296	−396.343	39.006	−558.151	−504.466	−339.086	17.783
			23.818		23.723					
LIQ	996.00	64.015	186.277	123.296	−372.620	62.729	−558.151	−480.743	−339.086	17.783
	1000.00	64.015	186.533	123.548	−372.364	62.985	−558.897	−480.645	−338.517	17.682
	1100.00	64.015	192.635	129.556	−365.962	69.387	−577.860	−478.199	−324.423	15.406
	1200.00	64.015	198.205	135.048	−359.561	75.788	−597.406	−475.758	−310.551	13.518
	1300.00	64.015	203.329	140.106	−353.159	82.190	−617.486	−473.321	−296.882	11.929
	1400.00	64.015	208.073	144.793	−346.758	88.591	−638.059	−470.889	−283.401	10.574
	1500.00	64.015	212.489	149.161	−340.356	94.993	−659.090	−468.461	−270.094	9.406
	1600.00	64.015	216.621	153.249	−333.955	101.394	−680.548	−466.036	−256.949	8.389

References

Phase	H / S	C_p
SOL	Nb1	Ku1,e
LIQ	Tk1	Ku1

RbCl[g] RUBIDIUM CHLORIDE (GAS) 120.921

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[-]
GAS	298.15	36.817	249.559	249.560	-228.898	0.000	-303.304	-228.898	-247.151	43.300
	300.00	36.831	249.787	249.560	-228.830	0.068	-303.766	-228.919	-247.264	43.053
	400.00	37.335	260.460	251.012	-225.119	3.779	-329.303	-232.463	-252.565	32.982
	500.00	37.619	268.824	253.768	-221.370	7.528	-355.782	-233.712	-257.443	26.895
	600.00	37.817	275.701	256.867	-217.598	11.300	-383.018	-234.843	-262.082	22.816
	700.00	37.973	281.543	259.986	-213.808	15.090	-410.888	-235.882	-266.538	19.889
	800.00	38.109	286.622	263.005	-210.004	18.894	-439.302	-236.855	-270.851	17.685
	900.00	38.231	291.118	265.883	-206.187	22.711	-468.193	-237.787	-275.044	15.963
	1000.00	38.346	295.152	268.612	-202.358	26.540	-497.510	-310.639	-277.130	14.476
	1100.00	38.456	298.812	271.194	-198.518	30.380	-527.211	-310.754	-273.773	13.000
	1200.00	38.562	302.163	273.637	-194.667	34.231	-557.262	-310.864	-270.407	11.770
	1300.00	38.665	305.253	275.951	-190.805	38.093	-587.635	-310.968	-267.031	10.729
	1400.00	38.767	308.123	278.148	-186.934	41.964	-618.305	-311.065	-263.648	9.837
	1500.00	38.868	310.801	280.237	-183.052	45.846	-649.253	-311.157	-260.257	9.063
	1600.00	38.967	313.312	282.226	-179.160	49.738	-680.460	-311.241	-256.861	8.386
	1700.00	39.066	315.678	284.125	-175.259	53.639	-711.911	-311.320	-253.460	7.788
	1800.00	39.164	317.913	285.941	-171.347	57.551	-743.591	-311.392	-250.054	7.256
	1900.00	39.262	320.033	287.680	-167.426	61.472	-775.489	-311.458	-246.645	6.781
	2000.00	39.359	322.050	289.348	-163.495	65.403	-807.594	-311.518	-243.232	6.353

References

Phase	H / S	C_p
GAS	Nb1	e

241.841 DIRUBIDIUM DICHLORIDE (GAS) **Rb2Cl2[g]**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	81.589	373.301	373.301	-618.998	0.000	-730.298	-618.998	-617.992	108.270
	300.00	81.591	373.806	373.303	-618.847	0.151	-730.989	-619.025	-617.985	107.601
	400.00	81.687	397.291	376.504	-610.683	8.315	-769.600	-625.372	-616.124	80.458
	500.00	81.783	415.530	382.553	-602.510	16.488	-810.274	-627.194	-613.597	64.102
	600.00	81.878	430.449	389.330	-594.327	24.671	-852.596	-628.817	-610.722	53.168
	700.00	81.974	443.078	396.129	-586.134	32.864	-896.288	-630.282	-607.589	45.339
	800.00	82.070	454.030	402.697	-577.932	41.066	-941.156	-631.633	-604.253	39.454
	900.00	82.166	463.702	408.949	-569.720	49.278	-987.052	-632.921	-600.753	34.867
	1000.00	82.262	472.364	414.865	-561.499	57.499	-1033.863	-778.061	-593.103	30.981
	1100.00	82.357	480.209	420.454	-553.268	65.730	-1081.497	-777.741	-574.622	27.287
	1200.00	82.453	487.379	425.737	-545.027	73.971	-1129.882	-777.422	-556.171	24.209
	1300.00	82.549	493.982	430.736	-536.777	82.221	-1178.954	-777.102	-537.746	21.607
	1400.00	82.645	500.104	435.474	-528.517	90.481	-1228.662	-776.780	-519.347	19.377
	1500.00	82.741	505.809	439.975	-520.248	98.750	-1278.961	-776.457	-500.970	17.445
	1600.00	82.837	511.152	444.259	-511.969	107.029	-1329.812	-776.132	-482.614	15.756
	1700.00	82.932	516.177	448.343	-503.681	115.317	-1381.181	-775.803	-464.280	14.266
	1800.00	83.028	520.919	452.244	-495.383	123.615	-1433.038	-775.473	-445.964	12.942
	1900.00	83.124	525.411	455.978	-487.075	131.923	-1485.356	-775.140	-427.667	11.757
	2000.00	83.220	529.677	459.557	-478.758	140.240	-1538.113	-774.805	-409.388	10.692

References

Phase	H / S	C_p
GAS	Nb1	e

RbF RUBIDIUM FLUORIDE 104.466

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	50.506	80.333	80.333	−557.698	0.000	−581.649	−557.698	−528.526	92.595
	300.00	50.582	80.645	80.334	−557.604	0.094	−581.798	−557.691	−528.345	91.993
	400.00	53.867	95.678	82.361	−552.371	5.327	−590.642	−559.587	−517.989	67.642
	500.00	56.350	107.973	86.290	−546.857	10.841	−600.843	−558.966	−507.655	53.034
	600.00	58.517	118.442	90.798	−541.112	16.586	−612.177	−558.043	−497.475	43.309
	700.00	60.534	127.615	95.415	−535.158	22.540	−624.489	−556.855	−487.471	36.376
	800.00	62.472	135.825	99.962	−529.007	28.691	−637.668	−555.431	−477.654	31.188
	900.00	64.364	143.293	104.368	−522.665	35.033	−651.629	−553.800	−468.027	27.164
	1000.00	66.226	150.171	108.609	−516.136	41.562	−666.307	−623.920	−456.589	23.850
	1068.00	67.482	154.569	111.396	−511.589	46.109	−676.669	−622.047	−445.272	21.778
			23.995		25.627					
LIQ	1068.00	71.128	178.564	111.396	−485.962	71.736	−676.669	−596.420	−445.272	21.778
	1100.00	71.128	180.664	113.381	−483.686	74.012	−682.417	−595.403	−440.758	20.930
	1200.00	71.128	186.853	119.249	−476.574	81.124	−700.797	−592.233	−426.840	18.580
	1300.00	71.128	192.546	124.671	−469.461	88.237	−719.771	−589.072	−413.185	16.602
	1400.00	71.128	197.817	129.710	−462.348	95.350	−739.292	−585.919	−399.774	14.916
	1500.00	71.128	202.725	134.416	−455.235	102.463	−759.322	−582.773	−386.587	13.462

References

Phase	H / S	C_p
SOL	Nb1/Pa2	Pa2
LIQ	Pa2	Pa2

104.466 RUBIDIUM FLUORIDE (GAS) **RbF[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	35.688	237.091	237.091	−331.402	0.000	−402.091	−331.402	−348.967	61.138
	300.00	35.718	237.312	237.092	−331.336	0.066	−402.530	−331.423	−349.076	60.780
	400.00	36.792	247.755	238.508	−327.703	3.699	−426.805	−334.919	−354.152	46.248
	500.00	37.330	256.029	241.214	−323.995	7.407	−452.009	−336.104	−358.821	37.486
	600.00	37.657	262.866	244.269	−320.244	11.158	−477.964	−337.175	−363.262	31.625
	700.00	37.884	268.688	247.352	−316.467	14.935	−504.548	−338.163	−367.531	27.425
	800.00	38.058	273.759	250.343	−312.669	18.733	−531.676	−339.093	−371.662	24.267
	900.00	38.201	278.250	253.199	−308.856	22.546	−559.281	−339.991	−375.679	21.804
	1000.00	38.325	282.281	255.909	−305.030	26.372	−587.311	−412.814	−377.593	19.723
	1100.00	38.436	285.939	258.475	−301.191	30.211	−615.725	−412.908	−374.066	17.763
	1200.00	38.539	289.288	260.905	−297.343	34.059	−644.489	−413.002	−370.531	16.129
	1300.00	38.636	292.377	263.209	−293.484	37.918	−673.574	−413.095	−366.988	14.746
	1400.00	38.729	295.244	265.396	−289.615	41.787	−702.957	−413.187	−363.438	13.560
	1500.00	38.818	297.919	267.476	−285.738	45.664	−732.616	−413.276	−359.881	12.532
	1600.00	38.905	300.427	269.458	−281.852	49.550	−762.535	−413.364	−356.319	11.633
	1700.00	38.989	302.788	271.350	−277.957	53.445	−792.697	−413.448	−352.751	10.839
	1800.00	39.073	305.019	273.159	−274.054	57.348	−823.088	−413.530	−349.178	10.133
	1900.00	39.155	307.134	274.892	−270.143	61.259	−853.697	−413.609	−345.601	9.501
	2000.00	39.236	309.144	276.555	−266.223	65.179	−884.511	−413.684	−342.020	8.933

References

Phase	H / S	C_p
GAS	Nb1	e

Rb2F2[g] DIRUBIDIUM DIFLUORIDE (GAS) 208.932

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	79.902	344.001	344.001	−854.000	0.000	−956.564	−854.000	−850.317	148.972
	300.00	79.958	344.495	344.002	−853.852	0.148	−957.201	−854.025	−850.294	148.049
	400.00	81.936	367.809	347.168	−845.743	8.257	−992.867	−860.174	−847.561	110.680
	500.00	82.854	386.203	353.200	−837.499	16.501	−1030.600	−861.717	−844.224	88.195
	600.00	83.354	401.357	360.001	−829.186	24.814	−1070.000	−863.049	−840.598	73.181
	700.00	83.658	414.231	366.851	−820.834	33.166	−1110.796	−864.227	−836.761	62.440
	800.00	83.857	425.416	373.488	−812.458	41.542	−1152.790	−865.305	−832.763	54.374
	900.00	83.994	435.301	379.818	−804.065	49.935	−1195.836	−866.334	−828.633	48.093
	1000.00	84.094	444.156	385.816	−795.660	58.340	−1239.816	−1011.230	−820.380	42.852
	1100.00	84.169	452.175	391.490	−787.247	66.753	−1284.639	−1010.680	−801.322	38.052
	1200.00	84.227	459.501	396.857	−778.827	75.173	−1330.228	−1010.146	−782.313	34.053
	1300.00	84.274	466.245	401.938	−770.402	83.598	−1376.520	−1009.624	−763.349	30.672
	1400.00	84.311	472.491	406.758	−761.973	92.027	−1423.461	−1009.115	−744.424	27.775
	1500.00	84.343	478.309	411.336	−753.540	100.460	−1471.004	−1008.616	−725.535	25.265
	1600.00	84.369	483.754	415.694	−745.104	108.896	−1519.110	−1008.128	−706.678	23.071
	1700.00	84.392	488.869	419.849	−736.666	117.334	−1567.744	−1007.649	−687.853	21.135
	1800.00	84.412	493.694	423.819	−728.226	125.774	−1616.874	−1007.178	−669.055	19.415
	1900.00	84.429	498.258	427.618	−719.784	134.216	−1666.474	−1006.716	−650.283	17.878
	2000.00	84.445	502.589	431.259	−711.340	142.660	−1716.518	−1006.262	−631.535	16.494

References

Phase	H / S	C_p
GAS	Nb1	e

212.372 RUBIDIUM IODIDE **RbI**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	52.468	118.411	118.411	−333.858	0.000	−369.162	−333.858	−328.957	57.632
	300.00	52.488	118.736	118.412	−333.761	0.097	−369.382	−333.869	−328.926	57.271
	400.00	53.589	133.987	120.484	−328.457	5.401	−382.052	−344.906	−326.265	42.606
	500.00	54.689	146.063	124.433	−323.043	10.815	−396.075	−366.801	−319.488	33.377
	600.00	55.789	156.131	128.900	−317.519	16.339	−411.198	−366.239	−310.074	26.994
	700.00	56.890	164.814	133.424	−311.885	21.973	−427.255	−365.476	−300.771	22.444
	800.00	57.990	172.482	137.836	−306.141	27.717	−444.127	−364.543	−291.589	19.039
	900.00	59.091	179.376	142.075	−300.287	33.571	−461.726	−363.466	−282.534	16.398
	929.00	59.410	181.255	143.269	−298.569	35.289	−466.955	−363.131	−279.931	15.740
			23.735		22.050					
LIQ	929.00	66.944	204.990	143.269	−276.519	57.339	−466.955	−341.081	−279.931	15.740
	1000.00	66.944	209.920	147.828	−271.766	62.092	−481.686	−411.648	−273.305	14.276
	1100.00	66.944	216.301	153.768	−265.072	68.786	−503.002	−408.930	−259.602	12.327
	1200.00	66.944	222.126	159.225	−258.377	75.481	−524.928	−406.215	−246.147	10.714
	1300.00	66.944	227.484	164.272	−251.683	82.175	−547.412	−403.503	−232.918	9.359
	1400.00	66.944	232.445	168.967	−244.988	88.870	−570.412	−400.794	−219.897	8.204
	1500.00	66.944	237.064	173.354	−238.294	95.564	−593.890	−398.088	−207.070	7.211

References

Phase	H / S	C_p
SOL	Nb1	Ku1,e
LIQ	Tk1	e

RbI[g] RUBIDIUM IODIDE (GAS) 212.372

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	37.371	268.810	268.810	−134.298	0.000	−214.444	−134.298	−174.238	30.526
	300.00	37.379	269.041	268.811	−134.229	0.069	−214.941	−134.337	−174.486	30.381
	400.00	37.667	279.838	270.281	−130.475	3.823	−242.410	−146.924	−186.623	24.370
	500.00	37.848	288.264	273.066	−126.699	7.599	−270.831	−170.457	−194.244	20.293
	600.00	37.986	295.177	276.192	−122.907	11.391	−300.013	−171.626	−198.890	17.315
	700.00	38.104	301.042	279.334	−119.102	15.196	−329.831	−172.693	−203.348	15.174
	800.00	38.211	306.137	282.372	−115.286	19.012	−360.196	−173.688	−207.658	13.559
	900.00	38.312	310.643	285.268	−111.460	22.838	−391.039	−174.639	−211.847	12.295
	1000.00	38.410	314.685	288.011	−107.624	26.674	−422.309	−247.506	−213.927	11.174
	1100.00	38.504	318.350	290.605	−103.778	30.520	−453.964	−247.637	−210.563	9.999
	1200.00	38.597	321.705	293.059	−99.923	34.375	−485.969	−247.761	−207.187	9.019
	1300.00	38.689	324.798	295.383	−96.059	38.239	−518.296	−247.879	−203.801	8.189
	1400.00	38.780	327.668	297.588	−92.186	42.112	−550.921	−247.991	−200.407	7.477
	1500.00	38.870	330.347	299.684	−88.303	45.995	−583.823	−248.097	−197.004	6.860
	1600.00	38.959	332.858	301.679	−84.412	49.886	−616.985	−248.197	−193.595	6.320
	1700.00	39.049	335.223	303.584	−80.511	53.787	−650.390	−248.292	−190.179	5.843
	1800.00	39.138	337.457	305.404	−76.602	57.696	−684.025	−248.380	−186.758	5.420
	1900.00	39.226	339.576	307.147	−72.684	61.614	−717.878	−248.462	−183.332	5.040
	2000.00	39.315	341.590	308.819	−68.757	65.541	−751.937	−248.539	−179.902	4.699

References

Phase	H / S	C_p
GAS	Nb1	e

117.467 RUBIDIUM PEROXIDE **RbO2**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	77.570	130.081	130.081	−278.654	0.000	−317.438	−278.654	−233.381	40.887
	300.00	77.701	130.561	130.082	−278.510	0.144	−317.679	−278.622	−233.100	40.586
	400.00	83.050	153.714	133.203	−270.449	8.205	−331.935	−279.054	−217.568	28.411
	500.00	86.636	172.650	139.256	−261.957	16.697	−348.282	−276.833	−202.445	21.149
	600.00	89.527	188.708	146.193	−253.145	25.509	−366.370	−274.266	−187.803	16.350
	700.00	92.091	202.705	153.287	−244.062	34.592	−385.955	−271.428	−173.614	12.955
	800.00	94.480	215.159	160.257	−234.732	43.922	−406.859	−268.360	−159.847	10.437
	813.00	94.782	216.684	161.147	−233.502	45.152	−409.666	−267.945	−158.087	10.157
			25.732		20.920					
LIQ	813.00	90.793	242.416	161.147	−212.582	66.072	−409.666	−247.025	−158.087	10.157
	900.00	90.793	251.646	169.457	−204.683	73.971	−431.165	−244.603	−148.696	8.630
	1000.00	90.793	261.212	178.162	−195.604	83.050	−456.816	−313.795	−136.183	7.113
	1100.00	90.793	269.866	186.112	−186.525	92.129	−483.377	−310.304	−118.591	5.631
	1200.00	90.793	277.766	193.425	−177.445	101.209	−510.764	−306.852	−101.315	4.410
	1300.00	90.793	285.033	200.196	−168.366	110.288	−538.909	−303.435	−84.325	3.388
	1400.00	90.793	291.762	206.499	−159.287	119.367	−567.753	−300.047	−67.598	2.522
	1500.00	90.793	298.026	212.395	−150.207	128.447	−597.246	−296.688	−51.112	1.780

References

Phase	H / S	C_p	Remarks	
SOL	Pa1	Pa1	Tk1	TPT= 423.
LIQ	Tk1	e		

Rb2O RUBIDIUM OXIDE 186.935

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[	J / (K mol)	]	[		kJ / mol	]		
SOL−C	298.15	74.058	125.520	125.520	−339.000	0.000	−376.424	−339.000	−300.058	52.569
	300.00	74.120	125.978	125.521	−338.863	0.137	−376.656	−339.005	−299.816	52.203
	400.00	77.467	147.760	128.469	−331.284	7.716	−390.387	−343.956	−285.437	37.274
	500.00	80.814	165.405	134.145	−323.370	15.630	−406.072	−343.995	−270.791	28.289
	543.00	82.253	172.131	136.889	−319.864	19.136	−413.331	−343.843	−264.502	25.444
			1.541		0.837					
SOL−B	543.00	82.253	173.673	136.889	−319.027	19.973	−413.331	−343.006	−264.502	25.444
	600.00	84.161	181.977	140.783	−314.284	24.716	−423.470	−342.661	−256.277	22.311
	613.00	84.596	183.785	141.676	−313.187	25.813	−425.847	−342.560	−254.406	21.678
			6.825		4.184					
SOL−A	613.00	84.596	190.611	141.676	−309.003	29.997	−425.847	−338.376	−254.406	21.678
	700.00	87.508	202.027	148.479	−301.516	37.484	−442.935	−337.501	−242.544	18.099
	778.00	90.119	211.408	154.324	−294.589	44.411	−459.064	−336.442	−232.018	15.578
			26.889		20.920					
LIQ	778.00	92.048	238.297	154.324	−273.669	65.331	−459.064	−315.522	−232.018	15.578
	800.00	92.048	240.864	156.669	−271.644	67.356	−464.335	−315.145	−229.662	14.995
	900.00	92.048	251.705	166.638	−262.439	76.561	−488.974	−313.417	−219.080	12.715
	1000.00	92.048	261.404	175.638	−253.234	85.766	−514.638	−455.563	−204.683	10.692

References

Phase	H / S	C_p
SOL−C	Tk1	Tk1,e
SOL−B	Tk1	e
SOL−A	Tk1	e
LIQ	Tk1	e

247.019 RUBIDIUM METASILICATE **Rb2SiO3**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	117.451	161.084	161.084	−1536.461	0.000	−1584.488	−1536.461	−1441.346	252.518
	300.00	117.799	161.812	161.086	−1536.243	0.218	−1584.787	−1536.477	−1440.756	250.858
	400.00	131.750	197.797	165.898	−1523.701	12.760	−1602.820	−1541.558	−1407.493	183.800
	500.00	140.850	228.226	175.400	−1510.048	26.413	−1624.161	−1541.196	−1373.999	143.541
	600.00	148.041	254.560	186.447	−1495.593	40.868	−1648.329	−1540.029	−1340.657	116.715
	700.00	154.331	277.861	197.873	−1480.469	55.992	−1674.972	−1538.216	−1307.564	97.572
	800.00	160.139	298.852	209.205	−1464.743	71.718	−1703.825	−1535.852	−1274.769	83.234
	900.00	165.669	318.035	220.246	−1448.451	88.010	−1734.683	−1533.003	−1242.300	72.101
	1000.00	171.025	335.769	230.923	−1431.615	104.846	−1767.384	−1673.590	−1206.163	63.004
	1100.00	176.268	352.316	241.215	−1414.250	122.211	−1801.797	−1668.300	−1159.673	55.068
	1143.00	178.497	359.118	245.523	−1406.622	129.839	−1817.093	−1665.898	−1139.837	52.090
			36.605		41.840					
LIQ	1143.00	177.820	395.723	245.523	−1364.782	171.679	−1817.093	−1624.058	−1139.837	52.090
	1200.00	177.820	404.377	252.864	−1354.646	181.815	−1839.898	−1620.877	−1115.767	48.568
	1300.00	177.820	418.610	265.074	−1336.864	199.597	−1881.057	−1615.369	−1073.899	43.150
	1400.00	177.820	431.788	276.517	−1319.082	217.379	−1923.585	−1609.948	−1032.451	38.521
	1500.00	177.820	444.056	287.282	−1301.300	235.161	−1967.384	−1604.609	−991.388	34.523
	1600.00	177.820	455.532	297.443	−1283.518	252.943	−2012.370	−1599.351	−950.679	31.036
	1700.00	177.820	466.313	307.063	−1265.736	270.725	−2058.468	−1644.347	−909.849	27.956
	1800.00	177.820	476.476	316.195	−1247.954	288.507	−2105.612	−1639.016	−866.797	25.154

References

Phase	H / S	C_p
SOL	S5	S5
LIQ	S5	S5

Rb2Si2O5 RUBIDIUM DISILICATE 307.104

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	170.718	194.556	194.556	−2474.514	0.000	−2532.521	−2474.514	−2322.603	406.910
	300.00	171.273	195.614	194.559	−2474.198	0.316	−2532.882	−2474.523	−2321.661	404.237
	400.00	192.541	248.133	201.576	−2455.891	18.623	−2555.144	−2478.933	−2269.439	296.358
	500.00	205.091	292.539	215.446	−2435.968	38.546	−2582.237	−2477.639	−2217.194	231.629
	600.00	214.210	330.771	231.555	−2414.984	59.530	−2613.447	−2475.479	−2165.296	188.506
	700.00	221.708	364.370	248.176	−2393.179	81.335	−2648.237	−2472.688	−2113.811	157.735
	800.00	228.342	394.415	264.611	−2370.671	103.843	−2686.203	−2469.388	−2062.763	134.685
	900.00	234.475	421.668	280.571	−2347.527	126.987	−2727.028	−2465.654	−2012.155	116.782
	1000.00	240.295	446.675	295.948	−2323.786	150.728	−2770.462	−2605.407	−1957.975	102.274
	1100.00	245.912	469.843	310.716	−2299.474	175.040	−2816.301	−2599.336	−1893.523	89.916
	1200.00	251.391	491.476	324.888	−2274.608	199.906	−2864.379	−2592.897	−1829.640	79.642
	1300.00	256.771	511.811	338.492	−2249.200	225.314	−2914.553	−2586.087	−1766.309	70.971
	1363.00	260.123	524.041	346.787	−2232.917	241.597	−2947.185	−2581.604	−1726.687	66.172
			39.906		54.392					
LIQ	1363.00	259.408	563.947	346.787	−2178.525	295.989	−2947.185	−2527.212	−1726.687	66.172
	1400.00	259.408	570.895	352.619	−2168.927	305.587	−2968.180	−2524.573	−1704.992	63.614
	1500.00	259.408	588.792	367.774	−2142.986	331.528	−3026.175	−2517.542	−1646.696	57.343
	1600.00	259.408	605.534	382.116	−2117.046	357.468	−3085.900	−2510.657	−1588.865	51.871
	1700.00	259.408	621.261	395.726	−2091.105	383.409	−3147.248	−2604.270	−1530.567	47.029
	1800.00	259.408	636.088	408.671	−2065.164	409.350	−3210.122	−2597.215	−1467.612	42.589

References

Phase	H / S	C_p
SOL	S5	S5
LIQ	S5	S5

427.272 RUBIDIUM TETRASILICATE **Rb2Si4O9**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	270.882	278.236	278.236	−4317.147	0.000	−4400.103	−4317.147	−4056.634	710.705
	300.00	271.378	279.913	278.241	−4316.645	0.502	−4400.619	−4317.153	−4055.018	706.041
	400.00	293.170	361.161	289.171	−4288.351	28.796	−4432.816	−4321.763	−3966.356	517.953
	500.00	309.947	428.435	310.484	−4258.171	58.976	−4472.389	−4320.888	−3877.583	405.088
	600.00	324.750	486.273	335.072	−4226.426	90.721	−4518.190	−4319.038	−3789.081	329.869
	700.00	338.621	537.384	360.391	−4193.252	123.895	−4569.421	−4316.286	−3700.960	276.169
	800.00	351.995	583.477	385.441	−4158.718	158.429	−4625.500	−4312.651	−3613.294	235.924
	900.00	365.080	625.694	409.823	−4122.863	194.284	−4685.987	−4308.138	−3526.136	204.652
	1000.00	377.987	664.828	433.389	−4085.708	231.439	−4750.536	−4446.620	−3435.519	179.453
	1100.00	390.776	701.455	456.111	−4047.269	269.878	−4818.870	−4438.751	−3334.783	158.356
	1173.00	400.060	726.859	472.176	−4018.403	298.744	−4871.009	−4432.427	−3261.722	145.247
			39.236		46.024					
LIQ	1173.00	397.480	766.095	472.176	−3972.379	344.768	−4871.009	−4386.403	−3261.722	145.247
	1200.00	397.480	775.141	478.891	−3961.647	355.500	−4891.817	−4384.053	−3235.861	140.853
	1300.00	397.480	806.956	502.920	−3921.899	395.248	−4970.943	−4375.554	−3140.525	126.188
	1400.00	397.480	836.413	525.702	−3882.151	434.996	−5053.129	−4367.358	−3045.832	113.641
	1500.00	397.480	863.836	547.340	−3842.403	474.744	−5138.157	−4359.451	−2951.715	102.788
	1600.00	397.480	889.489	567.932	−3802.655	514.492	−5225.837	−4351.825	−2858.116	93.308
	1700.00	397.480	913.586	587.563	−3762.907	554.240	−5316.003	−4545.181	−2763.199	84.903
	1800.00	397.480	936.305	606.312	−3723.159	593.988	−5408.509	−4537.191	−2658.607	77.151

References

Phase	H / S	C_p
SOL	S5	S5
LIQ	S5	S5

Rb2SO4 RUBIDIUM SULFATE 266.999

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	113.141	197.439	197.439	−1435.610	0.000	−1494.476	−1435.610	−1316.806	230.699
	300.00	113.500	198.140	197.441	−1435.400	0.210	−1494.842	−1435.666	−1316.068	229.148
	400.00	129.202	233.085	202.099	−1423.216	12.394	−1516.450	−1445.049	−1274.438	166.425
	500.00	141.189	263.243	211.380	−1409.679	25.931	−1541.300	−1447.956	−1231.445	128.648
	600.00	151.714	289.929	222.288	−1395.025	40.585	−1568.983	−1449.370	−1187.984	103.423
	700.00	161.549	314.061	233.701	−1379.358	56.252	−1599.201	−1449.502	−1144.395	85.396
	800.00	171.016	336.254	245.151	−1362.728	72.882	−1631.731	−1448.753	−1100.850	71.878
	900.00	180.269	356.932	256.435	−1345.162	90.448	−1666.401	−1499.979	−1056.294	61.306
	928.00	182.833	362.494	259.551	−1340.079	95.531	−1676.473	−1498.948	−1042.506	58.680
			4.509		4.184					
SOL−B	928.00	205.016	367.003	259.551	−1335.895	99.715	−1676.473	−1494.764	−1042.506	58.680
	1000.00	205.016	382.323	267.846	−1321.134	114.476	−1703.456	−1634.329	−1003.572	52.421
	1100.00	205.016	401.863	279.155	−1300.632	134.978	−1742.681	−1626.846	−940.860	44.678
	1200.00	205.016	419.701	290.135	−1280.130	155.480	−1783.772	−1619.447	−878.825	38.254
	1300.00	205.016	436.111	300.741	−1259.629	175.981	−1826.574	−1612.123	−817.404	32.844
	1343.00	205.016	442.783	305.183	−1250.813	184.797	−1845.471	−1608.994	−791.168	30.772
			28.599		38.409					
LIQ	1343.00	209.200	471.382	305.183	−1212.404	223.206	−1845.471	−1570.585	−791.168	30.772
	1400.00	209.200	480.078	312.128	−1200.480	235.130	−1872.589	−1566.217	−758.179	28.288
	1500.00	209.200	494.511	323.811	−1179.560	256.050	−1921.327	−1558.600	−700.728	24.402

References

Phase	H / S	C_p
SOL−A	Nb1	e
SOL−B	Tk1	e
LIQ	Tk1	e

186.207 RHENIUM **Re**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	25.314	36.526	36.526	0.000	0.000	−10.890	0.000	0.000	0.000
	300.00	25.324	36.683	36.527	0.047	0.047	−10.958	0.000	0.000	0.000
	400.00	25.869	44.043	37.527	2.606	2.606	−15.011	0.000	0.000	0.000
	500.00	26.414	49.874	39.433	5.221	5.221	−19.716	0.000	0.000	0.000
	600.00	26.958	54.738	41.589	7.889	7.889	−24.953	0.000	0.000	0.000
	700.00	27.503	58.934	43.774	10.612	10.612	−30.642	0.000	0.000	0.000
	800.00	28.048	62.642	45.905	13.390	13.390	−36.724	0.000	0.000	0.000
	900.00	28.593	65.977	47.953	16.222	16.222	−43.158	0.000	0.000	0.000
	1000.00	29.137	69.018	49.910	19.108	19.108	−49.910	0.000	0.000	0.000
	1100.00	29.682	71.821	51.776	22.049	22.049	−56.953	0.000	0.000	0.000
	1200.00	30.227	74.427	53.556	25.045	25.045	−64.267	0.000	0.000	0.000
	1300.00	30.772	76.868	55.256	28.095	28.095	−71.833	0.000	0.000	0.000
	1400.00	31.316	79.168	56.883	31.199	31.199	−79.636	0.000	0.000	0.000
	1500.00	31.861	81.347	58.442	34.358	34.358	−87.663	0.000	0.000	0.000
	1600.00	32.406	83.421	59.939	37.571	37.571	−95.902	0.000	0.000	0.000
	1700.00	32.951	85.402	61.379	40.839	40.839	−104.344	0.000	0.000	0.000
	1800.00	33.495	87.301	62.767	44.161	44.161	−112.980	0.000	0.000	0.000
	1900.00	34.040	89.126	64.106	47.538	47.538	−121.802	0.000	0.000	0.000
	2000.00	34.585	90.886	65.401	50.970	50.970	−130.803	0.000	0.000	0.000
	2100.00	35.130	92.587	66.656	54.455	54.455	−139.977	0.000	0.000	0.000
	2200.00	35.674	94.234	67.872	57.995	57.995	−149.318	0.000	0.000	0.000
	2300.00	36.219	95.831	69.053	61.590	61.590	−158.822	0.000	0.000	0.000
	2400.00	36.764	97.384	70.201	65.239	65.239	−168.483	0.000	0.000	0.000
	2500.00	37.309	98.896	71.319	68.943	68.943	−178.298	0.000	0.000	0.000
	2600.00	37.853	100.370	72.408	72.701	72.701	−188.261	0.000	0.000	0.000
	2700.00	38.398	101.809	73.471	76.514	76.514	−198.370	0.000	0.000	0.000
	2800.00	38.943	103.215	74.508	80.381	80.381	−208.622	0.000	0.000	0.000
	2900.00	39.488	104.591	75.522	84.302	84.302	−219.012	0.000	0.000	0.000
	3000.00	40.033	105.939	76.513	88.278	88.278	−229.539	0.000	0.000	0.000
	3100.00	40.577	107.261	77.484	92.309	92.309	−240.199	0.000	0.000	0.000
	3200.00	41.122	108.558	78.435	96.394	96.394	−250.991	0.000	0.000	0.000
	3300.00	41.667	109.831	79.367	100.533	100.533	−261.910	0.000	0.000	0.000
	3400.00	42.212	111.083	80.281	104.727	104.727	−272.956	0.000	0.000	0.000
	3453.00	42.500	111.738	80.759	106.972	106.972	−278.861	0.000	0.000	0.000
			9.623		33.229					
LIQ	3453.00	41.840	121.362	80.759	140.201	140.201	−278.861	0.000	0.000	0.000
	3500.00	41.840	121.927	81.308	142.167	142.167	−284.578	0.000	0.000	0.000
	3600.00	41.840	123.106	82.453	146.351	146.351	−296.830	0.000	0.000	0.000
	3700.00	41.840	124.252	83.567	150.535	150.535	−309.198	0.000	0.000	0.000
	3800.00	41.840	125.368	84.653	154.719	154.719	−321.680	0.000	0.000	0.000
	3900.00	41.840	126.455	85.711	158.903	158.903	−334.271	0.000	0.000	0.000
	4000.00	41.840	127.514	86.742	163.087	163.087	−346.970	0.000	0.000	0.000
	4100.00	41.840	128.547	87.749	167.271	167.271	−359.773	0.000	0.000	0.000
	4200.00	41.840	129.556	88.733	171.455	171.455	−372.678	0.000	0.000	0.000
	4300.00	41.840	130.540	89.694	175.639	175.639	−385.683	0.000	0.000	0.000
	4400.00	41.840	131.502	90.633	179.823	179.823	−398.786	0.000	0.000	0.000
	4500.00	41.840	132.442	91.552	184.007	184.007	−411.983	0.000	0.000	0.000

Re RHENIUM [continued] 186.207

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
LIQ	4600.00	41.840	133.362	92.451	188.191	188.191	−425.273	0.000	0.000	0.000
	4700.00	41.840	134.262	93.331	192.375	192.375	−438.655	0.000	0.000	0.000
	4800.00	41.840	135.143	94.193	196.559	196.559	−452.125	0.000	0.000	0.000
	4900.00	41.840	136.005	95.037	200.743	200.743	−465.683	0.000	0.000	0.000
	5000.00	41.840	136.851	95.865	204.927	204.927	−479.326	0.000	0.000	0.000
	5100.00	41.840	137.679	96.677	209.111	209.111	−493.052	0.000	0.000	0.000
	5200.00	41.840	138.492	97.473	213.295	213.295	−506.861	0.000	0.000	0.000
	5300.00	41.840	139.289	98.255	217.479	217.479	−520.750	0.000	0.000	0.000
	5400.00	41.840	140.071	99.022	221.663	221.663	−534.718	0.000	0.000	0.000
	5500.00	41.840	140.838	99.775	225.847	225.847	−548.764	0.000	0.000	0.000
	5600.00	41.840	141.592	100.515	230.031	230.031	−562.885	0.000	0.000	0.000
	5700.00	41.840	142.333	101.242	234.215	234.215	−577.082	0.000	0.000	0.000
	5800.00	41.840	143.060	101.957	238.399	238.399	−591.351	0.000	0.000	0.000

References

Phase	H / C	C_p	Remarks	
SOL	Hu1	Hu1		
LIQ	Hu1	Hu1	Hu1	BPT= 5864., L= 714.84 kJ

186.207 RHENIUM (GAS) **Re**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.786	188.933	188.933	774.877	0.000	718.547	774.877	729.437	−127.794
	300.00	20.786	189.062	188.934	774.915	0.038	718.197	774.869	729.155	−126.957
	400.00	20.786	195.042	189.749	776.994	2.117	698.977	774.388	713.988	−93.237
	500.00	20.786	199.680	191.289	779.073	4.196	679.233	773.852	698.949	−73.019
	600.00	20.786	203.470	193.013	781.151	6.274	659.069	773.262	684.023	−59.549
	700.00	20.786	206.674	194.741	783.230	8.353	638.558	772.618	669.200	−49.936
	800.00	20.786	209.450	196.410	785.309	10.432	617.749	771.919	654.473	−42.733
	900.00	20.786	211.898	197.998	787.387	12.510	596.679	771.165	639.837	−37.135
	1000.00	20.786	214.088	199.499	789.466	14.589	575.378	770.357	625.288	−32.662
	1100.00	20.746	216.066	200.917	791.541	16.664	553.869	769.492	610.822	−29.006
	1200.00	20.771	217.872	202.256	793.617	18.740	532.170	768.572	596.438	−25.962
	1300.00	20.804	219.536	203.522	795.696	20.819	510.299	767.601	582.132	−23.390
	1400.00	20.831	221.079	204.721	797.778	22.901	488.267	766.579	567.903	−21.189
	1500.00	20.854	222.517	205.860	799.862	24.985	466.086	765.504	553.749	−19.283
	1600.00	20.884	223.864	206.944	801.949	27.072	443.767	764.377	539.669	−17.618
	1700.00	20.934	225.131	207.977	804.039	29.162	421.316	763.200	525.660	−16.152
	1800.00	21.014	226.330	208.963	806.136	31.259	398.743	761.975	511.723	−14.850
	1900.00	21.135	227.469	209.908	808.243	33.366	376.052	760.705	497.854	−13.687
	2000.00	21.306	228.557	210.813	810.365	35.488	353.251	759.396	484.054	−12.642
	2100.00	21.533	229.602	211.683	812.506	37.629	330.342	758.051	470.319	−11.699
	2200.00	21.823	230.610	212.521	814.674	39.797	307.332	756.678	456.650	−10.842
	2300.00	22.179	231.588	213.329	816.873	41.996	284.221	755.283	443.044	−10.062
	2400.00	22.605	232.540	214.109	819.112	44.235	261.015	753.873	429.498	−9.348
	2500.00	23.104	233.473	214.865	821.397	46.520	237.714	752.454	416.012	−8.692
	2600.00	23.677	234.390	215.599	823.735	48.858	214.321	751.034	402.582	−8.088
	2700.00	24.324	235.296	216.311	826.135	51.258	190.836	749.621	389.207	−7.530
	2800.00	25.047	236.193	217.005	828.602	53.725	167.262	748.222	375.884	−7.012
	2900.00	25.846	237.086	217.682	831.147	56.270	143.598	746.844	362.610	−6.531
	3000.00	26.720	237.976	218.344	833.774	58.897	119.845	745.496	349.384	−6.083
	3100.00	27.668	238.868	218.992	836.493	61.616	96.003	744.184	336.202	−5.665
	3200.00	28.690	239.762	219.627	839.310	64.433	72.071	742.916	323.062	−5.273
	3300.00	29.784	240.662	220.251	842.233	67.356	48.050	741.700	309.960	−4.906
	3400.00	30.949	241.568	220.864	845.269	70.392	23.939	740.542	296.895	−4.561
	3500.00	32.145	242.482	221.469	848.424	73.547	−0.264	706.257	284.314	−4.243
	3600.00	33.377	243.405	222.065	851.700	76.823	−24.558	705.348	272.272	−3.951
	3700.00	34.638	244.337	222.655	855.100	80.223	−48.945	704.565	260.253	−3.674
	3800.00	35.921	245.277	223.238	858.628	83.751	−73.426	703.909	248.254	−3.412
	3900.00	37.215	246.227	223.815	862.285	87.408	−98.001	703.382	236.270	−3.164
	4000.00	38.512	247.186	224.387	866.071	91.194	−122.671	702.984	224.298	−2.929
	4100.00	39.801	248.153	224.955	869.987	95.110	−147.438	702.716	212.335	−2.705
	4200.00	41.072	249.127	225.519	874.031	99.154	−172.302	702.575	200.376	−2.492
	4300.00	42.316	250.108	226.079	878.200	103.323	−197.264	702.561	188.419	−2.289
	4400.00	43.525	251.095	226.637	882.493	107.616	−222.324	702.669	176.462	−2.095
	4500.00	44.691	252.086	227.191	886.904	112.027	−247.483	702.897	164.500	−1.909
	4600.00	45.808	253.081	227.743	891.429	116.552	−272.741	703.238	152.532	−1.732
	4700.00	46.870	254.077	228.293	896.064	121.187	−298.099	703.688	140.555	−1.562
	4800.00	47.872	255.075	228.840	900.801	125.924	−323.557	704.242	128.568	−1.399
	4900.00	48.809	256.071	229.386	905.636	130.759	−349.114	704.893	116.568	−1.243
	5000.00	49.680	257.066	229.930	910.561	135.684	−374.771	705.634	104.554	−1.092

Re[g] RHENIUM (GAS) [continued] 186.207

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	5100.00	50.481	258.058	230.471	915.570	140.693	−400.527	706.458	92.525	−0.948
	5200.00	51.212	259.046	231.011	920.655	145.778	−426.383	707.360	80.478	−0.808
	5300.00	51.871	260.028	231.550	925.810	150.933	−452.336	708.330	68.414	−0.674
	5400.00	52.459	261.003	232.086	931.027	156.150	−478.388	709.363	56.330	−0.545
	5500.00	52.977	261.970	232.621	936.299	161.422	−504.537	710.452	44.227	−0.420
	5600.00	53.425	262.929	233.153	941.620	166.743	−530.782	711.588	32.104	−0.299
	5700.00	53.807	263.878	233.684	946.982	172.105	−557.122	712.767	19.960	−0.183
	5800.00	54.124	264.817	234.213	952.379	177.502	−583.557	713.980	7.795	−0.070
	5900.00	54.380	265.744	234.739	957.805	182.928	−610.085	0.000	0.000	0.000
	6000.00	54.578	266.660	235.264	963.253	188.376	−636.705	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

Re3As7 TRIRHENIUM HEPTAARSENIDE 1083.072

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	248.638	336.812	336.812	−95.395	0.000	−195.815	−95.395	−88.624	15.527
	300.00	248.762	338.350	336.817	−94.935	0.460	−196.440	−95.395	−88.582	15.423
	400.00	255.015	410.788	346.651	−69.740	25.655	−234.055	−95.424	−86.307	11.271
	500.00	260.831	468.322	365.424	−43.946	51.449	−278.107	−95.440	−84.025	8.778
	600.00	266.474	516.378	386.686	−17.580	77.815	−327.406	−95.436	−81.743	7.116
	700.00	272.037	557.873	408.243	9.346	104.741	−381.165	−95.424	−79.461	5.929
	800.00	277.556	594.560	429.283	36.826	132.221	−438.821	−95.401	−77.182	5.039
	900.00	283.050	627.568	449.511	64.857	160.252	−499.955	−95.344	−74.908	4.348
	1000.00	288.529	657.674	468.844	93.436	188.831	−564.239	−95.093	−72.648	3.795
	1100.00	293.997	685.431	487.288	122.562	217.957	−631.412	−94.651	−70.425	3.344

References

Phase	H / S	C_p
SOL	Ku1	e

325.126 RHENIUM ARSENATE **ReAsO4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	121.372	169.996	169.996	−771.571	0.000	−822.255	−771.571	−678.390	118.851
	300.00	121.674	170.748	169.998	−771.346	0.225	−822.570	−771.547	−677.812	118.018
	400.00	133.588	207.550	174.935	−758.525	13.046	−841.545	−769.735	−646.815	84.465
	500.00	141.143	238.217	184.611	−744.768	26.803	−863.876	−767.276	−616.360	64.391
	600.00	146.983	264.484	195.786	−730.352	41.219	−889.043	−764.470	−586.436	51.054
	700.00	152.012	287.526	207.279	−715.398	56.173	−916.666	−761.426	−557.001	41.564
	749.00	154.305	297.888	212.871	−707.893	63.678	−931.011	−759.859	−542.745	37.851

References

Phase	H / S	C_p
SOL	G1	G1

425.919 RHENIUM TRIBROMIDE **ReBr3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	100.666	200.832	200.832	−175.728	0.000	−235.606	−175.728	−156.644	27.443
	300.00	100.793	201.455	200.834	−175.542	0.186	−235.978	−175.798	−156.525	27.253
	400.00	107.612	231.385	204.869	−165.121	10.607	−257.676	−219.661	−140.940	18.405
	500.00	114.432	256.131	212.713	−154.019	21.709	−282.085	−216.711	−121.589	12.702
	600.00	121.252	277.597	221.775	−142.235	33.493	−308.793	−213.173	−102.887	8.957
	700.00	128.072	296.801	231.144	−129.769	45.959	−337.529	−209.033	−84.825	6.330

References

Phase	H / S	C_p
SOL	Tk1	e

ReCl3 RHENIUM TRICHLORIDE 292.565

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	92.379	123.800	123.800	−264.002	0.000	−300.913	−264.002	−190.239	33.329
	300.00	92.694	124.373	123.802	−263.831	0.171	−301.143	−263.972	−189.782	33.044
	400.00	104.730	152.879	127.607	−253.893	10.109	−315.045	−261.795	−165.354	21.593
	500.00	111.784	177.059	135.143	−243.044	20.958	−331.574	−258.916	−141.566	14.789
	600.00	116.877	197.910	143.907	−231.600	32.402	−350.346	−255.594	−118.402	10.308
	700.00	121.045	216.248	152.957	−219.699	44.303	−371.072	−251.930	−95.822	7.150
	800.00	124.719	232.655	161.912	−207.407	56.595	−393.531	−247.974	−73.787	4.818
	900.00	128.106	247.542	170.612	−194.764	69.238	−417.552	−243.752	−52.265	3.033
	993.00	131.095	260.285	178.421	−182.711	81.291	−441.174	−239.599	−32.683	1.719

References

Phase	H / S	C_p	Remarks
SOL	Nb1	Nb1,e	Tk1 MPT= 993.

ReO2 RHENIUM DIOXIDE 218.206

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	54.367	47.827	47.827	−448.943	0.000	−463.203	−448.943	−391.148	68.527
	300.00	54.596	48.164	47.828	−448.842	0.101	−463.292	−448.943	−390.789	68.042
	400.00	63.098	65.183	50.091	−442.906	6.037	−468.979	−448.538	−371.446	48.506
	500.00	67.752	79.804	54.608	−436.345	12.598	−476.247	−447.650	−352.269	36.801
	600.00	70.892	92.449	59.885	−429.405	19.538	−484.874	−446.538	−333.294	29.016
	700.00	73.317	103.565	65.347	−422.190	26.753	−494.686	−445.301	−314.517	23.470
	800.00	75.361	113.492	70.756	−414.754	34.189	−505.548	−443.979	−295.923	19.322
	900.00	77.183	122.475	76.011	−407.125	41.818	−517.353	−442.588	−277.499	16.106
	1000.00	78.868	130.695	81.074	−399.322	49.621	−530.017	−441.133	−259.233	13.541
	1100.00	80.462	138.288	85.935	−391.355	57.588	−543.471	−439.616	−241.116	11.450
	1200.00	81.996	145.355	90.595	−383.232	65.711	−557.658	−438.037	−223.139	9.713
	1300.00	83.486	151.977	95.065	−374.957	73.986	−572.528	−436.396	−205.297	8.249
	1400.00	84.945	158.218	99.355	−366.536	82.407	−588.040	−434.692	−187.584	6.999

References

Phase	H / S	C_p
SOL	Pa3,F1	Pa3

234.205 RHENIUM TRIOXIDE **ReO3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	74.401	69.258	69.258	−589.107	0.000	−609.756	−589.107	−507.119	88.845
	300.00	74.627	69.719	69.259	−588.969	0.138	−609.885	−589.098	−506.610	88.209
	400.00	85.102	92.712	72.323	−580.951	8.156	−618.036	−588.096	−479.241	62.582
	500.00	92.194	112.515	78.428	−572.063	17.044	−628.321	−586.411	−452.212	47.242
	600.00	97.111	129.784	85.580	−562.585	26.522	−640.455	−584.340	−425.562	37.048
	700.00	100.746	145.039	93.006	−552.684	36.423	−654.211	−582.044	−399.278	29.794
	800.00	103.605	158.685	100.378	−542.461	46.646	−669.409	−579.604	−373.334	24.376
	900.00	105.972	171.029	107.553	−531.979	57.128	−685.905	−577.062	−347.701	20.180
	1000.00	108.014	182.302	114.472	−521.277	67.830	−703.579	−574.440	−322.357	16.838

References

Phase	H / S	C_p
SOL	Pa1	Pa1

484.410 DIRHENIUM HEPTAOXIDE **Re2O7**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	166.231	207.275	207.275	−1263.150	0.000	−1324.949	−1263.150	−1089.093	190.804
	300.00	166.640	208.305	207.279	−1262.842	0.308	−1325.334	−1263.126	−1088.013	189.440
	400.00	184.043	258.809	214.047	−1245.245	17.905	−1348.769	−1261.047	−1029.917	134.493
	413.00	185.864	264.724	215.549	−1242.841	20.309	−1352.172	−1260.689	−1022.411	129.311
			0.203		0.084					
SOL−B	413.00	187.493	264.927	215.549	−1242.757	20.393	−1352.172	−1260.605	−1022.411	129.311
	500.00	200.388	301.962	227.430	−1225.884	37.266	−1376.865	−1257.620	−972.515	101.598
	600.00	215.211	339.807	243.064	−1205.104	58.046	−1408.988	−1253.236	−915.889	79.735
			109.475		65.685					
LIQ	600.00	276.567	449.282	243.064	−1139.419	123.731	−1408.988	−1187.551	−915.889	79.735
	700.00	276.567	491.915	275.647	−1111.762	151.388	−1456.103	−1176.732	−871.473	65.030

References

Phase	H / S	C_p
SOL−A	Pa3	Pa3
SOL−B	Pa3	Pa3
LIQ	Pa3	Pa3

ReS2 RHENIUM DISULFIDE 250.339

Phase	T [K]	C_p J/(K mol)	S J/(K mol)	−(G−H298)/T J/(K mol)	H kJ/mol	H−H298 kJ/mol	G kJ/mol	ΔH_f kJ/mol	ΔG_f kJ/mol	log K_f [−]
SOL	298.15	65.889	60.668	60.668	−178.657	0.000	−196.745	−178.657	−166.740	29.212
	300.00	66.009	61.076	60.669	−178.535	0.122	−196.858	−178.666	−166.666	29.019
	400.00	70.780	80.785	63.324	−171.673	6.984	−203.987	−183.526	−162.421	21.210
	500.00	73.835	96.925	68.479	−164.434	14.223	−212.896	−186.706	−156.818	16.383
	600.00	76.215	110.604	74.388	−156.928	21.729	−223.290	−189.020	−150.603	13.111
	700.00	78.277	122.510	80.431	−149.201	29.456	−234.958	−190.636	−144.069	10.751
	800.00	80.168	133.088	86.364	−141.278	37.379	−247.748	−192.210	−137.311	8.965
	900.00	81.961	142.634	92.094	−133.171	45.486	−261.542	−299.348	−128.048	7.432
	1000.00	83.693	151.360	97.591	−124.888	53.769	−276.248	−297.621	−109.106	5.699
	1100.00	85.384	159.416	102.850	−116.434	62.223	−291.791	−295.793	−90.342	4.290
	1200.00	87.048	166.917	107.879	−107.812	70.845	−308.112	−293.863	−71.749	3.123
	1300.00	88.693	173.950	112.694	−99.025	79.632	−325.159	−291.834	−53.321	2.142
	1400.00	90.324	180.582	117.309	−90.074	88.583	−342.889	−289.705	−35.053	1.308
	1500.00	91.944	186.869	121.738	−80.960	97.697	−361.264	−287.478	−16.941	0.590

References

Phase	H / S	C_p
SOL	Mi1	Mi1

Re2S7 DIRHENIUM HEPTASULFIDE 596.876

Phase	T [K]	C_p J/(K mol)	S J/(K mol)	−(G−H298)/T J/(K mol)	H kJ/mol	H−H298 kJ/mol	G kJ/mol	ΔH_f kJ/mol	ΔG_f kJ/mol	log K_f [−]
SOL	298.15	200.739	167.360	167.360	−451.454	0.000	−501.352	−451.454	−412.669	72.298
	300.00	200.832	168.602	167.364	−451.083	0.371	−501.663	−451.471	−412.429	71.810
	400.00	205.853	227.065	175.301	−430.748	20.706	−521.574	−468.325	−398.612	52.053
	500.00	210.874	273.539	190.455	−409.912	41.542	−546.682	−480.032	−379.982	39.696
	600.00	215.894	312.430	207.629	−388.574	62.880	−576.032	−489.062	−359.058	31.259
	700.00	220.915	346.087	225.058	−366.733	84.721	−608.994	−495.835	−336.843	25.136

References

Phase	H / S	C_p
SOL	Mi1	Mi1

214.292 RHENIUM SILICON **ReSi**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	51.226	55.354	55.354	−52.802	0.000	−69.306	−52.802	−52.805	9.251
	300.00	51.296	55.671	55.355	−52.707	0.095	−69.409	−52.791	−52.805	9.194
	400.00	54.089	70.848	57.406	−47.425	5.377	−75.764	−52.191	−52.899	6.908
	500.00	55.898	83.123	61.361	−41.921	10.881	−83.482	−51.580	−53.147	5.552
	600.00	57.321	93.444	65.870	−36.258	16.544	−92.324	−50.962	−53.518	4.659
	700.00	58.561	102.375	70.461	−30.463	22.339	−102.125	−50.339	−53.993	4.029
	800.00	59.703	110.270	74.953	−24.549	28.253	−112.765	−49.711	−54.558	3.562
	900.00	60.789	117.365	79.278	−18.524	34.278	−124.152	−49.079	−55.202	3.204
	1000.00	61.840	123.824	83.415	−12.392	40.410	−136.217	−48.444	−55.916	2.921
	1100.00	62.867	129.767	87.362	−6.157	46.645	−148.900	−47.804	−56.695	2.692
	1200.00	63.879	135.280	91.128	0.181	52.983	−162.156	−47.161	−57.531	2.504
	1300.00	64.880	140.433	94.725	6.619	59.421	−175.944	−46.515	−58.421	2.347
	1400.00	65.873	145.277	98.164	13.156	65.958	−190.232	−45.866	−59.362	2.215
	1500.00	66.860	149.856	101.459	19.793	72.595	−204.991	−45.213	−60.348	2.102

References

Phase	H / S	C_p	Remarks	
SOL	C1	e	C1	DPT= 2153.

242.378 RHENIUM 2−SILICON **ReSi2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	64.202	74.057	74.057	−90.374	0.000	−112.454	−90.374	−90.342	15.827
	300.00	64.307	74.454	74.058	−90.255	0.119	−112.591	−90.376	−90.341	15.730
	400.00	68.381	93.573	76.637	−83.600	6.774	−121.029	−90.525	−90.309	11.793
	500.00	70.860	109.116	81.627	−76.630	13.744	−131.188	−90.727	−90.233	9.427
	600.00	72.711	122.205	87.328	−69.448	20.926	−142.771	−90.967	−90.112	7.845
	700.00	74.266	133.533	93.137	−62.097	28.277	−155.570	−91.237	−89.949	6.712
	800.00	75.663	143.542	98.824	−54.600	35.774	−169.433	−91.534	−89.744	5.860
	900.00	76.968	152.530	104.301	−46.968	43.406	−184.245	−91.856	−89.502	5.195
	1000.00	78.216	160.704	109.538	−39.208	51.166	−199.912	−92.202	−89.222	4.660
	1100.00	79.426	168.216	114.536	−31.326	59.048	−216.363	−92.571	−88.906	4.222
	1200.00	80.612	175.178	119.303	−23.324	67.050	−233.537	−92.963	−88.556	3.855
	1300.00	81.779	181.677	123.854	−15.204	75.170	−251.384	−93.377	−88.172	3.543
	1400.00	82.933	187.779	128.204	−6.968	83.406	−269.859	−93.813	−87.755	3.274
	1500.00	84.078	193.540	132.369	1.382	91.756	−288.928	−94.271	−87.306	3.040
	1600.00	85.215	199.003	136.365	9.847	100.221	−308.558	−94.751	−86.826	2.835
	1700.00	86.347	204.203	140.203	18.425	108.799	−328.720	−195.608	−85.422	2.625
	1800.00	87.475	209.170	143.898	27.116	117.490	−349.390	−195.678	−78.939	2.291
	1900.00	88.599	213.930	147.459	35.920	126.294	−370.547	−195.690	−72.452	1.992
	2000.00	89.720	218.503	150.898	44.836	135.210	−392.170	−195.645	−65.967	1.723

References

Phase	H / S	C_p	Remarks	
SOL	C1	e	C1	MPT= 2253.

Re5Si3 — 5–RHENIUM 3–SILICON — 1015.291

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	188.448	255.852	255.852	−157.599	0.000	−233.881	−157.599	−162.596	28.486
	300.00	188.726	257.018	255.855	−157.250	0.349	−234.356	−157.595	−162.627	28.316
	400.00	200.079	313.007	263.412	−137.761	19.838	−262.964	−157.272	−164.347	21.462
	500.00	207.761	358.518	278.023	−117.351	40.248	−296.610	−156.770	−166.171	17.360
	600.00	213.998	396.963	294.724	−96.256	61.343	−334.433	−156.147	−168.108	14.635
	700.00	219.552	430.374	311.767	−74.574	83.025	−375.836	−155.427	−170.157	12.697
	800.00	224.744	460.033	328.481	−52.357	105.242	−420.383	−154.623	−172.316	11.251
	900.00	229.723	486.793	344.608	−29.633	127.966	−467.746	−153.742	−174.579	10.132
	1000.00	234.572	511.248	360.066	−6.417	151.182	−517.665	−152.788	−176.945	9.243
	1100.00	239.334	533.829	374.849	17.279	174.878	−569.933	−151.762	−179.410	8.519
	1200.00	244.039	554.856	388.984	41.448	199.047	−624.380	−150.668	−181.971	7.921
	1300.00	248.702	574.574	402.509	66.085	223.684	−680.861	−149.506	−184.626	7.418
	1400.00	253.335	593.175	415.470	91.187	248.786	−739.257	−148.277	−187.374	6.991
	1500.00	257.946	610.810	427.910	116.752	274.351	−799.464	−146.982	−190.211	6.624

References

Phase	H / S	C_p	Remarks
SOL	C1	e	C1 MPT= 2233.

Re2Te5 — DIRHENIUM PENTATELLURIDE — 1010.414

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	175.612	251.877	251.877	−94.140	0.000	−169.237	−94.140	−73.669	12.907
	300.00	175.728	252.963	251.880	−93.815	0.325	−169.704	−94.147	−73.542	12.805
	400.00	182.004	304.377	258.848	−75.928	18.212	−197.679	−94.806	−66.591	8.696
	500.00	188.280	345.664	272.212	−57.414	36.726	−230.246	−96.051	−59.405	6.206
	600.00	194.556	380.546	287.434	−38.272	55.868	−266.600	−97.882	−51.914	4.519
	700.00	200.832	411.008	302.956	−18.503	75.637	−306.209	−100.299	−44.069	3.289
	800.00	207.108	438.236	318.193	1.894	96.034	−348.694	−191.410	−26.439	1.726
	900.00	213.384	462.992	332.927	22.919	117.059	−393.774	−194.878	−5.604	0.325
	1000.00	219.660	485.799	347.088	44.571	138.711	−441.228	−197.827	15.590	−0.814
	1100.00	225.936	507.029	360.674	66.851	160.991	−490.881	−200.257	37.053	−1.760
	1200.00	232.212	526.957	373.709	89.758	183.898	−542.590	−202.168	58.715	−2.556

References

Phase	H / S	C_p
SOL	Tk1/Ku1	e

461.320 2–RHENIUM YTTRIUM . **Re2Y**

Phase	T	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	76.196	110.039	110.039	–135.771	0.000	–168.579	–135.771	–133.551	23.397
	300.00	76.236	110.511	110.041	–135.630	0.141	–168.783	–135.773	–133.537	23.251
	400.00	78.297	132.729	113.056	–127.902	7.869	–180.993	–135.850	–132.779	17.339
	500.00	80.249	150.411	118.817	–119.974	15.797	–195.180	–135.899	–132.005	13.790
	600.00	82.158	165.212	125.349	–111.853	23.918	–210.980	–135.932	–131.223	11.424
	700.00	84.046	178.018	131.978	–103.543	32.228	–228.156	–135.958	–130.436	9.733
	800.00	85.924	189.364	138.456	–95.045	40.726	–246.536	–135.981	–129.645	8.465
	900.00	87.796	199.592	144.689	–86.358	49.413	–265.992	–136.002	–128.852	7.478
	1000.00	89.663	208.939	150.654	–77.486	58.285	–286.425	–136.019	–128.056	6.689
	1100.00	91.528	217.572	156.350	–68.426	67.345	–307.756	–136.032	–127.259	6.043
	1200.00	93.391	225.616	161.790	–59.180	76.591	–329.920	–136.041	–126.461	5.505
	1300.00	95.253	233.165	166.993	–49.748	86.023	–352.862	–136.046	–125.663	5.049
	1400.00	97.114	240.292	171.977	–40.129	95.642	–376.539	–136.049	–124.864	4.659
	1500.00	98.975	247.056	176.759	–30.325	105.446	–400.909	–136.050	–124.065	4.320

References

Phase	H / S	C_p
SOL	Ku1	e

Rh RHODIUM 102.905

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	24.976	31.505	31.506	0.000	0.000	−9.393	0.000	0.000	0.000
	300.00	24.999	31.660	31.506	0.046	0.046	−9.452	0.000	0.000	0.000
	400.00	26.090	39.006	32.500	2.602	2.602	−13.000	0.000	0.000	0.000
	500.00	27.114	44.938	34.413	5.262	5.262	−17.206	0.000	0.000	0.000
	600.00	28.135	49.971	36.596	8.025	8.025	−21.958	0.000	0.000	0.000
	700.00	29.143	54.384	38.829	10.889	10.889	−27.180	0.000	0.000	0.000
	800.00	30.126	58.340	41.024	13.853	13.853	−32.820	0.000	0.000	0.000
	900.00	31.078	61.944	43.152	16.913	16.913	−38.836	0.000	0.000	0.000
	1000.00	31.992	65.266	45.199	20.067	20.067	−45.199	0.000	0.000	0.000
	1100.00	32.866	68.356	47.165	23.310	23.310	−51.882	0.000	0.000	0.000
	1200.00	33.695	71.252	49.053	26.639	26.639	−58.864	0.000	0.000	0.000
	1300.00	34.480	73.980	50.867	30.048	30.048	−66.127	0.000	0.000	0.000
	1400.00	35.219	76.563	52.611	33.533	33.533	−73.655	0.000	0.000	0.000
	1500.00	35.910	79.017	54.290	37.090	37.090	−81.435	0.000	0.000	0.000
	1600.00	36.555	81.355	55.909	40.714	40.714	−89.454	0.000	0.000	0.000
	1700.00	37.151	83.589	57.472	44.399	44.399	−97.703	0.000	0.000	0.000
	1800.00	37.699	85.729	58.983	48.142	48.142	−106.169	0.000	0.000	0.000
	1900.00	38.198	87.780	60.445	51.937	51.937	−114.845	0.000	0.000	0.000
	2000.00	38.649	89.751	61.861	55.780	55.780	−123.723	0.000	0.000	0.000
	2100.00	39.051	91.647	63.235	59.666	59.666	−132.793	0.000	0.000	0.000
	2200.00	39.405	93.472	64.568	63.589	63.589	−142.050	0.000	0.000	0.000
	2233.00	39.510	94.060	65.000	64.891	64.891	−145.144	0.000	0.000	0.000
			9.623		21.489					
LIQ	2233.00	41.840	103.683	65.000	86.380	86.380	−145.144	0.000	0.000	0.000
	2300.00	41.840	104.920	66.144	89.183	89.183	−152.132	0.000	0.000	0.000
	2400.00	41.840	106.701	67.797	93.367	93.367	−162.714	0.000	0.000	0.000
	2500.00	41.840	108.409	69.388	97.551	97.551	−173.470	0.000	0.000	0.000
	2600.00	41.840	110.050	70.921	101.735	101.735	−184.393	0.000	0.000	0.000
	2700.00	41.840	111.629	72.399	105.919	105.919	−195.478	0.000	0.000	0.000
	2800.00	41.840	113.150	73.828	110.103	110.103	−206.717	0.000	0.000	0.000
	2900.00	41.840	114.618	75.209	114.287	114.287	−218.106	0.000	0.000	0.000
	3000.00	41.840	116.037	76.546	118.471	118.471	−229.639	0.000	0.000	0.000
	3100.00	41.840	117.409	77.843	122.655	122.655	−241.312	0.000	0.000	0.000
	3200.00	41.840	118.737	79.100	126.839	126.839	−253.120	0.000	0.000	0.000
	3300.00	41.840	120.025	80.321	131.023	131.023	−265.058	0.000	0.000	0.000
	3400.00	41.840	121.274	81.507	135.207	135.207	−277.123	0.000	0.000	0.000
	3500.00	41.840	122.487	82.660	139.391	139.391	−289.311	0.000	0.000	0.000
	3600.00	41.840	123.665	83.783	143.575	143.575	−301.619	0.000	0.000	0.000
	3700.00	41.840	124.812	84.877	147.759	147.759	−314.043	0.000	0.000	0.000
	3800.00	41.840	125.927	85.942	151.943	151.943	−326.581	0.000	0.000	0.000
	3900.00	41.840	127.014	86.982	156.127	156.127	−339.228	0.000	0.000	0.000
	3967.00	41.840	127.727	87.664	158.931	158.931	−347.762	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL	Hu1	Hu1		
LIQ	Hu1	Hu1	Hu1	BPT= 3967., L= 493.26 kJ

102.905 RHODIUM (GAS) **Rh**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	21.017	185.820	185.820	553.125	0.000	497.723	553.125	507.116	−88.845
	300.00	21.020	185.951	185.821	553.164	0.039	497.379	553.118	506.831	−88.247
	400.00	21.616	192.064	186.650	555.290	2.165	478.465	552.688	491.465	−64.179
	500.00	22.558	196.986	188.240	557.498	4.373	459.005	552.236	476.211	−49.749
	600.00	23.531	201.185	190.056	559.803	6.678	439.092	551.778	461.049	−40.138
	700.00	24.432	204.882	191.915	562.202	9.077	418.785	551.313	445.965	−33.278
	800.00	25.223	208.197	193.746	564.685	11.560	398.128	550.833	430.947	−28.138
	900.00	25.893	211.208	195.522	567.242	14.117	377.155	550.329	415.992	−24.144
	1000.00	26.444	213.965	197.230	569.860	16.735	355.895	549.793	401.094	−20.951
	1100.00	26.882	216.507	198.869	572.527	19.402	334.369	549.217	386.251	−18.342
	1200.00	27.217	218.861	200.438	575.233	22.108	312.600	548.594	371.463	−16.169
	1300.00	27.460	221.050	201.940	577.968	24.843	290.603	547.920	356.729	−14.334
	1400.00	27.624	223.091	203.379	580.723	27.598	268.394	547.189	342.049	−12.762
	1500.00	27.721	225.001	204.757	583.490	30.365	245.989	546.400	327.424	−11.402
	1600.00	27.766	226.792	206.079	586.265	33.140	223.398	545.551	312.853	−10.214
	1700.00	27.772	228.475	207.348	589.042	35.917	200.634	544.643	298.337	−9.167
	1800.00	27.752	230.062	208.566	591.818	38.693	177.706	543.676	283.876	−8.238
	1900.00	27.722	231.562	209.737	594.592	41.467	154.624	542.655	269.470	−7.408
	2000.00	27.695	232.983	210.864	597.363	44.238	131.397	541.583	255.119	−6.663
	2100.00	27.685	234.334	211.950	600.132	47.007	108.030	540.466	240.823	−5.990
	2200.00	27.708	235.622	212.997	602.901	49.776	84.532	539.312	226.582	−5.380
	2300.00	27.696	236.854	214.008	605.672	52.547	60.908	516.488	213.040	−4.838
	2400.00	27.689	238.032	214.984	608.441	55.316	37.163	515.073	199.877	−4.350
	2500.00	27.689	239.163	215.929	611.210	58.085	13.303	513.658	186.773	−3.902
	2600.00	27.695	240.249	216.844	613.979	60.854	−10.668	512.243	173.725	−3.490
	2700.00	27.708	241.294	217.730	616.749	63.624	−34.746	510.829	160.732	−3.110
	2800.00	27.727	242.302	218.590	619.520	66.395	−58.926	509.417	147.791	−2.757
	2900.00	27.754	243.276	219.424	622.294	69.169	−83.205	508.007	134.901	−2.430
	3000.00	27.786	244.217	220.235	625.071	71.946	−107.580	506.600	122.059	−2.125
	3100.00	27.823	245.129	221.023	627.852	74.727	−132.047	505.196	109.265	−1.841
	3200.00	27.864	246.013	221.791	630.636	77.511	−156.605	503.797	96.515	−1.575
	3300.00	27.910	246.871	222.538	633.425	80.300	−181.249	502.401	83.809	−1.327
	3400.00	27.959	247.705	223.266	636.218	83.093	−205.978	501.011	71.145	−1.093
	3500.00	28.011	248.516	223.976	639.017	85.892	−230.789	499.625	58.522	−0.873
	3600.00	28.066	249.306	224.668	641.820	88.695	−255.681	498.245	45.939	−0.667
	3700.00	28.122	250.076	225.345	644.630	91.505	−280.650	496.871	33.394	−0.471
	3800.00	28.179	250.826	226.005	647.445	94.320	−305.695	495.502	20.886	−0.287
	3900.00	28.238	251.559	226.651	650.266	97.141	−330.814	494.138	8.414	−0.113
	4000.00	28.297	252.275	227.283	653.092	99.967	−356.006	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

RhCl2[g] RHODIUM DICHLORIDE (GAS) 173.811

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
GAS	298.15	53.808	288.513	288.513	126.775	0.000	40.755	126.775	116.671	−20.440
	300.00	53.864	288.846	288.514	126.875	0.100	40.221	126.766	116.608	−20.303
	400.00	56.226	304.689	290.658	132.388	5.613	10.512	126.255	113.299	−14.795
	500.00	57.953	317.428	294.779	138.099	11.324	−20.614	125.736	110.119	−11.504
	600.00	59.430	328.127	299.469	143.970	17.195	−52.906	125.209	107.046	−9.319
	700.00	60.790	337.391	304.239	149.982	23.207	−86.192	124.680	104.060	−7.765
	800.00	62.086	345.594	308.905	156.126	29.351	−120.349	124.155	101.150	−6.604
	900.00	63.346	352.980	313.399	162.398	35.623	−155.284	123.641	98.306	−5.706
	1000.00	64.584	359.718	317.699	168.794	42.019	−190.924	123.142	95.518	−4.989
	1100.00	65.806	365.931	321.805	175.314	48.539	−227.210	122.665	92.779	−4.406
	1200.00	67.019	371.709	325.725	181.955	55.180	−264.095	122.214	90.082	−3.921
	1300.00	68.224	377.121	329.473	188.718	61.943	−301.540	121.794	87.421	−3.513
	1400.00	69.424	382.221	333.060	195.600	68.825	−339.509	121.410	84.792	−3.164
	1500.00	70.620	387.051	336.500	202.602	75.827	−377.975	121.067	82.189	−2.862
	1600.00	71.814	391.647	339.804	209.724	82.949	−416.912	120.769	79.607	−2.599
	1700.00	73.005	396.037	342.984	216.965	90.190	−456.297	120.521	77.042	−2.367
	1800.00	74.194	400.243	346.049	224.325	97.550	−496.113	120.328	74.490	−2.162
	1900.00	75.382	404.286	349.008	231.804	105.029	−536.341	120.194	71.948	−1.978
	2000.00	76.569	408.183	351.870	239.401	112.626	−576.965	120.124	69.410	−1.813

References

Phase	H / S	C_p
GAS	Be3	Be3,e

RhCl3 RHODIUM TRICHLORIDE 209.264

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	92.207	126.775	126.775	−299.202	0.000	−337.000	−299.202	−227.823	39.914
	300.00	92.522	127.347	126.777	−299.031	0.171	−337.235	−299.172	−227.381	39.590
	400.00	104.558	155.803	130.575	−289.111	10.091	−351.432	−297.008	−203.752	26.607
	500.00	111.612	179.946	138.099	−278.278	20.924	−368.251	−294.192	−180.754	18.883
	600.00	116.706	200.764	146.848	−266.852	32.350	−387.311	−290.981	−158.362	13.787
	700.00	120.873	219.076	155.884	−254.968	44.234	−408.321	−287.476	−136.532	10.188
	800.00	124.547	235.460	164.825	−242.694	56.508	−431.062	−283.723	−115.222	7.523
	900.00	127.934	250.328	173.512	−230.068	69.134	−455.362	−279.747	−94.396	5.479
	1000.00	131.143	263.974	181.885	−217.113	82.089	−481.087	−275.557	−74.024	3.867
	1100.00	134.236	276.619	189.929	−203.843	95.359	−508.124	−271.161	−54.082	2.568
	1200.00	137.249	288.429	197.651	−190.268	108.934	−536.383	−266.561	−34.549	1.504

References

Phase	H / S	C_p
SOL	Nb1/Be3	e

RhO2[g] RHODIUM DIOXIDE (GAS) 134.904

Phase	T	C_P	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J/(K mol)	]	[		kJ/mol		]	[–]
GAS	298.15	43.044	263.701	263.701	191.600	0.000	112.977	191.600	183.535	–32.155
	300.00	43.235	263.968	263.702	191.680	0.080	112.489	191.579	183.485	–31.948
	400.00	49.947	277.464	265.497	196.387	4.787	85.401	190.759	180.924	–23.626
	500.00	53.053	288.981	269.073	201.554	9.954	57.063	190.207	178.532	–18.651
	600.00	54.741	298.817	273.231	206.951	15.351	27.661	189.683	176.245	–15.344
	700.00	55.758	307.338	277.509	212.480	20.880	–2.656	189.093	174.051	–12.988
	800.00	56.419	314.829	281.715	218.091	26.491	–33.772	188.403	171.948	–11.227
	900.00	56.871	321.502	285.772	223.757	32.157	–65.595	187.603	169.938	–9.863
	1000.00	57.195	327.512	289.651	229.461	37.861	–98.051	186.691	168.023	–8.777
	1100.00	57.435	332.975	293.345	235.193	43.593	–131.079	185.671	166.205	–7.892
	1200.00	57.617	337.981	296.859	240.946	49.346	–164.630	184.547	164.484	–7.160
	1300.00	57.759	342.598	300.202	246.716	55.116	–198.662	183.324	162.862	–6.544
	1400.00	57.872	346.883	303.385	252.497	60.897	–233.139	182.007	161.336	–6.020
	1500.00	57.962	350.879	306.419	258.289	66.689	–268.029	180.601	159.908	–5.569

Referenzen

Phase	H/S	Cp
GAS	Al1,e	e

Rh2O3 DIRHODIUM TRIOXIDE 253.809

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	103.803	106.274	106.274	−355.640	0.000	−387.325	−355.640	−276.792	48.493
	300.00	103.910	106.916	106.276	−355.448	0.192	−387.523	−355.622	−276.303	48.109
	400.00	109.684	137.600	110.420	−344.768	10.872	−399.808	−354.511	−250.023	32.650
	500.00	115.457	162.695	118.437	−333.511	22.129	−414.859	−353.163	−224.053	23.407
	600.00	121.231	184.256	127.650	−321.677	33.963	−432.230	−351.592	−198.375	17.270
	700.00	127.005	203.377	137.127	−309.265	46.375	−451.629	−349.791	−172.978	12.908
	800.00	132.779	220.714	146.508	−296.276	59.364	−472.846	−347.734	−147.856	9.654
	900.00	138.553	236.686	155.652	−282.709	72.931	−495.726	−345.397	−123.008	7.139
	1000.00	144.327	251.583	164.508	−268.565	87.075	−520.148	−342.753	−98.437	5.142
	1100.00	150.101	265.610	173.067	−253.844	101.796	−546.014	−339.782	−74.147	3.521
	1200.00	155.875	278.918	181.338	−238.545	117.095	−573.246	−336.464	−50.142	2.183
	1300.00	161.649	291.622	189.337	−222.669	132.971	−601.778	−332.780	−26.429	1.062

References

Phase	H / S	C_p
SOL	Tk1	Ku1,e

Rh3U 3−RHODIUM URANIUM 546.745

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	102.614	148.114	148.114	−259.408	0.000	−303.568	−259.408	−260.394	45.620
	300.00	102.792	148.749	148.116	−259.218	0.190	−303.843	−259.408	−260.400	45.340
	400.00	110.097	179.408	152.246	−248.543	10.865	−320.307	−259.269	−260.746	34.050
	500.00	115.119	204.540	160.267	−237.272	22.136	−339.541	−259.060	−261.140	27.281
	600.00	119.242	225.901	169.469	−225.549	33.859	−361.090	−258.959	−261.568	22.771
	700.00	122.940	244.564	178.891	−213.437	45.971	−384.632	−259.074	−261.997	19.550
	800.00	126.413	261.209	188.159	−200.968	58.440	−409.935	−259.482	−262.390	17.132
	900.00	129.754	276.292	197.127	−188.159	71.249	−436.822	−260.243	−262.712	15.247
	1000.00	133.014	290.133	205.744	−175.020	84.388	−465.152	−263.818	−262.764	13.725
	1100.00	136.220	302.961	214.006	−161.558	97.850	−494.815	−268.894	−262.401	12.460
	1200.00	139.389	314.950	221.924	−147.777	111.631	−525.717	−268.927	−261.808	11.396

References

Phase	H / S	C_p
SOL	Ku1	e

222.018 RADON (MONOATOMIC GAS) **Rn[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.786	176.231	176.231	0.000	0.000	−52.543	0.000	0.000	0.000
	300.00	20.786	176.359	176.231	0.038	0.038	−52.869	0.000	0.000	0.000
	400.00	20.786	182.339	177.046	2.117	2.117	−70.819	0.000	0.000	0.000
	500.00	20.786	186.977	178.586	4.196	4.196	−89.293	0.000	0.000	0.000
	600.00	20.786	190.767	180.310	6.274	6.274	−108.186	0.000	0.000	0.000
	700.00	20.786	193.971	182.039	8.353	8.353	−127.427	0.000	0.000	0.000
	800.00	20.786	196.747	183.708	10.432	10.432	−146.966	0.000	0.000	0.000
	900.00	20.786	199.195	185.295	12.510	12.510	−166.766	0.000	0.000	0.000
	1000.00	20.786	201.385	186.796	14.589	14.589	−186.796	0.000	0.000	0.000
	1100.00	20.786	203.366	188.214	16.667	16.667	−207.036	0.000	0.000	0.000
	1200.00	20.786	205.175	189.553	18.746	18.746	−227.464	0.000	0.000	0.000
	1300.00	20.786	206.839	190.820	20.825	20.825	−248.066	0.000	0.000	0.000
	1400.00	20.786	208.379	192.020	22.903	22.903	−268.828	0.000	0.000	0.000
	1500.00	20.786	209.813	193.159	24.982	24.982	−289.738	0.000	0.000	0.000
	1600.00	20.786	211.155	194.242	27.060	27.060	−310.787	0.000	0.000	0.000
	1700.00	20.786	212.415	195.274	29.139	29.139	−331.966	0.000	0.000	0.000
	1800.00	20.786	213.603	196.260	31.218	31.218	−353.268	0.000	0.000	0.000
	1900.00	20.786	214.727	197.203	33.296	33.296	−374.685	0.000	0.000	0.000
	2000.00	20.786	215.793	198.106	35.375	35.375	−396.211	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

Ru RUTHENIUM 101.070

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	24.043	28.535	28.535	0.000	0.000	−8.508	0.000	0.000	0.000
	300.00	24.047	28.684	28.535	0.044	0.044	−8.561	0.000	0.000	0.000
	400.00	24.396	35.644	29.482	2.465	2.465	−11.793	0.000	0.000	0.000
	500.00	24.887	41.139	31.283	4.928	4.928	−15.641	0.000	0.000	0.000
	600.00	25.446	45.725	33.318	7.445	7.445	−19.991	0.000	0.000	0.000
	700.00	26.050	49.693	35.380	10.019	10.019	−24.766	0.000	0.000	0.000
	800.00	26.688	53.213	37.393	12.656	12.656	−29.914	0.000	0.000	0.000
	900.00	27.355	56.394	39.330	15.358	15.358	−35.397	0.000	0.000	0.000
	1000.00	28.049	59.312	41.184	18.128	18.128	−41.184	0.000	0.000	0.000
	1100.00	28.768	62.019	42.957	20.968	20.968	−47.253	0.000	0.000	0.000
	1200.00	29.511	64.554	44.652	23.882	23.882	−53.583	0.000	0.000	0.000
	1300.00	30.277	66.946	46.276	26.871	26.871	−60.159	0.000	0.000	0.000
	1400.00	31.067	69.219	47.834	29.938	29.938	−66.968	0.000	0.000	0.000
	1500.00	31.879	71.390	49.333	33.085	33.085	−73.999	0.000	0.000	0.000
	1600.00	32.715	73.474	50.777	36.315	36.315	−81.243	0.000	0.000	0.000
	1700.00	33.876	75.494	52.172	39.649	39.649	−88.692	0.000	0.000	0.000
	1800.00	34.953	77.461	53.522	43.090	43.090	−96.340	0.000	0.000	0.000
	1900.00	36.031	79.380	54.833	46.639	46.639	−104.182	0.000	0.000	0.000
	2000.00	37.108	81.255	56.107	50.296	50.296	−112.214	0.000	0.000	0.000
	2100.00	38.185	83.092	57.349	54.061	54.061	−120.432	0.000	0.000	0.000
	2200.00	39.263	84.893	58.560	57.933	57.933	−128.831	0.000	0.000	0.000
	2300.00	40.340	86.662	59.743	61.913	61.913	−137.409	0.000	0.000	0.000
	2400.00	41.417	88.402	60.901	66.001	66.001	−146.163	0.000	0.000	0.000
	2500.00	42.495	90.114	62.036	70.197	70.197	−155.089	0.000	0.000	0.000
	2523.00	42.743	90.505	62.293	71.177	71.177	−157.166	0.000	0.000	0.000
			9.623		24.280					
LIQ	2523.00	41.840	100.128	62.293	95.457	95.457	−157.166	0.000	0.000	0.000
	2600.00	41.840	101.386	63.433	98.679	98.679	−164.925	0.000	0.000	0.000
	2700.00	41.840	102.965	64.868	102.863	102.863	−175.143	0.000	0.000	0.000
	2800.00	41.840	104.487	66.256	107.047	107.047	−185.516	0.000	0.000	0.000
	2900.00	41.840	105.955	67.599	111.231	111.231	−196.038	0.000	0.000	0.000
	3000.00	41.840	107.373	68.902	115.415	115.415	−206.705	0.000	0.000	0.000
	3100.00	41.840	108.745	70.165	119.599	119.599	−217.511	0.000	0.000	0.000
	3200.00	41.840	110.074	71.391	123.783	123.783	−228.453	0.000	0.000	0.000
	3300.00	41.840	111.361	72.583	127.967	127.967	−239.525	0.000	0.000	0.000
	3400.00	41.840	112.610	73.742	132.151	132.151	−250.723	0.000	0.000	0.000
	3500.00	41.840	113.823	74.870	136.335	136.335	−262.045	0.000	0.000	0.000
	3600.00	41.840	115.002	75.969	140.519	140.519	−273.487	0.000	0.000	0.000
	3700.00	41.840	116.148	77.039	144.703	144.703	−285.045	0.000	0.000	0.000
	3800.00	41.840	117.264	78.083	148.887	148.887	−296.715	0.000	0.000	0.000
	3900.00	41.840	118.351	79.102	153.071	153.071	−308.496	0.000	0.000	0.000
	4000.00	41.840	119.410	80.096	157.255	157.255	−320.385	0.000	0.000	0.000
	4100.00	41.840	120.443	81.068	161.439	161.439	−332.378	0.000	0.000	0.000
	4200.00	41.840	121.451	82.017	165.623	165.623	−344.472	0.000	0.000	0.000
	4300.00	41.840	122.436	82.946	169.807	169.807	−356.667	0.000	0.000	0.000
	4400.00	41.840	123.398	83.854	173.991	173.991	−368.959	0.000	0.000	0.000
	4419.00	41.840	123.578	84.025	174.786	174.786	−371.305	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks
SOL	Hu1	Hu1	
LIQ	Hu1	Hu1	Hu1 BPT= 4419., L= 595.54 kJ

101.070 RUTHENIUM (GAS) **Ru**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	21.523	186.502	186.502	651.449	0.000	595.843	651.449	604.351	−105.880
	300.00	21.539	186.636	186.503	651.489	0.040	595.498	651.444	604.059	−105.176
	400.00	22.649	192.976	187.360	653.696	2.247	576.505	651.231	588.298	−76.824
	500.00	23.802	198.157	189.016	656.019	4.570	556.941	651.091	572.582	−59.817
	600.00	24.757	202.584	190.917	658.449	7.000	536.899	651.005	556.889	−48.482
	700.00	25.467	206.457	192.867	660.962	9.513	516.442	650.943	541.208	−40.385
	800.00	25.947	209.892	194.784	663.535	12.086	495.622	650.879	525.536	−34.314
	900.00	26.231	212.966	196.637	666.145	14.696	474.476	650.788	509.873	−29.592
	1000.00	26.362	215.737	198.410	668.776	17.327	453.039	650.648	494.223	−25.816
	1100.00	26.387	218.252	200.102	671.414	19.965	431.337	650.446	478.590	−22.726
	1200.00	26.356	220.547	201.711	674.052	22.603	409.396	650.170	462.978	−20.153
	1300.00	26.321	222.655	203.242	676.685	25.236	387.234	649.814	447.393	−17.976
	1400.00	26.332	224.605	204.699	679.317	27.868	364.870	649.379	431.838	−16.112
	1500.00	26.372	226.423	206.088	681.952	30.503	342.317	648.867	416.316	−14.497
	1600.00	26.443	228.127	207.412	684.593	33.144	319.589	648.278	400.832	−13.086
	1700.00	26.564	229.734	208.679	687.242	35.793	296.695	647.594	385.387	−11.841
	1800.00	26.738	231.257	209.891	689.907	38.458	273.645	646.817	369.985	−10.737
	1900.00	26.963	232.708	211.054	692.592	41.143	250.446	645.952	354.628	−9.749
	2000.00	27.231	234.098	212.172	695.301	43.852	227.105	645.005	339.320	−8.862
	2100.00	27.535	235.434	213.248	698.039	46.590	203.628	643.978	324.060	−8.061
	2200.00	27.866	236.722	214.286	700.809	49.360	180.020	642.876	308.852	−7.333
	2300.00	28.215	237.968	215.288	703.613	52.164	156.285	641.700	293.695	−6.670
	2400.00	28.576	239.177	216.259	706.452	55.003	132.428	640.451	278.591	−6.063
	2500.00	28.944	240.351	217.199	709.328	57.879	108.451	639.132	263.540	−5.506
	2600.00	29.311	241.493	218.112	712.241	60.792	84.359	613.562	249.283	−5.008
	2700.00	29.675	242.606	218.998	715.190	63.741	60.154	612.328	235.296	−4.552
	2800.00	30.032	243.692	219.861	718.176	66.727	35.838	611.129	221.354	−4.129
	2900.00	30.378	244.752	220.701	721.196	69.747	11.416	609.966	207.454	−3.737
	3000.00	30.712	245.787	221.520	724.251	72.802	−13.111	608.836	193.594	−3.371
	3100.00	31.031	246.800	222.319	727.338	75.889	−37.741	607.740	179.771	−3.029
	3200.00	31.335	247.790	223.100	730.457	79.008	−62.470	606.674	165.982	−2.709
	3300.00	31.622	248.758	223.863	733.605	82.156	−87.298	605.638	152.227	−2.410
	3400.00	31.893	249.706	224.609	736.781	85.332	−112.221	604.630	138.502	−2.128
	3500.00	32.146	250.635	225.339	739.983	88.534	−137.238	603.648	124.807	−1.863
	3600.00	32.383	251.544	226.055	743.209	91.760	−162.348	602.690	111.139	−1.613
	3700.00	32.603	252.434	226.756	746.459	95.010	−187.547	601.756	97.498	−1.376
	3800.00	32.808	253.306	227.443	749.729	98.280	−212.834	600.843	83.882	−1.153
	3900.00	32.997	254.161	228.117	753.020	101.571	−238.207	599.949	70.289	−0.941
	4000.00	33.172	254.998	228.779	756.328	104.879	−263.665	599.074	56.719	−0.741
	4100.00	33.334	255.820	229.428	759.654	108.205	−289.206	598.215	43.171	−0.550
	4200.00	33.485	256.625	230.066	762.995	111.546	−314.829	597.372	29.644	−0.369
	4300.00	33.624	257.414	230.693	766.350	114.901	−340.531	596.544	16.136	−0.196
	4400.00	33.755	258.189	231.309	769.719	118.270	−366.311	595.729	2.648	−0.031
	4500.00	33.878	258.949	231.915	773.101	121.652	−392.168	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

RuCl3 RUTHENIUM TRICHLORIDE 207.428

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL−A	298.15	92.207	127.085	127.085	−230.120	0.000	−268.010	−230.120	−159.719	27.982
	300.00	92.522	127.656	127.087	−229.949	0.171	−268.246	−230.088	−159.283	27.734
	400.00	104.558	156.113	130.885	−220.029	10.091	−282.474	−227.789	−136.001	17.760
	500.00	111.612	180.255	138.408	−209.196	20.924	−299.324	−224.776	−113.391	11.846
	600.00	116.706	201.074	147.157	−197.770	32.350	−318.414	−221.319	−91.433	7.960
	700.00	120.873	219.386	156.194	−185.886	44.234	−339.456	−217.524	−70.081	5.230
	723.00	121.752	223.308	158.267	−183.095	47.025	−344.547	−216.610	−65.251	4.714

References

Phase	H / S	C_p	Remarks
SOL−A	Tk1/Be2	e	Tk1 TPT= 723./ SPT= 1000., L= 282.0 kJ

RuCl3[g] RUTHENIUM TRICHLORIDE (GAS) 207.428

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	55.219	328.445	328.445	79.078	0.000	−18.848	79.078	89.443	−15.670
	300.00	55.283	328.786	328.446	79.180	0.102	−19.456	79.041	89.508	−15.585
	400.00	57.932	345.085	330.650	84.852	5.774	−53.182	77.092	93.291	−12.183
	500.00	59.759	358.217	334.892	90.740	11.662	−88.368	75.161	97.565	−10.193
	600.00	61.262	369.249	339.723	96.793	17.715	−124.756	73.245	102.226	−8.900
	700.00	62.612	378.795	344.638	102.988	23.910	−162.169	71.349	107.206	−8.000
	800.00	63.881	387.239	349.445	109.313	30.235	−200.478	69.480	112.456	−7.343
	900.00	65.102	394.834	354.073	115.763	36.685	−239.588	67.639	117.939	−6.845
	1000.00	66.294	401.755	358.501	122.333	43.255	−279.423	65.827	123.625	−6.458
	1100.00	67.467	408.129	362.726	129.021	49.943	−319.921	64.044	129.492	−6.149
	1200.00	68.626	414.049	366.759	135.826	56.748	−361.033	62.289	135.519	−5.899
	1300.00	69.777	419.588	370.612	142.746	63.668	−402.718	60.561	141.692	−5.693
	1400.00	70.920	424.800	374.299	149.781	70.703	−444.940	58.857	147.997	−5.522
	1500.00	72.059	429.732	377.831	156.930	77.852	−487.669	57.176	154.423	−5.377
	1600.00	73.194	434.419	381.223	164.192	85.114	−530.878	55.515	160.960	−5.255
	1700.00	74.326	438.890	384.484	171.568	92.490	−574.545	53.853	167.601	−5.150
	1800.00	75.456	443.171	387.627	179.057	99.979	−618.650	52.185	174.340	−5.059
	1900.00	76.584	447.281	390.659	186.659	107.581	−663.174	50.512	181.172	−4.981
	2000.00	77.710	451.238	393.590	194.374	115.296	−708.101	48.832	188.093	−4.912

References

Phase	H / S	C_p
GAS	Tk1/Be2,e	Be2,e

242.881 RUTHENIUM TETRACHLORIDE (GAS) **RuCl4[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	63.372	374.238	374.239	−79.914	0.000	−191.493	−79.914	−49.941	8.749
	300.00	63.456	374.631	374.240	−79.797	0.117	−192.186	−79.967	−49.755	8.663
	400.00	66.836	393.395	376.775	−73.266	6.648	−230.624	−82.791	−39.258	5.127
	500.00	69.021	408.556	381.663	−66.468	13.446	−270.746	−85.598	−28.049	2.930
	600.00	70.735	421.296	387.235	−59.477	20.437	−312.255	−88.394	−16.277	1.417
	700.00	72.227	432.314	392.906	−52.328	27.586	−354.948	−91.173	−4.037	0.301
	800.00	73.601	442.050	398.452	−45.036	34.878	−398.675	−93.928	8.599	−0.561
	900.00	74.906	450.794	403.790	−37.610	42.304	−443.325	−96.655	21.579	−1.252
	1000.00	76.168	458.752	408.894	−30.056	49.858	−488.808	−99.354	34.861	−1.821
	1100.00	77.402	466.070	413.764	−22.377	57.537	−535.054	−102.023	48.412	−2.299
	1200.00	78.617	472.857	418.409	−14.576	65.338	−582.004	−104.663	62.205	−2.708
	1300.00	79.819	479.197	422.844	−6.654	73.260	−629.611	−107.277	76.216	−3.062
	1400.00	81.011	485.156	427.084	1.387	81.301	−677.831	−109.864	90.429	−3.374
	1500.00	82.196	490.786	431.145	9.548	89.462	−726.631	−112.428	104.825	−3.650
	1600.00	83.376	496.128	435.041	17.827	97.741	−775.979	−114.971	119.391	−3.898
	1700.00	84.551	501.218	438.785	26.223	106.137	−825.848	−117.515	134.117	−4.121
	1800.00	85.723	506.084	442.389	34.737	114.651	−876.215	−120.063	148.992	−4.324
	1900.00	86.892	510.750	445.865	43.367	123.281	−927.058	−122.617	164.009	−4.509
	2000.00	88.059	515.237	449.223	52.115	132.029	−978.359	−125.176	179.161	−4.679

References

Phase	H / S	C_p
GAS	Tk1/Be2,e	Be2,e

196.062 RUTHENIUM PENTAFLUORIDE **RuF5**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	163.176	161.084	161.084	−892.907	0.000	−940.934	−892.907	−781.268	136.875
	300.00	163.176	162.093	161.087	−892.605	0.302	−941.233	−892.794	−780.576	135.910
	358.00	163.176	190.935	163.655	−883.141	9.766	−951.496	−889.339	−759.197	110.772
			222.056		79.496					
LIQ	358.00	182.004	412.991	163.655	−803.645	89.262	−951.496	−809.843	−759.197	110.772
	400.00	182.004	433.181	190.915	−796.001	96.906	−969.273	−806.644	−753.437	98.389
	500.00	182.004	473.794	243.580	−777.800	115.107	−1014.697	−799.315	−740.991	77.411
	600.00	182.004	506.977	284.799	−759.600	133.307	−1063.786	−792.314	−729.988	63.551

References

Phase	H / S	C_p	Remarks	
SOL	Ku1	e		
LIQ	Tk1	e	Tk1	BPT= 500., L= 56.5 kJ

RuO2 RUTHENIUM DIOXIDE 133.069

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	56.483	58.158	58.158	-305.014	0.000	-322.354	-305.014	-252.681	44.269
	300.00	56.836	58.508	58.159	-304.909	0.105	-322.462	-305.008	-252.357	43.939
	400.00	69.644	76.855	60.573	-298.501	6.513	-329.243	-303.992	-234.927	30.678
	500.00	76.153	93.162	65.497	-291.181	13.833	-337.762	-302.194	-217.859	22.760
	600.00	80.183	107.427	71.322	-283.351	21.663	-347.807	-300.040	-201.190	17.515
	700.00	83.043	120.012	77.397	-275.183	29.831	-359.192	-297.701	-184.898	13.797
	800.00	85.278	131.252	83.439	-266.763	38.251	-371.765	-295.254	-168.950	11.031
	900.00	87.151	141.407	89.325	-258.139	46.875	-385.406	-292.738	-153.312	8.898
	1000.00	88.799	150.677	95.003	-249.340	55.674	-400.017	-290.171	-137.957	7.206
	1100.00	90.300	159.211	100.457	-240.384	64.630	-415.517	-287.565	-122.862	5.834
	1200.00	91.700	167.129	105.687	-231.284	73.730	-431.839	-284.927	-108.005	4.701

References

Phase	H / S	C_p
SOL	Nb1	F3,e

RuO3[g] RUTHENIUM TRIOXIDE (GAS) 149.068

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	59.404	276.253	276.253	-78.241	0.000	-160.606	-78.241	-60.351	10.573
	300.00	59.655	276.622	276.255	-78.131	0.110	-161.117	-78.257	-60.240	10.489
	400.00	68.550	295.180	278.724	-71.659	6.582	-189.731	-78.662	-54.153	7.072
	500.00	72.802	310.982	283.639	-64.569	13.672	-220.060	-78.624	-48.026	5.017
	600.00	75.226	324.488	289.349	-57.158	21.083	-251.851	-78.468	-41.920	3.649
	700.00	76.788	336.209	295.225	-49.552	28.689	-284.899	-78.319	-35.841	2.675
	800.00	77.889	346.538	301.007	-41.815	36.426	-319.046	-78.225	-29.780	1.944
	900.00	78.723	355.763	306.587	-33.983	44.258	-354.170	-78.202	-23.727	1.377
	1000.00	79.391	364.093	311.928	-26.076	52.165	-390.169	-78.258	-17.672	0.923
	1100.00	79.951	371.686	317.020	-18.108	60.133	-426.964	-78.395	-11.607	0.551
	1200.00	80.437	378.664	321.871	-10.089	68.152	-464.486	-78.612	-5.527	0.241
	1300.00	80.871	385.120	326.491	-2.023	76.218	-502.679	-78.910	0.575	-0.023
	1400.00	81.267	391.128	330.896	6.084	84.325	-541.495	-79.290	6.703	-0.250
	1500.00	81.634	396.747	335.100	14.230	92.471	-580.892	-79.753	12.861	-0.448
	1600.00	81.981	402.027	339.120	22.410	100.651	-620.833	-80.303	19.053	-0.622
	1700.00	82.312	407.007	342.968	30.625	108.866	-661.287	-80.960	25.282	-0.777
	1800.00	82.629	411.721	346.658	38.872	117.113	-702.226	-81.728	31.553	-0.916
	1900.00	82.936	416.197	350.201	47.151	125.392	-743.623	-82.608	37.870	-1.041

References

Phase	H / S	C_p
GAS	Tk1	e

165.068 RUTHENIUM TETROXIDE (GAS) **RuO4[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	75.814	290.772	290.772	−184.096	0.000	−270.790	−184.096	−139.953	24.519
	300.00	76.153	291.242	290.773	−183.955	0.141	−271.328	−184.109	−139.679	24.320
	400.00	88.174	315.037	293.936	−175.655	8.441	−301.670	−184.171	−124.832	16.301
	500.00	93.902	335.395	300.247	−166.522	17.574	−334.219	−183.619	−110.054	11.497
	600.00	97.152	352.828	307.593	−156.955	27.141	−368.652	−182.888	−95.408	8.306
	700.00	99.234	367.971	315.161	−147.129	36.967	−404.709	−182.145	−80.888	6.036
	800.00	100.692	381.322	322.613	−137.129	46.967	−442.186	−181.456	−66.470	4.340
	900.00	101.788	393.248	329.811	−127.003	57.093	−480.926	−180.842	−52.135	3.026
	1000.00	102.659	404.019	336.702	−116.779	67.317	−520.798	−180.312	−37.863	1.978
	1100.00	103.382	413.838	343.274	−106.476	77.620	−561.698	−179.868	−23.640	1.123
	1200.00	104.006	422.861	349.536	−96.106	87.990	−603.539	−179.510	−9.454	0.412
	1300.00	104.559	431.208	355.501	−85.677	98.419	−646.247	−179.236	4.705	−0.189
	1400.00	105.061	438.975	361.189	−75.196	108.900	−689.761	−179.049	18.847	−0.703
	1500.00	105.525	446.240	366.620	−64.666	119.430	−734.026	−178.948	32.979	−1.148
	1600.00	105.960	453.064	371.811	−54.092	130.004	−778.994	−178.938	47.106	−1.538
	1700.00	106.373	459.500	376.782	−43.475	140.621	−824.625	−179.039	61.236	−1.882
	1800.00	106.768	465.592	381.548	−32.818	151.278	−870.883	−179.255	75.376	−2.187
	1900.00	107.150	471.375	386.125	−22.122	161.974	−917.733	−179.587	89.531	−2.461
	2000.00	107.520	476.880	390.526	−11.388	172.708	−965.148	−180.035	103.706	−2.709

References

Phase	H / S	C_p
GAS	Tk1	Tk1,e

165.202 RUTHENIUM DISULFIDE **RuS2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	62.180	54.392	54.392	−205.853	0.000	−222.070	−205.853	−194.447	34.066
	300.00	62.323	54.777	54.393	−205.738	0.115	−222.171	−205.867	−194.376	33.844
	400.00	67.779	73.542	56.915	−199.202	6.651	−228.619	−210.914	−190.271	24.847
	500.00	70.940	89.030	61.835	−192.255	13.598	−236.770	−214.235	−184.767	19.302
	600.00	73.198	102.172	67.490	−185.044	20.809	−246.347	−216.691	−178.623	15.551
	700.00	75.029	113.597	73.278	−177.630	28.223	−257.148	−218.471	−172.134	12.845
	800.00	76.634	123.723	78.963	−170.045	35.808	−269.023	−220.243	−165.396	10.799
	900.00	78.106	132.835	84.451	−162.307	43.546	−281.859	−327.620	−156.125	9.061
	1000.00	79.496	141.137	89.710	−154.427	51.426	−295.563	−326.180	−137.147	7.164
	1100.00	80.833	148.776	94.737	−146.410	59.443	−310.064	−324.688	−118.315	5.618
	1200.00	82.133	155.866	99.539	−138.261	67.592	−325.300	−323.150	−99.622	4.336
	1300.00	83.407	162.490	104.130	−129.984	75.869	−341.222	−321.570	−81.058	3.257
	1400.00	84.663	168.717	108.523	−121.581	84.272	−357.785	−319.952	−62.618	2.336
	1500.00	85.904	174.601	112.734	−113.052	92.801	−374.954	−318.298	−44.294	1.542

References

Phase	H / S	C_p
SOL	Mi1	Mi1

RuSe2 RUTHENIUM DISELENIDE 258.990

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		J / (K mol)			kJ / mol					
SOL	298.15	72.237	81.588	81.588	−161.502	0.000	−185.827	−161.502	−152.121	26.651
	300.00	72.316	82.035	81.589	−161.368	0.134	−185.979	−161.507	−152.063	26.476
	400.00	75.458	103.311	84.469	−153.965	7.537	−195.290	−161.859	−148.868	19.440
	500.00	77.509	120.381	90.000	−146.311	15.191	−206.502	−174.290	−145.386	15.188
	600.00	79.129	134.660	96.286	−138.477	23.025	−219.273	−176.001	−139.442	12.140
	700.00	80.546	146.966	102.667	−130.492	31.010	−233.369	−177.620	−133.220	9.941
	800.00	81.855	157.808	108.895	−122.372	39.130	−248.618	−179.165	−126.771	8.277
	900.00	83.101	167.522	114.879	−114.123	47.379	−264.893	−180.648	−120.132	6.972
	1000.00	84.308	176.340	120.591	−105.753	55.749	−282.093	−182.076	−113.331	5.920
	1100.00	85.489	184.431	126.031	−97.263	64.239	−300.137	−290.079	−96.481	4.582
	1200.00	86.653	191.919	131.214	−88.656	72.846	−318.959	−288.521	−78.950	3.437
	1300.00	87.805	198.901	136.155	−79.933	81.569	−338.504	−286.899	−61.551	2.473
	1400.00	88.948	205.450	140.873	−71.095	90.407	−358.724	−285.216	−44.279	1.652
	1500.00	90.084	211.625	145.386	−62.143	99.359	−379.581	−283.475	−27.129	0.945

References

Phase	H / S	C_p
SOL	Mi1	Mi1

Ru3U 3−RUTHENIUM URANIUM 541.239

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		J / (K mol)			kJ / mol					
SOL	298.15	99.797	108.366	108.366	−217.568	0.000	−249.877	−217.568	−209.360	36.679
	300.00	99.901	108.983	108.368	−217.383	0.185	−250.078	−217.568	−209.309	36.444
	400.00	104.428	138.385	112.346	−207.152	10.416	−262.506	−217.467	−206.567	26.975
	500.00	107.864	162.068	119.997	−196.532	21.036	−277.567	−217.319	−203.860	21.297
	600.00	110.869	182.004	128.713	−185.594	31.974	−294.796	−217.263	−201.176	17.514
	700.00	113.671	199.307	137.589	−174.365	43.203	−313.880	−217.393	−198.487	14.811
	800.00	116.364	214.662	146.281	−162.863	54.705	−334.592	−217.786	−195.763	12.782
	900.00	118.995	228.520	154.661	−151.095	66.473	−356.763	−218.513	−192.971	11.200
	1000.00	121.587	241.192	162.689	−139.065	78.503	−380.257	−222.046	−189.912	9.920
	1100.00	124.153	252.901	170.365	−126.778	90.790	−404.969	−227.089	−186.443	8.853
	1200.00	126.702	263.813	177.702	−114.235	103.333	−430.811	−227.115	−182.746	7.955
	1300.00	129.239	274.055	184.724	−101.438	116.130	−457.709	−227.114	−179.049	7.194
	1400.00	131.767	283.725	191.453	−88.388	129.180	−485.603	−227.093	−175.352	6.542
	1500.00	134.288	292.902	197.913	−75.085	142.483	−514.438	−236.493	−171.051	5.957
	1600.00	136.804	301.649	204.125	−61.530	156.038	−544.169	−237.418	−166.658	5.441
	1700.00	139.316	310.018	210.110	−47.724	169.844	−574.755	−238.404	−162.206	4.984
	1800.00	141.826	318.052	215.885	−33.667	183.901	−606.161	−239.462	−157.693	4.576

References

Phase	H / S	C_p
SOL	H6,Ku1	e

32.066 **SULFUR** **S**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL − A	298.15	22.761	32.056	32.056	0.000	0.000	−9.557	0.000	0.000	0.000
	300.00	22.796	32.197	32.056	0.042	0.042	−9.617	0.000	0.000	0.000
	368.30	24.167	37.006	32.539	1.645	1.645	−11.984	0.000	0.000	0.000
			1.089		0.401					
SOL − B	368.30	24.694	38.094	32.539	2.046	2.046	−11.984	0.000	0.000	0.000
	388.36	25.319	39.414	32.860	2.545	2.545	−12.762	0.000	0.000	0.000
			4.431		1.721					
LIQ	388.36	32.325	43.846	32.860	4.266	4.266	−12.762	0.000	0.000	0.000
	400.00	29.666	44.752	33.193	4.623	4.623	−13.277	0.000	0.000	0.000
	500.00	38.779	53.413	36.362	8.526	8.526	−18.181	0.000	0.000	0.000
	600.00	33.724	59.947	39.778	12.101	12.101	−23.867	0.000	0.000	0.000
	700.00	32.971	65.050	43.034	15.411	15.411	−30.124	0.000	0.000	0.000
	800.00	34.509	69.534	46.071	18.771	18.771	−36.856	0.000	0.000	0.000
	882.12	36.795	73.010	48.418	21.694	21.694	−42.710	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL − A	Ja2	Mi1		complex fc-orthorhombic
SOL − B	Ja2	Mi1		complex monoclinic
LIQ	Ja2	Mi1	Ja2	BPT = 882.117 (S2), L = 53.326/NBPT = 717.824 (S6 + S7 + S8...), L = 9.62

S[g] SULFUR (GAS) 32.066

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	23.578	167.828	167.828	276.980	0.000	226.942	276.980	236.500	−41.434
	300.00	23.556	167.974	167.828	277.024	0.044	226.631	276.981	236.248	−41.135
	400.00	22.782	174.629	168.741	279.335	2.355	209.484	274.712	222.761	−29.090
	500.00	22.401	179.668	170.443	281.593	4.613	191.759	273.067	209.940	−21.932
	600.00	22.175	183.731	172.330	283.821	6.841	173.582	271.719	197.449	−17.189
	700.00	22.022	187.137	174.208	286.030	9.050	155.034	270.619	185.158	−13.817
	800.00	21.908	190.070	176.012	288.226	11.246	136.171	269.455	173.027	−11.298
	900.00	21.817	192.645	177.720	290.412	13.432	117.032	215.435	162.200	−9.414
	1000.00	21.740	194.939	179.329	292.590	15.610	97.651	215.778	156.267	−8.163
	1100.00	21.672	197.008	180.844	294.761	17.781	78.052	216.106	150.300	−7.137
	1200.00	21.610	198.891	182.270	296.925	19.945	58.256	216.422	144.303	−6.281
	1300.00	21.553	200.619	183.616	299.083	22.103	38.279	216.726	138.281	−5.556
	1400.00	21.499	202.214	184.888	301.236	24.256	18.136	217.019	132.236	−4.934
	1500.00	21.447	203.695	186.093	303.383	26.403	−2.160	217.303	126.170	−4.394
	1600.00	21.397	205.078	187.237	305.525	28.545	−22.600	217.577	120.086	−3.920
	1700.00	21.349	206.374	188.325	307.662	30.682	−43.173	217.841	113.984	−3.502
	1800.00	21.301	207.592	189.362	309.795	32.815	−63.872	218.097	107.868	−3.130
	1900.00	21.255	208.743	190.352	311.923	34.943	−84.689	218.344	101.737	−2.797
	2000.00	21.209	209.832	191.299	314.046	37.066	−105.618	218.583	95.593	−2.497
	2100.00	21.163	210.866	192.206	316.164	39.184	−126.654	218.813	89.438	−2.225
	2200.00	21.118	211.849	193.077	318.278	41.298	−147.790	219.035	83.272	−1.977
	2300.00	21.074	212.787	193.914	320.388	43.408	−169.022	219.249	77.096	−1.751
	2400.00	21.030	213.683	194.719	322.493	45.513	−190.346	219.455	70.911	−1.543
	2500.00	21.839	214.574	195.496	324.675	47.695	−211.759	219.734	64.716	−1.352
	2600.00	21.878	215.431	196.246	326.861	49.881	−233.259	220.013	58.510	−1.175
	2700.00	21.917	216.257	196.972	329.051	52.071	−254.844	220.292	52.293	−1.012
	2800.00	21.956	217.055	197.675	331.244	54.264	−276.510	220.572	46.066	−0.859
	2900.00	21.996	217.826	198.357	333.442	56.462	−298.254	220.852	39.829	−0.717
	3000.00	22.036	218.573	199.018	335.644	58.664	−320.074	221.133	33.582	−0.585

References

Phase	H / S	C_p
GAS	Ja2	Mi1

64.132 SULFUR (GAS) **S2**[g]

Phase	T [K]	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
GAS	298.15	32.448	228.165	228.165	128.600	0.000	60.573	128.600	79.688	–13.961
	300.00	32.501	228.366	228.166	128.660	0.060	60.150	128.576	79.384	–13.822
	400.00	34.399	238.014	229.468	132.018	3.418	36.813	122.771	63.368	–8.275
	500.00	35.313	245.798	231.981	135.508	6.908	12.609	118.457	48.972	–5.116
	600.00	35.840	252.287	234.840	139.068	10.468	–12.304	114.865	35.429	–3.084
	700.00	36.185	257.839	237.738	142.671	14.071	–37.817	111.848	22.431	–1.674
	800.00	36.432	262.688	240.560	146.302	17.702	–63.848	108.760	9.865	–0.644
	900.00	36.622	266.990	243.263	149.955	21.355	–90.336	0.000	0.000	0.000
	1000.00	36.777	270.857	245.832	153.625	25.025	–117.232	0.000	0.000	0.000
	1100.00	36.910	274.369	248.269	157.310	28.710	–144.496	0.000	0.000	0.000
	1200.00	37.026	277.585	250.580	161.007	32.407	–172.096	0.000	0.000	0.000
	1300.00	37.132	280.553	252.773	164.715	36.115	–200.005	0.000	0.000	0.000
	1400.00	37.230	283.309	254.857	168.433	39.833	–228.199	0.000	0.000	0.000
	1500.00	37.321	285.880	256.840	172.160	43.560	–256.660	0.000	0.000	0.000
	1600.00	37.408	288.292	258.731	175.897	47.297	–285.370	0.000	0.000	0.000
	1700.00	37.492	290.562	260.538	179.642	51.042	–314.314	0.000	0.000	0.000
	1800.00	37.573	292.708	262.266	183.395	54.795	–343.478	0.000	0.000	0.000
	1900.00	37.652	294.741	263.922	187.156	58.556	–372.852	0.000	0.000	0.000
	2000.00	37.729	296.674	265.512	190.926	62.326	–402.423	0.000	0.000	0.000
	2100.00	37.805	298.517	267.040	194.702	66.102	–432.184	0.000	0.000	0.000
	2200.00	37.879	300.277	268.511	198.486	69.886	–462.124	0.000	0.000	0.000
	2300.00	37.953	301.963	269.929	202.278	73.678	–492.237	0.000	0.000	0.000
	2400.00	38.026	303.580	271.298	206.077	77.477	–522.514	0.000	0.000	0.000
	2500.00	38.098	305.133	272.620	209.883	81.283	–552.950	0.000	0.000	0.000
	2600.00	38.169	306.629	273.900	213.697	85.097	–583.539	0.000	0.000	0.000
	2700.00	38.240	308.071	275.139	217.517	88.917	–614.275	0.000	0.000	0.000
	2800.00	38.311	309.463	276.340	221.345	92.745	–645.152	0.000	0.000	0.000
	2900.00	38.381	310.809	277.505	225.179	96.579	–676.166	0.000	0.000	0.000
	3000.00	38.451	312.111	278.637	229.021	100.421	–707.312	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Ja2	Mi1

S3[g] SULFUR (GAS) 96.198

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	50.575	269.500	269.500	141.500	0.000	61.149	141.500	89.821	-15.736
	300.00	50.663	269.813	269.501	141.594	0.094	60.650	141.467	89.501	-15.583
	400.00	53.770	284.877	271.534	146.837	5.337	32.887	132.967	72.719	-9.496
	500.00	55.226	297.049	275.459	152.295	10.795	3.770	126.718	58.313	-6.092
	600.00	56.031	307.196	279.927	157.861	16.361	-26.456	121.557	45.144	-3.930
	700.00	56.529	315.873	284.457	163.491	21.991	-57.620	117.258	32.752	-2.444
	800.00	56.863	323.445	288.868	169.162	27.662	-89.594	112.849	20.975	-1.370
	900.00	57.102	330.157	293.089	174.861	33.361	-122.281	-50.072	13.224	-0.767
	1000.00	57.283	336.183	297.103	180.580	39.080	-155.603	-49.857	20.245	-1.058
	1100.00	57.424	341.649	300.908	186.316	44.816	-189.498	-49.649	27.245	-1.294
	1200.00	57.540	346.651	304.514	192.064	50.564	-223.917	-49.446	34.227	-1.490
	1300.00	57.637	351.261	307.935	197.823	56.323	-258.816	-49.249	41.191	-1.655
	1400.00	57.720	355.535	311.184	203.591	62.091	-294.158	-49.058	48.141	-1.796
	1500.00	57.793	359.520	314.275	209.367	67.867	-329.913	-48.874	55.077	-1.918
	1600.00	57.859	363.252	317.221	215.150	73.650	-366.054	-48.696	62.002	-2.024
	1700.00	57.919	366.761	320.033	220.939	79.439	-402.556	-48.524	68.915	-2.117
	1800.00	57.975	370.074	322.722	226.733	85.233	-439.399	-48.359	75.818	-2.200
	1900.00	58.027	373.210	325.297	232.533	91.033	-476.565	-48.201	82.713	-2.274
	2000.00	58.076	376.187	327.768	238.339	96.839	-514.036	-48.050	89.599	-2.340

References

Phase	H / S	C_p
GAS	Ja2	Mi1

128.264 SULFUR (GAS) **S4**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	74.649	310.600	310.600	145.800	0.000	53.195	145.800	91.425	−16.017
	300.00	74.748	311.062	310.601	145.938	0.138	52.620	145.770	91.087	−15.860
	400.00	78.232	333.114	313.584	153.612	7.812	20.366	135.118	73.476	−9.595
	500.00	79.862	350.766	319.315	161.525	15.725	−13.858	127.423	58.867	−6.150
	600.00	80.762	365.413	325.812	169.561	23.761	−49.687	121.155	45.779	−3.985
	700.00	81.317	377.908	332.384	177.667	31.867	−86.869	116.022	33.627	−2.509
	800.00	81.688	388.792	338.769	185.818	40.018	−125.215	110.734	22.210	−1.450
	900.00	81.952	398.429	344.873	194.001	48.201	−164.586	−105.909	16.087	−0.934
	1000.00	82.150	407.074	350.668	202.206	56.406	−204.868	−105.044	29.596	−1.546
	1100.00	82.305	414.912	356.158	210.429	64.629	−245.974	−104.190	43.018	−2.043
	1200.00	82.430	422.079	361.357	218.666	72.866	−287.828	−103.347	56.363	−2.453
	1300.00	82.535	428.681	366.285	226.915	81.115	−330.371	−102.515	69.639	−2.798
	1400.00	82.624	434.801	370.963	235.173	89.373	−373.548	−101.693	82.850	−3.091
	1500.00	82.702	440.504	375.411	243.439	97.639	−417.317	−100.882	96.004	−3.343
	1600.00	82.772	445.844	379.648	251.713	105.913	−461.637	−100.081	109.103	−3.562
	1700.00	82.835	450.864	383.691	259.993	114.193	−506.475	−99.290	122.153	−3.753
	1800.00	82.893	455.600	387.556	268.280	122.480	−551.800	−98.511	135.157	−3.922
	1900.00	82.947	460.083	391.256	276.572	130.772	−597.586	−97.741	148.117	−4.072
	2000.00	82.998	464.339	394.805	284.869	139.069	−643.809	−96.982	161.037	−4.206

References

Phase	H / S	C_p
GAS	Ja2	Mi1

S5[g] SULFUR (GAS) 160.330

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	88.234	308.600	308.600	109.400	0.000	17.391	109.400	65.178	−11.419
	300.00	88.463	309.147	308.602	109.563	0.163	16.819	109.353	64.904	−11.301
	400.00	96.543	335.867	312.190	118.871	9.471	−15.476	95.754	50.911	−6.648
	500.00	100.329	357.863	319.193	128.735	19.335	−50.196	86.107	40.709	−4.253
	600.00	102.424	376.357	327.220	138.882	29.482	−86.932	78.374	32.401	−2.821
	700.00	103.721	392.250	335.402	149.194	39.794	−125.381	72.138	25.239	−1.883
	800.00	104.592	406.160	343.395	159.612	50.212	−165.316	65.757	18.966	−1.238
	900.00	105.217	418.517	351.068	170.104	60.704	−206.562	−204.783	19.279	−1.119
	1000.00	105.687	429.628	358.378	180.650	71.250	−248.978	−203.413	44.102	−2.304
	1100.00	106.058	439.720	365.321	191.238	81.838	−292.453	−202.036	68.786	−3.266
	1200.00	106.360	448.961	371.912	201.859	92.459	−336.894	−200.657	93.346	−4.063
	1300.00	106.614	457.485	378.171	212.508	103.108	−382.222	−199.278	117.790	−4.733
	1400.00	106.833	465.394	384.122	223.181	113.781	−428.370	−197.901	142.128	−5.303
	1500.00	107.026	472.771	389.789	233.874	124.474	−475.283	−196.527	166.368	−5.793
	1600.00	107.199	479.684	395.193	244.586	135.186	−522.909	−195.156	190.516	−6.220
	1700.00	107.358	486.188	400.356	255.314	145.914	−571.206	−193.791	214.579	−6.593
	1800.00	107.504	492.329	405.297	266.057	156.657	−620.135	−192.431	238.561	−6.923
	1900.00	107.641	498.145	410.032	276.814	167.414	−669.661	−191.077	262.469	−7.216
	2000.00	107.770	503.669	414.577	287.585	178.185	−719.754	−189.729	286.304	−7.478

References

Phase	H / S	C_p
GAS	Ja2	Mi1

192.396 SULFUR (GAS) **S6**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	112.614	354.100	354.100	101.900	0.000	−3.675	101.900	53.670	−9.403
	300.00	112.853	354.797	354.102	102.109	0.209	−4.331	101.856	53.371	−9.293
	400.00	121.278	388.589	358.652	113.875	11.975	−41.561	86.134	38.103	−4.976
	500.00	125.213	416.122	367.481	126.221	24.321	−81.840	75.067	27.246	−2.846
	600.00	127.381	439.160	377.560	138.860	36.960	−124.636	66.251	18.564	−1.616
	700.00	128.715	458.904	387.804	151.670	49.770	−169.563	59.203	11.181	−0.834
	800.00	129.605	476.153	397.793	164.589	62.689	−216.334	51.963	4.805	−0.314
	900.00	130.236	491.457	407.366	177.582	75.682	−264.729	−272.283	6.280	−0.364
	1000.00	130.706	505.204	416.474	190.630	88.730	−314.574	−270.245	37.122	−1.939
	1100.00	131.072	517.679	425.116	203.720	101.820	−365.727	−268.209	67.760	−3.218
	1200.00	131.366	529.097	433.312	216.842	114.942	−418.074	−266.177	98.213	−4.275
	1300.00	131.609	539.622	441.090	229.991	128.091	−471.517	−264.152	128.497	−5.163
	1400.00	131.817	549.383	448.481	243.163	141.263	−525.973	−262.135	158.625	−5.918
	1500.00	131.997	558.484	455.515	256.354	154.454	−581.372	−260.127	188.609	−6.568
	1600.00	132.156	567.008	462.219	269.562	167.662	−637.651	−258.129	218.460	−7.132
	1700.00	132.300	575.024	468.621	282.785	180.885	−694.756	−256.141	248.185	−7.626
	1800.00	132.432	582.590	474.745	296.021	194.121	−752.641	−254.164	277.795	−8.061
	1900.00	132.553	589.753	480.611	309.271	207.371	−811.261	−252.199	307.294	−8.448
	2000.00	132.667	596.555	486.240	322.532	220.632	−870.579	−250.245	336.691	−8.793

References

Phase	H / S	C_p
GAS	Ja2	Mi1

S7[g] SULFUR (GAS) 224.462

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	129.980	407.700	407.700	113.700	0.000	−7.856	113.700	59.047	−10.345
	300.00	130.304	408.505	407.702	113.941	0.241	−8.611	113.646	58.708	−10.222
	400.00	141.759	447.794	412.981	127.625	13.925	−51.493	95.261	41.449	−5.413
	500.00	147.119	480.067	423.271	142.098	28.398	−97.936	82.419	29.332	−3.064
	600.00	150.081	507.176	435.057	156.971	43.271	−147.334	72.261	19.732	−1.718
	700.00	151.910	530.458	447.063	172.077	58.377	−199.244	64.199	11.624	−0.867
	800.00	153.135	550.828	458.787	187.333	73.633	−253.329	55.936	4.666	−0.305
	900.00	154.010	568.918	470.037	202.693	88.993	−309.334	−322.150	6.843	−0.397
	1000.00	154.667	585.180	480.752	218.128	104.428	−367.052	−319.560	43.260	−2.260
	1100.00	155.181	599.946	490.927	233.621	119.921	−426.320	−316.963	79.416	−3.771
	1200.00	155.598	613.467	500.583	249.161	135.461	−487.000	−314.362	115.335	−5.020
	1300.00	155.947	625.936	509.753	264.739	151.039	−548.978	−311.762	151.038	−6.069
	1400.00	156.246	637.504	518.469	280.349	166.649	−612.157	−309.166	186.541	−6.960
	1500.00	156.509	648.293	526.769	295.987	182.287	−676.453	−306.574	221.858	−7.726
	1600.00	156.744	658.402	534.683	311.650	197.950	−741.793	−303.989	257.002	−8.390
	1700.00	156.957	667.911	542.243	327.335	213.635	−808.114	−301.412	291.985	−8.972
	1800.00	157.154	676.888	549.476	343.040	229.340	−875.358	−298.843	326.817	−9.484
	1900.00	157.337	685.390	556.408	358.765	245.065	−943.475	−296.283	361.506	−9.938
	2000.00	157.509	693.464	563.061	374.507	260.807	−1012.421	−293.732	396.060	−10.344

References

Phase	H / S	C_p
GAS	Ja2	Mi1

256.528 SULFUR (GAS) **S8**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	155.818	430.310	430.310	100.420	0.000	−27.877	100.420	48.583	−8.512
	300.00	156.135	431.275	430.313	100.709	0.289	−28.674	100.371	48.262	−8.403
	400.00	167.304	477.950	436.601	116.960	16.540	−74.220	79.973	31.999	−4.179
	500.00	172.523	515.907	448.788	133.980	33.560	−123.974	65.775	21.475	−2.243
	600.00	175.401	547.639	462.692	151.388	50.968	−177.195	54.576	13.738	−1.196
	700.00	177.173	574.821	476.816	169.024	68.604	−233.351	45.735	7.641	−0.570
	800.00	178.355	598.561	490.581	186.804	86.384	−292.045	36.636	2.807	−0.183
	900.00	179.195	619.619	503.771	204.683	104.263	−352.974	−395.137	8.371	−0.486
	1000.00	179.822	638.533	516.318	222.635	122.215	−415.898	−391.865	53.030	−2.770
	1100.00	180.310	655.696	528.220	240.643	140.223	−480.622	−388.596	97.361	−4.623
	1200.00	180.703	671.402	539.507	258.694	158.274	−546.988	−385.332	141.395	−6.155
	1300.00	181.029	685.879	550.217	276.781	176.361	−614.862	−382.077	185.157	−7.440
	1400.00	181.308	699.305	560.392	294.898	194.478	−684.129	−378.832	228.669	−8.532
	1500.00	181.550	711.823	570.075	313.042	212.622	−754.692	−375.600	271.949	−9.470
	1600.00	181.765	723.547	579.304	331.208	230.788	−826.467	−372.380	315.014	−10.284
	1700.00	181.959	734.572	588.117	349.394	248.974	−899.379	−369.174	357.877	−10.996
	1800.00	182.137	744.978	596.545	367.599	267.179	−973.361	−365.982	400.553	−11.624
	1900.00	182.301	754.830	604.619	385.821	285.401	−1048.356	−362.805	443.051	−12.180
	2000.00	182.455	764.184	612.365	404.059	303.639	−1124.310	−359.643	485.383	−12.677

References

Phase	H / S	C_p
GAS	Ja2	Mi1

SBr2[g] SULFUR DIBROMIDE (GAS) 191.874

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	52.897	301.650	301.650	-12.552	0.000	-102.489	-12.552	-47.550	8.331
	300.00	52.959	301.978	301.651	-12.454	0.098	-103.047	-12.636	-47.767	8.317
	400.00	55.150	317.558	303.761	-7.033	5.519	-134.056	-46.279	-52.962	6.916
	500.00	56.174	329.987	307.805	-1.461	11.091	-166.455	-48.301	-54.421	5.685
	600.00	56.738	340.283	312.385	4.187	16.739	-199.983	-49.947	-55.481	4.830
	700.00	57.085	349.057	317.013	9.879	22.431	-234.461	-51.300	-56.295	4.201
	800.00	57.316	356.696	321.506	15.600	28.152	-269.757	-52.687	-56.916	3.716
	900.00	57.479	363.457	325.799	21.340	33.892	-305.771	-106.910	-56.205	3.262
	1000.00	57.602	369.519	329.873	27.094	39.646	-342.425	-106.757	-50.580	2.642
	1100.00	57.696	375.014	333.731	32.860	45.412	-379.656	-106.607	-44.969	2.135
	1200.00	57.773	380.037	337.383	38.633	51.185	-417.412	-106.461	-39.372	1.714
	1300.00	57.836	384.664	340.845	44.414	56.966	-455.650	-106.320	-33.787	1.358
	1400.00	57.889	388.952	344.130	50.200	62.752	-494.334	-106.185	-28.213	1.053
	1500.00	57.936	392.948	347.253	55.991	68.543	-533.431	-106.054	-22.648	0.789
	1600.00	57.977	396.688	350.227	61.787	74.339	-572.915	-105.929	-17.092	0.558
	1700.00	58.014	400.204	353.064	67.586	80.138	-612.761	-105.810	-11.543	0.355
	1800.00	58.048	403.521	355.776	73.390	85.942	-652.949	-105.696	-6.002	0.174
	1900.00	58.079	406.661	358.372	79.196	91.748	-693.459	-105.589	-0.466	0.013
	2000.00	58.109	409.641	360.862	85.005	97.557	-734.276	-105.487	5.064	-0.132

References

Phase	H / S	C_p
GAS	Mi1	Mi1

223.940 DISULFUR DIBROMIDE (GAS) **S2Br2**[g]

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[-]
GAS	298.15	75.251	350.519	350.519	30.962	0.000	-73.545	30.962	-9.049	1.585
	300.00	75.341	350.985	350.521	31.101	0.139	-74.194	30.877	-9.297	1.619
	400.00	78.599	373.167	353.523	38.820	7.858	-110.447	-5.049	-16.076	2.099
	500.00	80.253	390.901	359.285	46.770	15.808	-148.681	-8.595	-18.466	1.929
	600.00	81.275	405.629	365.816	54.850	23.888	-188.528	-11.386	-20.159	1.755
	700.00	81.998	418.215	372.425	63.015	32.053	-229.735	-13.575	-21.446	1.600
	800.00	82.563	429.202	378.850	71.244	40.282	-272.118	-15.813	-22.421	1.464
	900.00	83.035	438.955	384.996	79.525	48.563	-315.535	-123.703	-20.801	1.207
	1000.00	83.450	447.725	390.838	87.849	56.887	-359.876	-122.814	-9.415	0.492
	1100.00	83.828	455.697	396.378	96.214	65.252	-405.053	-121.908	1.881	-0.089
	1200.00	84.180	463.006	401.630	104.614	73.652	-450.993	-120.984	13.094	-0.570
	1300.00	84.513	469.758	406.614	113.049	82.087	-497.636	-120.042	24.229	-0.974
	1400.00	84.834	476.032	411.351	121.516	90.554	-544.929	-119.085	35.291	-1.317
	1500.00	85.145	481.896	415.860	130.015	99.053	-592.829	-118.110	46.284	-1.612
	1600.00	85.449	487.401	420.161	138.545	107.583	-641.296	-117.119	57.211	-1.868
	1700.00	85.747	492.590	424.271	147.105	116.143	-690.298	-116.112	68.076	-2.092
	1800.00	86.041	497.500	428.204	155.694	124.732	-739.805	-115.089	78.881	-2.289
	1900.00	86.331	502.160	431.975	164.313	133.351	-789.790	-114.050	89.629	-2.464
	2000.00	86.618	506.595	435.596	172.961	141.999	-840.230	-112.995	100.322	-2.620

References

Phase	H / S	C_p	Remarks	
GAS	Mi1	Mi1	Mi1	MPT= 227., BPT= 360.

SCl[g] SULFUR MONOCHLORIDE (GAS) 67.519

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	37.540	237.342	237.342	156.482	0.000	85.718	156.482	128.537	−22.519
	300.00	37.550	237.574	237.343	156.551	0.069	85.279	156.478	128.364	−22.350
	400.00	37.904	248.433	238.821	160.327	3.845	60.954	153.939	119.124	−15.556
	500.00	38.053	256.910	241.622	164.126	7.644	35.671	152.050	110.616	−11.556
	600.00	38.120	263.854	244.766	167.935	11.453	9.622	150.465	102.486	−8.922
	700.00	38.150	269.733	247.924	171.749	15.267	−17.065	149.131	94.596	−7.059
	800.00	38.159	274.828	250.975	175.564	19.082	−44.298	147.734	86.898	−5.674
	900.00	38.156	279.322	253.880	179.380	22.898	−72.010	93.481	80.535	−4.674
	1000.00	38.146	283.342	256.629	183.195	26.713	−100.147	93.590	79.090	−4.131
	1100.00	38.132	286.977	259.225	187.009	30.527	−128.666	93.685	77.636	−3.687
	1200.00	38.113	290.294	261.678	190.821	34.339	−157.532	93.767	76.173	−3.316
	1300.00	38.093	293.344	263.998	194.632	38.150	−186.716	93.837	74.704	−3.002
	1400.00	38.071	296.166	266.196	198.440	41.958	−216.193	93.895	73.230	−2.732
	1500.00	38.048	298.792	268.283	202.246	45.764	−245.942	93.943	71.752	−2.499
	1600.00	38.024	301.247	270.267	206.049	49.567	−275.946	93.980	70.271	−2.294
	1700.00	37.999	303.551	272.158	209.851	53.369	−306.187	94.007	68.788	−2.114
	1800.00	37.973	305.723	273.963	213.649	57.167	−336.652	94.024	67.304	−1.953
	1900.00	37.947	307.775	275.689	217.445	60.963	−367.327	94.031	65.820	−1.810
	2000.00	37.921	309.721	277.343	221.239	64.757	−398.203	94.027	64.335	−1.680

References

Phase	H / S	C_p
GAS	Ja1	Ja1

102.971 SULFUR DICHLORIDE (GAS) **SCl_2[g]**

Phase	T [K]	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
GAS	298.15	50.892	281.651	281.651	−17.573	0.000	−101.547	−17.573	−25.467	4.462
	300.00	50.961	281.966	281.652	−17.479	0.094	−102.069	−17.584	−25.516	4.443
	400.00	53.650	297.036	283.688	−12.234	5.339	−131.048	−20.387	−27.984	3.654
	500.00	55.116	309.180	287.612	−6.789	10.784	−161.379	−22.415	−29.670	3.100
	600.00	55.986	319.312	292.074	−1.230	16.343	−192.818	−24.068	−30.957	2.695
	700.00	56.541	327.987	296.600	4.398	21.971	−225.193	−25.426	−31.997	2.388
	800.00	56.914	335.563	301.007	10.072	27.645	−258.379	−26.817	−32.842	2.144
	900.00	57.177	342.283	305.227	15.777	33.350	−292.277	−81.044	−32.356	1.878
	1000.00	57.368	348.317	309.239	21.505	39.078	−326.812	−80.893	−26.954	1.408
	1100.00	57.511	353.792	313.045	27.249	44.822	−361.922	−80.744	−21.567	1.024
	1200.00	57.620	358.801	316.652	33.006	50.579	−397.555	−80.600	−16.194	0.705
	1300.00	57.706	363.417	320.074	38.772	56.345	−433.669	−80.460	−10.833	0.435
	1400.00	57.773	367.696	323.325	44.547	62.120	−470.227	−80.327	−5.482	0.205
	1500.00	57.828	371.684	326.417	50.327	67.900	−507.199	−80.199	−0.140	0.005
	1600.00	57.872	375.417	329.364	56.112	73.685	−544.556	−80.078	5.193	−0.170
	1700.00	57.908	378.927	332.177	61.901	79.474	−582.275	−79.965	10.519	−0.323
	1800.00	57.938	382.238	334.867	67.693	85.266	−620.334	−79.859	15.839	−0.460
	1900.00	57.963	385.371	337.444	73.488	91.061	−658.716	−79.762	21.152	−0.582
	2000.00	57.984	388.345	339.915	79.286	96.859	−697.403	−79.674	26.461	−0.691

References

Phase	H / S	C_p
GAS	Ja1	Ja1

S2Cl[g] DISULFUR CHLORIDE RADICAL (GAS) 99.585

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	50.954	291.686	291.686	78.559	0.000	−8.407	78.559	43.969	−7.703
	300.00	51.034	292.001	291.687	78.653	0.094	−8.947	78.538	43.754	−7.618
	400.00	53.873	307.129	293.730	83.919	5.360	−38.933	72.907	32.515	−4.246
	500.00	55.219	319.311	297.668	89.380	10.821	−70.275	68.779	22.851	−2.387
	600.00	55.978	329.451	302.144	94.943	16.384	−102.728	65.372	14.003	−1.219
	700.00	56.459	338.119	306.679	100.567	22.008	−136.117	62.538	5.668	−0.423
	800.00	56.793	345.681	311.092	106.230	27.671	−170.315	59.629	−2.262	0.148
	900.00	57.040	352.385	315.315	111.922	33.363	−205.224	−48.955	−7.511	0.436
	1000.00	57.235	358.405	319.328	117.636	39.077	−240.769	−48.781	−2.916	0.152
	1100.00	57.394	363.868	323.133	123.368	44.809	−276.887	−48.611	1.662	−0.079
	1200.00	57.530	368.868	326.738	129.114	50.555	−313.527	−48.443	6.225	−0.271
	1300.00	57.649	373.478	330.159	134.874	56.315	−350.647	−48.279	10.774	−0.433
	1400.00	57.756	377.754	333.408	140.644	62.085	−388.212	−48.117	15.311	−0.571
	1500.00	57.853	381.742	336.498	146.424	67.865	−426.189	−47.959	19.836	−0.691
	1600.00	57.944	385.479	339.444	152.214	73.655	−464.552	−47.803	24.350	−0.795
	1700.00	58.030	388.994	342.256	158.013	79.454	−503.277	−47.651	28.855	−0.887
	1800.00	58.112	392.313	344.946	163.820	85.261	−542.344	−47.502	33.351	−0.968
	1900.00	58.190	395.457	347.523	169.635	91.076	−581.734	−47.357	37.839	−1.040
	2000.00	58.266	398.444	349.995	175.458	96.899	−621.430	−47.216	42.320	−1.105

References

Phase	H / S	C_p
GAS	Ja2	Pa2

S2Cl2 DISULFUR DICHLORIDE 135.037

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
LIQ	298.15	124.290	223.844	223.844	−58.158	0.000	−124.897	−58.158	−39.260	6.878
	300.00	124.290	224.613	223.846	−57.928	0.230	−125.312	−58.075	−39.143	6.815
	400.00	124.290	260.369	228.721	−45.499	12.659	−149.647	−58.276	−33.305	4.349
	410.23	124.290	263.508	229.550	−44.228	13.930	−152.326	−57.975	−32.670	4.160

References

Phase	H / S	C_p	Remarks	
LIQ	Ja1	Ja1	Ja1	NBPT= 410.23

135.037

DISULFUR DICHLORIDE (GAS) **S2Cl2[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	72.772	327.298	327.298	−16.736	0.000	−114.320	−16.736	−28.683	5.025
	300.00	72.879	327.749	327.300	−16.601	0.135	−114.926	−16.748	−28.757	5.007
	400.00	77.022	349.347	330.216	−9.084	7.652	−148.822	−21.861	−32.481	4.242
	500.00	79.347	366.805	335.844	−1.256	15.480	−184.658	−25.408	−34.768	3.632
	600.00	80.828	381.411	342.255	6.758	23.494	−222.089	−28.181	−36.362	3.166
	700.00	81.851	393.952	348.766	14.895	31.631	−260.872	−30.340	−37.552	2.802
	800.00	82.587	404.933	355.114	23.119	39.855	−300.828	−32.541	−38.435	2.510
	900.00	83.125	414.693	361.202	31.406	48.142	−341.818	−140.393	−36.728	2.132
	1000.00	83.513	423.472	366.997	39.739	56.475	−383.733	−139.472	−25.259	1.319
	1100.00	83.778	431.445	372.499	48.104	64.840	−426.485	−138.544	−13.883	0.659
	1200.00	83.939	438.742	377.720	56.491	73.227	−470.000	−137.618	−2.591	0.113
	1300.00	84.005	445.464	382.676	64.889	81.625	−514.215	−136.701	8.624	−0.347
	1400.00	83.984	451.689	387.386	73.289	90.025	−559.076	−135.801	19.769	−0.738
	1500.00	83.882	457.481	391.868	81.683	98.419	−604.538	−134.923	30.851	−1.074

References

Phase	H / S	C_p
GAS	Ja1	Ja1

51.064

SULFUR MONOFLUORIDE (GAS) **SF[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	35.152	225.209	225.209	12.970	0.000	−54.176	12.970	−14.387	2.521
	300.00	35.173	225.426	225.209	13.035	0.065	−54.593	12.964	−14.557	2.535
	400.00	36.052	235.677	226.601	16.601	3.631	−77.670	10.341	−23.584	3.080
	500.00	36.557	243.781	229.255	20.233	7.263	−101.657	8.390	−31.863	3.329
	600.00	36.874	250.476	232.250	23.906	10.936	−126.380	6.750	−39.752	3.461
	700.00	37.089	256.178	235.271	27.605	14.635	−151.720	5.364	−47.392	3.536
	800.00	37.247	261.141	238.201	31.322	18.352	−177.591	3.919	−54.832	3.580
	900.00	37.368	265.535	240.999	35.053	22.083	−203.929	−50.381	−60.932	3.536
	1000.00	37.466	269.477	243.653	38.794	25.824	−230.683	−50.314	−62.108	3.244
	1100.00	37.548	273.052	246.166	42.545	29.575	−257.812	−50.259	−63.290	3.005
	1200.00	37.619	276.323	248.544	46.304	33.334	−285.283	−50.213	−64.477	2.807
	1300.00	37.683	279.336	250.799	50.069	37.099	−313.068	−50.175	−65.667	2.639
	1400.00	37.740	282.131	252.938	53.840	40.870	−341.143	−50.144	−66.860	2.495
	1500.00	37.793	284.737	254.972	57.617	44.647	−369.488	−50.120	−68.055	2.370
	1600.00	37.843	287.177	256.909	61.399	48.429	−398.085	−50.101	−69.251	2.261
	1700.00	37.891	289.473	258.758	65.185	52.215	−426.919	−50.088	−70.448	2.165
	1800.00	37.936	291.640	260.525	68.977	56.007	−455.975	−50.079	−71.646	2.079
	1900.00	37.979	293.692	262.217	72.772	59.802	−485.243	−50.076	−72.845	2.003
	2000.00	38.021	295.641	263.840	76.572	63.602	−514.710	−50.077	−74.043	1.934

References

Phase	H / S	C_p
GAS	Ja1	Ja1

SF2[g] SULFUR DIFLUORIDE (GAS) 70.063

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	44.913	257.718	257.718	−296.646	0.000	−373.485	−296.646	−303.464	53.166
	300.00	44.992	257.996	257.719	−296.563	0.083	−373.962	−296.663	−303.506	52.845
	400.00	48.867	271.497	259.533	−291.861	4.785	−400.459	−299.755	−305.565	39.903
	500.00	51.506	282.706	263.079	−286.832	9.814	−428.185	−301.993	−306.778	32.049
	600.00	53.225	292.260	267.166	−281.590	15.056	−456.946	−303.799	−307.556	26.775
	700.00	54.379	300.557	271.357	−276.206	20.440	−486.596	−305.275	−308.064	22.988
	800.00	55.183	307.874	275.473	−270.726	25.920	−517.024	−306.760	−308.362	20.134
	900.00	55.763	314.408	279.443	−265.177	31.469	−548.144	−361.066	−307.318	17.836
	1000.00	56.194	320.307	283.239	−259.578	37.068	−579.885	−360.982	−301.351	15.741
	1100.00	56.522	325.679	286.857	−253.941	42.705	−612.188	−360.895	−295.392	14.027
	1200.00	56.778	330.608	290.300	−248.276	48.370	−645.006	−360.806	−289.441	12.599
	1300.00	56.981	335.161	293.578	−242.588	54.058	−678.297	−360.718	−283.497	11.391
	1400.00	57.144	339.390	296.701	−236.881	59.765	−712.028	−360.633	−277.560	10.356
	1500.00	57.277	343.338	299.680	−231.160	65.486	−746.166	−360.553	−271.629	9.459
	1600.00	57.388	347.038	302.525	−225.426	71.220	−780.687	−360.478	−265.704	8.674
	1700.00	57.480	350.520	305.247	−219.683	76.963	−815.566	−360.408	−259.783	7.982
	1800.00	57.558	353.807	307.855	−213.931	82.715	−850.784	−360.346	−253.865	7.367
	1900.00	57.624	356.921	310.356	−208.172	88.474	−886.322	−360.290	−247.951	6.817
	2000.00	57.681	359.878	312.759	−202.406	94.240	−922.163	−360.242	−242.040	6.321

References

Phase	H / S	C_p
GAS	Ja1	Ja1

89.061 SULFUR TRIFLUORIDE (GAS) **SF3**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	62.982	286.295	286.295	−503.030	0.000	−588.389	−503.030	−488.136	85.519
	300.00	63.134	286.685	286.296	−502.913	0.117	−588.919	−503.042	−488.044	84.976
	400.00	69.750	305.830	288.861	−496.243	6.787	−618.575	−505.773	−482.871	63.056
	500.00	73.774	321.863	293.903	−489.050	13.980	−649.981	−507.528	−476.961	49.828
	600.00	76.283	335.552	299.732	−481.538	21.492	−682.869	−508.801	−470.718	40.980
	700.00	77.928	347.443	305.717	−473.822	29.208	−717.032	−509.720	−464.296	34.646
	800.00	79.057	357.927	311.601	−465.969	37.061	−752.311	−510.636	−457.746	29.888
	900.00	79.863	367.288	317.278	−458.021	45.009	−788.580	−564.366	−449.925	26.113
	1000.00	80.456	375.735	322.708	−450.004	53.026	−825.738	−563.704	−437.245	22.839
	1100.00	80.904	383.425	327.884	−441.935	61.095	−863.702	−563.037	−424.631	20.164
	1200.00	81.251	390.480	332.810	−433.826	69.204	−902.402	−562.369	−412.078	17.937
	1300.00	81.524	396.995	337.500	−425.687	77.343	−941.780	−561.704	−399.581	16.055
	1400.00	81.743	403.045	341.968	−417.523	85.507	−981.786	−561.043	−387.135	14.444
	1500.00	81.921	408.691	346.230	−409.340	93.690	−1022.376	−560.389	−374.736	13.049
	1600.00	82.066	413.982	350.301	−401.140	101.890	−1063.512	−559.743	−362.380	11.830
	1700.00	82.188	418.961	354.195	−392.927	110.103	−1105.162	−559.105	−350.064	10.756
	1800.00	82.289	423.662	357.925	−384.703	118.327	−1147.295	−558.476	−337.786	9.802
	1900.00	82.374	428.114	361.503	−376.470	126.560	−1189.886	−557.858	−325.542	8.950
	2000.00	82.447	432.341	364.940	−368.229	134.801	−1232.910	−557.250	−313.331	8.183

References

Phase	H / S	C_p
GAS	Ja1	Ja1

SF4[g] SULFUR TETRAFLUORIDE (GAS) 108.060

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	77.607	299.684	299.684	−763.162	0.000	−852.513	−763.162	−722.029	126.496
	300.00	77.821	300.165	299.685	−763.018	0.144	−853.068	−763.176	−721.773	125.672
	400.00	87.457	323.969	302.865	−754.720	8.442	−884.308	−765.887	−707.796	92.429
	500.00	93.526	344.190	309.161	−745.647	17.515	−917.742	−767.442	−693.109	72.409
	600.00	97.365	361.607	316.485	−736.089	27.073	−953.053	−768.406	−678.140	59.037
	700.00	99.902	376.819	324.041	−726.217	36.945	−989.990	−768.944	−663.051	49.477
	800.00	101.653	390.280	331.495	−716.134	47.028	−1028.358	−769.433	−647.891	42.303
	900.00	102.907	402.329	338.708	−705.903	57.259	−1067.999	−822.704	−631.515	36.652
	1000.00	103.833	413.222	345.624	−695.564	67.598	−1108.786	−821.560	−610.333	31.881
	1100.00	104.536	423.153	352.227	−685.144	78.018	−1150.612	−820.396	−589.267	27.982
	1200.00	105.082	432.273	358.523	−674.662	88.500	−1193.389	−819.218	−568.307	24.738
	1300.00	105.512	440.701	364.524	−664.131	99.031	−1237.043	−818.035	−547.445	21.997
	1400.00	105.858	448.534	370.248	−653.562	109.600	−1281.510	−816.851	−526.675	19.650
	1500.00	106.140	455.847	375.714	−642.962	120.200	−1326.733	−815.668	−505.990	17.620
	1600.00	106.372	462.705	380.939	−632.336	130.826	−1372.664	−814.490	−485.383	15.846
	1700.00	106.566	469.160	385.940	−621.689	141.473	−1419.260	−813.318	−464.850	14.283
	1800.00	106.729	475.256	390.734	−611.024	152.138	−1466.484	−812.155	−444.385	12.896
	1900.00	106.867	481.030	395.336	−600.344	162.818	−1514.301	−811.002	−423.985	11.656
	2000.00	106.985	486.515	399.759	−589.651	173.511	−1562.680	−809.859	−403.645	10.542

References

Phase	H / S	C_p
GAS	Ja1	Ja1

127.058 SULFUR PENTAFLUORIDE (GAS) **SF5**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	89.649	304.705	304.705	−908.346	0.000	−999.194	−908.346	−838.478	146.898
	300.00	89.983	305.260	304.706	−908.180	0.166	−999.758	−908.367	−838.044	145.916
	400.00	104.383	333.287	308.429	−898.403	9.943	−1031.718	−911.205	−814.397	106.349
	500.00	113.076	357.594	315.890	−887.494	20.852	−1066.291	−912.606	−790.044	82.535
	600.00	118.465	378.723	324.641	−875.897	32.449	−1103.131	−913.267	−765.456	66.639
	700.00	121.980	397.267	333.719	−863.863	44.483	−1141.949	−913.419	−740.806	55.280
	800.00	124.382	413.721	342.711	−851.537	56.809	−1182.514	−913.468	−716.144	46.759
	900.00	126.090	428.475	351.435	−839.009	69.337	−1224.637	−966.266	−690.324	40.065
	1000.00	127.345	441.828	359.817	−826.334	82.012	−1268.163	−964.627	−659.751	34.462
	1100.00	128.297	454.012	367.834	−813.550	94.796	−1312.964	−962.951	−629.344	29.885
	1200.00	129.036	465.209	375.489	−800.682	107.664	−1358.933	−961.252	−599.091	26.078
	1300.00	129.626	475.561	382.793	−787.748	120.598	−1405.978	−959.538	−568.981	22.862
	1400.00	130.107	485.186	389.768	−774.761	133.585	−1454.021	−957.817	−539.002	20.110
	1500.00	130.508	494.176	396.432	−761.729	146.617	−1502.994	−956.092	−509.147	17.730
	1600.00	130.849	502.610	402.807	−748.661	159.685	−1552.837	−954.366	−479.407	15.651
	1700.00	131.147	510.552	408.914	−735.561	172.785	−1603.499	−952.643	−449.775	13.820
	1800.00	131.411	518.056	414.771	−722.433	185.913	−1654.933	−950.923	−420.244	12.195
	1900.00	131.650	525.167	420.395	−709.280	199.066	−1707.097	−949.207	−390.809	10.744
	2000.00	131.871	531.926	425.804	−696.103	212.243	−1759.955	−947.497	−361.464	9.440

References

Phase	H / S	C_p
GAS	Ja1	Ja1

SF6[g] SULFUR HEXAFLUORIDE (GAS) 146.056

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	96.963	291.734	291.734	−1220.473	0.000	−1307.454	−1220.473	−1116.506	195.607
	300.00	97.391	292.335	291.736	−1220.293	0.180	−1307.994	−1220.509	−1115.861	194.289
	400.00	116.369	323.150	295.808	−1209.536	10.937	−1338.796	−1223.974	−1080.667	141.121
	500.00	128.352	350.507	304.069	−1197.254	23.219	−1372.508	−1225.684	−1044.648	109.134
	600.00	136.062	374.638	313.862	−1184.007	36.466	−1408.790	−1226.431	−1008.354	87.785
	700.00	141.231	396.026	324.101	−1170.126	50.347	−1447.344	−1226.511	−971.996	72.531
	800.00	144.803	415.132	334.308	−1155.813	64.660	−1487.919	−1226.376	−935.646	61.091
	900.00	147.375	432.344	344.260	−1141.198	79.275	−1530.307	−1278.910	−898.165	52.128
	1000.00	149.271	447.974	353.862	−1126.361	94.112	−1574.335	−1276.949	−855.964	44.711
	1100.00	150.707	462.272	363.077	−1111.359	109.114	−1619.858	−1274.909	−813.964	38.652
	1200.00	151.819	475.435	371.899	−1096.230	124.243	−1666.752	−1272.813	−772.152	33.611
	1300.00	152.697	487.623	380.338	−1081.003	139.470	−1714.912	−1270.680	−730.517	29.353
	1400.00	153.402	498.965	388.411	−1065.697	154.776	−1764.248	−1268.521	−689.046	25.709
	1500.00	153.976	509.569	396.139	−1050.327	170.146	−1814.681	−1266.346	−647.731	22.556
	1600.00	154.449	519.522	403.542	−1034.905	185.568	−1866.140	−1264.162	−606.561	19.802
	1700.00	154.843	528.898	410.643	−1019.440	201.033	−1918.566	−1261.974	−565.528	17.377
	1800.00	155.175	537.758	417.461	−1003.938	216.535	−1971.903	−1259.787	−524.624	15.224
	1900.00	155.456	546.156	424.015	−988.406	232.067	−2026.102	−1257.604	−483.841	13.302
	2000.00	155.697	554.136	430.324	−972.848	247.625	−2081.120	−1255.428	−443.173	11.574

References

Phase	H / S	C_p
GAS	Ja1	Ja1

102.129 SULFINOTHIOYL DIFLUORIDE (GAS) **SSF2**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	63.130	292.822	292.822	−401.246	0.000	−488.551	−401.246	−408.973	71.650
	300.00	63.282	293.213	292.823	−401.129	0.117	−489.093	−401.271	−409.020	71.217
	400.00	69.877	312.397	295.394	−394.445	6.801	−519.404	−406.963	−411.231	53.701
	500.00	73.877	328.457	300.445	−387.240	14.006	−551.469	−410.926	−411.880	43.029
	600.00	76.368	342.163	306.285	−379.719	21.527	−585.017	−414.030	−411.761	35.847
	700.00	77.999	354.066	312.279	−371.995	29.251	−619.841	−416.475	−411.186	30.683
	800.00	79.118	364.559	318.171	−364.136	37.110	−655.783	−418.942	−410.264	26.788
	900.00	79.915	373.926	323.855	−356.182	45.064	−692.716	−527.049	−406.721	23.605
	1000.00	80.502	382.378	329.292	−348.160	53.086	−730.538	−526.377	−393.388	20.548
	1100.00	80.944	390.072	334.473	−340.087	61.159	−769.166	−525.695	−380.122	18.050
	1200.00	81.286	397.131	339.404	−331.974	69.272	−808.531	−525.008	−366.918	15.972
	1300.00	81.555	403.648	344.099	−323.832	77.414	−848.574	−524.320	−353.772	14.215
	1400.00	81.770	409.700	348.571	−315.665	85.581	−889.245	−523.634	−340.678	12.711
	1500.00	81.944	415.348	352.837	−307.479	93.767	−930.501	−522.952	−327.634	11.409
	1600.00	82.086	420.641	356.911	−299.277	101.969	−972.303	−522.277	−314.635	10.272
	1700.00	82.204	425.621	360.807	−291.063	110.183	−1014.619	−521.609	−301.678	9.269
	1800.00	82.302	430.323	364.540	−282.837	118.409	−1057.418	−520.950	−288.760	8.380
	1900.00	82.385	434.775	368.120	−274.603	126.643	−1100.675	−520.299	−275.878	7.584
	2000.00	82.455	439.002	371.560	−266.361	134.885	−1144.365	−519.659	−263.030	6.870

References

Phase	H / S	C_p
GAS	Ja1	Ja1

S2F10[g] DISULFUR DECAFLUORIDE (GAS) 254.116

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	176.696	397.171	397.171	−2064.386	0.000	−2182.803	−2064.386	−1861.371	326.104
	300.00	177.460	398.266	397.174	−2064.058	0.328	−2183.538	−2064.432	−1860.111	323.874
	400.00	211.399	454.318	404.585	−2044.493	19.893	−2226.220	−2070.097	−1791.578	233.956
	500.00	232.776	503.972	419.602	−2022.201	42.185	−2274.187	−2072.426	−1721.694	179.864
	600.00	246.422	547.707	437.385	−1998.193	66.193	−2326.817	−2072.935	−1651.469	143.773
	700.00	255.505	586.420	455.965	−1973.067	91.319	−2383.561	−2072.179	−1581.274	117.996
	800.00	261.758	620.971	474.470	−1947.185	117.201	−2443.962	−2071.047	−1511.221	98.673
	900.00	266.147	652.070	492.505	−1920.777	143.609	−2507.641	−2175.291	−1439.014	83.518
	1000.00	269.236	680.281	509.894	−1893.999	170.387	−2574.280	−2170.584	−1357.456	70.906
	1100.00	271.368	706.048	526.572	−1866.962	197.424	−2643.615	−2165.764	−1276.376	60.610
	1200.00	273.043	729.736	542.529	−1839.738	224.648	−2715.421	−2160.877	−1195.738	52.049
	1300.00	274.286	751.643	557.783	−1812.368	252.018	−2789.503	−2155.949	−1115.510	44.822
	1400.00	275.209	772.005	572.365	−1784.891	279.495	−2865.698	−2151.004	−1035.661	38.641
	1500.00	275.895	791.017	586.316	−1757.334	307.052	−2943.859	−2146.059	−956.167	33.297
	1600.00	276.410	808.840	599.672	−1729.718	334.668	−3023.861	−2141.129	−877.001	28.631
	1700.00	276.803	825.609	612.474	−1702.056	362.330	−3105.592	−2136.220	−798.144	24.524
	1800.00	277.111	841.440	624.759	−1674.360	390.026	−3188.952	−2131.340	−719.574	20.882
	1900.00	277.364	856.430	636.561	−1646.636	417.750	−3273.852	−2126.492	−641.275	17.630
	2000.00	277.586	870.662	647.913	−1618.888	445.498	−3360.213	−2121.676	−563.231	14.710

References

Phase	H / S	C_p
GAS	Ja1	Ja1

46.073 SULFUR MONONITRIDE (GAS) **SN**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	31.665	222.092	222.092	263.592	0.000	197.375	263.592	235.497	−41.258
	300.00	31.688	222.288	222.092	263.651	0.059	196.964	263.582	235.323	−40.973
	400.00	32.687	231.549	223.348	266.872	3.280	174.253	260.763	226.081	−29.523
	500.00	33.436	238.927	225.751	270.180	6.588	150.717	258.699	217.627	−22.735
	600.00	34.063	245.080	228.474	273.556	9.964	126.508	257.007	209.581	−18.246
	700.00	34.610	250.372	231.233	276.990	13.398	101.729	255.610	201.788	−15.058
	800.00	35.094	255.026	233.922	280.476	16.884	76.455	254.182	194.195	−12.680
	900.00	35.525	259.185	236.502	284.007	20.415	50.740	199.918	187.938	−10.908
	1000.00	35.907	262.948	238.961	287.579	23.987	24.631	200.035	186.601	−9.747
	1100.00	36.243	266.387	241.300	291.187	27.595	−1.838	200.152	185.252	−8.797
	1200.00	36.534	269.553	243.525	294.826	31.234	−28.637	200.268	183.892	−8.005
	1300.00	36.781	272.487	245.641	298.492	34.900	−55.741	200.383	182.523	−7.334
	1400.00	36.985	275.221	247.657	302.181	38.589	−83.128	200.496	181.144	−6.759
	1500.00	37.146	277.778	249.581	305.888	42.296	−110.780	200.605	179.758	−6.260
	1600.00	37.264	280.179	251.419	309.608	46.016	−138.679	200.708	178.365	−5.823
	1700.00	37.341	282.441	253.178	313.339	49.747	−166.811	200.803	176.966	−5.437
	1800.00	37.375	284.577	254.864	317.075	53.483	−195.163	200.888	175.561	−5.095
	1900.00	37.368	286.597	256.481	320.813	57.221	−223.722	200.960	174.152	−4.788
	2000.00	37.318	288.513	258.035	324.547	60.955	−252.479	201.016	172.740	−4.511

References

Phase	H / S	C_p
GAS	Ja1	Ja1

SO[g] SULFUR MONOXIDE (GAS) 48.065

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	30.185	221.945	221.945	5.021	0.000	−61.152	5.021	−21.012	3.681
	300.00	30.195	222.132	221.946	5.077	0.056	−61.563	5.008	−21.174	3.687
	400.00	31.510	230.979	223.143	8.155	3.134	−84.236	2.019	−29.697	3.878
	500.00	32.868	238.162	225.450	11.377	6.356	−107.704	−0.191	−37.392	3.906
	600.00	33.878	244.249	228.089	14.717	9.696	−131.832	−2.006	−44.653	3.887
	700.00	34.621	249.530	230.783	18.144	13.123	−156.527	−3.517	−51.639	3.853
	800.00	35.189	254.192	233.423	21.635	16.614	−181.718	−5.053	−58.411	3.814
	900.00	35.644	258.363	235.967	25.178	20.157	−207.349	−59.420	−63.833	3.705
	1000.00	36.027	262.139	238.398	28.762	23.741	−233.377	−59.402	−64.324	3.360
	1100.00	36.362	265.589	240.716	32.382	27.361	−259.766	−59.379	−64.817	3.078
	1200.00	36.667	268.766	242.922	36.033	31.012	−286.486	−59.351	−65.313	2.843
	1300.00	36.952	271.712	245.025	39.714	34.693	−313.512	−59.315	−65.811	2.644
	1400.00	37.223	274.461	247.031	43.423	38.402	−340.822	−59.272	−66.312	2.474
	1500.00	37.485	277.038	248.946	47.159	42.138	−368.398	−59.221	−66.817	2.327
	1600.00	37.741	279.465	250.778	50.920	45.899	−396.224	−59.161	−67.325	2.198
	1700.00	37.992	281.761	252.534	54.707	49.686	−424.287	−59.093	−67.837	2.084
	1800.00	38.240	283.939	254.219	58.518	53.497	−452.573	−59.016	−68.354	1.984
	1900.00	38.484	286.013	255.838	62.355	57.334	−481.071	−58.930	−68.875	1.893
	2000.00	38.724	287.994	257.397	66.215	61.194	−509.772	−58.836	−69.401	1.813
	2100.00	38.960	289.889	258.899	70.099	65.078	−538.667	−58.732	−69.931	1.739
	2200.00	39.191	291.706	260.349	74.007	68.986	−567.747	−58.621	−70.467	1.673
	2300.00	39.415	293.453	261.751	77.937	72.916	−597.006	−58.502	−71.008	1.613
	2400.00	39.633	295.136	263.107	81.890	76.869	−626.436	−58.375	−71.555	1.557
	2500.00	39.843	296.758	264.421	85.863	80.842	−656.031	−58.242	−72.107	1.507
	2600.00	40.043	298.324	265.695	89.858	84.837	−685.786	−58.102	−72.664	1.460
	2700.00	40.232	299.839	266.932	93.872	88.851	−715.694	−57.957	−73.227	1.417
	2800.00	40.410	301.306	268.133	97.904	92.883	−745.752	−57.808	−73.795	1.377
	2900.00	40.574	302.727	269.302	101.953	96.932	−775.954	−57.655	−74.369	1.340
	3000.00	40.723	304.105	270.439	106.018	100.997	−806.296	−57.499	−74.948	1.305

References

Phase	H / S	C_p
GAS	Ja1	Ja1

64.065 SULFUR DIOXIDE (GAS) **SO2**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	39.900	248.221	248.221	−296.813	0.000	−370.820	−296.813	−300.098	52.576
	300.00	39.938	248.468	248.221	−296.739	0.074	−371.279	−296.836	−300.118	52.255
	400.00	43.363	260.395	249.824	−292.585	4.228	−396.743	−300.234	−300.942	39.299
	500.00	46.662	270.441	252.968	−288.077	8.736	−423.297	−302.687	−300.854	31.430
	600.00	49.145	279.179	256.624	−283.280	13.533	−450.787	−304.626	−300.294	26.143
	700.00	50.998	286.901	260.409	−278.269	18.544	−479.099	−306.178	−299.447	22.345
	800.00	52.414	293.807	264.159	−273.095	23.718	−508.140	−307.701	−298.383	19.482
	900.00	53.526	300.047	267.806	−267.796	29.017	−537.838	−362.014	−295.973	17.178
	1000.00	54.418	305.734	271.318	−262.397	34.416	−568.131	−361.913	−288.640	15.077
	1100.00	55.147	310.956	274.688	−256.918	39.895	−598.970	−361.785	−281.319	13.359
	1200.00	55.753	315.781	277.914	−251.372	45.441	−630.309	−361.636	−274.011	11.927
	1300.00	56.260	320.265	281.001	−245.770	51.043	−662.114	−361.472	−266.715	10.717
	1400.00	56.690	324.450	283.957	−240.122	56.691	−694.352	−361.296	−259.433	9.680
	1500.00	57.056	328.374	286.788	−234.435	62.378	−726.996	−361.113	−252.163	8.781
	1600.00	57.369	332.067	289.504	−228.713	68.100	−760.020	−360.927	−244.906	7.995
	1700.00	57.638	335.553	292.111	−222.962	73.851	−793.402	−360.741	−237.660	7.302
	1800.00	57.871	338.854	294.617	−217.187	79.626	−827.124	−360.558	−230.425	6.687
	1900.00	58.075	341.989	297.029	−211.389	85.424	−861.167	−360.380	−223.201	6.136
	2000.00	58.253	344.972	299.352	−205.572	91.241	−895.517	−360.211	−215.985	5.641
	2100.00	58.411	347.818	301.593	−199.739	97.074	−930.157	−360.051	−208.778	5.193
	2200.00	58.554	350.539	303.756	−193.891	102.922	−965.076	−359.903	−201.578	4.786
	2300.00	58.685	353.145	305.847	−188.029	108.784	−1000.261	−359.768	−194.384	4.415
	2400.00	58.809	355.645	307.870	−182.154	114.659	−1035.702	−359.645	−187.196	4.074
	2500.00	58.927	358.048	309.830	−176.267	120.546	−1071.387	−359.536	−180.013	3.761
	2600.00	59.045	360.361	311.729	−170.368	126.445	−1107.308	−359.440	−172.834	3.472
	2700.00	59.165	362.592	313.572	−164.458	132.355	−1143.457	−359.357	−165.659	3.205
	2800.00	59.289	364.746	315.361	−158.535	138.278	−1179.824	−359.286	−158.486	2.957
	2900.00	59.422	366.829	317.100	−152.600	144.213	−1216.403	−359.226	−151.316	2.725
	3000.00	59.566	368.846	318.792	−146.651	150.162	−1253.188	−359.174	−144.147	2.510

References

Phase	H / S	C_p
GAS	Co1	Ja1

SO3[g] SULFUR TRIOXIDE (GAS) 80.064

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	50.701	256.773	256.773	−395.765	0.000	−472.322	−395.765	−371.017	65.001
	300.00	50.799	257.087	256.774	−395.671	0.094	−472.797	−395.795	−370.864	64.573
	400.00	57.477	272.593	258.842	−390.265	5.500	−499.302	−399.426	−362.240	47.304
	500.00	63.234	286.070	262.969	−384.215	11.550	−527.249	−401.867	−352.675	36.844
	600.00	67.412	297.988	267.832	−377.671	18.094	−556.464	−403.638	−342.658	29.831
	700.00	70.456	308.620	272.913	−370.770	24.995	−586.804	−404.929	−332.389	24.803
	800.00	72.736	318.184	277.985	−363.605	32.160	−618.153	−406.129	−321.945	21.021
	900.00	74.491	326.857	282.941	−356.240	39.525	−650.411	−460.079	−310.198	18.003
	1000.00	75.873	334.780	287.734	−348.719	47.046	−683.499	−459.586	−293.571	15.335
	1100.00	76.980	342.065	292.347	−341.075	54.690	−717.346	−459.048	−276.995	13.153
	1200.00	77.878	348.803	296.774	−333.330	62.435	−751.894	−458.475	−260.470	11.338
	1300.00	78.614	355.067	301.020	−325.504	70.261	−787.091	−457.878	−243.993	9.804
	1400.00	79.220	360.916	305.092	−317.612	78.153	−822.893	−457.264	−227.563	8.490
	1500.00	79.720	366.399	308.998	−309.664	86.101	−859.262	−456.642	−211.178	7.354
	1600.00	80.134	371.557	312.748	−301.670	94.095	−896.162	−456.017	−194.834	6.361
	1700.00	80.476	376.426	316.352	−293.639	102.126	−933.564	−455.396	−178.529	5.486
	1800.00	80.759	381.034	319.819	−285.577	110.188	−971.439	−454.785	−162.261	4.709
	1900.00	80.992	385.407	323.157	−277.489	118.276	−1009.763	−454.187	−146.026	4.015
	2000.00	81.185	389.567	326.374	−269.380	126.385	−1048.513	−453.606	−129.822	3.391
	2100.00	81.345	393.532	329.478	−261.253	134.512	−1087.670	−453.046	−113.646	2.827
	2200.00	81.479	397.319	332.477	−253.112	142.653	−1127.214	−452.509	−97.497	2.315
	2300.00	81.594	400.943	335.375	−244.958	150.807	−1167.128	−451.997	−81.372	1.848
	2400.00	81.696	404.418	338.180	−236.794	158.971	−1207.397	−451.511	−65.268	1.421
	2500.00	81.790	407.755	340.897	−228.619	167.146	−1248.007	−451.052	−49.184	1.028
	2600.00	81.882	410.965	343.530	−220.436	175.329	−1288.944	−450.619	−33.118	0.665
	2700.00	81.976	414.057	346.086	−212.243	183.522	−1330.196	−450.213	−17.068	0.330
	2800.00	82.078	417.040	348.567	−204.040	191.725	−1371.752	−449.831	−1.033	0.019
	2900.00	82.192	419.922	350.978	−195.827	199.938	−1413.601	−449.471	14.989	−0.270
	3000.00	82.324	422.711	353.323	−187.601	208.164	−1455.733	−449.132	30.999	−0.540

References

Phase	H / S	C_p
GAS	Ja1	Ja1

80.131 DISULFUR OXIDE (GAS) **S2O[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	44.126	267.049	267.049	−56.484	0.000	−136.105	−56.484	−86.407	15.138
	300.00	44.191	267.322	267.049	−56.402	0.082	−136.599	−56.514	−86.593	15.077
	400.00	47.748	280.533	268.826	−51.802	4.682	−164.015	−62.561	−96.198	12.562
	500.00	50.416	291.492	272.294	−46.885	9.599	−192.631	−66.978	−104.138	10.879
	600.00	52.240	300.856	276.293	−41.746	14.738	−222.260	−70.571	−111.214	9.682
	700.00	53.512	309.010	280.397	−36.455	20.029	−252.762	−73.527	−117.750	8.787
	800.00	54.429	316.218	284.433	−31.056	25.428	−284.031	−76.516	−123.867	8.088
	900.00	55.112	322.671	288.330	−25.577	30.907	−315.981	−185.153	−127.296	7.388
	1000.00	55.635	328.506	292.060	−20.039	36.445	−348.544	−185.015	−120.875	6.314
	1100.00	56.043	333.828	295.619	−14.454	42.030	−381.665	−184.870	−114.468	5.436
	1200.00	56.367	338.719	299.010	−8.833	47.651	−415.295	−184.720	−108.074	4.704
	1300.00	56.628	343.241	302.240	−3.183	53.301	−449.396	−184.569	−101.693	4.086
	1400.00	56.841	347.446	305.321	2.491	58.975	−483.933	−184.420	−95.324	3.557
	1500.00	57.015	351.374	308.261	8.184	64.668	−518.876	−184.275	−88.965	3.098
	1600.00	57.158	355.058	311.072	13.893	70.377	−554.200	−184.136	−82.615	2.697
	1700.00	57.276	358.527	313.763	19.615	76.099	−589.881	−184.006	−76.274	2.344
	1800.00	57.375	361.804	316.341	25.348	81.832	−625.899	−183.884	−69.941	2.030
	1900.00	57.457	364.908	318.817	31.089	87.573	−662.236	−183.774	−63.613	1.749
	2000.00	57.525	367.857	321.196	36.839	93.323	−698.875	−183.675	−57.292	1.496
	2100.00	57.583	370.665	323.485	42.594	99.078	−735.802	−183.589	−50.975	1.268
	2200.00	57.632	373.345	325.691	48.355	104.839	−773.004	−183.516	−44.662	1.060
	2300.00	57.675	375.908	327.819	54.120	110.604	−810.467	−183.458	−38.351	0.871
	2400.00	57.712	378.363	329.874	59.890	116.374	−848.182	−183.414	−32.043	0.697
	2500.00	57.746	380.720	331.861	65.663	122.147	−886.137	−183.384	−25.737	0.538
	2600.00	57.779	382.985	333.784	71.439	127.923	−924.323	−183.370	−19.431	0.390
	2700.00	57.811	385.166	335.647	77.218	133.702	−962.731	−183.369	−13.126	0.254
	2800.00	57.843	387.269	337.453	83.001	139.485	−1001.353	−183.383	−6.821	0.127
	2900.00	57.877	389.300	339.206	88.787	145.271	−1040.182	−183.411	−0.514	0.009
	3000.00	57.915	391.263	340.909	94.577	151.061	−1079.211	−183.451	5.793	−0.101

References

Phase	H / S	C_p
GAS	Ja1	Ja1

SOCl2[g] SULFINYL DICHLORIDE (GAS) 118.971

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	66.575	308.052	308.052	−212.338	0.000	−304.184	−212.338	−197.522	34.605
	300.00	66.709	308.464	308.053	−212.215	0.123	−304.754	−212.347	−197.430	34.376
	400.00	71.679	328.423	310.741	−205.265	7.073	−336.634	−214.931	−192.309	25.113
	500.00	74.366	344.731	315.959	−197.952	14.386	−370.317	−216.620	−186.478	19.481
	600.00	76.155	358.457	321.928	−190.421	21.917	−405.495	−217.880	−180.321	15.698
	700.00	77.519	370.302	328.012	−182.735	29.603	−441.946	−218.808	−173.986	12.983
	800.00	78.657	380.730	333.963	−174.924	37.414	−479.508	−219.731	−167.521	10.938
	900.00	79.663	390.053	339.686	−167.008	45.330	−518.055	−273.449	−159.786	9.274
	1000.00	80.588	398.495	345.151	−158.995	53.343	−557.489	−272.744	−147.194	7.689
	1100.00	81.459	406.217	350.357	−150.892	61.446	−597.730	−271.991	−134.675	6.395

References

Phase	H / S	C_p
GAS	Tk1	La1

SO2Cl2[g] SULFONYL DICHLORIDE (GAS) 134.970

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	77.107	311.106	311.106	−354.803	0.000	−447.559	−354.803	−310.315	54.366
	300.00	77.271	311.584	311.108	−354.660	0.143	−448.135	−354.820	−310.039	53.983
	400.00	85.169	334.949	314.240	−346.519	8.284	−480.499	−357.698	−294.912	38.512
	500.00	90.715	354.589	320.398	−337.707	17.096	−515.002	−359.418	−279.031	29.150
	600.00	94.552	371.488	327.538	−328.433	26.370	−551.326	−360.514	−262.839	22.882
	700.00	97.305	386.281	334.895	−318.833	35.970	−589.230	−361.155	−246.506	18.394
	800.00	99.350	399.414	342.155	−308.995	45.808	−628.527	−361.720	−230.089	15.023
	900.00	100.908	411.210	349.183	−298.979	55.824	−669.068	−415.041	−212.450	12.330
	1000.00	102.115	421.907	355.929	−288.825	65.978	−710.732	−413.926	−189.999	9.925
	1100.00	103.062	431.686	362.378	−278.565	76.238	−753.419	−412.770	−167.662	7.962
	1200.00	103.808	440.687	368.534	−268.220	86.583	−797.043	−411.586	−145.431	6.330
	1300.00	104.400	449.020	374.408	−257.808	96.995	−841.534	−410.385	−123.300	4.954
	1400.00	104.871	456.775	380.018	−247.344	107.459	−886.828	−409.174	−101.262	3.778
	1500.00	105.249	464.023	385.379	−236.837	117.966	−932.872	−407.961	−79.311	2.762
	1600.00	105.558	470.826	390.509	−226.296	128.507	−979.618	−406.751	−57.440	1.875
	1700.00	105.817	477.234	395.424	−215.727	139.076	−1027.024	−405.550	−35.645	1.095
	1800.00	106.045	483.289	400.139	−205.134	149.669	−1075.053	−404.360	−13.921	0.404
	1900.00	106.259	489.028	404.668	−194.518	160.285	−1123.671	−403.182	7.738	−0.213
	2000.00	106.473	494.484	409.023	−183.882	170.921	−1172.849	−402.018	29.335	−0.766

References

Phase	H / S	C_p
GAS	Ja1	Ja1

86.062 SULFINYL DIFLUORIDE (GAS) **SOF2**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	57.113	279.140	279.140	−543.920	0.000	−627.146	−543.920	−526.543	92.248
	300.00	57.257	279.494	279.141	−543.814	0.106	−627.662	−543.941	−526.435	91.660
	400.00	64.244	296.971	281.477	−537.722	6.198	−656.511	−547.130	−520.354	67.951
	500.00	69.098	311.864	286.102	−531.039	12.881	−686.971	−549.242	−513.433	53.638
	600.00	72.383	324.771	291.496	−523.955	19.965	−718.817	−550.786	−506.115	44.061
	700.00	74.685	336.112	297.076	−516.595	27.325	−751.873	−551.913	−498.578	37.204
	800.00	76.356	346.199	302.598	−509.039	34.881	−785.998	−552.991	−490.886	32.052
	900.00	77.605	355.268	307.955	−501.338	42.582	−821.079	−606.847	−481.905	27.969
	1000.00	78.558	363.496	313.104	−493.527	50.393	−857.024	−606.283	−468.052	24.449
	1100.00	79.297	371.020	318.032	−485.633	58.287	−893.755	−605.692	−454.257	21.571
	1200.00	79.876	377.946	322.740	−477.673	66.247	−931.208	−605.084	−440.517	19.175
	1300.00	80.334	384.358	327.236	−469.662	74.258	−969.327	−604.464	−426.828	17.150
	1400.00	80.698	390.325	331.532	−461.610	82.310	−1008.065	−603.841	−413.187	15.416
	1500.00	80.991	395.903	335.639	−453.525	90.395	−1047.379	−603.217	−399.591	13.915
	1600.00	81.230	401.138	339.571	−445.413	98.507	−1087.234	−602.597	−386.036	12.603
	1700.00	81.430	406.069	343.339	−437.280	106.640	−1127.597	−601.984	−372.520	11.446
	1800.00	81.605	410.728	346.955	−429.128	114.792	−1168.438	−601.379	−359.040	10.419
	1900.00	81.765	415.144	350.428	−420.960	122.960	−1209.734	−600.784	−345.593	9.501
	2000.00	81.920	419.342	353.770	−412.775	131.145	−1251.460	−600.198	−332.177	8.676

References

Phase	H / S	C_p
GAS	Ja1	Ja1

SO2F2[g] SULFONYL DIFLUORIDE (GAS) 102.062

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	65.840	283.617	283.617	−758.559	0.000	−843.119	−758.559	−711.934	124.728
	300.00	66.054	284.025	283.619	−758.437	0.122	−843.645	−758.591	−711.645	123.908
	400.00	76.508	304.527	286.343	−751.285	7.274	−873.096	−762.206	−695.678	90.846
	500.00	84.012	322.455	291.811	−743.237	15.322	−904.465	−764.482	−678.795	70.913
	600.00	89.319	338.268	298.263	−734.556	24.003	−937.517	−766.009	−661.501	57.589
	700.00	93.190	352.342	305.002	−725.421	33.138	−972.060	−766.988	−644.001	48.056
	800.00	96.078	364.984	311.723	−715.950	42.609	−1007.937	−767.821	−626.374	40.898
	900.00	98.247	376.431	318.287	−706.229	52.330	−1045.017	−821.359	−607.494	35.258
	1000.00	99.851	386.870	324.631	−696.320	62.239	−1083.190	−820.427	−583.781	30.494
	1100.00	101.140	396.450	330.731	−686.267	72.292	−1122.363	−819.433	−560.164	26.600
	1200.00	102.147	405.295	336.581	−676.101	82.458	−1162.456	−818.392	−536.640	23.359
	1300.00	102.953	413.505	342.186	−665.845	92.714	−1203.401	−817.319	−513.203	20.621
	1400.00	103.610	421.159	347.557	−655.516	103.043	−1245.138	−816.225	−489.851	18.277
	1500.00	104.153	428.326	352.705	−645.127	113.432	−1287.616	−815.118	−466.577	16.248
	1600.00	104.606	435.063	357.644	−634.688	123.871	−1330.789	−814.005	−443.377	14.475
	1700.00	104.987	441.417	362.387	−624.208	134.351	−1374.616	−812.891	−420.247	12.913
	1800.00	105.310	447.427	366.946	−613.692	144.867	−1419.061	−811.781	−397.182	11.526
	1900.00	105.582	453.128	371.333	−603.147	155.412	−1464.091	−810.679	−374.179	10.287
	2000.00	105.813	458.550	375.559	−592.577	165.982	−1509.677	−809.588	−351.234	9.173

References

Phase	H / S	C_p
GAS	Ja1	Ja1

121.750 ANTIMONY **Sb**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	25.230	45.522	45.522	0.000	0.000	−13.572	0.000	0.000	0.000
	300.00	25.249	45.678	45.522	0.047	0.047	−13.657	0.000	0.000	0.000
	400.00	25.938	53.048	46.523	2.610	2.610	−18.609	0.000	0.000	0.000
	500.00	26.464	58.891	48.432	5.230	5.230	−24.216	0.000	0.000	0.000
	600.00	27.143	63.772	50.592	7.908	7.908	−30.355	0.000	0.000	0.000
	700.00	28.084	68.023	52.785	10.667	10.667	−36.949	0.000	0.000	0.000
	800.00	29.331	71.851	54.933	13.535	13.535	−43.946	0.000	0.000	0.000
	900.00	30.908	75.394	57.011	16.544	16.544	−51.310	0.000	0.000	0.000
	904.00	30.978	75.531	57.093	16.668	16.668	−51.612	0.000	0.000	0.000
			21.985		19.874					
LIQ	904.00	31.380	97.516	57.093	36.542	36.542	−51.612	0.000	0.000	0.000
	1000.00	31.380	100.683	61.128	39.555	39.555	−61.128	0.000	0.000	0.000
	1100.00	31.380	103.674	64.862	42.693	42.693	−71.348	0.000	0.000	0.000
	1200.00	31.380	106.404	68.212	45.831	45.831	−81.854	0.000	0.000	0.000
	1300.00	31.380	108.916	71.248	48.969	48.969	−92.622	0.000	0.000	0.000
	1400.00	31.380	111.241	74.022	52.107	52.107	−103.631	0.000	0.000	0.000
	1500.00	31.380	113.406	76.576	55.245	55.245	−114.865	0.000	0.000	0.000
	1600.00	31.380	115.431	78.942	58.383	58.383	−126.308	0.000	0.000	0.000
	1700.00	31.380	117.334	81.145	61.521	61.521	−137.947	0.000	0.000	0.000
	1800.00	31.380	119.127	83.206	64.659	64.659	−149.771	0.000	0.000	0.000
	1891.00	31.380	120.675	84.972	67.514	67.514	−160.682	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL	Hu1	Hu1		
LIQ	Hu1	Hu1	Hu1,e	BPT=1891. GAS(Sb2),L=77.75kJ / NBPT=1860. GAS(Sb4+Sb2+Sb)

Sb[g] ANTIMONY (GAS) 121.750

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	20.786	180.264	180.264	264.554	0.000	210.808	264.554	224.381	−39.311
	300.00	20.786	180.393	180.264	264.592	0.038	210.475	264.546	224.131	−39.025
	400.00	20.786	186.372	181.080	266.671	2.117	192.122	264.061	210.731	−27.519
	500.00	20.786	191.011	182.619	268.750	4.196	173.244	263.520	197.460	−20.629
	600.00	20.786	194.801	184.343	270.828	6.274	153.948	262.920	184.303	−16.045
	700.00	20.786	198.005	186.072	272.907	8.353	134.304	262.240	171.253	−12.779
	800.00	20.786	200.780	187.741	274.986	10.432	114.361	261.450	158.307	−10.336
	900.00	20.801	203.230	189.328	277.065	12.511	94.158	260.521	145.469	−8.443
	1000.00	20.803	205.421	190.830	279.145	14.591	73.724	239.591	134.852	−7.044
	1100.00	20.810	207.404	192.248	281.226	16.672	53.081	238.533	124.429	−5.909
	1200.00	20.831	209.216	193.588	283.308	18.754	32.249	237.477	114.103	−4.967
	1300.00	20.873	210.885	194.855	285.393	20.839	11.243	236.424	103.864	−4.173
	1400.00	20.941	212.434	196.056	287.483	22.929	−9.924	235.377	93.707	−3.496
	1500.00	21.037	213.882	197.197	289.582	25.028	−31.241	234.337	83.624	−2.912
	1600.00	21.163	215.243	198.282	291.692	27.138	−52.698	233.309	73.610	−2.403
	1700.00	21.321	216.531	199.318	293.816	29.262	−74.287	232.295	63.660	−1.956
	1800.00	21.511	217.755	200.309	295.957	31.403	−96.002	231.298	53.769	−1.560
	1900.00	21.736	218.924	201.258	298.119	33.565	−117.836	152.692	44.216	−1.216
	2000.00	21.994	220.045	202.169	300.305	35.751	−139.785	153.009	38.499	−1.005

References

Phase	H / S	C_p
GAS	Hu1	Hu1

243.500 ANTIMONY (GAS) **Sb2**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	36.349	254.915	254.915	231.208	0.000	155.205	231.208	182.350	−31.947
	300.00	36.361	255.140	254.916	231.275	0.067	154.733	231.182	182.047	−31.697
	400.00	36.807	265.670	256.348	234.937	3.729	128.669	229.717	165.887	−21.663
	500.00	37.015	273.908	259.066	238.629	7.421	101.675	228.170	150.106	−15.682
	600.00	37.129	280.668	262.120	242.337	11.129	73.936	226.521	134.647	−11.722
	700.00	37.200	286.397	265.190	246.053	14.845	45.575	224.719	119.474	−8.915
	800.00	37.247	291.368	268.158	249.776	18.568	16.682	222.706	104.574	−6.828
	900.00	37.281	295.757	270.986	253.502	22.294	−12.679	220.414	89.941	−5.220
	1000.00	37.306	299.686	273.663	257.232	26.024	−42.455	178.123	79.802	−4.168
	1100.00	37.325	303.243	276.193	260.963	29.755	−72.604	175.578	70.093	−3.328
	1200.00	37.341	306.491	278.584	264.697	33.489	−103.093	173.036	60.615	−2.639
	1300.00	37.354	309.481	280.847	268.432	37.224	−133.894	170.494	51.350	−2.063
	1400.00	37.357	312.249	282.993	272.167	40.959	−164.982	167.954	42.281	−1.578
	1500.00	37.363	314.827	285.030	275.903	44.695	−196.337	165.414	33.393	−1.163
	1600.00	37.369	317.238	286.968	279.640	48.432	−227.942	162.875	24.674	−0.806
	1700.00	37.375	319.504	288.816	283.377	52.169	−259.780	160.336	16.114	−0.495
	1800.00	37.381	321.640	290.581	287.115	55.907	−291.838	157.797	7.704	−0.224
	1900.00	37.388	323.662	292.269	290.853	59.645	−324.104	0.000	0.000	0.000
	2000.00	37.388	325.579	293.887	294.592	63.384	−356.567	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

Sb4[g] ANTIMONY (GAS) 487.000

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[	kJ / mol	]			[−]
GAS	298.15	80.940	350.109	350.109	206.522	0.000	102.137	206.522	156.426	−27.405
	300.00	80.966	350.610	350.111	206.672	0.150	101.489	206.485	156.116	−27.182
	400.00	81.857	374.043	353.300	214.819	8.297	65.202	204.379	139.638	−18.235
	500.00	82.278	392.359	359.346	223.028	16.506	26.849	202.110	123.712	−12.924
	600.00	82.515	407.383	366.138	231.269	24.747	−13.161	199.636	108.261	−9.425
	700.00	82.664	420.114	372.962	239.528	33.006	−54.552	196.860	93.246	−6.958
	800.00	82.767	431.160	379.562	247.800	41.278	−97.128	193.660	78.657	−5.136
	900.00	82.843	440.913	385.847	256.081	49.559	−140.741	189.904	64.500	−3.743
	1000.00	82.902	449.644	391.798	264.368	57.846	−185.276	106.150	59.236	−3.094
	1100.00	82.950	457.548	397.422	272.661	66.139	−230.642	101.891	54.751	−2.600
	1200.00	82.990	464.767	402.738	280.958	74.436	−276.763	97.636	50.654	−2.205
	1300.00	83.025	471.412	407.768	289.259	82.737	−323.576	93.385	46.911	−1.885
	1400.00	83.013	477.563	412.536	297.559	91.037	−371.029	89.133	43.496	−1.623
	1500.00	83.027	483.291	417.065	305.861	99.339	−419.075	84.883	40.384	−1.406
	1600.00	83.042	488.650	421.373	314.165	107.643	−467.675	80.635	37.556	−1.226
	1700.00	83.056	493.684	425.480	322.470	115.948	−516.794	76.387	34.994	−1.075
	1800.00	83.070	498.432	429.402	330.776	124.254	−566.402	72.142	32.681	−0.948
	1900.00	62.141	502.478	433.150	338.246	131.724	−616.463	−243.460	31.745	−0.873
	2000.00	62.141	505.666	436.697	344.460	137.938	−666.872	−244.724	46.262	−1.208

References

Phase	H / S	C_p
GAS	Hu1	Hu1

SbBr3 ANTIMONY TRIBROMIDE 361.462

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[	kJ / mol	]			[−]
SOL	298.15	112.699	210.037	210.037	−259.408	0.000	−322.030	−259.408	−240.386	42.115
	300.00	112.926	210.735	210.039	−259.199	0.209	−322.420	−259.456	−240.268	41.834
	368.00	121.262	234.628	212.424	−251.237	8.171	−337.580	−303.193	−231.130	32.807
			39.793		14.644					
LIQ	368.00	135.143	274.422	212.424	−236.593	22.815	−337.580	−288.549	−231.130	32.807
	400.00	135.143	285.690	217.841	−232.268	27.140	−346.544	−286.811	−226.210	29.540
	500.00	135.143	315.846	234.538	−218.754	40.654	−376.677	−281.455	−211.682	22.114

References

Phase	H / S	C_p
SOL	Tk1	Ke1,e
LIQ	Tk1	e

361.462 ANTIMONY TRIBROMIDE (GAS) **SbBr3**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	79.959	374.536	374.536	−194.556	0.000	−306.224	−194.556	−224.579	39.345
	300.00	79.996	375.030	374.537	−194.408	0.148	−306.917	−194.665	−224.765	39.135
	400.00	81.332	398.254	377.694	−186.332	8.224	−345.634	−240.875	−225.300	29.421
	500.00	81.960	416.478	383.694	−178.164	16.392	−386.403	−240.865	−221.408	23.130
	600.00	82.308	431.454	390.443	−169.949	24.607	−428.822	−240.906	−217.514	18.936
	700.00	82.526	444.160	397.232	−161.707	32.849	−472.619	−241.026	−213.607	15.940
	800.00	82.673	455.190	403.803	−153.446	41.110	−517.598	−241.255	−209.676	13.690
	900.00	82.780	464.934	410.064	−145.174	49.382	−563.614	−241.627	−205.708	11.939
	1000.00	82.861	473.660	415.995	−136.891	57.665	−610.551	−262.004	−199.579	10.425
	1100.00	82.925	481.560	421.602	−128.602	65.954	−658.318	−262.512	−193.312	9.180
	1200.00	82.979	488.778	426.904	−120.307	74.249	−706.840	−263.024	−186.999	8.140
	1300.00	83.024	495.422	431.922	−112.006	82.550	−756.055	−263.540	−180.643	7.258
	1400.00	83.064	501.576	436.680	−103.702	90.854	−805.908	−264.061	−174.246	6.501
	1500.00	83.099	507.308	441.200	−95.394	99.162	−856.356	−264.586	−167.813	5.844

References

Phase	H / S	C_p
GAS	Pa2	Pa2

157.203 ANTIMONY MONOCHLORIDE (GAS) **SbCl**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	35.542	246.965	246.965	−10.665	0.000	−84.298	−10.665	−37.464	6.564
	300.00	35.559	247.185	246.966	−10.599	0.066	−84.755	−10.677	−37.631	6.552
	400.00	36.213	257.516	248.370	−7.007	3.658	−110.013	−11.382	−46.511	6.074
	500.00	36.560	265.637	251.040	−3.366	7.299	−136.185	−12.147	−55.206	5.767
	600.00	36.787	272.324	254.047	0.301	10.966	−163.093	−12.975	−63.741	5.549
	700.00	36.957	278.008	257.074	3.989	14.654	−190.617	−13.884	−72.131	5.382
	800.00	37.096	282.953	260.007	7.692	18.357	−218.670	−14.902	−80.384	5.249
	900.00	37.218	287.329	262.804	11.408	22.073	−247.188	−16.058	−88.502	5.136
	1000.00	37.330	291.256	265.456	15.135	25.800	−276.121	−37.212	−94.372	4.929
	1100.00	37.434	294.819	267.966	18.873	29.538	−305.428	−38.488	−100.026	4.750
	1200.00	37.533	298.080	270.342	22.622	33.287	−335.075	−39.760	−105.564	4.595
	1300.00	37.629	301.089	272.593	26.380	37.045	−365.035	−41.027	−110.996	4.460
	1400.00	37.722	303.881	274.729	30.147	40.812	−395.285	−42.288	−116.331	4.340
	1500.00	37.813	306.486	276.760	33.924	44.589	−425.805	−43.543	−121.576	4.234
	1600.00	37.903	308.929	278.695	37.710	48.375	−456.577	−44.793	−126.738	4.138
	1700.00	37.992	311.230	280.542	41.505	52.170	−487.586	−46.038	−131.821	4.050
	1800.00	38.080	313.404	282.308	45.308	55.973	−518.819	−47.278	−136.831	3.971
	1900.00	38.167	315.465	283.999	49.121	59.786	−550.263	−126.142	−141.490	3.890
	2000.00	38.254	317.425	285.622	52.942	63.607	−581.909	−126.103	−142.299	3.716

References

Phase	H / S	C_p
GAS	Tk1	e

SbCl3 ANTIMONY TRICHLORIDE 228.108

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	110.460	183.259	183.259	−381.162	0.000	−435.801	−381.162	−322.445	56.491
	300.00	110.855	183.944	183.261	−380.957	0.205	−436.140	−381.098	−322.081	56.079
	346.00	120.690	200.443	184.459	−375.632	5.530	−444.985	−379.311	−313.157	47.276
			36.277		12.552					
LIQ	346.00	123.428	236.720	184.459	−363.080	18.082	−444.985	−366.759	−313.157	47.276
	400.00	123.428	254.620	192.752	−356.415	24.747	−458.263	−364.320	−304.974	39.825

References

Phase	H / S	C_p
SOL	Tk1	Ku1,e
LIQ	Tk1	e

SbCl3[g] ANTIMONY TRICHLORIDE (GAS) 228.108

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	76.721	338.595	338.595	−311.959	0.000	−412.911	−311.959	−299.555	52.481
	300.00	76.790	339.070	338.596	−311.817	0.142	−413.538	−311.958	−299.478	52.144
	400.00	79.370	361.560	341.645	−303.993	7.966	−448.617	−311.898	−295.328	38.566
	500.00	80.664	379.425	347.476	−295.985	15.974	−485.697	−311.866	−291.190	30.420
	600.00	81.387	394.201	354.068	−287.879	24.080	−524.400	−311.891	−287.054	24.990
	700.00	81.833	406.783	360.722	−279.716	32.243	−564.465	−312.003	−282.907	21.111
	800.00	82.131	417.731	367.179	−271.517	40.442	−605.702	−312.230	−278.736	18.200
	900.00	82.345	427.418	373.344	−263.293	48.666	−647.969	−312.603	−274.529	15.933
	1000.00	82.507	436.102	379.193	−255.050	56.909	−691.152	−332.982	−268.161	14.007

References

Phase	H / S	C_p
GAS	Tk1	Pa2

299.014 ANTIMONY PENTACHLORIDE (GAS) **SbCl5[g]**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	120.916	401.773	401.773	-388.819	0.000	-508.608	-388.819	-328.730	57.592
	300.00	121.051	402.522	401.776	-388.595	0.224	-509.352	-388.799	-328.357	57.172
	400.00	125.811	438.096	406.594	-376.218	12.601	-551.456	-387.653	-308.380	40.270
	500.00	128.014	466.434	415.825	-363.515	25.304	-596.732	-386.496	-288.697	30.160
	600.00	129.210	489.889	426.271	-350.648	38.171	-644.581	-385.396	-269.241	23.440
	700.00	129.932	509.866	436.821	-337.688	51.131	-694.594	-384.387	-249.964	18.653
	800.00	130.400	527.248	447.062	-324.670	64.149	-746.468	-383.500	-230.822	15.071

References

Phase	H / S	C_p
GAS	Tk1	e

140.748 ANTIMONY MONOFLUORIDE (GAS) **SbF[g]**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	33.324	234.832	234.832	-74.128	0.000	-144.143	-74.128	-100.339	17.579
	300.00	33.342	235.038	234.832	-74.066	0.062	-144.578	-74.142	-100.502	17.499
	400.00	33.995	244.731	236.150	-70.695	3.433	-168.588	-74.941	-109.170	14.256
	500.00	34.342	252.357	238.656	-67.277	6.851	-193.456	-75.824	-117.627	12.288
	600.00	34.569	258.640	241.478	-63.831	10.297	-219.015	-76.793	-125.898	10.960
	700.00	34.739	263.982	244.321	-60.365	13.763	-245.153	-77.861	-133.999	9.999
	800.00	34.879	268.630	247.075	-56.884	17.244	-271.788	-79.051	-141.939	9.268
	900.00	35.001	272.746	249.703	-53.390	20.738	-298.861	-80.390	-149.722	8.690
	1000.00	35.112	276.439	252.195	-49.884	24.244	-326.323	-101.735	-155.236	8.109
	1100.00	35.216	279.791	254.554	-46.368	27.760	-354.137	-103.209	-160.515	7.622
	1200.00	35.315	282.859	256.787	-42.841	31.287	-382.272	-104.685	-165.659	7.211
	1300.00	35.411	285.690	258.902	-39.305	34.823	-410.701	-106.160	-170.680	6.858
	1400.00	35.504	288.317	260.911	-35.759	38.369	-439.403	-107.634	-175.588	6.551
	1500.00	35.596	290.770	262.821	-32.204	41.924	-468.359	-109.105	-180.391	6.282
	1600.00	35.686	293.070	264.640	-28.640	45.488	-497.552	-110.574	-185.095	6.043
	1700.00	35.775	295.236	266.377	-25.067	49.061	-526.968	-112.040	-189.708	5.829
	1800.00	35.863	297.283	268.037	-21.485	52.643	-556.595	-113.502	-194.235	5.637
	1900.00	35.950	299.225	269.628	-17.894	56.234	-586.422	-192.591	-198.397	5.454
	2000.00	36.037	301.071	271.155	-14.295	59.833	-616.437	-192.777	-198.698	5.189

References

Phase	H / S	C_p
GAS	Tk1	e

SbF3 ANTIMONY TRIFLUORIDE 178.745

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	90.223	127.235	127.235	−915.459	0.000	−953.394	−915.459	−849.127	148.764
	300.00	90.384	127.794	127.237	−915.292	0.167	−953.630	−915.426	−848.715	147.774
	400.00	99.095	154.989	130.886	−905.818	9.641	−967.814	−913.335	−826.778	107.966
	500.00	107.805	178.037	138.065	−895.473	19.986	−984.491	−910.655	−805.436	84.143
	560.00	113.031	190.545	143.025	−888.848	26.611	−995.553	−908.738	−792.919	73.960
			40.645		22.761					
LIQ	560.00	147.277	231.190	143.025	−866.087	49.372	−995.553	−885.977	−792.919	73.960
	600.00	147.277	241.351	149.245	−860.196	55.263	−1005.006	−883.266	−786.366	68.459
	619.00	147.277	245.942	152.143	−857.398	58.061	−1009.636	−881.989	−783.318	66.101

References

Phase	H / S	C_p	Remarks
SOL	Nb1/Pa2	Pa2	
LIQ	Pa2	Pa2	Pa2 NBPT= 619.

SbF3[g] ANTIMONY TRIFLUORIDE (GAS) 178.745

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	68.256	303.031	303.031	−812.533	0.000	−902.882	−812.533	−798.614	139.914
	300.00	68.415	303.454	303.032	−812.407	0.126	−903.443	−812.540	−798.528	139.036
	400.00	74.107	324.027	305.799	−805.242	7.291	−934.852	−812.759	−793.817	103.662
	500.00	76.894	340.894	311.183	−797.678	14.855	−968.125	−812.859	−789.070	82.434
	600.00	78.536	355.069	317.348	−789.900	22.633	−1002.942	−812.970	−784.302	68.280
	700.00	79.638	367.263	323.628	−781.988	30.545	−1039.073	−813.142	−779.511	58.168
	800.00	80.452	377.953	329.764	−773.982	38.551	−1076.345	−813.413	−774.690	50.582
	900.00	81.099	387.468	335.657	−765.903	46.630	−1114.624	−813.815	−769.827	44.680
	1000.00	81.642	396.041	341.274	−757.766	54.767	−1153.807	−834.208	−762.801	39.845
	1100.00	82.118	403.845	346.613	−749.577	62.956	−1193.807	−834.717	−755.636	35.882
	1200.00	82.546	411.009	351.685	−741.344	71.189	−1234.554	−835.214	−748.424	32.578
	1300.00	82.943	417.632	356.506	−733.069	79.464	−1275.991	−835.697	−741.172	29.781
	1400.00	83.316	423.793	361.095	−724.756	87.777	−1318.065	−836.166	−733.883	27.382
	1500.00	83.671	429.553	365.469	−716.406	96.127	−1360.736	−836.620	−726.561	25.301

References

Phase	H / S	C_p
GAS	Pa2	Pa2

124.774 ANTIMONY TRIHYDRIDE (GAS) **SbH3[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	41.251	233.075	233.075	145.101	0.000	75.610	145.101	147.626	−25.863
	300.00	41.468	233.330	233.075	145.178	0.077	75.178	145.051	147.641	−25.707
	400.00	49.745	246.526	234.818	149.784	4.683	51.174	142.735	148.873	−19.441
	500.00	54.580	258.182	238.351	155.017	9.916	25.926	140.964	150.622	−15.735
	600.00	58.061	268.454	242.529	160.656	15.555	−0.417	139.531	152.692	−13.293
	700.00	60.903	277.624	246.899	166.608	21.507	−27.729	138.318	154.984	−11.565
	800.00	63.404	285.922	251.267	172.825	27.724	−55.912	137.238	157.440	−10.280
	900.00	65.706	293.524	255.545	179.282	34.181	−84.890	136.224	160.026	−9.288
	1000.00	67.885	300.561	259.699	185.963	40.862	−114.598	115.388	164.834	−8.610
	1100.00	69.984	307.130	263.716	192.857	47.756	−144.986	114.586	169.819	−8.064
	1200.00	72.029	313.307	267.594	199.958	54.857	−176.011	113.932	174.870	−7.612
	1300.00	74.034	319.152	271.337	207.261	62.160	−207.637	113.416	179.970	−7.231
	1400.00	76.012	324.711	274.952	214.764	69.663	−239.832	113.034	185.105	−6.906
	1500.00	77.969	330.022	278.448	222.463	77.362	−272.571	112.783	190.263	−6.626
	1600.00	79.910	335.116	281.832	230.357	85.256	−305.829	112.662	195.433	−6.380

References

Phase	H / S	C_p
GAS	Tk1	e

502.463 ANTIMONY TRIIODIDE **SbI3**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	98.074	218.907	218.907	−100.416	0.000	−165.683	−100.416	−100.169	17.549
	300.00	98.225	219.514	218.909	−100.234	0.182	−166.089	−100.432	−100.168	17.441
	400.00	106.548	248.906	222.860	−89.998	10.418	−189.560	−125.217	−99.122	12.944
	444.00	110.265	260.216	226.008	−85.228	15.188	−200.764	−126.918	−96.160	11.313
			51.358		22.803					
LIQ	444.00	143.992	311.574	226.008	−62.425	37.991	−200.764	−104.115	−96.160	11.313
	500.00	143.992	328.678	236.568	−54.361	46.055	−218.700	−164.491	−89.448	9.345
	600.00	143.992	354.930	254.174	−39.962	60.454	−252.920	−158.397	−75.014	6.531
	666.00	143.992	369.957	264.916	−30.459	69.957	−276.850	−154.427	−66.053	5.181

References

Phase	H / S	C_p	Remarks	
SOL	Pa2	Pa2		
LIQ	Pa2	Pa2	Pa2	BPT= 666., L= 67.438 kJ

SbI3[g] ANTIMONY TRIIODIDE (GAS) 502.463

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	81.757	404.995	404.995	6.694	0.000	−114.055	6.694	−48.541	8.504
	300.00	81.773	405.501	404.997	6.845	0.151	−114.805	6.647	−48.884	8.511
	400.00	82.355	429.117	408.213	15.056	8.362	−156.591	−20.163	−66.153	8.639
	500.00	82.630	447.527	414.302	23.306	16.612	−200.457	−86.823	−71.205	7.439
	600.00	82.785	462.607	421.134	31.578	24.884	−245.986	−86.857	−68.080	5.927
	700.00	82.883	475.376	427.994	39.861	33.167	−292.902	−86.976	−64.942	4.846
	800.00	82.951	486.448	434.624	48.153	41.459	−341.005	−87.211	−61.780	4.034
	900.00	83.001	496.221	440.936	56.451	49.757	−390.148	−87.592	−58.580	3.400
	1000.00	83.040	504.968	446.909	64.753	58.059	−440.215	−107.982	−53.218	2.780
	1100.00	83.072	512.884	452.553	73.059	66.365	−491.114	−108.506	−47.717	2.266
	1200.00	83.099	520.114	457.886	81.367	74.673	−542.769	−109.038	−42.167	1.835
	1300.00	83.123	526.766	462.932	89.678	82.984	−595.118	−109.576	−36.573	1.470
	1400.00	83.144	532.927	467.714	97.992	91.298	−648.106	−110.122	−30.936	1.154
	1500.00	83.164	538.664	472.255	106.307	99.613	−701.689	−110.674	−25.261	0.880

References

Phase	H / S	C_p
GAS	Pa2	Pa2

SbO[g] ANTIMONY OXIDE (GAS) 137.749

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	31.827	238.346	238.346	−103.500	0.000	−174.563	−103.500	−130.408	22.847
	300.00	31.890	238.543	238.347	−103.441	0.059	−175.004	−103.515	−130.575	22.735
	400.00	34.255	248.083	239.631	−100.119	3.381	−199.352	−104.242	−139.482	18.214
	500.00	35.539	255.876	242.125	−96.624	6.876	−224.563	−104.896	−148.216	15.484
	600.00	36.397	262.436	244.978	−93.025	10.475	−250.487	−105.555	−156.818	13.652
	700.00	37.053	268.097	247.886	−89.352	14.148	−277.020	−106.268	−165.307	12.335
	800.00	37.603	273.082	250.730	−85.618	17.882	−304.084	−107.071	−173.687	11.341
	900.00	38.090	277.539	253.465	−81.833	21.667	−331.619	−107.998	−181.960	10.561
	1000.00	38.539	281.576	256.078	−78.002	25.498	−359.578	−128.907	−188.012	9.821
	1100.00	38.962	285.269	258.566	−74.126	29.374	−387.923	−129.925	−193.873	9.206
	1200.00	39.368	288.677	260.935	−70.210	33.290	−416.622	−130.921	−199.642	8.690
	1300.00	39.762	291.844	263.192	−66.253	37.247	−445.650	−131.894	−205.330	8.250
	1400.00	40.148	294.805	265.346	−62.257	41.243	−474.984	−132.843	−210.943	7.870
	1500.00	40.526	297.587	267.403	−58.224	45.276	−504.605	−133.767	−216.489	7.539
	1600.00	40.900	300.215	269.373	−54.152	49.348	−534.496	−134.668	−221.974	7.247
	1700.00	41.270	302.706	271.261	−50.044	53.456	−564.643	−135.543	−227.404	6.987
	1800.00	41.637	305.075	273.074	−45.899	57.601	−595.033	−136.394	−232.783	6.755
	1900.00	42.001	307.336	274.818	−41.717	61.783	−625.655	−214.850	−237.832	6.538
	2000.00	42.364	309.499	276.499	−37.498	66.002	−656.497	−214.382	−239.054	6.243

References

Phase	H / S	C_p
GAS	Tk1	Tk1,e

291.498 DIANTIMONY TRIOXIDE (CUBIC) **Sb2O3**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	111.758	110.449	110.449	−720.305	0.000	−753.235	−720.305	−634.344	111.134
	300.00	111.880	111.141	110.451	−720.098	0.207	−753.440	−720.273	−633.811	110.356
	400.00	118.491	144.232	114.919	−708.580	11.725	−766.272	−718.338	−605.270	79.040
	500.00	125.102	171.383	123.573	−696.400	23.905	−782.091	−715.986	−577.267	60.307
	600.00	131.712	194.776	133.533	−683.559	36.746	−800.425	−713.241	−549.774	47.862
	700.00	138.323	215.576	143.794	−670.057	50.248	−820.961	−710.139	−522.770	39.010
	800.00	144.934	234.478	153.965	−655.895	64.410	−843.477	−706.718	−496.233	32.401
	879.00	150.156	248.369	161.831	−644.239	76.066	−862.555	−703.818	−475.585	28.262
			7.615		6.694					
SOL−B	879.00	119.587	255.984	161.831	−637.545	82.760	−862.555	−697.124	−475.585	28.262
	900.00	119.841	258.811	164.061	−635.031	85.274	−867.960	−696.981	−470.294	27.295
	928.00	120.173	262.487	166.976	−631.670	88.635	−875.259	−736.568	−462.189	26.015
			59.289		55.020					
LIQ	928.00	156.900	321.776	166.976	−576.650	143.655	−875.259	−681.548	−462.189	26.015
	1000.00	156.900	333.500	178.549	−565.354	154.951	−898.854	−678.517	−445.285	23.259
	1100.00	156.900	348.454	193.326	−549.664	170.641	−932.963	−674.367	−422.163	20.047
	1200.00	156.900	362.107	206.830	−533.974	186.331	−968.501	−670.276	−399.417	17.386
	1300.00	156.900	374.665	219.264	−518.284	202.021	−1005.348	−666.237	−377.009	15.148
	1400.00	156.900	386.293	230.785	−502.594	217.711	−1043.403	−662.243	−354.911	13.242
	1500.00	156.900	397.118	241.517	−486.904	233.401	−1082.580	−658.290	−333.097	11.599
	1600.00	156.900	407.244	251.562	−471.214	249.091	−1122.804	−654.377	−311.545	10.171
	1700.00	156.900	416.756	261.002	−455.524	264.781	−1164.008	−650.501	−290.237	8.918
	1729.00	156.900	419.410	263.637	−450.973	269.332	−1176.133	−649.384	−284.101	8.583

References

Phase	H / S	C_p	Remarks	
SOL−A	Nb1	e		cubic
SOL−B	Tk1	Pa1		
LIQ	Tk1	e	Tk1	NBPT= 1729. GAS (Sb4O6)

Sb2O3[O] DIANTIMONY TRIOXIDE (ORTHORHOMBIC) 291.498

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	101.381	123.001	123.001	−708.552	0.000	−745.225	−708.552	−626.333	109.731
	300.00	101.582	123.629	123.003	−708.364	0.188	−745.453	−708.539	−625.823	108.965
	400.00	108.944	153.995	127.093	−697.791	10.761	−759.389	−707.550	−598.387	78.141
	500.00	112.799	178.757	135.028	−686.687	21.865	−776.066	−706.273	−571.241	59.677
	600.00	115.273	199.555	144.095	−675.276	33.276	−795.009	−704.958	−544.359	47.391
	700.00	117.095	217.467	153.327	−663.654	44.898	−815.881	−703.736	−517.691	38.631
	800.00	118.569	233.202	162.348	−651.869	56.683	−838.430	−702.692	−491.187	32.071
	900.00	119.841	247.242	171.015	−639.947	68.605	−862.465	−701.897	−464.799	26.976
	928.00	120.173	250.919	173.370	−636.587	71.965	−869.440	−741.485	−456.370	25.688

References

Phase	H / S	C_p	Remarks
SOL	Nb1	Pa1	Pa1 TPT(cub. − orthorh.)= 879., L= 4. kJ / MPT= 928.

Sb2O4 DIANTIMONY TETRAOXIDE 307.498

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	114.558	126.984	126.984	−907.510	0.000	−945.370	−907.510	−795.897	139.438
	300.00	114.801	127.694	126.987	−907.298	0.212	−945.606	−907.500	−795.204	138.457
	400.00	123.588	162.091	131.617	−895.320	12.190	−960.157	−906.591	−757.893	98.971
	500.00	128.009	190.190	140.610	−882.720	24.790	−977.815	−905.348	−720.859	75.308
	600.00	130.714	213.785	150.892	−869.774	37.736	−998.045	−904.078	−684.082	59.555
	700.00	132.606	234.084	161.361	−856.603	50.907	−1020.462	−902.935	−647.508	48.318
	800.00	134.067	251.890	171.587	−843.267	64.243	−1044.779	−902.008	−611.085	39.900
	900.00	135.276	267.753	181.406	−829.798	77.712	−1070.776	−901.369	−574.762	33.358
	1000.00	136.329	282.061	190.768	−816.217	91.293	−1098.278	−940.732	−534.272	27.907
	1100.00	137.281	295.100	199.669	−802.536	104.974	−1127.146	−940.345	−493.644	23.441
	1200.00	138.162	307.083	208.127	−788.763	118.747	−1157.263	−939.946	−453.053	19.721

References

Phase	H / S	C_p
SOL	Pa1	Pa1

323.497 DIANTIMONY PENTAOXIDE **Sb2O5**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	117.589	125.102	125.102	−971.901	0.000	−1009.200	−971.901	−829.144	145.263
	300.00	117.860	125.830	125.104	−971.683	0.218	−1009.432	−971.912	−828.258	144.213
	400.00	127.264	161.225	129.866	−959.357	12.544	−1023.847	−972.141	−780.322	101.900
	500.00	131.416	190.126	139.120	−946.398	25.503	−1041.461	−972.068	−732.374	76.511
	600.00	133.501	214.290	149.690	−933.141	38.760	−1061.715	−972.067	−684.438	59.586
	700.00	134.610	234.962	160.431	−919.730	52.171	−1084.203	−972.310	−636.485	47.495

References

Phase	H / S	C_p	Remarks
SOL	Nb1,Tk1	Pa1	

582.996 TETRAANTIMONY HEXAOXIDE (GAS) **Sb4O6[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	182.756	444.199	444.199	−1215.536	0.000	−1347.974	−1215.536	−1110.191	194.501
	300.00	183.263	445.331	444.203	−1215.197	0.339	−1348.797	−1215.547	−1109.537	193.188
	400.00	201.563	500.907	451.656	−1195.835	19.701	−1396.198	−1215.352	−1074.193	140.275
	500.00	210.792	546.973	466.250	−1175.174	40.362	−1448.661	−1214.346	−1039.011	108.545
	600.00	216.449	585.940	483.035	−1153.793	61.743	−1505.357	−1213.157	−1004.056	87.411
	700.00	220.420	619.619	500.196	−1131.940	83.596	−1565.673	−1212.103	−969.293	72.330
	800.00	223.493	649.260	517.013	−1109.738	105.798	−1629.147	−1211.385	−934.660	61.027
	900.00	226.043	675.735	533.204	−1087.258	128.278	−1695.420	−1211.158	−900.088	52.240
	1000.00	228.269	699.669	548.673	−1064.541	150.995	−1764.209	−1290.867	−857.071	44.769

References

Phase	H / S	C_p
GAS	Pa1	Pa1

SbOCl ANTIMONY CHLORIDE OXIDE 173.202

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	74.539	107.529	107.529	−374.050	0.000	−406.110	−374.050	−328.694	57.586
	300.00	74.580	107.990	107.530	−373.912	0.138	−406.309	−374.017	−328.413	57.182
	400.00	76.776	129.746	110.482	−366.344	7.706	−418.243	−372.232	−313.479	40.936
	500.00	78.973	147.114	116.128	−358.557	15.493	−432.114	−370.379	−299.003	31.237
	600.00	81.170	161.707	122.540	−350.550	23.500	−447.574	−368.448	−284.908	24.803
	700.00	83.366	174.384	129.060	−342.323	31.727	−464.392	−366.446	−271.142	20.233
	800.00	85.563	185.660	135.443	−333.876	40.174	−482.404	−364.388	−257.668	16.824

References

Phase	H / S	C_p
SOL	Nb1/e	e

SbS[g] ANTIMONY SULFIDE (GAS) 217.948

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	34.664	249.709	249.709	−185.770	0.000	−260.221	−185.770	−217.976	38.188
	300.00	34.700	249.924	249.710	−185.706	0.064	−260.683	−185.879	−218.176	37.988
	400.00	35.867	260.091	251.088	−182.169	3.601	−286.205	−198.649	−227.764	29.743
	500.00	36.672	268.181	253.725	−178.542	7.228	−312.633	−209.348	−233.873	24.433
	600.00	37.488	274.939	256.713	−174.834	10.936	−339.798	−219.047	−237.842	20.706
	700.00	38.287	280.779	259.743	−171.045	14.725	−367.590	−227.945	−240.269	17.929
	800.00	39.021	285.940	262.701	−167.179	18.591	−395.931	−237.027	−241.415	15.763
	900.00	39.661	290.574	265.545	−163.244	22.526	−424.760	−404.721	−237.946	13.810
	1000.00	40.195	294.781	268.261	−159.250	26.520	−454.031	−429.242	−217.055	11.338
	1100.00	40.621	298.633	270.850	−155.208	30.562	−483.705	−433.866	−195.613	9.289
	1200.00	40.943	302.182	273.315	−151.129	34.641	−513.748	−438.470	−173.750	7.563
	1300.00	41.171	305.469	275.664	−147.023	38.747	−544.133	−443.063	−151.504	6.087
	1400.00	41.316	308.526	277.903	−142.898	42.872	−574.834	−447.654	−128.904	4.809
	1500.00	41.393	311.379	280.041	−138.762	47.008	−605.831	−452.247	−105.976	3.690
	1600.00	41.415	314.052	282.084	−134.621	51.149	−637.104	−456.849	−82.741	2.701
	1700.00	41.399	316.562	284.039	−130.480	55.290	−668.636	−461.464	−59.218	1.820
	1800.00	41.361	318.927	285.912	−126.342	59.428	−700.412	−466.093	−35.423	1.028
	1900.00	41.318	321.163	287.709	−122.208	63.562	−732.417	−548.369	−11.087	0.305
	2000.00	41.287	323.281	289.435	−118.078	67.692	−764.640	−551.762	17.278	−0.451

References

Phase	H / S	C_p
GAS	Pa3	Pa3

339.698 DIANTIMONY TRISULFIDE (BLACK) **Sb2S3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[	J / (K mol)	]	[		kJ / mol		]	
SOL	298.15	119.820	182.171	182.171	−141.796	0.000	−196.110	−141.796	−140.293	24.579
	300.00	119.926	182.913	182.174	−141.574	0.222	−196.448	−141.794	−140.284	24.426
	400.00	124.005	218.019	186.933	−129.362	12.434	−216.569	−148.452	−139.519	18.219
	500.00	127.565	246.068	196.046	−116.785	25.011	−239.819	−152.821	−136.844	14.296
	600.00	131.419	269.662	206.399	−103.838	37.958	−265.635	−155.959	−133.325	11.607
	700.00	135.492	290.224	216.936	−90.494	51.302	−293.651	−158.061	−129.380	9.654
	800.00	139.657	308.588	227.264	−76.737	65.059	−323.607	−160.120	−125.146	8.171
	823.00	140.618	312.560	229.593	−73.514	68.282	−330.751	−160.654	−124.133	7.879
			49.384		40.643					
LIQ	823.00	200.862	361.944	229.593	−32.871	108.925	−330.751	−120.011	−124.133	7.879
	900.00	192.804	379.554	241.686	−17.715	124.081	−359.313	−275.736	−121.188	7.034
	1000.00	182.339	399.326	256.488	1.043	142.839	−398.284	−308.504	−100.180	5.233

References

Phase	H / S	C_p
SOL	Pa3	Pa3
LIQ	Pa3	Pa3

339.698 DIANTIMONY TRISULFIDE (GAS) **Sb2S3[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[	J / (K mol)	]	[		kJ / mol		]	
GAS	298.15	99.532	409.811	409.811	−119.660	0.000	−241.845	−119.660	−186.028	32.591
	300.00	99.623	410.427	409.813	−119.476	0.184	−242.604	−119.696	−186.440	32.462
	400.00	103.005	439.610	413.769	−109.324	10.336	−285.167	−128.414	−208.117	27.177
	500.00	104.722	462.799	421.336	−98.929	20.731	−330.328	−134.965	−227.353	23.751
	600.00	105.704	481.986	429.891	−88.403	31.257	−377.595	−140.524	−245.284	21.354
	700.00	106.317	498.330	438.530	−77.800	41.860	−426.631	−145.367	−262.360	19.578
	800.00	106.723	512.555	446.913	−67.147	52.513	−477.190	−150.530	−278.729	18.199
	900.00	107.006	525.142	454.919	−56.459	63.201	−529.087	−314.480	−290.962	16.887
	1000.00	107.210	536.427	462.515	−45.748	73.912	−582.175	−355.295	−284.071	14.838
	1100.00	107.362	546.653	469.707	−35.019	84.641	−636.337	−356.369	−276.897	13.149
	1200.00	107.477	556.000	476.514	−24.277	95.383	−691.477	−357.448	−269.625	11.736
	1300.00	107.567	564.606	482.964	−13.524	106.136	−747.513	−358.533	−262.262	10.538
	1400.00	107.639	572.581	489.084	−2.764	116.896	−804.377	−359.626	−254.816	9.507
	1500.00	107.696	580.009	494.900	8.003	127.663	−862.011	−360.727	−247.291	8.611
	1600.00	107.742	586.961	500.439	18.775	138.435	−920.363	−361.835	−239.692	7.825
	1700.00	107.780	593.494	505.723	29.551	149.211	−979.389	−362.953	−232.024	7.129
	1800.00	107.811	599.656	510.772	40.331	159.991	−1039.049	−364.079	−224.290	6.509

References

Phase	H / S	C_p
GAS	Pa3	Pa3

Sb2S4[g] DIANTIMONY TETRASULFIDE (GAS) 371.764

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	122.707	432.241	432.241	−93.722	0.000	−222.595	−93.722	−157.220	27.544
	300.00	122.818	433.001	432.244	−93.495	0.227	−223.395	−93.757	−157.614	27.443
	400.00	126.934	468.971	437.120	−80.982	12.740	−268.570	−104.695	−178.242	23.276
	500.00	129.007	497.542	446.446	−68.174	25.548	−316.945	−112.736	−195.789	20.454
	600.00	130.187	521.176	456.988	−55.209	38.513	−367.915	−119.431	−211.738	18.433
	700.00	130.921	541.304	467.631	−42.151	51.571	−421.064	−125.130	−226.669	16.914
	800.00	131.407	558.820	477.959	−29.033	64.689	−476.089	−131.187	−240.771	15.721
	900.00	131.744	574.318	487.821	−15.875	77.847	−532.761	−348.873	−249.468	14.479
	1000.00	131.988	588.212	497.177	−2.687	91.035	−590.899	−389.047	−234.179	12.232
	1100.00	132.168	600.800	506.034	10.521	104.243	−650.360	−389.484	−218.671	10.384
	1200.00	132.306	612.307	514.418	23.745	117.467	−711.023	−389.929	−203.123	8.842
	1300.00	132.413	622.901	522.360	36.981	130.703	−772.791	−390.385	−187.537	7.535
	1400.00	132.497	632.717	529.897	50.227	143.949	−835.577	−390.852	−171.916	6.414
	1500.00	132.564	641.861	537.060	63.480	157.202	−899.312	−391.330	−156.261	5.442
	1600.00	132.619	650.418	543.880	76.739	170.461	−963.930	−391.820	−140.574	4.589
	1700.00	132.664	658.460	550.386	90.003	183.725	−1029.378	−392.322	−124.856	3.836
	1800.00	132.701	666.044	556.603	103.272	196.994	−1095.607	−392.836	−109.108	3.166

References

Phase	H / S	C_p
GAS	Pa3	Pa3

429.382 TRIANTIMONY DISULFIDE (GAS) **Sb3S2[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	98.160	406.380	406.380	28.828	0.000	−92.334	28.828	−32.502	5.694
	300.00	98.266	406.988	406.382	29.010	0.182	−93.087	28.785	−32.883	5.725
	400.00	102.219	435.869	410.293	39.059	10.231	−135.289	21.982	−52.907	6.909
	500.00	104.212	458.915	417.791	49.390	20.562	−180.068	16.650	−71.058	7.423
	600.00	105.348	478.025	426.283	59.873	31.045	−226.942	11.946	−88.142	7.673
	700.00	106.055	494.321	434.867	70.446	41.618	−275.579	7.623	−104.483	7.797
	800.00	106.523	508.516	443.205	81.076	52.248	−325.736	2.929	−120.185	7.847
	900.00	106.848	521.082	451.173	91.746	62.918	−377.228	−107.842	−132.961	7.717
	1000.00	107.083	532.352	458.738	102.443	73.615	−429.910	−169.846	−129.293	6.754
	1100.00	107.257	542.567	465.901	113.160	84.332	−483.663	−172.227	−125.123	5.942
	1200.00	107.389	551.906	472.685	123.893	95.065	−538.394	−174.605	−120.735	5.255
	1300.00	107.492	560.505	479.114	134.637	105.809	−594.020	−176.983	−116.150	4.667
	1400.00	107.573	568.475	485.216	145.391	116.563	−650.474	−179.362	−111.381	4.156
	1500.00	107.638	575.899	491.017	156.151	127.323	−707.697	−181.743	−106.442	3.707
	1600.00	107.691	582.847	496.541	166.918	138.090	−765.638	−184.127	−101.344	3.309
	1700.00	107.734	589.377	501.812	177.689	148.861	−824.252	−186.514	−96.098	2.953
	1800.00	107.769	595.536	506.849	188.464	159.636	−883.501	−188.906	−90.710	2.632

References

Phase	H / S	C_p
GAS	Pa3	Pa3

Sb4S3[g] TETRAANTIMONY TRISULFIDE (GAS) 583.198

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	147.581	483.215	483.215	−35.418	0.000	−179.489	−35.418	−96.527	16.911
	300.00	147.700	484.128	483.218	−35.145	0.273	−180.383	−35.458	−96.906	16.873
	400.00	151.991	527.289	489.073	−20.132	15.286	−231.047	−44.442	−116.779	15.250
	500.00	154.075	561.453	500.252	−4.818	30.600	−285.544	−51.313	−134.138	14.013
	600.00	155.239	589.656	512.871	10.653	46.071	−343.141	−57.284	−150.119	13.069
	700.00	155.953	613.644	525.596	26.215	61.633	−403.335	−62.686	−165.166	12.325
	800.00	156.422	634.502	537.934	41.836	77.254	−465.765	−68.618	−179.412	11.714
	900.00	156.747	652.945	549.708	57.495	92.913	−530.156	−233.614	−189.410	10.993
	1000.00	156.979	669.473	560.873	73.182	108.600	−596.291	−315.474	−175.930	9.190
	1100.00	157.152	684.443	571.437	88.889	124.307	−663.998	−317.846	−161.861	7.686
	1200.00	157.283	698.123	581.432	104.611	140.029	−733.136	−320.221	−147.576	6.424
	1300.00	157.385	710.717	590.899	120.345	155.763	−803.587	−322.601	−133.092	5.348
	1400.00	157.466	722.383	599.879	136.088	171.506	−875.249	−324.988	−118.425	4.418
	1500.00	157.531	733.249	608.412	151.837	187.255	−948.037	−327.381	−103.587	3.607
	1600.00	157.583	743.418	616.536	167.593	203.011	−1021.876	−329.782	−88.589	2.892
	1700.00	157.627	752.973	624.283	183.354	218.772	−1096.700	−332.191	−73.441	2.257
	1800.00	157.662	761.984	631.686	199.118	234.536	−1172.452	−334.609	−58.151	1.687

References

Phase	H / S	C_p
GAS	Pa3	Pa3

Sb2(SO4)3 DIANTIMONY TRISULFATE 531.691

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	275.466	291.206	291.206	−2402.499	0.000	−2489.322	−2402.499	−2066.518	362.045
	300.00	275.809	292.911	291.212	−2401.989	0.510	−2489.862	−2402.535	−2064.433	359.450
	400.00	294.386	374.801	302.252	−2373.479	29.020	−2523.400	−2410.722	−1951.212	254.802
	500.00	312.963	442.487	323.713	−2343.112	59.387	−2564.355	−2415.654	−1835.808	191.786
	600.00	331.540	501.189	348.502	−2310.887	91.612	−2611.600	−2418.471	−1719.531	149.698
	700.00	350.117	553.691	374.127	−2276.804	125.695	−2664.388	−2419.363	−1602.952	119.614
	800.00	368.694	601.656	399.611	−2240.863	161.636	−2722.188	−2419.259	−1486.320	97.047
	900.00	387.271	646.154	424.561	−2203.065	199.434	−2784.604	−2576.531	−1366.297	79.298
	1000.00	405.848	687.919	448.829	−2163.409	239.090	−2851.328	−2609.173	−1227.973	64.143

References

Phase	H / S	C_p
SOL	Nb1,e	e

200.710 ANTIMONY SELENIDE (GAS) **SbSe[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	36.704	255.877	255.877	212.129	0.000	135.839	212.129	162.011	−28.384
	300.00	36.706	256.104	255.878	212.197	0.068	135.366	212.103	161.700	−28.154
	400.00	36.823	266.680	257.319	215.873	3.744	109.201	210.549	145.125	−18.951
	500.00	36.941	274.910	260.045	219.562	7.433	82.107	202.807	129.060	−13.483
	600.00	37.058	281.655	263.101	223.261	11.132	54.268	200.314	114.544	−9.972
	700.00	37.175	287.376	266.170	226.973	14.844	25.810	197.752	100.451	−7.496
	800.00	37.292	292.348	269.139	230.696	18.567	−3.182	195.093	86.730	−5.663
	900.00	37.409	296.747	271.967	234.432	22.303	−32.641	192.304	73.351	−4.257
	1000.00	37.526	300.695	274.645	238.178	26.049	−62.516	169.526	62.400	−3.259
	1100.00	37.643	304.277	277.179	241.937	29.808	−92.768	113.320	56.782	−2.696
	1200.00	37.761	307.557	279.576	245.707	33.578	−123.362	111.885	51.706	−2.251
	1300.00	37.878	310.584	281.846	249.489	37.360	−154.271	110.473	46.748	−1.878
	1400.00	37.995	313.396	284.000	253.283	41.154	−185.471	109.085	41.899	−1.563
	1500.00	38.112	316.021	286.048	257.088	44.959	−216.944	107.720	37.147	−1.294
	1600.00	38.229	318.484	288.000	260.905	48.776	−248.670	106.380	32.486	−1.061
	1700.00	38.346	320.806	289.862	264.734	52.605	−280.636	105.065	27.908	−0.858
	1800.00	38.464	323.001	291.642	268.574	56.445	−312.827	103.774	23.407	−0.679
	1900.00	38.581	325.083	293.348	272.426	60.297	−345.232	24.878	19.260	−0.529
	2000.00	38.698	327.065	294.985	276.290	64.161	−377.840	24.904	18.964	−0.495

References

Phase	H / S	C_p
GAS	Mi1	Mi1

480.380 DIANTIMONY TRISELENIDE **Sb2Se3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	124.979	212.129	212.129	−127.612	0.000	−190.858	−127.612	−125.915	22.060
	300.00	125.018	212.902	212.131	−127.381	0.231	−191.251	−127.615	−125.905	21.922
	400.00	127.110	249.154	217.060	−114.774	12.838	−214.436	−128.138	−125.275	16.359
	500.00	129.202	277.742	226.436	−101.959	25.653	−240.830	−146.993	−124.185	12.974
	600.00	131.294	301.484	237.020	−88.934	38.678	−269.824	−149.869	−119.353	10.391
	700.00	133.386	321.880	247.720	−75.700	51.912	−301.016	−152.696	−114.043	8.510
	800.00	135.478	339.828	258.134	−62.257	65.355	−334.119	−155.533	−108.328	7.073
	888.00	137.319	354.060	266.945	−50.254	77.358	−364.659	−158.087	−103.000	6.059
			60.545		53.764					
LIQ	888.00	171.544	414.605	266.945	3.510	131.122	−364.659	−104.323	−103.000	6.059
	900.00	171.544	416.908	268.929	5.569	133.181	−369.649	−104.269	−102.983	5.977
	1000.00	171.544	434.982	284.647	22.723	150.335	−412.259	−143.679	−98.637	5.152

References

Phase	H / S	C_p
SOL	Mi1	Mi1
LIQ	Mi1	Mi1

Sb2Te3 DIANTIMONY TRITELLURIDE 626.300

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	128.727	246.438	246.438	−56.484	0.000	−129.959	−56.484	−58.542	10.256
	300.00	128.825	247.234	246.440	−56.246	0.238	−130.416	−56.482	−58.555	10.195
	400.00	134.139	285.023	251.557	−43.098	13.386	−157.107	−56.516	−59.248	7.737
	500.00	139.453	315.526	261.394	−29.418	27.066	−187.181	−56.794	−59.904	6.258
	600.00	144.766	341.421	272.626	−15.207	41.277	−220.059	−57.322	−60.481	5.265
	700.00	150.080	364.136	284.108	−0.465	56.019	−255.360	−58.141	−60.947	4.548
	800.00	155.394	384.523	295.407	14.809	71.293	−292.809	−112.176	−55.633	3.632
	892.00	160.282	401.699	305.495	29.330	85.814	−328.986	−113.573	−49.051	2.872
			110.933		98.952					
LIQ	892.00	196.648	512.632	305.495	128.282	184.766	−328.986	−14.621	−49.051	2.872
	900.00	196.648	514.388	307.344	129.855	186.339	−333.094	−14.445	−49.360	2.865
	1000.00	196.648	535.107	329.103	149.520	206.004	−385.587	−52.097	−49.131	2.566

References

Phase	H / S	C_p
SOL	Mi1	Mi1
LIQ	Mi1	Mi1

SbZn ANTIMONY ZINC 187.140

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	49.850	83.082	83.082	−18.933	0.000	−43.704	−18.933	−17.719	3.104
	300.00	49.882	83.390	83.083	−18.841	0.092	−43.858	−18.934	−17.712	3.084
	400.00	51.614	97.977	85.060	−13.766	5.167	−52.957	−19.004	−17.293	2.258
	500.00	53.346	109.681	88.851	−8.518	10.415	−63.358	−19.054	−16.859	1.761
	600.00	55.078	119.560	93.166	−3.097	15.836	−74.833	−19.100	−16.416	1.429
	700.00	56.810	128.180	97.565	2.498	21.431	−87.229	−26.506	−15.886	1.185
	800.00	58.543	135.880	101.882	8.265	27.198	−100.438	−26.745	−14.352	0.937

References

Phase	H / S	C_p
SOL	Hu1,e	e

44.956 SCANDIUM **Sc**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[——— J / (K mol) ———]			[——— kJ / mol ———]					[−]
SOL−A	298.15	25.569	34.644	34.644	0.000	0.000	−10.329	0.000	0.000	0.000
	300.00	25.581	34.802	34.644	0.047	0.047	−10.393	0.000	0.000	0.000
	400.00	26.224	42.249	35.655	2.638	2.638	−14.262	0.000	0.000	0.000
	500.00	26.868	48.170	37.586	5.292	5.292	−18.793	0.000	0.000	0.000
	600.00	27.475	53.116	39.773	8.006	8.006	−23.864	0.000	0.000	0.000
	700.00	28.246	57.408	41.992	10.791	10.791	−29.394	0.000	0.000	0.000
	800.00	29.128	61.236	44.162	13.659	13.659	−35.330	0.000	0.000	0.000
	900.00	30.117	64.723	46.256	16.620	16.620	−41.630	0.000	0.000	0.000
	1000.00	31.211	67.952	48.266	19.686	19.686	−48.266	0.000	0.000	0.000
	1100.00	32.409	70.982	50.195	22.866	22.866	−55.214	0.000	0.000	0.000
	1200.00	33.709	73.857	52.048	26.171	26.171	−62.457	0.000	0.000	0.000
	1300.00	35.113	76.610	53.832	29.611	29.611	−69.981	0.000	0.000	0.000
	1400.00	36.618	79.266	55.554	33.197	33.197	−77.776	0.000	0.000	0.000
	1500.00	38.226	81.847	57.221	36.938	36.938	−85.832	0.000	0.000	0.000
	1600.00	39.936	84.368	58.839	40.846	40.846	−94.143	0.000	0.000	0.000
	1608.00	40.077	84.568	58.967	41.166	41.166	−94.819	0.000	0.000	0.000
			2.493		4.008					
SOL−B	1608.00	44.225	87.060	58.967	45.174	45.174	−94.819	0.000	0.000	0.000
	1700.00	44.225	89.521	60.555	49.242	49.242	−102.943	0.000	0.000	0.000
	1800.00	44.225	92.049	62.235	53.665	53.665	−112.022	0.000	0.000	0.000
	1812.00	44.225	92.342	62.433	54.196	54.196	−113.129	0.000	0.000	0.000
			7.779		14.096					
LIQ	1812.00	44.225	100.122	62.433	68.292	68.292	−113.129	0.000	0.000	0.000
	1900.00	44.225	102.219	64.228	72.183	72.183	−122.032	0.000	0.000	0.000
	2000.00	44.225	104.487	66.184	76.606	76.606	−132.369	0.000	0.000	0.000
	2100.00	44.225	106.645	68.060	81.028	81.028	−142.926	0.000	0.000	0.000
	2200.00	44.225	108.702	69.861	85.451	85.451	−153.694	0.000	0.000	0.000
	2300.00	44.225	110.668	71.593	89.873	89.873	−164.664	0.000	0.000	0.000
	2400.00	44.225	112.550	73.261	94.296	94.296	−175.825	0.000	0.000	0.000
	2500.00	44.225	114.356	74.868	98.718	98.718	−187.171	0.000	0.000	0.000
	2600.00	44.225	116.090	76.421	103.141	103.141	−198.694	0.000	0.000	0.000
	2700.00	44.225	117.759	77.921	107.563	107.563	−210.387	0.000	0.000	0.000
	2800.00	44.225	119.368	79.373	111.986	111.986	−222.244	0.000	0.000	0.000
	2900.00	44.225	120.920	80.779	116.408	116.408	−234.259	0.000	0.000	0.000
	3000.00	44.225	122.419	82.142	120.831	120.831	−246.426	0.000	0.000	0.000
	3100.00	44.225	123.869	83.465	125.253	125.253	−258.741	0.000	0.000	0.000
	3101.00	44.225	123.883	83.478	125.298	125.298	−258.865	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL − A	Hu1	Hu1		hcp
SOL − B	Hu1	Hu1		bcc
LIQ	Hu1	Hu1	Hu1	BPT = 3101., L = 314.16 kJ

Sc[g] SCANDIUM (GAS) 44.956

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	22.101	174.783	174.783	377.899	0.000	325.787	377.899	336.116	−58.886
	300.00	22.086	174.920	174.784	377.940	0.041	325.464	377.893	335.857	−58.478
	400.00	21.535	181.187	175.642	380.117	2.218	307.642	377.479	321.904	−42.036
	500.00	21.273	185.961	177.247	382.256	4.357	289.276	376.964	308.068	−32.184
	600.00	21.126	189.826	179.031	384.375	6.476	270.480	376.369	294.344	−25.625
	700.00	21.035	193.075	180.812	386.483	8.584	251.331	375.692	280.725	−20.948
	800.00	20.975	195.880	182.524	388.584	10.685	231.880	374.924	267.210	−17.447
	900.00	20.934	198.348	184.148	390.679	12.780	212.166	374.058	253.796	−14.730
	1000.00	20.906	200.552	185.680	392.771	14.872	192.219	373.085	240.485	−12.562
	1100.00	20.887	202.543	187.124	394.860	16.961	172.063	371.994	227.277	−10.792
	1200.00	20.875	204.360	188.486	396.948	19.049	151.716	370.777	214.173	−9.323
	1300.00	20.870	206.031	189.772	399.036	21.137	131.196	369.424	201.177	−8.083
	1400.00	20.903	207.579	190.989	401.125	23.226	110.514	367.927	188.290	−7.025
	1500.00	20.922	209.022	192.144	403.216	25.317	89.683	366.277	175.515	−6.112
	1600.00	20.947	210.373	193.241	405.309	27.410	68.713	364.463	162.856	−5.317
	1700.00	20.993	211.644	194.287	407.406	29.507	47.612	358.163	150.554	−4.626
	1800.00	21.070	212.846	195.285	409.509	31.610	26.387	355.844	138.409	−4.017
	1900.00	21.185	213.988	196.239	411.621	33.722	5.044	339.438	127.077	−3.494
	2000.00	21.343	215.078	197.154	413.747	35.848	−16.409	337.141	115.959	−3.029
	2100.00	21.550	216.124	198.033	415.891	37.992	−37.970	334.863	104.956	−2.611
	2200.00	21.809	217.133	198.878	418.059	40.160	−59.633	332.608	94.062	−2.233
	2300.00	22.123	218.109	199.693	420.255	42.356	−81.395	330.382	83.268	−1.891
	2400.00	22.492	219.058	200.480	422.485	44.586	−103.254	328.189	72.572	−1.579
	2500.00	22.921	219.985	201.242	424.756	46.857	−125.206	326.037	61.965	−1.295
	2600.00	23.408	220.893	201.980	427.071	49.172	−147.250	323.931	51.444	−1.034
	2700.00	23.957	221.786	202.697	429.439	51.540	−169.384	321.876	41.003	−0.793
	2800.00	24.568	222.669	203.395	431.865	53.966	−191.607	319.879	30.637	−0.572
	2900.00	25.241	223.542	204.075	434.355	56.456	−213.917	317.946	20.341	−0.366
	3000.00	25.977	224.410	204.738	436.915	59.016	−236.315	316.084	10.111	−0.176
	3100.00	26.777	225.275	205.387	439.552	61.653	−258.799	314.299	−0.059	0.001
	3200.00	27.641	226.138	206.022	442.273	64.374	−281.370	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

183.875 SCANDIUM ARSENATE **ScAsO4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	119.864	155.896	155.896	−1433.020	0.000	−1479.500	−1433.020	−1336.196	234.096
	300.00	120.175	156.638	155.898	−1432.798	0.222	−1479.789	−1433.000	−1335.596	232.548
	400.00	132.396	193.059	160.781	−1420.109	12.911	−1497.332	−1431.349	−1303.351	170.200
	500.00	140.051	223.474	170.363	−1406.464	26.556	−1518.201	−1429.044	−1271.608	132.844
	600.00	145.908	249.544	181.438	−1392.157	40.863	−1541.883	−1426.392	−1240.366	107.983
	700.00	150.917	272.419	192.834	−1377.311	55.709	−1568.004	−1423.518	−1209.586	90.260
	796.00	155.296	292.094	203.639	−1362.610	70.410	−1595.116	−1420.594	−1180.437	77.462

References

Phase	H / S	C_p
SOL	G1	G1

284.668 SCANDIUM BROMIDE **ScBr3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	95.349	167.360	167.360	−742.660	0.000	−792.558	−742.660	−714.157	125.117
	300.00	95.395	167.950	167.362	−742.484	0.176	−792.869	−742.741	−713.980	124.315
	400.00	97.906	195.737	171.134	−732.819	9.841	−811.113	−787.389	−695.127	90.774
	500.00	100.416	217.854	178.339	−722.902	19.758	−831.829	−785.666	−672.257	70.230
	600.00	102.926	236.384	186.509	−712.735	29.925	−854.566	−783.790	−649.749	56.566
	700.00	105.437	252.439	194.806	−702.317	40.343	−879.024	−781.760	−627.568	46.830
	800.00	107.947	266.682	202.916	−691.648	51.012	−904.993	−779.580	−605.687	39.547
	900.00	110.458	279.541	210.727	−680.728	61.932	−932.314	−777.258	−584.088	33.900
	1000.00	112.968	291.309	218.205	−669.556	73.104	−960.865	−774.800	−562.756	29.395

References

Phase	H / S	C_p
SOL	Nb1/e	e

ScCl3 SCANDIUM CHLORIDE 151.314

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	91.629	127.194	127.194	−925.082	0.000	−963.005	−925.082	−852.892	149.423
	300.00	91.793	127.761	127.195	−924.912	0.170	−963.241	−925.054	−852.445	148.424
	400.00	97.797	155.103	130.882	−915.394	9.688	−977.435	−923.326	−828.493	108.190
	500.00	100.653	177.269	138.015	−905.455	19.627	−994.089	−921.398	−805.005	84.098
	600.00	102.220	195.769	146.142	−895.305	29.777	−1012.767	−919.416	−781.913	68.072
	700.00	103.538	211.624	154.391	−885.019	40.063	−1033.155	−917.430	−759.152	56.649
	800.00	105.400	225.561	162.433	−874.580	50.502	−1055.028	−915.416	−736.678	48.100
	900.00	108.506	238.139	170.156	−863.897	61.185	−1078.222	−913.284	−714.462	41.466
	1000.00	113.516	249.811	177.544	−852.815	72.267	−1102.626	−910.878	−692.496	36.172
	1100.00	121.070	260.962	184.623	−841.109	83.973	−1128.167	−907.984	−670.793	31.853
	1200.00	131.800	271.931	191.442	−828.495	96.587	−1154.812	−904.320	−649.385	28.267
	1240.00	137.122	276.338	194.109	−823.119	101.963	−1165.777	−902.565	−640.916	26.998
			54.324		67.362					
LIQ	1240.00	143.444	330.662	194.109	−755.757	169.325	−1165.777	−835.203	−640.916	26.998
	1300.00	143.444	337.440	200.569	−747.150	177.932	−1185.822	−832.075	−631.589	25.378
	1400.00	143.444	348.070	210.730	−732.806	192.276	−1220.104	−826.988	−616.359	22.997

References

Phase	H / S	C_p
SOL	Nb1/Pa2	Pa2
LIQ	Dw4	Dw4

101.951 SCANDIUM FLUORIDE **ScF3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[	J / (K mol)	]	[		kJ / mol		]	
SOL	298.15	83.681	97.906	97.906	−1611.677	0.000	−1640.868	−1611.677	−1539.844	269.774
	300.00	83.881	98.424	97.907	−1611.522	0.155	−1641.049	−1611.656	−1539.398	268.033
	400.00	91.046	123.677	101.302	−1602.727	8.950	−1652.198	−1610.272	−1515.509	197.905
	500.00	94.537	144.408	107.914	−1593.430	18.247	−1665.634	−1608.674	−1492.002	155.868
	600.00	96.581	161.839	115.488	−1583.866	27.811	−1680.970	−1607.034	−1468.822	127.872
	700.00	97.943	176.835	123.206	−1574.136	37.541	−1697.921	−1605.414	−1445.915	107.895
	800.00	98.940	189.982	130.748	−1564.290	47.387	−1716.275	−1603.845	−1423.237	92.928
	900.00	99.727	201.682	137.991	−1554.355	57.322	−1735.869	−1602.343	−1400.752	81.298
	1000.00	100.381	212.224	144.896	−1544.349	67.328	−1756.573	−1600.923	−1378.430	72.002
	1100.00	100.950	221.819	151.460	−1534.282	77.395	−1778.283	−1599.595	−1356.246	64.403
	1200.00	101.461	230.625	157.695	−1524.161	87.516	−1800.911	−1598.372	−1334.178	58.075
	1300.00	101.930	238.765	163.622	−1513.991	97.686	−1824.385	−1597.262	−1312.207	52.725
	1400.00	102.369	246.335	169.263	−1503.776	107.901	−1848.645	−1596.277	−1290.318	48.142
	1500.00	102.786	253.412	174.639	−1493.518	118.159	−1873.636	−1595.426	−1268.494	44.173
	1600.00	103.187	260.059	179.772	−1483.219	128.458	−1899.313	−1594.719	−1246.723	40.701
	1700.00	103.574	266.326	184.681	−1472.881	138.796	−1925.635	−1598.480	−1224.752	37.632
	1800.00	103.951	272.257	189.383	−1462.505	149.172	−1952.567	−1598.245	−1202.775	34.904
	1825.00	104.044	273.691	190.528	−1459.905	151.772	−1959.391	−1612.279	−1197.181	34.265
			34.318		62.630					
LIQ	1825.00	88.868	308.009	190.528	−1397.275	214.402	−1959.391	−1549.649	−1197.181	34.265
	1900.00	88.868	311.588	195.237	−1390.609	221.068	−1982.627	−1550.603	−1182.677	32.514
	2000.00	88.868	316.147	201.169	−1381.723	229.954	−2014.016	−1551.887	−1163.279	30.382

References

Phase	H / S	C_p
SOL	Pa2	Pa2
LIQ	Pa2	Pa2

ScF3[g] SCANDIUM FLUORIDE (GAS) 101.951

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	67.739	304.579	304.579	−1235.535	0.000	−1326.345	−1235.535	−1225.321	214.671
	300.00	67.894	304.999	304.580	−1235.410	0.125	−1326.909	−1235.544	−1225.258	213.336
	400.00	73.432	325.398	307.324	−1228.305	7.230	−1358.465	−1235.850	−1221.776	159.548
	500.00	76.131	342.104	312.662	−1220.814	14.721	−1391.866	−1236.058	−1218.234	127.268
	600.00	77.713	356.135	318.769	−1213.115	22.420	−1426.797	−1236.283	−1214.649	105.745
	700.00	78.768	368.199	324.989	−1205.288	30.247	−1463.027	−1236.566	−1211.021	90.368
	800.00	79.541	378.770	331.065	−1197.371	38.164	−1500.387	−1236.926	−1207.348	78.832
	900.00	80.151	388.175	336.897	−1189.385	46.150	−1538.743	−1237.373	−1203.625	69.857
	1000.00	80.660	396.647	342.456	−1181.344	54.191	−1577.991	−1237.918	−1199.847	62.674
	1100.00	81.102	404.355	347.738	−1173.256	62.279	−1618.047	−1238.569	−1196.010	56.794
	1200.00	81.499	411.430	352.755	−1165.125	70.410	−1658.841	−1239.336	−1192.108	51.891
	1300.00	81.864	417.968	357.523	−1156.957	78.578	−1700.315	−1240.228	−1188.137	47.740
	1400.00	82.207	424.047	362.060	−1148.753	86.782	−1742.419	−1241.254	−1184.092	44.179
	1500.00	82.532	429.730	366.384	−1140.516	95.019	−1785.111	−1242.424	−1179.969	41.090
	1600.00	82.844	435.066	370.511	−1132.247	103.288	−1828.353	−1243.747	−1175.763	38.385
	1700.00	83.146	440.098	374.458	−1123.948	111.587	−1872.114	−1249.547	−1171.231	35.988
	1800.00	83.440	444.859	378.238	−1115.618	119.917	−1916.364	−1251.359	−1166.572	33.853

References

Phase	H / S	C_p
GAS	Pa2	Pa2

58.963 SCANDIUM NITRIDE **ScN**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	37.082	29.706	29.706	−313.800	0.000	−322.657	−313.800	−283.764	49.714
	300.00	37.219	29.936	29.707	−313.731	0.069	−322.712	−313.806	−283.578	49.375
	400.00	42.237	41.423	31.239	−309.726	4.074	−326.296	−313.850	−273.483	35.713
	500.00	44.852	51.155	34.276	−305.360	8.440	−330.938	−313.608	−263.416	27.519
	600.00	46.521	59.489	37.800	−300.787	13.013	−336.480	−313.240	−253.410	22.061
	700.00	47.744	66.756	41.429	−296.071	17.729	−342.800	−312.830	−243.471	18.168
	800.00	48.728	73.198	45.005	−291.246	22.554	−349.804	−312.428	−233.590	15.252
	900.00	49.574	78.987	48.464	−286.330	27.470	−357.418	−312.061	−223.758	12.987
	1000.00	50.334	84.250	51.784	−281.334	32.466	−365.584	−311.751	−213.964	11.176
	1100.00	51.037	89.081	54.958	−276.265	37.535	−374.254	−311.511	−204.197	9.697
	1200.00	51.703	93.550	57.990	−271.128	42.672	−383.388	−311.353	−194.449	8.464
	1300.00	52.341	97.714	60.887	−265.925	47.875	−392.953	−311.288	−184.711	7.422
	1400.00	52.960	101.616	63.658	−260.660	53.140	−402.922	−311.325	−174.973	6.528
	1500.00	53.564	105.290	66.313	−255.334	58.466	−413.269	−311.475	−165.229	5.754
	1600.00	54.158	108.766	68.858	−249.948	63.852	−423.973	−311.745	−155.471	5.076
	1700.00	54.743	112.067	71.304	−244.502	69.298	−435.016	−316.460	−145.454	4.469
	1800.00	55.321	115.212	73.656	−238.999	74.801	−446.381	−317.153	−135.375	3.928
	1900.00	55.894	118.219	75.923	−233.438	80.362	−458.054	−331.896	−124.573	3.425
	2000.00	56.463	121.100	78.111	−227.821	85.979	−470.021	−332.495	−113.646	2.968

References

Phase	H / S	C_p	Remarks	
SOL	Ku1	e	Ku1	MPT= 2923.

Sc2O3 SCANDIUM OXIDE 137.910

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	94.217	76.998	76.998	−1908.820	0.000	−1931.777	−1908.820	−1819.372	318.746
	300.00	94.548	77.582	77.000	−1908.645	0.175	−1931.920	−1908.822	−1818.817	316.684
	400.00	106.594	106.656	80.882	−1898.511	10.309	−1941.173	−1908.324	−1788.864	233.602
	500.00	112.795	131.170	88.556	−1887.513	21.307	−1953.098	−1907.224	−1759.120	183.774
	600.00	116.694	152.103	97.446	−1876.026	32.794	−1967.288	−1905.904	−1729.621	150.577
	700.00	119.507	170.312	106.583	−1864.210	44.610	−1983.428	−1904.540	−1700.348	126.882
	800.00	121.741	186.421	115.575	−1852.144	56.676	−2001.280	−1903.215	−1671.269	109.123
	900.00	123.639	200.872	124.264	−1839.873	68.947	−2020.657	−1901.975	−1642.352	95.320
	1000.00	125.327	213.987	132.590	−1827.423	81.397	−2041.410	−1900.849	−1613.566	84.284
	1100.00	126.879	226.006	140.544	−1814.812	94.008	−2063.418	−1899.862	−1584.887	75.260
	1200.00	128.338	237.109	148.134	−1802.050	106.770	−2086.581	−1899.034	−1556.290	67.744
	1300.00	129.731	247.437	155.380	−1789.146	119.674	−2110.814	−1898.385	−1527.756	61.386
	1400.00	131.076	257.100	162.304	−1776.106	132.714	−2136.046	−1897.936	−1499.264	55.938
	1500.00	132.387	266.189	168.930	−1762.932	145.888	−2162.215	−1897.707	−1470.797	51.218
	1600.00	133.670	274.774	175.280	−1749.629	159.191	−2189.267	−1897.719	−1442.338	47.087
	1700.00	134.933	282.915	181.374	−1736.199	172.621	−2217.155	−1906.620	−1413.392	43.428
	1800.00	136.180	290.663	187.232	−1722.643	186.177	−2245.837	−1907.483	−1384.353	40.173
	1900.00	137.414	298.059	192.872	−1708.963	199.857	−2275.276	−1936.450	−1353.900	37.221
	2000.00	138.638	305.139	198.309	−1695.161	213.659	−2305.439	−1937.136	−1323.221	34.559
	2100.00	139.853	311.933	203.559	−1681.236	227.584	−2336.294	−1937.734	−1292.510	32.149
	2200.00	141.061	318.466	208.635	−1667.190	241.630	−2367.816	−1938.246	−1261.773	29.958
	2300.00	142.264	324.763	213.548	−1653.024	255.796	−2399.980	−1938.671	−1231.015	27.957
	2400.00	143.461	330.843	218.309	−1638.738	270.082	−2432.762	−1939.008	−1200.239	26.123
	2500.00	144.655	336.724	222.929	−1624.332	284.488	−2466.142	−1939.260	−1169.452	24.434
	2600.00	145.845	342.421	227.416	−1609.807	299.013	−2500.100	−1939.424	−1138.656	22.876
	2700.00	147.032	347.947	231.778	−1595.163	313.657	−2534.620	−1939.501	−1107.855	21.433
	2762.00	147.767	351.294	234.423	−1586.024	322.796	−2556.297	−1939.505	−1088.758	20.590
			47.353		130.790					
LIQ	2762.00	200.832	398.647	234.423	−1455.234	453.586	−2556.297	−1808.715	−1088.758	20.590
	2800.00	200.832	401.391	236.671	−1447.602	461.218	−2571.498	−1806.692	−1078.867	20.127
	2900.00	200.832	408.439	242.473	−1427.519	481.301	−2611.991	−1801.391	−1052.967	18.966
	3000.00	200.832	415.247	248.119	−1407.436	501.384	−2653.178	−1796.118	−1027.249	17.886

References

Phase	H / S	C_p
SOL	Nb1	Pa1
LIQ	Pa1	Pa1

78.960

SELENIUM

Se

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL − C	298.15	25.376	42.258	42.258	0.000	0.000	−12.599	0.000	0.000	0.000
	300.00	25.422	42.416	42.259	0.047	0.047	−12.678	0.000	0.000	0.000
	400.00	27.932	50.073	43.286	2.715	2.715	−17.314	0.000	0.000	0.000
	493.00	30.267	56.147	45.152	5.421	5.421	−22.260	0.000	0.000	0.000
			11.882		5.858					
LIQ	493.00	35.146	68.030	45.152	11.279	11.279	−22.260	0.000	0.000	0.000
	500.00	35.146	68.525	45.475	11.525	11.525	−22.738	0.000	0.000	0.000
	600.00	35.146	74.933	49.867	15.040	15.040	−29.920	0.000	0.000	0.000
	700.00	35.146	80.351	53.845	18.554	18.554	−37.691	0.000	0.000	0.000
	800.00	35.146	85.044	57.458	22.069	22.069	−45.966	0.000	0.000	0.000
	900.00	35.146	89.183	60.758	25.583	25.583	−54.682	0.000	0.000	0.000
	1000.00	35.146	92.886	63.789	29.098	29.098	−63.789	0.000	0.000	0.000
	1007.00	35.146	93.132	63.992	29.344	29.344	−64.440	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL − C	Mi1	Mi1		hexagonal, grey Se
LIQ	Mi1	Mi1	Hu1,e	BPT = 1007., GAS(Se2), L = 54.652 kJ / NBPT = 958. GAS(Se5 + Se2 + Se)

78.960

SELENIUM (GAS)

Se[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.878	176.716	176.716	235.350	0.000	182.662	235.350	195.261	−34.209
	300.00	20.893	176.845	176.716	235.389	0.039	182.335	235.342	195.013	−33.955
	400.00	21.491	182.947	177.544	237.511	2.161	164.332	234.796	181.647	−23.721
	500.00	21.849	187.784	179.125	239.679	4.329	145.787	228.154	168.525	−17.606
	600.00	22.112	191.791	180.912	241.878	6.528	126.803	226.838	156.723	−13.644
	700.00	22.330	195.217	182.716	244.100	8.750	107.448	225.546	145.140	−10.830
	800.00	22.525	198.211	184.470	246.343	10.993	87.774	224.274	133.740	−8.732
	900.00	22.706	200.875	186.148	248.605	13.255	67.817	223.021	122.499	−7.110
	1000.00	22.878	203.276	187.742	250.884	15.534	47.608	221.786	111.396	−5.819
	1100.00	23.045	205.465	189.255	253.180	17.830	27.169	167.256	105.371	−5.004
	1200.00	23.207	207.477	190.691	255.493	20.143	6.521	167.501	99.734	−4.341
	1300.00	23.368	209.341	192.055	257.822	22.472	−14.321	167.774	94.076	−3.780
	1400.00	23.526	211.078	193.352	260.166	24.816	−35.343	168.075	88.396	−3.298
	1500.00	23.682	212.707	194.589	262.527	27.177	−56.533	168.404	82.693	−2.880
	1600.00	23.838	214.240	195.770	264.903	29.553	−77.882	168.761	76.967	−2.513
	1700.00	23.993	215.690	196.899	267.294	31.944	−99.379	169.146	71.219	−2.188
	1800.00	24.147	217.066	197.982	269.701	34.351	−121.017	169.559	65.446	−1.899
	1900.00	24.300	218.375	199.021	272.124	36.774	−142.790	170.001	59.650	−1.640
	2000.00	24.453	219.626	200.020	274.561	39.211	−164.690	170.471	53.831	−1.406

References

Phase	H / S	C_p
GAS	Mi1	Mi1

Se2[g] SELENIUM (GAS) 157.920

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	40.995	243.618	243.618	138.185	0.000	65.550	138.185	90.749	−15.899
	300.00	41.024	243.872	243.619	138.261	0.076	65.099	138.167	90.455	−15.750
	400.00	41.975	255.829	245.243	142.420	4.235	40.088	136.990	74.717	−9.757
	500.00	42.272	265.234	248.334	146.635	8.450	14.018	123.585	59.493	−6.215
	600.00	42.312	272.948	251.813	150.866	12.681	−12.903	120.787	46.938	−4.086
	700.00	42.231	279.465	255.310	155.093	16.908	−40.532	117.985	34.851	−2.601
	800.00	42.085	285.095	258.689	159.310	21.125	−68.767	115.172	23.166	−1.513
	900.00	41.901	290.042	261.904	163.509	25.324	−97.528	112.343	11.835	−0.687
	1000.00	41.694	294.446	264.942	167.689	29.504	−126.757	109.494	0.820	−0.043
	1100.00	41.472	298.410	267.807	171.848	33.663	−156.403	0.000	0.000	0.000
	1200.00	41.239	302.008	270.510	175.983	37.798	−186.427	0.000	0.000	0.000
	1300.00	40.999	305.300	273.061	180.095	41.910	−216.794	0.000	0.000	0.000
	1400.00	40.754	308.329	275.474	184.183	45.998	−247.478	0.000	0.000	0.000
	1500.00	40.505	311.132	277.758	188.246	50.061	−278.453	0.000	0.000	0.000
	1600.00	40.253	313.739	279.927	192.284	54.099	−309.698	0.000	0.000	0.000
	1700.00	39.998	316.171	281.988	196.296	58.111	−341.195	0.000	0.000	0.000
	1800.00	39.742	318.450	283.951	200.283	62.098	−372.927	0.000	0.000	0.000
	1900.00	39.484	320.592	285.824	204.245	66.060	−404.880	0.000	0.000	0.000
	2000.00	39.225	322.611	287.613	208.180	69.995	−437.041	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Mi1	Mi1

236.880 SELENIUM (GAS) **Se3**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	56.566	315.039	315.039	176.146	0.000	82.217	176.146	120.015	−21.026
	300.00	56.602	315.389	315.040	176.251	0.105	81.634	176.110	119.667	−20.836
	400.00	57.979	331.883	317.280	181.987	5.841	49.234	173.843	101.177	−13.212
	500.00	58.780	344.913	321.549	187.828	11.682	15.372	153.253	83.584	−8.732
	600.00	59.354	355.683	326.366	193.736	17.590	−19.674	148.617	70.087	−6.102
	700.00	59.821	364.868	331.226	199.695	23.549	−55.712	144.033	57.362	−4.280
	800.00	60.230	372.884	335.943	205.698	29.552	−92.609	139.492	45.291	−2.957
	900.00	60.606	380.000	340.450	211.740	35.594	−130.259	134.991	33.786	−1.961
	1000.00	60.962	386.404	344.731	217.819	41.673	−168.585	130.525	22.781	−1.190
	1100.00	61.304	392.230	348.788	223.932	47.786	−207.521	−33.839	27.084	−1.286
	1200.00	61.637	397.578	352.634	230.079	53.933	−247.015	−33.896	32.625	−1.420
	1300.00	61.963	402.525	356.284	236.259	60.113	−287.023	−33.884	38.169	−1.534
	1400.00	62.285	407.129	359.753	242.472	66.326	−327.508	−33.803	43.708	−1.631
	1500.00	62.603	411.437	363.057	248.716	72.570	−368.439	−33.653	49.240	−1.715
	1600.00	62.919	415.487	366.208	254.992	78.846	−409.787	−33.434	54.760	−1.788
	1700.00	63.232	419.311	369.221	261.300	85.154	−451.529	−33.145	60.263	−1.852
	1800.00	63.545	422.934	372.105	267.639	91.493	−493.643	−32.786	65.748	−1.908
	1900.00	63.855	426.378	374.871	274.009	97.863	−536.110	−32.358	71.210	−1.958
	2000.00	64.165	429.661	377.530	280.410	104.264	−578.913	−31.861	76.649	−2.002

References

Phase	H / S	C_p
GAS	Mi1	Mi1

Se4[g] SELENIUM (GAS) 315.840

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	80.272	379.205	379.205	183.259	0.000	70.199	183.259	120.596	−21.128
	300.00	80.307	379.702	379.206	183.408	0.149	69.497	183.220	120.208	−20.930
	400.00	81.529	402.997	382.374	191.508	8.249	30.309	180.649	99.567	−13.002
	500.00	82.096	421.257	388.391	199.692	16.433	−10.936	153.592	80.014	−8.359
	600.00	82.406	436.255	395.155	207.919	24.660	−53.834	147.761	65.847	−5.732
	700.00	82.594	448.973	401.958	216.170	32.911	−98.112	141.953	52.654	−3.929
	800.00	82.717	460.011	408.540	224.435	41.176	−143.573	136.161	40.292	−2.631
	900.00	82.802	469.759	414.811	232.712	49.453	−190.071	130.379	28.656	−1.663
	1000.00	82.865	478.486	420.750	240.995	57.736	−237.491	124.604	17.663	−0.923
	1100.00	82.911	486.386	426.363	249.284	66.025	−285.741	−94.411	27.065	−1.285
	1200.00	82.948	493.602	431.670	257.577	74.318	−334.745	−94.389	38.108	−1.659
	1300.00	82.977	500.243	436.693	265.873	82.614	−384.442	−94.317	49.147	−1.975
	1400.00	83.001	506.393	441.455	274.172	90.913	−434.778	−94.194	60.178	−2.245
	1500.00	83.021	512.120	445.977	282.473	99.214	−485.706	−94.019	71.199	−2.479
	1600.00	83.037	517.478	450.280	290.776	107.517	−537.189	−93.792	82.206	−2.684
	1700.00	83.052	522.513	454.383	299.081	115.822	−589.191	−93.512	93.198	−2.864
	1800.00	83.065	527.260	458.301	307.387	124.128	−641.682	−93.180	104.172	−3.023
	1900.00	83.076	531.752	462.049	315.694	132.435	−694.635	−92.796	115.125	−3.165
	2000.00	83.086	536.013	465.642	324.002	140.743	−748.025	−92.359	126.058	−3.292

References

Phase	H / S	C_p
GAS	Mi1	Mi1

394.800 SELENIUM (GAS) **Se5**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	101.302	385.360	385.360	138.072	0.000	23.177	138.072	86.174	−15.097
	300.00	101.384	385.986	385.362	138.259	0.187	22.464	138.025	85.852	−14.948
	400.00	104.266	415.607	389.380	148.563	10.491	−17.680	134.989	68.892	−8.996
	500.00	105.605	439.034	397.051	159.064	20.992	−60.453	101.439	53.235	−5.561
	600.00	106.337	458.358	405.705	169.664	31.592	−105.351	94.466	44.250	−3.852
	700.00	106.781	474.786	414.430	180.321	42.249	−152.029	87.551	36.428	−2.718
	800.00	107.073	489.065	422.886	191.015	52.943	−200.237	80.672	29.595	−1.932
	900.00	107.275	501.689	430.954	201.733	63.661	−249.787	73.817	23.622	−1.371
	1000.00	107.423	512.999	438.603	212.468	74.396	−300.531	66.979	18.412	−0.962
	1100.00	107.534	523.243	445.839	223.217	85.145	−352.351	−206.403	38.656	−1.836
	1200.00	107.621	532.604	452.685	233.974	95.902	−405.150	−205.984	60.916	−2.652
	1300.00	107.691	541.221	459.169	244.740	106.668	−458.847	−205.498	83.139	−3.341
	1400.00	107.748	549.204	465.318	255.512	117.440	−513.373	−204.945	105.321	−3.930
	1500.00	107.795	556.640	471.161	266.289	128.217	−568.670	−204.326	127.462	−4.439
	1600.00	107.836	563.598	476.723	277.071	138.999	−624.685	−203.639	149.559	−4.883
	1700.00	107.871	570.136	482.028	287.856	149.784	−681.375	−202.885	171.611	−5.273
	1800.00	107.902	576.303	487.096	298.645	160.573	−738.700	−202.064	193.617	−5.619
	1900.00	107.929	582.138	491.946	309.437	171.365	−796.625	−201.175	215.575	−5.927
	2000.00	107.954	587.674	496.595	320.231	182.159	−855.118	−200.220	237.485	−6.202

References

Phase	H / S	C_p	Remarks	
GAS	Mi1	Mi1	Hu1,e	BPT= 1587. LIQ to GAS (Se5), L= 5.41 kJ

Se6[g] SELENIUM (GAS) 473.760

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	126.260	433.614	433.614	135.143	0.000	5.861	135.143	81.457	−14.271
	300.00	126.342	434.395	433.616	135.377	0.234	5.058	135.095	81.124	−14.125
	400.00	129.229	471.196	438.614	148.176	13.033	−40.303	131.888	63.584	−8.303
	500.00	130.568	500.193	448.133	161.173	26.030	−88.923	92.023	47.502	−4.963
	600.00	131.299	524.069	458.858	174.270	39.127	−140.172	84.032	39.350	−3.426
	700.00	131.743	544.345	469.658	187.423	52.280	−193.618	76.099	32.531	−2.427
	800.00	132.033	561.957	480.119	200.613	65.470	−248.952	68.201	26.846	−1.753
	900.00	132.234	577.520	490.094	213.827	78.684	−305.941	60.328	22.150	−1.286
	1000.00	132.379	591.460	499.545	227.058	91.915	−364.402	52.471	18.329	−0.957
	1100.00	132.489	604.083	508.484	240.302	105.159	−424.189	−275.241	45.020	−2.138
	1200.00	132.574	615.615	516.938	253.555	118.412	−485.183	−274.395	74.097	−3.225
	1300.00	132.641	626.229	524.942	266.816	131.673	−547.282	−273.470	103.102	−4.143
	1400.00	132.696	636.061	532.532	280.083	144.940	−610.402	−272.466	132.031	−4.926
	1500.00	132.742	645.218	539.743	293.355	158.212	−674.471	−271.383	160.887	−5.603
	1600.00	132.780	653.786	546.606	306.631	171.488	−739.426	−270.221	189.667	−6.192
	1700.00	132.814	661.837	553.150	319.911	184.768	−805.211	−268.979	218.373	−6.710
	1800.00	132.842	669.429	559.401	333.194	198.051	−871.778	−267.657	247.003	−7.168
	1900.00	132.868	676.612	565.382	346.479	211.336	−939.084	−266.255	275.557	−7.576
	2000.00	132.891	683.428	571.116	359.767	224.624	−1007.088	−264.774	304.035	−7.941

References

Phase	H / S	C_p
GAS	Mi1	Mi1

552.720 SELENIUM (GAS) **Se7**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	148.490	486.458	486.458	143.930	0.000	−1.107	143.930	87.088	−15.257
	300.00	148.605	487.376	486.460	144.205	0.275	−2.008	143.876	86.736	−15.102
	400.00	152.637	530.762	492.348	159.296	15.366	−53.009	140.293	68.191	−8.905
	500.00	154.509	565.047	503.580	174.663	30.733	−107.860	93.988	51.303	−5.360
	600.00	155.531	593.316	516.249	190.170	46.240	−165.820	84.893	43.622	−3.798
	700.00	156.152	617.341	529.018	205.756	61.826	−226.382	75.878	37.458	−2.795
	800.00	156.559	638.221	541.392	221.393	77.463	−289.183	66.912	32.581	−2.127
	900.00	156.841	656.678	553.196	237.064	93.134	−353.946	57.981	28.827	−1.673
	1000.00	157.046	673.214	564.385	252.759	108.829	−420.455	49.074	26.065	−1.361
	1100.00	157.201	688.190	574.970	268.472	124.542	−488.537	−332.995	58.874	−2.796
	1200.00	157.322	701.873	584.983	284.198	140.268	−558.050	−331.744	94.443	−4.111
	1300.00	157.418	714.470	594.466	299.935	156.005	−628.875	−330.398	129.905	−5.220
	1400.00	157.496	726.138	603.459	315.681	171.751	−700.913	−328.960	165.260	−6.166
	1500.00	157.562	737.007	612.004	331.434	187.504	−774.076	−327.427	200.508	−6.982
	1600.00	157.618	747.178	620.138	347.193	203.263	−848.291	−325.801	235.651	−7.693
	1700.00	157.666	756.735	627.895	362.957	219.027	−923.491	−324.080	270.690	−8.317
	1800.00	157.708	765.748	635.305	378.726	234.796	−999.620	−322.266	305.625	−8.869
	1900.00	157.745	774.275	642.397	394.499	250.569	−1076.625	−320.358	340.456	−9.360
	2000.00	157.779	782.368	649.195	410.275	266.345	−1154.460	−318.356	375.184	−9.799

References

Phase	H / S	C_p
GAS	Mi1	Mi1

Se8[g] SELENIUM (GAS) 631.680

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[——— J / (K mol) ———]			[——— kJ / mol ———]					[−]
GAS	298.15	173.905	531.268	531.268	154.808	0.000	−3.590	154.808	97.205	−17.030
	300.00	174.014	532.344	531.272	155.130	0.322	−4.573	154.754	96.848	−16.863
	400.00	177.853	583.010	538.153	172.751	17.943	−60.453	151.033	78.062	−10.194
	500.00	179.635	622.910	551.256	190.635	35.827	−120.820	98.435	61.081	−6.381
	600.00	180.608	655.755	566.016	208.651	53.843	−184.802	88.335	54.560	−4.750
	700.00	181.198	683.644	580.878	226.744	71.936	−251.807	78.311	49.725	−3.710
	800.00	181.584	707.866	595.271	244.884	90.076	−321.409	68.335	46.322	−3.025
	900.00	181.851	729.270	608.994	263.057	108.249	−393.286	58.391	44.168	−2.563
	1000.00	182.045	748.441	621.997	281.252	126.444	−467.189	48.470	43.120	−2.252
	1100.00	182.191	765.799	634.293	299.464	144.656	−542.914	−387.926	82.698	−3.927
	1200.00	182.305	781.656	645.922	317.689	162.881	−620.299	−386.244	125.408	−5.459
	1300.00	182.395	796.252	656.932	335.924	181.116	−699.204	−384.457	167.974	−6.749
	1400.00	182.468	809.772	667.372	354.168	199.360	−779.513	−382.564	210.398	−7.850
	1500.00	182.530	822.363	677.290	372.418	217.610	−861.127	−380.566	252.684	−8.799
	1600.00	182.581	834.145	686.729	390.673	235.865	−943.959	−378.462	294.833	−9.625
	1700.00	182.626	845.215	695.730	408.934	254.126	−1027.932	−376.252	336.846	−10.350
	1800.00	182.664	855.655	704.327	427.198	272.390	−1112.981	−373.936	378.727	−10.990
	1900.00	182.699	865.532	712.554	445.466	290.658	−1199.045	−371.513	420.476	−11.560
	2000.00	182.729	874.904	720.439	463.738	308.930	−1286.070	−368.983	462.095	−12.069

References

Phase	H / S	C_p
GAS	Mi1	Mi1

238.768 SELENIUM DIBROMIDE (GAS) **SeBr2**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	55.418	317.089	317.089	−20.920	0.000	−115.460	−20.920	−57.480	10.070
	300.00	55.452	317.432	317.090	−20.817	0.103	−116.047	−21.004	−57.706	10.048
	400.00	56.628	333.570	319.283	−15.205	5.715	−148.633	−52.542	−63.502	8.293
	500.00	57.175	346.272	323.455	−9.512	11.408	−182.648	−59.351	−66.057	6.901
	600.00	57.474	356.725	328.155	−3.778	17.142	−217.813	−60.850	−67.258	5.855
	700.00	57.656	365.599	332.886	1.979	22.899	−253.940	−62.343	−68.207	5.090
	800.00	57.776	373.306	337.467	7.751	28.671	−290.894	−63.833	−68.943	4.502
	900.00	57.860	380.116	341.835	13.533	34.453	−328.572	−65.323	−69.493	4.033
	1000.00	57.921	386.216	345.974	19.322	40.242	−366.894	−66.814	−69.876	3.650
	1100.00	57.967	391.739	349.887	25.117	46.037	−405.796	−121.619	−65.156	3.094
	1200.00	58.004	396.784	353.588	30.915	51.835	−445.225	−121.667	−60.021	2.613
	1300.00	58.033	401.428	357.092	36.717	57.637	−485.139	−121.707	−54.882	2.205
	1400.00	58.057	405.730	360.414	42.522	63.442	−525.500	−121.738	−49.740	1.856
	1500.00	58.078	409.736	363.570	48.329	69.249	−566.275	−121.760	−44.597	1.553
	1600.00	58.095	413.485	366.574	54.137	75.057	−607.438	−121.773	−39.452	1.288
	1700.00	58.111	417.007	369.438	59.947	80.867	−648.965	−121.776	−34.307	1.054
	1800.00	58.124	420.329	372.174	65.759	86.679	−690.833	−121.771	−29.162	0.846
	1900.00	58.136	423.472	374.792	71.572	92.492	−733.024	−121.757	−24.017	0.660
	2000.00	58.148	426.454	377.301	77.386	98.306	−775.522	−121.733	−18.873	0.493

References

Phase	H / S	C_p
GAS	Mi1	Mi1

Se2Br2[g] DISELENIUM DIBROMIDE (GAS) 317.728

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	79.661	378.134	378.134	29.288	0.000	−83.453	29.288	−12.873	2.255
	300.00	79.705	378.627	378.135	29.435	0.147	−84.153	29.201	−13.134	2.287
	400.00	81.318	401.807	381.285	37.497	8.209	−123.226	−2.555	−20.781	2.714
	500.00	82.162	420.051	387.278	45.674	16.386	−164.351	−15.690	−25.023	2.614
	600.00	82.705	435.082	394.030	53.919	24.631	−207.130	−18.192	−26.654	2.320
	700.00	83.104	447.862	400.830	62.211	32.923	−251.293	−20.665	−27.869	2.080
	800.00	83.428	458.981	407.419	70.538	41.250	−296.647	−23.115	−28.730	1.876
	900.00	83.707	468.824	413.705	78.895	49.607	−343.047	−25.545	−29.286	1.700
	1000.00	83.959	477.657	419.666	87.278	57.990	−390.378	−27.956	−29.572	1.545
	1100.00	84.193	485.670	425.308	95.686	66.398	−438.551	−136.973	−19.710	0.936
	1200.00	84.415	493.005	430.648	104.117	74.829	−487.490	−136.458	−9.072	0.395
	1300.00	84.628	499.771	435.708	112.569	83.281	−537.133	−135.903	1.522	−0.061
	1400.00	84.835	506.050	440.511	121.042	91.754	−587.428	−135.309	12.071	−0.450
	1500.00	85.037	511.910	445.078	129.535	100.247	−638.329	−134.676	22.576	−0.786
	1600.00	85.235	517.404	449.428	138.049	108.761	−689.798	−134.003	33.038	−1.079
	1700.00	85.431	522.577	453.581	146.582	117.294	−741.799	−133.289	43.456	−1.335
	1800.00	85.625	527.466	457.551	155.135	125.847	−794.304	−132.537	53.831	−1.562
	1900.00	85.817	532.101	461.354	163.707	134.419	−847.284	−131.744	64.164	−1.764
	2000.00	86.008	536.507	465.002	172.299	143.011	−900.716	−130.911	74.453	−1.945

References

Phase	H / S	C_p
GAS	Mi1	Mi1

149.865

SELENIUM DICHLORIDE (GAS) **SeCl2[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	53.545	295.709	295.709	−33.472	0.000	−121.638	−33.472	−42.516	7.449
	300.00	53.600	296.040	295.710	−33.373	0.099	−122.185	−33.483	−42.572	7.412
	400.00	55.533	311.764	297.841	−27.903	5.569	−152.608	−34.147	−45.507	5.943
	500.00	56.435	324.264	301.919	−22.299	11.173	−184.431	−40.925	−48.166	5.032
	600.00	56.932	334.602	306.529	−16.629	16.843	−217.390	−42.404	−49.475	4.307
	700.00	57.236	343.402	311.184	−10.919	22.553	−251.301	−43.886	−50.537	3.771
	800.00	57.438	351.059	315.700	−5.185	28.287	−286.032	−45.372	−51.386	3.355
	900.00	57.581	357.833	320.012	0.567	34.039	−321.483	−46.860	−52.048	3.021
	1000.00	57.687	363.906	324.103	6.330	39.802	−357.575	−48.353	−52.544	2.745
	1100.00	57.769	369.408	327.976	12.103	45.575	−394.245	−103.159	−47.937	2.276
	1200.00	57.835	374.437	331.641	17.884	51.356	−431.441	−103.211	−42.915	1.868
	1300.00	57.889	379.069	335.113	23.670	57.142	−469.119	−103.253	−37.888	1.522
	1400.00	57.934	383.360	338.408	29.461	62.933	−507.244	−103.287	−32.859	1.226
	1500.00	57.974	387.359	341.540	35.257	68.729	−545.782	−103.312	−27.827	0.969
	1600.00	58.008	391.102	344.522	41.056	74.528	−584.707	−103.328	−22.794	0.744
	1700.00	58.039	394.619	347.366	46.858	80.330	−623.995	−103.335	−17.761	0.546
	1800.00	58.067	397.937	350.084	52.663	86.135	−663.624	−103.333	−12.727	0.369
	1900.00	58.093	401.078	352.686	58.472	91.944	−703.576	−103.323	−7.693	0.212
	2000.00	58.117	404.058	355.181	64.282	97.754	−743.834	−103.305	−2.661	0.069

References

Phase	H / S	C_p
GAS	Mi1	Mi1

220.771

SELENIUM TETRACHLORIDE **SeCl4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	133.879	194.556	194.556	−188.698	0.000	−246.705	−188.698	−101.061	17.705
	300.00	133.988	195.384	194.559	−188.450	0.248	−247.066	−188.623	−100.518	17.502
	400.00	139.879	234.737	199.884	−174.757	13.941	−268.652	−184.531	−71.764	9.371
	500.00	145.771	266.583	210.136	−160.474	28.224	−293.766	−186.201	−43.973	4.594
	600.00	151.662	293.681	221.856	−145.603	43.095	−321.811	−182.114	−15.903	1.385

References

Phase	H / S	C_p
SOL	Mi1	Mi1,e

Se2Cl2 DISELENIUM DICHLORIDE 228.825

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
LIQ	298.15	127.194	246.856	246.856	−83.680	0.000	−157.280	−83.680	−65.559	11.486
	300.00	127.194	247.643	246.858	−83.445	0.235	−157.738	−83.601	−65.447	11.395
	400.00	127.194	284.234	251.847	−70.725	12.955	−184.419	−79.685	−60.003	7.836
	500.00	127.194	312.617	261.268	−58.006	25.674	−214.314	−88.157	−55.311	5.778
	600.00	127.194	335.807	271.818	−45.287	38.393	−246.771	−86.102	−48.936	4.260
	700.00	127.194	355.414	282.395	−32.567	51.113	−281.357	−84.088	−42.902	3.201

References

Phase	H / S	C_p	Remarks
LIQ	Mi1	e	Mi1,e DEC., BPT= 645.2, L= 45.76 kJ

Se2Cl2[g] DISELENIUM DICHLORIDE (GAS) 228.825

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	77.748	353.909	353.909	−21.757	0.000	−127.275	−21.757	−35.554	6.229
	300.00	77.814	354.390	353.910	−21.613	0.144	−127.930	−21.770	−35.639	6.205
	400.00	80.168	377.143	356.996	−13.698	8.059	−164.556	−22.658	−40.140	5.242
	500.00	81.340	395.170	362.891	−5.617	16.140	−203.203	−35.768	−44.200	4.618
	600.00	82.047	410.068	369.548	2.555	24.312	−243.486	−38.261	−45.651	3.974
	700.00	82.534	422.754	376.265	10.785	32.542	−285.143	−40.736	−46.687	3.484
	800.00	82.904	433.800	382.782	19.058	40.815	−327.982	−43.198	−47.369	3.093
	900.00	83.206	443.582	389.004	27.363	49.120	−371.861	−45.647	−47.744	2.771
	1000.00	83.466	452.363	394.908	35.697	57.454	−416.665	−48.083	−47.846	2.499

References

Phase	H / S	C_p
GAS	Mi1	Mi1

97.958 SELENIUM FLUORIDE (GAS) **SeF**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[	J / (K mol)	]	[		kJ / mol		]	
GAS	298.15	32.260	233.493	233.493	−41.840	0.000	−111.456	−41.840	−68.625	12.023
	300.00	32.314	233.693	233.494	−41.780	0.060	−111.888	−41.856	−68.791	11.978
	400.00	34.231	243.290	234.789	−38.440	3.400	−135.756	−42.790	−77.633	10.138
	500.00	35.146	251.037	237.289	−34.966	6.874	−160.485	−49.808	−86.134	8.998
	600.00	35.667	257.495	240.134	−31.423	10.417	−185.920	−51.517	−93.239	8.117
	700.00	36.002	263.020	243.018	−27.839	14.001	−211.953	−53.222	−100.057	7.466
	800.00	36.237	267.844	245.826	−24.226	17.614	−238.501	−54.927	−106.632	6.962
	900.00	36.415	272.123	248.515	−20.593	21.247	−265.503	−56.632	−112.993	6.558
	1000.00	36.557	275.967	251.071	−16.944	24.896	−292.911	−58.338	−119.163	6.224
	1100.00	36.675	279.457	253.496	−13.282	28.558	−320.685	−113.356	−120.209	5.708
	1200.00	36.778	282.653	255.794	−9.610	32.230	−348.793	−113.615	−120.821	5.259
	1300.00	36.869	285.600	257.975	−5.927	35.913	−377.207	−113.862	−121.411	4.878
	1400.00	36.952	288.335	260.047	−2.236	39.604	−405.906	−114.096	−121.983	4.551
	1500.00	37.029	290.888	262.019	1.463	43.303	−434.868	−114.316	−122.539	4.267
	1600.00	37.102	293.280	263.899	5.170	47.010	−464.078	−114.524	−123.080	4.018
	1700.00	37.171	295.531	265.694	8.883	50.723	−493.520	−114.717	−123.609	3.798
	1800.00	37.237	297.658	267.411	12.604	54.444	−523.180	−114.897	−124.127	3.602
	1900.00	37.301	299.673	269.057	16.331	58.171	−553.047	−115.062	−124.635	3.426
	2000.00	37.363	301.588	270.636	20.064	61.904	−583.111	−115.212	−125.135	3.268

References

Phase	H / S	C_p
GAS	Mi1	Mi1

SeF2[g] SELENIUM DIFLUORIDE (GAS) 116.957

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	47.656	269.726	269.726	−31.254	0.000	−111.673	−31.254	−38.610	6.764
	300.00	47.772	270.022	269.727	−31.166	0.088	−112.172	−31.271	−38.656	6.731
	400.00	51.865	284.408	271.661	−26.155	5.099	−139.918	−32.141	−40.987	5.352
	500.00	53.802	296.212	275.428	−20.862	10.392	−168.968	−39.021	−43.004	4.493
	600.00	54.889	306.126	279.740	−15.422	15.832	−199.098	−40.570	−43.655	3.800
	700.00	55.576	314.642	284.132	−9.897	21.357	−230.147	−42.109	−44.047	3.287
	800.00	56.049	322.096	288.422	−4.314	26.940	−261.991	−43.647	−44.219	2.887
	900.00	56.399	328.719	292.538	1.309	32.563	−294.538	−45.186	−44.198	2.565
	1000.00	56.670	334.676	296.459	6.963	38.217	−327.713	−46.727	−44.006	2.299
	1100.00	56.892	340.088	300.183	12.641	43.895	−361.455	−101.581	−38.705	1.838
	1200.00	57.079	345.046	303.718	18.340	49.594	−395.715	−101.678	−32.985	1.436
	1300.00	57.242	349.622	307.075	24.056	55.310	−430.452	−101.764	−27.257	1.095
	1400.00	57.388	353.869	310.268	29.788	61.042	−465.629	−101.839	−21.522	0.803
	1500.00	57.521	357.833	313.308	35.534	66.788	−501.216	−101.902	−15.783	0.550
	1600.00	57.643	361.549	316.208	41.292	72.546	−537.187	−101.953	−10.040	0.328
	1700.00	57.758	365.048	318.979	47.062	78.316	−573.519	−101.991	−4.295	0.132
	1800.00	57.867	368.352	321.631	52.843	84.097	−610.190	−102.015	1.453	−0.042
	1900.00	57.972	371.484	324.173	58.635	89.889	−647.183	−102.027	7.202	−0.198
	2000.00	58.072	374.460	326.614	64.438	95.692	−684.482	−102.025	12.951	−0.338

References

Phase	H / S	C_p
GAS	Mi1	Mi1

154.954 SELENIUM TETRAFLUORIDE (GAS) **SeF4[g]**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	71.171	296.546	296.546	-811.696	0.000	-900.111	-811.696	-766.585	134.303
	300.00	71.558	296.987	296.547	-811.564	0.132	-900.660	-811.727	-766.305	133.426
	400.00	85.310	319.732	299.555	-803.625	8.071	-931.518	-812.883	-750.969	98.066
	500.00	91.872	339.551	305.622	-794.731	16.965	-964.507	-819.526	-735.317	76.818
	600.00	95.605	356.659	312.736	-785.342	26.354	-999.338	-820.597	-718.371	62.540
	700.00	98.002	371.588	320.100	-775.654	36.042	-1035.766	-821.524	-701.259	52.329
	800.00	99.687	384.791	327.377	-765.765	45.931	-1073.598	-822.362	-684.020	44.662
	900.00	100.958	396.609	334.425	-755.730	55.966	-1112.678	-823.137	-666.680	38.693
	1000.00	101.972	407.300	341.186	-745.582	66.114	-1152.882	-823.864	-649.257	33.914
	1100.00	102.818	417.060	347.646	-735.341	76.355	-1194.107	-877.862	-626.808	29.765
	1200.00	103.550	426.038	353.810	-725.022	86.674	-1236.268	-877.067	-604.020	26.292
	1300.00	104.201	434.353	359.690	-714.634	97.062	-1279.293	-876.228	-581.300	23.357
	1400.00	104.794	442.097	365.303	-704.184	107.512	-1323.120	-875.347	-558.646	20.843
	1500.00	105.343	449.346	370.666	-693.677	118.019	-1367.696	-874.426	-536.056	18.667
	1600.00	105.859	456.161	375.799	-683.116	128.580	-1412.974	-873.464	-513.529	16.765
	1700.00	106.350	462.594	380.717	-672.506	139.190	-1458.915	-872.463	-491.064	15.089
	1800.00	106.821	468.686	385.437	-661.847	149.849	-1505.482	-871.423	-468.659	13.600
	1900.00	107.277	474.474	389.972	-651.142	160.554	-1552.642	-870.344	-446.312	12.270
	2000.00	107.719	479.988	394.336	-640.392	171.304	-1600.367	-869.227	-424.023	11.074

References

Phase	H / S	C_p
GAS	Mi1	Mi1

SeF5[g] SELENIUM PENTAFLUORIDE (GAS) 173.952

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	95.443	321.859	321.859	−940.563	0.000	−1036.525	−940.563	−872.768	152.905
	300.00	95.855	322.451	321.861	−940.386	0.177	−1037.121	−940.578	−872.347	151.889
	400.00	110.426	352.317	325.834	−929.970	10.593	−1070.897	−940.863	−849.539	110.938
	500.00	117.322	377.780	333.746	−918.546	22.017	−1107.436	−946.657	−826.633	86.358
	600.00	121.196	399.543	342.944	−906.604	33.959	−1146.329	−946.912	−802.601	69.873
	700.00	123.644	418.422	352.408	−894.353	46.210	−1187.249	−947.052	−778.537	58.095
	800.00	125.331	435.049	361.720	−881.900	58.663	−1229.939	−947.128	−754.458	49.261
	900.00	126.576	449.886	370.706	−869.302	71.261	−1274.199	−947.164	−730.372	42.390
	1000.00	127.547	463.274	379.305	−856.594	83.969	−1319.868	−947.171	−706.283	36.892
	1100.00	128.338	475.469	387.501	−843.798	96.765	−1366.814	−1000.468	−677.241	32.159
	1200.00	129.007	486.665	395.304	−830.930	109.633	−1414.928	−998.988	−647.922	28.203
	1300.00	129.590	497.015	402.735	−818.000	122.563	−1464.119	−997.480	−618.727	24.861
	1400.00	130.111	506.638	409.817	−805.014	135.549	−1514.307	−995.946	−589.650	22.000
	1500.00	130.586	515.631	416.575	−791.979	148.584	−1565.425	−994.384	−560.683	19.525
	1600.00	131.025	524.073	423.032	−778.898	161.665	−1617.415	−992.797	−531.821	17.362
	1700.00	131.437	532.029	429.212	−765.775	174.788	−1670.224	−991.184	−503.059	15.457
	1800.00	131.828	539.553	435.135	−752.611	187.952	−1723.806	−989.546	−474.393	13.767
	1900.00	132.203	546.690	440.820	−739.410	201.153	−1778.121	−987.882	−445.819	12.256
	2000.00	132.563	553.481	446.285	−726.171	214.392	−1833.133	−986.192	−417.333	10.900

References

Phase	H / S	C_p
GAS	Mi1	Mi1

192.950 SELENIUM HEXAFLUORIDE (GAS) **SeF6[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	110.133	313.575	313.575	−1116.919	0.000	−1210.411	−1116.919	−1016.422	178.073
	300.00	110.657	314.258	313.577	−1116.715	0.204	−1210.992	−1116.936	−1015.798	176.866
	400.00	129.199	349.006	318.188	−1104.592	12.327	−1244.194	−1117.121	−982.028	128.240
	500.00	137.974	378.883	327.418	−1091.187	25.732	−1280.628	−1122.616	−948.212	99.059
	600.00	142.904	404.512	338.184	−1077.122	39.797	−1319.829	−1122.485	−913.340	79.513
	700.00	146.019	426.791	349.286	−1062.665	54.254	−1361.419	−1122.193	−878.504	65.555
	800.00	148.167	446.437	360.226	−1047.950	68.969	−1405.100	−1121.810	−843.717	55.089
	900.00	149.752	463.985	370.797	−1033.050	83.869	−1450.637	−1121.369	−808.981	46.952
	1000.00	150.988	479.829	380.921	−1018.011	98.908	−1497.840	−1120.885	−774.297	40.445
	1100.00	151.996	494.269	390.579	−1002.860	114.059	−1546.556	−1173.680	−734.708	34.888
	1200.00	152.848	507.531	399.780	−987.617	129.302	−1596.655	−1171.689	−694.890	30.248
	1300.00	153.591	519.796	408.546	−972.294	144.625	−1648.029	−1169.662	−655.238	26.328
	1400.00	154.254	531.203	416.905	−956.902	160.017	−1700.585	−1167.601	−615.744	22.974
	1500.00	154.859	541.866	424.884	−941.446	175.473	−1754.245	−1165.507	−576.399	20.072
	1600.00	155.419	551.879	432.511	−925.931	190.988	−1808.937	−1163.382	−537.194	17.538
	1700.00	155.944	561.317	439.813	−910.363	206.556	−1864.601	−1161.225	−498.123	15.305
	1800.00	156.443	570.244	446.813	−894.743	222.176	−1921.183	−1159.036	−459.180	13.325
	1900.00	156.919	578.716	453.535	−879.075	237.844	−1978.635	−1156.817	−420.360	11.556
	2000.00	157.379	586.776	459.997	−863.360	253.559	−2036.913	−1154.567	−381.657	9.968

References

Phase	H / S	C_p
GAS	Mi1	Mi1

SeO[g] SELENIUM OXIDE (GAS) 94.959

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	31.244	233.995	233.995	62.342	0.000	−7.424	62.342	35.758	−6.265
	300.00	31.297	234.188	233.996	62.400	0.058	−7.857	62.326	35.593	−6.197
	400.00	33.238	243.495	235.251	65.639	3.297	−31.759	61.412	26.817	−3.502
	500.00	34.217	251.027	237.678	69.017	6.675	−56.497	54.450	18.372	−1.919
	600.00	34.817	257.322	240.441	72.470	10.128	−81.923	52.809	11.311	−0.985
	700.00	35.239	262.723	243.248	75.974	13.632	−107.932	51.171	4.524	−0.338
	800.00	35.566	267.450	245.984	79.515	17.173	−134.445	49.529	−2.028	0.132
	900.00	35.837	271.656	248.607	83.086	20.744	−161.404	47.882	−8.374	0.486
	1000.00	36.074	275.444	251.104	86.682	24.340	−188.762	46.232	−14.536	0.759
	1100.00	36.289	278.892	253.476	90.300	27.958	−216.482	−8.730	−15.579	0.740
	1200.00	36.488	282.059	255.728	93.939	31.597	−244.531	−8.933	−16.193	0.705
	1300.00	36.677	284.987	257.867	97.597	35.255	−272.885	−9.122	−16.790	0.675
	1400.00	36.857	287.711	259.903	101.274	38.932	−301.522	−9.296	−17.373	0.648
	1500.00	37.032	290.260	261.843	104.968	42.626	−330.422	−9.454	−17.944	0.625
	1600.00	37.203	292.656	263.694	108.680	46.338	−359.569	−9.595	−18.506	0.604
	1700.00	37.370	294.916	265.465	112.409	50.067	−388.949	−9.718	−19.059	0.586
	1800.00	37.534	297.057	267.161	116.154	53.812	−418.548	−9.824	−19.605	0.569
	1900.00	37.696	299.090	268.789	119.916	57.574	−448.356	−9.913	−20.146	0.554
	2000.00	37.857	301.028	270.352	123.693	61.351	−478.363	−9.985	−20.682	0.540

References

Phase	H / S	C_p
GAS	Mi1	Mi1

SeO2 SELENIUM DIOXIDE 110.959

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	58.098	66.693	66.693	−225.350	0.000	−245.235	−225.350	−171.471	30.041
	300.00	58.268	67.053	66.694	−225.242	0.108	−245.358	−225.344	−171.136	29.797
	400.00	66.171	84.947	69.081	−219.003	6.347	−252.982	−224.743	−153.145	19.999
	500.00	72.785	100.437	73.836	−212.049	13.301	−262.268	−229.659	−135.268	14.131
	600.00	78.891	114.252	79.440	−204.463	20.887	−273.014	−228.746	−116.467	10.139
	602.00	79.010	114.515	79.556	−204.305	21.045	−273.243	−228.723	−116.093	10.073

References

Phase	H / S	C_p	Remarks	
SOL	Pa1	Pa1	Pa1	NSPT= 602.

110.959 SELENIUM DIOXIDE (GAS) **SeO2**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	43.365	262.593	262.593	−109.621	0.000	−187.913	−109.621	−114.149	19.998
	300.00	43.482	262.861	262.594	−109.541	0.080	−188.399	−109.642	−114.177	19.880
	400.00	47.825	276.043	264.361	−104.948	4.673	−215.365	−110.689	−115.528	15.086
	500.00	50.147	286.985	267.824	−100.040	9.581	−243.533	−117.650	−116.533	12.174
	600.00	51.674	296.271	271.811	−94.945	14.676	−272.708	−119.228	−116.161	10.113
	700.00	52.826	304.327	275.893	−89.718	19.903	−302.746	−120.770	−115.527	8.621
	800.00	53.777	311.444	279.901	−84.386	25.235	−333.542	−122.290	−114.674	7.487
	900.00	54.613	317.827	283.766	−78.966	30.655	−365.011	−123.790	−113.632	6.595
	1000.00	55.376	323.621	287.467	−73.466	36.155	−397.088	−125.267	−112.424	5.872
	1100.00	56.091	328.933	290.998	−67.892	41.729	−429.719	−180.028	−106.115	5.039
	1200.00	56.775	333.843	294.367	−62.249	47.372	−462.861	−180.002	−99.397	4.327
	1300.00	57.436	338.414	297.581	−56.538	53.083	−496.476	−179.930	−92.682	3.724
	1400.00	58.081	342.694	300.652	−50.762	58.859	−530.534	−179.811	−85.975	3.208
	1500.00	58.713	346.723	303.591	−44.922	64.699	−565.007	−179.644	−79.278	2.761

References

Phase	H / S	C_p
GAS	Pa1	Pa1

Si SILICON 28.085

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	19.992	18.820	18.820	0.000	0.000	−5.611	0.000	0.000	0.000
	300.00	20.048	18.943	18.820	0.037	0.037	−5.646	0.000	0.000	0.000
	400.00	22.154	25.035	19.636	2.159	2.159	−7.854	0.000	0.000	0.000
	500.00	23.337	30.115	21.238	4.438	4.438	−10.619	0.000	0.000	0.000
	600.00	24.155	34.446	23.088	6.815	6.815	−13.853	0.000	0.000	0.000
	700.00	24.802	38.220	24.986	9.264	9.264	−17.490	0.000	0.000	0.000
	800.00	25.357	41.568	26.853	11.772	11.772	−21.482	0.000	0.000	0.000
	900.00	25.859	44.584	28.658	14.333	14.333	−25.793	0.000	0.000	0.000
	1000.00	26.327	47.333	30.390	16.943	16.943	−30.390	0.000	0.000	0.000
	1100.00	26.775	49.864	32.047	19.598	19.598	−35.252	0.000	0.000	0.000
	1200.00	27.207	52.212	33.631	22.297	22.297	−40.357	0.000	0.000	0.000
	1300.00	27.629	54.407	35.146	25.039	25.039	−45.689	0.000	0.000	0.000
	1400.00	28.044	56.469	36.596	27.823	27.823	−51.234	0.000	0.000	0.000
	1500.00	28.453	58.418	37.986	30.648	30.648	−56.979	0.000	0.000	0.000
	1600.00	28.858	60.267	39.322	33.513	33.513	−62.914	0.000	0.000	0.000
	1685.00	29.199	61.770	40.416	35.981	35.981	−68.101	0.000	0.000	0.000
			29.797		50.208					
LIQ	1685.00	27.196	91.567	40.416	86.189	86.189	−68.101	0.000	0.000	0.000
	1700.00	27.196	91.808	40.869	86.597	86.597	−69.477	0.000	0.000	0.000
	1800.00	27.196	93.362	43.742	89.316	89.316	−78.736	0.000	0.000	0.000
	1900.00	27.196	94.833	46.393	92.036	92.036	−88.146	0.000	0.000	0.000
	2000.00	27.196	96.228	48.850	94.756	94.756	−97.700	0.000	0.000	0.000
	2100.00	27.196	97.555	51.138	97.475	97.475	−107.390	0.000	0.000	0.000
	2200.00	27.196	98.820	53.277	100.195	100.195	−117.209	0.000	0.000	0.000
	2300.00	27.196	100.029	55.283	102.914	102.914	−127.152	0.000	0.000	0.000
	2400.00	27.196	101.186	57.172	105.634	105.634	−137.213	0.000	0.000	0.000
	2500.00	27.196	102.296	58.955	108.354	108.354	−147.388	0.000	0.000	0.000
	2600.00	27.196	103.363	60.643	111.073	111.073	−157.671	0.000	0.000	0.000
	2700.00	27.196	104.389	62.244	113.793	113.793	−168.059	0.000	0.000	0.000
	2800.00	27.196	105.379	63.767	116.512	116.512	−178.548	0.000	0.000	0.000
	2900.00	27.196	106.333	65.218	119.232	119.232	−189.133	0.000	0.000	0.000
	3000.00	27.196	107.255	66.604	121.952	121.952	−199.813	0.000	0.000	0.000
	3100.00	27.196	108.147	67.930	124.671	124.671	−210.583	0.000	0.000	0.000
	3200.00	27.196	109.010	69.200	127.391	127.391	−221.441	0.000	0.000	0.000
	3300.00	27.196	109.847	70.420	130.110	130.110	−232.384	0.000	0.000	0.000
	3400.00	27.196	110.659	71.591	132.830	132.830	−243.410	0.000	0.000	0.000
	3500.00	27.196	111.447	72.719	135.550	135.550	−254.515	0.000	0.000	0.000
	3504.62	27.196	111.483	72.770	135.675	135.675	−255.030	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		fcc (diamond)
LIQ	Ja1	Ja1	Ja2	BPT = 3504.616, GAS(Si), L = 384.548 kJ / NBPT = 3490. (Si + Si2 + Si3)

28.085 SILICON (GAS) **Si[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	22.252	167.980	167.980	450.000	0.000	399.917	450.000	405.528	−71.047
	300.00	22.233	168.118	167.980	450.041	0.041	399.606	450.004	405.252	−70.561
	400.00	21.607	174.413	168.843	452.228	2.228	382.463	450.069	390.317	−50.970
	500.00	21.326	179.201	170.455	454.373	4.373	364.773	449.935	375.392	−39.217
	600.00	21.161	183.074	172.245	456.497	6.497	346.653	449.682	360.505	−31.385
	700.00	21.056	186.327	174.031	458.607	8.607	328.178	449.344	345.668	−25.794
	800.00	20.993	189.134	175.747	460.710	10.710	309.402	448.937	330.885	−21.605
	900.00	20.964	191.605	177.375	462.807	12.807	290.363	448.474	316.155	−18.349
	1000.00	20.964	193.813	178.910	464.903	14.903	271.090	447.960	301.480	−15.748
	1100.00	20.989	195.812	180.357	467.001	17.001	251.607	447.403	286.859	−13.622
	1200.00	21.036	197.641	181.722	469.102	19.102	231.933	446.804	272.290	−11.852
	1300.00	21.103	199.327	183.013	471.209	21.209	212.084	446.169	257.773	−10.357
	1400.00	21.187	200.894	184.235	473.323	23.323	192.072	445.500	243.306	−9.078
	1500.00	21.285	202.359	185.395	475.447	25.447	171.908	444.799	228.888	−7.971
	1600.00	21.394	203.736	186.498	477.580	27.580	151.603	444.067	214.517	−7.003
	1700.00	21.512	205.036	187.551	479.726	29.726	131.164	393.129	200.640	−6.165
	1800.00	21.635	206.270	188.557	481.883	31.883	110.598	392.567	189.334	−5.494
	1900.00	21.762	207.443	189.520	484.053	34.053	89.912	392.017	178.058	−4.895
	2000.00	21.888	208.562	190.444	486.235	36.235	69.111	391.480	166.811	−4.357
	2100.00	22.013	209.633	191.333	488.430	38.430	48.201	390.955	155.591	−3.870
	2200.00	22.132	210.660	192.188	490.638	40.638	27.186	390.443	144.395	−3.428
	2300.00	22.242	211.646	193.013	492.856	42.856	6.070	389.942	133.222	−3.026
	2400.00	22.347	212.595	193.809	495.086	45.086	−15.142	389.452	122.071	−2.657
	2500.00	22.444	213.509	194.579	497.325	47.325	−36.448	388.972	110.940	−2.318
	2600.00	22.534	214.391	195.324	499.574	49.574	−57.843	388.501	99.828	−2.006
	2700.00	22.616	215.243	196.046	501.832	51.832	−79.325	388.039	88.734	−1.717
	2800.00	22.691	216.067	196.747	504.097	54.097	−100.891	387.585	77.657	−1.449
	2900.00	22.758	216.865	197.427	506.370	56.370	−122.537	387.138	66.596	−1.200
	3000.00	22.818	217.637	198.088	508.649	58.649	−144.263	386.697	55.550	−0.967
	3100.00	22.871	218.386	198.730	510.933	60.933	−166.064	386.262	44.519	−0.750
	3200.00	22.918	219.113	199.356	513.223	63.223	−187.939	385.832	33.502	−0.547
	3300.00	22.958	219.819	199.965	515.517	65.517	−209.886	385.406	22.499	−0.356
	3400.00	22.992	220.505	200.559	517.814	67.814	−231.902	384.984	11.508	−0.177
	3500.00	23.020	221.172	201.139	520.115	70.115	−253.986	384.565	0.529	−0.008
	3600.00	23.045	221.821	201.704	522.418	72.418	−276.136	0.000	0.000	0.000
	3700.00	23.064	222.452	202.257	524.724	74.724	−298.350	0.000	0.000	0.000
	3800.00	23.080	223.068	202.796	527.031	77.031	−320.626	0.000	0.000	0.000
	3900.00	23.092	223.667	203.324	529.339	79.339	−342.963	0.000	0.000	0.000
	4000.00	23.102	224.252	203.840	531.649	81.649	−365.359	0.000	0.000	0.000
	4100.00	23.108	224.823	204.345	533.960	83.960	−387.813	0.000	0.000	0.000
	4200.00	23.111	225.379	204.839	536.271	86.271	−410.323	0.000	0.000	0.000
	4300.00	23.113	225.923	205.323	538.582	88.582	−432.888	0.000	0.000	0.000
	4400.00	23.113	226.455	205.797	540.893	90.893	−455.507	0.000	0.000	0.000
	4500.00	23.111	226.974	206.262	543.204	93.204	−478.179	0.000	0.000	0.000
	4600.00	23.108	227.482	206.718	545.515	95.515	−500.902	0.000	0.000	0.000
	4700.00	23.104	227.979	207.165	547.826	97.826	−523.675	0.000	0.000	0.000
	4800.00	23.100	228.465	207.604	550.136	100.136	−546.497	0.000	0.000	0.000
	4900.00	23.096	228.942	208.034	552.446	102.446	−569.367	0.000	0.000	0.000
	5000.00	23.093	229.408	208.457	554.755	104.755	−592.285	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Ja2	Ja1

Si2[g] SILICON (GAS) 56.171

Phase	T [K]	C_p J / (K mol)	S J / (K mol)	−(G−H298)/T J / (K mol)	H kJ / mol	H−H298 kJ / mol	G kJ / mol	ΔH_f kJ / mol	ΔG_f kJ / mol	log K_f [−]
GAS	298.15	34.456	229.790	229.790	589.900	0.000	521.388	589.900	532.610	−93.311
	300.00	34.486	230.003	229.791	589.964	0.064	520.963	589.890	532.255	−92.674
	400.00	36.183	240.151	231.163	593.495	3.595	497.435	589.176	513.144	−67.010
	500.00	38.037	248.424	233.812	597.206	7.306	472.994	588.329	494.233	−51.632
	600.00	39.786	255.516	236.852	601.099	11.199	447.789	587.469	475.494	−41.395
	700.00	41.266	261.765	239.973	605.154	15.254	421.919	586.626	456.899	−34.094
	800.00	42.415	267.354	243.052	609.341	19.441	395.458	585.796	438.423	−28.626
	900.00	43.231	272.400	246.038	613.626	23.726	368.466	584.959	420.051	−24.379
	1000.00	43.740	276.983	248.906	617.977	28.077	340.994	584.091	401.774	−20.987
	1100.00	43.986	281.166	251.652	622.365	32.465	313.083	583.169	383.587	−18.215
	1200.00	44.022	284.996	254.273	626.767	36.867	284.772	582.172	365.486	−15.909
	1300.00	43.905	288.516	256.774	631.165	41.265	256.094	581.086	347.473	−13.962
	1400.00	43.699	291.762	259.159	635.545	45.645	227.078	579.899	329.546	−12.296
	1500.00	43.468	294.769	261.434	639.903	50.003	197.750	578.608	311.708	−10.855
	1600.00	43.276	297.568	263.606	644.240	54.340	168.131	577.213	293.960	−9.597
	1700.00	43.193	300.188	265.681	648.562	58.662	138.242	475.369	277.195	−8.517
	1800.00	42.962	302.649	267.667	652.867	62.967	108.099	474.234	265.571	−7.707
	1900.00	42.810	304.968	269.570	657.155	67.255	77.717	473.083	254.010	−6.983
	2000.00	42.678	307.160	271.395	661.430	71.530	47.109	471.918	242.510	−6.334
	2100.00	42.568	309.240	273.148	665.692	75.792	16.289	470.741	231.068	−5.748
	2200.00	42.478	311.218	274.834	669.944	80.044	−14.735	469.554	219.683	−5.216
	2300.00	42.406	313.104	276.457	674.188	84.288	−45.952	468.359	208.352	−4.732
	2400.00	42.351	314.908	278.022	678.426	88.526	−77.353	467.158	197.073	−4.289
	2500.00	42.310	316.636	279.532	682.658	92.758	−108.931	465.951	185.844	−3.883
	2600.00	42.281	318.295	280.992	686.888	96.988	−140.678	464.742	174.664	−3.509
	2700.00	42.263	319.890	282.403	691.115	101.215	−172.588	463.530	163.530	−3.164
	2800.00	42.255	321.427	283.769	695.341	105.441	−204.654	462.316	152.441	−2.844
	2900.00	42.254	322.910	285.094	699.566	109.666	−236.871	461.102	141.395	−2.547
	3000.00	42.259	324.342	286.378	703.792	113.892	−269.234	459.889	130.392	−2.270
	3100.00	42.270	325.728	287.625	708.018	118.118	−301.738	458.676	119.429	−2.012
	3200.00	42.286	327.070	288.837	712.246	122.346	−334.378	457.464	108.504	−1.771
	3300.00	42.306	328.372	290.015	716.476	126.576	−367.151	456.255	97.618	−1.545
	3400.00	42.330	329.635	291.162	720.707	130.807	−400.051	455.047	86.768	−1.333
	3500.00	42.358	330.862	292.279	724.942	135.042	−433.077	453.843	75.954	−1.134

References

Phase	H / S	C_p
GAS	Ja2	Ja1

84.257 SILICON (GAS) **Si3**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	55.055	267.900	267.900	636.000	0.000	556.126	636.000	572.959	−100.380
	300.00	55.121	268.241	267.901	636.102	0.102	555.630	635.991	572.568	−99.693
	400.00	57.783	284.502	270.100	641.761	5.761	527.960	635.283	551.523	−72.022
	500.00	59.256	297.570	274.330	647.620	11.620	498.835	634.304	530.693	−55.441
	600.00	60.133	308.457	279.136	653.593	17.593	468.518	633.148	510.076	−44.406
	700.00	60.689	317.772	284.006	659.636	23.636	437.196	631.844	489.665	−36.539
	800.00	61.061	325.901	288.746	665.724	29.724	405.003	630.407	469.451	−30.652
	900.00	61.321	333.109	293.282	671.844	35.844	372.046	628.844	449.424	−26.084
	1000.00	61.512	339.580	297.594	677.986	41.986	338.406	627.157	429.577	−22.439
	1100.00	61.659	345.450	301.682	684.145	48.145	304.150	625.350	409.906	−19.465
	1200.00	61.779	350.820	305.556	690.317	54.317	269.333	623.425	390.404	−16.994
	1300.00	61.885	355.770	309.231	696.500	60.500	234.000	621.383	371.068	−14.910
	1400.00	61.986	360.359	312.721	702.694	66.694	198.191	619.225	351.893	−13.129
	1500.00	62.087	364.640	316.041	708.898	72.898	161.938	616.954	332.876	−11.592
	1600.00	62.196	368.650	319.205	715.112	79.112	125.272	614.571	314.015	−10.252
	1700.00	62.316	372.424	322.226	721.337	85.337	88.216	461.547	296.646	−9.115
	1800.00	62.451	375.990	325.115	727.575	91.575	50.794	459.626	287.002	−8.329
	1900.00	62.606	379.370	327.882	733.828	97.828	13.024	457.720	277.464	−7.628
	2000.00	62.783	382.586	330.537	740.097	104.097	−25.075	455.830	268.026	−7.000
	2100.00	62.986	385.654	333.089	746.385	110.385	−63.488	453.960	258.681	−6.434
	2200.00	63.218	388.589	335.546	752.695	116.695	−102.201	452.111	249.426	−5.922
	2300.00	63.440	391.404	337.914	759.028	123.028	−141.202	450.285	240.254	−5.456
	2400.00	63.692	394.109	340.199	765.384	129.384	−180.478	448.482	231.161	−5.031
	2500.00	63.963	396.715	342.408	771.767	135.767	−220.020	446.706	222.142	−4.641
	2600.00	64.245	399.229	344.545	778.177	142.177	−259.818	444.958	213.194	−4.283
	2700.00	64.534	401.659	346.616	784.616	148.616	−299.863	443.238	204.313	−3.953
	2800.00	64.828	404.011	348.624	791.084	155.084	−340.147	441.547	195.495	−3.647
	2900.00	65.124	406.291	350.573	797.582	161.582	−380.663	439.886	186.737	−3.363
	3000.00	65.419	408.504	352.468	804.109	168.109	−421.403	438.254	178.036	−3.100
	3100.00	65.714	410.654	354.310	810.666	174.666	−462.362	436.652	169.388	−2.854
	3200.00	66.008	412.745	356.104	817.252	181.252	−503.532	435.079	160.792	−2.625
	3300.00	66.298	414.781	357.851	823.867	187.867	−544.909	433.536	152.244	−2.410
	3400.00	66.587	416.764	359.555	830.511	194.511	−586.487	432.021	143.743	−2.208
	3500.00	66.872	418.698	361.217	837.184	201.184	−628.260	430.535	135.286	−2.019

References

Phase	H / S	C_p
GAS	Ja2	Ja1

SiBr[g] SILICON MONOBROMIDE (GAS) 107.989

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	38.725	247.426	247.426	235.141	0.000	161.371	235.141	189.673	−33.230
	300.00	38.745	247.665	247.426	235.213	0.072	160.913	235.106	189.391	−32.976
	400.00	39.046	258.878	248.953	239.111	3.970	135.560	219.640	177.322	−23.156
	500.00	38.893	267.576	251.841	243.009	7.868	109.221	219.413	166.766	−17.422
	600.00	38.727	274.652	255.072	246.889	11.748	82.098	219.058	156.268	−13.604
	700.00	38.605	280.612	258.306	250.756	15.615	54.327	218.608	145.838	−10.883
	800.00	38.525	285.762	261.423	254.612	19.471	26.003	218.082	135.477	−8.846
	900.00	38.477	290.296	264.384	258.462	23.321	−2.805	217.492	125.186	−7.266
	1000.00	38.452	294.349	267.182	262.308	27.167	−32.041	216.846	114.964	−6.005
	1100.00	38.445	298.013	269.821	266.153	31.012	−61.662	216.149	104.809	−4.977
	1200.00	38.451	301.359	272.311	269.997	34.856	−91.633	215.405	94.720	−4.123
	1300.00	38.467	304.437	274.666	273.843	38.702	−121.925	214.616	84.695	−3.403
	1400.00	38.491	307.288	276.895	277.691	42.550	−152.513	213.784	74.732	−2.788
	1500.00	38.520	309.945	279.011	281.542	46.401	−183.376	212.911	64.830	−2.258
	1600.00	38.554	312.432	281.023	285.395	50.254	−214.496	211.998	54.987	−1.795
	1700.00	38.591	314.770	282.940	289.253	54.112	−245.857	160.868	45.650	−1.403
	1800.00	38.632	316.977	284.770	293.114	57.973	−277.446	160.103	38.894	−1.129
	1900.00	38.674	319.067	286.521	296.979	61.838	−309.249	159.340	32.181	−0.885
	2000.00	38.719	321.052	288.198	300.849	65.708	−341.256	158.578	25.509	−0.666

References

Phase	H / S	C_p
GAS	Ja1	Ja1

187.894 SILICON DIBROMIDE (GAS) **SiBr2**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	53.638	305.207	305.207	−52.300	0.000	−143.297	−52.300	−92.305	16.171
	300.00	53.685	305.539	305.208	−52.201	0.099	−143.862	−52.378	−92.553	16.115
	400.00	55.474	321.259	307.339	−46.732	5.568	−175.236	−83.514	−99.565	13.002
	500.00	56.393	333.747	311.415	−41.134	11.166	−208.007	−83.887	−103.535	10.816
	600.00	56.921	344.079	316.023	−35.466	16.834	−241.914	−84.314	−107.426	9.352
	700.00	57.250	352.880	320.675	−29.756	22.544	−276.772	−84.788	−111.241	8.301
	800.00	57.468	360.540	325.190	−24.020	28.280	−312.452	−85.308	−114.985	7.508
	900.00	57.619	367.318	329.501	−18.265	34.035	−348.851	−85.871	−118.661	6.887
	1000.00	57.728	373.394	333.592	−12.497	39.803	−385.892	−86.479	−122.272	6.387
	1100.00	57.809	378.900	337.464	−6.720	45.580	−423.511	−87.130	−125.820	5.975
	1200.00	57.871	383.933	341.130	−0.936	51.364	−461.656	−87.825	−129.307	5.629
	1300.00	57.919	388.567	344.603	4.853	57.153	−500.284	−88.563	−132.735	5.333
	1400.00	57.957	392.861	347.899	10.647	62.947	−539.358	−89.344	−136.104	5.078
	1500.00	57.988	396.861	351.031	16.444	68.744	−578.847	−90.169	−139.415	4.855
	1600.00	58.014	400.604	354.014	22.245	74.545	−618.722	−91.037	−142.670	4.658
	1700.00	58.035	404.122	356.859	28.047	80.347	−658.960	−142.125	−145.423	4.468
	1800.00	58.053	407.439	359.578	33.851	86.151	−699.540	−142.853	−145.596	4.225
	1900.00	58.069	410.579	362.180	39.658	91.958	−740.442	−143.585	−145.728	4.006
	2000.00	58.083	413.558	364.675	45.465	97.765	−781.650	−144.320	−145.822	3.808

References

Phase	H / S	C_p
GAS	Ja1	Ja1

SiBr3[g] SILICON TRIBROMIDE (GAS) 267.798

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	74.578	351.775	351.775	−201.669	0.000	−306.551	−201.669	−232.868	40.797
	300.00	74.664	352.236	351.776	−201.531	0.138	−307.202	−201.778	−233.061	40.579
	400.00	77.952	374.221	354.751	−193.881	7.788	−343.569	−247.974	−233.990	30.556
	500.00	79.671	391.819	360.464	−185.992	15.677	−381.901	−247.901	−230.503	24.080
	600.00	80.670	406.441	366.943	−177.970	23.699	−421.835	−247.834	−227.029	19.765
	700.00	81.299	418.927	373.499	−169.870	31.799	−463.118	−247.785	−223.566	16.683
	800.00	81.719	429.812	379.872	−161.717	39.952	−505.567	−247.763	−220.108	14.372
	900.00	82.013	439.455	385.967	−153.530	48.139	−549.039	−247.773	−216.651	12.574
	1000.00	82.225	448.107	391.756	−145.318	56.351	−593.425	−247.818	−213.191	11.136
	1100.00	82.384	455.952	397.241	−137.087	64.582	−638.634	−247.902	−209.724	9.959
	1200.00	82.505	463.126	402.437	−128.842	72.827	−684.593	−248.026	−206.248	8.978
	1300.00	82.599	469.733	407.362	−120.587	81.082	−731.240	−248.191	−202.761	8.147
	1400.00	82.674	475.858	412.039	−112.323	89.346	−778.523	−248.398	−199.258	7.434
	1500.00	82.734	481.564	416.486	−104.052	97.617	−826.398	−248.648	−195.740	6.816
	1600.00	82.782	486.905	420.722	−95.776	105.893	−874.824	−248.941	−192.203	6.275
	1700.00	82.822	491.925	424.764	−87.496	114.173	−923.768	−299.456	−188.200	5.783
	1800.00	82.855	496.660	428.628	−79.212	122.457	−973.199	−299.611	−181.651	5.271
	1900.00	82.883	501.140	432.328	−70.925	130.744	−1023.091	−299.771	−175.094	4.814
	2000.00	82.906	505.392	435.875	−62.636	139.033	−1073.420	−299.936	−168.528	4.401

References

Phase	H / S	C_p
GAS	Ja1	Ja1

SiBr4 SILICON TETRABROMIDE 347.701

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
LIQ	298.15	146.440	278.236	278.236	−457.311	0.000	−540.267	−457.311	−443.893	77.768
	300.00	146.440	279.142	278.239	−457.040	0.271	−540.783	−457.357	−443.810	77.274
	400.00	146.440	321.270	283.983	−442.396	14.915	−570.904	−513.800	−427.416	55.815
	500.00	146.440	353.947	294.829	−427.752	29.559	−604.726	−508.819	−406.401	42.456

References

Phase	H / S	C_p
LIQ	Ja1,Tk1	Ja1

347.701 SILICON TETRABROMIDE (GAS) **SiBr4**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	97.004	379.347	379.347	−415.471	0.000	−528.573	−415.471	−432.200	75.720
	300.00	97.114	379.948	379.349	−415.291	0.180	−529.276	−415.608	−432.303	75.271
	400.00	101.326	408.532	383.218	−405.345	10.126	−568.758	−476.749	−425.270	55.535
	500.00	103.549	431.405	390.645	−395.091	20.380	−610.793	−476.158	−412.468	43.090
	600.00	104.848	450.409	399.066	−384.666	30.805	−654.911	−475.546	−399.788	34.805
	700.00	105.667	466.637	407.589	−374.137	41.334	−700.783	−474.937	−387.210	28.894
	800.00	106.215	480.785	415.873	−363.541	51.930	−748.169	−474.345	−374.718	24.467
	900.00	106.599	493.319	423.795	−352.899	62.572	−796.886	−473.779	−362.299	21.027
	1000.00	106.878	504.565	431.319	−342.225	73.246	−846.790	−473.245	−349.942	18.279
	1100.00	107.086	514.762	438.449	−331.526	83.945	−897.764	−472.747	−337.636	16.033
	1200.00	107.245	524.087	445.202	−320.809	94.662	−949.714	−472.289	−325.373	14.163
	1300.00	107.369	532.676	451.605	−310.078	105.393	−1002.557	−471.871	−313.148	12.582
	1400.00	107.467	540.637	457.683	−299.336	116.135	−1056.228	−471.496	−300.952	11.229
	1500.00	107.546	548.054	463.464	−288.585	126.886	−1110.667	−471.164	−288.783	10.056
	1600.00	107.610	554.997	468.970	−277.828	137.643	−1165.823	−470.876	−276.634	9.031
	1700.00	107.663	561.523	474.224	−267.064	148.407	−1221.652	−520.812	−264.054	8.113
	1800.00	107.707	567.678	479.247	−256.295	159.176	−1278.115	−520.388	−248.963	7.225
	1900.00	107.743	573.502	484.056	−245.523	169.948	−1335.177	−519.972	−233.895	6.430
	2000.00	107.774	579.029	488.667	−234.747	180.724	−1392.806	−519.561	−218.849	5.716

References

Phase	H / S	C_p
GAS	Ja1	Ja1

SiC SILICON CARBIDE (CUBIC) 40.097

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	26.977	16.611	16.611	−73.220	0.000	−78.172	−73.220	−70.850	12.413
	300.00	27.092	16.778	16.611	−73.170	0.050	−78.203	−73.223	−70.835	12.333
	400.00	33.637	25.481	17.753	−70.129	3.091	−80.321	−73.341	−70.018	9.143
	500.00	38.647	33.559	20.118	−66.499	6.721	−83.279	−73.322	−69.187	7.228
	600.00	42.090	40.929	22.982	−62.452	10.768	−87.009	−73.231	−68.368	5.952
	700.00	44.505	47.609	26.031	−58.115	15.105	−91.442	−73.122	−67.566	5.042
	800.00	46.264	53.672	29.113	−53.573	19.647	−96.510	−73.011	−66.780	4.360
	900.00	47.595	59.202	32.154	−48.877	24.343	−102.158	−72.909	−66.007	3.831
	1000.00	48.639	64.272	35.116	−44.063	29.157	−108.336	−72.824	−65.245	3.408
	1100.00	49.484	68.949	37.981	−39.155	34.065	−115.000	−72.761	−64.491	3.062
	1200.00	50.187	73.286	40.745	−34.171	39.049	−122.114	−72.721	−63.741	2.775
	1300.00	50.786	77.327	43.405	−29.121	44.099	−129.647	−72.705	−62.993	2.531
	1400.00	51.308	81.110	45.965	−24.016	49.204	−137.571	−72.713	−62.246	2.322
	1500.00	51.770	84.666	48.428	−18.862	54.358	−145.862	−72.743	−61.497	2.142
	1600.00	52.187	88.021	50.798	−13.664	59.556	−154.497	−72.794	−60.746	1.983
	1700.00	52.569	91.197	53.082	−8.426	64.794	−163.460	−123.043	−59.544	1.830
	1800.00	52.921	94.211	55.284	−3.151	70.069	−172.731	−122.909	−55.813	1.620
	1900.00	53.251	97.082	57.409	2.158	75.378	−182.297	−122.754	−52.089	1.432
	2000.00	53.562	99.821	59.462	7.499	80.719	−192.143	−122.580	−48.375	1.263
	2100.00	53.857	102.441	61.446	12.870	86.090	−202.257	−122.388	−44.669	1.111
	2200.00	54.139	104.953	63.367	18.270	91.490	−212.628	−122.178	−40.973	0.973
	2300.00	54.411	107.366	65.228	23.697	96.917	−223.245	−121.949	−37.287	0.847
	2400.00	54.674	109.687	67.033	29.152	102.372	−234.098	−121.702	−33.611	0.732
	2500.00	54.929	111.925	68.784	34.632	107.852	−245.180	−121.437	−29.946	0.626
	2600.00	55.178	114.084	70.485	40.137	113.357	−256.481	−121.154	−26.292	0.528
	2700.00	55.421	116.171	72.138	45.667	118.887	−267.994	−120.855	−22.649	0.438
	2800.00	55.659	118.191	73.747	51.221	124.441	−279.712	−120.538	−19.017	0.355
	2900.00	55.892	120.148	75.314	56.799	130.019	−291.630	−120.205	−15.398	0.277
	3000.00	56.122	122.047	76.840	62.399	135.619	−303.740	−119.855	−11.789	0.205
	3100.00	56.349	123.890	78.328	68.023	141.243	−316.037	−119.488	−8.193	0.138
	3200.00	56.573	125.683	79.780	73.669	146.889	−328.516	−119.106	−4.609	0.075
	3245.00	56.673	126.474	80.422	76.217	149.437	−334.190	−118.928	−3.000	0.048

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja2	NDPT= 3245.

63.538 SILICON CHLORIDE (GAS) **SiCl[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	35.738	237.828	237.828	198.322	0.000	127.414	198.322	166.286	−29.133
	300.00	35.758	238.049	237.828	198.388	0.066	126.974	198.320	166.087	−28.918
	400.00	36.508	248.453	239.242	202.006	3.684	102.625	198.082	155.373	−20.290
	500.00	36.882	256.644	241.932	205.678	7.356	77.356	197.689	144.739	−15.121
	600.00	37.107	263.389	244.963	209.378	11.056	51.344	197.195	134.194	−11.683
	700.00	37.263	269.122	248.015	213.097	14.775	24.712	196.627	123.738	−9.233
	800.00	37.382	274.106	250.971	216.829	18.507	−2.455	195.998	113.367	−7.402
	900.00	37.479	278.514	253.791	220.573	22.251	−30.090	195.317	103.079	−5.983
	1000.00	37.562	282.467	256.465	224.325	26.003	−58.143	194.589	92.869	−4.851
	1100.00	37.637	286.051	258.994	228.085	29.763	−86.571	193.817	82.734	−3.929
	1200.00	37.706	289.329	261.387	231.852	33.530	−115.343	193.003	72.671	−3.163
	1300.00	37.770	292.350	263.654	235.626	37.304	−144.429	192.149	62.678	−2.518
	1400.00	37.832	295.151	265.805	239.406	41.084	−173.805	191.254	52.752	−1.968
	1500.00	37.891	297.763	267.850	243.192	44.870	−203.453	190.321	42.891	−1.494
	1600.00	37.949	300.210	269.797	246.984	48.662	−233.353	189.350	33.094	−1.080
	1700.00	38.005	302.513	271.654	250.782	52.460	−263.490	138.163	23.805	−0.731
	1800.00	38.060	304.687	273.429	254.585	56.263	−293.851	137.341	17.102	−0.496
	1900.00	38.114	306.746	275.129	258.394	60.072	−324.423	136.522	10.445	−0.287
	2000.00	38.168	308.702	276.759	262.208	63.886	−355.196	135.704	3.830	−0.100

References

Phase	H / S	C_p
GAS	Ja1	Ja1

SiCl2[g] SILICON DICHLORIDE (GAS) 98.991

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	51.243	281.316	281.316	−168.615	0.000	−252.489	−168.615	−180.356	31.598
	300.00	51.309	281.633	281.317	−168.520	0.095	−253.010	−168.620	−180.429	31.415
	400.00	53.898	296.789	283.366	−163.246	5.369	−281.961	−168.935	−184.320	24.070
	500.00	55.294	308.981	287.310	−157.779	10.836	−312.270	−169.319	−188.123	19.653
	600.00	56.118	319.141	291.792	−152.206	16.409	−343.690	−169.757	−191.844	16.701
	700.00	56.641	327.834	296.335	−146.566	22.049	−376.049	−170.243	−195.487	14.587
	800.00	56.992	335.421	300.757	−140.883	27.732	−409.220	−170.774	−199.058	12.997
	900.00	57.239	342.149	304.989	−135.171	33.444	−443.105	−171.348	−202.559	11.756
	1000.00	57.418	348.190	309.012	−129.438	39.177	−477.627	−171.966	−205.994	10.760
	1100.00	57.553	353.669	312.827	−123.689	44.926	−512.724	−172.626	−209.366	9.942
	1200.00	57.655	358.681	316.442	−117.928	50.687	−548.345	−173.328	−212.675	9.258
	1300.00	57.735	363.299	319.871	−112.158	56.457	−584.448	−174.073	−215.924	8.676
	1400.00	57.799	367.580	323.128	−106.382	62.233	−620.994	−174.861	−219.114	8.175
	1500.00	57.850	371.570	326.226	−100.599	68.016	−657.954	−175.692	−222.246	7.739
	1600.00	57.891	375.305	329.178	−94.812	73.803	−695.300	−176.567	−225.321	7.356
	1700.00	57.925	378.816	331.996	−89.021	79.594	−733.007	−227.662	−227.894	7.002
	1800.00	57.953	382.127	334.690	−83.227	85.388	−771.056	−228.398	−227.886	6.613
	1900.00	57.977	385.261	337.269	−77.431	91.184	−809.427	−229.139	−227.838	6.264
	2000.00	57.996	388.236	339.744	−71.632	96.983	−848.103	−229.885	−227.750	5.948
	2100.00	58.012	391.066	342.121	−65.831	102.784	−887.069	−230.636	−227.625	5.662
	2200.00	58.026	393.765	344.408	−60.029	108.586	−926.312	−231.394	−227.464	5.401

References

Phase	H / S	C_p
GAS	Ja1	Ja1

134.444 SILICON TRICHLORIDE (GAS) **SiCl3**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	70.732	318.177	318.177	−390.367	0.000	−485.232	−390.367	−379.837	66.546
	300.00	70.847	318.615	318.178	−390.236	0.131	−485.821	−390.367	−379.772	66.124
	400.00	75.387	339.687	321.021	−382.900	7.467	−518.775	−390.355	−376.240	49.132
	500.00	77.876	356.802	326.520	−375.226	15.141	−553.627	−390.316	−372.716	38.937
	600.00	79.358	371.142	332.794	−367.358	23.009	−590.044	−390.277	−369.200	32.142
	700.00	80.304	383.452	339.173	−359.372	30.995	−627.788	−390.255	−365.689	27.288
	800.00	80.941	394.219	345.395	−351.308	39.059	−666.683	−390.257	−362.180	23.648
	900.00	81.390	403.780	351.361	−343.190	47.177	−706.592	−390.289	−358.669	20.817
	1000.00	81.716	412.373	357.040	−335.034	55.333	−747.407	−390.354	−355.153	18.551
	1100.00	81.961	420.173	362.430	−326.849	63.518	−789.040	−390.455	−351.628	16.697
	1200.00	82.148	427.313	367.544	−318.643	71.724	−831.419	−390.595	−348.092	15.152
	1300.00	82.294	433.895	372.398	−310.421	79.946	−874.484	−390.774	−344.543	13.844
	1400.00	82.410	439.998	377.011	−302.186	88.181	−918.182	−390.994	−340.979	12.722
	1500.00	82.504	445.687	381.402	−293.940	96.427	−962.470	−391.256	−337.398	11.749
	1600.00	82.579	451.014	385.588	−285.685	104.682	−1007.307	−391.561	−333.797	10.897
	1700.00	82.642	456.022	389.585	−277.424	112.943	−1052.662	−442.088	−329.730	10.131
	1800.00	82.693	460.747	393.409	−269.157	121.210	−1098.502	−442.256	−323.116	9.377
	1900.00	82.736	465.219	397.071	−260.886	129.481	−1144.803	−442.431	−316.492	8.701
	2000.00	82.772	469.464	400.586	−252.610	137.757	−1191.539	−442.612	−309.859	8.093

References

Phase	H / S	C_p
GAS	Ja1	Ja1

SiCl4[g] SILICON TETRACHLORIDE (GAS) 169.896

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	90.260	330.938	330.938	−662.746	0.000	−761.415	−662.746	−622.760	109.105
	300.00	90.418	331.497	330.940	−662.579	0.167	−762.028	−662.742	−622.512	108.389
	400.00	96.789	358.472	334.575	−653.187	9.559	−796.576	−662.406	−609.148	79.547
	500.00	100.372	380.491	341.624	−643.313	19.433	−833.558	−661.953	−595.884	62.252
	600.00	102.527	398.997	349.686	−633.159	29.587	−872.557	−661.447	−582.717	50.730
	700.00	103.907	414.912	357.894	−622.833	39.913	−913.272	−660.923	−569.637	42.507
	800.00	104.840	428.852	365.910	−612.393	50.353	−955.474	−660.401	−556.632	36.344
	900.00	105.495	441.240	373.605	−601.874	60.872	−998.990	−659.895	−543.691	31.555
	1000.00	105.973	452.381	380.935	−591.300	71.446	−1043.681	−659.413	−530.806	27.726
	1100.00	106.330	462.499	387.897	−580.684	82.062	−1089.433	−658.959	−517.967	24.596
	1200.00	106.604	471.763	394.505	−570.036	92.710	−1136.152	−658.539	−505.168	21.989
	1300.00	106.818	480.305	400.781	−559.365	103.381	−1183.761	−658.155	−492.403	19.785
	1400.00	106.989	488.228	406.748	−548.674	114.072	−1232.193	−657.811	−479.666	17.897
	1500.00	107.128	495.614	412.429	−537.968	124.778	−1281.389	−657.507	−466.953	16.261
	1600.00	107.242	502.532	417.846	−527.249	135.497	−1331.300	−657.246	−454.258	14.830
	1700.00	107.337	509.036	423.021	−516.520	146.226	−1381.881	−707.206	−441.131	13.554
	1800.00	107.418	515.173	427.972	−505.782	156.964	−1433.095	−706.809	−425.491	12.347
	1900.00	107.487	520.983	432.715	−495.037	167.709	−1484.905	−706.418	−409.873	11.268
	2000.00	107.548	526.498	437.268	−484.285	178.461	−1537.282	−706.036	−394.275	10.297

References

Phase	H / S	C_p
GAS	Ja1	Ja1

47.084 SILICON FLUORIDE (GAS) **SiF[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	32.654	225.782	225.782	−20.083	0.000	−87.400	−20.083	−51.557	9.033
	300.00	32.671	225.984	225.783	−20.023	0.060	−87.818	−20.089	−51.752	9.011
	400.00	33.853	235.541	227.078	−16.697	3.386	−110.914	−20.493	−62.251	8.129
	500.00	34.844	243.208	229.562	−13.260	6.823	−134.864	−21.016	−72.632	7.588
	600.00	35.543	249.627	232.386	−9.738	10.345	−159.514	−21.607	−82.900	7.217
	700.00	36.038	255.145	235.252	−6.158	13.925	−184.759	−22.251	−93.065	6.945
	800.00	36.399	259.982	238.047	−2.535	17.548	−210.521	−22.939	−103.135	6.734
	900.00	36.673	264.286	240.728	1.119	21.202	−236.738	−23.670	−113.116	6.565
	1000.00	36.887	268.161	243.281	4.797	24.880	−263.364	−24.442	−123.014	6.426
	1100.00	37.059	271.685	245.705	8.495	28.578	−290.358	−25.252	−132.832	6.308
	1200.00	37.202	274.916	248.006	12.208	32.291	−317.691	−26.102	−142.575	6.206
	1300.00	37.323	277.899	250.193	15.935	36.018	−345.333	−26.991	−152.245	6.117
	1400.00	37.428	280.668	252.272	19.672	39.755	−373.263	−27.919	−161.846	6.039
	1500.00	37.520	283.254	254.252	23.420	43.503	−401.461	−28.884	−171.378	5.968
	1600.00	37.603	285.678	256.141	27.176	47.259	−429.909	−29.889	−180.845	5.904
	1700.00	37.678	287.960	257.946	30.940	51.023	−458.592	−81.109	−189.802	5.832
	1800.00	37.746	290.116	259.674	34.711	54.794	−487.497	−81.964	−196.171	5.693
	1900.00	37.811	292.158	261.331	38.489	58.572	−516.611	−82.817	−202.492	5.567
	2000.00	37.871	294.099	262.921	42.273	62.356	−545.925	−83.668	−208.769	5.452

References

Phase	H / S	C_p
GAS	Ja1	Ja1

SiF2[g] SILICON DIFLUORIDE (GAS) 66.082

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	44.519	256.589	256.589	−587.852	0.000	−664.354	−587.852	−598.279	104.816
	300.00	44.593	256.864	256.589	−587.770	0.082	−664.829	−587.865	−598.344	104.181
	400.00	48.414	270.236	258.387	−583.112	4.740	−691.207	−588.543	−601.735	78.578
	500.00	51.123	281.351	261.899	−578.126	9.726	−718.802	−589.199	−604.956	63.199
	600.00	52.912	290.841	265.951	−572.918	14.934	−747.423	−589.841	−608.047	52.935
	700.00	54.122	299.094	270.109	−567.563	20.289	−776.929	−590.485	−611.031	45.596
	800.00	54.969	306.379	274.197	−562.106	25.746	−807.209	−591.142	−613.921	40.085
	900.00	55.583	312.891	278.141	−556.577	31.275	−838.179	−591.822	−616.728	35.794
	1000.00	56.041	318.772	281.915	−550.995	36.857	−869.767	−592.529	−619.458	32.357
	1100.00	56.391	324.130	285.512	−545.372	42.480	−901.916	−593.269	−622.115	29.542
	1200.00	56.664	329.049	288.938	−539.719	48.133	−934.578	−594.043	−624.704	27.193
	1300.00	56.882	333.594	292.201	−534.041	53.811	−967.713	−594.854	−627.226	25.202
	1400.00	57.058	337.816	295.310	−528.344	59.508	−1001.286	−595.703	−629.685	23.494
	1500.00	57.202	341.757	298.277	−522.631	65.221	−1035.267	−596.592	−632.081	22.011
	1600.00	57.322	345.453	301.111	−516.904	70.948	−1069.629	−597.521	−634.417	20.712
	1700.00	57.422	348.931	303.823	−511.167	76.685	−1104.350	−648.668	−636.247	19.549
	1800.00	57.508	352.216	306.421	−505.420	82.432	−1139.409	−649.454	−635.493	18.442
	1900.00	57.581	355.327	308.914	−499.666	88.186	−1174.788	−650.242	−634.696	17.449
	2000.00	57.644	358.282	311.309	−493.905	93.947	−1210.469	−651.033	−633.858	16.555

References

Phase	H / S	C_p
GAS	Ja1	Ja1

85.081 SILICON TRIFLUORIDE (GAS) **SiF3**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	59.642	282.362	282.362	−1085.330	0.000	−1169.516	−1085.330	−1073.210	188.022
	300.00	59.766	282.731	282.363	−1085.220	0.110	−1170.039	−1085.344	−1073.135	186.849
	400.00	66.242	300.843	284.788	−1078.908	6.422	−1199.245	−1085.975	−1068.965	139.592
	500.00	70.875	316.157	289.570	−1072.037	13.293	−1230.115	−1086.427	−1064.657	111.224
	600.00	73.946	329.369	295.128	−1064.785	20.545	−1262.407	−1086.762	−1060.270	92.305
	700.00	76.028	340.934	300.863	−1057.280	28.050	−1295.934	−1087.031	−1055.832	78.787
	800.00	77.490	351.187	306.525	−1049.600	35.730	−1330.550	−1087.268	−1051.359	68.647
	900.00	78.551	360.379	312.007	−1041.795	43.535	−1366.136	−1087.496	−1046.857	60.758
	1000.00	79.344	368.698	317.267	−1033.899	51.431	−1402.597	−1087.730	−1042.329	54.446
	1100.00	79.952	376.290	322.292	−1025.933	59.397	−1439.852	−1087.979	−1037.777	49.280
	1200.00	80.429	383.268	327.087	−1017.913	67.417	−1477.834	−1088.250	−1033.201	44.974
	1300.00	80.809	389.721	331.660	−1009.850	75.480	−1516.488	−1088.549	−1028.602	41.330
	1400.00	81.119	395.722	336.024	−1001.753	83.577	−1555.764	−1088.880	−1023.978	38.205
	1500.00	81.373	401.327	340.193	−993.628	91.702	−1595.619	−1089.246	−1019.330	35.496
	1600.00	81.586	406.586	344.180	−985.480	99.850	−1636.017	−1089.648	−1014.656	33.125
	1700.00	81.766	411.538	347.998	−977.312	108.018	−1676.926	−1140.266	−1009.509	31.018
	1800.00	81.919	416.216	351.659	−969.128	116.202	−1718.316	−1140.520	−1001.810	29.072
	1900.00	82.052	420.648	355.174	−960.929	124.401	−1760.161	−1140.775	−994.097	27.330
	2000.00	82.167	424.860	358.554	−952.718	132.612	−1802.438	−1141.032	−986.370	25.761

References

Phase	H / S	C_p
GAS	Ja1	Ja1

SiF4[g] SILICON TETRAFLUORIDE (GAS) 104.079

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	73.633	282.739	282.739	−1614.940	0.000	−1699.239	−1614.940	−1572.701	275.531
	300.00	73.817	283.195	282.740	−1614.804	0.136	−1699.762	−1614.957	−1572.439	273.786
	400.00	83.102	305.756	285.753	−1606.939	8.001	−1729.241	−1615.641	−1558.152	203.474
	500.00	89.676	325.054	291.730	−1598.278	16.662	−1760.805	−1615.986	−1543.734	161.273
	600.00	94.111	341.822	298.713	−1589.075	25.865	−1794.168	−1616.105	−1529.269	133.135
	700.00	97.190	356.574	305.946	−1579.501	35.439	−1829.103	−1616.081	−1514.797	113.036
	800.00	99.402	369.704	313.111	−1569.665	45.275	−1865.429	−1615.965	−1500.335	97.962
	900.00	101.038	381.511	320.066	−1559.639	55.301	−1902.999	−1615.796	−1485.891	86.239
	1000.00	102.275	392.223	326.754	−1549.471	65.469	−1941.694	−1615.598	−1471.467	76.862
	1100.00	103.227	402.018	333.158	−1539.194	75.746	−1981.413	−1615.389	−1457.064	69.190
	1200.00	103.967	411.033	339.277	−1528.833	86.107	−2022.072	−1615.183	−1442.680	62.798
	1300.00	104.550	419.379	345.121	−1518.406	96.534	−2063.598	−1614.991	−1428.313	57.390
	1400.00	105.013	427.144	350.706	−1507.927	107.013	−2105.928	−1614.822	−1413.959	52.755
	1500.00	105.385	434.402	356.046	−1497.406	117.534	−2149.010	−1614.680	−1399.617	48.739
	1600.00	105.689	441.214	361.159	−1486.852	128.088	−2192.794	−1614.571	−1385.284	45.225
	1700.00	105.943	447.629	366.058	−1476.270	138.670	−2237.239	−1664.676	−1370.509	42.111
	1800.00	106.164	453.691	370.760	−1465.664	149.276	−2282.308	−1664.415	−1353.212	39.269
	1900.00	106.365	459.436	375.277	−1455.038	159.902	−2327.967	−1664.154	−1335.930	36.727
	2000.00	106.558	464.897	379.623	−1444.392	170.548	−2374.186	−1663.892	−1318.662	34.440

References

Phase	H / S	C_p
GAS	Ja1	Ja1

29.093 SILICON HYDRIDE (GAS) **SiH[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	29.769	198.038	198.038	376.560	0.000	317.515	376.560	342.607	−60.023
	300.00	29.778	198.222	198.038	376.615	0.055	317.149	376.551	342.397	−59.617
	400.00	30.262	206.855	199.212	379.617	3.057	296.875	375.978	331.093	−43.236
	500.00	30.746	213.660	201.445	382.667	6.107	275.838	375.288	319.950	−33.425
	600.00	31.230	219.308	203.964	385.766	9.206	254.182	374.546	308.952	−26.897
	700.00	31.714	224.159	206.511	388.914	12.354	232.003	373.775	298.080	−22.243
	800.00	33.223	228.570	208.998	392.218	15.658	209.362	373.094	287.313	−18.760
	900.00	33.588	232.504	211.395	395.558	18.998	186.304	372.387	276.632	−16.055
	1000.00	33.953	236.062	213.687	398.935	22.375	162.873	371.652	266.032	−13.896
	1100.00	34.318	239.315	215.871	402.349	25.789	139.102	370.891	255.507	−12.133
	1200.00	34.684	242.317	217.951	405.799	29.239	115.019	370.103	245.052	−10.667
	1300.00	35.049	245.107	219.934	409.285	32.725	90.646	369.287	234.664	−9.429
	1400.00	35.414	247.718	221.826	412.809	36.249	66.003	368.445	224.339	−8.370
	1500.00	35.779	250.174	223.635	416.368	39.808	41.107	367.575	214.076	−7.455
	1600.00	36.145	252.495	225.367	419.964	43.404	15.973	366.680	203.872	−6.656
	1700.00	36.510	254.697	227.028	423.597	47.037	−9.388	315.583	194.172	−5.966
	1800.00	36.875	256.794	228.624	427.266	50.706	−34.963	314.866	187.050	−5.428
	1900.00	37.241	258.798	230.160	430.972	54.412	−60.743	314.166	179.969	−4.948
	2000.00	37.606	260.717	231.640	434.715	58.155	−86.720	313.483	172.924	−4.516

References

Phase	H / S	C_p
GAS	Ja1	Ja1

SiH4[g] SILANE (GAS) 32.117

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		J / (K mol)			kJ / mol					
GAS	298.15	42.827	204.665	204.665	34.309	0.000	−26.712	34.309	56.824	−9.955
	300.00	42.987	204.931	204.666	34.388	0.079	−27.091	34.245	56.964	−9.918
	400.00	51.472	218.472	206.455	39.116	4.807	−48.273	31.038	65.036	−8.493
	500.00	59.145	230.799	210.108	44.654	10.345	−70.745	28.452	73.848	−7.715
	600.00	65.877	242.192	214.518	50.913	16.604	−94.402	26.476	83.122	−7.236
	700.00	71.714	252.796	219.237	57.800	23.491	−119.157	25.039	92.683	−6.916
	800.00	76.761	262.711	224.059	65.231	30.922	−144.938	24.056	102.419	−6.687
	900.00	80.977	272.003	228.875	73.124	38.815	−171.679	23.439	112.255	−6.515
	1000.00	84.498	280.723	233.629	81.403	47.094	−199.320	23.101	122.144	−6.380
	1100.00	87.474	288.920	238.286	90.006	55.697	−227.806	22.970	132.056	−6.271
	1200.00	90.026	296.643	242.831	98.884	64.575	−257.088	22.993	141.973	−6.180
	1300.00	92.148	303.935	247.253	107.996	73.687	−287.120	23.121	151.883	−6.103
	1400.00	93.945	310.832	251.550	117.303	82.994	−317.862	23.316	161.781	−6.036
	1500.00	95.474	317.367	255.722	126.776	92.467	−349.274	23.548	171.663	−5.978
	1600.00	96.781	323.571	259.771	136.390	102.081	−381.324	23.794	181.530	−5.926
	1700.00	97.904	329.473	263.699	146.126	111.817	−413.979	−26.140	191.827	−5.894
	1800.00	98.876	335.097	267.510	155.966	121.657	−447.209	−25.687	204.636	−5.938
	1900.00	99.720	340.466	271.210	165.897	131.588	−480.990	−25.222	217.419	−5.977
	2000.00	100.457	345.600	274.802	175.906	141.597	−515.295	−24.752	230.178	−6.012

References

Phase	H / S	C_p
GAS	Ja1	Ja1

Si2H6[g] DISILANE (GAS) 62.219

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		J / (K mol)			kJ / mol					
GAS	298.15	79.077	272.660	272.660	80.300	0.000	−0.994	80.300	127.115	−22.270
	300.00	79.423	273.150	272.662	80.447	0.147	−1.498	80.212	127.406	−22.183
	400.00	94.953	298.251	275.979	89.209	8.909	−30.091	76.012	143.799	−18.778
	500.00	106.889	320.766	282.724	99.321	19.021	−61.062	72.798	161.137	−16.834
	600.00	116.867	341.161	290.790	110.522	30.222	−94.174	70.459	179.038	−15.587
	700.00	125.449	359.836	299.339	122.648	42.348	−129.237	68.874	197.269	−14.720
	800.00	132.867	377.084	307.992	135.573	55.273	−166.094	67.924	215.683	−14.083
	900.00	139.235	393.111	316.570	149.187	68.887	−204.613	67.491	234.184	−13.592
	1000.00	144.612	408.068	324.980	163.387	83.087	−244.680	67.462	252.710	−13.200
	1100.00	149.029	422.065	333.177	178.077	97.777	−286.195	67.725	271.224	−12.879
	1200.00	152.509	435.189	341.137	193.162	112.862	−329.064	68.176	289.705	−12.611
	1300.00	155.063	447.503	348.850	208.548	128.248	−373.206	68.717	308.144	−12.381

References

Phase	H / S	C_p
GAS	Nb1	Tk1,e

154.990 SILICON IODIDE (GAS) **Sil[g]**

Phase	T	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[–]
GAS	298.15	39.042	253.869	253.869	313.800	0.000	238.109	313.800	261.034	–45.732
	300.00	39.080	254.111	253.870	313.872	0.072	237.639	313.785	260.707	–45.393
	400.00	40.200	265.542	255.421	317.849	4.049	211.632	304.819	243.429	–31.789
	500.00	40.393	274.543	258.378	321.883	8.083	184.611	282.478	230.242	–24.053
	600.00	40.220	281.896	261.704	325.915	12.115	156.778	282.258	219.814	–19.137
	700.00	39.875	288.072	265.042	329.921	16.121	128.271	281.934	209.431	–15.628
	800.00	39.623	293.379	268.260	333.896	20.096	99.192	281.514	199.101	–13.000
	900.00	39.413	298.034	271.315	337.847	24.047	69.617	281.014	188.829	–10.959
	1000.00	39.247	302.177	274.198	341.780	27.980	39.602	280.443	178.616	–9.330
	1100.00	39.121	305.912	276.914	345.698	31.898	9.195	279.809	168.463	–8.000
	1200.00	39.027	309.311	279.474	349.605	35.805	–21.569	279.116	158.371	–6.894
	1300.00	38.959	312.432	281.891	353.504	39.704	–52.658	278.369	148.339	–5.960
	1400.00	38.912	315.318	284.177	357.397	43.597	–84.047	277.572	138.366	–5.163
	1500.00	38.883	318.001	286.343	361.287	47.487	–115.715	276.727	128.452	–4.473
	1600.00	38.866	320.510	288.401	365.174	51.374	–147.642	275.836	118.596	–3.872
	1700.00	38.861	322.866	290.360	369.061	55.261	–179.812	224.723	109.244	–3.357
	1800.00	38.865	325.088	292.228	372.947	59.147	–212.211	223.970	102.472	–2.974
	1900.00	38.877	327.189	294.013	376.834	63.034	–244.826	223.216	95.743	–2.632
	2000.00	38.894	329.184	295.723	380.723	66.923	–277.645	222.460	89.054	–2.326

References

Phase	H / S	C_p
GAS	Ja1	Ja1

SiI2[g] SILICON DIIODIDE (GAS) 281.894

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	54.624	320.980	320.980	92.466	0.000	−3.234	92.466	37.004	−6.483
	300.00	54.662	321.318	320.981	92.567	0.101	−3.828	92.429	36.660	−6.383
	400.00	56.096	337.266	323.146	98.114	5.648	−36.792	74.215	18.948	−2.474
	500.00	56.817	349.869	327.274	103.763	11.297	−71.171	29.392	9.472	−0.990
	600.00	57.226	360.267	331.932	109.467	17.001	−106.693	28.968	5.527	−0.481
	700.00	57.479	369.109	336.627	115.203	22.737	−143.173	28.492	1.657	−0.124
	800.00	57.645	376.796	341.178	120.960	28.494	−180.477	27.969	−2.142	0.140
	900.00	57.760	383.593	345.521	126.731	34.265	−218.503	27.398	−5.871	0.341
	1000.00	57.842	389.683	349.638	132.511	40.045	−257.172	26.781	−9.535	0.498
	1100.00	57.904	395.199	353.533	138.298	45.832	−296.420	26.119	−13.135	0.624
	1200.00	57.951	400.239	357.218	144.091	51.625	−336.196	25.411	−16.673	0.726
	1300.00	57.987	404.879	360.708	149.888	57.422	−376.455	24.658	−20.150	0.810
	1400.00	58.017	409.178	364.019	155.689	63.223	−417.160	23.861	−23.567	0.879
	1500.00	58.041	413.181	367.164	161.491	69.025	−458.280	23.019	−26.926	0.938
	1600.00	58.061	416.928	370.159	167.297	74.831	−499.788	22.132	−30.227	0.987
	1700.00	58.077	420.448	373.014	173.104	80.638	−541.658	−28.976	−33.024	1.015
	1800.00	58.091	423.768	375.743	178.912	86.446	−583.871	−29.725	−33.240	0.965
	1900.00	58.103	426.909	378.354	184.722	92.256	−626.406	−30.479	−33.415	0.919
	2000.00	58.112	429.890	380.857	190.532	98.066	−669.247	−31.238	−33.550	0.876

References

Phase	H / S	C_p
GAS	Ja1	Ja1

408.799

SILICON TRIIODIDE (GAS) — SiI_3[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	77.189	378.301	378.301	35.146	0.000	−77.645	35.146	−20.092	3.520
	300.00	77.253	378.779	378.303	35.289	0.143	−78.345	35.101	−20.434	3.558
	400.00	79.623	401.370	381.367	43.147	8.001	−117.401	8.379	−37.718	4.925
	500.00	80.818	419.280	387.221	51.176	16.030	−158.464	−58.163	−42.809	4.472
	600.00	81.500	434.080	393.833	59.294	24.148	−201.154	−58.047	−39.750	3.461
	700.00	81.923	446.677	400.505	67.467	32.321	−245.207	−57.967	−36.707	2.739
	800.00	82.204	457.636	406.976	75.674	40.528	−290.435	−57.927	−33.673	2.199
	900.00	82.399	467.331	413.154	83.905	48.759	−336.692	−57.928	−30.642	1.778
	1000.00	82.540	476.020	419.013	92.152	57.006	−383.867	−57.971	−27.608	1.442
	1100.00	82.645	483.892	424.559	100.412	65.266	−431.869	−58.059	−24.568	1.167
	1200.00	82.724	491.086	429.808	108.680	73.534	−480.623	−58.191	−21.518	0.937
	1300.00	82.786	497.710	434.780	116.956	81.810	−530.068	−58.369	−18.455	0.742
	1400.00	82.835	503.847	439.497	125.237	90.091	−580.149	−58.593	−15.376	0.574
	1500.00	82.875	509.564	443.979	133.523	98.377	−630.823	−58.862	−12.280	0.428
	1600.00	82.906	514.914	448.247	141.812	106.666	−682.050	−59.178	−9.165	0.299
	1700.00	82.933	519.941	452.318	150.104	114.958	−733.795	−109.717	−5.582	0.172
	1800.00	82.954	524.681	456.208	158.398	123.252	−786.028	−109.899	0.549	−0.016
	1900.00	82.972	529.167	459.931	166.695	131.549	−838.723	−110.089	6.690	−0.184
	2000.00	82.987	533.423	463.500	174.993	139.847	−891.854	−110.285	12.842	−0.335

References

Phase	H / S	C_p
GAS	Ja1	Ja1

535.703

SILICON TETRAIODIDE — SiI_4

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	108.035	258.153	258.153	−189.535	0.000	−266.503	−189.535	−191.637	33.574
	300.00	108.198	258.822	258.155	−189.335	0.200	−266.981	−189.574	−191.650	33.369
	393.65	116.392	289.283	262.057	−178.818	10.717	−292.694	−223.291	−191.428	25.401
			49.956		19.665					
LIQ	393.65	163.742	339.238	262.057	−159.153	30.382	−292.694	−203.626	−191.428	25.401
	400.00	164.004	341.860	263.303	−158.112	31.423	−294.856	−203.750	−191.230	24.972
	500.00	168.134	378.901	282.841	−141.505	48.030	−330.955	−285.810	−180.288	18.835
	575.80	171.264	402.849	297.095	−128.642	60.893	−360.602	−280.425	−164.678	14.939

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	NBPT= 575.8

SiI4[g] SILICON TETRAIODIDE (GAS) 535.703

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	100.570	416.459	416.459	−110.458	0.000	−234.625	−110.458	−159.759	27.989
	300.00	100.649	417.082	416.461	−110.272	0.186	−235.396	−110.510	−160.065	27.870
	400.00	103.619	446.496	420.452	−100.040	10.418	−278.639	−145.678	−175.013	22.854
	500.00	105.127	469.797	428.072	−89.595	20.863	−324.494	−233.900	−173.827	18.160
	600.00	105.990	489.047	436.676	−79.036	31.422	−372.464	−233.219	−161.876	14.093
	700.00	106.528	505.429	445.357	−68.408	42.050	−422.208	−232.566	−150.038	11.196
	800.00	106.885	519.678	453.776	−57.736	52.722	−473.479	−231.947	−138.291	9.029
	900.00	107.134	532.283	461.812	−47.035	63.423	−526.089	−231.367	−126.619	7.349
	1000.00	107.313	543.580	469.434	−36.312	74.146	−579.892	−230.829	−115.010	6.007
	1100.00	107.447	553.815	476.647	−25.573	84.885	−634.770	−230.335	−103.452	4.913
	1200.00	107.549	563.168	483.473	−14.823	95.635	−690.625	−229.887	−91.937	4.002
	1300.00	107.628	571.780	489.939	−4.064	106.394	−747.379	−229.485	−80.458	3.233
	1400.00	107.691	579.759	496.073	6.702	117.160	−804.960	−229.130	−69.008	2.575
	1500.00	107.741	587.190	501.903	17.473	127.931	−863.312	−228.824	−57.582	2.005
	1600.00	107.782	594.145	507.453	28.250	138.708	−922.383	−228.565	−46.174	1.507
	1700.00	107.816	600.680	512.747	39.029	149.487	−982.127	−278.533	−34.335	1.055
	1800.00	107.844	606.844	517.805	49.812	160.270	−1042.506	−278.146	−19.981	0.580
	1900.00	107.867	612.675	522.646	60.598	171.056	−1103.485	−277.768	−5.649	0.155
	2000.00	107.886	618.209	527.287	71.386	181.844	−1165.031	−277.399	8.663	−0.226

References

Phase	H / S	C_p
GAS	Ja1	Ja1

140.283 TRISILICON TETRANITRIDE (ALPHA) **Si3N4**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL−A	298.15	99.502	112.968	112.968	−744.752	0.000	−778.433	−744.752	−647.344	113.412
	300.00	99.757	113.584	112.970	−744.568	0.184	−778.643	−744.787	−646.739	112.607
	400.00	111.003	143.908	117.029	−734.000	10.752	−791.563	−746.421	−613.798	80.154
	500.00	120.502	169.712	125.045	−722.419	22.333	−807.275	−747.556	−580.499	60.644
	600.00	129.374	192.475	134.422	−709.920	34.832	−825.405	−748.154	−547.023	47.623
	700.00	137.632	213.047	144.207	−696.564	48.188	−845.697	−748.230	−513.488	38.317
	800.00	145.202	231.927	154.008	−682.417	62.335	−867.958	−747.826	−479.976	31.339
	900.00	152.042	249.431	163.650	−667.548	77.204	−892.037	−746.994	−446.540	25.917
	1000.00	158.141	265.773	173.054	−652.033	92.719	−917.806	−745.787	−413.218	21.584
	1100.00	163.511	281.103	182.187	−635.945	108.807	−945.158	−744.259	−380.033	18.046
	1200.00	168.179	295.535	191.037	−619.354	125.398	−973.996	−742.464	−346.999	15.104
	1300.00	172.179	309.159	199.604	−602.331	142.421	−1004.238	−740.454	−314.124	12.622
	1400.00	175.554	322.046	207.894	−584.939	159.813	−1035.804	−738.281	−281.409	10.500
	1500.00	178.349	334.256	215.915	−567.240	177.512	−1068.624	−735.993	−248.855	8.666
	1600.00	180.613	345.842	223.676	−549.287	195.465	−1102.634	−733.635	−216.456	7.067
	1700.00	182.397	356.847	231.189	−531.133	213.619	−1137.773	−881.782	−182.865	5.619
	1800.00	183.753	367.313	238.463	−512.822	231.930	−1173.986	−878.728	−141.839	4.116
	1900.00	184.732	377.276	245.509	−494.395	250.357	−1211.219	−875.600	−100.986	2.776
	2000.00	185.390	386.769	252.337	−475.886	268.866	−1249.425	−872.426	−60.299	1.575
	2100.00	185.780	395.825	258.955	−457.326	287.426	−1288.558	−869.235	−19.771	0.492
	2200.00	185.956	404.472	265.375	−438.738	306.014	−1328.576	−866.045	20.605	−0.489

References

Phase	H / S	C_p	Remarks	
SOL−A	Ja1	Ja1	Ja1	NDPT= 2151.

SiO[g] SILICON OXIDE (GAS) 44.085

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	29.912	211.569	211.569	−100.416	0.000	−163.495	−100.416	−127.302	22.303
	300.00	29.918	211.754	211.569	−100.361	0.055	−163.887	−100.425	−127.469	22.194
	400.00	31.074	220.495	212.753	−97.319	3.097	−185.517	−100.991	−136.401	17.812
	500.00	32.404	227.577	215.031	−94.143	6.273	−207.932	−101.624	−145.181	15.167
	600.00	33.443	233.581	217.635	−90.848	9.568	−230.997	−102.285	−153.831	13.392
	700.00	34.230	238.798	220.294	−87.463	12.953	−254.622	−102.976	−162.368	12.116
	800.00	34.835	243.410	222.901	−84.008	16.408	−278.737	−103.699	−170.804	11.152
	900.00	35.311	247.542	225.413	−80.500	19.916	−303.288	−104.454	−179.147	10.397
	1000.00	35.693	251.283	227.816	−76.949	23.467	−328.232	−105.244	−187.404	9.789
	1100.00	36.004	254.700	230.107	−73.364	27.052	−353.534	−106.068	−195.580	9.287
	1200.00	36.262	257.844	232.289	−69.750	30.666	−379.163	−106.928	−203.680	8.866
	1300.00	36.477	260.755	234.368	−66.113	34.303	−405.094	−107.824	−211.707	8.506
	1400.00	36.657	263.465	236.351	−62.456	37.960	−431.307	−108.758	−219.663	8.196
	1500.00	36.810	265.999	238.244	−58.783	41.633	−457.782	−109.730	−227.551	7.924
	1600.00	36.939	268.379	240.054	−55.095	45.321	−484.502	−110.741	−235.373	7.684
	1700.00	37.049	270.622	241.786	−51.395	49.021	−511.453	−161.971	−242.684	7.457
	1800.00	37.144	272.742	243.448	−47.686	52.730	−538.622	−162.839	−247.406	7.180
	1900.00	37.225	274.753	245.043	−43.967	56.449	−565.998	−163.710	−252.081	6.930
	2000.00	37.295	276.664	246.577	−40.241	60.175	−593.569	−164.584	−256.709	6.705
	2100.00	37.357	278.485	248.053	−36.508	63.908	−621.328	−165.464	−261.294	6.499
	2200.00	37.411	280.224	249.476	−32.770	67.646	−649.264	−166.349	−265.837	6.312
	2300.00	37.461	281.889	250.850	−29.026	71.390	−677.370	−167.241	−270.339	6.140
	2400.00	37.508	283.484	252.176	−25.278	75.138	−705.639	−168.138	−274.802	5.981
	2500.00	37.553	285.016	253.459	−21.525	78.891	−734.065	−169.042	−279.228	5.834
	2600.00	37.597	286.490	254.702	−17.767	82.649	−762.640	−169.952	−283.617	5.698
	2700.00	37.643	287.909	255.905	−14.005	86.411	−791.361	−170.869	−287.972	5.571
	2800.00	37.692	289.279	257.073	−10.239	90.177	−820.221	−171.790	−292.292	5.453
	2900.00	37.744	290.603	258.207	−6.467	93.949	−849.215	−172.717	−296.579	5.342
	3000.00	37.802	291.883	259.308	−2.690	97.726	−878.340	−173.648	−300.834	5.238

References

Phase	H / S	C_p
GAS	Ja1	Ja1

60.084 SILICON DIOXIDE **SiO2**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)		] [		kJ / mol		]	[−]
S−LQ	298.15	44.585	41.463	41.463	−910.857	0.000	−923.219	−910.857	−856.444	150.045
	300.00	44.773	41.740	41.464	−910.774	0.083	−923.296	−910.866	−856.106	149.061
	400.00	53.429	55.875	43.333	−905.840	5.017	−928.190	−911.025	−837.813	109.407
	500.00	59.644	68.502	47.128	−900.170	10.687	−934.421	−910.693	−819.540	85.617
	600.00	64.417	79.812	51.649	−893.959	16.898	−941.846	−910.018	−801.367	69.765
	700.00	68.767	90.068	56.416	−887.301	23.556	−950.348	−909.063	−783.331	58.453
	800.00	73.702	99.560	61.222	−880.186	30.671	−959.835	−907.794	−765.451	49.979
	847.00	76.508	103.845	63.469	−876.658	34.199	−964.615	−907.056	−757.109	46.691
			0.860		0.728					
S−HQ	847.00	67.416	104.705	63.469	−875.930	34.927	−964.615	−906.328	−757.109	46.691
	900.00	67.948	108.812	66.019	−872.343	38.514	−970.274	−905.917	−747.785	43.400
	1000.00	68.952	116.023	70.664	−865.498	45.359	−981.521	−905.144	−730.256	38.145
	1079.00	69.746	121.296	74.180	−860.019	50.838	−990.898	−904.528	−716.463	34.684
			1.850		1.996					
S−HC	1079.00	70.609	123.146	74.180	−858.023	52.834	−990.898	−902.532	−716.463	34.684
	1100.00	70.771	124.508	75.128	−856.539	54.318	−993.498	−902.349	−712.844	33.850
	1200.00	71.446	130.696	79.504	−849.427	61.430	−1006.262	−901.485	−695.654	30.281
	1300.00	72.000	136.438	83.666	−842.254	68.603	−1019.622	−900.637	−678.536	27.264
	1400.00	72.467	141.791	87.629	−835.030	75.827	−1033.537	−899.810	−661.483	24.680
	1500.00	72.868	146.805	91.408	−827.762	83.095	−1047.969	−899.009	−644.487	22.443
	1600.00	73.219	151.519	95.019	−820.458	90.399	−1062.888	−898.237	−627.545	20.487
	1700.00	73.533	155.967	98.475	−813.120	97.737	−1078.264	−947.674	−610.202	18.749
	1800.00	73.816	160.179	101.787	−805.752	105.105	−1094.073	−946.742	−590.378	17.132
	1900.00	74.075	164.177	104.966	−798.357	112.500	−1110.293	−945.806	−570.606	15.687
	1996.00	74.306	167.834	107.903	−791.235	119.622	−1126.231	−944.906	−551.670	14.437
			4.793		9.566					
LIQ	1996.00	85.772	172.626	107.903	−781.669	129.188	−1126.231	−935.340	−551.670	14.437
	2000.00	85.772	172.798	108.032	−781.326	129.531	−1126.922	−935.257	−550.902	14.388
	2100.00	85.772	176.983	111.217	−772.749	138.108	−1144.412	−933.185	−531.735	13.226
	2200.00	85.772	180.973	114.298	−764.172	146.685	−1162.312	−931.136	−512.666	12.172
	2300.00	85.772	184.786	117.280	−755.594	155.263	−1180.601	−929.109	−493.690	11.212
	2400.00	85.772	188.436	120.169	−747.017	163.840	−1199.263	−927.104	−474.802	10.334
	2500.00	85.772	191.937	122.970	−738.440	172.417	−1218.283	−925.121	−455.997	9.528
	2600.00	85.772	195.301	125.688	−729.863	180.994	−1237.646	−923.159	−437.271	8.785
	2700.00	85.772	198.538	128.327	−721.286	189.571	−1257.339	−921.219	−418.620	8.099
	2800.00	85.772	201.658	130.890	−712.708	198.149	−1277.350	−919.299	−400.040	7.463
	2900.00	85.772	204.668	133.383	−704.131	206.726	−1297.667	−917.400	−381.529	6.872
	3000.00	85.772	207.575	135.808	−695.554	215.303	−1318.280	−915.519	−363.083	6.322

References

Phase	H / S	C_p	Remarks	
S−LQ	Ja1	Ja2		Low Quartz (trigonal)
S−HQ	Ja1	Ja1	Ja2	High Quartz (hexagonal), MPT= 1696., L= 7.699 kJ
S−HC	Ja1	Ja2		High Cristobalite
LIQ	Ja1	Ja1		

SiO2[CR] SILICON DIOXIDE (CRISTOBALITE) 60.084

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
S−LC	298.15	44.953	43.396	43.396	−908.346	0.000	−921.285	−908.346	−854.509	149.706
	300.00	45.145	43.675	43.397	−908.263	0.083	−921.365	−908.354	−854.175	148.725
	400.00	53.145	57.852	45.276	−903.316	5.030	−926.456	−908.500	−836.079	109.181
	500.00	58.672	70.332	49.065	−897.713	10.633	−932.879	−908.236	−817.997	85.456
	543.00	60.668	75.255	50.946	−895.146	13.200	−936.009	−908.027	−810.245	77.943

References

Phase	H / S	C_p	Remarks
S−LC	Ja1	Ja2	Ja1 Low Cristobalite, TPT= 543. (to High Cr.), L= 1.343 kJ

SiOF2[g] SILICON DIFLUORIDE OXIDE (GAS) 82.082

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	53.744	271.258	271.258	−966.504	0.000	−1047.379	−966.504	−950.723	166.563
	300.00	53.864	271.591	271.259	−966.404	0.100	−1047.882	−966.527	−950.625	165.518
	400.00	61.050	288.074	273.457	−960.657	5.847	−1075.887	−967.601	−945.153	123.424
	500.00	66.683	302.340	277.839	−954.253	12.251	−1105.424	−968.369	−939.447	98.143
	600.00	70.539	314.861	282.988	−947.380	19.124	−1136.297	−968.925	−933.608	81.278
	700.00	73.207	325.947	288.349	−940.185	26.319	−1168.348	−969.356	−927.686	69.225
	800.00	75.110	335.854	293.679	−932.764	33.740	−1201.447	−969.718	−921.708	60.181
	900.00	76.514	344.786	298.869	−925.179	41.325	−1235.486	−970.045	−915.687	53.145
	1000.00	77.580	352.905	303.873	−917.472	49.032	−1270.377	−970.359	−909.631	47.514
	1100.00	78.413	360.339	308.673	−909.671	56.833	−1306.045	−970.674	−903.543	42.906
	1200.00	79.078	367.192	313.268	−901.795	64.709	−1342.426	−971.000	−897.426	39.064
	1300.00	79.621	373.544	317.663	−893.860	72.644	−1379.466	−971.344	−891.281	35.812
	1400.00	80.072	379.461	321.868	−885.874	80.630	−1417.120	−971.712	−885.108	33.024
	1500.00	80.454	384.999	325.895	−877.848	88.656	−1455.346	−972.108	−878.909	30.606
	1600.00	80.782	390.202	329.753	−869.785	96.719	−1494.108	−972.534	−872.682	28.490
	1700.00	81.068	395.108	333.454	−861.693	104.811	−1533.376	−1023.173	−865.980	26.608
	1800.00	81.320	399.749	337.010	−853.573	112.931	−1573.121	−1023.443	−856.726	24.862
	1900.00	81.545	404.152	340.428	−845.430	121.074	−1613.318	−1023.712	−847.456	23.298
	2000.00	81.747	408.340	343.720	−837.265	129.239	−1653.944	−1023.981	−838.173	21.891

References

Phase	H / S	C_p
GAS	Ja1	Ja1

59.059 SILICON PHOSPHIDE **SiP**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	39.775	32.635	32.635	−66.944	0.000	−76.674	−66.944	−58.818	10.305
	300.00	39.874	32.882	32.636	−66.870	0.074	−76.735	−66.951	−58.768	10.232
	400.00	43.707	44.934	34.253	−62.672	4.272	−80.645	−68.127	−55.791	7.286
	500.00	46.066	54.956	37.420	−58.176	8.768	−85.654	−68.543	−52.657	5.501
	600.00	47.844	63.518	41.073	−53.477	13.467	−91.588	−68.853	−49.449	4.305
	700.00	49.348	71.008	44.826	−48.616	18.328	−98.322	−69.073	−46.196	3.447
	800.00	50.706	77.688	48.524	−43.613	23.331	−105.763	−69.211	−42.918	2.802
	900.00	51.979	83.734	52.105	−38.478	28.466	−113.839	−69.270	−39.627	2.300
	1000.00	53.200	89.274	55.549	−33.218	33.726	−122.493	−69.252	−36.334	1.898

References

Phase	H / S	C_p
SOL	Tk1/Ku1	e

60.151 SILICON SULFIDE (GAS) **SiS[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	32.102	223.786	223.786	105.939	0.000	39.217	105.939	54.386	−9.528
	300.00	32.159	223.985	223.787	105.998	0.059	38.803	105.919	54.066	−9.414
	400.00	34.196	233.556	225.078	109.330	3.391	15.908	102.547	37.040	−4.837
	500.00	35.179	241.303	227.573	112.804	6.865	−7.848	99.840	20.953	−2.189
	600.00	35.747	247.772	230.416	116.353	10.414	−32.310	97.436	5.409	−0.471
	700.00	36.119	253.312	233.300	119.947	14.008	−57.371	95.272	−9.757	0.728
	800.00	36.387	258.153	236.111	123.573	17.634	−82.949	93.030	−24.611	1.607
	900.00	36.594	262.451	238.803	127.222	21.283	−108.984	37.911	−38.023	2.207
	1000.00	36.763	266.316	241.364	130.890	24.951	−135.425	37.135	−46.419	2.425
	1100.00	36.907	269.827	243.795	134.574	28.635	−162.235	36.321	−54.735	2.599
	1200.00	37.035	273.043	246.100	138.271	32.332	−189.381	35.471	−62.976	2.741
	1300.00	37.151	276.012	248.288	141.981	36.042	−216.836	34.584	−71.144	2.859
	1400.00	37.258	278.770	250.368	145.701	39.762	−244.576	33.662	−79.242	2.957
	1500.00	37.359	281.344	252.348	149.432	43.493	−272.583	32.704	−87.274	3.039
	1600.00	37.456	283.758	254.237	153.173	47.234	−300.840	31.711	−95.240	3.109
	1700.00	37.548	286.031	256.041	156.923	50.984	−329.330	−19.495	−102.697	3.155
	1800.00	37.638	288.180	257.767	160.682	54.743	−358.042	−20.332	−107.567	3.122
	1900.00	37.725	290.217	259.422	164.451	58.512	−386.963	−21.164	−112.390	3.090
	2000.00	37.810	292.155	261.010	168.227	62.288	−416.082	−21.991	−117.170	3.060

References

Phase	H / S	C_p
GAS	Ja1	Ja1

SiS2 SILICON DISULFIDE 92.217

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	77.482	80.333	80.333	−213.384	0.000	−237.335	−213.384	−212.609	37.248
	300.00	77.503	80.812	80.334	−213.241	0.143	−237.484	−213.362	−212.604	37.018
	400.00	78.631	103.263	83.388	−205.434	7.950	−246.739	−216.840	−212.330	27.727
	500.00	79.760	120.930	89.191	−197.514	15.870	−257.979	−219.004	−210.998	22.043
	600.00	80.888	135.572	95.735	−189.482	23.902	−270.825	−220.500	−209.239	18.216
	700.00	82.016	148.125	102.344	−181.337	32.047	−285.025	−221.423	−207.287	15.468
	800.00	83.144	159.151	108.769	−173.079	40.305	−300.399	−222.393	−205.204	13.398
	900.00	84.273	169.009	114.924	−164.708	48.676	−316.816	−328.996	−200.687	11.648
	1000.00	85.401	177.946	120.787	−156.224	57.160	−334.171	−326.792	−186.548	9.744
	1100.00	86.529	186.139	126.360	−147.628	65.756	−352.381	−324.536	−172.633	8.198
	1200.00	87.657	193.716	131.662	−138.918	74.466	−371.378	−322.222	−158.925	6.918
	1300.00	88.786	200.777	136.710	−130.096	83.288	−391.107	−319.850	−145.413	5.843
	1363.00	89.496	204.996	139.769	−124.480	88.904	−403.889	−318.324	−136.995	5.250
			6.139		8.368					
LIQ	1363.00	100.416	211.135	139.769	−116.112	97.272	−403.889	−309.956	−136.995	5.250
	1400.00	100.416	213.824	141.691	−112.397	100.987	−411.751	−308.653	−132.318	4.937
	1500.00	100.416	220.752	146.733	−102.355	111.029	−433.484	−305.164	−119.844	4.173

References

Phase	H / S	C_p
SOL	Ja1/Ku1	Ja1
LIQ	Ja1	Ja1

107.046 SILICON SELENIDE (GAS) **SiSe**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	33.613	235.250	235.250	202.924	0.000	132.784	202.924	150.995	−26.454
	300.00	33.653	235.458	235.251	202.986	0.062	132.349	202.902	150.672	−26.234
	400.00	35.099	245.367	236.592	206.434	3.510	108.287	201.560	133.456	−17.428
	500.00	35.790	253.281	239.165	209.982	7.058	83.341	194.018	116.698	−12.191
	600.00	36.185	259.844	242.080	213.582	10.658	57.676	191.728	101.449	−8.832
	700.00	36.439	265.442	245.028	217.214	14.290	31.405	189.396	86.586	−6.461
	800.00	36.619	270.320	247.891	220.868	17.944	4.611	187.027	72.060	−4.705
	900.00	36.756	274.642	250.628	224.537	21.613	−22.641	184.620	57.833	−3.357
	1000.00	36.865	278.520	253.226	228.218	25.294	−50.302	182.177	43.877	−2.292
	1100.00	36.957	282.038	255.688	231.909	28.985	−78.333	126.387	35.121	−1.668
	1200.00	37.037	285.257	258.020	235.609	32.685	−106.700	125.320	26.870	−1.170
	1300.00	37.109	288.225	260.231	239.316	36.392	−135.376	124.229	18.710	−0.752
	1400.00	37.174	290.977	262.330	243.030	40.106	−164.338	123.116	10.635	−0.397
	1500.00	37.235	293.544	264.326	246.751	43.827	−193.565	121.980	2.640	−0.092
	1600.00	37.292	295.949	266.228	250.477	47.553	−223.041	120.822	−5.278	0.172
	1700.00	37.347	298.212	268.044	254.209	51.285	−252.750	69.464	−12.676	0.389
	1800.00	37.400	300.348	269.780	257.947	55.023	−282.679	68.488	−17.480	0.507
	1900.00	37.451	302.371	271.442	261.689	58.765	−312.816	67.531	−22.230	0.611
	2000.00	37.500	304.293	273.037	265.437	62.513	−343.150	66.591	−26.930	0.703

References

Phase	H / S	C_p
GAS	Mi1	Mi1

SiTa2 SILICON 2–TANTALUM 389.981

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	69.037	105.437	105.437	–125.520	0.000	–156.956	–125.520	–126.595	22.179
	300.00	69.138	105.864	105.438	–125.392	0.128	–157.151	–125.523	–126.602	22.043
	400.00	73.074	126.352	108.205	–118.261	7.259	–168.802	–125.665	–126.939	16.576
	500.00	75.479	142.932	113.545	–110.826	14.694	–182.292	–125.743	–127.247	13.293
	600.00	77.283	156.859	119.634	–103.185	22.335	–197.300	–125.754	–127.545	11.104
	700.00	78.803	168.889	125.831	–95.379	30.141	–213.601	–125.722	–127.846	9.540
	800.00	80.171	179.502	131.889	–87.429	38.091	–231.031	–125.655	–128.154	8.368
	900.00	81.451	189.020	137.717	–79.348	46.172	–249.465	–125.558	–128.472	7.456
	1000.00	82.676	197.665	143.286	–71.141	54.379	–268.806	–125.434	–128.802	6.728
	1100.00	83.865	205.601	148.595	–62.814	62.706	–288.975	–125.284	–129.146	6.133
	1200.00	85.031	212.948	153.656	–54.369	71.151	–309.907	–125.111	–129.504	5.637
	1300.00	86.179	219.800	158.483	–45.808	79.712	–331.548	–124.930	–129.877	5.219
	1400.00	87.314	226.228	163.095	–37.133	88.387	–353.853	–124.745	–130.265	4.860
	1500.00	88.440	232.290	167.508	–28.346	97.174	–376.781	–124.558	–130.666	4.550
	1600.00	89.560	238.034	171.738	–19.446	106.074	–400.300	–124.370	–131.079	4.279
	1700.00	90.674	243.497	175.799	–10.434	115.086	–424.379	–174.362	–131.057	4.027
	1800.00	91.784	248.711	179.706	–1.311	124.209	–448.991	–173.961	–128.521	3.730
	1900.00	92.890	253.703	183.470	7.923	133.443	–474.114	–173.529	–126.008	3.464
	2000.00	93.994	258.496	187.103	17.267	142.787	–499.725	–173.081	–123.519	3.226

References

Phase	H / S	C_p	Remarks	
SOL	C1	e	C1,Tk1	DPT= 2733. (LIQ + Ta5Si3)

237.119 2–SILICON TANTALUM **Si2Ta**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	65.371	56.359	56.359	–119.102	0.000	–135.905	–119.102	–112.308	19.676
	300.00	65.510	56.763	56.360	–118.981	0.121	–136.010	–119.102	–112.266	19.547
	400.00	70.685	76.409	59.003	–112.140	6.962	–142.703	–119.081	–109.990	14.363
	500.00	73.494	92.509	64.144	–104.919	14.183	–151.174	–119.035	–107.722	11.254
	600.00	75.372	106.084	70.032	–97.471	21.631	–161.121	–118.978	–105.465	9.182
	700.00	76.811	117.814	76.039	–89.859	29.243	–172.329	–118.926	–103.217	7.702
	800.00	78.015	128.151	81.920	–82.117	36.985	–184.638	–118.888	–100.975	6.593
	900.00	79.084	137.403	87.580	–74.261	44.841	–197.924	–118.866	–98.738	5.731
	1000.00	80.067	145.787	92.988	–66.303	52.799	–212.090	–118.864	–96.502	5.041
	1100.00	80.995	153.462	98.141	–58.249	60.853	–227.057	–118.882	–94.265	4.476
	1200.00	81.886	160.548	103.050	–50.105	68.997	–242.762	–118.922	–92.025	4.006
	1300.00	82.750	167.137	107.730	–41.873	77.229	–259.150	–118.993	–89.781	3.607
	1400.00	83.595	173.300	112.195	–33.555	85.547	–276.175	–119.096	–87.530	3.266
	1500.00	84.426	179.096	116.464	–25.154	93.948	–293.798	–119.232	–85.271	2.969
	1600.00	85.246	184.571	120.551	–16.671	102.431	–311.984	–119.403	–83.002	2.710
	1700.00	86.057	189.763	124.471	–8.105	110.997	–330.703	–219.965	–79.827	2.453
	1800.00	86.862	194.705	128.237	0.541	119.643	–349.928	–219.759	–71.589	2.077
	1900.00	87.662	199.423	131.860	9.267	128.369	–369.636	–219.513	–63.364	1.742
	2000.00	88.458	203.939	135.352	18.073	137.175	–389.806	–219.234	–55.153	1.440
	2100.00	89.250	208.275	138.722	26.958	146.060	–410.418	–218.929	–46.956	1.168
	2200.00	90.039	212.445	141.979	35.923	155.025	–431.456	–218.601	–38.775	0.921

References

Phase	H / S	C_p	Remarks	
SOL	C1	C1	C1	MPT= 2473.

Si3Ta5 — 3–SILICON 5–TANTALUM — 988.996

Phase	T [K]	C_p J / (K mol)	S J / (K mol)	–(G–H298)/T J / (K mol)	H kJ / mol	H–H298 kJ / mol	G kJ / mol	ΔH_f kJ / mol	ΔG_f kJ / mol	log K_f [–]
SOL	298.15	181.341	280.746	280.746	–334.720	0.000	–418.425	–334.720	–339.717	59.517
	300.00	181.537	281.869	280.750	–334.384	0.336	–418.945	–334.730	–339.748	59.155
	400.00	189.781	335.312	287.981	–315.788	18.932	–449.912	–335.377	–341.327	44.573
	500.00	195.698	378.321	301.886	–296.502	38.218	–485.663	–336.014	–342.739	35.806
	600.00	200.700	414.452	317.715	–276.678	58.042	–525.349	–336.507	–344.035	29.951
	700.00	205.268	445.737	333.818	–256.377	78.343	–568.393	–336.865	–345.259	25.764
	800.00	209.607	473.432	349.571	–235.631	99.089	–614.377	–337.082	–346.442	22.620
	900.00	213.811	498.364	364.741	–214.460	120.260	–662.987	–337.152	–347.606	20.175
	1000.00	217.932	521.105	379.257	–192.872	141.848	–713.977	–337.076	–348.771	18.218
	1100.00	221.999	542.067	393.117	–170.875	163.845	–767.149	–336.851	–349.950	16.618
	1200.00	226.028	561.556	406.351	–148.474	186.246	–822.341	–336.477	–351.156	15.285
	1300.00	230.032	579.807	418.999	–125.670	209.050	–879.419	–335.996	–352.398	14.160
	1400.00	234.017	597.000	431.105	–102.468	232.252	–938.267	–335.409	–353.681	13.196
	1500.00	237.987	613.281	442.712	–78.867	255.853	–998.788	–334.722	–355.010	12.363
	1600.00	241.947	628.767	453.861	–54.871	279.849	–1060.897	–333.939	–356.387	11.635
	1700.00	245.899	643.553	464.587	–30.478	304.242	–1124.519	–483.597	–356.476	10.953
	1800.00	249.844	657.720	474.926	–5.691	329.029	–1189.587	–481.974	–349.044	10.129
	1900.00	253.785	671.334	484.907	19.490	354.210	–1256.044	–480.157	–341.708	9.394
	2000.00	257.721	684.452	494.559	45.066	379.786	–1323.837	–478.181	–334.471	8.735

References

Phase	H / S	C_p	Remarks	
SOL	C1	e	C1,Tk1	TPT= 1973. / MPT= 2773.

260.124 SILICON THORIUM **SiTh**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	47.257	58.158	58.158	−128.030	0.000	−145.370	−128.030	−123.841	21.696
	300.00	47.341	58.450	58.159	−127.942	0.088	−145.478	−128.030	−123.815	21.558
	400.00	50.627	72.566	60.061	−123.028	5.002	−152.054	−128.039	−122.409	15.985
	500.00	52.702	84.099	63.750	−117.856	10.174	−159.905	−128.073	−120.998	12.641
	600.00	54.299	93.853	67.975	−112.503	15.527	−168.815	−128.153	−119.577	10.410
	700.00	55.670	102.329	72.291	−107.003	21.027	−178.633	−128.284	−118.138	8.816
	800.00	56.921	109.845	76.524	−101.373	26.657	−189.249	−128.472	−116.676	7.618
	900.00	58.103	116.618	80.609	−95.621	32.409	−200.578	−128.718	−115.187	6.685
	1000.00	59.241	122.799	84.523	−89.754	38.276	−212.553	−129.024	−113.668	5.937
	1100.00	60.351	128.498	88.265	−83.774	44.256	−225.121	−129.390	−112.115	5.324
	1200.00	61.442	133.796	91.841	−77.684	50.346	−238.239	−129.818	−110.527	4.811
	1300.00	62.519	138.756	95.261	−71.486	56.544	−251.869	−130.307	−108.900	4.376
	1400.00	63.586	143.428	98.536	−65.181	62.849	−265.981	−130.859	−107.232	4.001
	1500.00	64.646	147.852	101.678	−58.769	69.261	−280.547	−131.472	−105.524	3.675
	1600.00	65.700	152.057	104.696	−52.252	75.778	−295.544	−132.147	−103.772	3.388
	1700.00	66.750	156.072	107.601	−45.629	82.401	−310.952	−185.878	−101.421	3.116
	1800.00	67.796	159.917	110.401	−38.902	89.128	−326.753	−186.473	−96.435	2.798
	1900.00	68.840	163.611	113.105	−32.070	95.960	−342.930	−186.963	−91.419	2.513

References

Phase	H / S	C_p
SOL	Ra3	e

Si2Th 2–SILICON THORIUM 288.209

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	67.266	82.006	82.006	–174.054	0.000	–198.504	–174.054	–171.365	30.022
	300.00	67.411	82.423	82.008	–173.929	0.125	–198.656	–174.054	–171.348	29.834
	400.00	72.959	102.664	84.730	–166.880	7.174	–207.946	–174.051	–170.446	22.258
	500.00	76.212	119.318	90.032	–159.411	14.643	–219.070	–174.067	–169.544	17.712
	600.00	78.562	133.430	96.119	–151.667	22.387	–231.725	–174.132	–168.634	14.681
	700.00	80.485	145.688	102.343	–143.713	30.341	–245.694	–174.257	–167.709	12.515
	800.00	82.182	156.548	108.453	–135.578	38.476	–260.816	–174.449	–166.761	10.888
	900.00	83.746	166.319	114.349	–127.281	46.773	–276.968	–174.711	–165.785	9.622
	1000.00	85.228	175.220	119.997	–118.831	55.223	–294.051	–175.044	–164.776	8.607
	1100.00	86.657	183.410	125.395	–110.237	63.817	–311.988	–175.451	–163.730	7.775
	1200.00	88.049	191.010	130.550	–101.501	72.553	–330.714	–175.933	–162.644	7.080
	1300.00	89.415	198.112	135.477	–92.628	81.426	–350.173	–176.488	–161.514	6.490
	1400.00	90.763	204.788	140.191	–83.619	90.435	–370.322	–177.120	–160.339	5.982
	1500.00	92.097	211.095	144.710	–74.476	99.578	–391.119	–177.826	–159.117	5.541
	1600.00	93.420	217.081	149.048	–65.200	108.854	–412.530	–178.608	–157.844	5.153
	1700.00	94.736	222.785	153.219	–55.792	118.262	–434.526	–282.638	–155.518	4.778
	1800.00	96.044	228.237	157.236	–46.253	127.801	–457.079	–283.140	–148.025	4.296
	1900.00	97.348	233.464	161.111	–36.583	137.471	–480.165	–283.512	–140.508	3.863

References

Phase	H / S	C_p
SOL	Ra3	e

752.285 2–SILICON 3–THORIUM **Si2Th3**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	121.734	163.176	163.176	–284.930	0.000	–333.581	–284.930	–274.606	48.110
	300.00	121.922	163.930	163.178	–284.705	0.225	–333.883	–284.931	–274.542	47.802
	400.00	129.526	200.144	168.064	–272.098	12.832	–352.156	–284.971	–271.074	35.399
	500.00	134.574	229.616	177.518	–258.881	26.049	–373.689	–285.096	–267.588	27.955
	600.00	138.616	254.519	188.329	–245.216	39.714	–397.928	–285.350	–264.065	22.989
	700.00	142.183	276.159	199.364	–231.173	53.757	–424.485	–285.752	–260.488	19.438
	800.00	145.496	295.363	210.186	–216.788	68.142	–453.079	–286.312	–256.842	16.770
	900.00	148.662	312.684	220.628	–202.079	82.851	–483.495	–287.035	–253.117	14.691
	1000.00	151.737	328.507	230.636	–187.058	97.872	–515.566	–287.926	–249.302	13.022
	1100.00	154.752	343.111	240.205	–171.734	113.196	–549.156	–288.985	–245.390	11.653
	1200.00	157.726	356.704	249.354	–156.109	128.821	–584.154	–290.214	–241.374	10.507
	1300.00	160.672	369.445	258.106	–140.189	144.741	–620.468	–291.614	–237.248	9.533
	1400.00	163.597	381.460	266.492	–123.976	160.954	–658.019	–293.186	–233.008	8.694
	1500.00	166.506	392.846	274.539	–107.470	177.460	–696.739	–294.930	–228.650	7.962
	1600.00	169.404	403.685	282.275	–90.675	194.255	–736.570	–296.847	–224.170	7.318
	1700.00	172.293	414.041	289.724	–73.590	211.340	–777.460	–407.740	–218.345	6.709
	1800.00	175.175	423.971	296.908	–56.216	228.714	–819.364	–409.613	–207.148	6.011
	1900.00	178.051	433.519	303.848	–38.555	246.375	–862.242	–411.198	–195.856	5.384

References

Phase	H / S	C_p
SOL	Ra3	e

Si5Th3 — 5–SILICON 3–THORIUM — 836.542

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	181.742	213.384	213.384	−486.181	0.000	−549.801	−486.181	−473.993	83.042
	300.00	182.117	214.509	213.387	−485.844	0.337	−550.197	−486.181	−473.918	82.516
	400.00	196.518	269.096	220.732	−466.835	19.346	−574.474	−486.187	−469.829	61.353
	500.00	205.108	313.933	235.024	−446.726	39.455	−603.693	−486.256	−465.734	48.655
	600.00	211.410	351.908	251.420	−425.888	60.293	−637.033	−486.466	−461.612	40.187
	700.00	216.632	384.899	268.183	−404.480	81.701	−673.909	−486.849	−457.442	34.135
	800.00	221.278	414.134	284.634	−382.581	103.600	−713.888	−487.421	−453.204	29.591
	900.00	225.590	440.449	300.509	−360.235	125.946	−756.639	−488.192	−448.883	26.052
	1000.00	229.693	464.431	315.719	−337.469	148.712	−801.900	−489.165	−444.465	23.216
	1100.00	233.661	486.510	330.255	−314.301	171.880	−849.462	−490.346	−439.940	20.891
	1200.00	237.536	507.008	344.140	−290.740	195.441	−899.150	−491.737	−435.298	18.948
	1300.00	241.347	526.172	357.414	−266.796	219.385	−950.819	−493.338	−430.531	17.299
	1400.00	245.109	544.195	370.118	−242.473	243.708	−1004.346	−495.152	−425.633	15.881
	1500.00	248.837	561.233	382.296	−217.775	268.406	−1059.625	−497.178	−420.598	14.647
	1600.00	252.539	577.411	393.989	−192.706	293.475	−1116.564	−499.418	−415.420	13.562
	1700.00	256.219	592.832	405.236	−167.268	318.913	−1175.082	−761.208	−407.536	12.522
	1800.00	259.884	607.581	416.071	−141.463	344.718	−1235.108	−762.808	−386.684	11.221
	1900.00	263.536	621.730	426.525	−115.292	370.889	−1296.578	−764.042	−365.753	10.055

References

Phase	H / S	C_p
SOL	Ra3	e

75.966 SILICON TITANIUM **SiTi**

Phase	T [K]	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[–]
SOL	298.15	45.403	48.953	48.953	–129.704	0.000	–144.299	–129.704	–129.517	22.691
	300.00	45.499	49.234	48.954	–129.620	0.084	–144.390	–129.703	–129.516	22.551
	400.00	49.285	62.896	50.791	–124.862	4.842	–150.020	–129.657	–129.460	16.906
	500.00	51.651	74.163	54.372	–119.808	9.896	–156.890	–129.582	–129.419	13.520
	600.00	53.459	83.746	58.489	–114.550	15.154	–164.797	–129.485	–129.395	11.265
	700.00	55.002	92.105	62.706	–109.125	20.579	–173.598	–129.382	–129.389	9.655
	800.00	56.404	99.542	66.854	–103.554	26.150	–183.187	–129.291	–129.396	8.449
	900.00	57.725	106.262	70.865	–97.847	31.857	–193.483	–129.225	–129.414	7.511
	1000.00	58.994	112.410	74.717	–92.011	37.693	–204.421	–129.193	–129.437	6.761
	1100.00	60.231	118.091	78.405	–86.049	43.655	–215.949	–129.192	–129.461	6.148
	1200.00	61.445	123.384	81.935	–79.965	49.739	–228.026	–133.219	–129.366	5.631
	1300.00	62.643	128.350	85.316	–73.761	55.943	–240.615	–132.743	–129.064	5.186
	1400.00	63.830	133.036	88.559	–67.437	62.267	–253.687	–132.252	–128.799	4.806
	1500.00	65.008	137.480	91.674	–60.995	68.709	–267.214	–131.753	–128.570	4.477
	1600.00	66.179	141.712	94.670	–54.436	75.268	–281.176	–131.253	–128.374	4.191
	1700.00	67.346	145.760	97.557	–47.759	81.945	–295.551	–180.938	–127.762	3.926
	1800.00	68.508	149.642	100.343	–40.967	88.737	–310.322	–180.232	–124.655	3.617
	1900.00	69.668	153.377	103.037	–34.058	95.646	–325.474	–179.505	–121.587	3.343
	2000.00	70.825	156.980	105.645	–27.033	102.671	–340.993	–192.892	–118.113	3.085
	2033.00	71.206	158.142	106.487	–24.690	105.014	–346.193	–192.620	–116.881	3.003

References

Phase	H / S	C_p	Remarks	
SOL	Hu1/Ku1	e	Hu1	DPT= 2033. (LIQ + Ti5Si3)

Si2Ti — 2–SILICON TITANIUM — 104.051

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	65.489	61.086	61.086	−134.306	0.000	−152.519	−134.306	−132.126	23.148
	300.00	65.647	61.492	61.088	−134.185	0.121	−152.632	−134.305	−132.112	23.003
	400.00	71.797	81.310	63.748	−127.281	7.025	−159.805	−134.235	−131.391	17.158
	500.00	75.588	97.764	68.953	−119.901	14.405	−168.782	−134.113	−130.693	13.653
	600.00	78.450	111.807	74.953	−112.194	22.112	−179.278	−133.944	−130.024	11.320
	700.00	80.873	124.086	81.113	−104.225	30.081	−191.085	−133.746	−129.386	9.655
	800.00	83.063	135.030	87.181	−96.027	38.279	−204.051	−133.536	−128.777	8.408
	900.00	85.117	144.933	93.056	−87.617	46.689	−218.057	−133.328	−128.195	7.440
	1000.00	87.086	154.004	98.704	−79.006	55.300	−233.010	−133.131	−127.635	6.667
	1100.00	89.000	162.394	104.117	−70.201	64.105	−248.835	−132.943	−127.095	6.035
	1200.00	90.876	170.219	109.303	−61.207	73.099	−265.470	−136.758	−126.452	5.504
	1300.00	92.727	177.566	114.275	−52.027	82.279	−282.863	−136.048	−125.622	5.048
	1400.00	94.558	184.505	119.045	−42.663	91.643	−300.970	−135.300	−124.848	4.658
	1500.00	96.374	191.091	123.631	−33.116	101.190	−319.752	−134.521	−124.128	4.323
	1600.00	98.180	197.368	128.045	−23.388	110.918	−339.177	−133.719	−123.461	4.031
	1700.00	99.978	203.374	132.300	−13.480	120.826	−359.217	−233.255	−121.951	3.747
	1800.00	101.769	209.140	136.410	−3.393	130.913	−379.844	−231.975	−115.441	3.350
	1813.00	102.001	209.873	136.934	−2.068	132.238	−382.568	−231.802	−114.600	3.302

References

Phase	H / S	C_p	Remarks	
SOL	Hu1/Ku1	e	Hu1	MPT= 1813.

323.657 3–SILICON 5–TITANIUM **Si3Ti5**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	187.194	217.986	217.986	–579.066	0.000	–644.059	–579.066	–581.371	101.854
	300.00	187.555	219.145	217.990	–578.719	0.347	–644.463	–579.062	–581.386	101.228
	400.00	201.794	275.253	225.543	–559.182	19.884	–669.283	–578.837	–582.192	76.027
	500.00	210.790	321.304	240.228	–538.528	40.538	–699.180	–578.522	–583.066	60.912
	600.00	217.721	360.369	257.078	–517.091	61.975	–733.313	–578.140	–584.010	50.843
	700.00	223.678	394.387	274.315	–495.015	84.051	–771.086	–577.773	–585.018	43.655
	800.00	229.116	424.614	291.248	–472.373	106.693	–812.064	–577.511	–586.072	38.267
	900.00	234.251	451.899	307.606	–449.202	129.864	–855.912	–577.426	–587.150	34.077
	1000.00	239.199	476.837	323.300	–425.528	153.538	–902.366	–577.553	–588.225	30.726
	1100.00	244.025	499.863	338.318	–401.366	177.700	–951.215	–577.885	–589.278	27.982
	1200.00	248.767	521.299	352.683	–376.726	202.340	–1002.286	–598.398	–589.697	25.669
	1300.00	253.450	541.397	366.434	–351.615	227.451	–1055.431	–596.446	–589.051	23.668
	1400.00	258.090	560.349	379.615	–326.038	253.028	–1110.527	–594.465	–588.556	21.959
	1500.00	262.699	578.313	392.268	–299.998	279.068	–1167.468	–592.490	–588.203	20.483
	1600.00	267.284	595.414	404.434	–273.499	305.567	–1226.161	–590.558	–587.981	19.196
	1700.00	271.851	611.755	416.152	–246.542	332.524	–1286.525	–739.240	–586.536	18.022
	1800.00	276.403	627.422	427.457	–219.129	359.937	–1348.489	–736.824	–577.623	16.762
	1900.00	280.943	642.488	438.381	–191.262	387.804	–1411.989	–734.427	–568.845	15.639
	2000.00	285.474	657.014	448.951	–162.941	416.125	–1476.969	–802.724	–557.966	14.573
	2100.00	289.998	671.052	459.195	–134.167	444.899	–1543.376	–799.891	–545.796	13.576
	2200.00	294.515	684.647	469.136	–104.941	474.125	–1611.164	–796.606	–533.772	12.673
	2300.00	299.027	697.838	478.794	–75.264	503.802	–1680.292	–792.870	–521.907	11.853
	2393.00	303.220	709.774	487.540	–47.260	531.806	–1745.748	–788.990	–511.026	11.155

References

Phase	H / S	C_p	Remarks	
SOL	Hu1/Ku1	e	Hu1	MPT= 2393.

SiU — SILICON URANIUM — 266.114

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	50.408	66.526	66.526	−84.517	0.000	−104.352	−84.517	−83.746	14.672
	300.00	50.591	66.838	66.527	−84.424	0.093	−104.475	−84.512	−83.741	14.581
	400.00	57.079	82.411	68.606	−78.995	5.522	−111.959	−84.074	−83.544	10.910
	500.00	60.170	95.516	72.715	−73.116	11.401	−120.874	−83.556	−83.472	8.720
	600.00	61.924	106.655	77.467	−67.004	17.513	−130.997	−83.155	−83.496	7.269
	700.00	63.046	116.290	82.340	−60.752	23.765	−142.155	−82.986	−83.570	6.236
	800.00	63.831	124.763	87.124	−54.406	30.111	−154.216	−83.134	−83.648	5.462
	900.00	64.421	132.317	91.734	−47.992	36.525	−167.077	−83.671	−83.684	4.857
	1000.00	64.890	139.129	96.138	−41.526	42.991	−180.655	−87.066	−83.473	4.360
	1100.00	65.279	145.333	100.333	−35.017	49.500	−194.883	−92.021	−82.862	3.935
	1200.00	65.614	151.027	104.323	−28.472	56.045	−209.705	−92.003	−82.031	3.571
	1300.00	65.910	156.291	108.121	−21.896	62.621	−225.074	−91.997	−81.200	3.263
	1400.00	66.180	161.186	111.738	−15.291	69.226	−240.951	−92.004	−80.369	2.999
	1500.00	66.428	165.760	115.189	−8.660	75.857	−257.300	−101.460	−78.931	2.749
	1600.00	66.662	170.055	118.485	−2.006	82.511	−274.093	−102.462	−77.397	2.527
	1700.00	66.883	174.103	121.639	4.672	89.189	−291.303	−153.659	−75.352	2.315
	1800.00	67.095	177.932	124.661	11.371	95.888	−308.907	−154.470	−70.722	2.052

References

Phase	H / S	C_p
SOL	Ra1	Ra1,e

SiU3 — SILICON 3−URANIUM — 742.172

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	107.876	174.013	174.013	−134.001	0.000	−185.883	−134.001	−135.288	23.702
	300.00	108.310	174.681	174.015	−133.801	0.200	−186.205	−133.992	−135.296	23.557
	400.00	123.564	208.243	178.487	−122.098	11.903	−205.396	−133.017	−135.859	17.741
	500.00	130.624	236.662	187.360	−109.350	24.651	−227.681	−131.793	−136.713	14.282
	600.00	134.460	260.849	197.644	−96.078	37.923	−252.587	−130.901	−137.790	11.996
	700.00	136.772	281.763	208.201	−82.508	51.493	−279.742	−130.682	−138.966	10.370
	800.00	138.273	300.131	218.568	−68.750	65.251	−308.855	−131.390	−140.114	9.149
	900.00	139.302	316.480	228.555	−54.868	79.133	−339.701	−133.237	−141.106	8.190
	1000.00	140.038	331.197	238.096	−40.899	93.102	−372.097	−143.634	−141.331	7.382
	1100.00	140.583	344.571	247.177	−26.867	107.134	−405.896	−158.682	−140.338	6.664
	1200.00	140.997	356.822	255.811	−12.787	121.214	−440.974	−158.786	−138.666	6.036

References

Phase	H / S	C_p
SOL	Nb1	e

294.200 2–SILICON URANIUM **Si2U**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[–]
SOL	298.15	71.157	82.006	82.006	–129.704	0.000	–154.154	–129.704	–127.938	22.414
	300.00	71.397	82.447	82.008	–129.572	0.132	–154.306	–129.697	–127.927	22.274
	400.00	79.979	104.331	84.933	–121.945	7.759	–163.677	–129.183	–127.407	16.638
	500.00	84.170	122.675	90.700	–113.716	15.988	–175.054	–128.595	–127.033	13.271
	600.00	86.631	138.255	97.360	–105.167	24.537	–188.120	–128.133	–126.767	11.036
	700.00	88.277	151.741	104.188	–96.417	33.287	–202.635	–127.915	–126.560	9.444
	800.00	89.487	163.611	110.888	–87.526	42.178	–218.415	–128.026	–126.364	8.251
	900.00	90.444	174.208	117.346	–78.528	51.176	–235.315	–128.540	–126.129	7.320
	1000.00	91.245	183.780	123.518	–69.442	60.262	–253.222	–131.926	–125.650	6.563
	1100.00	91.942	192.510	129.399	–60.282	69.422	–272.043	–136.884	–124.770	5.925
	1200.00	92.570	200.537	134.997	–51.056	78.648	–291.701	–136.885	–123.669	5.383
	1300.00	93.149	207.970	140.328	–41.770	87.934	–312.131	–136.911	–122.567	4.925
	1400.00	93.692	214.893	145.410	–32.428	97.276	–333.278	–136.964	–121.462	4.532
	1500.00	94.208	221.375	150.260	–23.032	106.672	–355.095	–146.480	–119.746	4.170
	1600.00	94.705	227.471	154.897	–13.587	116.117	–377.540	–147.556	–117.929	3.850
	1700.00	95.186	233.227	159.337	–4.092	125.612	–400.577	–249.019	–115.149	3.538
	1800.00	95.654	238.681	163.595	5.450	135.154	–424.175	–249.707	–107.255	3.112

References

Phase	H / S	C_p
SOL	Ra1	Ra1,e

Si2U3 — 2–SILICON 3–URANIUM — 770.258

Phase	T [K]	C_p J / (K mol)	S J / (K mol)	−(G−H298)/T J / (K mol)	H kJ / mol	H−H298 kJ / mol	G kJ / mol	ΔH_f kJ / mol	ΔG_f kJ / mol	log K_f [−]
SOL	298.15	130.508	197.485	197.485	−170.707	0.000	−229.587	−170.707	−173.382	30.376
	300.00	130.999	198.294	197.487	−170.465	0.242	−229.953	−170.693	−173.398	30.191
	400.00	148.347	238.708	202.880	−156.376	14.331	−251.859	−169.453	−174.468	22.783
	500.00	156.507	272.786	213.549	−141.089	29.618	−277.482	−167.971	−175.895	18.376
	600.00	161.050	301.757	225.898	−125.192	45.515	−306.246	−166.829	−177.596	15.461
	700.00	163.886	326.812	238.566	−108.935	61.772	−337.703	−166.373	−179.438	13.390
	800.00	165.812	348.829	251.000	−92.444	78.263	−371.507	−166.856	−181.284	11.837
	900.00	167.208	368.443	262.980	−75.790	94.917	−407.389	−168.492	−183.002	10.621
	1000.00	168.276	386.118	274.424	−59.014	111.693	−445.131	−178.691	−183.975	9.610
	1100.00	169.130	402.198	285.320	−42.142	128.565	−484.559	−193.555	−183.750	8.726
	1200.00	169.837	416.945	295.683	−25.192	145.515	−525.527	−193.489	−182.861	7.960
	1300.00	170.441	430.564	305.541	−8.178	162.529	−567.911	−193.443	−181.978	7.312
	1400.00	170.970	443.215	314.929	8.893	179.600	−611.607	−193.425	−181.097	6.757
	1500.00	171.445	455.027	323.879	26.014	196.721	−656.526	−221.738	−178.397	6.212
	1600.00	171.877	466.106	332.426	43.181	213.888	−702.588	−224.675	−175.412	5.727
	1700.00	172.276	476.538	340.599	60.389	231.096	−749.725	−328.006	−171.349	5.265
	1800.00	172.650	486.395	348.428	77.635	248.342	−797.877	−330.570	−162.059	4.703

References

Phase	H / S	C_p
SOL	Ra1	Ra1,e

322.285 3–SILICON URANIUM **Si3U**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	91.847	106.274	106.274	–132.214	0.000	–163.899	–132.214	–132.072	23.138
	300.00	92.145	106.843	106.275	–132.044	0.170	–164.097	–132.206	–132.071	22.996
	400.00	102.836	135.022	110.045	–122.223	9.991	–176.232	–131.621	–132.108	17.251
	500.00	108.131	158.596	117.466	–111.649	20.565	–190.947	–130.966	–132.306	13.822
	600.00	111.302	178.612	126.031	–100.666	31.548	–207.833	–130.447	–132.627	11.546
	700.00	113.469	195.941	134.809	–89.421	42.793	–226.580	–130.183	–133.015	9.926
	800.00	115.102	211.204	143.423	–77.989	54.225	–246.952	–130.262	–133.419	8.711
	900.00	116.425	224.840	151.725	–66.411	65.803	–268.767	–130.756	–133.788	7.765
	1000.00	117.554	237.166	159.663	–54.711	77.503	–291.877	–134.137	–133.914	6.995
	1100.00	118.557	248.418	167.227	–42.904	89.310	–316.164	–139.105	–133.640	6.346
	1200.00	119.474	258.774	174.430	–31.002	101.212	–341.531	–139.128	–133.142	5.796
	1300.00	120.331	268.371	181.292	–19.012	113.202	–367.894	–139.192	–132.641	5.330
	1400.00	121.143	277.318	187.835	–6.938	125.276	–395.183	–139.297	–132.133	4.930
	1500.00	121.924	285.703	194.083	5.216	137.430	–423.338	–148.880	–131.010	4.562
	1600.00	122.679	293.596	200.058	17.446	149.660	–452.307	–150.037	–129.781	4.237
	1700.00	123.416	301.055	205.782	29.751	161.965	–482.043	–301.773	–127.138	3.906
	1800.00	124.137	308.130	211.273	42.129	174.343	–512.506	–302.345	–116.849	3.391

References

Phase	H / S	C_p
SOL	Nb1/Ra1	Ra1,e

Si5U3 — 5–SILICON 3–URANIUM — 854.514

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	192.662	231.375	231.375	−354.385	0.000	−423.370	−354.385	−350.331	61.376
	300.00	193.326	232.569	231.379	−354.028	0.357	−423.799	−354.367	−350.306	60.994
	400.00	216.995	291.895	239.307	−333.350	21.035	−450.108	−352.906	−349.153	45.595
	500.00	228.472	341.679	254.945	−311.018	43.367	−481.858	−351.215	−348.413	36.398
	600.00	235.149	383.972	273.015	−287.811	66.574	−518.194	−349.894	−347.986	30.295
	700.00	239.561	420.572	291.540	−264.062	90.323	−558.463	−349.292	−347.728	25.948
	800.00	242.765	452.780	309.722	−239.939	114.446	−602.163	−349.667	−347.492	22.689
	900.00	245.267	481.523	327.243	−215.533	138.852	−648.904	−351.234	−347.139	20.147
	1000.00	247.333	507.475	343.989	−190.900	163.485	−698.374	−361.406	−346.047	18.076
	1100.00	249.114	531.134	359.943	−166.075	188.310	−750.322	−376.283	−343.757	16.324
	1200.00	250.701	552.879	375.127	−141.083	213.302	−804.537	−376.272	−340.801	14.835
	1300.00	252.151	573.003	389.584	−115.940	238.445	−860.844	−376.323	−337.843	13.575
	1400.00	253.503	591.740	403.362	−90.656	263.729	−919.092	−376.443	−334.879	12.494
	1500.00	254.780	609.274	416.511	−65.242	289.143	−979.152	−404.938	−330.085	11.495
	1600.00	256.002	625.756	429.079	−39.702	314.683	−1040.912	−408.098	−324.992	10.610
	1700.00	257.181	641.312	441.110	−14.043	340.342	−1104.272	−662.227	−317.465	9.755
	1800.00	258.327	656.044	452.645	11.733	366.118	−1169.147	−664.422	−297.121	8.622

References

Phase	H / S	C_p
SOL	Ra1	Ra1,e

SiV3 — SILICON 3–VANADIUM — 180.910

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	90.968	112.968	112.968	−104.600	0.000	−138.281	−104.600	−106.811	18.713
	300.00	91.098	113.531	112.970	−104.432	0.168	−138.491	−104.607	−106.824	18.600
	400.00	96.303	140.521	116.614	−95.037	9.563	−151.246	−105.034	−107.501	14.038
	500.00	99.695	162.394	123.652	−85.229	19.371	−166.426	−105.489	−108.065	11.289
	600.00	102.372	180.814	131.684	−75.122	29.478	−183.610	−105.925	−108.539	9.449
	700.00	104.711	196.774	139.867	−64.766	39.834	−202.507	−106.344	−108.941	8.129
	800.00	106.871	210.898	147.880	−54.185	50.415	−222.904	−106.774	−109.284	7.135
	900.00	108.927	223.605	155.600	−43.395	61.205	−244.640	−107.257	−109.569	6.359
	1000.00	110.917	235.185	162.988	−32.402	72.198	−267.588	−107.870	−109.795	5.735
	1100.00	112.866	245.849	170.042	−21.213	83.387	−291.646	−108.640	−109.951	5.221
	1200.00	114.785	255.752	176.777	−9.830	94.770	−316.732	−109.589	−110.030	4.789
	1300.00	116.684	265.015	183.212	1.744	106.344	−342.775	−110.739	−110.022	4.421
	1400.00	118.568	273.731	189.369	13.506	118.106	−369.717	−112.110	−109.917	4.101

References

Phase	H / S	C_p	Remarks	
SOL	Tk1	C1	Tk1	DPT= 2243. (LIQ + V5Si3)

107.113 2–SILICON VANADIUM **Si2V**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	64.344	58.994	58.994	–150.624	0.000	–168.213	–150.624	–148.371	25.994
	300.00	64.496	59.393	58.996	–150.505	0.119	–168.323	–150.625	–148.357	25.831
	400.00	70.237	78.828	61.606	–143.735	6.889	–175.267	–150.667	–147.594	19.274
	500.00	73.521	94.880	66.703	–136.536	14.088	–183.976	–150.687	–146.823	15.339
	600.00	75.838	108.499	72.563	–129.063	21.561	–194.162	–150.689	–146.050	12.715
	700.00	77.697	120.333	78.560	–121.383	29.241	–205.616	–150.683	–145.278	10.841
	800.00	79.313	130.815	84.449	–113.531	37.093	–218.183	–150.681	–144.506	9.435
	900.00	80.787	140.243	90.134	–105.525	45.099	–231.744	–150.702	–143.733	8.342
	1000.00	82.174	148.827	95.580	–97.377	53.247	–246.204	–150.771	–142.956	7.467
	1100.00	83.503	156.722	100.784	–89.092	61.532	–261.487	–150.899	–142.168	6.751
	1200.00	84.793	164.043	105.754	–80.677	69.947	–277.529	–151.093	–141.367	6.154
	1300.00	86.055	170.880	110.504	–72.135	78.489	–294.279	–151.361	–140.546	5.647
	1400.00	87.298	177.303	115.048	–63.467	87.157	–311.692	–151.711	–139.701	5.212
	1500.00	88.525	183.368	119.403	–54.676	95.948	–329.728	–152.150	–138.829	4.834
	1600.00	89.741	189.120	123.582	–45.762	104.862	–348.355	–152.687	–137.924	4.503
	1700.00	90.949	194.597	127.599	–36.728	113.896	–367.543	–253.685	–136.088	4.181
	1800.00	92.150	199.830	131.468	–27.573	123.051	–387.266	–253.988	–129.162	3.748
	1900.00	93.345	204.844	135.199	–18.298	132.326	–407.502	–254.332	–122.218	3.360
	1953.00	93.977	207.421	137.124	–13.334	137.290	–418.427	–254.533	–118.530	3.170
			78.196		152.716					
LIQ	1953.00	119.244	285.616	137.124	139.382	290.006	–418.427	–101.817	–118.530	3.170
	2000.00	119.244	288.452	140.647	144.986	295.610	–431.918	–100.832	–118.944	3.107
	2100.00	119.244	294.270	147.825	156.911	307.535	–461.056	–98.864	–119.899	2.982

References

Phase	H / S	C_p
SOL	Tk1	C1
LIQ	Tk1	C1

Si3V5 — 3–SILICON 5–VANADIUM — 338.964

Phase	T	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	204.436	208.782	208.782	–468.608	0.000	–530.856	–468.608	–470.923	82.504
	300.00	204.895	210.048	208.786	–468.229	0.379	–531.244	–468.571	–470.938	81.998
	400.00	225.178	271.943	217.087	–446.666	21.942	–555.443	–466.206	–472.063	61.645
	500.00	240.948	323.933	233.392	–423.338	45.270	–585.304	–463.022	–473.877	49.506
	600.00	254.943	369.117	252.327	–398.534	70.074	–620.004	–458.959	–476.415	41.476
	700.00	268.099	409.412	271.939	–372.377	96.231	–658.965	–454.026	–479.703	35.796
	800.00	280.808	446.045	291.446	–344.929	123.679	–701.765	–448.272	–483.754	31.586
	900.00	293.257	479.840	310.524	–316.224	152.384	–748.080	–441.772	–488.573	28.356
	1000.00	305.545	511.375	329.050	–286.283	182.325	–797.658	–434.652	–494.149	25.812
	1100.00	317.727	541.069	346.987	–255.118	213.490	–850.294	–426.961	–500.466	23.765
	1200.00	329.838	569.234	364.344	–222.739	245.869	–905.820	–418.735	–507.508	22.091
	1300.00	341.898	596.112	381.146	–189.152	279.456	–964.098	–410.009	–515.256	20.703
	1400.00	353.922	621.889	397.427	–154.361	314.247	–1025.006	–400.819	–523.694	19.539
	1500.00	365.918	646.717	413.224	–118.369	350.239	–1088.444	–391.206	–532.804	18.554
	1600.00	377.893	670.715	428.571	–81.178	387.430	–1154.322	–381.208	–542.568	17.713
	1700.00	389.853	693.983	443.503	–42.791	425.817	–1222.563	–521.398	–551.627	16.949
	1800.00	401.800	716.605	458.050	–3.208	465.400	–1293.097	–510.069	–553.730	16.069

References

Phase	H / S	C_p	Remarks	
SOL	C1/Ku1	e	Tk1	MPT= 2398.

240.021 2–SILICON TUNGSTEN **Si2W**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	64.270	64.015	64.015	–93.002	0.000	–112.088	–93.002	–91.128	15.965
	300.00	64.375	64.413	64.016	–92.883	0.119	–112.207	–93.002	–91.117	15.865
	400.00	68.440	83.550	66.598	–86.221	6.781	–119.641	–93.050	–90.483	11.816
	500.00	70.915	99.105	71.593	–79.246	13.756	–128.798	–93.148	–89.831	9.385
	600.00	72.764	112.204	77.298	–72.058	20.944	–139.381	–93.271	–89.156	7.762
	700.00	74.317	123.540	83.112	–64.703	28.299	–151.181	–93.414	–88.459	6.601
	800.00	75.712	133.556	88.804	–57.200	35.802	–164.045	–93.573	–87.741	5.729
	900.00	77.016	142.550	94.284	–49.563	43.439	–177.858	–93.747	–87.001	5.049
	1000.00	78.263	150.729	99.526	–41.799	51.203	–192.528	–93.936	–86.242	4.505
	1100.00	79.473	158.245	104.527	–33.912	59.090	–207.982	–94.138	–85.463	4.058
	1200.00	80.658	165.211	109.297	–25.905	67.097	–224.159	–94.354	–84.665	3.685
	1300.00	81.825	171.714	113.851	–17.781	75.221	–241.008	–94.584	–83.848	3.369
	1400.00	82.978	177.820	118.204	–9.541	83.461	–258.488	–94.827	–83.013	3.097
	1500.00	84.123	183.584	122.373	–1.185	91.817	–276.561	–95.084	–82.161	2.861
	1600.00	85.260	189.049	126.371	7.284	100.286	–295.195	–95.356	–81.290	2.654
	1700.00	86.391	194.252	130.212	15.866	108.868	–314.362	–195.997	–79.509	2.443
	1800.00	87.518	199.222	133.909	24.562	117.564	–334.038	–195.843	–72.661	2.109
	1900.00	88.641	203.984	137.472	33.370	126.372	–354.200	–195.627	–65.823	1.810
	2000.00	89.762	208.559	140.913	42.290	135.292	–374.828	–195.352	–58.998	1.541
	2100.00	90.880	212.966	144.240	51.322	144.324	–395.906	–195.013	–52.188	1.298
	2200.00	91.997	217.219	147.461	60.466	153.468	–417.416	–194.607	–45.396	1.078

References

Phase	H / S	C_p	Remarks	
SOL	C1	C1	C1	MPT= 2433.

Si3W5 — 3–SILICON 5–TUNGSTEN — 1003.507

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	181.377	247.274	247.274	−135.202	0.000	−208.927	−135.202	−143.405	25.124
	300.00	181.573	248.397	247.278	−134.866	0.336	−209.385	−135.202	−143.456	24.978
	400.00	189.809	301.849	254.510	−116.266	18.936	−237.006	−135.295	−146.197	19.091
	500.00	195.726	344.864	268.417	−96.979	38.223	−269.411	−135.419	−148.907	15.556
	600.00	200.731	381.001	284.249	−77.151	58.051	−305.751	−135.509	−151.596	13.198
	700.00	205.306	412.291	300.354	−56.846	78.356	−345.450	−135.555	−154.272	11.512
	800.00	209.650	439.991	316.110	−36.097	99.105	−388.090	−135.554	−156.946	10.248
	900.00	213.861	464.929	331.283	−14.921	120.281	−433.356	−135.506	−159.622	9.264
	1000.00	217.990	487.675	345.801	6.672	141.874	−481.003	−135.411	−162.307	8.478
	1100.00	222.064	508.643	359.664	28.675	163.877	−530.832	−135.269	−165.003	7.835
	1200.00	226.101	528.139	372.901	51.084	186.286	−582.683	−135.080	−167.714	7.300
	1300.00	230.112	546.395	385.551	73.895	209.097	−636.419	−134.846	−170.442	6.848
	1400.00	234.105	563.594	397.660	97.106	232.308	−691.926	−134.566	−173.191	6.462
	1500.00	238.083	579.882	409.270	120.715	255.917	−749.107	−134.244	−175.961	6.127
	1600.00	242.051	595.374	420.421	144.722	279.924	−807.876	−133.881	−178.753	5.836
	1700.00	246.010	610.167	431.151	169.125	304.327	−868.159	−284.013	−180.229	5.538
	1800.00	249.963	624.341	441.493	193.924	329.126	−929.889	−282.884	−174.156	5.054
	1900.00	253.912	637.961	451.477	219.118	354.320	−993.009	−281.616	−168.150	4.623
	2000.00	257.856	651.085	461.131	244.706	379.908	−1057.465	−280.215	−162.214	4.237
	2100.00	261.796	663.762	470.480	270.689	405.891	−1123.211	−278.661	−156.351	3.889
	2200.00	265.734	676.031	479.546	297.065	432.267	−1190.204	−276.934	−150.566	3.575

References

Phase	H / S	C_p	Remarks	
SOL	C1	C1	C1/Tk1	MPT= 2593. / 2623.

119.310 SILICON ZIRCONIUM **SiZr**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	44.465	58.158	58.158	−154.808	0.000	−172.148	−154.808	−154.948	27.146
	300.00	44.522	58.433	58.158	−154.726	0.082	−172.256	−154.809	−154.949	26.979
	400.00	46.845	71.589	59.936	−150.147	4.661	−178.783	−154.913	−154.981	20.238
	500.00	48.392	82.217	63.363	−145.381	9.427	−186.490	−155.051	−154.983	16.191
	600.00	49.634	91.152	67.270	−140.478	14.330	−195.170	−155.215	−154.954	13.490
	700.00	50.731	98.887	71.246	−135.459	19.349	−204.680	−155.411	−154.895	11.558
	800.00	51.752	105.729	75.137	−130.335	24.473	−214.918	−155.644	−154.806	10.108
	900.00	52.728	111.881	78.884	−125.110	29.698	−225.803	−155.929	−154.685	8.978
	1000.00	53.677	117.486	82.468	−119.790	35.018	−237.276	−156.274	−154.529	8.072
	1100.00	54.607	122.645	85.889	−114.376	40.432	−249.286	−156.686	−154.335	7.329
	1200.00	55.525	127.436	89.154	−108.869	45.939	−261.792	−160.881	−153.879	6.698
	1300.00	56.434	131.916	92.273	−103.271	51.537	−274.762	−160.893	−153.295	6.159
	1400.00	57.337	136.132	95.256	−97.583	57.225	−288.167	−160.899	−152.710	5.698
	1500.00	58.235	140.118	98.115	−91.804	63.004	−301.981	−160.909	−152.125	5.297

References

Phase	H / S	C_p	Remarks
SOL	Nb1/e	e	Hu1 MPT= 2523.

210.533 SILICON 2−ZIRCONIUM **SiZr2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	68.792	100.416	100.416	−208.363	0.000	−238.302	−208.363	−209.513	36.706
	300.00	68.897	100.842	100.417	−208.236	0.127	−238.488	−208.366	−209.521	36.481
	400.00	72.967	121.281	103.176	−201.121	7.242	−249.634	−208.493	−209.885	27.408
	500.00	75.442	137.846	108.506	−193.693	14.670	−262.616	−208.593	−210.221	21.962
	600.00	77.289	151.770	114.587	−186.053	22.310	−277.115	−208.712	−210.536	18.329
	700.00	78.839	163.803	120.778	−178.245	30.118	−292.907	−208.884	−210.827	15.732
	800.00	80.232	174.423	126.832	−170.291	38.072	−309.829	−209.138	−211.089	13.783
	900.00	81.533	183.949	132.658	−162.202	46.161	−327.756	−209.505	−211.312	12.264
	1000.00	82.776	192.604	138.227	−153.986	54.377	−346.590	−210.011	−211.487	11.047
	1100.00	83.983	200.550	143.536	−145.648	62.715	−366.253	−210.671	−211.604	10.048
	1200.00	85.164	207.908	148.598	−137.190	71.173	−386.680	−218.916	−211.210	9.194
	1300.00	86.327	214.771	153.427	−128.616	79.747	−407.818	−218.821	−210.572	8.461
	1400.00	87.477	221.211	158.041	−119.925	88.438	−429.620	−218.736	−209.941	7.833
	1500.00	88.618	227.285	162.457	−111.121	97.242	−452.048	−218.683	−209.315	7.289

References

Phase	H / S	C_p	Remarks
SOL	Hu1/e	e	Hu1 MPT= 2383. (peritec.)

Si2Zr — 2–SILICON ZIRCONIUM — 147.395

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	64.612	71.546	71.546	−159.410	0.000	−180.742	−159.410	−157.931	27.669
	300.00	64.680	71.946	71.548	−159.290	0.120	−180.874	−159.411	−157.921	27.497
	400.00	67.574	90.978	74.123	−152.668	6.742	−189.059	−159.593	−157.403	20.555
	500.00	69.738	106.297	79.075	−145.799	13.611	−198.947	−159.907	−156.821	16.383
	600.00	71.615	119.180	84.713	−138.730	20.680	−210.238	−160.282	−156.169	13.596
	700.00	73.357	130.352	90.452	−131.480	27.930	−222.727	−160.696	−155.452	11.600
	800.00	75.026	140.257	96.070	−124.061	35.349	−236.266	−161.143	−154.672	10.099
	900.00	76.653	149.188	101.484	−116.477	42.933	−250.746	−161.628	−153.835	8.928
	1000.00	78.254	157.347	106.668	−108.731	50.679	−266.078	−162.158	−152.941	7.989
	1100.00	79.838	164.880	111.622	−100.826	58.584	−282.194	−162.735	−151.992	7.217
	1200.00	81.411	171.894	116.356	−92.764	66.646	−299.037	−167.073	−150.766	6.563
	1300.00	82.975	178.472	120.883	−84.544	74.866	−316.558	−167.206	−149.402	6.003
	1400.00	84.533	184.679	125.221	−76.169	83.241	−334.719	−167.309	−148.028	5.523
	1500.00	86.087	190.564	129.382	−67.638	91.772	−353.484	−167.391	−146.648	5.107

References

Phase	H / S	C_p	Remarks
SOL	Hu1/e	e	Hu1 MPT= 1793. (peritec.)

Si3Zr5 — 3–SILICON 5–ZIRCONIUM — 540.376

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	181.341	263.174	263.174	−575.718	0.000	−654.183	−575.718	−579.406	101.510
	300.00	181.607	264.296	263.177	−575.382	0.336	−654.671	−575.727	−579.429	100.888
	400.00	192.004	318.116	270.445	−556.649	19.069	−683.896	−576.159	−580.597	75.818
	500.00	198.468	361.697	284.475	−537.107	38.611	−717.955	−576.577	−581.658	60.765
	600.00	203.384	398.332	300.478	−517.006	58.712	−756.005	−577.061	−582.631	50.723
	700.00	207.570	430.004	316.770	−496.454	79.264	−797.457	−577.684	−583.512	43.542
	800.00	211.365	457.972	332.706	−475.505	100.213	−841.883	−578.509	−584.291	38.150
	900.00	214.934	483.075	348.043	−454.189	121.529	−888.956	−579.614	−584.951	33.950
	1000.00	218.363	505.899	362.704	−432.523	143.195	−938.422	−581.056	−585.470	30.582
	1100.00	221.700	526.869	376.688	−410.519	165.199	−990.075	−582.875	−585.826	27.819
	1200.00	224.974	546.300	390.022	−388.185	187.533	−1043.745	−603.649	−584.892	25.460
	1300.00	228.204	564.435	402.749	−365.526	210.192	−1099.291	−603.558	−583.332	23.439
	1400.00	231.402	581.464	414.912	−342.545	233.173	−1156.595	−603.483	−581.779	21.706
	1500.00	234.576	597.538	426.556	−319.246	256.472	−1215.552	−603.476	−580.230	20.205

References

Phase	H / S	C_p
SOL	Hu1/e	e

150.360 SAMARIUM **Sm**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	29.539	69.496	69.496	0.000	0.000	−20.720	0.000	0.000	0.000
	300.00	29.580	69.679	69.497	0.055	0.055	−20.849	0.000	0.000	0.000
	400.00	33.179	78.636	70.694	3.177	3.177	−28.277	0.000	0.000	0.000
	500.00	37.405	86.499	73.082	6.709	6.709	−36.541	0.000	0.000	0.000
	600.00	40.794	93.638	75.922	10.629	10.629	−45.553	0.000	0.000	0.000
	700.00	42.635	100.088	78.922	14.816	14.816	−55.246	0.000	0.000	0.000
	800.00	44.030	105.903	81.938	19.172	19.172	−65.550	0.000	0.000	0.000
	900.00	44.489	111.114	84.895	23.597	23.597	−76.406	0.000	0.000	0.000
	1000.00	45.282	115.839	87.757	28.082	28.082	−87.757	0.000	0.000	0.000
	1100.00	46.536	120.209	90.511	32.668	32.668	−99.562	0.000	0.000	0.000
	1190.00	48.376	123.934	92.899	36.932	36.932	−110.549	0.000	0.000	0.000
			2.616		3.113					
SOL−B	1190.00	46.944	126.550	92.899	40.045	40.045	−110.549	0.000	0.000	0.000
	1200.00	46.944	126.943	93.181	40.515	40.515	−111.817	0.000	0.000	0.000
	1300.00	46.944	130.700	95.924	45.209	45.209	−124.701	0.000	0.000	0.000
	1345.00	46.944	132.298	97.115	47.322	47.322	−130.619	0.000	0.000	0.000
			6.408		8.619					
LIQ	1345.00	50.208	138.706	97.115	55.941	55.941	−130.619	0.000	0.000	0.000
	1400.00	50.208	140.718	98.788	58.702	58.702	−138.304	0.000	0.000	0.000
	1500.00	50.208	144.182	101.700	63.723	63.723	−152.551	0.000	0.000	0.000
	1600.00	50.208	147.423	104.458	68.744	68.744	−167.133	0.000	0.000	0.000
	1700.00	50.208	150.466	107.076	73.764	73.764	−182.029	0.000	0.000	0.000
	1800.00	50.208	153.336	109.567	78.785	78.785	−197.220	0.000	0.000	0.000
	1900.00	50.208	156.051	111.942	83.806	83.806	−212.691	0.000	0.000	0.000
	2000.00	50.208	158.626	114.213	88.827	88.827	−228.426	0.000	0.000	0.000
	2061.00	50.208	160.135	115.550	91.889	91.889	−238.148	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL − A	Hu1	Hu1		complex rhombohedral
SOL − B	Hu1	Hu1		bcc
LIQ	Hu1	Hu1	Hu1	BPT = 2061., L = 166.41 kJ

Sm[g] SAMARIUM (GAS) 150.360

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	30.361	208.146	208.146	206.690	0.000	144.631	206.690	165.351	−28.969
	300.00	30.358	208.334	208.147	206.746	0.056	144.246	206.691	165.095	−28.746
	400.00	30.440	217.070	209.337	209.783	3.093	122.955	206.606	151.233	−19.749
	500.00	30.676	223.888	211.590	212.839	6.149	100.895	206.130	137.436	−14.358
	600.00	30.867	229.499	214.121	215.917	9.227	78.217	205.287	123.771	−10.775
	700.00	30.959	234.265	216.667	219.009	12.319	55.023	204.193	110.269	−8.228
	800.00	30.939	238.399	219.131	222.105	15.415	31.385	202.932	96.935	−6.329
	900.00	30.810	242.037	221.478	225.193	18.503	7.360	201.596	83.766	−4.862
	1000.00	30.583	245.272	223.699	228.263	21.573	−17.009	200.181	70.748	−3.696
	1100.00	30.272	248.173	225.794	231.307	24.617	−41.684	198.639	57.878	−2.748
	1200.00	29.892	250.791	227.770	234.316	27.626	−66.634	193.801	45.183	−1.967
	1300.00	29.460	253.167	229.634	237.283	30.593	−91.834	192.074	32.868	−1.321
	1400.00	28.993	255.333	231.393	240.206	33.516	−117.260	181.504	21.043	−0.785
	1500.00	28.508	257.317	233.056	243.081	36.391	−142.894	179.359	9.656	−0.336
	1600.00	28.022	259.141	234.630	245.908	39.218	−168.718	177.164	−1.586	0.052
	1700.00	27.555	260.826	236.122	248.686	41.996	−194.718	174.922	−12.689	0.390
	1800.00	27.123	262.389	237.539	251.420	44.730	−220.880	172.635	−23.659	0.687
	1900.00	26.744	263.845	238.885	254.113	47.423	−247.192	170.307	−34.501	0.949
	2000.00	26.436	265.208	240.168	256.771	50.081	−273.645	167.944	−45.220	1.181
	2100.00	26.218	266.492	241.391	259.403	52.713	−300.231	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

174.382 SAMARIUM DICARBIDE **SmC2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	69.789	87.906	87.906	−96.232	0.000	−122.441	−96.232	−98.298	17.221
	300.00	69.931	88.338	87.907	−96.103	0.129	−122.604	−96.189	−98.311	17.117
	400.00	75.270	109.277	90.726	−88.811	7.421	−132.522	−94.094	−99.347	12.973
	500.00	78.260	126.419	96.203	−81.124	15.108	−144.333	−92.600	−100.847	10.535
	600.00	80.328	140.880	102.475	−73.189	23.043	−157.717	−91.747	−102.587	8.931
	700.00	81.960	153.389	108.875	−65.072	31.160	−172.445	−91.373	−104.428	7.793
	800.00	83.360	164.426	115.143	−56.805	39.427	−188.346	−91.310	−106.300	6.941
	900.00	84.624	174.319	121.178	−48.405	47.827	−205.292	−91.400	−108.170	6.278
	1000.00	85.806	183.297	126.948	−39.883	56.349	−223.180	−91.602	−110.023	5.747
	1100.00	86.932	191.528	132.449	−31.246	64.986	−241.926	−91.929	−111.851	5.311
	1200.00	88.022	199.139	137.694	−22.498	73.734	−261.464	−95.518	−113.615	4.946
	1300.00	89.085	206.227	142.696	−13.642	82.590	−281.737	−95.940	−115.106	4.625
	1400.00	90.129	212.867	147.473	−4.681	91.551	−302.695	−105.131	−116.210	4.336
	1440.00	90.542	215.412	149.325	−1.068	95.164	−311.261	−105.406	−116.522	4.227
			3.865		5.565					
SOL−B	1440.00	90.550	219.276	149.325	4.497	100.729	−311.261	−99.841	−116.522	4.227
	1500.00	91.155	222.985	152.198	9.948	106.180	−324.529	−100.241	−117.209	4.082
	1600.00	92.163	228.900	156.809	19.114	115.346	−347.126	−100.864	−118.320	3.863
	1700.00	93.171	234.518	161.216	28.381	124.613	−370.299	−101.426	−119.393	3.668
	1800.00	94.178	239.872	165.438	37.748	133.980	−394.021	−101.920	−120.435	3.495
	1900.00	95.186	244.991	169.491	47.216	143.448	−418.266	−102.342	−121.452	3.339
	2000.00	96.194	249.899	173.390	56.786	153.018	−443.012	−102.688	−122.449	3.198

References

Phase	H / S	C_p
SOL−A	Pa3	Pa3
SOL−B	Pa3	Pa3

221.265 SAMARIUM DICHLORIDE **SmCl2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	82.394	127.612	127.612	−815.499	0.000	−853.547	−815.499	−766.304	134.253
	300.00	82.425	128.122	127.614	−815.347	0.152	−853.783	−815.464	−765.999	133.372
	400.00	84.098	152.063	130.867	−807.020	8.479	−867.846	−813.727	−749.781	97.911
	500.00	85.772	171.009	137.065	−798.527	16.972	−884.031	−812.336	−733.963	76.677
	600.00	87.446	186.795	144.073	−789.866	25.633	−901.943	−811.231	−718.396	62.542
	700.00	89.119	200.400	151.170	−781.038	34.461	−921.318	−810.266	−703.000	52.459
	800.00	90.793	212.410	158.089	−772.042	43.457	−941.970	−809.333	−687.740	44.905
	900.00	92.466	223.200	164.734	−762.879	52.620	−963.759	−808.320	−672.600	39.037
	1000.00	94.140	233.029	171.079	−753.549	61.950	−986.578	−807.216	−657.579	34.348

References

Phase	H / S	C_p
SOL	Nb1/e	e

SmCl3 SAMARIUM TRICHLORIDE 256.718

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	99.528	150.122	150.122	−1025.900	0.000	−1070.659	−1025.900	−950.155	166.463
	300.00	99.648	150.738	150.124	−1025.716	0.184	−1070.937	−1025.865	−949.685	165.355
	400.00	104.743	180.157	154.100	−1015.477	10.423	−1087.540	−1023.949	−924.582	120.738
	500.00	108.428	203.940	161.765	−1004.812	21.088	−1106.782	−1022.172	−899.950	94.017
	600.00	111.559	223.991	170.508	−993.810	32.090	−1128.205	−1020.543	−875.660	76.233
	700.00	114.428	241.406	179.419	−982.509	43.391	−1151.493	−1018.944	−851.639	63.550
	800.00	117.157	256.865	188.151	−970.929	54.971	−1176.421	−1017.278	−827.851	54.053
	900.00	119.805	270.818	196.574	−959.080	66.820	−1202.816	−1015.443	−804.280	46.679
	950.00	121.109	277.330	200.654	−953.057	72.843	−1216.521	−1014.456	−792.576	43.579
			48.446		46.024					
LIQ	950.00	142.256	325.777	200.654	−907.033	118.867	−1216.521	−968.432	−792.576	43.579
	1000.00	142.256	333.073	207.094	−899.920	125.980	−1232.994	−966.380	−783.373	40.919
	1100.00	142.256	346.632	219.173	−885.695	140.205	−1266.990	−962.371	−765.268	36.340
	1200.00	142.256	359.010	230.317	−871.469	154.431	−1302.281	−961.638	−747.494	32.538
	1300.00	142.256	370.396	240.661	−857.244	168.656	−1338.759	−957.766	−729.806	29.324

References

Phase	H / S	C_p
SOL	Pa2	Pa2
LIQ	Pa2	Pa2

Sm2O3 DISAMARIUM TRIOXIDE (CUBIC) 348.718

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−C	298.15	115.837	144.766	144.766	−1827.404	0.000	−1870.566	−1827.404	−1737.379	304.382
	300.00	116.074	145.484	144.769	−1827.189	0.215	−1870.835	−1827.380	−1736.820	302.407
	400.00	125.792	180.326	149.453	−1815.055	12.349	−1887.185	−1825.946	−1706.846	222.891
	500.00	132.176	209.122	158.591	−1802.138	25.266	−1906.699	−1824.682	−1677.225	175.218
	600.00	136.902	233.658	169.107	−1788.674	38.730	−1928.868	−1823.798	−1647.822	143.456
	700.00	140.547	255.047	179.889	−1774.794	52.610	−1953.327	−1823.173	−1618.544	120.777
	800.00	143.352	274.006	190.491	−1760.592	66.812	−1979.797	−1822.690	−1589.345	103.774
	900.00	145.432	291.017	200.732	−1746.147	81.257	−2008.063	−1822.202	−1560.206	90.552
	1000.00	146.846	306.419	210.543	−1731.528	95.876	−2037.947	−1821.746	−1531.121	79.978
	1100.00	147.628	320.457	219.907	−1716.799	110.605	−2069.301	−1821.454	−1502.074	71.328
	1200.00	147.796	333.314	228.829	−1702.023	125.381	−2101.999	−1827.694	−1472.989	64.118
	1250.00	147.654	339.344	233.130	−1694.636	132.768	−2118.817	−1827.682	−1458.210	60.935

References

Phase	H / S	C_p	Remarks
SOL−C	Pa1	Pa1	TPT (cubic − monoclinic): uncertain

348.718 DISAMARIUM TRIOXIDE (MONOCLINIC) **Sm2O3[M]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)		] [		kJ / mol			] [−]
SOL-M1	298.15	114.533	151.042	151.042	−1823.638	0.000	−1868.671	−1823.638	−1735.484	304.050
	300.00	114.806	151.752	151.045	−1823.426	0.212	−1868.951	−1823.617	−1734.937	302.079
	400.00	125.109	186.360	155.693	−1811.371	12.267	−1885.915	−1822.263	−1705.576	222.725
	500.00	130.976	214.955	164.771	−1798.546	25.092	−1906.023	−1821.090	−1676.548	175.148
	600.00	135.097	239.217	175.208	−1785.233	38.405	−1928.763	−1820.357	−1647.716	143.446
	700.00	138.394	260.297	185.890	−1771.553	52.085	−1953.761	−1819.932	−1618.979	120.810
	800.00	141.252	278.967	196.380	−1757.568	66.070	−1980.742	−1819.666	−1590.290	103.835
	900.00	143.854	295.756	206.504	−1743.311	80.327	−2009.492	−1819.366	−1561.635	90.635
	1000.00	146.298	311.041	216.205	−1728.803	94.835	−2039.843	−1819.021	−1533.017	80.077
	1100.00	148.638	325.095	225.474	−1714.055	109.583	−2071.659	−1818.710	−1504.432	71.440
	1195.00	150.795	337.496	233.892	−1699.832	123.806	−2103.139	−1824.765	−1477.272	64.573
			0.875		1.046					
SOL-M2	1195.00	154.390	338.371	233.892	−1698.786	124.852	−2103.139	−1823.719	−1477.272	64.573
	1200.00	154.390	339.016	234.329	−1698.014	125.624	−2104.832	−1823.684	−1475.823	64.241
	1300.00	154.390	351.373	242.863	−1682.575	141.063	−2139.360	−1823.009	−1446.862	58.136
	1400.00	154.390	362.815	251.028	−1667.136	156.502	−2175.077	−1839.976	−1417.239	52.878
	1500.00	154.390	373.467	258.839	−1651.697	171.941	−2211.897	−1840.040	−1387.042	48.301
	1600.00	154.390	383.431	266.318	−1636.258	187.380	−2249.747	−1840.143	−1356.839	44.296
	1700.00	154.390	392.791	273.485	−1620.819	202.819	−2288.563	−1840.284	−1326.628	40.762
	1800.00	154.390	401.615	280.361	−1605.380	218.258	−2328.287	−1840.460	−1296.408	37.621
	1900.00	154.390	409.963	286.964	−1589.941	233.697	−2368.870	−1840.672	−1266.177	34.810
	2000.00	154.390	417.882	293.314	−1574.502	249.136	−2410.266	−1840.919	−1235.934	32.279

References

Phase	H / S	C_p
SOL−M1	Pa1	Pa1
SOL−M2	Pa1	Pa1

SmOF SAMARIUM FLUORIDE OXIDE 185.358

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	69.572	94.140	94.140	−1148.926	0.000	−1176.994	−1148.926	−1095.460	191.920
	300.00	69.714	94.571	94.141	−1148.797	0.129	−1177.168	−1148.908	−1095.128	190.679
	400.00	75.058	115.448	96.952	−1141.527	7.399	−1187.707	−1147.853	−1077.359	140.689
	500.00	78.053	132.544	102.413	−1133.861	15.065	−1200.132	−1146.929	−1059.847	110.722
	600.00	80.123	146.967	108.668	−1125.947	22.979	−1214.127	−1146.252	−1042.499	90.758
	700.00	81.756	159.444	115.050	−1117.850	31.076	−1229.461	−1145.744	−1025.248	76.505
	797.00	83.118	170.142	121.117	−1109.853	39.073	−1245.456	−1145.338	−1008.578	66.101
			6.562		5.230					
SOL−B	797.00	83.118	176.704	121.117	−1104.623	44.303	−1245.456	−1140.108	−1008.578	66.101
	800.00	83.157	177.017	121.326	−1104.373	44.553	−1245.986	−1140.095	−1008.083	65.821
	900.00	84.423	186.885	128.071	−1095.993	52.933	−1264.190	−1139.667	−991.607	57.551
	1000.00	85.605	195.842	134.407	−1087.491	61.435	−1283.333	−1139.221	−975.180	50.938
	1100.00	86.731	204.054	140.371	−1078.874	70.052	−1303.334	−1138.798	−958.796	45.529
	1200.00	89.663	211.655	145.998	−1070.137	78.789	−1324.123	−1141.545	−942.423	41.023
	1300.00	89.663	218.832	151.328	−1061.171	87.755	−1345.653	−1140.938	−925.854	37.201
	1400.00	89.663	225.477	156.390	−1052.204	96.722	−1367.872	−1149.153	−908.975	33.914
	1500.00	89.663	231.663	161.204	−1043.238	105.688	−1390.733	−1148.917	−891.828	31.056
	1600.00	89.663	237.450	165.791	−1034.272	114.654	−1414.192	−1148.699	−874.696	28.556
	1700.00	89.663	242.886	170.168	−1025.305	123.621	−1438.211	−1148.501	−857.576	26.350
	1800.00	89.663	248.011	174.351	−1016.339	132.587	−1462.758	−1148.320	−840.469	24.390
	1900.00	89.663	252.858	178.357	−1007.373	141.553	−1487.804	−1148.155	−823.370	22.636
	2000.00	89.663	257.458	182.198	−998.406	150.520	−1513.322	−1148.007	−806.280	21.058

References

Phase	H / S	C_p
SOL−A	W2	W2
SOL−B	W2,S1	W2

595.164 DISAMARIUM DIZIRCONIUM HEPTAOXIDE **Sm2Zr2O7**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	226.231	251.877	251.877	−4071.032	0.000	−4146.129	−4071.032	−3867.435	677.559
	300.00	226.931	253.278	251.881	−4070.613	0.419	−4146.596	−4071.006	−3866.172	673.160
	400.00	252.735	322.557	261.152	−4046.470	24.562	−4175.493	−4068.625	−3798.213	495.996
	500.00	266.521	380.563	279.398	−4020.449	50.583	−4210.731	−4065.624	−3730.956	389.770
	600.00	275.577	430.003	300.481	−3993.319	77.713	−4251.321	−4062.775	−3664.295	319.005
	700.00	282.400	473.015	322.123	−3965.407	105.625	−4296.518	−4060.159	−3598.090	268.493
	800.00	288.032	511.102	343.410	−3936.878	134.154	−4345.760	−4057.722	−3532.248	230.632
	900.00	292.972	545.318	363.975	−3907.824	163.208	−4398.610	−4055.331	−3466.708	201.202
	1000.00	297.482	576.422	383.688	−3878.298	192.734	−4454.720	−4053.004	−3401.431	177.673
	1100.00	301.712	604.975	402.525	−3848.336	222.696	−4513.809	−4050.840	−3336.380	158.431
	1200.00	305.750	631.402	420.510	−3817.962	253.070	−4575.644	−4062.583	−3271.020	142.384

References

Phase	H / S	C_p
SOL	K5/e	e

Sn TIN (WHITE) 118.710

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−B	298.15	26.989	51.195	51.195	0.000	0.000	−15.264	0.000	0.000	0.000
	300.00	27.022	51.362	51.196	0.050	0.050	−15.359	0.000	0.000	0.000
	400.00	28.832	59.384	52.277	2.843	2.843	−20.911	0.000	0.000	0.000
	500.00	30.642	66.012	54.379	5.816	5.816	−27.190	0.000	0.000	0.000
	505.06	30.733	66.321	54.498	5.972	5.972	−27.525	0.000	0.000	0.000
			13.917		7.029					
LIQ	505.06	29.694	80.238	54.498	13.001	13.001	−27.525	0.000	0.000	0.000
	600.00	28.805	85.268	58.982	15.772	15.772	−35.389	0.000	0.000	0.000
	700.00	28.471	89.678	63.061	18.632	18.632	−44.143	0.000	0.000	0.000
	800.00	28.469	93.476	66.631	21.477	21.477	−53.304	0.000	0.000	0.000
	900.00	28.451	96.828	69.803	24.322	24.322	−62.823	0.000	0.000	0.000
	1000.00	28.451	99.825	72.658	27.167	27.167	−72.658	0.000	0.000	0.000
	1100.00	28.451	102.537	75.253	30.012	30.012	−82.778	0.000	0.000	0.000
	1200.00	28.451	105.012	77.631	32.857	32.857	−93.158	0.000	0.000	0.000
	1300.00	28.451	107.290	79.826	35.702	35.702	−103.774	0.000	0.000	0.000
	1400.00	28.451	109.398	81.864	38.547	38.547	−114.610	0.000	0.000	0.000
	1500.00	28.451	111.361	83.766	41.393	41.393	−125.649	0.000	0.000	0.000
	1600.00	28.451	113.197	85.549	44.238	44.238	−136.878	0.000	0.000	0.000
	1700.00	28.451	114.922	87.226	47.083	47.083	−148.285	0.000	0.000	0.000
	1800.00	28.451	116.548	88.811	49.928	49.928	−159.859	0.000	0.000	0.000
	1900.00	28.451	118.087	90.311	52.773	52.773	−171.592	0.000	0.000	0.000
	2000.00	28.451	119.546	91.737	55.618	55.618	−183.474	0.000	0.000	0.000
	2100.00	28.451	120.934	93.095	58.463	58.463	−195.499	0.000	0.000	0.000
	2200.00	28.451	122.258	94.390	61.308	61.308	−207.659	0.000	0.000	0.000
	2300.00	28.451	123.522	95.630	64.153	64.153	−219.948	0.000	0.000	0.000
	2400.00	28.451	124.733	96.817	66.999	66.999	−232.361	0.000	0.000	0.000
	2500.00	28.451	125.895	97.957	69.844	69.844	−244.893	0.000	0.000	0.000
	2600.00	28.451	127.011	99.053	72.689	72.689	−257.539	0.000	0.000	0.000
	2700.00	28.451	128.084	100.109	75.534	75.534	−270.294	0.000	0.000	0.000
	2800.00	28.451	129.119	101.127	78.379	78.379	−283.154	0.000	0.000	0.000
	2873.00	28.451	129.851	101.847	80.456	80.456	−292.607	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL−B	Hu1	Hu1	Hu1	α (fcc, grey) -β (bct, white) TPT = 286.2, L = 1.97 kJ
LIQ	Hu1	Hu1		BPT = 2873., L = 295.76 kJ

118.710 TIN (GAS) **Sn[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	21.259	168.486	168.486	301.248	0.000	251.014	301.248	266.278	−46.651
	300.00	21.283	168.618	168.487	301.287	0.039	250.702	301.237	266.061	−46.325
	400.00	22.887	174.938	169.338	303.488	2.240	233.513	300.645	254.424	−33.224
	500.00	25.324	180.297	171.005	305.894	4.646	215.746	300.078	242.935	−25.379
	600.00	27.881	185.143	172.963	308.556	7.308	197.470	292.785	232.859	−20.272
	700.00	30.057	189.611	175.026	311.458	10.210	178.730	292.826	222.872	−16.631
	800.00	31.651	193.736	177.111	314.548	13.300	159.559	293.071	212.864	−13.899
	900.00	32.641	197.527	179.172	317.768	16.520	139.994	293.446	202.817	−11.771
	1000.00	33.095	200.993	181.183	321.058	19.810	120.065	293.891	192.723	−10.067
	1100.00	33.163	204.155	183.130	324.375	23.127	99.805	294.363	182.584	−8.670
	1200.00	32.886	207.030	185.004	327.680	26.432	79.244	294.822	172.401	−7.504
	1300.00	32.427	209.645	186.800	330.946	29.698	58.408	295.244	162.182	−6.517
	1400.00	31.881	212.028	188.518	334.162	32.914	37.322	295.615	151.932	−5.669
	1500.00	31.303	214.208	190.159	337.321	36.073	16.009	295.929	141.658	−4.933
	1600.00	30.728	216.210	191.726	340.423	39.175	−5.514	296.185	131.365	−4.289
	1700.00	30.176	218.056	193.221	343.468	42.220	−27.228	296.385	121.057	−3.720
	1800.00	29.658	219.766	194.649	346.459	45.211	−49.120	296.531	110.739	−3.214
	1900.00	29.180	221.357	196.013	349.401	48.153	−71.177	296.628	100.414	−2.761
	2000.00	28.745	222.842	197.318	352.297	51.049	−93.388	296.679	90.086	−2.353
	2100.00	28.353	224.235	198.567	355.151	53.903	−115.743	296.688	79.756	−1.984
	2200.00	28.002	225.546	199.764	357.969	56.721	−138.232	296.660	69.426	−1.648
	2300.00	27.689	226.784	200.912	360.753	59.505	−160.850	296.599	59.099	−1.342
	2400.00	27.411	227.956	202.015	363.508	62.260	−183.587	296.509	48.774	−1.062
	2500.00	27.163	229.070	203.075	366.236	64.988	−206.439	296.392	38.454	−0.803
	2600.00	26.941	230.131	204.095	368.941	67.693	−229.399	296.252	28.139	−0.565
	2700.00	26.740	231.144	205.078	371.625	70.377	−252.463	296.091	17.830	−0.345
	2800.00	26.555	232.113	206.027	374.289	73.041	−275.627	295.910	7.528	−0.140
	2900.00	26.380	233.042	206.942	376.936	75.688	−298.885	0.000	0.000	0.000
	3000.00	26.209	233.933	207.827	379.566	78.318	−322.234	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

Sn3(AsO4)2 TRITIN ARSENATE 633.968

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	259.131	303.926	303.926	−1785.773	0.000	−1876.388	−1785.773	−1564.647	274.120
	300.00	259.760	305.531	303.931	−1785.293	0.480	−1876.952	−1785.752	−1563.275	272.190
	400.00	284.414	383.993	314.461	−1757.960	27.813	−1911.558	−1783.694	−1489.385	194.494
	500.00	299.738	449.204	335.074	−1728.708	57.065	−1953.310	−1780.732	−1416.141	147.943
	600.00	311.389	504.919	358.851	−1698.132	87.641	−2001.083	−1797.905	−1339.609	116.623
	700.00	321.307	553.680	383.272	−1666.487	119.286	−2054.063	−1793.215	−1263.589	94.290
	800.00	330.300	597.180	407.339	−1633.901	151.872	−2111.645	−1787.975	−1188.280	77.587
	900.00	338.756	636.576	430.655	−1600.445	185.328	−2173.363	−1782.241	−1113.657	64.635
	907.00	339.334	639.202	432.255	−1598.071	187.702	−2177.828	−1781.820	−1108.458	63.837

References

Phase	H / S	C_p
SOL	G1	G1

SnBr2 TIN DIBROMIDE 278.518

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	78.965	153.001	153.001	−243.509	0.000	−289.126	−243.509	−228.481	40.029
	300.00	79.036	153.489	153.002	−243.363	0.146	−289.410	−243.553	−228.387	39.766
	400.00	83.136	176.764	156.148	−235.263	8.246	−305.968	−272.728	−217.241	28.369
	500.00	88.701	195.885	162.234	−226.684	16.825	−324.626	−270.814	−203.583	21.268
	504.00	88.952	196.592	162.504	−226.328	17.181	−325.411	−270.730	−203.046	21.044
			34.036		17.154					
LIQ	504.00	103.763	230.628	162.504	−209.174	34.335	−325.411	−253.576	−203.046	21.044
	600.00	103.763	248.720	174.893	−199.213	44.296	−348.445	−257.017	−192.420	16.752
	700.00	103.763	264.715	186.611	−188.837	54.672	−374.137	−253.236	−181.953	13.577
	800.00	103.763	278.570	197.260	−178.460	65.049	−401.317	−249.453	−172.028	11.232
	900.00	103.763	290.792	206.986	−168.084	75.425	−429.797	−245.679	−162.577	9.436
	1000.00	103.763	301.724	215.923	−157.708	85.801	−459.432	−241.913	−153.545	8.020

References

Phase	H / S	C_p
SOL	Pa2	Pa2
LIQ	Pa2	Pa2

438.326 TIN TETRABROMIDE **SnBr4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	136.451	264.429	264.429	−405.848	0.000	−484.687	−405.848	−378.661	66.340
	300.00	142.256	265.291	264.431	−405.590	0.258	−485.177	−405.920	−378.492	65.901
	303.00	151.670	266.753	264.447	−405.149	0.699	−485.975	−406.014	−378.217	65.201
			37.284		11.297					
LIQ	303.00	157.946	304.037	264.447	−393.852	11.996	−485.975	−394.717	−378.217	65.201
	400.00	157.946	347.903	279.612	−378.532	27.316	−517.693	−450.618	−361.149	47.161
	480.00	157.946	376.700	293.467	−365.896	39.952	−546.712	−446.250	−343.668	37.399

References

Phase	H / S	C_p	Remarks
SOL	Tk1/e	e	
LIQ	Tk1	e	Tk1 BPT= 480., L= 36.8 kJ

438.326 TIN TETRABROMIDE (GAS) **SnBr4**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	103.422	412.652	412.652	−348.109	0.000	−471.141	−348.109	−365.115	63.967
	300.00	103.463	413.292	412.654	−347.918	0.191	−471.905	−348.248	−365.220	63.590
	400.00	104.913	443.283	416.733	−337.489	10.620	−514.802	−409.576	−358.258	46.784
	500.00	105.605	466.776	424.477	−326.959	21.150	−560.348	−409.404	−345.452	36.089
	600.00	105.987	486.067	433.182	−316.378	31.731	−608.018	−416.215	−331.359	28.847
	700.00	106.221	502.424	441.935	−305.767	42.342	−657.464	−415.934	−317.238	23.673
	800.00	106.374	516.619	450.403	−295.137	52.972	−708.432	−415.644	−303.159	19.794
	900.00	106.479	529.154	458.470	−284.494	63.615	−760.732	−415.361	−289.115	16.780
	1000.00	106.555	540.377	466.110	−273.842	74.267	−814.219	−415.086	−275.102	14.370

References

Phase	H / S	C_p
GAS	Tk1	e

SnCl[g] TIN MONOCHLORIDE (GAS) 154.163

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	35.834	253.409	253.409	34.660	0.000	−40.894	34.660	7.631	−1.337
	300.00	35.860	253.631	253.409	34.726	0.066	−41.363	34.645	7.464	−1.300
	400.00	36.696	264.076	254.828	38.359	3.699	−67.271	33.752	−1.467	0.192
	500.00	37.388	272.337	257.532	42.063	7.403	−94.106	32.696	−10.152	1.061
	600.00	38.146	279.220	260.589	45.839	11.179	−121.693	24.699	−17.307	1.507
	700.00	38.902	285.158	263.684	49.692	15.032	−149.919	23.854	−24.240	1.809
	800.00	39.597	290.399	266.702	53.617	18.957	−178.702	23.082	−31.057	2.028
	900.00	40.198	295.098	269.600	57.608	22.948	−207.980	22.364	−37.781	2.193
	1000.00	40.693	299.360	272.367	61.653	26.993	−237.707	21.694	−44.427	2.321
	1100.00	41.079	303.257	275.000	65.743	31.083	−267.840	21.061	−51.008	2.422
	1200.00	41.363	306.845	277.507	69.866	35.206	−298.348	20.457	−57.533	2.504
	1300.00	41.554	310.163	279.893	74.012	39.352	−329.200	19.872	−64.009	2.572
	1400.00	41.665	313.247	282.166	78.174	43.514	−360.373	19.298	−70.440	2.628
	1500.00	41.711	316.124	284.335	82.343	47.683	−391.843	18.728	−76.830	2.675
	1600.00	41.708	318.816	286.407	86.514	51.854	−423.591	18.156	−83.181	2.716
	1700.00	41.674	321.344	288.389	90.684	56.024	−455.601	17.579	−89.497	2.750
	1800.00	41.624	323.724	290.286	94.849	60.189	−487.855	16.993	−95.779	2.779
	1900.00	41.579	325.974	292.106	99.009	64.349	−520.341	16.399	−102.028	2.805
	2000.00	41.555	328.106	293.853	103.165	68.505	−553.046	15.798	−108.246	2.827

References

Phase	H / S	C_p
GAS	Pa2	Pa2

SnCl2 TIN DICHLORIDE 189.615

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	78.047	134.101	134.101	−328.026	0.000	−368.008	−328.026	−286.222	50.145
	300.00	78.129	134.584	134.103	−327.882	0.144	−368.257	−327.994	−285.963	49.791
	400.00	82.576	157.670	137.220	−319.846	8.180	−382.914	−326.219	−272.216	35.548
	500.00	87.031	176.574	143.254	−311.366	16.660	−399.653	−324.283	−258.936	27.051
	520.00	87.922	180.005	144.602	−309.617	18.409	−403.219	−330.883	−256.122	25.728
			28.162		14.644					
LIQ	520.00	100.416	208.167	144.602	−294.973	33.053	−403.219	−316.239	−256.122	25.728
	600.00	100.416	222.536	154.058	−286.939	41.087	−420.461	−313.447	−247.078	21.510
	700.00	100.416	238.015	164.975	−276.898	51.128	−443.508	−309.942	−236.294	17.632
	800.00	100.416	251.424	174.962	−266.856	61.170	−467.995	−306.451	−226.011	14.757
	885.00	100.416	261.564	182.801	−258.321	69.705	−489.805	−303.500	−217.616	12.844

References

Phase	H / S	C_p	Remarks	
SOL	Pa2	Pa2		
LIQ	Pa2	Pa2	Pa2	BPT= 885., L= 93.7 kJ

189.615

TIN DICHLORIDE (GAS) **SnCl2[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	54.632	305.855	305.855	−197.945	0.000	−289.136	−197.945	−207.350	36.327
	300.00	54.674	306.193	305.856	−197.844	0.101	−289.702	−197.957	−207.408	36.113
	400.00	56.154	322.155	308.022	−192.292	5.653	−321.154	−198.665	−210.456	27.483
	500.00	56.846	334.768	312.155	−186.638	11.307	−354.022	−199.555	−213.305	22.284
	600.00	57.228	345.169	316.816	−180.933	17.012	−388.034	−207.440	−214.651	18.687
	700.00	57.464	354.010	321.513	−175.197	22.748	−423.004	−208.242	−215.789	16.102
	800.00	57.622	361.694	326.066	−169.443	28.502	−458.798	−209.037	−216.813	14.156
	900.00	57.734	368.488	330.410	−163.674	34.271	−495.314	−209.840	−217.737	12.637
	1000.00	57.818	374.576	334.527	−157.897	40.048	−532.472	−210.649	−218.572	11.417
	1100.00	57.884	380.089	338.422	−152.111	45.834	−570.210	−211.462	−219.325	10.415
	1200.00	57.937	385.128	342.108	−146.320	51.625	−608.474	−212.280	−220.003	9.576
	1300.00	57.982	389.768	345.598	−140.524	57.421	−647.222	−213.102	−220.613	8.864
	1400.00	58.020	394.066	348.908	−134.724	63.221	−686.416	−213.928	−221.160	8.252
	1500.00	58.053	398.070	352.054	−128.920	69.025	−726.025	−214.758	−221.648	7.718
	1600.00	58.082	401.818	355.048	−123.114	74.831	−766.022	−215.593	−222.080	7.250
	1700.00	58.109	405.340	357.904	−117.304	80.641	−806.381	−216.431	−222.460	6.835
	1800.00	58.134	408.662	360.632	−111.492	86.453	−847.083	−217.275	−222.790	6.465
	1900.00	58.157	411.806	363.244	−105.677	92.268	−888.108	−218.123	−223.073	6.133
	2000.00	58.178	414.789	365.747	−99.861	98.084	−929.439	−218.976	−223.312	5.832

References

Phase	H / S	C_p
GAS	Pa2	Pa2

260.521

TIN TETRACHLORIDE **SnCl4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
LIQ	298.15	165.270	258.739	258.739	−511.285	0.000	−588.428	−511.285	−440.120	77.107
	300.00	165.727	259.762	258.742	−510.979	0.306	−588.908	−511.154	−439.678	76.555
	381.50	185.896	301.918	263.557	−496.650	14.635	−611.832	−504.721	−421.035	57.648

References

Phase	H / S	C_p	Remarks	
LIQ	Pa2	Pa2	Pa2	BPT= 381.5, L= 33.43 kJ

SnCl4[g] TIN TETRACHLORIDE (GAS) 260.521

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	98.452	364.954	364.954	-471.537	0.000	-580.348	-471.537	-432.040	75.692
	300.00	98.560	365.564	364.956	-471.355	0.182	-581.024	-471.530	-431.795	75.182
	400.00	102.417	394.522	368.878	-461.279	10.258	-619.088	-471.182	-418.604	54.664
	500.00	104.279	417.597	376.393	-450.935	20.602	-659.734	-470.953	-405.489	42.361
	600.00	105.354	436.712	384.899	-440.449	31.088	-702.477	-477.693	-391.100	34.048
	700.00	106.059	453.009	393.494	-429.876	41.661	-746.983	-477.334	-376.695	28.109
	800.00	106.566	467.206	401.840	-419.244	52.293	-793.009	-476.957	-362.344	23.659
	900.00	106.958	479.781	409.814	-408.567	62.970	-840.370	-476.576	-348.040	20.200
	1000.00	107.279	491.068	417.385	-397.854	73.683	-888.922	-476.192	-333.779	17.435

References

Phase	H / S	C_p
GAS	Pa2	Pa2

SnF[g] TIN MONOFLUORIDE (GAS) 137.708

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	33.703	241.614	241.614	-95.019	0.000	-167.056	-95.019	-121.561	21.297
	300.00	33.741	241.823	241.615	-94.957	0.062	-167.503	-95.036	-121.725	21.194
	400.00	35.228	251.751	242.958	-91.502	3.517	-192.202	-95.980	-130.483	17.039
	500.00	36.371	259.737	245.541	-87.921	7.098	-217.790	-97.055	-138.987	14.520
	600.00	37.418	266.462	248.482	-84.231	10.788	-244.108	-105.056	-145.957	12.707
	700.00	38.359	272.303	251.477	-80.441	14.578	-271.053	-105.902	-152.706	11.395
	800.00	39.174	277.479	254.409	-76.563	18.456	-298.547	-106.672	-159.339	10.404
	900.00	39.853	282.134	257.236	-72.611	22.408	-326.531	-107.388	-165.879	9.627
	1000.00	40.397	286.362	259.940	-68.597	26.422	-354.959	-108.060	-172.342	9.002
	1100.00	40.814	290.233	262.521	-64.535	30.484	-383.792	-108.697	-178.739	8.488
	1200.00	41.114	293.798	264.981	-60.438	34.581	-412.996	-109.309	-185.079	8.056
	1300.00	41.312	297.097	267.326	-56.316	38.703	-442.542	-109.905	-191.369	7.689
	1400.00	41.423	300.163	269.563	-52.179	42.840	-472.407	-110.494	-197.614	7.373
	1500.00	41.466	303.023	271.699	-48.034	46.985	-502.568	-111.083	-203.816	7.097
	1600.00	41.457	305.699	273.742	-43.887	51.132	-533.006	-111.676	-209.979	6.855
	1700.00	41.416	308.211	275.696	-39.743	55.276	-563.703	-112.278	-216.104	6.640
	1800.00	41.361	310.577	277.569	-35.604	59.415	-594.643	-112.891	-222.194	6.448
	1900.00	41.311	312.812	279.366	-31.471	63.548	-625.814	-113.514	-228.249	6.275
	2000.00	41.285	314.930	281.091	-27.341	67.678	-657.202	-114.146	-234.272	6.119

References

Phase	H / S	C_p
GAS	Pa2	Pa2

156.707

TIN DIFLUORIDE

SnF2

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	72.395	96.199	96.199	−648.520	0.000	−677.202	−648.520	−601.474	105.376
	300.00	72.505	96.647	96.200	−648.386	0.134	−677.380	−648.494	−601.183	104.675
	400.00	78.450	118.319	99.115	−640.838	7.682	−688.166	−646.952	−585.638	76.476
	488.20	83.692	134.456	104.075	−633.688	14.832	−699.329	−645.375	−572.276	61.230
			21.512		10.502					
LIQ	488.20	99.998	155.968	104.075	−623.186	25.334	−699.329	−634.873	−572.276	61.230
	500.00	99.998	158.356	105.328	−622.006	26.514	−701.184	−634.457	−570.768	59.628
	600.00	99.998	176.588	115.731	−612.006	36.514	−717.959	−637.885	−557.047	48.495
	700.00	99.998	192.003	125.554	−602.006	46.514	−736.408	−634.296	−543.858	40.583
	800.00	99.998	205.355	134.713	−592.006	56.514	−756.291	−630.747	−531.181	34.683
	900.00	99.998	217.133	143.230	−582.007	66.513	−777.427	−627.240	−518.946	30.119
	1000.00	99.998	227.669	151.156	−572.007	76.513	−799.676	−623.766	−507.100	26.488

References

Phase	H / S	C_p
SOL	Pa2	Pa2
LIQ	Pa2	Pa2

156.707

TIN DIFLUORIDE (GAS)

SnF2[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	49.679	282.124	282.124	−483.955	0.000	−568.070	−483.955	−492.343	86.256
	300.00	49.752	282.431	282.125	−483.863	0.092	−568.592	−483.971	−492.395	85.734
	400.00	52.738	297.194	284.117	−478.724	5.231	−597.602	−484.839	−495.073	64.650
	500.00	54.447	309.162	287.967	−473.358	10.597	−627.939	−485.809	−497.523	51.976
	600.00	55.484	319.188	292.358	−467.857	16.098	−659.370	−493.736	−498.458	43.395
	700.00	56.153	327.795	296.820	−462.273	21.682	−691.729	−494.563	−499.179	37.249
	800.00	56.608	335.324	301.172	−456.634	27.321	−724.893	−495.374	−499.783	32.632
	900.00	56.929	342.011	305.346	−450.956	32.999	−758.766	−496.189	−500.285	29.036
	1000.00	57.164	348.022	309.318	−445.251	38.704	−793.273	−497.009	−500.696	26.154
	1100.00	57.341	353.479	313.088	−439.525	44.430	−828.352	−497.835	−501.025	23.792
	1200.00	57.476	358.474	316.665	−433.784	50.171	−863.953	−498.668	−501.278	21.820
	1300.00	57.582	363.079	320.061	−428.031	55.924	−900.034	−499.506	−501.462	20.149
	1400.00	57.667	367.350	323.288	−422.268	61.687	−936.558	−500.351	−501.580	18.714
	1500.00	57.734	371.331	326.359	−416.498	67.457	−973.494	−501.203	−501.639	17.469
	1600.00	57.790	375.059	329.288	−410.722	73.233	−1010.816	−502.062	−501.640	16.377
	1700.00	57.835	378.564	332.084	−404.940	79.015	−1048.499	−502.928	−501.587	15.412
	1800.00	57.873	381.871	334.759	−399.155	84.800	−1086.522	−503.800	−501.483	14.553
	1900.00	57.904	385.000	337.322	−393.366	90.589	−1124.867	−504.679	−501.330	13.783
	2000.00	57.930	387.971	339.781	−387.574	96.381	−1163.517	−505.565	−501.131	13.088

References

Phase	H / S	C_p
GAS	Pa2	Pa2

SnH4[g] TIN TETRAHYDRIDE (GAS) 122.742

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	50.585	228.765	228.765	162.758	0.000	94.552	162.758	187.740	−32.891
	300.00	50.810	229.079	228.766	162.852	0.094	94.128	162.695	187.895	−32.715
	400.00	60.068	245.077	230.885	168.435	5.677	70.404	159.674	196.769	−25.695
	500.00	66.375	259.190	235.163	174.771	12.013	45.176	157.191	206.340	−21.556
	600.00	71.521	271.758	240.234	181.672	18.914	18.618	148.279	217.678	−18.951
	700.00	76.119	283.133	245.562	189.057	26.299	−9.136	146.928	229.358	−17.115
	800.00	80.425	293.581	250.920	196.887	34.129	−37.978	146.007	241.201	−15.749

References

Phase	H / S	C_p
GAS	Tk1	Tk1,e

SnI2 TIN DIIODIDE 372.519

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	78.451	168.490	168.490	−143.888	0.000	−194.123	−143.888	−144.232	25.269
	300.00	78.510	168.975	168.491	−143.743	0.145	−194.435	−143.894	−144.234	25.113
	400.00	81.776	192.006	171.609	−135.729	8.159	−212.532	−160.311	−143.735	18.770
	500.00	85.093	210.610	177.606	−127.386	16.502	−232.691	−203.135	−135.477	14.153
	593.00	88.197	225.383	183.966	−119.328	24.560	−252.980	−208.319	−121.825	10.731
			30.339		17.991					
LIQ	593.00	99.998	255.722	183.966	−101.337	42.551	−252.980	−190.328	−121.825	10.731
	600.00	99.998	256.895	184.810	−100.637	43.251	−254.774	−190.093	−121.018	10.536
	700.00	99.998	272.310	196.238	−90.637	53.251	−281.254	−186.716	−109.772	8.191
	800.00	99.998	285.663	206.600	−80.638	63.250	−309.168	−183.333	−99.011	6.465
	900.00	99.998	297.441	216.052	−70.638	73.250	−338.335	−179.959	−88.673	5.146
	1000.00	99.998	307.977	224.727	−60.638	83.250	−368.615	−176.592	−78.711	4.111

References

Phase	H / S	C_p
SOL	Pa2	Pa2
LIQ	Pa2	Pa2

372.519

TIN DIIODIDE (GAS) — SnI2[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	56.437	343.289	343.290	−3.084	0.000	−105.436	−3.084	−55.544	9.731
	300.00	56.458	343.639	343.291	−2.980	0.104	−106.071	−3.130	−55.869	9.728
	400.00	57.210	359.999	345.516	2.709	5.793	−141.290	−21.873	−72.494	9.467
	500.00	57.561	372.807	349.740	8.450	11.534	−177.954	−67.300	−80.740	8.435
	600.00	57.752	383.320	354.487	14.216	17.300	−215.776	−75.240	−82.019	7.140
	700.00	57.870	392.232	359.258	19.998	23.082	−254.565	−76.081	−83.082	6.200
	800.00	57.947	399.965	363.874	25.789	28.873	−294.183	−76.907	−84.026	5.486
	900.00	58.001	406.794	368.271	31.586	34.670	−334.528	−77.735	−84.866	4.926
	1000.00	58.041	412.907	372.434	37.389	40.473	−375.518	−78.565	−85.614	4.472
	1100.00	58.072	418.440	376.369	43.194	46.278	−417.090	−79.399	−86.279	4.097
	1200.00	58.096	423.494	380.089	49.003	52.087	−459.190	−80.237	−86.867	3.781

References

Phase	H / S	C_p
GAS	H3	H3

626.328

TIN TETRAIODIDE — SnI4

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	131.961	282.713	282.713	−215.309	0.000	−299.600	−215.309	−215.080	37.681
	300.00	132.093	283.530	282.715	−215.065	0.244	−300.124	−215.316	−215.079	37.449
	400.00	136.863	322.274	287.966	−201.586	13.723	−330.495	−247.907	−213.813	27.921
	418.00	137.408	328.310	289.574	−199.117	16.192	−336.351	−248.865	−212.257	26.524
			46.043		19.246					
LIQ	418.00	167.762	374.353	289.574	−179.871	35.438	−336.351	−229.619	−212.257	26.524
	500.00	167.762	404.404	306.015	−166.115	49.194	−368.317	−311.797	−201.079	21.007
	600.00	167.762	434.990	325.040	−149.339	65.970	−410.333	−312.479	−178.209	15.514
	627.00	167.762	442.375	329.935	−144.809	70.500	−422.178	−310.755	−172.205	14.346

References

Phase	H / S	C_p	Remarks	
SOL	Pa2	Pa2		
LIQ	Pa2	Pa2	Pa2	BPT= 627., L= 52.154 kJ

SnI4[g] TIN TETRAIODIDE (GAS) 626.328

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	105.313	446.375	446.375	−127.696	0.000	−260.783	−127.696	−176.263	30.881
	300.00	105.348	447.026	446.377	−127.501	0.195	−261.609	−127.753	−176.564	30.743
	400.00	106.556	477.524	450.527	−116.897	10.799	−307.907	−163.219	−191.224	24.971
	500.00	107.107	501.367	458.397	−106.211	21.485	−356.895	−251.894	−189.657	19.813
	600.00	107.399	520.924	467.237	−95.484	32.212	−408.038	−258.624	−175.914	15.315
	700.00	107.569	537.493	476.120	−84.735	42.961	−460.980	−258.261	−162.158	12.100
	800.00	107.673	551.864	484.710	−73.973	53.723	−515.464	−257.888	−148.454	9.693
	900.00	107.740	564.551	492.890	−63.202	64.494	−571.297	−257.522	−134.797	7.823
	1000.00	107.783	575.904	500.634	−52.425	75.271	−628.330	−257.167	−121.180	6.330

References

Phase	H / S	C_p
GAS	Pa2	Pa2

Sn2I4[g] DITIN TETRAIODIDE (GAS) 745.038

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	129.762	528.168	528.168	−107.169	0.000	−264.642	−107.169	−164.859	28.883
	300.00	129.802	528.971	528.170	−106.929	0.240	−265.620	−107.230	−165.217	28.767
	400.00	131.197	566.532	533.282	−93.869	13.300	−320.482	−143.033	−182.888	23.883
	500.00	131.848	595.886	542.974	−80.713	26.456	−378.656	−232.212	−184.229	19.246
	600.00	132.205	619.959	553.859	−67.509	39.660	−439.484	−246.421	−171.971	14.971
	700.00	132.424	640.356	564.796	−54.277	52.892	−502.526	−246.434	−159.561	11.907
	800.00	132.569	658.049	575.371	−41.027	66.142	−567.466	−246.418	−147.151	9.608
	900.00	132.671	673.670	585.442	−27.764	79.405	−634.067	−246.407	−134.744	7.820
	1000.00	132.747	687.652	594.976	−14.493	92.676	−702.145	−246.401	−122.337	6.390
	1100.00	132.805	700.307	603.986	−1.216	105.953	−771.553	−246.403	−109.931	5.220
	1200.00	132.851	711.864	612.501	12.067	119.236	−842.170	−246.413	−97.524	4.245

References

Phase	H / S	C_p
GAS	H3	H3

134.709

TIN MONOXIDE **SnO**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol	]		[−]
SOL	298.15	47.767	56.484	56.484	−285.770	0.000	−302.611	−285.770	−256.765	44.984
	300.00	47.851	56.780	56.485	−285.682	0.088	−302.715	−285.759	−256.585	44.675
	400.00	51.128	71.043	58.407	−280.716	5.054	−309.133	−285.071	−246.960	32.250
	500.00	53.137	82.681	62.134	−275.496	10.274	−316.837	−284.355	−237.516	24.813
	600.00	54.647	92.508	66.399	−270.105	15.665	−325.609	−290.498	−226.907	19.754
	700.00	55.922	101.029	70.750	−264.575	21.195	−335.295	−289.456	−216.389	16.147
	800.00	57.071	108.573	75.016	−258.924	26.846	−345.783	−288.319	−206.028	13.452
	900.00	58.148	115.357	79.127	−253.163	32.607	−356.985	−287.105	−195.813	11.365
	1000.00	59.178	121.538	83.064	−247.296	38.474	−368.834	−285.815	−185.738	9.702
	1100.00	60.180	127.225	86.823	−241.328	44.442	−381.276	−284.446	−175.796	8.348
	1200.00	61.161	132.504	90.413	−235.261	50.509	−394.265	−282.999	−165.982	7.225
	1300.00	62.128	137.437	93.842	−229.096	56.674	−407.765	−281.471	−156.292	6.280

References

Phase	H / S	C_p
SOL	Tk1	Pa1

134.709

TIN MONOXIDE (GAS) **SnO[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol	]		[−]
GAS	298.15	31.587	232.112	232.112	20.857	0.000	−48.347	20.857	−2.501	0.438
	300.00	31.638	232.308	232.113	20.915	0.058	−48.777	20.838	−2.646	0.461
	400.00	33.464	241.695	233.380	24.183	3.326	−72.495	19.827	−10.323	1.348
	500.00	34.366	249.269	235.825	27.579	6.722	−97.056	18.720	−17.735	1.853
	600.00	34.904	255.586	238.607	31.044	10.187	−122.307	10.651	−23.605	2.055
	700.00	35.270	260.995	241.428	34.554	13.697	−148.143	9.673	−29.236	2.182
	800.00	35.545	265.724	244.176	38.095	17.238	−174.484	8.701	−34.729	2.268
	900.00	35.766	269.923	246.808	41.661	20.804	−201.270	7.719	−40.098	2.327
	1000.00	35.955	273.702	249.311	45.247	24.390	−228.454	6.729	−45.358	2.369
	1100.00	36.122	277.136	251.687	48.851	27.994	−255.999	5.733	−50.519	2.399
	1200.00	36.274	280.286	253.941	52.471	31.614	−283.872	4.734	−55.589	2.420
	1300.00	36.416	283.195	256.081	56.106	35.249	−312.048	3.731	−60.575	2.434
	1400.00	36.550	285.899	258.115	59.754	38.897	−340.504	2.728	−65.484	2.443
	1500.00	36.679	288.425	260.053	63.416	42.559	−369.222	1.724	−70.321	2.449
	1600.00	36.803	290.796	261.901	67.090	46.233	−398.184	0.719	−75.092	2.451
	1700.00	36.924	293.031	263.667	70.776	49.919	−427.376	−0.285	−79.799	2.452
	1800.00	37.043	295.145	265.357	74.474	53.617	−456.786	−1.290	−84.447	2.451
	1900.00	37.160	297.151	266.978	78.185	57.328	−486.402	−2.295	−89.040	2.448
	2000.00	37.275	299.060	268.535	81.906	61.049	−516.213	−3.300	−93.579	2.444

References

Phase	H / S	C_p
GAS	Tk1	e

SnO2 TIN DIOXIDE 150.709

Phase	T [K]	C_p J / (K mol)	S J / (K mol)	−(G−H298)/T J / (K mol)	H kJ / mol	H−H298 kJ / mol	G kJ / mol	ΔH_f kJ / mol	ΔG_f kJ / mol	log K_f [−]
SOL	298.15	52.594	52.342	52.342	−580.823	0.000	−596.429	−580.823	−520.000	91.102
	300.00	52.689	52.667	52.343	−580.726	0.097	−596.526	−580.830	−519.623	90.474
	400.00	60.599	68.847	54.495	−575.082	5.741	−602.621	−580.950	−499.187	65.187
	500.00	67.997	83.202	58.827	−568.635	12.188	−610.236	−580.536	−478.785	50.018
	600.00	73.425	96.106	63.983	−561.549	19.274	−619.213	−586.565	−457.197	39.803
	700.00	77.309	107.733	69.417	−554.002	26.821	−629.415	−585.132	−435.745	32.516
	800.00	80.094	118.248	74.875	−546.124	34.699	−640.723	−583.436	−414.517	27.065
	900.00	82.096	127.804	80.233	−538.009	42.814	−653.033	−581.572	−393.513	22.839
	1000.00	83.535	136.532	85.433	−529.723	51.100	−666.256	−579.593	−372.723	19.469
	1100.00	84.568	144.545	90.448	−521.315	59.508	−680.315	−577.540	−352.134	16.721
	1200.00	85.313	151.937	95.268	−512.819	68.004	−695.144	−575.438	−331.736	14.440
	1300.00	85.864	158.789	99.894	−504.259	76.564	−710.685	−573.306	−311.513	12.517
	1400.00	86.299	165.168	104.331	−495.651	85.172	−726.886	−571.155	−291.456	10.874
	1500.00	86.687	171.136	108.588	−487.001	93.822	−743.705	−568.992	−271.553	9.456
	1600.00	87.087	176.743	112.674	−478.313	102.510	−761.101	−566.816	−251.795	8.220
	1700.00	87.557	182.036	116.600	−469.581	111.242	−779.043	−564.622	−232.173	7.134
	1800.00	88.149	187.057	120.376	−460.797	120.026	−797.500	−562.399	−212.681	6.172

References

Phase	H / S	C_p
SOL	Tk1,Pa1	Pa1

150.776 TIN MONOSULFIDE **SnS**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL−A	298.15	49.257	76.986	76.986	−107.947	0.000	−130.900	−107.947	−106.079	18.585
	300.00	49.262	77.290	76.987	−107.856	0.091	−131.043	−107.948	−106.067	18.468
	400.00	50.562	91.602	78.929	−102.878	5.069	−139.519	−110.344	−105.330	13.755
	500.00	52.844	103.120	82.650	−97.712	10.235	−149.272	−112.054	−103.901	10.854
	600.00	55.513	112.986	86.902	−92.296	15.651	−160.088	−120.169	−100.832	8.778
	700.00	58.365	121.756	91.266	−86.604	21.343	−171.833	−120.646	−97.566	7.280
	800.00	61.315	129.742	95.583	−80.620	27.327	−184.413	−120.868	−94.252	6.154
	875.00	63.566	135.335	98.753	−75.937	32.010	−194.356	−120.980	−91.752	5.477
			0.765		0.669					
SOL−B	875.00	54.612	136.100	98.753	−75.268	32.679	−194.356	−120.311	−91.752	5.477
	900.00	55.003	137.644	99.812	−73.898	34.049	−197.778	−173.197	−89.786	5.211
	1000.00	56.568	143.520	103.892	−68.320	39.627	−211.839	−172.299	−80.565	4.208
	1100.00	58.132	148.985	107.746	−62.585	45.362	−226.468	−171.251	−71.441	3.392
	1154.00	58.977	151.791	109.742	−59.423	48.524	−234.589	−170.623	−66.557	3.013
			27.373		31.589					
LIQ	1154.00	74.894	179.164	109.742	−27.834	80.113	−234.589	−139.034	−66.557	3.013
	1200.00	74.894	182.092	112.460	−24.388	83.559	−242.899	−137.749	−63.693	2.772
	1300.00	74.894	188.086	118.050	−16.899	91.048	−261.411	−134.959	−57.635	2.316
	1400.00	74.894	193.637	123.253	−9.410	98.537	−280.501	−132.174	−51.791	1.932
	1483.00	74.894	197.950	127.314	−3.194	104.753	−296.754	−129.865	−47.093	1.659

References

Phase	H / S	C_p
SOL−A	Mi1	Mi1
SOL−B	Mi1	Mi1
LIQ	Mi1	Mi1

SnS[g] TIN MONOSULFIDE (GAS) 150.776

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	34.456	242.363	242.363	112.550	0.000	40.289	112.550	65.111	−11.407
	300.00	34.488	242.576	242.364	112.614	0.064	39.841	112.522	64.817	−11.286
	400.00	35.640	252.679	243.733	116.128	3.578	15.057	108.662	49.245	−6.431
	500.00	36.192	260.697	246.352	119.723	7.173	−10.626	105.381	34.745	−3.630
	600.00	36.506	267.326	249.311	123.359	10.809	−37.037	95.486	22.219	−1.934
	700.00	36.709	272.970	252.298	127.020	14.470	−64.058	92.977	10.208	−0.762
	800.00	36.853	277.881	255.195	130.699	18.149	−91.606	90.451	−1.445	0.094
	900.00	36.962	282.229	257.962	134.390	21.840	−119.616	35.090	−11.625	0.675
	1000.00	37.049	286.128	260.587	138.090	25.540	−148.037	34.111	−16.763	0.876
	1100.00	37.123	289.662	263.072	141.799	29.249	−176.829	33.132	−21.803	1.035
	1200.00	37.187	292.895	265.425	145.515	32.965	−205.960	32.154	−26.754	1.165
	1300.00	37.244	295.874	267.654	149.236	36.686	−235.400	31.177	−31.623	1.271
	1400.00	37.296	298.636	269.769	152.963	40.413	−265.127	30.199	−36.417	1.359
	1500.00	37.345	301.211	271.781	156.695	44.145	−295.121	29.223	−41.142	1.433
	1600.00	37.390	303.622	273.696	160.432	47.882	−325.364	28.246	−45.801	1.495
	1700.00	37.434	305.891	275.524	164.173	51.623	−355.841	27.270	−50.399	1.549
	1800.00	37.476	308.031	277.271	167.919	55.369	−386.538	26.293	−54.939	1.594
	1900.00	37.517	310.059	278.944	171.668	59.118	−417.443	25.317	−59.426	1.634
	2000.00	37.557	311.984	280.548	175.422	62.872	−448.546	24.341	−63.861	1.668

References

Phase	H / S	C_p
GAS	Mi1	Ke1,Mi1

SnS2 TIN DISULFIDE 182.842

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	70.133	87.446	87.446	−153.553	0.000	−179.625	−153.553	−145.246	25.446
	300.00	70.166	87.880	87.447	−153.423	0.130	−179.787	−153.557	−145.194	25.281
	400.00	71.923	108.306	90.220	−146.319	7.234	−189.641	−158.408	−142.175	18.566
	500.00	73.680	124.544	95.515	−139.039	14.514	−201.310	−161.906	−137.759	14.392
	600.00	75.438	138.132	101.515	−131.583	21.970	−214.462	−171.557	−131.340	11.434
	700.00	77.195	149.893	107.605	−123.951	29.602	−228.876	−173.405	−124.486	9.289
	800.00	78.952	160.316	113.554	−116.144	37.409	−244.396	−175.162	−117.379	7.664
	900.00	80.709	169.716	119.281	−108.161	45.392	−260.905	−282.437	−107.746	6.253
	1000.00	82.467	178.311	124.760	−100.002	53.551	−278.313	−280.794	−88.423	4.619
	1038.00	83.134	181.399	126.777	−96.855	56.698	−285.148	−280.127	−81.125	4.082

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1	Mi1	MPT= 1038.

333.618

DITIN TRISULFIDE **Sn2S3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	120.125	164.431	164.431	−263.592	0.000	−312.617	−263.592	−253.417	44.398
	300.00	120.206	165.175	164.433	−263.370	0.222	−312.922	−263.596	−253.354	44.113
	400.00	124.600	200.357	169.201	−251.129	12.463	−331.272	−270.685	−249.618	32.597
	500.00	128.993	228.633	178.348	−238.450	25.142	−352.766	−275.659	−243.844	25.474
	600.00	133.386	252.539	188.771	−225.331	38.261	−376.854	−293.178	−234.476	20.413
	700.00	137.779	273.431	199.403	−211.773	51.819	−403.174	−295.269	−224.517	16.754
	800.00	142.172	292.115	209.844	−197.775	65.817	−431.467	−297.041	−214.289	13.992
	900.00	146.566	309.115	219.944	−183.338	80.254	−461.541	−456.914	−200.391	11.630
	1000.00	150.959	324.784	229.654	−168.462	95.130	−493.246	−453.234	−172.082	8.989

References

Phase	H / S	C_p
SOL	Mi1	Mi1

484.394

TRITIN TETRASULFIDE **Sn3S4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	169.546	243.509	243.509	−370.284	0.000	−442.886	−370.284	−358.864	62.872
	300.00	169.661	244.558	243.512	−369.970	0.314	−443.338	−370.289	−358.794	62.472
	400.00	175.895	294.220	250.241	−352.692	17.592	−470.380	−379.714	−354.538	46.298
	500.00	182.130	334.140	263.154	−334.791	35.493	−501.861	−386.343	−347.568	36.310
	600.00	188.364	367.897	277.868	−316.267	54.017	−537.005	−411.987	−335.371	29.197
	700.00	194.598	397.402	292.879	−297.118	73.166	−575.300	−414.658	−322.376	24.056
	800.00	200.832	423.793	307.622	−277.347	92.937	−616.382	−416.861	−309.042	20.178
	900.00	207.066	447.808	321.884	−256.952	113.332	−659.979	−629.827	−290.838	16.880
	983.00	212.241	466.299	333.305	−239.551	130.733	−697.923	−625.601	−259.761	13.803

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1	Mi1	MPT= 983.

SnSO4 — TIN MONOSULFATE — 214.774

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	108.784	138.574	138.574	−1014.600	0.000	−1055.916	−1014.600	−908.765	159.210
	300.00	108.781	139.247	138.576	−1014.399	0.201	−1056.173	−1014.600	−908.109	158.114
	400.00	113.209	170.972	142.872	−1003.360	11.240	−1071.749	−1016.877	−872.515	113.937
	500.00	122.225	197.153	151.174	−991.611	22.989	−1090.187	−1018.122	−836.292	87.366
	600.00	133.048	220.376	160.804	−978.857	35.743	−1111.082	−1025.218	−798.573	69.521
	700.00	144.723	241.754	170.859	−964.973	49.627	−1134.201	−1024.013	−760.880	56.777
	800.00	156.853	261.868	180.989	−949.897	64.703	−1159.391	−1021.815	−723.428	47.234
	900.00	169.247	281.056	191.049	−933.594	81.006	−1186.544	−1071.375	−685.159	39.765

References

Phase	H / S	C_p
SOL	Ba2/S6	S6,e

Sn(SO4)2 — TIN DISULFATE — 310.837

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	180.000	149.787	149.787	−1648.496	0.000	−1693.155	−1648.496	−1414.118	247.748
	300.00	180.230	150.901	149.790	−1648.163	0.333	−1693.433	−1648.341	−1412.663	245.963
	400.00	192.673	204.454	157.008	−1629.518	18.978	−1711.299	−1653.710	−1333.741	174.166
	500.00	205.115	248.785	171.049	−1609.628	38.868	−1734.021	−1656.833	−1253.421	130.942
	600.00	217.558	287.281	187.279	−1588.495	60.001	−1760.863	−1665.445	−1171.234	101.964
	700.00	230.000	321.753	204.068	−1566.117	82.379	−1791.343	−1665.565	−1088.843	81.249

References

Phase	H / S	C_p
SOL	Tk1/e	e

197.670 TIN MONOSELENIDE **SnSe**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	50.605	89.538	89.538	−88.701	0.000	−115.397	−88.701	−87.533	15.335
	300.00	50.626	89.851	89.539	−88.607	0.094	−115.563	−88.704	−87.526	15.240
	400.00	51.798	104.575	91.538	−83.486	5.215	−125.316	−89.044	−87.091	11.373
	500.00	52.969	116.260	95.353	−78.248	10.453	−136.378	−95.589	−86.450	9.031
	600.00	54.141	126.021	99.673	−72.892	15.809	−148.505	−103.703	−83.195	7.243
	700.00	55.312	134.455	104.053	−67.420	21.281	−161.538	−104.605	−79.704	5.948
	800.00	56.484	141.917	108.328	−61.830	26.871	−175.363	−105.375	−76.092	4.968
	900.00	57.656	148.637	112.439	−56.123	32.578	−189.897	−106.028	−72.392	4.202
	1000.00	58.827	154.773	116.370	−50.299	38.402	−205.071	−106.563	−68.625	3.585
	1100.00	59.999	160.434	120.122	−44.357	44.344	−220.835	−160.293	−59.855	2.842
	1153.00	60.619	163.272	122.041	−41.161	47.540	−229.414	−159.702	−55.030	2.493

References

Phase	H / S	C_p	Remarks
SOL	Mi1	Mi1	Mi1 TPT= 813., MPT= 1153.

197.670 TIN MONOSELENIDE (GAS) **SnSe[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	35.904	254.497	254.497	126.775	0.000	50.897	126.775	78.760	−13.798
	300.00	35.922	254.719	254.497	126.841	0.066	50.426	126.744	78.462	−13.661
	400.00	36.552	265.152	255.916	130.470	3.695	24.409	124.912	62.634	−8.179
	500.00	36.844	273.344	258.611	134.141	7.366	−2.531	116.800	47.397	−4.951
	600.00	37.003	280.076	261.644	137.834	11.059	−30.212	107.023	35.098	−3.056
	700.00	37.098	285.788	264.696	141.540	14.765	−58.512	104.354	23.322	−1.740
	800.00	37.160	290.746	267.649	145.253	18.478	−87.344	101.707	11.927	−0.779
	900.00	37.203	295.126	270.464	148.971	22.196	−116.642	99.066	0.863	−0.050
	1000.00	37.233	299.047	273.129	152.693	25.918	−146.354	96.428	−9.907	0.518
	1100.00	37.256	302.597	275.649	156.418	29.643	−176.439	40.482	−15.459	0.734
	1200.00	37.273	305.839	278.032	160.144	33.369	−206.863	39.295	−20.492	0.892
	1300.00	37.286	308.823	280.287	163.872	37.097	−237.599	38.122	−25.427	1.022
	1400.00	37.297	311.587	282.426	167.601	40.826	−268.621	36.962	−30.272	1.129
	1500.00	37.305	314.161	284.456	171.331	44.556	−299.910	35.816	−35.034	1.220
	1600.00	37.312	316.568	286.389	175.062	48.287	−331.447	34.683	−39.720	1.297
	1700.00	37.318	318.831	288.231	178.794	52.019	−363.218	33.563	−44.336	1.362
	1800.00	37.323	320.964	289.991	182.526	55.751	−395.209	32.456	−48.887	1.419
	1900.00	37.327	322.982	291.675	186.258	59.483	−427.407	31.363	−53.376	1.467
	2000.00	37.331	324.897	293.289	189.991	63.216	−459.802	30.283	−57.808	1.510

References

Phase	H / S	C_p
GAS	Mi1	Mi1

SnSe2 TIN DISELENIDE 276.630

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	74.643	111.713	111.713	−117.152	0.000	−150.459	−117.152	−109.997	19.271
	300.00	74.689	112.175	111.714	−117.014	0.138	−150.666	−117.158	−109.952	19.144
	400.00	76.776	133.965	114.671	−109.434	7.718	−163.020	−117.707	−107.481	14.036
	500.00	78.366	151.274	120.319	−101.675	15.477	−177.312	−130.541	−104.647	10.932
	600.00	79.747	165.686	126.712	−93.768	23.384	−193.179	−139.619	−97.950	8.527
	700.00	81.044	178.077	133.185	−85.728	31.424	−210.382	−141.468	−90.856	6.780

References

Phase	H / S	C_p	Remarks
SOL	Pa3	Pa3	Mi1 MPT= 948.

SnTe TIN MONOTELLURIDE 246.310

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	51.466	99.998	99.998	−61.923	0.000	−91.737	−61.923	−61.716	10.812
	300.00	51.488	100.316	99.999	−61.828	0.095	−91.923	−61.925	−61.715	10.745
	400.00	52.668	115.290	102.032	−56.620	5.303	−102.736	−62.196	−61.612	8.046
	500.00	53.848	127.169	105.911	−51.294	10.629	−114.879	−62.750	−61.407	6.415
	600.00	55.028	137.091	110.303	−45.850	16.073	−128.105	−70.388	−59.760	5.203
	700.00	56.208	145.662	114.756	−40.289	21.634	−142.252	−71.035	−57.938	4.323
	800.00	57.388	153.245	119.102	−34.609	27.314	−157.205	−89.390	−54.139	3.535
	900.00	58.568	160.072	123.281	−28.811	33.112	−172.876	−90.203	−49.682	2.883
	1000.00	59.748	166.304	127.276	−22.895	39.028	−189.199	−90.898	−45.141	2.358
	1079.00	60.680	170.882	130.303	−18.138	43.785	−202.520	−91.364	−41.508	2.009
			31.021		33.472					
LIQ	1079.00	63.597	201.903	130.303	15.334	77.257	−202.520	−57.892	−41.508	2.009
	1100.00	63.597	203.129	131.682	16.669	78.592	−206.773	−57.945	−41.189	1.956
	1200.00	63.597	208.663	137.870	23.029	84.952	−227.366	−58.196	−39.655	1.726
	1300.00	63.597	213.753	143.514	29.389	91.312	−248.491	−58.447	−38.099	1.531
	1400.00	63.597	218.466	148.701	35.748	97.671	−270.105	−105.137	−34.033	1.270
	1500.00	63.597	222.854	153.500	42.108	104.031	−292.173	−103.814	−29.001	1.010
	1600.00	63.597	226.958	157.964	48.468	110.391	−314.666	−102.483	−24.056	0.785
	1700.00	63.597	230.814	162.137	54.827	116.750	−337.557	−101.148	−19.196	0.590

References

Phase	H / S	C_p
SOL	Mi1	Mi1
LIQ	Mi1	e

246.310 TIN MONOTELLURIDE (GAS) **SnTe**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	36.482	262.446	262.446	160.247	0.000	81.999	160.247	112.020	−19.625
	300.00	36.495	262.672	262.447	160.315	0.068	81.513	160.217	111.721	−19.452
	400.00	36.943	273.241	263.885	163.990	3.743	54.693	158.414	95.817	−12.512
	500.00	37.150	281.510	266.613	167.695	7.448	26.940	156.240	80.412	−8.401
	600.00	37.262	288.294	269.678	171.416	11.169	−1.560	146.879	66.785	−5.814
	700.00	37.330	294.043	272.759	175.146	14.899	−30.684	144.400	53.630	−4.002
	800.00	37.374	299.031	275.738	178.882	18.635	−60.343	124.100	42.723	−2.790
	900.00	37.404	303.435	278.575	182.621	22.374	−90.471	121.228	32.723	−1.899
	1000.00	37.426	307.377	281.262	186.362	26.115	−121.015	118.359	23.043	−1.204
	1100.00	37.442	310.945	283.801	190.106	29.859	−151.934	115.492	13.650	−0.648
	1200.00	37.454	314.203	286.200	193.851	33.604	−183.194	112.626	4.518	−0.197
	1300.00	37.463	317.202	288.471	197.596	37.349	−214.766	109.761	−4.374	0.176
	1400.00	37.471	319.978	290.624	201.343	41.096	−246.627	60.458	−10.555	0.394
	1500.00	37.477	322.564	292.668	205.091	44.844	−278.755	59.169	−15.583	0.543
	1600.00	37.482	324.983	294.613	208.839	48.592	−311.134	57.888	−20.524	0.670
	1700.00	37.486	327.255	296.467	212.587	52.340	−343.747	56.612	−25.386	0.780
	1800.00	37.490	329.398	298.237	216.336	56.089	−376.580	55.341	−30.173	0.876
	1900.00	37.492	331.425	299.931	220.085	59.838	−409.622	54.079	−34.889	0.959
	2000.00	37.495	333.348	301.554	223.834	63.587	−442.862	52.829	−39.539	1.033

References

Phase	H / S	C_p
GAS	Mi1	Tk1,e

Sr STRONTIUM 87.620

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	26.747	55.690	55.690	0.000	0.000	−16.604	0.000	0.000	0.000
	300.00	26.771	55.856	55.691	0.050	0.050	−16.707	0.000	0.000	0.000
	400.00	28.407	63.774	56.759	2.806	2.806	−22.704	0.000	0.000	0.000
	500.00	30.121	70.296	58.832	5.732	5.732	−29.416	0.000	0.000	0.000
	600.00	32.006	75.950	61.223	8.836	8.836	−36.734	0.000	0.000	0.000
	700.00	34.223	81.045	63.696	12.144	12.144	−44.587	0.000	0.000	0.000
	800.00	36.818	85.780	66.164	15.693	15.693	−52.931	0.000	0.000	0.000
	820.00	37.381	86.696	66.654	16.435	16.435	−54.656	0.000	0.000	0.000
			1.021		0.837					
SOL−C	820.00	37.656	87.717	66.654	17.272	17.272	−54.656	0.000	0.000	0.000
	900.00	37.656	91.222	68.684	20.285	20.285	−61.816	0.000	0.000	0.000
	1000.00	37.656	95.190	71.140	24.050	24.050	−71.140	0.000	0.000	0.000
	1050.00	37.656	97.027	72.329	25.933	25.933	−75.946	0.000	0.000	0.000
			7.077		7.431					
LIQ	1050.00	35.146	104.104	72.329	33.364	33.364	−75.946	0.000	0.000	0.000
	1100.00	35.146	105.739	73.811	35.121	35.121	−81.192	0.000	0.000	0.000
	1200.00	35.146	108.797	76.601	38.636	38.636	−91.921	0.000	0.000	0.000
	1300.00	35.146	111.610	79.187	42.150	42.150	−102.943	0.000	0.000	0.000
	1400.00	35.146	114.215	81.597	45.665	45.665	−114.236	0.000	0.000	0.000
	1500.00	35.146	116.640	83.854	49.179	49.179	−125.780	0.000	0.000	0.000
	1600.00	35.146	118.908	85.974	52.694	52.694	−137.559	0.000	0.000	0.000
	1685.49	35.146	120.738	87.692	55.699	55.699	−147.803	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL − A	Ja2	Ja1		fcc
SOL − C	Ja2	Ja1		bcc
LIQ	Ja2	Ja1	Ja2	BPT = 1685.492, L = 137.185 kJ

87.620 STRONTIUM (GAS) **Sr[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.786	164.640	164.640	164.000	0.000	114.913	164.000	131.517	−23.041
	300.00	20.786	164.769	164.640	164.038	0.038	114.608	163.989	131.315	−22.864
	400.00	20.786	170.748	165.456	166.117	2.117	97.818	163.311	120.521	−15.738
	500.00	20.786	175.387	166.995	168.196	4.196	80.502	162.464	109.918	−11.483
	600.00	20.786	179.176	168.719	170.274	6.274	62.768	161.438	99.502	−8.662
	700.00	20.786	182.381	170.448	172.353	8.353	44.686	160.209	89.274	−6.662
	800.00	20.786	185.156	172.117	174.432	10.432	26.307	158.738	79.238	−5.174
	900.00	20.786	187.604	173.704	176.510	12.510	7.666	156.226	69.482	−4.033
	1000.00	20.786	189.794	175.206	178.589	14.589	−11.206	154.539	59.934	−3.131
	1100.00	20.786	191.776	176.623	180.667	16.667	−30.286	145.546	50.906	−2.417
	1200.00	20.786	193.584	177.963	182.746	18.746	−49.555	144.110	42.366	−1.844
	1300.00	20.786	195.248	179.229	184.825	20.825	−68.998	142.674	33.945	−1.364
	1400.00	20.789	196.789	180.429	186.903	22.903	−88.601	141.238	25.635	−0.956
	1500.00	20.798	198.223	181.568	188.983	24.983	−108.352	139.803	17.428	−0.607
	1600.00	20.813	199.566	182.651	191.063	27.063	−128.242	138.369	9.317	−0.304
	1700.00	20.835	200.828	183.684	193.145	29.145	−148.263	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Ja2,Hu1	Hu1

Sr3(AsO4)2 STRONTIUM ARSENATE 540.698

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	257.558	312.126	312.126	−3317.075	0.000	−3410.135	−3317.075	−3094.374	542.121
	300.00	258.127	313.721	312.131	−3316.598	0.477	−3410.714	−3317.055	−3092.992	538.538
	400.00	279.964	391.311	322.562	−3289.575	27.500	−3446.100	−3315.199	−3018.550	394.182
	500.00	292.930	455.271	342.897	−3260.888	56.187	−3488.524	−3312.659	−2944.675	307.628
	600.00	302.405	509.550	366.263	−3231.103	85.972	−3536.833	−3310.068	−2871.324	249.971
	700.00	310.230	556.769	390.178	−3200.461	116.614	−3590.199	−3307.726	−2798.390	208.818
	800.00	317.178	598.655	413.668	−3169.085	147.990	−3648.009	−3305.809	−2725.764	177.974
	900.00	323.614	636.388	436.353	−3137.043	180.032	−3709.792	−3306.727	−2653.108	153.982
	1000.00	329.733	670.803	458.102	−3104.373	212.702	−3775.177	−3304.822	−2580.583	134.796
	1100.00	335.644	702.509	478.898	−3071.103	245.972	−3843.863	−3324.476	−2507.213	119.058
	1200.00	341.415	731.962	498.774	−3037.249	279.826	−3915.604	−3321.263	−2433.057	105.908
	1300.00	347.086	759.514	517.782	−3002.823	314.252	−3990.192	−3318.188	−2359.168	94.793
	1400.00	352.685	785.441	535.984	−2967.834	349.241	−4067.452	−3315.752	−2285.494	85.273
	1500.00	358.230	809.964	553.439	−2932.288	384.787	−4147.233	−3507.548	−2199.101	76.580
	1600.00	363.735	833.259	570.206	−2896.190	420.885	−4229.404	−3500.396	−2112.102	68.953
	1700.00	369.209	855.475	586.338	−2859.542	457.533	−4313.849	−3903.608	−2029.449	62.357
	1800.00	374.658	876.733	601.885	−2822.349	494.726	−4400.467	−3891.273	−1919.558	55.704
	1900.00	380.087	897.135	616.891	−2784.611	532.464	−4489.167	−3878.500	−1810.364	49.770
	1903.00	380.250	897.735	617.333	−2783.471	533.604	−4491.860	−3878.110	−1807.099	49.602

References

Phase	H / S	C_p
SOL	Nb1/G1	G1

167.524 STRONTIUM MONOBROMIDE (GAS) **SrBr[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	36.860	263.747	263.748	−89.119	0.000	−167.755	−89.119	−128.461	22.506
	300.00	36.869	263.976	263.748	−89.051	0.068	−168.243	−89.170	−128.705	22.409
	400.00	37.222	274.637	265.199	−85.344	3.775	−195.199	−105.461	−138.587	18.098
	500.00	37.416	282.965	267.950	−81.611	7.508	−223.094	−106.500	−146.752	15.331
	600.00	37.547	289.799	271.039	−77.863	11.256	−251.742	−107.715	−154.691	13.467
	700.00	37.648	295.595	274.143	−74.103	15.016	−281.019	−109.131	−162.411	12.119
	800.00	37.733	300.627	277.146	−70.334	18.785	−310.836	−110.785	−169.913	11.094
	900.00	37.809	305.076	280.007	−66.557	22.562	−341.125	−113.478	−177.111	10.279
	1000.00	37.879	309.063	282.717	−62.772	26.347	−371.836	−115.342	−184.082	9.615
	1100.00	37.946	312.677	285.279	−58.981	30.138	−402.926	−124.508	−190.515	9.047
	1200.00	38.010	315.981	287.702	−55.183	33.936	−434.361	−126.114	−196.444	8.551
	1300.00	38.073	319.026	289.996	−51.379	37.740	−466.113	−127.718	−202.240	8.126
	1400.00	38.134	321.850	292.171	−47.569	41.550	−498.159	−129.318	−207.912	7.757
	1500.00	38.194	324.483	294.239	−43.752	45.367	−530.477	−130.914	−213.471	7.434
	1600.00	38.253	326.950	296.207	−39.930	49.189	−563.050	−132.508	−218.922	7.147
	1700.00	38.312	329.271	298.084	−36.102	53.017	−595.862	−271.035	−225.569	6.931
	1800.00	38.370	331.462	299.878	−32.268	56.851	−628.900	−271.192	−222.890	6.468
	1900.00	38.428	333.538	301.596	−28.428	60.691	−662.151	−271.349	−220.203	6.054
	2000.00	38.486	335.511	303.243	−24.582	64.537	−695.604	−271.507	−217.507	5.681

References

Phase	H / S	C_p
GAS	Pa2	Pa2

SrBr2 STRONTIUM BROMIDE 247.428

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL−A	298.15	76.857	143.511	143.511	−717.974	0.000	−760.762	−717.974	−698.777	122.423
	300.00	76.897	143.987	143.513	−717.832	0.142	−761.028	−718.021	−698.657	121.647
	400.00	79.032	166.408	146.555	−710.033	7.941	−776.596	−747.461	−686.076	89.592
	500.00	80.844	184.242	152.369	−702.038	15.936	−794.158	−746.084	−670.890	70.087
	600.00	82.679	199.140	158.955	−693.863	24.111	−813.347	−744.732	−655.978	57.108
	700.00	84.866	212.043	165.637	−685.490	32.484	−833.920	−743.402	−641.291	47.854
	800.00	87.599	223.547	172.169	−676.872	41.102	−855.709	−742.080	−626.794	40.925
	900.00	90.993	234.054	178.469	−667.948	50.026	−878.596	−741.505	−612.384	35.542
	918.00	91.679	235.863	179.577	−666.304	51.670	−882.826	−741.217	−609.804	34.698
			13.308		12.217					
SOL−B	918.00	115.060	249.171	179.577	−654.087	63.887	−882.826	−729.000	−609.804	34.698
	930.00	115.060	250.665	180.485	−652.706	65.268	−885.825	−728.522	−608.249	34.163
			10.887		10.125					
LIQ	930.00	116.391	261.552	180.485	−642.581	75.393	−885.825	−718.397	−608.249	34.163
	1000.00	116.391	269.999	186.459	−634.434	83.540	−904.433	−715.523	−600.064	31.344
	1100.00	116.391	281.092	194.565	−622.795	95.179	−931.996	−718.728	−588.366	27.939
	1200.00	116.391	291.219	202.204	−611.156	106.818	−960.619	−714.383	−576.706	25.103
	1300.00	116.391	300.535	209.414	−599.517	118.457	−990.213	−710.044	−565.409	22.718
	1400.00	116.391	309.161	216.235	−587.878	130.096	−1020.703	−705.711	−554.446	20.687
	1500.00	116.391	317.191	222.701	−576.239	141.735	−1052.025	−701.383	−543.793	18.937
	1600.00	116.391	324.703	228.844	−564.600	153.374	−1084.124	−697.061	−533.428	17.415
	1700.00	116.391	331.759	234.692	−552.961	165.013	−1116.951	−829.682	−524.627	16.120
	1800.00	116.391	338.412	240.271	−541.322	176.652	−1150.462	−823.940	−506.849	14.708
	1900.00	116.391	344.704	245.604	−529.682	188.292	−1184.621	−818.207	−489.389	13.454
	2000.00	116.391	350.674	250.709	−518.043	199.931	−1219.392	−812.483	−472.231	12.333
	2100.00	116.391	356.353	255.606	−506.404	211.570	−1254.746	−806.769	−455.359	11.326
	2200.00	116.391	361.768	260.309	−494.765	223.209	−1290.654	−801.064	−438.759	10.417
	2300.00	116.391	366.941	264.834	−483.126	234.848	−1327.092	−795.370	−422.418	9.593
	2400.00	116.391	371.895	269.192	−471.487	246.487	−1364.035	−789.688	−406.324	8.843
	2416.00	116.391	372.668	269.875	−469.625	248.349	−1369.992	−788.780	−403.772	8.730

References

Phase	H / S	C_p	Remarks
SOL−A	Ja1	Ja1	
SOL−B	Ja1	Ja1	
LIQ	Ja1	Ja1	BPT= 2416., L= 194.1 kJ

247.428 STRONTIUM BROMIDE (GAS) **SrBr2[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	60.894	323.533	323.533	−407.103	0.000	−503.564	−407.103	−441.579	77.363
	300.00	60.911	323.909	323.534	−406.990	0.113	−504.163	−407.180	−441.793	76.923
	400.00	61.522	341.528	325.932	−400.865	6.238	−537.476	−438.293	−446.956	58.366
	500.00	61.815	355.291	330.477	−394.696	12.407	−572.342	−438.742	−449.073	46.914
	600.00	61.978	366.577	335.582	−388.506	18.597	−608.452	−439.374	−451.083	39.270
	700.00	62.077	376.139	340.710	−382.303	24.800	−645.600	−440.215	−452.971	33.801
	800.00	62.142	384.433	345.668	−376.092	31.011	−683.638	−441.300	−454.722	29.690
	900.00	62.187	391.755	350.390	−369.875	37.228	−722.454	−443.432	−456.241	26.480
	1000.00	62.219	398.308	354.860	−363.655	43.448	−761.963	−444.743	−457.594	23.902
	1100.00	62.243	404.240	359.084	−357.431	49.672	−802.095	−453.364	−458.465	21.771
	1200.00	62.261	409.656	363.076	−351.206	55.897	−842.794	−454.433	−458.881	19.975
	1300.00	62.276	414.641	366.853	−344.979	62.124	−884.012	−455.506	−459.209	18.451
	1400.00	62.287	419.256	370.433	−338.751	68.352	−925.710	−456.584	−459.453	17.142
	1500.00	62.296	423.554	373.833	−332.522	74.581	−967.853	−457.667	−459.620	16.005
	1600.00	62.304	427.575	377.068	−326.292	80.811	−1010.411	−458.754	−459.715	15.008
	1700.00	62.310	431.352	380.151	−320.061	87.042	−1053.360	−596.782	−461.036	14.166
	1800.00	62.315	434.914	383.095	−313.830	93.273	−1096.675	−596.449	−453.061	13.147
	1900.00	62.319	438.283	385.912	−307.598	99.505	−1140.336	−596.123	−445.104	12.237
	2000.00	62.323	441.480	388.611	−301.366	105.737	−1184.325	−595.806	−437.164	11.418
	2100.00	62.326	444.520	391.202	−295.134	111.969	−1228.627	−595.498	−429.239	10.677
	2200.00	62.329	447.420	393.692	−288.901	118.202	−1273.225	−595.200	−421.329	10.004
	2300.00	62.331	450.191	396.088	−282.668	124.435	−1318.106	−594.912	−413.433	9.389
	2400.00	62.333	452.843	398.398	−276.435	130.668	−1363.259	−594.636	−405.548	8.827
	2500.00	62.335	455.388	400.627	−270.201	136.902	−1408.671	−594.371	−397.675	8.309
	2600.00	62.337	457.833	402.781	−263.968	143.135	−1454.333	−594.118	−389.812	7.831
	2700.00	62.338	460.186	404.864	−257.734	149.369	−1500.235	−593.879	−381.959	7.389
	2800.00	62.339	462.453	406.880	−251.500	155.603	−1546.367	−593.653	−374.114	6.979
	2900.00	62.340	464.640	408.834	−245.266	161.837	−1592.723	−593.442	−366.277	6.597
	3000.00	62.341	466.754	410.730	−239.032	168.071	−1639.293	−593.246	−358.447	6.241

References

Phase	H / S	C_p
GAS	Ja1	Ja1

SrC2 STRONTIUM DICARBIDE 111.642

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	63.043	71.128	71.128	−74.998	0.000	−96.205	−74.998	−76.178	13.346
	300.00	63.174	71.518	71.129	−74.881	0.117	−96.337	−74.962	−76.185	13.265
	400.00	68.168	90.456	73.677	−68.287	6.711	−104.469	−73.198	−76.868	10.038
	500.00	71.086	106.003	78.635	−61.314	13.684	−114.315	−71.814	−77.954	8.144
	600.00	73.187	119.157	84.320	−54.096	20.902	−125.590	−70.860	−79.279	6.902
	700.00	74.903	130.571	90.130	−46.689	28.309	−138.089	−70.318	−80.731	6.024
	800.00	76.413	140.674	95.829	−39.122	35.876	−151.661	−70.148	−82.234	5.369
	900.00	77.803	149.755	101.324	−31.410	43.588	−166.190	−71.093	−83.658	4.855
	1000.00	79.119	158.021	106.587	−23.564	51.434	−181.585	−71.251	−85.045	4.442

References

Phase	H / S	C_p
SOL	Nb1/Ku1	e

SrCO3 STRONTIUM CARBONATE 147.629

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	84.315	97.069	97.069	−1219.845	0.000	−1248.786	−1219.845	−1138.724	199.500
	300.00	84.578	97.591	97.070	−1219.689	0.156	−1248.966	−1219.836	−1138.220	198.182
	400.00	95.067	123.502	100.532	−1210.657	9.188	−1260.058	−1219.054	−1111.121	145.098
	500.00	101.845	145.483	107.381	−1200.794	19.051	−1273.535	−1218.036	−1084.254	113.271
	600.00	107.163	164.536	115.354	−1190.336	29.509	−1289.057	−1217.001	−1057.595	92.072
	700.00	111.792	181.409	123.607	−1179.384	40.461	−1306.370	−1216.018	−1031.106	76.942
	800.00	116.053	196.618	131.798	−1167.989	51.856	−1325.284	−1215.102	−1004.753	65.604
	900.00	120.101	210.523	139.784	−1156.180	63.665	−1345.650	−1215.025	−978.431	56.787
	1000.00	124.015	223.380	147.508	−1143.973	75.872	−1367.353	−1213.896	−952.201	49.738
	1100.00	127.844	235.380	154.957	−1131.380	88.465	−1390.298	−1219.827	−925.745	43.960
	1197.00	131.500	246.336	161.922	−1118.801	101.044	−1413.666	−1217.998	−899.889	39.269
			16.429		19.665					
SOL−B	1197.00	142.256	262.765	161.922	−1099.136	120.709	−1413.666	−1198.333	−899.889	39.269
	1200.00	142.256	263.121	162.175	−1098.710	121.135	−1414.455	−1198.240	−899.141	39.139
	1300.00	142.256	274.508	170.384	−1084.484	135.361	−1441.344	−1195.195	−874.341	35.131
	1400.00	142.256	285.050	178.202	−1070.258	149.587	−1469.328	−1192.233	−849.771	31.705

References

Phase	H / S	C_p
SOL−A	St1	St1
SOL−B	St1	e

123.073 STRONTIUM MONOCHLORIDE (GAS) **SrCl[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	36.251	252.279	252.279	−123.846	0.000	−199.063	−123.846	−149.198	26.139
	300.00	36.266	252.503	252.280	−123.779	0.067	−199.530	−123.860	−149.355	26.005
	400.00	36.856	263.028	253.711	−120.119	3.727	−225.330	−124.690	−157.733	20.598
	500.00	37.172	271.289	256.430	−116.416	7.430	−252.061	−125.699	−165.881	17.329
	600.00	37.372	278.085	259.489	−112.689	11.157	−279.540	−126.893	−173.809	15.131
	700.00	37.515	283.857	262.568	−108.944	14.902	−307.644	−128.295	−181.520	13.545
	800.00	37.627	288.874	265.550	−105.187	18.659	−336.286	−129.939	−189.015	12.341
	900.00	37.721	293.311	268.393	−101.419	22.427	−365.399	−132.626	−196.207	11.388
	1000.00	37.803	297.290	271.087	−97.643	26.203	−394.933	−134.486	−203.172	10.613
	1100.00	37.877	300.897	273.635	−93.859	29.987	−424.845	−143.649	−209.600	9.953
	1200.00	37.946	304.195	276.047	−90.068	33.778	−455.102	−145.255	−215.524	9.382
	1300.00	38.011	307.235	278.330	−86.270	37.576	−485.675	−146.858	−221.315	8.893
	1400.00	38.073	310.054	280.497	−82.466	41.380	−516.542	−148.459	−226.983	8.469
	1500.00	38.134	312.683	282.556	−78.655	45.191	−547.680	−150.057	−232.536	8.098
	1600.00	38.209	315.146	284.517	−74.838	49.008	−579.073	−151.653	−237.982	7.769
	1700.00	38.273	317.465	286.387	−71.014	52.832	−610.704	−290.182	−244.624	7.516
	1800.00	38.329	319.654	288.175	−67.184	56.662	−642.561	−290.342	−241.939	7.021
	1900.00	38.389	321.728	289.887	−63.348	60.498	−674.631	−290.503	−239.246	6.577
	2000.00	38.457	323.699	291.529	−59.506	64.340	−706.904	−290.665	−236.544	6.178
	2100.00	38.538	325.577	293.106	−55.656	68.190	−739.368	−290.828	−233.834	5.816
	2200.00	38.632	327.372	294.623	−51.798	72.048	−772.016	−290.991	−231.116	5.487
	2300.00	38.741	329.092	296.084	−47.929	75.917	−804.840	−291.154	−228.390	5.187
	2400.00	38.863	330.743	297.494	−44.049	79.797	−837.832	−291.317	−225.658	4.911
	2500.00	38.998	332.332	298.856	−40.156	83.690	−870.986	−291.477	−222.919	4.658
	2600.00	39.145	333.864	300.173	−36.249	87.597	−904.297	−291.636	−220.174	4.423
	2700.00	39.304	335.345	301.449	−32.327	91.519	−937.758	−291.793	−217.422	4.206
	2800.00	39.474	336.777	302.685	−28.388	95.458	−971.364	−291.947	−214.665	4.005
	2900.00	39.654	338.165	303.885	−24.432	99.414	−1005.112	−292.099	−211.902	3.817
	3000.00	39.843	339.513	305.050	−20.457	103.389	−1038.996	−292.248	−209.134	3.641

References

Phase	H / S	C_p
GAS	Ja1	Ja1

SrCl2 STRONTIUM CHLORIDE 158.525

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	75.592	114.809	114.809	−828.850	0.000	−863.080	−828.850	−779.954	136.645
	300.00	75.655	115.277	114.810	−828.710	0.140	−863.293	−828.822	−779.651	135.749
	400.00	78.890	137.503	117.819	−820.976	7.874	−875.977	−827.312	−763.487	99.701
	500.00	81.319	155.377	123.600	−812.962	15.888	−890.650	−825.794	−747.707	78.112
	600.00	83.660	170.406	130.181	−804.715	24.135	−906.959	−824.287	−732.231	63.746
	700.00	86.579	183.511	136.882	−796.210	32.640	−924.668	−822.767	−717.008	53.504
	800.00	90.793	195.347	143.461	−787.341	41.509	−943.619	−821.153	−702.008	45.836
	900.00	96.977	206.372	149.844	−777.975	50.875	−963.710	−820.103	−687.141	39.881
	1000.00	105.826	217.024	156.031	−767.857	60.993	−984.881	−817.492	−672.499	35.128
	1100.00	123.010	227.916	162.066	−756.415	72.435	−1007.123	−820.875	−657.824	31.237
	1147.00	131.086	233.231	164.873	−750.444	78.406	−1017.960	−818.324	−650.910	29.643
			14.142		16.221					
LIQ	1147.00	104.600	247.373	164.873	−734.223	94.627	−1017.960	−802.103	−650.910	29.643
	1200.00	104.600	252.098	168.622	−728.679	100.171	−1031.196	−800.418	−643.962	28.031
	1300.00	104.600	260.470	175.370	−718.219	110.631	−1056.830	−797.245	−631.053	25.356
	1400.00	104.600	268.222	181.728	−707.759	121.091	−1083.270	−794.081	−618.388	23.072
	1500.00	104.600	275.438	187.738	−697.299	131.551	−1110.457	−790.924	−605.948	21.101
	1600.00	104.600	282.189	193.432	−686.839	142.011	−1138.342	−787.775	−593.719	19.383
	1700.00	104.600	288.530	198.842	−676.379	152.471	−1166.881	−921.569	−582.982	17.913
	1800.00	104.600	294.509	203.992	−665.919	162.931	−1196.036	−917.005	−563.197	16.344
	1900.00	104.600	300.165	208.906	−655.459	173.391	−1225.772	−912.450	−543.665	14.946
	2000.00	104.600	305.530	213.605	−644.999	183.851	−1256.059	−907.907	−524.373	13.695
	2100.00	104.600	310.633	218.105	−634.539	194.311	−1286.869	−903.376	−505.308	12.569
	2200.00	104.600	315.499	222.422	−624.079	204.771	−1318.178	−898.858	−486.458	11.550
	2300.00	104.600	320.149	226.571	−613.619	215.231	−1349.962	−894.354	−467.813	10.624
	2329.00	104.600	321.460	227.744	−610.586	218.264	−1359.266	−893.050	−462.443	10.372

References

Phase	H / S	C_p	Remarks	
SOL	Nb1,Ja1	Ja1	Ku1	
LIQ	Ja1	Ja1		BPT= 2329., L= 248.15 kJ

158.525 STRONTIUM CHLORIDE (GAS) **SrCl2[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	55.773	316.336	316.336	−473.210	0.000	−567.526	−473.210	−484.399	84.865
	300.00	55.800	316.681	316.337	−473.107	0.103	−568.111	−473.219	−484.469	84.354
	400.00	56.800	332.890	318.540	−467.470	5.740	−600.626	−473.806	−488.136	63.744
	500.00	57.286	345.623	322.729	−461.763	11.447	−634.575	−474.596	−491.631	51.360
	600.00	57.558	356.093	327.443	−456.020	17.190	−669.676	−475.592	−494.948	43.089
	700.00	57.725	364.979	332.187	−450.255	22.955	−705.741	−476.812	−498.081	37.167
	800.00	57.834	372.695	336.779	−444.477	28.733	−742.633	−478.288	−501.022	32.713
	900.00	57.910	379.512	341.155	−438.689	34.521	−780.250	−480.818	−503.681	29.233
	1000.00	57.965	385.616	345.302	−432.895	40.315	−818.512	−482.531	−506.129	26.437
	1100.00	58.006	391.143	349.222	−427.097	46.113	−857.354	−491.557	−508.055	24.126
	1200.00	58.037	396.191	352.928	−421.295	51.915	−896.724	−493.033	−509.490	22.178
	1300.00	58.061	400.838	356.437	−415.490	57.720	−936.579	−494.516	−510.801	20.524
	1400.00	58.080	405.141	359.764	−409.683	63.527	−976.880	−496.004	−511.998	19.103
	1500.00	58.095	409.149	362.925	−403.874	69.336	−1017.597	−497.499	−513.088	17.867
	1600.00	58.108	412.899	365.932	−398.064	75.146	−1058.701	−498.999	−514.079	16.783
	1700.00	58.119	416.422	368.800	−392.252	80.958	−1100.169	−637.443	−516.270	15.863
	1800.00	58.127	419.744	371.538	−386.440	86.770	−1141.979	−637.525	−509.140	14.775
	1900.00	58.135	422.887	374.159	−380.627	92.583	−1184.112	−637.618	−502.005	13.801
	2000.00	58.141	425.869	376.671	−374.813	98.397	−1226.551	−637.721	−494.865	12.925
	2100.00	58.146	428.706	379.081	−368.999	104.211	−1269.281	−637.835	−487.719	12.131
	2200.00	58.151	431.411	381.399	−363.184	110.026	−1312.288	−637.962	−480.568	11.410
	2300.00	58.155	433.996	383.630	−357.369	115.841	−1355.559	−638.103	−473.410	10.751
	2400.00	58.158	436.471	385.781	−351.553	121.657	−1399.083	−638.258	−466.247	10.148
	2500.00	58.162	438.845	387.856	−345.737	127.473	−1442.850	−638.428	−459.076	9.592
	2600.00	58.164	441.126	389.861	−339.921	133.289	−1486.849	−638.615	−451.898	9.079
	2700.00	58.167	443.322	391.801	−334.104	139.106	−1531.072	−638.820	−444.713	8.603
	2800.00	58.169	445.437	393.679	−328.287	144.923	−1575.511	−639.043	−437.520	8.162
	2900.00	58.170	447.478	395.499	−322.470	150.740	−1620.157	−639.286	−430.318	7.751
	3000.00	58.172	449.450	397.265	−316.653	156.557	−1665.004	−639.549	−423.108	7.367

References

Phase	H / S	C_p
GAS	Ja1	Ja1

SrF2 STRONTIUM FLUORIDE 125.617

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL-1	298.15	69.991	82.132	82.132	-1217.126	0.000	-1241.614	-1217.126	-1164.546	204.024
	300.00	70.097	82.565	82.133	-1216.996	0.130	-1241.766	-1217.104	-1164.220	202.709
	400.00	74.727	103.422	84.945	-1209.735	7.391	-1251.104	-1215.813	-1146.783	149.755
	500.00	77.320	120.404	90.392	-1202.120	15.006	-1262.322	-1214.487	-1129.680	118.017
	600.00	78.826	134.645	96.613	-1194.307	22.819	-1275.094	-1213.251	-1112.837	96.881
	700.00	79.915	146.880	102.941	-1186.369	30.757	-1289.184	-1212.171	-1096.189	81.799
	800.00	80.960	157.618	109.118	-1178.325	38.801	-1304.420	-1211.282	-1079.683	70.496
	900.00	82.332	167.188	115.047	-1170.199	46.927	-1320.668	-1211.396	-1063.195	61.706
	1000.00	85.799	176.036	120.708	-1161.798	55.328	-1337.834	-1210.440	-1046.776	54.678
	1100.00	90.175	184.407	126.121	-1153.012	64.114	-1355.860	-1216.432	-1030.119	48.916
	1200.00	97.089	192.523	131.318	-1143.679	73.447	-1374.707	-1214.341	-1013.269	44.106
	1300.00	108.780	200.717	136.339	-1133.435	83.691	-1394.367	-1211.358	-996.626	40.045
	1400.00	143.930	209.387	141.236	-1121.714	95.412	-1414.856	-1206.915	-980.252	36.574
	1421.00	165.268	211.682	142.259	-1118.476	98.650	-1419.277	-1205.207	-976.865	35.909
			0.000		0.000					
SOL-2	1421.00	165.268	211.682	142.259	-1118.476	98.650	-1419.277	-1205.207	-976.865	35.909
	1484.00	165.268	218.851	145.360	-1108.064	109.062	-1432.840	-1199.389	-966.868	34.032
			0.000		0.000					
SOL-3	1484.00	165.268	218.851	145.360	-1108.064	109.062	-1432.840	-1199.389	-966.868	34.032
	1500.00	154.808	220.568	146.153	-1105.504	111.622	-1436.355	-1197.996	-964.369	33.582
	1600.00	125.938	229.637	151.100	-1091.467	125.659	-1458.886	-1191.263	-949.029	30.983
	1700.00	113.805	236.908	155.940	-1079.479	137.647	-1482.223	-1323.529	-935.334	28.739
	1750.00	107.738	240.120	158.299	-1073.941	143.185	-1494.150	-1320.938	-923.955	27.579
			16.956		29.673					
LIQ	1750.00	99.048	257.076	158.299	-1044.268	172.858	-1494.150	-1291.265	-923.955	27.579
	1800.00	99.048	259.866	161.082	-1039.315	177.811	-1507.074	-1289.263	-913.489	26.509
	1900.00	99.048	265.221	166.424	-1029.411	187.715	-1533.331	-1285.269	-892.721	24.543
	2000.00	99.048	270.302	171.491	-1019.506	197.620	-1560.109	-1281.289	-872.164	22.779
	2100.00	99.048	275.134	176.313	-1009.601	207.525	-1587.383	-1277.322	-851.805	21.187
	2200.00	99.048	279.742	180.910	-999.696	217.430	-1615.128	-1273.370	-831.635	19.746
	2300.00	99.048	284.145	185.304	-989.791	227.335	-1643.324	-1269.431	-811.645	18.433
	2400.00	99.048	288.360	189.510	-979.887	237.239	-1671.951	-1265.508	-791.825	17.234
	2500.00	99.048	292.403	193.546	-969.982	247.144	-1700.991	-1261.600	-772.169	16.134
	2600.00	99.048	296.288	197.423	-960.077	257.049	-1730.426	-1257.707	-752.668	15.121
	2700.00	99.048	300.026	201.155	-950.172	266.954	-1760.243	-1253.831	-733.317	14.187
	2759.00	99.048	302.167	203.292	-944.329	272.797	-1778.008	-1251.551	-721.968	13.669

References

Phase	H / S	C_p	Remarks
SOL-1	Ja1,Nb1	Ja1	
SOL-2	Ja1	Ja1	
SOL-3	Ja1	Ja1	
LIQ	Ja1	Ja1	BPT= 2759., L= 319.7 kJ

89.636 STRONTIUM HYDRIDE **SrH2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	40.208	49.790	49.790	−180.330	0.000	−195.175	−180.330	−139.609	24.459
	300.00	40.250	50.038	49.790	−180.256	0.074	−195.267	−180.358	−139.356	24.264
	400.00	42.509	61.927	51.396	−176.118	4.212	−200.888	−181.883	−125.458	16.383
	500.00	44.769	71.656	54.503	−171.754	8.576	−207.581	−183.367	−111.179	11.615
	600.00	47.028	80.018	58.074	−167.164	13.166	−215.174	−184.811	−96.605	8.410
	700.00	49.288	87.437	61.748	−162.348	17.982	−223.554	−186.241	−81.791	6.103
	800.00	51.547	94.166	65.386	−157.306	23.024	−232.639	−187.701	−66.770	4.360
	900.00	53.806	100.367	68.933	−152.039	28.291	−242.369	−189.999	−51.483	2.988
	1000.00	56.066	106.153	72.368	−146.545	33.785	−252.698	−191.275	−36.022	1.882

References

Phase	H / S	C_p
SOL	Nb1	e

SrI2 STRONTIUM IODIDE 341.429

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	77.963	159.118	159.118	−561.493	0.000	−608.934	−561.493	−557.702	97.707
	300.00	78.013	159.600	159.119	−561.349	0.144	−609.229	−561.499	−557.679	97.100
	400.00	80.762	182.419	162.212	−553.410	8.083	−626.378	−577.955	−555.788	72.579
	500.00	83.510	200.736	168.143	−545.196	16.297	−645.564	−620.861	−546.125	57.053
	600.00	86.258	216.205	174.896	−536.708	24.785	−666.431	−619.228	−531.329	46.256
	700.00	89.006	229.708	181.782	−527.945	33.548	−688.740	−617.536	−516.813	38.565
	800.00	91.754	241.772	188.540	−518.907	42.586	−712.325	−615.819	−502.541	32.813
	811.00	92.056	243.028	189.270	−517.896	43.597	−714.991	−615.630	−500.985	32.267
			24.248		19.665					
LIQ	811.00	110.039	267.275	189.270	−498.231	63.262	−714.991	−595.965	−500.985	32.267
	900.00	110.039	278.733	197.560	−488.437	73.056	−739.297	−593.721	−490.643	28.476
	1000.00	110.039	290.327	206.268	−477.433	84.060	−767.761	−590.271	−479.375	25.040
	1100.00	110.039	300.815	214.394	−466.429	95.064	−797.326	−594.132	−468.101	22.228
	1200.00	110.039	310.390	222.000	−455.425	106.068	−827.893	−590.444	−456.807	19.884
	1300.00	110.039	319.198	229.143	−444.422	117.071	−859.378	−586.763	−445.820	17.913
	1400.00	110.039	327.352	235.870	−433.418	128.075	−891.711	−583.087	−435.116	16.234
	1500.00	110.039	334.944	242.225	−422.414	139.079	−924.830	−579.418	−424.674	14.788
	1600.00	110.039	342.046	248.244	−411.410	150.083	−958.683	−575.755	−414.478	13.531
	1700.00	110.039	348.717	253.960	−400.406	161.087	−993.225	−709.034	−405.805	12.469
	1800.00	110.039	355.007	259.401	−389.402	172.091	−1028.414	−703.953	−388.114	11.263
	1900.00	110.039	360.956	264.591	−378.398	183.095	−1064.215	−698.881	−370.706	10.191
	2000.00	110.039	366.601	269.551	−367.394	194.099	−1100.595	−693.819	−353.565	9.234
	2100.00	110.039	371.969	274.301	−356.390	205.103	−1137.526	−688.767	−336.676	8.374
	2178.00	110.039	375.982	277.871	−347.807	213.686	−1166.697	−684.835	−323.671	7.763

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja2	BPT= 2178., L= 189.74 kJ

341.429 STRONTIUM IODIDE (GAS) **SrI2**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	61.396	339.557	339.557	−274.889	0.000	−376.128	−274.889	−324.896	56.920
	300.00	61.408	339.937	339.559	−274.775	0.114	−376.757	−274.926	−325.207	56.623
	400.00	61.815	357.667	341.973	−268.611	6.278	−411.678	−293.157	−341.089	44.542
	500.00	62.007	371.484	346.544	−262.419	12.470	−448.161	−338.084	−348.721	36.431
	600.00	62.113	382.799	351.672	−256.213	18.676	−485.892	−338.733	−350.791	30.539
	700.00	62.177	392.379	356.821	−249.998	24.891	−524.663	−339.589	−352.736	26.321
	800.00	62.219	400.684	361.796	−243.778	31.111	−564.326	−340.690	−354.542	23.149
	900.00	62.248	408.015	366.532	−237.555	37.334	−604.768	−342.839	−356.114	20.668
	1000.00	62.268	414.574	371.014	−231.329	43.560	−645.903	−344.166	−357.517	18.675
	1100.00	62.284	420.510	375.248	−225.101	49.788	−687.662	−352.804	−358.437	17.021
	1200.00	62.295	425.930	379.249	−218.872	56.017	−729.988	−353.891	−358.901	15.623
	1300.00	62.304	430.916	383.034	−212.642	62.247	−772.833	−354.983	−359.275	14.436
	1400.00	62.312	435.534	386.621	−206.411	68.478	−816.159	−356.081	−359.564	13.415
	1500.00	62.317	439.833	390.027	−200.180	74.709	−859.930	−357.184	−359.774	12.528
	1600.00	62.322	443.855	393.267	−193.948	80.941	−904.116	−358.293	−359.910	11.750
	1700.00	62.326	447.633	396.355	−187.716	87.173	−948.692	−496.344	−361.272	11.101
	1800.00	62.329	451.196	399.304	−181.483	93.406	−993.636	−496.034	−353.336	10.254
	1900.00	62.332	454.566	402.124	−175.250	99.639	−1038.925	−495.733	−345.416	9.496
	2000.00	62.335	457.763	404.827	−169.016	105.873	−1084.543	−495.441	−337.513	8.815
	2100.00	62.337	460.805	407.421	−162.783	112.106	−1130.473	−495.160	−329.623	8.199
	2200.00	62.338	463.705	409.914	−156.549	118.340	−1176.699	−494.889	−321.747	7.639
	2300.00	62.340	466.476	412.313	−150.315	124.574	−1223.209	−494.630	−313.882	7.128
	2400.00	62.341	469.129	414.626	−144.081	130.808	−1269.991	−494.383	−306.029	6.661
	2500.00	62.342	471.674	416.857	−137.847	137.042	−1317.032	−494.149	−298.186	6.230
	2600.00	62.343	474.119	419.013	−131.613	143.276	−1364.322	−493.928	−290.352	5.833
	2700.00	62.344	476.472	421.098	−125.378	149.511	−1411.852	−493.721	−282.526	5.466
	2800.00	62.345	478.739	423.116	−119.144	155.745	−1459.614	−493.529	−274.708	5.125
	2900.00	62.346	480.927	425.072	−112.909	161.980	−1507.598	−493.353	−266.896	4.807
	3000.00	62.347	483.041	426.969	−106.675	168.214	−1555.797	−493.192	−259.090	4.511

References

Phase	H / S	C_p
GAS	Ja1	Ja1

SrMoO4 STRONTIUM MOLYBDATE 247.558

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	117.075	128.867	128.867	−1548.001	0.000	−1586.423	−1548.001	−1438.964	252.101
	300.00	117.447	129.593	128.869	−1547.784	0.217	−1586.662	−1547.987	−1438.288	250.428
	400.00	131.542	165.540	133.675	−1535.255	12.746	−1601.471	−1546.610	−1401.902	183.070
	500.00	139.644	195.827	143.159	−1521.667	26.334	−1619.581	−1544.615	−1365.949	142.700
	600.00	145.386	221.818	154.154	−1507.403	40.598	−1640.494	−1542.392	−1330.422	115.824
	700.00	150.015	244.587	165.480	−1492.626	55.375	−1663.837	−1540.105	−1295.275	96.655
	800.00	154.050	264.887	176.660	−1477.419	70.582	−1689.329	−1537.841	−1260.454	82.299
	900.00	157.740	283.247	187.499	−1461.828	86.173	−1716.750	−1536.418	−1225.833	71.146
	1000.00	161.215	300.048	197.926	−1445.878	102.123	−1745.927	−1533.972	−1191.453	62.235

References

Phase	H / S	C_p
SOL	K7	K7

Sr3N2 TRISTRONTIUM DINITRIDE 290.873

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	129.654	123.428	123.428	−391.204	0.000	−428.004	−391.204	−321.064	56.249
	300.00	129.704	124.230	123.430	−390.964	0.240	−428.233	−391.166	−320.629	55.826
	400.00	132.424	161.916	128.550	−377.858	13.346	−442.624	−389.247	−297.412	38.838
	500.00	135.143	191.758	138.309	−364.479	26.725	−460.358	−387.586	−274.651	28.693
	600.00	137.863	216.638	149.346	−350.829	40.375	−480.812	−386.231	−252.198	21.956
	700.00	140.582	238.094	160.526	−336.907	54.297	−503.572	−385.276	−229.940	17.158
	800.00	143.302	257.043	171.429	−322.713	68.491	−528.347	−384.838	−207.786	13.567
	900.00	146.022	274.079	181.904	−308.246	82.958	−554.917	−387.323	−185.411	10.761
	1000.00	148.741	289.604	191.909	−293.508	97.696	−583.113	−387.121	−162.985	8.513
	1100.00	151.461	303.909	201.449	−278.498	112.706	−612.798	−408.622	−139.537	6.626
	1200.00	154.180	317.204	210.547	−263.216	127.988	−643.861	−407.232	−115.135	5.012
	1300.00	156.900	329.652	219.236	−247.662	143.542	−676.210	−405.616	−90.857	3.651

References

Phase	H / S	C_p
SOL	Nb1/Ku1	e

103.619 STRONTIUM OXIDE **SrO**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	45.411	55.522	55.522	−592.036	0.000	−608.590	−592.036	−561.404	98.356
	300.00	45.478	55.803	55.523	−591.952	0.084	−608.693	−592.029	−561.213	97.716
	400.00	48.481	69.326	57.346	−587.244	4.792	−614.974	−591.563	−551.009	71.954
	500.00	50.533	80.378	60.881	−582.287	9.749	−622.476	−591.061	−540.929	56.510
	600.00	52.049	89.731	64.929	−577.155	14.881	−630.994	−590.613	−530.946	46.223
	700.00	53.263	97.849	69.065	−571.888	20.148	−640.382	−590.281	−521.030	38.880
	800.00	54.298	105.030	73.120	−566.508	25.528	−650.532	−590.119	−511.151	33.375
	900.00	55.222	111.480	77.030	−561.032	31.004	−661.363	−590.937	−501.199	29.089
	1000.00	56.073	117.342	80.773	−555.466	36.570	−672.809	−590.868	−491.231	25.659
	1100.00	56.874	122.725	84.345	−549.819	42.217	−684.816	−598.046	−480.923	22.837
	1200.00	57.640	127.706	87.754	−544.093	47.943	−697.340	−597.609	−470.294	20.471
	1300.00	58.381	132.349	91.007	−538.292	53.744	−710.346	−597.114	−459.704	18.471
	1400.00	59.103	136.702	94.118	−532.417	59.619	−723.801	−596.561	−449.154	16.758
	1500.00	59.812	140.804	97.095	−526.471	65.565	−737.678	−595.950	−438.646	15.275
	1600.00	60.509	144.687	99.949	−520.455	71.581	−751.954	−595.282	−428.181	13.979
	1700.00	61.198	148.376	102.690	−514.370	77.666	−766.609	−731.494	−419.054	12.876
	1800.00	61.880	151.893	105.326	−508.216	83.820	−781.624	−729.283	−400.738	11.629
	1900.00	62.557	155.257	107.866	−501.994	90.042	−796.982	−727.019	−382.547	10.517
	2000.00	63.230	158.483	110.317	−495.705	96.331	−812.670	−724.703	−364.477	9.519
	2100.00	63.899	161.584	112.685	−489.348	102.688	−828.675	−722.336	−346.524	8.619
	2200.00	64.565	164.572	114.976	−482.925	109.111	−844.983	−719.918	−328.684	7.804
	2300.00	65.228	167.457	117.195	−476.435	115.601	−861.586	−717.451	−310.956	7.062
	2400.00	65.889	170.247	119.348	−469.879	122.157	−878.472	−714.936	−293.336	6.384
	2500.00	66.549	172.950	121.438	−463.258	128.778	−895.632	−712.372	−275.822	5.763
	2600.00	67.207	175.573	123.470	−456.570	135.466	−913.059	−709.761	−258.411	5.192
	2700.00	67.864	178.121	125.447	−449.816	142.220	−930.744	−707.103	−241.102	4.664
	2800.00	68.520	180.601	127.373	−442.997	149.039	−948.681	−704.400	−223.892	4.177
	2900.00	69.174	183.017	129.250	−436.112	155.924	−966.862	−701.650	−206.779	3.724
	2938.00	69.423	183.919	129.952	−433.479	158.557	−973.834	−700.593	−200.302	3.561
			25.634		75.312					
LIQ	2938.00	66.944	209.553	129.952	−358.167	233.869	−973.834	−625.281	−200.302	3.561
	3000.00	66.944	210.951	131.611	−354.016	238.020	−986.870	−623.709	−191.350	3.332
	3100.00	66.944	213.146	134.206	−347.322	244.714	−1008.075	−621.190	−176.980	2.982
	3200.00	66.944	215.272	136.706	−340.628	251.408	−1029.497	−618.692	−162.690	2.656
	3300.00	66.944	217.332	139.119	−333.933	258.103	−1051.127	−616.215	−148.479	2.350
	3400.00	66.944	219.330	141.449	−327.239	264.797	−1072.961	−613.759	−134.342	2.064
	3500.00	66.944	221.271	143.702	−320.544	271.492	−1094.992	−611.325	−120.277	1.795

References

Phase	H / S	C_p	Remarks	
SOL	Nb1,Ja1	Ja1	Ja1	MPT= 2938.
LIQ	Ja1	Ja1		

SrO2 STRONTIUM PEROXIDE 119.619

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	69.036	58.994	58.994	−633.458	0.000	−651.047	−633.458	−573.279	100.436
	300.00	69.134	59.422	58.996	−633.330	0.128	−651.157	−633.434	−572.905	99.752
	400.00	74.429	80.036	61.771	−626.152	7.306	−658.166	−631.983	−552.940	72.207
	500.00	79.724	97.213	67.186	−618.444	15.014	−667.051	−630.261	−533.373	55.721
	600.00	85.019	112.216	73.465	−610.207	23.251	−677.537	−628.287	−514.177	44.763

References

Phase	H / S	C_p
SOL	Nb1/e	e

SrAl2O4 STRONTIUM DIALUMINIUM TETRAOXIDE 205.581

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	119.030	106.692	106.692	−2324.601	0.000	−2356.411	−2324.601	−2200.618	385.539
	300.00	119.772	107.431	106.694	−2324.380	0.221	−2356.609	−2324.628	−2199.848	383.028
	400.00	146.035	146.015	111.776	−2310.906	13.695	−2369.312	−2324.866	−2158.164	281.827
	500.00	158.456	180.084	122.112	−2295.615	28.986	−2385.657	−2323.901	−2116.587	221.118
	600.00	165.429	209.644	134.294	−2279.391	45.210	−2405.178	−2322.610	−2075.244	180.666
	700.00	169.830	235.499	146.945	−2262.613	61.988	−2427.462	−2321.383	−2034.116	151.788
	800.00	172.859	258.385	159.472	−2245.470	79.131	−2452.179	−2320.467	−1993.146	130.139
	900.00	175.091	278.880	171.621	−2228.068	96.533	−2479.060	−2320.844	−1952.181	113.302
	923.00	175.527	283.304	174.349	−2224.035	100.566	−2485.525	−2320.796	−1942.760	109.945
			2.086		1.925					
SOL−B	923.00	173.138	285.390	174.349	−2222.110	102.491	−2485.525	−2318.871	−1942.760	109.945
	1000.00	175.393	299.352	183.443	−2208.692	115.909	−2508.044	−2340.047	−1909.864	99.761
	1100.00	178.322	316.206	194.756	−2191.006	133.595	−2538.833	−2346.801	−1866.520	88.634
	1200.00	181.251	331.847	205.536	−2173.028	151.573	−2571.244	−2345.784	−1822.901	79.349
	1300.00	184.180	346.471	215.821	−2154.756	169.845	−2605.168	−2344.543	−1779.376	71.496
	1400.00	187.108	360.227	225.649	−2136.192	188.409	−2640.510	−2343.069	−1735.955	64.769
	1500.00	190.037	373.236	235.058	−2117.334	207.267	−2677.189	−2341.359	−1692.648	58.943
	1600.00	192.966	385.594	244.084	−2098.184	226.417	−2715.135	−2339.407	−1649.463	53.849

References

Phase	H / S	C_p
SOL−A	Nb1/e	Ku1
SOL−B	Ku1	Ku1

104.627 STRONTIUM MONOHYDROXIDE (GAS) **SrOH[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	45.960	246.505	246.505	−205.518	0.000	−279.014	−205.518	−212.346	37.202
	300.00	46.041	246.790	246.506	−205.433	0.085	−279.470	−205.536	−212.388	36.980
	400.00	49.094	260.505	248.355	−200.658	4.860	−304.860	−206.456	−214.531	28.015
	500.00	50.739	271.653	251.935	−195.659	9.859	−331.486	−207.374	−216.445	22.612
	600.00	51.786	281.002	256.022	−190.530	14.988	−359.131	−208.393	−218.166	18.993
	700.00	52.535	289.044	260.178	−185.312	20.206	−387.643	−209.580	−219.704	16.394
	800.00	53.178	296.101	264.236	−180.026	25.492	−416.907	−210.988	−221.057	14.434
	900.00	53.789	302.400	268.133	−174.677	30.841	−446.838	−213.421	−222.138	12.893
	1000.00	54.373	308.098	271.849	−169.269	36.249	−477.367	−215.011	−223.022	11.649
	1100.00	54.934	313.307	275.385	−163.804	41.714	−508.441	−223.890	−223.396	10.608
	1200.00	55.473	318.110	278.747	−158.283	47.235	−540.015	−225.198	−223.293	9.720
	1300.00	55.992	322.571	281.949	−152.710	52.808	−572.052	−226.491	−223.081	8.964
	1400.00	56.483	326.738	285.001	−147.086	58.432	−604.519	−227.770	−222.771	8.312
	1500.00	56.929	330.651	287.915	−141.415	64.103	−637.391	−229.039	−222.370	7.744
	1600.00	57.332	334.338	290.702	−135.701	69.817	−670.642	−230.299	−221.884	7.244
	1700.00	57.702	337.825	293.373	−129.950	75.568	−704.252	−368.491	−222.614	6.840
	1800.00	58.046	341.133	295.935	−124.162	81.356	−738.201	−368.313	−214.038	6.211
	1900.00	58.369	344.280	298.397	−118.341	87.177	−772.473	−368.137	−205.472	5.649
	2000.00	58.676	347.282	300.767	−112.489	93.029	−807.052	−367.962	−196.916	5.143
	2100.00	58.970	350.152	303.051	−106.606	98.912	−841.925	−367.792	−188.368	4.685
	2200.00	59.253	352.902	305.255	−100.695	104.823	−877.078	−367.626	−179.827	4.270
	2300.00	59.526	355.542	307.384	−94.756	110.762	−912.501	−367.465	−171.295	3.890
	2400.00	59.792	358.081	309.444	−88.790	116.728	−948.183	−367.310	−162.769	3.543
	2500.00	60.051	360.527	311.439	−82.798	122.720	−984.115	−367.161	−154.250	3.223
	2600.00	60.305	362.887	313.372	−76.780	128.738	−1020.286	−367.019	−145.736	2.928
	2700.00	60.554	365.168	315.249	−70.737	134.781	−1056.689	−366.884	−137.228	2.655
	2800.00	60.800	367.374	317.071	−64.669	140.849	−1093.317	−366.756	−128.724	2.401
	2900.00	61.041	369.512	318.843	−58.577	146.941	−1130.162	−366.636	−120.225	2.165
	3000.00	61.280	371.585	320.566	−52.461	153.057	−1167.217	−366.524	−111.730	1.945

References

Phase	H / S	C_p
GAS	Ja1	Ja1

Sr(OH)2 STRONTIUM HYDROXIDE 121.635

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	74.899	97.069	97.069	−968.889	0.000	−997.830	−968.889	−881.099	154.365
	300.00	75.145	97.533	97.070	−968.750	0.139	−998.010	−968.907	−880.554	153.318
	400.00	88.440	120.971	100.176	−960.571	8.318	−1008.960	−969.362	−851.006	111.130
	500.00	101.737	142.135	106.481	−951.062	17.827	−1022.129	−968.760	−821.465	85.818
	600.00	115.035	161.859	114.083	−940.224	28.665	−1037.339	−967.114	−792.143	68.962
	700.00	128.334	180.590	122.256	−928.055	40.834	−1054.468	−964.447	−763.178	56.949
	783.15	139.392	195.604	129.251	−916.924	51.965	−1070.112	−961.472	−739.434	49.319
			26.840		21.020					
LIQ	783.15	157.737	222.444	129.251	−895.904	72.985	−1070.112	−940.452	−739.434	49.319
	800.00	157.737	225.802	131.249	−893.247	75.642	−1073.888	−939.477	−735.119	47.998
	900.00	157.737	244.381	142.807	−877.473	91.416	−1097.416	−934.675	−709.833	41.198
	1000.00	157.737	261.000	153.810	−861.699	107.190	−1122.699	−929.132	−685.148	35.788
	1100.00	157.737	276.034	164.249	−845.926	122.963	−1149.563	−930.978	−660.664	31.372
	1200.00	157.737	289.759	174.145	−830.152	138.737	−1177.863	−925.346	−636.339	27.699
	1300.00	157.737	302.385	183.530	−814.378	154.511	−1207.478	−919.790	−612.481	24.610
	1400.00	157.737	314.074	192.442	−798.605	170.284	−1238.308	−914.309	−589.048	21.978
	1500.00	157.737	324.957	200.918	−782.831	186.058	−1270.266	−908.899	−566.004	19.710

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	NDPT= 1017.

121.635 STRONTIUM HYDROXIDE (GAS) **Sr(OH)2**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	76.205	305.123	305.123	−595.802	0.000	−686.774	−595.802	−570.044	99.869
	300.00	76.359	305.595	305.124	−595.661	0.141	−687.339	−595.818	−569.884	99.226
	400.00	82.201	328.461	308.202	−587.698	8.104	−719.083	−596.489	−561.129	73.276
	500.00	85.307	347.169	314.183	−579.309	16.493	−752.894	−597.007	−552.229	57.691
	600.00	87.264	362.906	321.027	−570.674	25.128	−788.418	−597.565	−543.222	47.292
	700.00	88.710	376.471	328.001	−561.873	33.929	−825.403	−598.265	−534.112	39.856
	800.00	89.936	388.398	334.820	−552.940	42.862	−863.658	−599.170	−524.889	34.272
	900.00	91.090	399.058	341.376	−543.888	51.914	−903.040	−601.090	−515.457	29.916
	1000.00	92.253	408.715	347.634	−534.721	61.081	−943.436	−602.154	−505.885	26.425
	1100.00	93.332	417.558	353.594	−525.442	70.360	−984.756	−610.494	−495.857	23.546
	1200.00	94.410	425.725	359.269	−516.055	79.747	−1026.925	−611.249	−485.402	21.129
	1300.00	95.436	433.323	364.677	−506.562	89.240	−1069.882	−611.974	−474.885	19.081
	1400.00	96.391	440.431	369.837	−496.970	98.832	−1113.574	−612.674	−464.313	17.324
	1500.00	97.271	447.112	374.768	−487.286	108.516	−1157.954	−613.354	−453.692	15.799
	1600.00	98.077	453.416	379.488	−477.518	118.284	−1202.983	−614.019	−443.026	14.463
	1700.00	98.815	459.384	384.014	−467.673	128.129	−1248.626	−751.611	−433.614	13.323
	1800.00	99.490	465.051	388.360	−457.757	138.045	−1294.850	−750.830	−414.931	12.041
	1900.00	100.108	470.447	392.540	−447.777	148.025	−1341.627	−750.050	−396.291	10.895
	2000.00	100.673	475.597	396.565	−437.738	158.064	−1388.931	−749.275	−377.692	9.864
	2100.00	101.191	480.521	400.446	−427.644	168.158	−1436.739	−748.508	−359.132	8.933
	2200.00	101.665	485.240	404.194	−417.501	178.301	−1485.029	−747.754	−340.608	8.087
	2300.00	102.099	489.769	407.817	−407.312	188.490	−1533.781	−747.015	−322.118	7.316
	2400.00	102.496	494.123	411.323	−397.082	198.720	−1582.977	−746.293	−303.659	6.609
	2500.00	102.858	498.314	414.719	−386.814	208.988	−1632.600	−745.591	−285.231	5.960
	2600.00	103.188	502.355	418.013	−376.512	219.290	−1682.635	−744.911	−266.830	5.361
	2700.00	103.487	506.255	421.209	−366.178	229.624	−1733.066	−744.255	−248.455	4.807
	2800.00	103.757	510.023	424.314	−355.815	239.987	−1783.881	−743.627	−230.103	4.293
	2900.00	104.000	513.669	427.333	−345.427	250.375	−1835.067	−743.026	−211.774	3.814
	3000.00	104.217	517.198	430.270	−335.016	260.786	−1886.611	−742.456	−193.465	3.369

References

Phase	H / S	C_p
GAS	Ja1	Ja1

SrSiO3 STRONTIUM METASILICATE 163.704

Phase	T [K]	C_p J / (K mol)	S J / (K mol)	−(G−H298)/T J / (K mol)	H kJ / mol	H−H298 kJ / mol	G kJ / mol	ΔH_f kJ / mol	ΔG_f kJ / mol	log K_f [−]
SOL	298.15	88.531	96.701	96.701	−1633.898	0.000	−1662.729	−1633.898	−1548.767	271.338
	300.00	88.957	97.250	96.702	−1633.734	0.164	−1662.909	−1633.902	−1548.239	269.572
	400.00	104.303	125.236	100.414	−1623.969	9.929	−1674.064	−1633.473	−1519.721	198.455
	500.00	112.001	149.419	107.858	−1613.117	20.781	−1687.827	−1632.414	−1491.399	155.805
	600.00	116.690	170.284	116.564	−1601.666	32.232	−1703.837	−1631.183	−1463.310	127.392
	700.00	119.957	188.530	125.569	−1589.826	44.072	−1721.797	−1629.982	−1435.428	107.113
	800.00	122.467	204.718	134.470	−1577.700	56.198	−1741.474	−1628.919	−1407.709	91.914
	900.00	124.536	219.265	143.097	−1565.347	68.551	−1762.686	−1628.826	−1380.032	80.095
	1000.00	126.332	232.481	151.385	−1552.802	81.096	−1785.283	−1627.849	−1352.440	70.644
	1100.00	127.949	244.599	159.316	−1540.087	93.811	−1809.145	−1634.124	−1324.598	62.900
	1200.00	129.444	255.797	166.895	−1527.216	106.682	−1834.172	−1632.791	−1296.517	56.436
	1300.00	130.854	266.214	174.139	−1514.201	119.697	−1860.279	−1631.406	−1268.550	50.971

References

Phase	H / S	C_p	Remarks
SOL	Nb1,S5	S5	S5 MPT= 1853.

Sr2SiO4 STRONTIUM ORTHOSILICATE 267.323

Phase	T [K]	C_p J / (K mol)	S J / (K mol)	−(G−H298)/T J / (K mol)	H kJ / mol	H−H298 kJ / mol	G kJ / mol	ΔH_f kJ / mol	ΔG_f kJ / mol	log K_f [−]
SOL	298.15	143.258	153.101	153.101	−2304.497	0.000	−2350.144	−2304.497	−2188.996	383.503
	300.00	143.721	153.988	153.104	−2304.232	0.265	−2350.428	−2304.476	−2188.279	381.013
	400.00	161.097	198.008	158.987	−2288.889	15.608	−2368.092	−2302.711	−2149.784	280.733
	500.00	170.824	235.082	170.601	−2272.256	32.241	−2389.797	−2300.327	−2111.822	220.621
	600.00	177.542	266.850	184.058	−2254.822	49.675	−2414.932	−2297.796	−2074.358	180.589
	700.00	182.838	294.629	197.911	−2236.794	67.703	−2443.035	−2295.344	−2037.315	152.026
	800.00	187.377	319.346	211.574	−2218.279	86.218	−2473.756	−2293.108	−2000.609	130.626
	900.00	191.476	341.656	224.808	−2199.333	105.164	−2506.824	−2292.718	−1964.006	113.988
	1000.00	195.301	362.030	237.526	−2179.993	124.504	−2542.023	−2290.442	−1927.603	100.688
	1100.00	198.947	380.816	249.709	−2160.279	144.218	−2579.177	−2302.544	−1890.737	89.784
	1200.00	202.472	398.279	261.371	−2140.207	164.290	−2618.142	−2299.298	−1853.441	80.678

References

Phase	H / S	C_p
SOL	Nb1	S5

183.498 STRONTIUM TITANIUM TRIOXIDE **SrTiO3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	98.371	108.801	108.801	−1672.391	0.000	−1704.830	−1672.391	−1587.308	278.090
	300.00	98.738	109.410	108.803	−1672.209	0.182	−1705.032	−1672.386	−1586.780	276.283
	400.00	111.845	139.869	112.866	−1661.590	10.801	−1717.538	−1671.569	−1558.344	203.499
	500.00	118.226	165.583	120.910	−1650.054	22.337	−1732.846	−1670.249	−1530.186	159.857
	600.00	121.959	187.495	130.228	−1638.031	34.360	−1750.528	−1668.853	−1502.305	130.787
	700.00	124.443	206.493	139.796	−1625.703	46.688	−1770.248	−1667.589	−1474.650	110.040
	800.00	126.261	223.234	149.200	−1613.164	59.227	−1791.751	−1666.575	−1447.160	94.490
	900.00	127.691	238.191	158.272	−1600.464	71.927	−1814.836	−1666.655	−1419.698	82.397
	1000.00	128.881	251.708	166.950	−1587.634	84.757	−1839.341	−1665.977	−1392.295	72.726
	1100.00	129.914	264.041	175.224	−1574.693	97.698	−1865.138	−1672.677	−1364.606	64.800
	1200.00	130.840	275.385	183.105	−1561.654	110.737	−1892.117	−1675.888	−1336.516	58.177
	1300.00	131.690	285.892	190.612	−1548.527	123.864	−1920.187	−1674.636	−1308.286	52.568
	1400.00	132.486	295.681	197.771	−1535.318	137.073	−1949.271	−1673.411	−1280.151	47.763
	1500.00	133.241	304.847	204.607	−1522.032	150.359	−1979.302	−1672.218	−1252.103	43.602
	1600.00	133.966	313.470	211.145	−1508.671	163.720	−2010.222	−1671.067	−1224.133	39.964
	1700.00	134.666	321.612	217.405	−1495.239	177.152	−2041.980	−1806.902	−1197.528	36.796
	1800.00	135.348	329.329	223.411	−1481.738	190.653	−2074.531	−1804.428	−1161.754	33.713
	1900.00	136.015	336.665	229.180	−1468.170	204.221	−2107.833	−1802.019	−1126.116	30.959
	2000.00	136.671	343.658	234.731	−1454.536	217.855	−2141.852	−1813.813	−1090.158	28.472
	2100.00	137.316	350.342	240.078	−1440.836	231.555	−2176.555	−1811.444	−1054.034	26.218
	2200.00	137.954	356.745	245.236	−1427.073	245.318	−2211.911	−1809.051	−1018.023	24.171
	2300.00	138.585	362.891	250.219	−1413.246	259.145	−2247.895	−1806.634	−982.121	22.305
	2313.00	138.667	363.672	250.855	−1411.443	260.948	−2252.618	−1806.318	−977.461	22.074

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	Ku1,e	Tk1	MPT= 2313.

Sr2TiO4 DISTRONTIUM TITANIUM TETRAOXIDE 287.118

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−1	298.15	143.677	159.000	159.000	−2287.401	0.000	−2334.807	−2287.401	−2170.099	380.192
	300.00	144.157	159.891	159.003	−2287.135	0.266	−2335.102	−2287.389	−2169.371	377.721
	400.00	161.405	204.058	164.908	−2271.741	15.660	−2353.364	−2286.039	−2130.205	278.176
	500.00	169.955	241.086	176.547	−2255.131	32.270	−2375.674	−2284.100	−2091.467	218.494
	600.00	175.081	272.559	189.993	−2237.861	49.540	−2401.397	−2282.141	−2053.127	178.741
	700.00	178.590	299.826	203.779	−2220.168	67.233	−2430.046	−2280.447	−2015.097	150.368
	800.00	181.238	323.854	217.316	−2202.171	85.230	−2461.254	−2279.193	−1977.281	129.103
	900.00	183.385	345.328	230.368	−2183.937	103.464	−2494.732	−2280.033	−1939.430	112.562
	1000.00	185.221	364.747	242.850	−2165.505	121.896	−2530.251	−2279.250	−1901.628	99.331
	1100.00	186.853	382.478	254.749	−2146.900	140.501	−2567.625	−2293.111	−1863.201	88.476
	1200.00	188.347	398.801	266.083	−2128.139	159.262	−2606.700	−2295.888	−1824.053	79.399
	1300.00	189.744	413.933	276.881	−2109.233	178.168	−2647.346	−2294.165	−1784.803	71.714
	1400.00	191.070	428.043	287.180	−2090.192	197.209	−2689.453	−2292.428	−1745.686	65.132
	1500.00	192.343	441.269	297.016	−2071.021	216.380	−2732.925	−2290.687	−1706.694	59.432
	1600.00	193.577	453.723	306.425	−2051.725	235.676	−2777.681	−2288.948	−1667.818	54.449
	1700.00	194.780	465.494	315.439	−2032.307	255.094	−2823.647	−2561.094	−1631.640	50.134
	1798.00	195.935	476.443	323.918	−2013.162	274.239	−2869.806	−2556.618	−1578.186	45.849
			0.000		0.000					
SOL−2	1798.00	195.811	476.443	323.918	−2013.162	274.239	−2869.806	−2556.618	−1578.186	45.849
	1800.00	195.811	476.661	324.088	−2012.770	274.631	−2870.760	−2556.527	−1577.098	45.766
	1900.00	195.811	487.248	332.399	−1993.189	294.212	−2918.960	−2552.063	−1522.808	41.865
	2000.00	195.811	497.292	340.395	−1973.608	313.793	−2968.191	−2561.883	−1468.304	38.348
	2100.00	195.811	506.845	348.096	−1954.027	333.374	−3018.402	−2557.622	−1413.730	35.165
	2133.00	195.811	509.898	350.575	−1947.565	339.836	−3035.178	−2556.228	−1395.765	34.181

References

Phase	H / S	C_p	Remarks	
SOL−1	Nb1	Ku1,e		
SOL−2	u	e	Tk1	MPT= 2133.

654.114 TETRASTRONTIUM TRITITANIUM DECAOXIDE **Sr4Ti3O10**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	343.293	376.560	376.560	−5648.818	0.000	−5761.089	−5648.818	−5361.338	939.284
	300.00	344.508	378.687	376.567	−5648.182	0.636	−5761.788	−5648.791	−5359.554	933.181
	400.00	387.969	484.598	390.711	−5611.263	37.555	−5805.103	−5645.520	−5263.557	687.350
	500.00	409.281	573.697	418.651	−5571.295	77.523	−5858.143	−5640.652	−5168.615	539.962
	600.00	421.874	649.517	450.970	−5529.690	119.128	−5919.400	−5635.616	−5074.685	441.791
	700.00	430.351	715.223	484.132	−5487.055	161.763	−5987.711	−5631.104	−4981.564	371.729
	800.00	436.635	773.116	516.709	−5443.692	205.126	−6062.185	−5627.535	−4889.029	319.221
	900.00	441.642	824.843	548.123	−5399.770	249.048	−6142.129	−5628.247	−4796.551	278.385
	1000.00	445.858	871.599	578.170	−5355.390	293.428	−6226.988	−5625.822	−4704.273	245.726
	1100.00	449.556	914.270	606.813	−5310.615	338.203	−6316.313	−5652.795	−4610.824	218.950
	1200.00	452.902	953.532	634.092	−5265.490	383.328	−6409.729	−5661.706	−4515.880	196.571
	1300.00	455.999	989.907	660.081	−5220.043	428.775	−6506.923	−5657.193	−4420.578	177.621
	1400.00	458.916	1023.808	684.864	−5174.296	474.522	−6607.628	−5652.718	−4325.622	161.391
	1500.00	461.700	1055.566	708.530	−5128.265	520.553	−6711.613	−5648.304	−4230.983	147.336
	1600.00	464.382	1085.449	731.163	−5081.960	566.858	−6818.679	−5643.975	−4136.637	135.047
	1700.00	466.987	1113.681	752.841	−5035.391	613.427	−6928.648	−6187.504	−4047.737	124.372
	1800.00	469.530	1140.445	773.638	−4988.564	660.254	−7041.366	−6177.701	−3922.152	113.818
	1900.00	472.024	1165.898	793.619	−4941.486	707.332	−7156.694	−6168.059	−3797.108	104.390
	2000.00	474.479	1190.173	812.844	−4894.161	754.657	−7274.506	−6200.990	−3671.232	95.883

References

Phase	H / S	C_p
SOL	K7	e

SrZrO3 STRONTIUM ZIRCONIUM TRIOXIDE 226.842

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	103.391	115.102	115.102	−1767.301	0.000	−1801.619	−1767.301	−1681.679	294.623
	300.00	103.713	115.742	115.104	−1767.109	0.192	−1801.832	−1767.287	−1681.148	292.714
	400.00	115.442	147.402	119.341	−1756.077	11.224	−1815.037	−1766.027	−1652.602	215.808
	500.00	121.527	173.876	127.676	−1744.201	23.100	−1831.139	−1764.290	−1624.442	169.704
	600.00	125.390	196.396	137.300	−1731.843	35.458	−1849.681	−1762.467	−1596.644	139.000
	700.00	128.205	215.946	147.169	−1719.157	48.144	−1870.320	−1760.737	−1569.146	117.091
	800.00	130.461	233.217	156.867	−1706.221	61.080	−1892.794	−1759.204	−1541.883	100.675
	900.00	132.391	248.697	166.225	−1693.076	74.225	−1916.903	−1758.707	−1514.717	87.912
	1000.00	134.120	262.737	175.185	−1679.749	87.552	−1942.486	−1757.394	−1487.677	77.708
	1100.00	135.717	275.595	183.737	−1666.256	101.045	−1969.411	−1763.408	−1460.418	69.349
	1200.00	137.224	287.470	191.893	−1652.609	114.692	−1997.572	−1765.600	−1432.719	62.365
	1300.00	138.667	298.511	199.674	−1638.814	128.487	−2026.878	−1763.563	−1405.061	56.456
	1400.00	140.065	308.838	207.107	−1624.877	142.424	−2057.251	−1761.471	−1377.562	51.397
	1500.00	141.429	318.549	214.216	−1610.802	156.499	−2088.625	−1759.336	−1350.214	47.019
	1600.00	142.767	327.719	221.026	−1596.592	170.709	−2120.942	−1757.168	−1323.009	43.192
	1700.00	144.085	336.414	227.560	−1582.249	185.052	−2154.153	−1891.916	−1297.236	39.859
	1800.00	145.388	344.687	233.839	−1567.775	199.526	−2188.211	−1888.286	−1262.360	36.633
	1900.00	146.678	352.582	239.882	−1553.172	214.129	−2223.077	−1884.661	−1227.685	33.751
	2000.00	147.958	360.138	245.708	−1538.440	228.861	−2258.716	−1881.052	−1193.201	31.163

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	e	Tk1	TPT= 1003., 1133., 1408. / MPT= 3023.

119.686 STRONTIUM SULFIDE **SrS**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	48.713	68.199	68.199	−468.608	0.000	−488.942	−468.608	−462.780	81.077
	300.00	48.716	68.501	68.200	−468.518	0.090	−489.068	−468.610	−462.744	80.571
	400.00	50.201	82.684	70.124	−463.584	5.024	−496.657	−471.013	−460.676	60.158
	500.00	51.901	94.076	73.811	−458.475	10.133	−505.513	−472.733	−457.916	47.838
	600.00	53.163	103.656	78.008	−453.219	15.389	−515.413	−474.156	−454.812	39.595
	700.00	54.106	111.925	82.276	−447.853	20.755	−526.201	−475.409	−451.490	33.691
	800.00	54.870	119.201	86.446	−442.404	26.204	−537.765	−476.868	−447.977	29.250
	900.00	55.554	125.704	90.453	−436.882	31.726	−550.016	−532.144	−443.032	25.713
	1000.00	56.221	131.592	94.277	−431.293	37.315	−562.885	−532.156	−433.129	22.624
	1100.00	56.781	136.977	97.918	−425.643	42.965	−576.317	−539.419	−422.877	20.081
	1200.00	57.328	141.941	101.382	−419.937	48.671	−590.266	−539.076	−412.298	17.947
	1300.00	57.869	146.551	104.681	−414.177	54.431	−604.694	−538.685	−401.748	16.142
	1400.00	58.401	150.859	107.828	−408.364	60.244	−619.567	−538.245	−391.231	14.597
	1500.00	58.926	154.906	110.833	−402.498	66.110	−634.857	−537.757	−380.746	13.259
	1600.00	59.445	158.726	113.708	−396.579	72.029	−650.540	−537.221	−370.296	12.089
	1700.00	59.961	162.345	116.463	−390.609	77.999	−666.595	−673.575	−361.176	11.098
	1800.00	60.476	165.787	119.109	−384.587	84.021	−683.003	−671.515	−342.859	9.949
	1900.00	60.990	169.071	121.652	−378.514	90.094	−699.748	−669.410	−324.657	8.925
	2000.00	61.505	172.212	124.102	−372.389	96.219	−716.813	−667.262	−306.568	8.007
	2100.00	62.022	175.225	126.466	−366.212	102.396	−734.186	−665.070	−288.587	7.178
	2200.00	62.542	178.123	128.748	−359.984	108.624	−751.854	−662.836	−270.711	6.427
	2300.00	63.066	180.914	130.956	−353.704	114.904	−769.807	−660.559	−252.938	5.744
	2400.00	63.595	183.610	133.094	−347.371	121.237	−788.034	−658.239	−235.265	5.120
	2500.00	64.129	186.216	135.167	−340.985	127.623	−806.526	−655.877	−217.689	4.548

References

Phase	H / S	C_p
SOL	Ja1	Ja1

SrS[g] STRONTIUM SULFIDE (GAS) 119.686

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	35.488	243.108	243.108	108.198	0.000	35.715	108.198	61.877	−10.841
	300.00	35.507	243.327	243.108	108.264	0.066	35.265	108.172	61.590	−10.724
	400.00	36.345	253.667	244.513	111.860	3.662	10.393	104.431	46.374	−6.056
	500.00	36.814	261.833	247.189	115.520	7.322	−15.396	101.263	32.201	−3.364
	600.00	37.080	268.571	250.207	119.216	11.018	−41.926	98.279	18.674	−1.626
	700.00	37.261	274.301	253.250	122.933	14.735	−69.077	95.378	5.634	−0.420
	800.00	37.421	279.287	256.200	126.667	18.469	−96.762	92.203	−6.974	0.455
	900.00	37.598	283.704	259.015	130.418	22.220	−124.915	35.156	−17.932	1.041
	1000.00	37.813	287.676	261.686	134.188	25.990	−153.488	33.326	−23.732	1.240
	1100.00	38.184	291.296	264.215	137.986	29.788	−182.439	24.210	−28.999	1.377
	1200.00	38.772	294.642	266.613	141.832	33.634	−211.738	22.693	−33.769	1.470
	1300.00	39.638	297.777	268.891	145.750	37.552	−241.360	21.243	−38.415	1.544
	1400.00	40.828	300.756	271.061	149.771	41.573	−271.288	19.889	−42.952	1.603
	1500.00	42.358	303.623	273.137	153.927	45.729	−301.508	18.668	−47.397	1.651
	1600.00	44.212	306.415	275.130	158.253	50.055	−332.010	17.611	−51.766	1.690
	1700.00	46.345	309.158	277.051	162.779	54.581	−362.789	−120.187	−57.370	1.763
	1800.00	48.688	311.872	278.910	167.529	59.331	−393.841	−119.399	−53.696	1.558
	1900.00	51.154	314.570	280.716	172.521	64.323	−425.163	−118.376	−50.073	1.377
	2000.00	53.642	317.258	282.476	177.761	69.563	−456.755	−117.112	−46.509	1.215
	2100.00	56.037	319.933	284.196	183.245	75.047	−488.614	−115.613	−43.015	1.070
	2200.00	58.295	322.593	285.881	188.964	80.766	−520.741	−113.888	−39.598	0.940
	2300.00	60.304	325.230	287.535	194.896	86.698	−553.132	−111.959	−36.263	0.824
	2400.00	62.002	327.833	289.160	201.014	92.816	−585.785	−109.854	−33.017	0.719
	2500.00	63.364	330.393	290.758	207.285	99.087	−618.697	−107.607	−29.861	0.624
	2600.00	64.387	332.899	292.331	213.675	105.477	−651.862	−105.252	−26.797	0.538
	2700.00	65.078	335.343	293.879	220.151	111.953	−685.275	−102.824	−23.826	0.461
	2800.00	65.456	337.718	295.402	226.681	118.483	−718.929	−100.355	−20.945	0.391
	2900.00	65.542	340.017	296.901	233.233	125.035	−752.816	−97.876	−18.153	0.327
	3000.00	65.361	342.236	298.376	239.780	131.582	−786.929	−95.416	−15.446	0.269

References

Phase	H / S	C_p
GAS	Ja1	Ja1

183.684 STRONTIUM SULFATE **SrSO4**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)		] [		kJ / mol		]	[−]
SOL−1	298.15	101.673	121.754	121.754	−1458.957	0.000	−1495.258	−1458.957	−1346.767	235.948
	300.00	101.776	122.384	121.756	−1458.769	0.188	−1495.484	−1458.969	−1346.071	234.372
	400.00	107.341	152.425	125.815	−1448.313	10.644	−1509.283	−1461.793	−1308.256	170.841
	500.00	112.905	176.975	133.662	−1437.301	21.656	−1525.788	−1463.727	−1269.667	132.641
	600.00	118.470	198.052	142.677	−1425.732	33.225	−1544.563	−1465.157	−1230.710	107.143
	700.00	124.035	216.732	151.946	−1413.607	45.350	−1565.319	−1466.159	−1191.553	88.915
	800.00	129.599	233.658	161.118	−1400.925	58.032	−1587.851	−1467.060	−1152.262	75.235
	900.00	135.164	249.244	170.055	−1387.687	71.270	−1612.006	−1521.431	−1111.629	64.517
	1000.00	140.729	263.773	178.708	−1373.892	85.065	−1637.665	−1520.161	−1066.159	55.690
	1100.00	146.294	277.447	187.068	−1359.541	99.416	−1664.732	−1525.741	−1020.488	48.459
	1200.00	151.858	290.414	195.145	−1344.633	114.324	−1693.131	−1523.294	−974.660	42.426
	1300.00	157.423	302.789	202.953	−1329.169	129.788	−1722.795	−1520.365	−929.056	37.330
	1400.00	162.988	314.659	210.510	−1313.149	145.808	−1753.672	−1516.945	−883.696	32.971
	1429.00	164.601	318.017	212.658	−1308.399	150.558	−1762.846	−1515.860	−870.589	31.823
			7.027		10.042					
SOL−2	1429.00	170.707	325.045	212.658	−1298.357	160.600	−1762.846	−1505.818	−870.589	31.823
	1500.00	170.707	333.322	218.175	−1286.237	172.720	−1786.220	−1502.693	−839.104	29.220
	1600.00	170.707	344.339	225.720	−1269.166	189.791	−1820.109	−1498.339	−795.007	25.954
	1700.00	170.707	354.688	233.005	−1252.095	206.862	−1855.066	−1630.977	−752.476	23.121
	1800.00	170.707	364.446	240.039	−1235.024	223.933	−1891.027	−1625.299	−700.963	20.341
	1878.00	170.707	371.687	245.357	−1221.709	237.248	−1919.738	−1620.909	−661.003	18.385
			19.160		35.982					
LIQ	1878.00	182.004	390.847	245.357	−1185.727	273.230	−1919.738	−1584.927	−661.003	18.385
	1900.00	182.004	392.967	247.054	−1181.723	277.234	−1928.360	−1583.446	−650.188	17.875
	2000.00	182.004	402.302	254.585	−1163.523	295.434	−1968.128	−1576.747	−601.243	15.703

References

Phase	H / S	C_p
SOL−1	Nb1	La1,e
SOL−2	Tk1	e
LIQ	Tk1	e

SrWO4 STRONTIUM TUNGSTATE 335.468

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	125.519	138.001	138.001	-1639.701	0.000	-1680.846	-1639.701	-1532.175	268.431
	300.00	125.583	138.778	138.003	-1639.469	0.232	-1681.102	-1639.672	-1531.508	266.659
	400.00	129.055	175.381	142.971	-1626.737	12.964	-1696.889	-1638.104	-1495.690	195.317
	500.00	132.528	204.552	152.465	-1613.658	26.043	-1715.934	-1636.583	-1460.264	152.553
	600.00	136.001	229.022	163.239	-1600.231	39.470	-1737.644	-1635.138	-1425.138	124.069
	700.00	139.474	250.247	174.185	-1586.457	53.244	-1761.630	-1633.782	-1390.246	103.741
	800.00	142.946	269.098	184.892	-1572.336	67.365	-1787.615	-1632.529	-1355.542	88.508
	900.00	146.419	286.135	195.210	-1557.868	81.833	-1815.390	-1632.152	-1320.909	76.664
	1000.00	149.892	301.742	205.093	-1543.053	96.648	-1844.794	-1630.759	-1286.399	67.195
	1100.00	153.365	316.191	214.544	-1527.890	111.811	-1875.700	-1636.465	-1251.688	59.438

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	e	Ku1,Tk1	MPT= 1808.

180.948 **TANTALUM** **Ta**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	25.356	41.505	41.505	0.000	0.000	−12.375	0.000	0.000	0.000
	300.00	25.375	41.662	41.506	0.047	0.047	−12.452	0.000	0.000	0.000
	400.00	26.025	49.066	42.511	2.622	2.622	−17.004	0.000	0.000	0.000
	500.00	26.276	54.905	44.427	5.239	5.239	−22.213	0.000	0.000	0.000
	600.00	26.501	59.714	46.585	7.877	7.877	−27.951	0.000	0.000	0.000
	700.00	26.748	63.817	48.761	10.539	10.539	−34.133	0.000	0.000	0.000
	800.00	26.995	67.405	50.872	13.227	13.227	−40.697	0.000	0.000	0.000
	900.00	27.242	70.599	52.890	15.938	15.938	−47.601	0.000	0.000	0.000
	1000.00	27.489	73.482	54.807	18.675	18.675	−54.807	0.000	0.000	0.000
	1100.00	27.736	76.114	56.626	21.436	21.436	−62.289	0.000	0.000	0.000
	1200.00	27.983	78.537	58.352	24.222	24.222	−70.023	0.000	0.000	0.000
	1300.00	28.359	80.794	59.993	27.041	27.041	−77.991	0.000	0.000	0.000
	1400.00	28.702	82.908	61.555	29.894	29.894	−86.177	0.000	0.000	0.000
	1500.00	29.055	84.900	63.045	32.782	32.782	−94.568	0.000	0.000	0.000
	1600.00	29.417	86.787	64.471	35.706	35.706	−103.153	0.000	0.000	0.000
	1700.00	29.784	88.581	65.837	38.666	38.666	−111.922	0.000	0.000	0.000
	1800.00	30.199	90.297	67.148	41.667	41.667	−120.867	0.000	0.000	0.000
	1900.00	30.636	91.941	68.410	44.708	44.708	−129.979	0.000	0.000	0.000
	2000.00	31.135	93.525	69.627	47.796	47.796	−139.253	0.000	0.000	0.000
	2100.00	31.684	95.057	70.801	50.937	50.937	−148.683	0.000	0.000	0.000
	2200.00	32.275	96.544	71.938	54.134	54.134	−158.263	0.000	0.000	0.000
	2300.00	32.899	97.993	73.039	57.393	57.393	−167.990	0.000	0.000	0.000
	2400.00	33.552	99.406	74.108	60.715	60.715	−177.860	0.000	0.000	0.000
	2500.00	34.229	100.790	75.148	64.104	64.104	−187.870	0.000	0.000	0.000
	2600.00	34.927	102.146	76.161	67.562	67.562	−198.017	0.000	0.000	0.000
	2700.00	35.853	103.481	77.148	71.101	71.101	−208.299	0.000	0.000	0.000
	2800.00	36.939	104.804	78.112	74.739	74.739	−218.713	0.000	0.000	0.000
	2900.00	38.201	106.122	79.055	78.495	78.495	−229.260	0.000	0.000	0.000
	3000.00	39.616	107.441	79.979	82.384	82.384	−239.938	0.000	0.000	0.000
	3100.00	41.451	108.766	80.886	86.427	86.427	−250.748	0.000	0.000	0.000
	3200.00	44.566	110.128	81.779	90.718	90.718	−261.692	0.000	0.000	0.000
	3287.00	48.206	111.370	82.545	94.747	94.747	−271.327	0.000	0.000	0.000
			9.623		31.631					
LIQ	3287.00	41.840	120.993	82.545	126.378	126.378	−271.327	0.000	0.000	0.000
	3300.00	41.840	121.158	82.697	126.922	126.922	−272.901	0.000	0.000	0.000
	3400.00	41.840	122.408	83.847	131.106	131.106	−285.079	0.000	0.000	0.000
	3500.00	41.840	123.620	84.966	135.290	135.290	−297.381	0.000	0.000	0.000
	3600.00	41.840	124.799	86.056	139.474	139.474	−309.802	0.000	0.000	0.000
	3700.00	41.840	125.945	87.119	143.658	143.658	−322.340	0.000	0.000	0.000
	3800.00	41.840	127.061	88.155	147.842	147.842	−334.990	0.000	0.000	0.000
	3900.00	41.840	128.148	89.167	152.026	152.026	−347.751	0.000	0.000	0.000
	4000.00	41.840	129.207	90.155	156.210	156.210	−360.619	0.000	0.000	0.000
	4100.00	41.840	130.240	91.120	160.394	160.394	−373.592	0.000	0.000	0.000
	4200.00	41.840	131.249	92.063	164.578	164.578	−386.666	0.000	0.000	0.000
	4300.00	41.840	132.233	92.986	168.762	168.762	−399.841	0.000	0.000	0.000
	4400.00	41.840	133.195	93.889	172.946	172.946	−413.112	0.000	0.000	0.000
	4500.00	41.840	134.135	94.773	177.130	177.130	−426.479	0.000	0.000	0.000

Ta TANTALUM [continued] 180.948

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
LIQ	4600.00	41.840	135.055	95.639	181.314	181.314	−439.939	0.000	0.000	0.000
	4700.00	41.840	135.955	96.487	185.498	185.498	−453.489	0.000	0.000	0.000
	4800.00	41.840	136.836	97.319	189.682	189.682	−467.129	0.000	0.000	0.000
	4900.00	41.840	137.698	98.134	193.866	193.866	−480.856	0.000	0.000	0.000
	5000.00	41.840	138.544	98.934	198.050	198.050	−494.668	0.000	0.000	0.000
	5100.00	41.840	139.372	99.718	202.234	202.234	−508.564	0.000	0.000	0.000
	5200.00	41.840	140.185	100.489	206.418	206.418	−522.542	0.000	0.000	0.000
	5300.00	41.840	140.982	101.245	210.602	210.602	−536.600	0.000	0.000	0.000
	5400.00	41.840	141.764	101.988	214.786	214.786	−550.738	0.000	0.000	0.000
	5500.00	41.840	142.531	102.719	218.970	218.970	−564.953	0.000	0.000	0.000
	5600.00	41.840	143.285	103.436	223.154	223.154	−579.244	0.000	0.000	0.000
	5700.00	41.840	144.026	104.142	227.338	227.338	−593.609	0.000	0.000	0.000
	5726.00	41.840	144.216	104.324	228.426	228.426	−597.356	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL	Hu1	Hu1		
LIQ	Hu1	Hu1	Hu1	BPT= 5726., L= 743.12 kJ

180.948 TANTALUM (GAS) **Ta[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	20.863	185.214	185.214	781.571	0.000	726.350	781.571	738.724	−129.421
	300.00	20.864	185.343	185.214	781.610	0.039	726.007	781.563	738.458	−128.577
	400.00	21.232	191.381	186.035	783.709	2.138	707.157	781.087	724.161	−94.566
	500.00	22.099	196.205	187.601	785.873	4.302	687.770	780.634	709.984	−74.171
	600.00	23.209	200.330	189.387	788.137	6.566	667.939	780.260	695.890	−60.583
	700.00	24.390	203.996	191.216	790.517	8.946	647.719	779.977	681.852	−50.880
	800.00	25.556	207.330	193.025	793.015	11.444	627.151	779.788	667.848	−43.606
	900.00	26.662	210.404	194.788	795.626	14.055	606.262	779.688	653.863	−37.949
	1000.00	27.685	213.267	196.494	798.344	16.773	585.077	779.669	639.884	−33.424
	1100.00	28.617	215.950	198.142	801.160	19.589	563.615	779.724	625.903	−29.722
	1200.00	29.456	218.477	199.732	804.064	22.493	541.892	779.842	611.915	−26.636
	1300.00	30.204	220.865	201.267	807.048	25.477	519.924	780.007	597.914	−24.024
	1400.00	30.865	223.128	202.748	810.102	28.531	497.723	780.208	583.900	−21.786
	1500.00	31.446	225.278	204.179	813.218	31.647	475.302	780.436	569.870	−19.845
	1600.00	31.955	227.324	205.562	816.389	34.818	452.671	780.683	555.825	−18.146
	1700.00	32.401	229.275	206.900	819.607	38.036	429.841	780.942	541.763	−16.646
	1800.00	32.791	231.138	208.195	822.867	41.296	406.819	781.201	527.686	−15.313
	1900.00	33.136	232.920	209.450	826.164	44.593	383.616	781.456	513.595	−14.120
	2000.00	33.444	234.628	210.667	829.493	47.922	360.238	781.697	499.491	−13.045
	2100.00	33.726	236.267	211.847	832.852	51.281	336.692	781.915	485.375	−12.073
	2200.00	33.991	237.842	212.993	836.238	54.667	312.986	782.104	471.249	−11.189
	2300.00	34.250	239.358	214.107	839.650	58.079	289.126	782.257	457.116	−10.381
	2400.00	34.512	240.821	215.189	843.088	61.517	265.117	782.373	442.977	−9.641
	2500.00	34.787	242.236	216.243	846.553	64.982	240.963	782.449	428.834	−8.960
	2600.00	35.086	243.606	217.269	850.046	68.475	216.671	782.485	414.688	−8.331
	2700.00	35.303	244.934	218.269	853.564	71.993	192.244	782.463	400.542	−7.749
	2800.00	35.547	246.222	219.245	857.107	75.536	167.685	782.368	386.399	−7.208
	2900.00	35.787	247.473	220.197	860.673	79.102	143.000	782.179	372.260	−6.705
	3000.00	36.026	248.691	221.126	864.264	82.693	118.192	781.880	358.130	−6.236
	3100.00	36.266	249.876	222.035	867.879	86.308	93.263	781.452	344.011	−5.797
	3200.00	36.506	251.031	222.923	871.517	89.946	68.218	780.800	329.910	−5.385
	3300.00	36.749	252.158	223.792	875.180	93.609	43.058	748.258	315.959	−5.001
	3400.00	36.995	253.259	224.642	878.867	97.296	17.787	747.761	302.866	−4.653
	3500.00	37.243	254.335	225.475	882.579	101.008	−7.593	747.289	289.788	−4.325
	3600.00	37.493	255.387	226.292	886.316	104.745	−33.079	746.842	276.723	−4.015
	3700.00	37.745	256.418	227.092	890.078	108.507	−58.670	746.419	263.670	−3.722
	3800.00	37.999	257.428	227.877	893.865	112.294	−84.362	746.023	250.628	−3.445
	3900.00	38.254	258.418	228.648	897.677	116.106	−110.155	745.651	237.597	−3.182
	4000.00	38.509	259.390	229.404	901.516	119.945	−136.045	745.305	224.574	−2.933
	4100.00	38.765	260.344	230.147	905.379	123.808	−162.032	744.985	211.560	−2.695
	4200.00	39.019	261.281	230.877	909.268	127.697	−188.113	744.690	198.553	−2.469
	4300.00	39.273	262.203	231.595	913.183	131.612	−214.288	744.421	185.553	−2.254
	4400.00	39.524	263.108	232.301	917.123	135.552	−240.553	744.177	172.559	−2.049
	4500.00	39.772	263.999	232.996	921.088	139.517	−266.909	743.958	159.570	−1.852

Ta[g] TANTALUM (GAS) [continued] 180.948

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	4600.00	40.017	264.876	233.679	925.077	143.506	−293.353	743.763	146.586	−1.665
	4700.00	40.257	265.739	234.352	929.091	147.520	−319.884	743.593	133.606	−1.485
	4800.00	40.492	266.589	235.015	933.128	151.557	−346.500	743.446	120.629	−1.313
	4900.00	40.721	267.427	235.668	937.189	155.618	−373.201	743.323	107.655	−1.148
	5000.00	40.943	268.251	236.311	941.272	159.701	−399.985	743.222	94.683	−0.989
	5100.00	41.158	269.064	236.945	945.377	163.806	−426.851	743.143	81.713	−0.837
	5200.00	41.364	269.866	237.571	949.504	167.933	−453.798	743.086	68.744	−0.691
	5300.00	41.562	270.655	238.188	953.650	172.079	−480.824	743.048	55.777	−0.550
	5400.00	41.749	271.434	238.796	957.816	176.245	−507.928	743.030	42.809	−0.414
	5500.00	41.926	272.202	239.397	962.000	180.429	−535.110	743.029	29.842	−0.283
	5600.00	42.091	272.959	239.989	966.200	184.629	−562.368	743.046	16.875	−0.157
	5700.00	42.243	273.705	240.574	970.417	188.846	−589.702	743.079	3.908	−0.036
	5800.00	42.383	274.441	241.152	974.649	193.078	−617.109	0.000	0.000	0.000
	5900.00	42.509	275.167	241.722	978.893	197.322	−644.589	0.000	0.000	0.000
	6000.00	42.619	275.882	242.285	983.150	201.579	−672.142	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

202.570 TANTALUM DIBORIDE **TaB2**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	48.117	44.350	44.350	−209.200	0.000	−222.423	−209.200	−206.572	36.191
	300.00	48.360	44.649	44.351	−209.111	0.089	−222.505	−209.200	−206.556	35.965
	400.00	57.567	59.973	46.378	−203.762	5.438	−227.751	−209.156	−205.681	26.859
	500.00	62.838	73.427	50.473	−197.723	11.477	−234.436	−209.195	−204.810	21.396
	600.00	66.561	85.228	55.303	−191.245	17.955	−242.382	−209.316	−203.923	17.753
	700.00	69.552	95.720	60.341	−184.435	24.765	−251.439	−209.478	−203.012	15.149
	800.00	72.154	105.180	65.364	−177.347	31.853	−261.491	−209.644	−202.076	13.194
	900.00	74.529	113.817	70.275	−170.011	39.189	−272.447	−209.784	−201.122	11.673
	1000.00	76.763	121.786	75.032	−162.446	46.754	−284.232	−209.880	−200.153	10.455
	1100.00	78.905	129.204	79.624	−154.662	54.538	−296.786	−209.918	−199.178	9.458
	1200.00	80.985	136.159	84.048	−146.667	62.533	−310.058	−209.886	−198.203	8.628
	1300.00	83.020	142.722	88.311	−138.466	70.734	−324.005	−209.788	−197.233	7.925
	1400.00	85.024	148.948	92.422	−130.064	79.136	−338.591	−209.617	−196.273	7.323
	1500.00	87.004	154.882	96.390	−121.462	87.738	−353.785	−209.372	−195.328	6.802
	1600.00	88.966	160.559	100.224	−112.664	96.536	−369.559	−209.049	−194.402	6.347
	1700.00	90.914	166.011	103.935	−103.670	105.530	−385.889	−208.647	−193.498	5.945
	1800.00	92.851	171.263	107.530	−94.481	114.719	−402.754	−208.169	−192.620	5.590
	1900.00	94.779	176.335	111.019	−85.100	124.100	−420.136	−207.612	−191.771	5.272
	2000.00	96.700	181.245	114.408	−75.526	133.674	−438.016	−206.981	−190.954	4.987
	2100.00	98.616	186.009	117.705	−65.760	143.440	−456.380	−206.282	−190.169	4.730
	2200.00	100.527	190.641	120.915	−55.803	153.397	−475.213	−205.516	−189.420	4.497
	2300.00	102.434	195.152	124.045	−45.655	163.545	−494.504	−204.688	−188.706	4.286
	2400.00	104.338	199.552	127.100	−35.316	173.884	−514.240	−304.319	−185.893	4.046
	2500.00	106.240	203.850	130.084	−24.787	184.413	−534.411	−303.529	−180.974	3.781
	2600.00	108.138	208.053	133.003	−14.068	195.132	−555.007	−302.617	−176.089	3.538
	2700.00	110.035	212.170	135.859	−3.159	206.041	−576.019	−301.598	−171.242	3.313
	2800.00	111.931	216.206	138.656	7.939	217.139	−597.438	−300.488	−166.434	3.105
	2900.00	113.824	220.167	141.399	19.227	228.427	−619.257	−299.306	−161.667	2.912
	3000.00	115.717	224.058	144.090	30.704	239.904	−641.469	−298.068	−156.942	2.733
	3100.00	117.608	227.883	146.731	42.370	251.570	−664.067	−296.794	−152.259	2.566
	3200.00	119.498	231.647	149.326	54.225	263.425	−687.044	−295.580	−147.616	2.410
	3300.00	121.388	235.353	151.877	66.270	275.470	−710.394	−326.090	−142.884	2.262
	3373.00	122.767	238.024	153.713	75.181	284.381	−727.673	−324.868	−138.844	2.150
			24.809		83.680					
LIQ	3373.00	125.520	262.832	153.713	158.861	368.061	−727.673	−241.188	−138.844	2.150
	3400.00	125.520	263.833	154.583	162.250	371.450	−734.783	−240.643	−138.027	2.121
	3500.00	125.520	267.472	157.757	174.802	384.002	−761.349	−238.625	−135.038	2.015

References

Phase	H / S	C_p
SOL	Sh1	Sh1
LIQ	Sh1	Sh1

TaBr5 TANTALUM PENTABROMIDE 580.468

Phase	T [K]	C_p J / (K mol)	S J / (K mol)	−(G−H298)/T J / (K mol)	H kJ / mol	H−H298 kJ / mol	G kJ / mol	ΔH_f kJ / mol	ΔG_f kJ / mol	log K_f [−]
SOL	298.15	155.711	250.207	250.207	−598.299	0.000	−672.898	−598.299	−547.070	95.844
	300.00	155.938	251.171	250.210	−598.011	0.288	−673.362	−598.408	−546.752	95.198
	400.00	168.197	297.711	256.473	−581.804	16.495	−700.888	−670.982	−514.342	67.166
	500.00	180.456	336.560	268.704	−564.371	33.928	−732.651	−665.396	−475.806	49.707
	513.00	182.050	341.212	270.483	−562.015	36.284	−737.057	−664.587	−470.887	47.947
			73.404		37.656					
LIQ	513.00	184.096	414.615	270.483	−524.359	73.940	−737.057	−626.931	−470.887	47.947
	600.00	184.096	443.455	293.528	−508.343	89.956	−774.416	−621.301	−444.877	38.730
	617.00	184.096	448.598	297.730	−505.213	93.086	−781.998	−620.207	−439.893	37.241

References

Phase	H / S	C_p	Remarks
SOL	Nb1/e	A2	
LIQ	A2	e	Pa2 BPT= 617., L= 62.3 kJ

TaBr5[g] TANTALUM PENTABROMIDE (GAS) 580.468

Phase	T [K]	C_p J / (K mol)	S J / (K mol)	−(G−H298)/T J / (K mol)	H kJ / mol	H−H298 kJ / mol	G kJ / mol	ΔH_f kJ / mol	ΔG_f kJ / mol	log K_f [−]
GAS	298.15	126.860	456.291	456.291	−483.670	0.000	−619.713	−483.670	−493.885	86.527
	300.00	126.935	457.076	456.293	−483.435	0.235	−620.558	−483.832	−493.948	86.004
	400.00	129.574	494.009	461.311	−470.591	13.079	−668.194	−559.768	−481.649	62.897
	500.00	130.788	523.068	470.860	−457.566	26.104	−719.100	−558.591	−462.255	48.291
	600.00	131.440	546.977	481.613	−444.451	39.219	−772.638	−557.410	−443.099	38.575
	700.00	131.827	567.270	492.436	−431.287	52.383	−828.376	−556.246	−424.139	31.650
	800.00	132.073	584.890	502.916	−418.091	65.579	−886.003	−555.106	−405.345	26.466
	900.00	132.237	600.456	512.906	−404.875	78.795	−945.285	−553.995	−386.692	22.443
	1000.00	132.350	614.395	522.370	−391.645	92.025	−1006.040	−552.916	−368.160	19.231
	1100.00	132.430	627.013	531.319	−378.406	105.264	−1068.120	−551.871	−349.736	16.608
	1200.00	132.487	638.539	539.780	−365.160	118.510	−1131.406	−550.859	−331.405	14.426

References

Phase	H / S	C_p
GAS	Pa2	Pa2

192.959 TANTALUM MONOCARBIDE **TaC**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	36.789	42.384	42.384	−144.097	0.000	−156.734	−144.097	−142.647	24.991
	300.00	36.904	42.612	42.385	−144.029	0.068	−156.812	−144.092	−142.638	24.836
	400.00	41.665	53.943	43.897	−140.079	4.018	−161.656	−143.754	−142.203	18.570
	500.00	44.529	63.572	46.894	−135.758	8.339	−167.544	−143.381	−141.858	14.820
	600.00	46.449	71.870	50.382	−131.204	12.893	−174.326	−143.045	−141.586	12.326
	700.00	47.888	79.143	53.982	−126.484	17.613	−181.884	−142.766	−141.366	10.549
	800.00	49.075	85.617	57.539	−121.635	22.462	−190.128	−142.528	−141.182	9.218
	900.00	50.105	91.458	60.988	−116.674	27.423	−198.986	−142.312	−141.027	8.185
	1000.00	51.048	96.786	64.305	−111.616	32.481	−208.402	−142.110	−140.896	7.360
	1100.00	51.939	101.694	67.484	−106.467	37.630	−218.330	−141.910	−140.784	6.685
	1200.00	52.795	106.250	70.527	−101.230	42.867	−228.729	−141.705	−140.691	6.124
	1300.00	53.627	110.509	73.441	−95.908	48.189	−239.570	−141.494	−140.615	5.650
	1400.00	54.440	114.513	76.233	−90.505	53.592	−250.823	−141.273	−140.555	5.244
	1500.00	55.240	118.296	78.912	−85.021	59.076	−262.465	−141.036	−140.512	4.893
	1600.00	56.030	121.886	81.487	−79.457	64.640	−274.476	−140.780	−140.485	4.586
	1700.00	56.812	125.307	83.964	−73.815	70.282	−286.836	−140.502	−140.475	4.316
	1800.00	57.588	128.576	86.353	−68.095	76.002	−299.532	−140.203	−140.482	4.077
	1900.00	58.359	131.710	88.658	−62.298	81.799	−312.547	−139.882	−140.506	3.863
	2000.00	59.126	134.723	90.886	−56.423	87.674	−325.870	−139.543	−140.548	3.671
	2100.00	59.890	137.626	93.043	−50.473	93.624	−339.488	−139.192	−140.607	3.497
	2200.00	60.652	140.430	95.134	−44.445	99.652	−353.392	−138.832	−140.683	3.340
	2300.00	61.411	143.143	97.163	−38.342	105.755	−367.571	−138.466	−140.775	3.197
	2400.00	62.168	145.773	99.134	−32.163	111.934	−382.018	−138.098	−140.883	3.066
	2500.00	62.924	148.326	101.050	−25.909	118.188	−396.723	−137.728	−141.007	2.946
	2600.00	63.679	150.808	102.917	−19.579	124.518	−411.680	−137.359	−141.145	2.836
	2700.00	64.432	153.226	104.735	−13.173	130.924	−426.883	−137.003	−141.298	2.734
	2800.00	65.185	155.583	106.509	−6.692	137.405	−442.324	−136.678	−141.463	2.639
	2900.00	65.936	157.883	108.241	−0.136	143.961	−457.997	−136.402	−141.639	2.551
	3000.00	66.687	160.131	109.934	6.495	150.592	−473.898	−136.192	−141.823	2.469
	3100.00	67.438	162.330	111.589	13.201	157.298	−490.022	−136.066	−142.013	2.393
	3200.00	68.187	164.483	113.208	19.983	164.080	−506.363	−136.119	−142.205	2.321
	3300.00	68.937	166.593	114.794	26.839	170.936	−522.917	−168.018	−142.266	2.252
	3400.00	69.685	168.662	116.348	33.770	177.867	−539.680	−167.828	−141.488	2.174
	3500.00	70.434	170.693	117.872	40.776	184.873	−556.648	−167.569	−140.717	2.100

References

Phase	H / S	C_p
SOL	Sh1,Ja1	Ja1

Ta2C DITANTALUM CARBIDE 373.907

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	60.947	83.680	83.680	−213.401	0.000	−238.350	−213.401	−211.889	37.122
	300.00	61.092	84.057	83.681	−213.288	0.113	−238.505	−213.398	−211.880	36.892
	400.00	66.654	102.480	86.155	−206.871	6.530	−247.863	−213.168	−211.406	27.607
	500.00	69.977	117.735	90.990	−200.029	13.372	−258.896	−212.891	−210.997	22.043
	600.00	72.419	130.717	96.556	−192.904	20.497	−271.335	−212.622	−210.644	18.338
	700.00	74.444	142.037	102.262	−185.559	27.842	−284.984	−212.380	−210.333	15.695
	800.00	76.248	152.097	107.874	−178.023	35.378	−299.700	−212.142	−210.057	13.715
	900.00	77.922	161.175	113.300	−170.313	43.088	−315.371	−211.889	−209.812	12.177
	1000.00	79.517	169.468	118.508	−162.441	50.960	−331.909	−211.609	−209.595	10.948
	1100.00	81.059	177.120	123.493	−154.412	58.989	−349.243	−211.291	−209.409	9.944
	1200.00	82.566	184.238	128.262	−146.230	67.171	−367.315	−210.927	−209.254	9.109
	1300.00	84.047	190.905	132.827	−137.899	75.502	−386.076	−210.527	−209.130	8.403
	1400.00	85.510	197.187	137.202	−129.421	83.980	−405.483	−210.084	−209.039	7.799
	1500.00	86.960	203.136	141.401	−120.798	92.603	−425.502	−209.595	−208.981	7.277
	1600.00	88.399	208.795	145.438	−112.030	101.371	−446.101	−209.058	−208.957	6.822
	1700.00	89.831	214.197	149.324	−103.118	110.283	−467.253	−208.471	−208.969	6.421
	1800.00	91.256	219.372	153.073	−94.064	119.337	−488.933	−207.839	−209.016	6.065
	1900.00	92.676	224.344	156.694	−84.867	128.534	−511.120	−207.159	−209.100	5.749
	2000.00	94.093	229.133	160.197	−75.529	137.872	−533.796	−206.444	−209.220	5.464
	2100.00	95.506	233.758	163.591	−66.049	147.352	−556.941	−205.705	−209.377	5.208
	2200.00	96.917	238.234	166.882	−56.427	156.974	−580.542	−204.948	−209.570	4.976
	2300.00	98.325	242.573	170.079	−46.665	166.736	−604.584	−204.182	−209.797	4.765
	2400.00	99.732	246.788	173.188	−36.763	176.638	−629.053	−203.412	−210.058	4.572
	2500.00	101.136	250.887	176.215	−26.719	186.682	−653.937	−202.642	−210.351	4.395
	2600.00	102.540	254.881	179.164	−16.535	196.866	−679.227	−201.877	−210.674	4.232
	2700.00	103.943	258.778	182.041	−6.211	207.190	−704.910	−201.142	−211.026	4.083
	2800.00	105.344	262.583	184.849	4.253	217.654	−730.979	−200.472	−211.405	3.944
	2900.00	106.745	266.304	187.594	14.858	228.259	−757.424	−199.903	−211.806	3.815
	3000.00	108.145	269.947	190.279	25.602	239.003	−784.237	−199.469	−212.224	3.695
	3100.00	109.544	273.515	192.906	36.487	249.888	−811.411	−199.207	−212.654	3.583
	3200.00	110.943	277.015	195.480	47.511	260.912	−838.938	−199.308	−213.088	3.478
	3300.00	112.341	280.451	198.003	58.675	272.076	−866.812	−263.104	−213.260	3.376
	3400.00	113.739	283.825	200.478	69.979	283.380	−895.026	−262.724	−211.754	3.253
	3500.00	115.136	287.142	202.907	81.423	294.824	−923.575	−262.212	−210.263	3.138
	3600.00	116.534	290.405	205.292	93.006	306.407	−952.453	−261.566	−208.787	3.029
	3700.00	117.930	293.617	207.636	104.730	318.131	−981.654	−260.787	−207.331	2.927
	3773.00	118.950	295.931	209.322	113.376	326.777	−1003.173	−260.135	−206.283	2.856

References

Phase	H / S	C_p	Remarks
SOL	Nb1/Sh1	Sh1	Sh1 DPT= 3773. (peritec.)

216.401 TANTALUM MONOCHLORIDE (GAS) **TaCl[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	34.977	259.266	259.266	359.824	0.000	282.524	359.824	328.160	−57.492
	300.00	35.005	259.483	259.267	359.889	0.065	282.044	359.810	327.963	−57.103
	400.00	36.017	269.711	260.655	363.447	3.623	255.562	359.059	317.460	−41.456
	500.00	36.520	277.808	263.304	367.076	7.252	228.172	358.286	307.149	−32.088
	600.00	36.823	284.495	266.295	370.744	10.920	200.047	357.499	296.995	−25.856
	700.00	37.031	290.188	269.311	374.437	14.613	171.306	356.692	286.975	−21.414
	800.00	37.189	295.143	272.237	378.149	18.325	142.034	355.863	277.072	−18.091
	900.00	37.317	299.531	275.031	381.874	22.050	112.296	355.014	267.273	−15.512
	1000.00	37.428	303.469	277.681	385.612	25.788	82.143	354.144	257.571	−13.454
	1100.00	37.526	307.041	280.190	389.359	29.535	51.615	353.254	247.957	−11.774
	1200.00	37.616	310.310	282.566	393.117	33.293	20.745	352.343	238.424	−10.378
	1300.00	37.700	313.324	284.818	396.882	37.058	−10.439	351.403	228.969	−9.200
	1400.00	37.781	316.121	286.955	400.657	40.833	−41.913	350.434	219.587	−8.193
	1500.00	37.858	318.730	288.987	404.439	44.615	−73.657	349.434	210.275	−7.322

References

Phase	H / S	C_p
GAS	Pa2	Pa2

251.853 TANTALUM DICHLORIDE (GAS) **TaCl2[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	57.404	298.387	298.387	−66.944	0.000	−155.908	−66.944	−77.011	13.492
	300.00	57.462	298.742	298.388	−66.838	0.106	−156.460	−66.947	−77.073	13.420
	400.00	59.503	315.594	300.672	−60.975	5.969	−187.213	−67.127	−80.421	10.502
	500.00	60.455	328.986	305.042	−54.972	11.972	−219.465	−67.312	−83.724	8.747
	600.00	60.979	340.059	309.982	−48.898	18.046	−252.933	−67.511	−86.988	7.573
	700.00	61.299	349.485	314.969	−42.783	24.161	−287.422	−67.735	−90.217	6.732
	800.00	61.512	357.685	319.807	−36.641	30.303	−322.789	−67.986	−93.412	6.099
	900.00	61.663	364.939	324.426	−30.482	36.462	−358.927	−68.265	−96.574	5.605
	1000.00	61.774	371.442	328.808	−24.310	42.634	−395.752	−68.570	−99.703	5.208
	1100.00	61.860	377.334	332.956	−18.128	48.816	−433.196	−68.903	−102.800	4.882
	1200.00	61.928	382.719	336.882	−11.939	55.005	−471.202	−69.264	−105.866	4.608
	1300.00	61.984	387.679	340.601	−5.743	61.201	−509.725	−69.660	−108.900	4.376
	1400.00	62.032	392.274	344.130	0.458	67.402	−548.726	−70.093	−111.903	4.175
	1500.00	62.073	396.555	347.484	6.663	73.607	−588.170	−70.565	−114.873	4.000

References

Phase	H / S	C_p
GAS	Pa2	Pa2

TaCl2.5 TANTALUM 2.5–CHLORIDE 269.580

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	83.208	140.582	140.582	–479.101	0.000	–521.016	–479.101	–425.488	74.544
	300.00	83.264	141.097	140.584	–478.947	0.154	–521.276	–479.072	–425.155	74.026
	400.00	85.348	165.372	143.880	–470.504	8.597	–536.653	–477.539	–407.415	53.203
	500.00	86.504	184.551	150.163	–461.907	17.194	–554.182	–476.022	–390.060	40.749
	600.00	87.295	200.396	157.253	–453.215	25.886	–573.453	–474.512	–373.009	32.473
	700.00	87.912	213.900	164.404	–444.454	34.647	–594.184	–473.009	–356.211	26.581
	800.00	88.438	225.675	171.343	–435.636	43.465	–616.175	–471.510	–339.628	22.175
	900.00	88.910	236.119	177.971	–426.768	52.333	–639.275	–470.011	–323.232	18.760
	1000.00	89.349	245.509	184.263	–417.855	61.246	–663.364	–468.511	–307.004	16.036

References

Phase	H / S	C_p
SOL	Nb1/e	e

TaCl3 TANTALUM TRICHLORIDE 287.306

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	93.096	154.808	154.808	–546.012	0.000	–592.168	–546.012	–480.010	84.096
	300.00	93.224	155.384	154.810	–545.840	0.172	–592.455	–545.981	–479.600	83.506
	400.00	98.314	182.971	158.537	–536.238	9.774	–609.427	–544.155	–457.742	59.775
	500.00	101.546	205.277	165.725	–526.236	19.776	–628.874	–542.127	–436.370	45.587
	600.00	104.047	224.019	173.920	–515.953	30.059	–650.364	–539.934	–415.422	36.166
	700.00	106.203	240.223	182.260	–505.438	40.574	–673.594	–537.597	–394.853	29.464
	800.00	108.175	254.534	190.417	–494.718	51.294	–698.346	–535.122	–374.628	24.461
	900.00	110.040	267.384	198.267	–483.807	62.205	–724.452	–532.511	–354.722	20.588
	1000.00	111.838	279.071	205.772	–472.712	73.300	–751.784	–529.765	–335.113	17.505

References

Phase	H / S	C_p
SOL	Sc2	Sc2

287.306 TANTALUM TRICHLORIDE (GAS) **TaCl3[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	75.438	346.001	346.001	−322.168	0.000	−425.328	−322.168	−313.170	54.866
	300.00	75.524	346.468	346.002	−322.028	0.140	−425.969	−322.170	−313.114	54.518
	400.00	78.588	368.676	349.009	−314.301	7.867	−461.772	−322.219	−310.087	40.493
	500.00	80.040	386.386	354.774	−306.362	15.806	−499.555	−322.253	−307.050	32.077
	600.00	80.858	401.057	361.300	−298.314	23.854	−538.948	−322.295	−304.006	26.466
	700.00	81.376	413.563	367.895	−290.200	31.968	−579.695	−322.359	−300.953	22.457
	800.00	81.735	424.454	374.299	−282.044	40.124	−621.607	−322.448	−297.890	19.450
	900.00	82.001	434.097	380.418	−273.857	48.311	−664.544	−322.561	−294.813	17.111
	1000.00	82.209	442.748	386.226	−265.646	56.522	−708.394	−322.698	−291.723	15.238
	1100.00	82.380	450.592	391.726	−257.416	64.752	−753.067	−322.860	−288.618	13.705
	1200.00	82.525	457.766	396.935	−249.170	72.998	−798.490	−323.047	−285.497	12.427
	1300.00	82.652	464.377	401.872	−240.911	81.257	−844.601	−323.266	−282.359	11.345
	1400.00	82.766	470.506	406.558	−232.641	89.527	−891.349	−323.520	−279.203	10.417
	1500.00	82.870	476.220	411.014	−224.359	97.809	−938.688	−323.809	−276.028	9.612

References

Phase	H / S	C_p
GAS	Pa2	Pa2

322.759 TANTALUM TETRACHLORIDE **TaCl4**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	119.820	192.464	192.464	−701.699	0.000	−759.082	−701.699	−613.663	107.511
	300.00	119.988	193.206	192.466	−701.477	0.222	−759.439	−701.650	−613.117	106.753
	400.00	125.886	228.653	197.259	−689.141	12.558	−780.603	−698.824	−584.025	76.266
	500.00	128.616	257.071	206.475	−676.401	25.298	−804.937	−695.842	−555.668	58.050
	600.00	130.099	280.664	216.930	−663.459	38.240	−831.857	−692.808	−527.918	45.959
	700.00	130.993	300.791	227.508	−650.400	51.299	−860.955	−689.766	−500.677	37.361

References

Phase	H / S	C_p
SOL	Nb1/Sc2	Sc2

TaCl4[g] TANTALUM TETRACHLORIDE (GAS) 322.759

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	98.953	377.297	377.297	−573.585	0.000	−686.076	−573.585	−540.657	94.721
	300.00	99.057	377.909	377.299	−573.402	0.183	−686.775	−573.574	−540.453	94.101
	400.00	102.754	406.987	381.238	−563.285	10.300	−726.080	−572.968	−529.502	69.146
	500.00	104.503	430.125	388.781	−552.913	20.672	−767.976	−572.354	−518.707	54.189
	600.00	105.485	449.273	397.314	−542.410	31.175	−811.973	−571.759	−508.034	44.228
	700.00	106.105	465.583	405.930	−531.828	41.757	−857.736	−571.193	−497.459	37.121
	800.00	106.532	479.781	414.293	−521.195	52.390	−905.020	−570.658	−486.962	31.795
	900.00	106.847	492.348	422.281	−510.525	63.060	−953.638	−570.151	−476.531	27.657
	1000.00	107.092	503.618	429.861	−499.828	73.757	−1003.446	−569.673	−466.154	24.349
	1100.00	107.292	513.835	437.038	−489.108	84.477	−1054.327	−569.222	−455.825	21.645
	1200.00	107.461	523.178	443.832	−478.370	95.215	−1106.184	−568.798	−445.535	19.394
	1300.00	107.608	531.785	450.271	−467.617	105.968	−1158.938	−568.410	−435.279	17.490
	1400.00	107.739	539.765	456.382	−456.849	116.736	−1212.520	−568.057	−425.051	15.859
	1500.00	107.858	547.202	462.192	−446.069	127.516	−1266.873	−567.743	−414.848	14.446

References

Phase	H / S	C_p
GAS	Pa2	Pa2

TaCl5 TANTALUM PENTACHLORIDE 358.211

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	147.904	221.752	221.752	−858.975	0.000	−925.090	−858.975	−746.410	130.768
	300.00	147.904	222.667	221.755	−858.701	0.274	−925.501	−858.905	−745.712	129.840
	400.00	147.904	265.216	227.556	−843.911	15.064	−949.997	−855.358	−708.526	92.524
	489.70	147.904	295.142	237.288	−830.644	28.331	−975.175	−852.436	−675.908	72.097
			71.770		35.146					
LIQ	489.70	216.564	366.912	237.288	−795.498	63.477	−975.175	−817.290	−675.908	72.097
	500.00	216.564	371.420	240.004	−793.267	65.708	−978.977	−816.259	−672.945	70.302
	506.40	216.564	374.174	241.683	−791.881	67.094	−981.363	−815.618	−671.115	69.225

References

Phase	H / S	C_p	Remarks	
SOL	G2/Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	BPT= 506.4, L= 53.02 kJ

358.211 TANTALUM PENTACHLORIDE (GAS) **TaCl5[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	120.135	412.987	412.987	−764.835	0.000	−887.967	−764.835	−709.287	124.264
	300.00	120.269	413.730	412.989	−764.613	0.222	−888.732	−764.817	−708.942	123.438
	400.00	125.328	449.110	417.778	−752.302	12.533	−931.946	−763.749	−690.475	90.167
	500.00	127.922	477.384	426.968	−739.627	25.208	−978.319	−762.618	−672.287	70.233
	600.00	129.413	500.850	437.381	−726.754	38.081	−1027.264	−761.471	−654.328	56.964
	700.00	130.342	520.874	447.914	−713.763	51.072	−1078.375	−760.334	−636.561	47.501
	800.00	130.958	538.322	458.148	−700.696	64.139	−1131.353	−759.218	−618.955	40.414
	900.00	131.386	553.773	467.931	−687.577	77.258	−1185.973	−758.125	−601.489	34.909
	1000.00	131.694	567.632	477.220	−674.422	90.413	−1242.055	−757.060	−584.142	30.512
	1100.00	131.923	580.195	486.019	−661.241	103.594	−1299.456	−756.024	−566.900	26.920
	1200.00	132.097	591.682	494.352	−648.040	116.795	−1358.058	−755.019	−549.752	23.930
	1300.00	132.233	602.261	502.252	−634.823	130.012	−1417.762	−754.054	−532.686	21.404
	1400.00	132.340	612.064	509.750	−621.594	143.241	−1478.484	−753.130	−515.692	19.241
	1500.00	132.428	621.198	516.878	−608.356	156.479	−1540.153	−752.251	−498.764	17.368
	1600.00	132.499	629.747	523.668	−595.109	169.726	−1602.704	−751.419	−481.892	15.732
	1700.00	132.560	637.782	530.147	−581.856	182.979	−1666.085	−750.633	−465.071	14.290
	1800.00	132.611	645.360	536.339	−568.598	196.237	−1730.246	−749.902	−448.294	13.009
	1900.00	132.655	652.531	542.268	−555.334	209.501	−1795.143	−749.223	−431.557	11.864
	2000.00	132.694	659.336	547.952	−542.067	222.768	−1860.740	−748.606	−414.854	10.835

References

Phase	H / S	C_p
GAS	Ja1	Ja1

275.940 TANTALUM PENTAFLUORIDE **TaF5**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	161.084	171.544	171.544	−1903.302	0.000	−1954.448	−1903.302	−1790.915	313.761
	300.00	161.084	172.540	171.547	−1903.004	0.298	−1954.766	−1903.196	−1790.218	311.705
	368.00	161.084	205.450	174.875	−1892.050	11.252	−1967.656	−1899.405	−1765.014	250.530
			51.163		18.828					
LIQ	368.00	177.820	256.613	174.875	−1873.222	30.080	−1967.656	−1880.577	−1765.014	250.530
	400.00	177.820	271.440	182.015	−1867.532	35.770	−1976.108	−1878.333	−1755.060	229.187
	500.00	177.820	311.119	204.015	−1849.750	53.552	−2005.310	−1871.576	−1725.031	180.213
	501.00	177.820	311.475	204.230	−1849.572	53.730	−2005.621	−1871.510	−1724.738	179.823

References

Phase	H / S	C_p	Remarks	
SOL	Ge1	A2,e		
LIQ	A2	e	e	BPT= 501., L= 50.6 kJ (calc.)

TaF5[g] TANTALUM PENTAFLUORIDE (GAS) 275.940

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	103.221	353.478	353.478	−1822.132	0.000	−1927.521	−1822.132	−1763.988	309.043
	300.00	103.564	354.117	353.479	−1821.941	0.191	−1928.176	−1822.133	−1763.627	307.075
	400.00	115.673	385.816	357.719	−1810.893	11.239	−1965.220	−1821.694	−1744.172	227.765
	500.00	121.336	412.305	366.065	−1799.012	23.120	−2005.164	−1820.838	−1724.886	180.198
	600.00	124.462	434.729	375.689	−1786.708	35.424	−2047.545	−1819.854	−1705.787	148.502
	700.00	126.390	454.070	385.537	−1774.159	47.973	−2092.008	−1818.843	−1686.855	125.875
	800.00	127.679	471.037	395.186	−1761.451	60.681	−2138.281	−1817.838	−1668.069	108.914
	900.00	128.598	486.131	404.468	−1748.635	73.497	−2186.153	−1816.853	−1649.407	95.729
	1000.00	129.286	499.717	413.325	−1735.739	86.393	−2235.457	−1815.894	−1630.854	85.187
	1100.00	129.823	512.066	421.748	−1722.783	99.349	−2286.055	−1814.965	−1612.395	76.566
	1200.00	130.257	523.381	429.753	−1709.778	112.354	−2337.835	−1814.067	−1594.019	69.386
	1300.00	130.620	533.822	437.362	−1696.734	125.398	−2390.702	−1813.208	−1575.717	63.313
	1400.00	130.930	543.513	444.602	−1683.656	138.476	−2444.575	−1812.390	−1557.480	58.110
	1500.00	131.201	552.556	451.501	−1670.549	151.583	−2499.383	−1811.614	−1539.299	53.603
	1600.00	131.443	561.032	458.084	−1657.417	164.715	−2555.067	−1810.879	−1521.169	49.661
	1700.00	131.661	569.007	464.377	−1644.261	177.871	−2611.573	−1810.188	−1503.083	46.184
	1800.00	131.863	576.538	470.401	−1631.085	191.047	−2668.854	−1809.544	−1485.037	43.095
	1900.00	132.049	583.673	476.177	−1617.889	204.243	−2726.867	−1808.947	−1467.025	40.331
	2000.00	132.225	590.450	481.722	−1604.676	217.456	−2785.576	−1808.403	−1449.044	37.845

References

Phase	H / S	C_p
GAS	Ge1,e	e

TaI5 TANTALUM PENTAIODIDE 815.470

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	155.655	343.088	343.088	−292.880	0.000	−395.172	−292.880	−296.228	51.898
	300.00	155.816	344.051	343.091	−292.592	0.288	−395.807	−292.891	−296.248	51.581
	400.00	164.548	390.073	349.307	−276.574	16.306	−432.603	−333.544	−295.884	38.638
	500.00	173.280	427.729	361.333	−259.682	33.198	−473.547	−439.754	−276.273	28.862
	600.00	182.012	460.093	375.156	−241.918	50.962	−517.974	−434.005	−244.104	21.251
	700.00	190.744	488.806	389.377	−223.280	69.600	−565.444	−427.437	−212.961	15.891
	769.00	196.769	507.017	399.124	−209.911	82.969	−599.807	−422.424	−192.056	13.046
			10.065		7.740					
LIQ	769.00	184.096	517.082	399.124	−202.171	90.709	−599.807	−414.684	−192.056	13.046
	800.00	184.096	524.358	403.837	−196.464	96.416	−615.950	−412.738	−183.120	11.957
	816.50	184.096	528.116	406.311	−193.426	99.454	−624.633	−411.704	−178.395	11.413

References

Phase	H / S	C_p	Remarks	
SOL	Ge1/A2	A2		
LIQ	Tk1	e	Tk1	NBPT= 816.5

815.470 TANTALUM PENTAIODIDE (GAS) **TaI5[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	135.232	472.341	472.341	−197.066	0.000	−337.894	−197.066	−238.950	41.863
	300.00	135.307	473.178	472.343	−196.816	0.250	−338.769	−197.115	−239.210	41.650
	400.00	137.946	512.519	477.689	−183.134	13.932	−388.142	−240.105	−251.423	32.832
	500.00	139.160	543.447	487.859	−169.272	27.794	−440.995	−349.344	−243.722	25.461
	600.00	139.812	568.882	499.306	−155.320	41.746	−496.649	−347.408	−222.780	19.395
	700.00	140.199	590.465	510.826	−141.318	55.748	−554.644	−345.475	−202.161	15.085
	800.00	140.446	609.203	521.977	−127.285	69.781	−614.648	−343.560	−181.819	11.872
	900.00	140.610	625.756	532.607	−113.232	83.834	−676.412	−341.669	−161.715	9.386
	1000.00	140.723	640.577	542.675	−99.165	97.901	−739.741	−339.808	−141.820	7.408
	1100.00	140.802	653.993	552.195	−85.088	111.978	−804.481	−337.979	−122.110	5.799
	1200.00	140.859	666.247	561.196	−71.005	126.061	−870.501	−336.185	−102.565	4.465
	1300.00	140.900	677.523	569.716	−56.917	140.149	−937.697	−334.435	−83.168	3.342
	1400.00	140.930	687.966	577.794	−42.825	154.241	−1005.978	−332.731	−63.904	2.384
	1500.00	140.951	697.690	585.467	−28.731	168.335	−1075.267	−331.075	−44.760	1.559
	1600.00	140.965	706.787	592.768	−14.636	182.430	−1145.495	−329.468	−25.725	0.840
	1700.00	140.974	715.334	599.729	−0.539	196.527	−1216.606	−327.911	−6.789	0.209
	1800.00	140.980	723.392	606.378	13.559	210.625	−1288.546	−326.410	12.057	−0.350
	1900.00	140.982	731.014	612.739	27.657	224.723	−1361.270	−324.963	30.821	−0.847
	2000.00	140.981	738.246	618.835	41.755	238.821	−1434.736	−323.577	49.510	−1.293

References

Phase	H / S	C_p
GAS	Tk1,e	e

TaN TANTALUM MONONITRIDE 194.955

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	41.867	51.045	51.045	−252.295	0.000	−267.514	−252.295	−226.575	39.695
	300.00	42.047	51.304	51.046	−252.217	0.078	−267.609	−252.291	−226.416	39.422
	400.00	48.461	64.405	52.788	−247.648	4.647	−273.410	−251.756	−217.855	28.449
	500.00	51.576	75.589	56.260	−242.630	9.665	−280.425	−250.825	−209.482	21.884
	600.00	53.392	85.166	60.299	−237.375	14.920	−288.475	−249.699	−201.317	17.526
	700.00	54.596	93.492	64.460	−231.972	20.323	−297.417	−248.480	−193.349	14.428
	800.00	55.472	100.843	68.557	−226.467	25.828	−307.141	−247.216	−185.559	12.116
	900.00	56.158	107.417	72.516	−220.884	31.411	−317.559	−245.934	−177.929	10.327
	1000.00	56.727	113.364	76.308	−215.239	37.056	−328.603	−244.645	−170.442	8.903
	1100.00	57.218	118.795	79.927	−209.541	42.754	−340.215	−243.357	−163.084	7.744
	1200.00	57.657	123.792	83.377	−203.797	48.498	−352.348	−242.073	−155.843	6.784
	1300.00	58.058	128.423	86.666	−198.011	54.284	−364.961	−240.804	−148.709	5.975
	1400.00	58.433	132.740	89.805	−192.186	60.109	−378.022	−239.549	−141.672	5.286
	1500.00	58.788	136.783	92.803	−186.325	65.970	−391.500	−238.310	−134.724	4.692
	1600.00	59.128	140.589	95.672	−180.429	71.866	−405.371	−237.087	−127.859	4.174
	1700.00	59.457	144.183	98.421	−174.500	77.795	−419.611	−235.880	−121.069	3.720
	1800.00	59.776	147.591	101.059	−168.538	83.757	−434.201	−234.694	−114.350	3.318
	1900.00	60.088	150.831	103.594	−162.545	89.750	−449.123	−233.527	−107.696	2.961
	2000.00	60.394	153.921	106.034	−156.521	95.774	−464.362	−232.385	−101.103	2.641
	2100.00	60.695	156.875	108.385	−150.466	101.829	−479.903	−231.273	−94.566	2.352
	2200.00	60.993	159.705	110.654	−144.382	107.913	−495.733	−230.197	−88.082	2.091
	2300.00	61.287	162.423	112.846	−138.268	114.027	−511.840	−229.158	−81.645	1.854
	2400.00	61.578	165.037	114.966	−132.124	120.171	−528.214	−228.159	−75.253	1.638
	2500.00	61.867	167.557	117.020	−125.952	126.343	−544.845	−227.204	−68.902	1.440
	2600.00	62.155	169.989	119.011	−119.751	132.544	−561.723	−226.294	−62.588	1.257
	2700.00	62.440	172.340	120.943	−113.521	138.774	−578.840	−225.441	−56.308	1.089
	2800.00	62.724	174.616	122.819	−107.263	145.032	−596.188	−224.663	−50.058	0.934
	2900.00	63.007	176.822	124.643	−100.976	151.319	−613.761	−223.979	−43.835	0.790
	3000.00	63.289	178.963	126.418	−94.662	157.633	−631.550	−223.403	−37.633	0.655
	3100.00	63.570	181.043	128.147	−88.319	163.976	−649.551	−222.956	−31.448	0.530
	3200.00	63.850	183.065	129.832	−81.948	170.347	−667.757	−222.732	−25.275	0.413
	3300.00	64.129	185.035	131.475	−75.549	176.746	−686.163	−254.397	−18.979	0.300
	3363.00	64.305	186.249	132.490	−71.503	180.792	−697.858	−254.160	−14.487	0.225
			19.906		66.944					
LIQ	3363.00	62.760	206.155	132.490	−4.559	247.736	−697.858	−187.216	−14.487	0.225
	3400.00	62.760	206.842	133.295	−2.237	250.058	−705.499	−187.132	−12.587	0.193
	3500.00	62.760	208.661	135.423	4.039	256.334	−726.274	−186.905	−7.456	0.111

References

Phase	H / S	C_p
SOL	Ge1	Sh1,e
LIQ	Sh1	Sh1

375.903 DITANTALUM NITRIDE **Ta2N**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	67.789	86.149	86.149	−271.542	0.000	−297.227	−271.542	−243.913	42.733
	300.00	67.920	86.568	86.150	−271.416	0.126	−297.387	−271.537	−243.742	42.439
	400.00	73.123	106.891	88.886	−264.340	7.202	−307.096	−271.070	−234.537	30.627
	500.00	76.479	123.588	94.206	−256.851	14.691	−318.645	−270.285	−225.489	23.557
	600.00	79.109	137.772	100.314	−249.067	22.475	−331.731	−269.269	−216.622	18.859
	700.00	81.396	150.141	106.567	−241.040	30.502	−346.139	−268.088	−207.939	15.517
	800.00	83.500	161.149	112.714	−232.794	38.748	−361.714	−266.771	−199.435	13.022
	900.00	85.497	171.100	118.658	−224.344	47.198	−378.334	−265.332	−191.103	11.091
	1000.00	87.429	180.208	124.364	−215.697	55.845	−395.906	−263.778	−182.938	9.556
	1100.00	89.317	188.630	129.828	−206.859	64.683	−414.353	−262.112	−174.933	8.307
	1200.00	91.176	196.482	135.059	−197.835	73.707	−433.613	−260.333	−167.086	7.273
	1300.00	93.015	203.852	140.070	−188.625	82.917	−453.633	−258.459	−159.390	6.404
	1400.00	94.838	210.812	144.877	−179.232	92.310	−474.369	−256.489	−151.843	5.665
	1500.00	96.650	217.417	149.494	−169.658	101.884	−495.784	−254.425	−144.440	5.030
	1600.00	98.454	223.713	153.938	−159.902	111.640	−517.843	−252.266	−137.177	4.478
	1700.00	100.251	229.735	158.221	−149.967	121.575	−540.517	−250.013	−130.053	3.996
	1800.00	102.043	235.516	162.355	−139.852	131.690	−563.781	−247.675	−123.063	3.571
	1900.00	103.831	241.081	166.353	−129.559	141.983	−587.613	−245.249	−116.206	3.195
	2000.00	105.616	246.452	170.225	−119.086	152.456	−611.991	−242.747	−109.479	2.859
	2100.00	107.398	251.649	173.979	−108.436	163.106	−636.898	−240.180	−102.878	2.559
	2200.00	109.178	256.686	177.624	−97.607	173.935	−662.316	−237.556	−96.401	2.289
	2300.00	110.956	261.578	181.169	−86.600	184.942	−688.230	−234.883	−90.045	2.045
	2400.00	112.732	266.338	184.619	−75.416	196.126	−714.627	−232.166	−83.806	1.824
	2500.00	114.508	270.976	187.981	−64.054	207.488	−741.494	−229.410	−77.680	1.623
	2600.00	116.282	275.502	191.260	−52.514	219.028	−768.818	−226.619	−71.666	1.440
	2700.00	118.055	279.923	194.462	−40.797	230.745	−796.590	−223.819	−65.760	1.272
	2800.00	119.827	284.249	197.592	−28.903	242.639	−824.800	−221.043	−59.956	1.119
	2900.00	121.599	288.485	200.654	−16.832	254.710	−853.437	−218.329	−54.252	0.977
	3000.00	123.370	292.637	203.651	−4.584	266.958	−882.494	−215.710	−48.639	0.847
			30.683		92.048					
LIQ	3000.00	94.140	323.319	203.651	87.464	359.006	−882.494	−123.662	−48.639	0.847
	3100.00	94.140	326.406	207.561	96.878	368.420	−914.981	−124.186	−46.130	0.777
	3200.00	94.140	329.395	211.322	106.292	377.834	−947.772	−125.210	−43.598	0.712
	3300.00	94.140	332.292	214.944	115.706	387.248	−980.857	−190.064	−40.772	0.645
	3400.00	94.140	335.102	218.437	125.120	396.662	−1014.227	−190.881	−36.236	0.557
	3500.00	94.140	337.831	221.809	134.534	406.076	−1047.875	−191.699	−31.676	0.473
	3600.00	94.140	340.483	225.069	143.948	415.490	−1081.791	−192.521	−27.092	0.393
	3700.00	94.140	343.063	228.224	153.362	424.904	−1115.969	−193.345	−22.486	0.317
	3800.00	94.140	345.573	231.279	162.776	434.318	−1150.401	−194.171	−17.857	0.245
	3900.00	94.140	348.018	234.241	172.190	443.732	−1185.081	−194.999	−13.206	0.177
	4000.00	94.140	350.402	237.115	181.604	453.146	−1220.003	−195.829	−8.534	0.111

References

Phase	H / S	C_p
SOL	Pa3	Ge1
LIQ	Sh1	Sh1

TaO[g] TANTALUM MONOXIDE (GAS) 196.947

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	30.597	241.108	241.108	192.464	0.000	120.578	192.464	163.535	-28.651
	300.00	30.628	241.297	241.108	192.521	0.057	120.131	192.447	163.355	-28.443
	400.00	32.156	250.325	242.329	195.662	3.198	95.532	191.527	153.798	-20.084
	500.00	33.402	257.638	244.682	198.942	6.478	70.123	190.661	144.467	-15.092
	600.00	34.444	263.823	247.370	202.336	9.872	44.042	189.837	135.307	-11.779
	700.00	35.349	269.202	250.113	205.827	13.363	17.385	189.038	126.282	-9.423
	800.00	36.157	273.976	252.803	209.403	16.939	-9.778	188.258	117.370	-7.663
	900.00	36.892	278.278	255.398	213.056	20.592	-37.394	187.497	108.555	-6.300
	1000.00	37.565	282.200	257.885	216.779	24.315	-65.421	186.752	99.823	-5.214
	1100.00	38.186	285.810	260.262	220.567	28.103	-93.824	186.025	91.166	-4.329
	1200.00	38.759	289.157	262.532	224.414	31.950	-122.574	185.312	82.574	-3.594
	1300.00	39.289	292.281	264.701	228.317	35.853	-151.648	184.604	74.041	-2.975
	1400.00	39.777	295.211	266.777	232.271	39.807	-181.024	183.898	65.563	-2.446
	1500.00	40.185	297.968	268.766	236.268	43.804	-210.684	183.187	57.135	-1.990
	1600.00	40.554	300.574	270.673	240.306	47.842	-240.613	182.467	48.755	-1.592
	1700.00	40.894	303.043	272.505	244.378	51.914	-270.794	181.734	40.421	-1.242
	1800.00	41.226	305.390	274.267	248.484	56.020	-301.217	180.981	32.130	-0.932
	1900.00	41.562	307.628	275.965	252.624	60.160	-331.869	180.209	23.881	-0.657
	2000.00	41.910	309.768	277.602	256.797	64.333	-362.739	179.413	15.674	-0.409
	2100.00	42.274	311.822	279.183	261.006	68.542	-393.820	178.589	7.507	-0.187
	2200.00	42.657	313.797	280.711	265.253	72.789	-425.101	177.734	-0.620	0.015
	2300.00	43.060	315.702	282.192	269.538	77.074	-456.577	176.846	-8.707	0.198
	2400.00	43.483	317.544	283.626	273.865	81.401	-488.239	175.924	-16.755	0.365
	2500.00	43.926	319.328	285.019	278.236	85.772	-520.083	174.968	-24.764	0.517
	2600.00	44.389	321.059	286.372	282.651	90.187	-552.103	173.978	-32.734	0.658
	2700.00	44.872	322.744	287.688	287.114	94.650	-584.294	172.943	-40.665	0.787
	2800.00	45.373	324.385	288.969	291.626	99.162	-616.651	171.848	-48.556	0.906
	2900.00	45.893	325.986	290.218	296.189	103.725	-649.169	170.677	-56.407	1.016
	3000.00	46.431	327.551	291.437	300.806	108.342	-681.847	169.414	-64.217	1.118

References

Phase	H / S	C_p
GAS	Ja1	Ja1

212.947 TANTALUM DIOXIDE (GAS) **TaO2**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	44.002	280.270	280.270	−200.832	0.000	−284.395	−200.832	−210.855	36.941
	300.00	44.072	280.543	280.271	−200.751	0.081	−284.913	−200.852	−210.917	36.724
	400.00	47.723	293.737	282.045	−196.155	4.677	−313.650	−201.803	−214.123	27.962
	500.00	50.414	304.694	285.510	−191.240	9.592	−343.587	−202.564	−217.112	22.681
	600.00	52.276	314.060	289.507	−186.100	14.732	−374.536	−203.221	−219.958	19.149
	700.00	53.590	322.223	293.610	−180.803	20.029	−406.359	−203.841	−222.699	16.618
	800.00	54.540	329.444	297.647	−175.394	25.438	−438.949	−204.456	−225.351	14.714
	900.00	55.236	335.910	301.545	−169.903	30.929	−472.223	−205.083	−227.925	13.228
	1000.00	55.744	341.758	305.279	−164.353	36.479	−506.111	−205.731	−230.429	12.036
	1100.00	56.144	347.090	308.841	−158.758	42.074	−540.557	−206.406	−232.866	11.058
	1200.00	56.454	351.989	312.235	−153.127	47.705	−575.514	−207.110	−235.241	10.240
	1300.00	56.700	356.518	315.470	−147.469	53.363	−610.943	−207.854	−237.555	9.545
	1400.00	56.901	360.728	318.554	−141.789	59.043	−646.807	−208.640	−239.810	8.947
	1500.00	57.069	364.659	321.498	−136.090	64.742	−683.079	−209.470	−242.008	8.427
	1600.00	57.215	368.347	324.312	−130.375	70.457	−719.731	−210.347	−244.149	7.971
	1700.00	57.346	371.820	327.005	−124.647	76.185	−756.741	−211.270	−246.234	7.566
	1800.00	57.466	375.101	329.587	−118.907	81.925	−794.089	−212.247	−248.262	7.204
	1900.00	57.581	378.211	332.065	−113.154	87.678	−831.756	−213.275	−250.236	6.879
	2000.00	57.695	381.168	334.447	−107.390	93.442	−869.726	−214.362	−252.153	6.586
	2100.00	57.808	383.985	336.739	−101.615	99.217	−907.985	−215.513	−254.014	6.318
	2200.00	57.924	386.677	338.949	−95.829	105.003	−946.519	−216.732	−255.820	6.074
	2300.00	58.044	389.255	341.080	−90.030	110.802	−985.316	−218.023	−257.568	5.850
	2400.00	58.170	391.728	343.139	−84.220	116.612	−1024.366	−219.387	−259.258	5.643
	2500.00	58.303	394.105	345.131	−78.396	122.436	−1063.659	−220.827	−260.890	5.451
	2600.00	58.443	396.394	347.059	−72.559	128.273	−1103.184	−222.344	−262.463	5.273
	2700.00	58.591	398.603	348.927	−66.707	134.125	−1142.935	−223.949	−263.976	5.107
	2800.00	58.748	400.736	350.739	−60.840	139.992	−1182.903	−225.658	−265.427	4.952
	2900.00	58.915	402.801	352.499	−54.957	145.875	−1223.080	−227.488	−266.816	4.806
	3000.00	59.092	404.801	354.210	−49.057	151.775	−1263.461	−229.455	−268.139	4.669

References

Phase	H / S	C_p
GAS	Ja1	Ja1

Ta2O5 DITANTALUM PENTOXIDE 441.893

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	135.054	143.135	143.135	−2045.976	0.000	−2088.652	−2045.976	−1910.991	334.798
	300.00	135.320	143.971	143.137	−2045.726	0.250	−2088.917	−2045.956	−1910.153	332.587
	400.00	147.513	184.660	148.602	−2031.553	14.423	−2105.417	−2044.361	−1865.101	243.557
	500.00	156.879	218.622	159.301	−2016.316	29.660	−2125.627	−2042.005	−1820.545	190.191
	600.00	164.403	247.914	171.684	−2000.238	45.738	−2148.987	−2039.102	−1776.518	154.660
	700.00	170.453	273.729	184.454	−1983.484	62.492	−2175.094	−2035.809	−1733.010	129.319
	800.00	175.191	296.813	197.082	−1966.191	79.785	−2203.642	−2032.233	−1689.994	110.345
	900.00	179.038	317.671	209.340	−1948.479	97.497	−2234.382	−2028.458	−1647.439	95.615
	1000.00	182.753	336.728	221.140	−1930.388	115.588	−2267.116	−2024.495	−1605.314	83.853
	1100.00	184.824	354.243	232.455	−1912.009	133.967	−2301.677	−2020.412	−1563.593	74.249
	1200.00	187.071	370.424	243.287	−1893.412	152.564	−2337.920	−2016.258	−1522.247	66.262
	1300.00	189.021	385.476	253.652	−1874.605	171.371	−2375.724	−2012.048	−1481.250	59.517
	1400.00	190.740	399.548	263.576	−1855.615	190.361	−2414.983	−2007.797	−1440.579	53.749
	1500.00	192.279	412.761	273.086	−1836.463	209.513	−2455.605	−2003.523	−1400.212	48.760
	1600.00	193.674	425.216	282.209	−1817.164	228.812	−2497.510	−1999.239	−1360.131	44.404
	1700.00	194.953	436.996	290.970	−1797.732	248.244	−2540.626	−1994.957	−1320.318	40.568
	1800.00	196.138	448.173	299.396	−1778.177	267.799	−2584.889	−1990.694	−1280.756	37.167
	1900.00	197.246	458.808	307.509	−1758.507	287.469	−2630.242	−1986.455	−1241.431	34.129
	2000.00	198.288	468.952	315.329	−1738.730	307.246	−2676.634	−1982.261	−1202.328	31.402
	2058.00	198.868	474.629	319.739	−1727.212	318.764	−2703.999	−1979.855	−1179.745	29.943
			58.348		120.081					
LIQ	2058.00	242.672	532.977	319.739	−1607.131	438.845	−2703.999	−1859.774	−1179.745	29.943
	2100.00	242.672	537.880	324.053	−1596.939	449.037	−2726.487	−1856.215	−1165.903	29.000
	2200.00	242.672	549.169	334.031	−1572.672	473.304	−2780.844	−1847.863	−1133.227	26.906
	2300.00	242.672	559.956	343.621	−1548.404	497.572	−2836.304	−1839.689	−1100.927	25.003
	2400.00	242.672	570.284	352.852	−1524.137	521.839	−2892.820	−1831.699	−1068.979	23.266
	2500.00	242.672	580.191	361.748	−1499.870	546.106	−2950.347	−1823.896	−1037.360	21.674
	2600.00	242.672	589.709	370.334	−1475.603	570.373	−3008.845	−1816.285	−1006.050	20.212
	2700.00	242.672	598.867	378.630	−1451.336	594.640	−3068.277	−1808.890	−975.028	18.863
	2800.00	242.672	607.693	386.654	−1427.068	618.908	−3128.607	−1801.743	−944.276	17.616
	2900.00	242.672	616.208	394.424	−1402.801	643.175	−3189.805	−1794.882	−913.774	16.459
	3000.00	242.672	624.435	401.954	−1378.534	667.442	−3251.839	−1788.336	−883.503	15.383

References

Phase	H / S	C_p
SOL	Ja1	Ja1
LIQ	Ja1	Ja1

303.305 TANTALUM TRICHLORIDE OXIDE **TaOCl3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	119.820	177.402	177.402	−892.447	0.000	−945.339	−892.447	−802.599	140.612
	300.00	119.988	178.143	177.404	−892.225	0.222	−945.668	−892.394	−802.042	139.648
	400.00	125.886	213.591	182.197	−879.889	12.558	−965.326	−889.319	−772.380	100.862
	500.00	128.616	242.009	191.413	−867.149	25.298	−988.153	−886.082	−743.518	77.675
	600.00	130.099	265.602	201.868	−854.207	38.240	−1013.568	−882.810	−715.312	62.273

References

Phase	H / S	C_p
SOL	Ge1	e

303.305 TANTALUM TRICHLORIDE OXIDE (GAS) **TaOCl3[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	98.534	361.607	361.607	−783.245	0.000	−891.058	−783.245	−748.318	131.102
	300.00	98.649	362.217	361.609	−783.063	0.182	−891.728	−783.231	−748.101	130.256
	400.00	102.717	391.237	365.538	−772.965	10.280	−929.460	−782.395	−736.514	96.179
	500.00	104.600	414.384	373.072	−762.589	20.656	−969.781	−781.522	−725.145	75.755
	600.00	105.623	433.553	381.600	−752.073	31.172	−1012.205	−780.676	−713.950	62.155
	700.00	106.239	449.885	390.218	−741.478	41.767	−1056.397	−779.886	−702.892	52.450
	800.00	106.640	464.099	398.584	−730.832	52.413	−1102.112	−779.154	−691.944	45.179
	900.00	106.914	476.677	406.575	−720.154	63.091	−1149.163	−778.478	−681.084	39.529
	1000.00	107.110	487.952	414.159	−709.452	73.793	−1197.404	−777.856	−670.296	35.013
	1100.00	107.256	498.168	421.339	−698.733	84.512	−1246.718	−777.284	−659.568	31.320
	1200.00	107.366	507.505	428.136	−688.002	95.243	−1297.008	−776.759	−648.890	28.245
	1300.00	107.452	516.103	434.576	−677.261	105.984	−1348.194	−776.288	−638.254	25.645
	1400.00	107.520	524.068	440.688	−666.512	116.733	−1400.208	−775.871	−627.652	23.418
	1500.00	107.575	531.488	446.497	−655.757	127.488	−1452.990	−775.507	−617.078	21.489
	1600.00	107.620	538.432	452.028	−644.998	138.247	−1506.490	−775.198	−606.526	19.801
	1700.00	107.658	544.958	457.304	−634.234	149.011	−1560.662	−774.945	−595.992	18.313
	1800.00	107.689	551.113	462.347	−623.466	159.779	−1615.469	−774.752	−585.471	16.990
	1900.00	107.715	556.936	467.173	−612.696	170.549	−1670.874	−774.619	−574.960	15.807
	2000.00	107.738	562.461	471.801	−601.923	181.322	−1726.846	−774.553	−564.453	14.742

References

Phase	H / S	C_p
GAS	Sc5	e

TaO2Cl — TANTALUM CHLORIDE DIOXIDE — 248.399

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	93.096	97.906	97.906	−1046.000	0.000	−1075.191	−1046.000	−968.390	169.658
	300.00	93.224	98.482	97.907	−1045.828	0.172	−1075.372	−1045.960	−967.909	168.528
	400.00	98.314	126.069	101.634	−1036.226	9.774	−1086.654	−1043.639	−942.233	123.043
	500.00	101.546	148.374	108.823	−1026.224	19.776	−1100.411	−1041.098	−917.172	95.816
	600.00	104.047	167.116	117.017	−1015.941	30.059	−1116.210	−1038.430	−892.636	77.711

References

Phase	H / S	C_p
SOL	A3	e

TaS[g] — TANTALUM MONOSULFIDE (GAS) — 213.014

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	33.179	258.179	258.179	514.632	0.000	437.656	514.632	459.588	−80.518
	300.00	33.226	258.384	258.179	514.693	0.061	437.178	514.604	459.247	−79.962
	400.00	34.872	268.201	259.507	518.110	3.478	410.829	510.864	441.111	−57.603
	500.00	35.650	276.075	262.059	521.640	7.008	383.602	507.875	423.997	−44.295
	600.00	36.087	282.617	264.956	525.229	10.597	355.658	505.250	407.476	−35.474
	700.00	36.363	288.202	267.888	528.852	14.220	327.111	502.902	391.367	−29.204
	800.00	36.553	293.071	270.738	532.499	17.867	298.042	500.501	375.596	−24.524
	900.00	36.693	297.385	273.463	536.161	21.529	268.515	445.245	361.284	−20.968
	1000.00	36.802	301.257	276.052	539.836	25.204	238.580	444.349	352.002	−18.387
	1100.00	36.891	304.769	278.506	543.521	28.889	208.276	443.430	342.812	−16.279
	1200.00	36.966	307.982	280.830	547.214	32.582	177.636	442.489	333.706	−14.526
	1300.00	37.031	310.943	283.034	550.914	36.282	146.688	441.515	324.680	−13.046
	1400.00	37.090	313.690	285.127	554.620	39.988	115.454	440.509	315.731	−11.780
	1500.00	37.143	316.251	287.118	558.332	43.700	83.956	439.469	306.854	−10.686
	1600.00	37.192	318.649	289.014	562.049	47.417	52.209	438.394	298.048	−9.730
	1700.00	37.238	320.906	290.824	565.770	51.138	20.231	437.283	289.310	−8.889
	1800.00	37.281	323.035	292.555	569.496	54.864	−11.967	436.132	280.639	−8.144
	1900.00	37.323	325.052	294.213	573.226	58.594	−44.373	434.940	272.033	−7.479
	2000.00	37.363	326.967	295.803	576.960	62.328	−76.974	433.702	263.490	−6.882

References

Phase	H / S	C_p
GAS	Mi1	Mi1

245.080 TANTALUM DISULFIDE **TaS2**

Phase	T	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	69.872	75.312	75.312	–353.966	0.000	–376.420	–353.966	–344.930	60.430
	300.00	70.013	75.745	75.313	–353.837	0.129	–376.560	–353.968	–344.874	60.048
	400.00	75.238	96.694	78.134	–346.542	7.424	–385.220	–358.411	–341.661	44.616
	500.00	78.059	113.812	83.611	–338.866	15.100	–395.772	–361.156	–337.196	35.227
	600.00	79.934	128.219	89.877	–330.961	23.005	–407.892	–363.041	–332.208	28.921
	700.00	81.361	140.652	96.262	–322.894	31.072	–421.350	–364.255	–326.969	24.399
	800.00	82.551	151.596	102.509	–314.697	39.269	–435.973	–365.465	–321.563	20.996
	900.00	83.602	161.380	108.516	–306.388	47.578	–451.630	–472.281	–313.693	18.206
	1000.00	84.567	170.239	114.252	–297.979	55.987	–468.218	–470.279	–296.179	15.471

References

Phase	H / S	C_p
SOL	Mi1	e

Tb TERBIUM 158.925

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	28.891	73.304	73.304	0.000	0.000	−21.855	0.000	0.000	0.000
	300.00	28.885	73.482	73.304	0.053	0.053	−21.991	0.000	0.000	0.000
	400.00	28.574	81.750	74.434	2.926	2.926	−29.773	0.000	0.000	0.000
	500.00	28.263	88.092	76.556	5.768	5.768	−38.278	0.000	0.000	0.000
	600.00	29.937	93.400	78.930	8.682	8.682	−47.358	0.000	0.000	0.000
	700.00	31.404	98.126	81.341	11.750	11.750	−56.939	0.000	0.000	0.000
	800.00	32.836	102.413	83.711	14.962	14.962	−66.969	0.000	0.000	0.000
	900.00	34.306	106.365	86.011	18.318	18.318	−77.410	0.000	0.000	0.000
	1000.00	35.850	110.058	88.233	21.825	21.825	−88.233	0.000	0.000	0.000
	1100.00	37.491	113.551	90.377	25.492	25.492	−99.415	0.000	0.000	0.000
	1200.00	39.241	116.888	92.448	29.327	29.327	−110.938	0.000	0.000	0.000
	1300.00	41.108	120.102	94.453	33.344	33.344	−122.789	0.000	0.000	0.000
	1400.00	43.265	123.227	96.397	37.562	37.562	−134.956	0.000	0.000	0.000
	1500.00	45.434	126.286	98.288	41.997	41.997	−147.432	0.000	0.000	0.000
	1560.00	46.735	128.093	99.399	44.762	44.762	−155.063	0.000	0.000	0.000
			3.219		5.021					
SOL−B	1560.00	27.740	131.311	99.399	49.783	49.783	−155.063	0.000	0.000	0.000
	1600.00	27.740	132.014	100.206	50.892	50.892	−160.330	0.000	0.000	0.000
	1630.00	27.740	132.529	100.796	51.725	51.725	−164.298	0.000	0.000	0.000
			6.623		10.795					
LIQ	1630.00	46.484	139.152	100.796	62.520	62.520	−164.298	0.000	0.000	0.000
	1700.00	46.484	141.106	102.416	65.773	65.773	−174.107	0.000	0.000	0.000
	1800.00	46.484	143.763	104.640	70.422	70.422	−188.352	0.000	0.000	0.000
	1900.00	46.484	146.277	106.766	75.070	75.070	−202.855	0.000	0.000	0.000
	2000.00	46.484	148.661	108.802	79.719	79.719	−217.603	0.000	0.000	0.000
	2100.00	46.484	150.929	110.754	84.367	84.367	−232.584	0.000	0.000	0.000
	2200.00	46.484	153.091	112.630	89.016	89.016	−247.785	0.000	0.000	0.000
	2300.00	46.484	155.158	114.434	93.664	93.664	−263.199	0.000	0.000	0.000
	2400.00	46.484	157.136	116.172	98.312	98.312	−278.814	0.000	0.000	0.000
	2500.00	46.484	159.034	117.849	102.961	102.961	−294.623	0.000	0.000	0.000
	2600.00	46.484	160.857	119.469	107.609	107.609	−310.618	0.000	0.000	0.000
	2700.00	46.484	162.611	121.034	112.258	112.258	−326.792	0.000	0.000	0.000
	2800.00	46.484	164.302	122.549	116.906	116.906	−343.138	0.000	0.000	0.000
	2900.00	46.484	165.933	124.017	121.555	121.555	−359.651	0.000	0.000	0.000
	3000.00	46.484	167.509	125.441	126.203	126.203	−376.323	0.000	0.000	0.000
	3100.00	46.484	169.033	126.823	130.851	130.851	−393.151	0.000	0.000	0.000
	3200.00	46.484	170.509	128.165	135.500	135.500	−410.128	0.000	0.000	0.000
	3300.00	46.484	171.939	129.470	140.148	140.148	−427.251	0.000	0.000	0.000
	3400.00	46.484	173.327	130.740	144.797	144.797	−444.514	0.000	0.000	0.000
	3492.00	46.484	174.568	131.878	149.073	149.073	−460.518	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL − A	Hu1	Hu1		hcp
SOL − B	Hu1	Hu1		bcc
LIQ	Hu1	Hu1	Hu1	BPT = 3492., L = 330.87 kJ

158.925

TERBIUM (GAS) **Tb**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	24.648	203.251	203.251	388.694	0.000	328.095	388.694	349.950	−61.310
	300.00	24.644	203.403	203.251	388.740	0.046	327.719	388.686	349.710	−60.890
	400.00	24.237	210.439	204.214	391.184	2.490	307.009	388.258	336.782	−43.979
	500.00	24.053	215.821	206.017	393.596	4.902	285.685	387.827	323.963	−33.844
	600.00	24.158	220.212	208.028	396.004	7.310	263.877	387.322	311.235	−27.095
	700.00	24.446	223.956	210.043	398.433	9.739	241.664	386.684	298.603	−22.282
	800.00	24.843	227.245	211.991	400.897	12.203	219.101	385.935	286.070	−18.678
	900.00	25.300	230.197	213.853	403.404	14.710	196.226	385.086	273.636	−15.881
	1000.00	25.787	232.888	215.624	405.958	17.264	173.070	384.133	261.303	−13.649
	1100.00	26.286	235.369	217.307	408.562	19.868	149.656	383.070	249.071	−11.827
	1200.00	26.784	237.678	218.910	411.215	22.521	126.002	381.888	236.940	−10.314
	1300.00	27.274	239.841	220.438	413.918	25.224	102.125	380.575	224.914	−9.037
	1400.00	27.749	241.880	221.897	416.670	27.976	78.038	379.108	212.994	−7.947
	1500.00	28.205	243.810	223.294	419.467	30.773	53.753	377.471	201.184	−7.006
	1600.00	28.591	245.643	224.634	422.307	33.613	29.279	371.415	189.609	−6.190
	1700.00	28.952	247.387	225.922	425.185	36.491	4.627	359.411	178.735	−5.492
	1800.00	29.275	249.051	227.161	428.097	39.403	−20.195	357.675	168.157	−4.880
	1900.00	29.559	250.642	228.355	431.039	42.345	−45.181	355.968	157.675	−4.335
	2000.00	29.805	252.164	229.508	434.007	45.313	−70.321	354.288	147.282	−3.847
	2100.00	30.016	253.624	230.622	436.998	48.304	−95.611	352.631	136.972	−3.407
	2200.00	30.198	255.024	231.699	440.009	51.315	−121.044	350.994	126.741	−3.009
	2300.00	30.355	256.370	232.743	443.037	54.343	−146.614	349.373	116.584	−2.648
	2400.00	30.491	257.665	233.754	446.080	57.386	−172.317	347.767	106.497	−2.318
	2500.00	30.611	258.912	234.736	449.135	60.441	−198.146	346.174	96.477	−2.016
	2600.00	30.720	260.115	235.689	452.201	63.507	−224.097	344.592	86.521	−1.738
	2700.00	30.819	261.276	236.615	455.278	66.584	−250.167	343.021	76.625	−1.482
	2800.00	30.914	262.399	237.516	458.365	69.671	−276.351	341.459	66.787	−1.246
	2900.00	31.007	263.485	238.393	461.461	72.767	−302.646	339.907	57.005	−1.027
	3000.00	31.099	264.538	239.247	464.567	75.873	−329.047	338.364	47.276	−0.823
	3100.00	31.195	265.559	240.080	467.681	78.987	−355.552	336.830	37.598	−0.634
	3200.00	31.295	266.551	240.891	470.806	82.112	−382.158	335.306	27.970	−0.457
	3300.00	31.402	267.516	241.684	473.940	85.246	−408.862	333.792	18.389	−0.291
	3400.00	31.517	268.455	242.457	477.086	88.392	−435.661	332.290	8.854	−0.136
	3500.00	31.641	269.370	243.213	480.244	91.550	−462.552	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

TbBr3[g] TERBIUM TRIBROMIDE (GAS) 398.637

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	79.937	402.439	402.439	−540.573	0.000	−660.560	−540.573	−570.633	99.972
	300.00	79.988	402.933	402.440	−540.425	0.148	−661.305	−540.688	−570.819	99.388
	400.00	81.958	426.245	405.605	−532.317	8.256	−702.815	−587.177	−571.317	74.606
	500.00	83.123	444.667	411.640	−524.059	16.514	−746.393	−587.299	−567.336	59.269
	600.00	83.970	459.900	418.450	−515.703	24.870	−791.643	−587.434	−563.332	49.042
	700.00	84.667	472.898	425.323	−507.270	33.303	−838.299	−587.672	−559.298	41.735
	800.00	85.284	484.245	431.994	−498.772	41.801	−886.168	−588.007	−555.223	36.252
	900.00	85.854	494.323	438.370	−490.215	50.358	−935.106	−588.443	−551.100	31.985
	1000.00	86.396	503.397	444.426	−481.602	58.971	−984.999	−588.985	−546.922	28.568
	1100.00	86.919	511.656	450.168	−472.936	67.637	−1035.758	−589.645	−542.685	25.770
	1200.00	87.429	519.241	455.612	−464.219	76.354	−1087.308	−590.432	−538.382	23.435
	1300.00	87.931	526.259	460.780	−455.451	85.122	−1139.587	−591.359	−534.008	21.457
	1400.00	88.425	532.793	465.693	−446.633	93.940	−1192.544	−592.447	−529.557	19.758
	1500.00	88.915	538.911	470.373	−437.766	102.807	−1246.132	−593.710	−525.022	18.283
	1600.00	89.401	544.665	474.838	−428.850	111.723	−1300.314	−599.394	−520.278	16.985
	1700.00	89.884	550.099	479.107	−419.886	120.687	−1355.054	−611.022	−514.856	15.820
	1800.00	90.365	555.250	483.195	−410.873	129.700	−1410.324	−612.378	−509.160	14.775
	1900.00	90.845	560.149	487.117	−401.813	138.760	−1466.096	−613.693	−503.389	13.839
	2000.00	91.322	564.821	490.887	−392.704	147.869	−1522.346	−614.967	−497.551	12.995

References

Phase	H / S	C_p
GAS	Pa2	Pa2

265.283 TERBIUM TRICHLORIDE **TbCl3**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[——— J / (K mol) ———]			[——— kJ / mol ———]					[−]
SOL−A	298.15	97.487	153.134	153.134	−997.047	0.000	−1042.704	−997.047	−921.065	161.367
	300.00	97.590	153.738	153.136	−996.867	0.180	−1042.988	−997.014	−920.594	160.290
	400.00	102.218	182.482	157.024	−986.864	10.183	−1059.857	−995.085	−895.403	116.928
	500.00	105.926	205.699	164.510	−976.452	20.595	−1079.302	−992.872	−870.733	90.965
	600.00	109.270	225.311	173.050	−965.691	31.356	−1100.877	−990.477	−846.528	73.697
	700.00	112.444	242.395	181.762	−954.604	42.443	−1124.280	−987.973	−822.733	61.393
	783.00	115.007	255.136	188.875	−945.164	51.883	−1144.936	−985.800	−803.264	53.586
			17.981		14.079					
SOL−B	783.00	124.934	273.117	188.875	−931.085	65.962	−1144.936	−971.721	−803.264	53.586
	800.00	124.934	275.800	190.693	−928.961	68.086	−1149.602	−971.100	−799.613	52.209
	855.00	124.934	284.107	196.438	−922.090	74.957	−1165.002	−969.127	−787.890	48.135
			22.633		19.351					
LIQ	855.00	144.474	306.740	196.438	−902.739	94.308	−1165.002	−949.776	−787.890	48.135
	900.00	144.474	314.151	202.140	−896.238	100.809	−1178.973	−947.322	−779.433	45.237
	1000.00	144.474	329.372	214.116	−881.790	115.257	−1211.163	−941.993	−761.066	39.754

References

Phase	H / S	C_p
SOL−A	Nb1/Pa2	Pa2
SOL−B	Dw4,Pa2	Dw4,Pa2
LIQ	Dw4,Pa2	Dw4

$TbCl_3$[g] TERBIUM TRICHLORIDE (GAS) 265.283

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	78.212	375.335	375.335	−691.197	0.000	−803.103	−691.197	−681.464	119.390
	300.00	78.278	375.819	375.336	−691.052	0.145	−803.798	−691.200	−681.404	118.643
	400.00	80.481	398.684	378.439	−683.099	8.098	−842.573	−691.320	−678.119	88.553
	500.00	81.834	416.793	384.361	−674.981	16.216	−883.378	−691.401	−674.808	70.497
	600.00	83.039	431.821	391.054	−666.737	24.460	−925.829	−691.523	−671.480	58.458
	700.00	84.160	444.707	397.820	−658.376	32.821	−969.671	−691.745	−668.124	49.856
	800.00	85.185	456.013	404.402	−649.908	41.289	−1014.718	−692.047	−664.729	43.402
	900.00	86.095	466.100	410.707	−641.343	49.854	−1060.833	−692.427	−661.293	38.380
	1000.00	86.883	475.213	416.709	−632.693	58.504	−1107.906	−692.896	−657.809	34.360
	1100.00	87.546	483.526	422.411	−623.970	67.227	−1155.849	−693.470	−654.274	31.069
	1200.00	88.087	491.168	427.826	−615.188	76.009	−1204.589	−694.169	−650.681	28.323
	1300.00	88.511	498.236	432.974	−606.357	84.840	−1254.063	−695.014	−647.023	25.998
	1400.00	88.827	504.807	437.873	−597.489	93.708	−1304.219	−696.036	−643.295	24.002
	1500.00	89.044	510.944	442.542	−588.595	102.602	−1355.010	−697.260	−639.486	22.269
	1600.00	89.172	516.695	446.999	−579.683	111.514	−1406.395	−702.938	−635.470	20.746
	1700.00	89.223	522.103	451.259	−570.763	120.434	−1458.338	−714.603	−630.775	19.381
	1800.00	89.209	527.203	455.338	−561.841	129.356	−1510.806	−716.045	−625.803	18.160
	1900.00	89.141	532.024	459.249	−552.923	138.274	−1563.769	−717.502	−620.750	17.066
	2000.00	89.033	536.594	463.003	−544.014	147.183	−1617.202	−718.979	−615.619	16.078

References

Phase	H / S	C_p
GAS	Pa2	Pa2

$TbO_{1.72}$ TERBIUM 1.72−OXIDE 186.444

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	58.996	80.751	80.751	−953.115	0.000	−977.191	−953.115	−902.734	158.155
	300.00	59.112	81.116	80.752	−953.006	0.109	−977.341	−953.106	−902.421	157.126
	400.00	63.860	98.830	83.135	−946.837	6.278	−986.369	−952.366	−885.626	115.651
	500.00	67.115	113.445	87.778	−940.281	12.834	−997.004	−951.282	−869.061	90.790
	600.00	69.781	125.923	93.120	−933.433	19.682	−1008.987	−950.065	−852.730	74.237
	700.00	72.169	136.862	98.604	−926.334	26.781	−1022.137	−948.833	−836.605	62.428
	800.00	74.409	146.646	104.008	−919.004	34.111	−1036.321	−947.585	−820.658	53.583
	900.00	76.563	155.535	109.247	−911.455	41.660	−1051.437	−946.321	−804.868	46.713
	1000.00	78.664	163.711	114.290	−903.694	49.421	−1067.405	−945.043	−789.219	41.225

References

Phase	H / S	C_p
SOL	Fi2/We1	Pa1

187.884

TERBIUM 1.81–OXIDE

TbO1.81

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	58.162	81.170	81.170	−961.902	0.000	−986.103	−961.902	−908.893	159.234
	300.00	58.342	81.530	81.171	−961.794	0.108	−986.253	−961.897	−908.564	158.195
	400.00	65.111	99.354	83.555	−955.582	6.320	−995.324	−961.247	−890.867	116.335
	500.00	68.928	114.325	88.253	−948.866	13.036	−1006.029	−960.141	−873.394	91.243
	600.00	71.583	127.138	93.692	−941.834	20.068	−1018.117	−958.882	−856.162	74.536
	700.00	73.690	138.336	99.287	−934.568	27.334	−1031.403	−957.629	−839.142	62.618
	800.00	75.505	148.297	104.802	−927.106	34.796	−1045.743	−956.399	−822.299	53.691
	900.00	77.149	157.286	110.142	−919.472	42.430	−1061.030	−955.204	−805.609	46.756

References

Phase	H / S	C_p
SOL	Fi2/We1	Pa1

190.924

TERBIUM DIOXIDE

TbO2

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	61.544	82.843	82.843	−971.525	0.000	−996.225	−971.525	−913.205	159.990
	300.00	61.682	83.224	82.844	−971.411	0.114	−996.378	−971.519	−912.843	158.940
	400.00	67.143	101.793	85.339	−964.943	6.582	−1005.661	−970.895	−893.364	116.661
	500.00	70.622	117.171	90.212	−958.046	13.479	−1016.631	−969.898	−874.091	91.316
	600.00	73.320	130.293	95.825	−950.844	20.681	−1029.020	−968.770	−855.035	74.437
	700.00	75.649	141.773	101.586	−943.394	28.131	−1042.635	−967.642	−836.169	62.396
	800.00	77.782	152.016	107.261	−935.721	35.804	−1057.333	−966.518	−817.464	53.375
	900.00	79.801	161.294	112.757	−927.841	43.684	−1073.006	−965.400	−798.899	46.367
	1000.00	81.749	169.804	118.042	−919.763	51.762	−1089.567	−964.291	−780.459	40.767
	1100.00	83.651	177.685	123.110	−911.493	60.032	−1106.946	−963.196	−762.128	36.190
	1200.00	85.521	185.044	127.968	−903.034	68.491	−1125.086	−962.122	−743.897	32.381
	1300.00	87.369	191.962	132.627	−894.389	77.136	−1143.940	−961.077	−725.754	29.161

References

Phase	H / S	C_p
SOL	Fi2/We1	e

Tb_2O_3 DITERBIUM TRIOXIDE 365.849

Phase	T	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	115.058	156.900	156.900	–1865.227	0.000	–1912.007	–1865.227	–1776.549	311.244
	300.00	115.309	157.613	156.902	–1865.014	0.213	–1912.298	–1865.202	–1775.999	309.229
	400.00	124.131	192.173	161.554	–1852.980	12.247	–1929.849	–1863.371	–1746.517	228.072
	500.00	128.505	220.385	170.588	–1840.329	24.898	–1950.521	–1860.992	–1717.572	179.434
	600.00	131.429	244.084	180.915	–1827.325	37.902	–1973.776	–1858.555	–1689.120	147.051
	700.00	133.876	264.531	191.433	–1814.058	51.169	–1999.230	–1856.306	–1661.061	123.950
	800.00	136.217	282.561	201.719	–1800.553	64.674	–2026.602	–1854.230	–1633.313	106.644
	900.00	138.601	298.742	211.615	–1786.813	78.414	–2055.681	–1852.311	–1605.815	93.199
	1000.00	141.084	313.472	221.075	–1772.830	92.397	–2086.302	–1850.535	–1578.523	82.454
	1100.00	143.675	327.040	230.099	–1758.593	106.634	–2118.336	–1848.894	–1551.403	73.670
	1200.00	146.361	339.656	238.709	–1744.092	121.135	–2151.678	–1847.387	–1524.425	66.357
	1300.00	149.114	351.479	246.934	–1729.318	135.909	–2186.241	–1846.022	–1497.568	60.173
	1400.00	151.902	362.632	254.803	–1714.268	150.959	–2221.952	–1844.827	–1470.810	54.877
	1500.00	154.684	373.207	262.347	–1698.938	166.289	–2258.748	–1843.829	–1444.131	50.289
	1600.00	157.420	383.278	269.593	–1683.332	181.895	–2296.576	–1851.515	–1417.274	46.269
	1700.00	160.066	392.901	276.566	–1667.457	197.770	–2335.389	–1870.940	–1389.296	42.688
	1800.00	162.576	402.122	283.287	–1651.324	213.903	–2375.143	–1869.677	–1361.000	39.495

References

Phase	H / S	C_p
SOL	Fi2/We1	Pa2

190.991 TERBIUM SULFIDE (GAS) **TbS**[g]

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	34.316	267.132	267.132	157.737	0.000	78.092	157.737	109.504	-19.185
	300.00	34.351	267.345	267.133	157.801	0.064	77.597	157.705	109.205	-19.014
	400.00	35.603	277.424	268.499	161.307	3.570	50.338	153.757	93.388	-12.195
	500.00	36.190	285.438	271.113	164.900	7.163	22.181	150.606	78.640	-8.215
	600.00	36.516	292.068	274.069	168.537	10.800	-6.704	147.753	64.520	-5.617
	700.00	36.718	297.713	277.053	172.199	14.462	-36.200	145.038	50.862	-3.795
	800.00	36.855	302.626	279.950	175.878	18.141	-66.223	142.145	37.603	-2.455
	900.00	36.953	306.973	282.715	179.569	21.832	-96.707	86.273	25.871	-1.502
	1000.00	37.028	310.870	285.339	183.268	25.531	-127.602	84.630	19.247	-1.005
	1100.00	37.087	314.402	287.823	186.974	29.237	-158.869	82.827	12.794	-0.608
	1200.00	37.135	317.631	290.175	190.685	32.948	-190.472	80.854	6.514	-0.284
	1300.00	37.176	320.605	292.403	194.400	36.663	-222.386	78.699	0.405	-0.016
	1400.00	37.212	323.362	294.517	198.120	40.383	-254.586	76.342	-5.531	0.206
	1500.00	37.243	325.930	296.526	201.843	44.106	-287.052	73.766	-11.290	0.393
	1600.00	37.272	328.335	298.440	205.568	47.831	-319.767	66.728	-16.752	0.547
	1700.00	37.298	330.595	300.266	209.297	51.560	-352.714	53.703	-21.450	0.659
	1800.00	37.323	332.728	302.010	213.028	55.291	-385.882	50.909	-25.790	0.748
	1900.00	37.346	334.746	303.681	216.761	59.024	-419.256	48.113	-29.975	0.824
	2000.00	37.367	336.662	305.282	220.497	62.760	-452.827	45.316	-34.013	0.888

References

Phase	H / S	C_p
GAS	Mi1	Mi1

TbSe[g] TERBIUM SELENIDE (GAS) 237.885

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	35.241	277.718	277.718	205.016	0.000	122.214	205.016	156.669	−27.448
	300.00	35.267	277.936	277.718	205.081	0.065	121.700	204.981	156.369	−27.226
	400.00	36.166	288.223	279.115	208.659	3.643	93.370	203.018	140.458	−18.342
	500.00	36.586	296.344	281.777	212.299	7.283	64.127	195.006	125.143	−13.074
	600.00	36.817	303.036	284.779	215.970	10.954	34.149	192.249	111.427	−9.701
	700.00	36.959	308.723	287.804	219.660	14.644	3.553	189.356	98.183	−7.327
	800.00	37.054	313.665	290.734	223.361	18.345	−27.571	186.330	85.364	−5.574
	900.00	37.121	318.033	293.529	227.070	22.054	−59.160	183.168	72.931	−4.233
	1000.00	37.170	321.947	296.179	230.784	25.768	−91.163	179.861	60.859	−3.179
	1100.00	37.209	325.492	298.685	234.503	29.487	−123.538	123.088	54.079	−2.568
	1200.00	37.240	328.731	301.056	238.226	33.210	−156.251	120.907	47.900	−2.085
	1300.00	37.265	331.712	303.301	241.951	36.935	−189.275	118.560	41.911	−1.684
	1400.00	37.287	334.475	305.430	245.679	40.663	−222.586	116.025	36.108	−1.347
	1500.00	37.305	337.048	307.453	249.408	44.392	−256.164	113.289	30.494	−1.062
	1600.00	37.322	339.456	309.379	253.140	48.124	−289.990	106.105	25.188	−0.822
	1700.00	37.337	341.719	311.215	256.872	51.856	−324.050	92.951	20.654	−0.635
	1800.00	37.350	343.854	312.970	260.607	55.591	−358.330	90.043	16.486	−0.478
	1900.00	37.363	345.873	314.649	264.342	59.326	−392.817	87.150	12.478	−0.343
	2000.00	37.374	347.790	316.259	268.079	63.063	−427.501	84.270	8.623	−0.225

References

Phase	H / S	C_p
GAS	Mi1	Mi1

286.525 TERBIUM TELLURIDE (GAS) **TbTe**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	36.255	286.379	286.379	268.613	0.000	183.229	268.613	219.842	−38.515
	300.00	36.269	286.603	286.379	268.680	0.067	182.699	268.579	219.540	−38.225
	400.00	36.759	297.114	287.809	272.335	3.722	153.489	266.676	203.476	−26.571
	500.00	36.987	305.344	290.523	276.024	7.411	123.352	264.616	187.911	−19.631
	600.00	37.111	312.100	293.573	279.729	11.116	92.469	262.281	172.783	−15.042
	700.00	37.187	317.827	296.639	283.444	14.831	60.966	259.580	158.076	−11.796
	800.00	37.237	322.796	299.605	287.166	18.553	28.929	238.899	145.659	−9.511
	900.00	37.272	327.184	302.430	290.891	22.278	−3.574	235.502	134.207	−7.789
	1000.00	37.297	331.112	305.105	294.620	26.007	−36.492	231.958	123.140	−6.432
	1100.00	37.316	334.668	307.634	298.350	29.737	−69.784	228.257	112.436	−5.339
	1200.00	37.331	337.915	310.024	302.083	33.470	−103.416	224.388	102.077	−4.443
	1300.00	37.343	340.904	312.286	305.817	37.204	−137.359	220.340	92.047	−3.698
	1400.00	37.353	343.672	314.430	309.551	40.938	−171.589	169.652	84.828	−3.165
	1500.00	37.362	346.249	316.466	313.287	44.674	−206.087	166.761	78.868	−2.746
	1600.00	37.369	348.661	318.404	317.024	48.411	−240.833	159.418	73.228	−2.391
	1700.00	37.375	350.926	320.251	320.761	52.148	−275.814	146.095	68.370	−2.101
	1800.00	37.380	353.063	322.015	324.499	55.886	−311.014	143.010	63.886	−1.854
	1900.00	37.385	355.084	323.703	328.237	59.624	−346.423	139.934	59.575	−1.638
	2000.00	37.390	357.002	325.320	331.976	63.363	−382.028	136.870	55.425	−1.448

References

Phase	H / S	C_p
GAS	Mi1	Mi1

Tc TECHNETIUM 98.906

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol	]		[−]
SOL	298.15	24.252	33.472	33.472	0.000	0.000	−9.980	0.000	0.000	0.000
	300.00	24.267	33.622	33.472	0.045	0.045	−10.042	0.000	0.000	0.000
	400.00	25.104	40.718	34.434	2.513	2.513	−13.774	0.000	0.000	0.000
	500.00	25.941	46.410	36.278	5.066	5.066	−18.139	0.000	0.000	0.000
	600.00	26.778	51.213	38.377	7.702	7.702	−23.026	0.000	0.000	0.000
	700.00	27.614	55.404	40.516	10.421	10.421	−28.361	0.000	0.000	0.000
	800.00	28.451	59.146	42.615	13.224	13.224	−34.092	0.000	0.000	0.000
	900.00	29.288	62.545	44.644	16.111	16.111	−40.179	0.000	0.000	0.000
	1000.00	30.125	65.674	46.592	19.082	19.082	−46.592	0.000	0.000	0.000
	1100.00	30.962	68.585	48.461	22.136	22.136	−53.307	0.000	0.000	0.000
	1200.00	31.798	71.315	50.253	25.274	25.274	−60.303	0.000	0.000	0.000
	1300.00	32.635	73.893	51.973	28.496	28.496	−67.565	0.000	0.000	0.000
	1400.00	33.472	76.342	53.627	31.801	31.801	−75.077	0.000	0.000	0.000
	1500.00	34.309	78.680	55.220	35.190	35.190	−82.829	0.000	0.000	0.000
	1600.00	35.146	80.921	56.756	38.663	38.663	−90.810	0.000	0.000	0.000
	1700.00	35.982	83.077	58.242	42.220	42.220	−99.011	0.000	0.000	0.000
	1800.00	36.819	85.157	59.679	45.860	45.860	−107.423	0.000	0.000	0.000
	1900.00	37.656	87.170	61.074	49.583	49.583	−116.040	0.000	0.000	0.000
	2000.00	38.493	89.123	62.427	53.391	53.391	−124.855	0.000	0.000	0.000
	2100.00	39.330	91.021	63.744	57.282	57.282	−133.863	0.000	0.000	0.000
	2200.00	40.166	92.870	65.026	61.257	61.257	−143.058	0.000	0.000	0.000
	2300.00	41.003	94.674	66.276	65.315	65.315	−152.435	0.000	0.000	0.000
	2400.00	41.840	96.437	67.496	69.457	69.457	−161.991	0.000	0.000	0.000
	2473.00	42.451	97.700	68.369	72.534	72.534	−169.077	0.000	0.000	0.000
			9.644		23.849					
LIQ	2473.00	41.840	107.343	68.369	96.383	96.383	−169.077	0.000	0.000	0.000
	2500.00	41.840	107.798	68.793	97.513	97.513	−171.982	0.000	0.000	0.000
	2600.00	41.840	109.439	70.325	101.697	101.697	−182.844	0.000	0.000	0.000
	2700.00	41.840	111.018	71.803	105.881	105.881	−193.867	0.000	0.000	0.000
	2800.00	41.840	112.539	73.231	110.065	110.065	−205.046	0.000	0.000	0.000
	2900.00	41.840	114.008	74.611	114.249	114.249	−216.373	0.000	0.000	0.000
	3000.00	41.840	115.426	75.948	118.433	118.433	−227.845	0.000	0.000	0.000
	3100.00	41.840	116.798	77.244	122.617	122.617	−239.457	0.000	0.000	0.000
	3200.00	41.840	118.126	78.501	126.801	126.801	−251.204	0.000	0.000	0.000
	3300.00	41.840	119.414	79.721	130.985	130.985	−263.081	0.000	0.000	0.000
	3400.00	41.840	120.663	80.907	135.169	135.169	−275.085	0.000	0.000	0.000
	3500.00	41.840	121.876	82.061	139.353	139.353	−287.212	0.000	0.000	0.000
	3600.00	41.840	123.054	83.183	143.537	143.537	−299.459	0.000	0.000	0.000
	3700.00	41.840	124.201	84.276	147.721	147.721	−311.822	0.000	0.000	0.000
	3800.00	41.840	125.317	85.342	151.905	151.905	−324.298	0.000	0.000	0.000
	3900.00	41.840	126.403	86.381	156.089	156.089	−336.884	0.000	0.000	0.000
	4000.00	41.840	127.463	87.394	160.273	160.273	−349.578	0.000	0.000	0.000

98.906 TECHNETIUM [continued] **Tc**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
LIQ	4100.00	41.840	128.496	88.384	164.457	164.457	−362.376	0.000	0.000	0.000
	4200.00	41.840	129.504	89.351	168.641	168.641	−375.276	0.000	0.000	0.000
	4300.00	41.840	130.489	90.297	172.825	172.825	−388.276	0.000	0.000	0.000
	4400.00	41.840	131.450	91.221	177.009	177.009	−401.373	0.000	0.000	0.000
	4500.00	41.840	132.391	92.126	181.193	181.193	−414.565	0.000	0.000	0.000
	4600.00	41.840	133.310	93.011	185.377	185.377	−427.851	0.000	0.000	0.000
	4700.00	41.840	134.210	93.878	189.561	189.561	−441.227	0.000	0.000	0.000
	4800.00	41.840	135.091	94.728	193.745	193.745	−454.692	0.000	0.000	0.000
	4900.00	41.840	135.954	95.560	197.929	197.929	−468.244	0.000	0.000	0.000
	4904.64	41.840	135.993	95.598	198.123	198.123	−468.875	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL	Sh1, Tk1	Sh1		
LIQ	Sh1, Tk1	Sh1	Tk1,e	BPT= 4904.638, L= 592.879 kJ

Tc[g] TECHNETIUM (GAS) 98.906

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.794	181.059	181.059	656.888	0.000	602.905	656.888	612.885	−107.375
	300.00	20.800	181.188	181.059	656.926	0.038	602.570	656.882	612.612	−106.665
	400.00	20.916	187.188	181.877	659.012	2.124	584.137	656.499	597.911	−78.079
	500.00	21.364	191.894	183.426	661.122	4.234	565.175	656.056	583.314	−60.938
	600.00	22.292	195.864	185.175	663.301	6.413	545.783	655.600	568.809	−49.519
	700.00	23.641	199.397	186.959	665.595	8.707	526.017	655.173	554.378	−41.368
	800.00	25.355	202.662	188.720	668.042	11.154	505.912	654.817	540.004	−35.259
	900.00	27.057	205.744	190.442	670.661	13.773	485.491	654.549	525.670	−30.509
	1000.00	28.714	208.683	192.120	673.451	16.563	464.768	654.369	511.360	−26.711
	1100.00	30.071	211.486	193.754	676.393	19.505	443.758	654.257	497.065	−23.604
	1200.00	31.066	214.148	195.344	679.453	22.565	422.476	654.179	482.779	−21.015
	1300.00	31.713	216.662	196.888	682.595	25.707	400.934	654.099	468.498	−18.824
	1400.00	32.055	219.027	198.386	685.785	28.897	379.148	653.984	454.226	−16.947
	1500.00	32.146	221.243	199.836	688.997	32.109	357.133	653.807	439.963	−15.321
	1600.00	32.040	223.315	201.240	692.208	35.320	334.904	653.545	425.715	−13.898
	1700.00	31.790	225.250	202.596	695.400	38.512	312.475	653.181	411.486	−12.643
	1800.00	31.448	227.058	203.905	698.563	41.675	289.859	652.703	397.282	−11.529
	1900.00	31.061	228.748	205.169	701.688	44.800	267.067	652.105	383.107	−10.532
	2000.00	30.678	230.331	206.388	704.775	47.887	244.113	651.384	368.968	−9.636
	2100.00	30.301	231.819	207.564	707.824	50.936	221.004	650.542	354.867	−8.827
	2200.00	29.945	233.220	208.698	710.836	53.948	197.752	649.579	340.809	−8.092
	2300.00	29.625	234.544	209.794	713.814	56.926	174.363	648.499	326.798	−7.422
	2400.00	29.349	235.799	210.851	716.763	59.875	150.845	647.305	312.836	−6.809
	2500.00	29.123	236.992	211.873	719.686	62.798	127.205	622.173	299.187	−6.251
	2600.00	28.945	238.131	212.861	722.589	65.701	103.449	620.892	286.292	−5.752
	2700.00	28.815	239.221	213.818	725.476	68.588	79.581	619.596	273.448	−5.290
	2800.00	28.729	240.267	214.744	728.353	71.465	55.606	618.288	260.651	−4.863
	2900.00	28.685	241.274	215.641	731.223	74.335	31.529	616.975	247.902	−4.465
	3000.00	28.678	242.246	216.512	734.091	77.203	7.352	615.659	235.198	−4.095
	3100.00	28.705	243.187	217.357	736.960	80.072	−16.920	614.343	222.537	−3.750
	3200.00	28.762	244.099	218.179	739.833	82.945	−41.284	613.033	209.919	−3.427
	3300.00	28.846	244.986	218.978	742.714	85.826	−65.739	611.729	197.342	−3.124
	3400.00	28.951	245.848	219.755	745.603	88.715	−90.281	610.435	184.804	−2.839
	3500.00	29.076	246.689	220.513	748.504	91.616	−114.908	609.152	172.305	−2.572
	3600.00	29.217	247.510	221.252	751.419	94.531	−139.618	607.882	159.841	−2.319
	3700.00	29.372	248.313	221.972	754.348	97.460	−164.409	606.628	147.413	−2.081
	3800.00	29.536	249.098	222.676	757.294	100.406	−189.280	605.389	135.018	−1.856
	3900.00	29.709	249.868	223.363	760.256	103.368	−214.228	604.167	122.656	−1.643
	4000.00	29.887	250.622	224.035	763.236	106.348	−239.253	602.963	110.325	−1.441
	4100.00	30.069	251.362	224.693	766.233	109.345	−264.352	601.777	98.024	−1.249
	4200.00	30.252	252.089	225.336	769.249	112.361	−289.525	600.609	85.751	−1.066
	4300.00	30.434	252.803	225.967	772.284	115.396	−314.769	599.459	73.507	−0.893
	4400.00	30.615	253.505	226.585	775.336	118.448	−340.085	598.328	61.288	−0.728
	4500.00	30.792	254.195	227.191	778.407	121.519	−365.470	597.214	49.095	−0.570
	4600.00	30.963	254.873	227.785	781.494	124.606	−390.924	596.118	36.927	−0.419
	4700.00	31.128	255.541	228.369	784.599	127.711	−416.444	595.038	24.782	−0.275
	4800.00	31.285	256.198	228.942	787.720	130.832	−442.031	593.975	12.661	−0.138
	4900.00	31.433	256.845	229.504	790.856	133.968	−467.684	592.927	0.561	−0.006
	5000.00	31.571	257.481	230.058	794.006	137.118	−493.400	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Tk1	Hu1,e

130.905

TECHNETIUM DIOXIDE **TcO2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	55.669	54.392	54.392	−433.044	0.000	−449.261	−433.044	−378.117	66.244
	300.00	55.891	54.737	54.393	−432.941	0.103	−449.362	−433.040	−377.776	65.777
	400.00	64.120	72.089	56.703	−426.890	6.154	−455.725	−432.429	−359.428	46.937
	500.00	68.546	86.913	61.301	−420.238	12.806	−463.695	−431.388	−341.293	35.655
	600.00	71.477	99.684	66.659	−413.229	19.815	−473.039	−430.174	−323.387	28.153
	700.00	73.700	110.876	72.193	−405.966	27.078	−483.579	−428.886	−305.690	22.811
	800.00	75.547	120.841	77.662	−398.501	34.543	−495.174	−427.561	−288.181	18.816
	900.00	77.175	129.834	82.968	−390.864	42.180	−507.715	−426.216	−270.839	15.719
	1000.00	78.668	138.044	88.071	−383.071	49.973	−521.115	−424.856	−253.647	13.249
	1100.00	80.071	145.608	92.962	−375.133	57.911	−535.302	−423.482	−236.593	11.235
	1200.00	81.414	152.633	97.645	−367.058	65.986	−550.218	−422.094	−219.664	9.562

References

Phase	H / S	C_p
SOL	Ku1/Tk1	e

146.905

TECHNETIUM TRIOXIDE **TcO3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	107.947	77.404	77.404	−539.736	0.000	−562.814	−539.736	−461.087	80.781
	300.00	108.152	78.072	77.406	−539.536	0.200	−562.958	−539.663	−460.600	80.198
	400.00	119.244	110.705	81.781	−528.166	11.570	−572.448	−535.218	−434.890	56.791

References

Phase	H / S	C_p
SOL	Ku1/Tk1	e

Tc_2O_7 DITECHNETIUM HEPTAOXIDE 309.808

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	238.489	191.627	191.627	−1114.618	0.000	−1171.752	−1114.618	−937.716	164.284
	300.00	238.984	193.104	191.632	−1114.176	0.442	−1172.108	−1114.456	−936.619	163.080
	393.00	263.861	260.844	200.223	−1090.794	23.824	−1193.306	−1105.322	−882.728	117.326
			6.000		47.446					
LIQ	393.00	251.040	266.844	85.494	−1043.348	71.270	−1148.217	−1057.876	−837.640	111.333
	400.00	251.040	271.276	88.707	−1041.590	73.028	−1150.101	−1057.206	−833.723	108.873
	500.00	251.040	327.294	131.030	−1016.486	98.132	−1180.133	−1047.913	−778.938	81.375
	584.00	251.040	366.279	162.136	−995.399	119.219	−1209.306	−1040.508	−734.345	65.682

References

Phase	H / S	C_p	Remarks
SOL	Tk1	e	
LIQ	Tk1	e	Tk1 BPT= 584., L= 58.79 kJ

Tc_2O_7[g] DITECHNETIUM HEPTAOXIDE (GAS) 309.808

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	147.418	474.683	474.683	−982.403	0.000	−1123.930	−982.403	−889.895	155.906
	300.00	147.733	475.596	474.686	−982.130	0.273	−1124.809	−982.410	−889.321	154.844
	400.00	158.931	519.853	480.644	−966.720	15.684	−1174.661	−982.336	−858.283	112.080
	500.00	164.298	555.957	492.210	−950.530	31.873	−1228.508	−981.957	−827.313	86.429
	600.00	167.353	586.205	505.424	−933.935	48.468	−1285.658	−981.692	−796.413	69.334
	700.00	169.301	612.159	518.862	−917.096	65.307	−1345.607	−981.683	−765.538	57.125
	800.00	170.644	634.858	531.973	−900.095	82.308	−1407.981	−981.968	−734.644	47.967
	900.00	171.624	655.017	544.545	−882.979	99.424	−1472.494	−982.545	−703.697	40.841
	1000.00	172.367	673.139	556.514	−865.778	116.625	−1538.917	−983.402	−672.670	35.137
	1100.00	172.945	689.596	567.876	−848.511	133.892	−1607.066	−984.526	−641.545	30.464
	1200.00	173.401	704.664	578.656	−831.193	151.210	−1676.790	−985.905	−610.305	26.566
	1300.00	173.763	718.559	588.890	−813.834	168.569	−1747.960	−987.530	−578.941	23.262
	1400.00	174.047	731.447	598.618	−796.443	185.960	−1820.468	−989.396	−547.443	20.425
	1500.00	174.268	743.463	607.878	−779.027	203.377	−1894.221	−991.502	−515.803	17.962
	1600.00	174.432	754.715	616.708	−761.591	220.812	−1969.135	−993.847	−484.014	15.801
	1700.00	174.546	765.294	625.140	−744.142	238.261	−2045.141	−996.432	−452.072	13.890
	1800.00	174.614	775.273	633.206	−726.683	255.720	−2122.174	−999.260	−419.970	12.187
	1900.00	174.641	784.714	640.934	−709.220	273.183	−2200.178	−1002.332	−387.705	10.659
	2000.00	174.627	793.672	648.349	−691.757	290.647	−2279.101	−1005.653	−355.271	9.279

References

Phase	H / S	C_p
GAS	Tk1/e	e

127.600 TELLURIUM **Te**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	25.707	49.497	49.497	0.000	0.000	−14.757	0.000	0.000	0.000
	300.00	25.748	49.656	49.497	0.048	0.048	−14.849	0.000	0.000	0.000
	400.00	27.957	57.366	50.534	2.733	2.733	−20.213	0.000	0.000	0.000
	500.00	30.167	63.842	52.563	5.639	5.639	−26.282	0.000	0.000	0.000
	600.00	32.376	69.537	54.927	8.766	8.766	−32.956	0.000	0.000	0.000
	700.00	34.585	74.694	57.387	12.114	12.114	−40.171	0.000	0.000	0.000
	722.65	35.085	75.803	57.947	12.903	12.903	−41.876	0.000	0.000	0.000
			24.201		17.489					
LIQ	722.65	37.656	100.004	57.947	30.392	30.392	−41.876	0.000	0.000	0.000
	800.00	37.656	103.833	62.202	33.305	33.305	−49.762	0.000	0.000	0.000
	900.00	37.656	108.268	67.079	37.071	37.071	−60.371	0.000	0.000	0.000
	1000.00	37.656	112.236	71.400	40.836	40.836	−71.400	0.000	0.000	0.000
	1100.00	37.656	115.825	75.278	44.602	44.602	−82.806	0.000	0.000	0.000
	1200.00	37.656	119.101	78.795	48.367	48.367	−94.554	0.000	0.000	0.000
	1300.00	37.656	122.115	82.013	52.133	52.133	−106.617	0.000	0.000	0.000
	1327.00	37.656	122.889	82.837	53.150	53.150	−109.925	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL	Hu1,Mi1	Hu1,Mi1		
LIQ	Hu1	Hu1	e/Hu1	BPT=1327.GAS(Te2),L=47.582kJ / NBPT=1261.REAL GAS(Te2+Te)

Te[g] TELLURIUM (GAS) 127.600

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.810	182.699	182.699	211.710	0.000	157.238	211.710	171.996	−30.133
	300.00	20.803	182.828	182.700	211.748	0.038	156.900	211.701	171.749	−29.904
	400.00	20.621	188.780	183.512	213.817	2.107	138.305	211.084	158.518	−20.700
	500.00	20.635	193.381	185.043	215.879	4.169	119.188	210.240	145.470	−15.197
	600.00	20.728	197.151	186.756	217.947	6.237	99.656	209.180	132.612	−11.545
	700.00	20.856	200.355	188.476	220.026	8.316	79.777	207.911	119.948	−8.951
	800.00	21.004	203.150	190.139	222.119	10.409	59.599	188.814	109.360	−7.141
	900.00	21.164	205.633	191.725	224.227	12.517	39.158	187.156	99.528	−5.776
	1000.00	21.330	207.871	193.229	226.351	14.641	18.481	185.515	89.880	−4.695
	1100.00	21.501	209.912	194.655	228.493	16.783	−2.410	183.891	80.395	−3.818
	1200.00	21.675	211.790	196.005	230.652	18.942	−23.496	182.284	71.058	−3.093
	1300.00	21.852	213.532	197.287	232.828	21.118	−44.764	180.695	61.853	−2.485
	1400.00	22.030	215.158	198.506	235.022	23.312	−66.199	132.684	55.262	−2.062
	1500.00	22.209	216.684	199.668	237.234	25.524	−87.792	132.705	49.731	−1.732
	1600.00	22.389	218.123	200.777	239.464	27.754	−109.533	132.751	44.199	−1.443
	1700.00	22.569	219.486	201.838	241.712	30.002	−131.414	132.819	38.662	−1.188
	1800.00	22.751	220.781	202.854	243.978	32.268	−153.428	132.911	33.121	−0.961
	1900.00	22.932	222.016	203.831	246.262	34.552	−175.568	133.029	27.574	−0.758
	2000.00	23.115	223.197	204.770	248.564	36.854	−197.829	133.177	22.020	−0.575

References

Phase	H / S	C_p
GAS	Mi1	Mi1

255.200

TELLURIUM (GAS) **Te2[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	36.329	258.974	258.974	160.373	0.000	83.160	160.373	112.675	−19.740
	300.00	36.344	259.198	258.974	160.440	0.067	82.681	160.345	112.379	−19.567
	400.00	37.130	269.764	260.409	164.115	3.742	56.209	158.649	96.636	−12.619
	500.00	37.849	278.127	263.145	167.864	7.491	28.800	156.586	81.364	−8.500
	600.00	38.542	285.089	266.238	171.684	11.311	0.630	154.151	66.542	−5.793
	700.00	39.222	291.082	269.369	175.572	15.199	−28.185	151.343	52.157	−3.892
	800.00	39.896	296.363	272.420	179.528	19.155	−57.563	112.918	41.960	−2.740
	900.00	40.565	301.101	275.348	183.551	23.178	−87.440	109.410	33.302	−1.933
	1000.00	41.233	305.410	278.142	187.641	27.268	−117.769	105.969	25.031	−1.307
	1100.00	41.899	309.371	280.803	191.798	31.425	−148.510	102.594	17.101	−0.812
	1200.00	42.564	313.045	283.338	196.021	35.648	−179.633	99.286	9.475	−0.412
	1300.00	43.228	316.478	285.757	200.310	39.937	−211.111	96.044	2.123	−0.085
	1400.00	43.878	319.713	288.068	204.676	44.303	−242.922	0.000	0.000	0.000
	1500.00	43.749	322.737	290.280	209.059	48.686	−275.047	0.000	0.000	0.000
	1600.00	43.618	325.556	292.397	213.427	53.054	−307.463	0.000	0.000	0.000
	1700.00	43.545	328.198	294.426	217.785	57.412	−340.152	0.000	0.000	0.000
	1800.00	43.419	330.684	296.372	222.134	61.761	−373.097	0.000	0.000	0.000
	1900.00	43.200	333.026	298.240	226.465	66.092	−406.284	0.000	0.000	0.000
	2000.00	43.016	335.236	300.036	230.775	70.402	−439.698	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Mi1	Mi1

447.216

TELLURIUM TETRABROMIDE **TeBr4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	129.551	243.509	243.509	−190.372	0.000	−262.974	−190.372	−157.454	27.585
	300.00	129.662	244.311	243.511	−190.132	0.240	−263.425	−190.460	−157.250	27.380
	388.00	134.927	278.311	247.688	−178.490	11.882	−286.475	−249.252	−137.445	18.504

References

Phase	H / S	C_p	Remarks	
SOL	Mi1/e	e	Mi1	MPT= 388., DEC., TeBr4(s) = TeBr2(g) + Br2(g)

TeCl2[g] TELLURIUM DICHLORIDE (GAS) 198.505

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	54.346	305.663	305.663	−112.968	0.000	−204.101	−112.968	−122.822	21.518
	300.00	54.392	305.999	305.664	−112.867	0.101	−204.667	−112.978	−122.883	21.396
	400.00	56.004	321.901	307.821	−107.336	5.632	−236.096	−113.599	−126.096	16.466
	500.00	56.755	334.487	311.940	−101.694	11.274	−268.938	−114.434	−129.128	13.490
	600.00	57.167	344.875	316.588	−95.996	16.972	−302.921	−115.498	−131.971	11.489
	700.00	57.419	353.708	321.276	−90.266	22.702	−337.861	−116.793	−134.618	10.045
	800.00	57.586	361.387	325.820	−84.515	28.453	−373.624	−135.938	−135.183	8.827
	900.00	57.704	368.176	330.157	−78.750	34.218	−410.109	−137.665	−134.985	7.834
	1000.00	57.790	374.261	334.268	−72.975	39.993	−447.236	−139.397	−134.594	7.030
	1100.00	57.857	379.772	338.158	−67.193	45.775	−484.942	−141.133	−134.030	6.365
	1200.00	57.909	384.809	341.839	−61.404	51.564	−523.175	−142.874	−133.307	5.803
	1300.00	57.952	389.446	345.325	−55.611	57.357	−561.890	−144.620	−132.439	5.321
	1400.00	57.989	393.742	348.632	−49.814	63.154	−601.052	−192.809	−128.945	4.811
	1500.00	58.019	397.743	351.774	−44.014	68.954	−640.629	−192.989	−124.377	4.331
	1600.00	58.046	401.489	354.765	−38.210	74.758	−680.593	−193.165	−119.797	3.911
	1700.00	58.070	405.009	357.618	−32.405	80.563	−720.919	−193.342	−115.207	3.540
	1800.00	58.092	408.328	360.344	−26.596	86.372	−761.588	−193.518	−110.605	3.210
	1900.00	58.111	411.470	362.953	−20.786	92.182	−802.579	−193.691	−105.994	2.914
	2000.00	58.130	414.451	365.454	−14.974	97.994	−843.876	−193.859	−101.374	2.648

References

Phase	H / S	C_p	Remarks	
GAS	Mi1	Mi1	Mi1	MPT= 488., L= 11.322 kJ

TeCl4 TELLURIUM TETRACHLORIDE 269.411

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	138.490	200.832	200.832	−323.842	0.000	−383.720	−323.842	−235.918	41.332
	300.00	138.490	201.689	200.835	−323.586	0.256	−384.092	−323.759	−235.373	40.982
	400.00	138.490	241.530	206.267	−309.737	14.105	−406.349	−319.530	−206.562	26.974
	497.00	138.490	271.600	216.190	−296.303	27.539	−431.288	−315.837	−179.589	18.875
			37.968		18.870					
LIQ	497.00	230.120	309.567	216.190	−277.433	46.409	−431.288	−296.967	−179.589	18.875
	500.00	230.120	310.952	216.754	−276.743	47.099	−432.219	−296.584	−178.882	18.688
	600.00	230.120	352.908	236.056	−253.731	70.111	−465.476	−283.969	−156.532	13.627
	700.00	230.120	388.381	255.348	−230.719	93.123	−502.586	−271.659	−136.270	10.169

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1		
LIQ	Mi1	Mi1	Mi1	NBPT= 700.

269.411 TELLURIUM TETRACHLORIDE (GAS) **TeCl4**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	90.579	396.276	396.276	−207.054	0.000	−325.204	−207.054	−177.402	31.080
	300.00	90.656	396.836	396.277	−206.886	0.168	−325.937	−207.060	−177.218	30.856
	400.00	93.342	423.339	399.873	−197.667	9.387	−367.003	−207.460	−167.216	21.836
	500.00	94.593	444.317	406.737	−188.264	18.790	−410.423	−208.105	−157.086	16.411
	600.00	95.280	461.630	414.485	−178.767	28.287	−455.745	−209.006	−146.802	12.780
	700.00	95.700	476.352	422.298	−169.217	37.837	−502.663	−210.157	−136.347	10.174
	800.00	95.979	489.150	429.872	−159.632	47.422	−550.952	−229.173	−123.830	8.085
	900.00	96.174	500.467	437.099	−150.024	57.030	−600.443	−230.782	−110.566	6.417
	1000.00	96.319	510.607	443.952	−140.399	66.655	−651.006	−232.405	−97.121	5.073
	1100.00	96.429	519.793	450.436	−130.761	76.293	−702.533	−234.040	−83.514	3.966
	1200.00	96.517	528.187	456.570	−121.113	85.941	−754.938	−235.686	−69.757	3.036
	1300.00	96.589	535.916	462.380	−111.458	95.596	−808.148	−237.342	−55.863	2.245
	1400.00	96.650	543.076	467.892	−101.796	105.258	−862.102	−285.447	−39.349	1.468
	1500.00	96.701	549.746	473.129	−92.128	114.926	−916.747	−285.549	−21.767	0.758
	1600.00	96.746	555.988	478.115	−82.456	124.598	−972.037	−285.652	−4.178	0.136
	1700.00	96.786	561.855	482.870	−72.779	134.275	−1027.932	−285.761	13.417	−0.412
	1800.00	96.822	567.388	487.413	−63.099	143.955	−1084.397	−285.876	31.019	−0.900
	1900.00	96.855	572.624	491.761	−53.415	153.639	−1141.400	−285.992	48.627	−1.337
	2000.00	96.885	577.593	495.929	−43.728	163.326	−1198.913	−286.110	66.242	−1.730

References

Phase	H / S	C_p
GAS	Mi1,e	Mi1

TeF[g] TELLURIUM MONOFLUORIDE (GAS) 146.598

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	0.315	241.359	241.359	−87.027	0.000	−158.988	−87.027	−113.999	19.972
	300.00	0.765	241.362	241.359	−87.026	0.001	−159.435	−87.103	−114.166	19.878
	400.00	16.584	244.074	241.621	−86.046	0.981	−183.675	−90.414	−122.653	16.017
	500.00	23.926	248.654	242.559	−83.980	3.047	−208.307	−92.936	−130.412	13.624
	600.00	27.931	253.403	243.973	−81.369	5.658	−233.411	−95.189	−137.693	11.987
	700.00	30.361	257.905	245.645	−78.445	8.582	−258.979	−97.388	−144.604	10.790
	800.00	31.952	262.070	247.442	−75.324	11.703	−284.980	−117.261	−149.316	9.749
	900.00	33.054	265.901	249.283	−72.071	14.956	−311.382	−119.597	−153.182	8.890
	1000.00	33.853	269.427	251.124	−68.723	18.304	−338.151	−121.856	−156.792	8.190
	1100.00	34.454	272.683	252.937	−65.307	21.720	−365.258	−124.058	−160.178	7.606
	1200.00	34.920	275.702	254.710	−61.837	25.190	−392.679	−126.218	−163.366	7.111
	1300.00	35.292	278.512	256.434	−58.326	28.701	−420.392	−128.345	−166.376	6.685
	1400.00	35.594	281.139	258.106	−54.781	32.246	−448.376	−176.887	−166.731	6.221
	1500.00	35.845	283.604	259.725	−51.209	35.818	−476.614	−177.395	−165.987	5.780
	1600.00	36.057	285.924	261.290	−47.613	39.414	−505.091	−177.878	−165.211	5.394
	1700.00	36.240	288.115	262.804	−43.998	43.029	−533.794	−178.343	−164.405	5.052
	1800.00	36.399	290.191	264.269	−40.366	46.661	−562.711	−178.792	−163.572	4.747
	1900.00	36.539	292.163	265.685	−36.719	50.308	−591.829	−179.222	−162.715	4.473
	2000.00	36.664	294.041	267.057	−33.059	53.968	−621.140	−179.632	−161.835	4.227

References

Phase	H / S	C_p
GAS	Mi1	Mi1

165.597 TELLURIUM DIFLUORIDE (GAS) **TeF2**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	45.908	275.207	275.207	−384.928	0.000	−466.981	−384.928	−391.760	68.635
	300.00	46.040	275.492	275.208	−384.843	0.085	−467.490	−384.948	−391.803	68.219
	400.00	50.717	289.471	277.083	−379.972	4.956	−495.761	−385.977	−393.930	51.442
	500.00	52.939	301.053	280.753	−374.778	10.150	−525.305	−387.052	−395.797	41.349
	600.00	54.195	310.826	284.973	−369.416	15.512	−555.912	−388.290	−397.433	34.600
	700.00	54.994	319.244	289.281	−363.954	20.974	−587.425	−389.726	−398.846	29.762
	800.00	55.551	326.626	293.497	−358.425	26.503	−619.726	−408.994	−398.159	25.997
	900.00	55.966	333.194	297.550	−352.848	32.080	−652.723	−410.831	−396.694	23.024
	1000.00	56.293	339.108	301.415	−347.235	37.693	−686.343	−412.663	−395.025	20.634
	1100.00	56.563	344.486	305.090	−341.592	43.336	−720.527	−414.492	−393.173	18.670
	1200.00	56.793	349.418	308.581	−335.924	49.004	−755.225	−416.318	−391.154	17.026
	1300.00	56.997	353.972	311.900	−330.234	54.694	−790.398	−418.140	−388.983	15.630
	1400.00	57.180	358.203	315.058	−324.525	60.403	−826.009	−466.399	−384.181	14.334
	1500.00	57.349	362.154	318.067	−318.799	66.129	−862.029	−466.641	−378.299	13.174
	1600.00	57.506	365.860	320.940	−313.056	71.872	−898.432	−466.872	−372.402	12.158
	1700.00	57.654	369.351	323.686	−307.298	77.630	−935.194	−467.094	−366.491	11.261
	1800.00	57.796	372.650	326.315	−301.525	83.403	−972.295	−467.309	−360.567	10.463
	1900.00	57.933	375.779	328.837	−295.739	89.189	−1009.718	−467.511	−354.631	9.749
	2000.00	58.065	378.754	331.259	−289.939	94.989	−1047.446	−467.698	−348.685	9.107

References

Phase	H / S	C_p
GAS	Mi1	Mi1

TeF4[g] TELLURIUM TETRAFLUORIDE (GAS) 203.594

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	85.065	324.202	324.202	−948.094	0.000	−1044.755	−948.094	−909.071	159.265
	300.00	85.311	324.729	324.204	−947.936	0.158	−1045.355	−948.100	−908.829	158.241
	400.00	94.029	350.641	327.677	−938.909	9.185	−1079.165	−948.185	−895.717	116.969
	500.00	98.175	372.117	334.482	−929.277	18.817	−1115.335	−948.185	−882.601	92.205
	600.00	100.522	390.242	342.305	−919.332	28.762	−1153.477	−948.314	−869.475	75.695
	700.00	102.020	405.857	350.294	−909.200	38.894	−1193.300	−948.630	−856.313	63.899
	800.00	103.065	419.552	358.113	−898.943	49.151	−1234.585	−966.776	−841.212	54.925
	900.00	103.846	431.739	365.629	−888.596	59.498	−1277.160	−967.490	−825.473	47.909
	1000.00	104.464	442.713	372.798	−878.179	69.915	−1320.892	−968.199	−809.656	42.292
	1100.00	104.976	452.694	379.614	−867.706	80.388	−1365.670	−968.905	−793.767	37.693
	1200.00	105.414	461.848	386.091	−857.186	90.908	−1411.403	−969.607	−777.814	33.857
	1300.00	105.802	470.301	392.248	−846.625	101.469	−1458.016	−970.305	−761.803	30.610
	1400.00	106.152	478.155	398.107	−836.027	112.067	−1505.443	−1017.437	−743.248	27.731
	1500.00	106.475	485.489	403.690	−825.396	122.698	−1553.630	−1016.551	−723.693	25.201
	1600.00	106.776	492.371	409.020	−814.733	133.361	−1602.526	−1015.652	−704.199	22.990
	1700.00	107.062	498.853	414.116	−804.041	144.053	−1652.091	−1014.742	−684.761	21.040
	1800.00	107.335	504.980	418.995	−793.321	154.773	−1702.285	−1013.822	−665.377	19.309
	1900.00	107.598	510.790	423.675	−782.574	165.520	−1753.076	−1012.887	−646.044	17.761
	2000.00	107.853	516.316	428.170	−771.802	176.292	−1804.434	−1011.934	−626.761	16.369

References

Phase	H / S	C_p	Remarks	
GAS	Mi1	Mi1	Mi1	MPT= 403., L= 26.57 kJ

222.592 TELLURIUM PENTAFLUORIDE (GAS) **TeF5**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	100.585	340.896	340.896	−1159.805	0.000	−1261.443	−1159.805	−1095.527	191.932
	300.00	100.939	341.519	340.898	−1159.619	0.186	−1262.074	−1159.811	−1095.129	190.679
	400.00	113.492	372.531	345.041	−1148.809	10.996	−1297.821	−1159.721	−1073.564	140.193
	500.00	119.434	398.565	353.217	−1137.131	22.674	−1336.414	−1159.357	−1052.066	109.909
	600.00	122.775	420.661	362.664	−1125.007	34.798	−1377.403	−1159.042	−1030.640	89.725
	700.00	124.888	439.757	372.344	−1112.616	47.189	−1420.446	−1158.875	−1009.255	75.312
	800.00	126.346	456.534	381.841	−1100.051	59.754	−1465.278	−1176.515	−986.002	64.379
	900.00	127.424	471.480	390.985	−1087.360	72.445	−1511.692	−1176.709	−962.176	55.843
	1000.00	128.265	484.951	399.720	−1074.574	85.231	−1559.525	−1176.890	−938.329	49.013
	1100.00	128.951	497.209	408.033	−1061.712	98.093	−1608.642	−1177.060	−914.465	43.424
	1200.00	129.533	508.455	415.940	−1048.787	111.018	−1658.933	−1177.221	−890.585	38.766
	1300.00	130.040	518.843	423.461	−1035.808	123.997	−1710.304	−1177.374	−866.693	34.824
	1400.00	130.494	528.497	430.623	−1022.781	137.024	−1762.677	−1223.959	−840.297	31.352
	1500.00	130.907	537.515	437.452	−1009.710	150.095	−1815.982	−1222.522	−812.943	28.309
	1600.00	131.291	545.976	443.973	−996.600	163.205	−1870.161	−1221.070	−785.685	25.650
	1700.00	131.651	553.946	450.210	−983.453	176.352	−1925.161	−1219.606	−758.518	23.306
	1800.00	131.993	561.481	456.184	−970.271	189.534	−1980.936	−1218.130	−731.438	21.226
	1900.00	132.320	568.626	461.915	−957.055	202.750	−2037.444	−1216.637	−704.440	19.366
	2000.00	132.636	575.421	467.422	−943.807	215.998	−2094.650	−1215.125	−677.521	17.695

References

Phase	H / S	C_p	Remarks	
GAS	Mi1	Mi1	Mi1	Te2F10: MPT= 240., NBPT= 326.

TeF6[g] TELLURIUM HEXAFLUORIDE (GAS) 241.590

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	117.323	336.001	336.001	−1369.005	0.000	−1469.184	−1369.005	−1273.036	223.031
	300.00	117.767	336.728	336.003	−1368.788	0.217	−1469.806	−1369.009	−1272.441	221.552
	400.00	133.494	373.079	340.853	−1356.114	12.891	−1505.346	−1368.662	−1240.280	161.964
	500.00	140.940	403.756	350.452	−1342.353	26.652	−1544.231	−1367.896	−1208.271	126.227
	600.00	145.126	429.855	361.566	−1328.032	40.973	−1585.945	−1367.121	−1176.420	102.416
	700.00	147.774	452.439	372.972	−1313.378	55.627	−1630.085	−1366.466	−1144.690	85.418
	800.00	149.601	472.297	384.171	−1298.504	70.501	−1676.342	−1383.601	−1111.163	72.552
	900.00	150.951	489.999	394.964	−1283.474	85.531	−1724.473	−1383.279	−1077.128	62.515
	1000.00	152.005	505.960	405.279	−1268.324	100.681	−1774.284	−1382.936	−1043.129	54.487
	1100.00	152.865	520.489	415.102	−1253.079	115.926	−1825.617	−1382.576	−1009.166	47.921
	1200.00	153.594	533.822	424.447	−1237.755	131.250	−1878.342	−1382.202	−975.236	42.451
	1300.00	154.230	546.142	433.341	−1222.363	146.642	−1932.348	−1381.816	−941.337	37.823
	1400.00	154.798	557.593	441.812	−1206.912	162.093	−1987.541	−1427.858	−904.978	33.765
	1500.00	155.317	568.291	449.891	−1191.405	177.600	−2043.841	−1425.874	−867.699	30.216
	1600.00	155.798	578.330	457.608	−1175.849	193.156	−2101.178	−1423.871	−830.552	27.115
	1700.00	156.249	587.789	464.990	−1160.247	208.758	−2159.488	−1421.853	−793.531	24.382
	1800.00	156.678	596.732	472.063	−1144.600	224.405	−2218.718	−1419.818	−756.630	21.957
	1900.00	157.088	605.214	478.850	−1128.912	240.093	−2278.819	−1417.764	−719.842	19.790
	2000.00	157.484	613.282	485.371	−1113.183	255.822	−2339.747	−1415.688	−683.163	17.842

References

Phase	H / S	C_p	Remarks	
GAS	Mi1	Mi1	Mi1	MPT= 235., L= 7.95 kJ

143.599 TELLURIUM MONOXIDE (GAS) **TeO**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	31.806	240.689	240.689	74.475	0.000	2.713	74.475	48.053	−8.419
	300.00	31.856	240.886	240.690	74.534	0.059	2.268	74.459	47.889	−8.338
	400.00	33.678	250.335	241.966	77.823	3.348	−22.311	73.577	39.164	−5.114
	500.00	34.593	257.958	244.427	81.241	6.766	−47.738	72.559	30.674	−3.205
	600.00	35.152	264.318	247.227	84.730	10.255	−73.861	71.342	22.408	−1.951
	700.00	35.541	269.768	250.067	88.265	13.790	−100.572	69.902	14.363	−1.072
	800.00	35.841	274.534	252.834	91.835	17.360	−127.792	50.612	8.420	−0.550
	900.00	36.089	278.770	255.484	95.432	20.957	−155.461	48.741	3.258	−0.189
	1000.00	36.305	282.584	258.007	99.052	24.577	−183.532	46.864	−1.695	0.089
	1100.00	36.499	286.053	260.401	102.692	28.217	−211.966	44.984	−6.460	0.307
	1200.00	36.678	289.237	262.673	106.351	31.876	−240.733	43.103	−11.053	0.481
	1300.00	36.848	292.179	264.831	110.028	35.553	−269.806	41.223	−15.490	0.622
	1400.00	37.010	294.916	266.884	113.720	39.245	−299.162	−7.096	−17.291	0.645
	1500.00	37.167	297.475	268.839	117.429	42.954	−328.783	−7.399	−18.008	0.627
	1600.00	37.320	299.878	270.704	121.154	46.679	−358.652	−7.692	−18.706	0.611
	1700.00	37.469	302.145	272.488	124.893	50.418	−388.754	−7.978	−19.386	0.596
	1800.00	37.616	304.291	274.195	128.647	54.172	−419.077	−8.256	−20.048	0.582
	1900.00	37.761	306.329	275.834	132.416	57.941	−449.609	−8.523	−20.696	0.569
	2000.00	37.904	308.269	277.407	136.199	61.724	−480.339	−8.776	−21.330	0.557

References

Phase	H / S	C_p
GAS	Mi1	Mi1

TeO2 TELLURIUM DIOXIDE 159.599

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	63.880	74.057	74.057	−323.423	0.000	−345.503	−323.423	−269.581	47.229
	300.00	63.976	74.452	74.058	−323.305	0.118	−345.640	−323.407	−269.247	46.880
	400.00	67.873	93.441	76.621	−316.695	6.728	−354.071	−322.453	−251.335	32.821
	500.00	70.459	108.878	81.576	−309.772	13.651	−364.211	−321.495	−233.667	24.411
	600.00	72.528	121.912	87.240	−302.620	20.803	−375.767	−320.630	−216.185	18.821
	700.00	74.354	133.232	93.020	−295.274	28.149	−388.537	−319.887	−198.838	14.837
	800.00	76.050	143.272	98.685	−287.753	35.670	−402.371	−336.894	−179.709	11.734
	900.00	77.671	152.324	104.150	−280.067	43.356	−417.158	−336.378	−160.090	9.291
	1000.00	79.245	160.589	109.387	−272.221	51.202	−432.810	−335.760	−140.535	7.341
	1006.00	79.338	161.064	109.694	−271.745	51.678	−433.775	−335.719	−139.364	7.236
			28.906		29.079					
LIQ	1006.00	114.822	189.969	109.694	−242.666	80.757	−433.775	−306.640	−139.364	7.236
	1100.00	115.027	200.235	116.999	−231.863	91.560	−452.121	−302.677	−123.913	5.884
	1200.00	115.244	210.253	124.358	−220.349	103.074	−472.653	−298.478	−107.848	4.694

References

Phase	H / S	C_p
SOL	Mi1	Mi1
LIQ	Mi1	Mi1

159.599 TELLURIUM DIOXIDE (GAS) **TeO2**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	42.172	274.998	274.998	−59.413	0.000	−141.404	−59.413	−65.482	11.472
	300.00	42.340	275.260	274.999	−59.335	0.078	−141.913	−59.437	−65.519	11.408
	400.00	48.339	288.380	276.747	−54.760	4.653	−170.112	−60.518	−67.375	8.798
	500.00	51.246	299.512	280.218	−49.766	9.647	−199.522	−61.489	−68.978	7.206
	600.00	52.936	309.017	284.245	−44.550	14.863	−229.960	−62.560	−70.378	6.127
	700.00	54.051	317.266	288.386	−39.197	20.216	−261.283	−63.810	−71.585	5.342
	800.00	54.860	324.538	292.460	−33.750	25.663	−293.381	−82.890	−70.718	4.617
	900.00	55.491	331.038	296.391	−28.231	31.182	−326.165	−84.543	−69.097	4.010
	1000.00	56.011	336.912	300.155	−22.656	36.757	−359.568	−86.195	−67.293	3.515
	1100.00	56.459	342.272	303.743	−17.031	42.382	−393.531	−87.845	−65.323	3.102
	1200.00	56.858	347.202	307.162	−11.365	48.048	−428.008	−89.494	−63.202	2.751
	1300.00	57.223	351.768	310.420	−5.661	53.752	−462.959	−91.138	−60.945	2.449
	1400.00	57.562	356.021	313.527	0.078	59.491	−498.351	−139.217	−56.069	2.092
	1500.00	57.882	360.003	316.494	5.851	65.264	−534.154	−139.277	−50.128	1.746
	1600.00	58.189	363.749	319.332	11.654	71.067	−570.343	−139.324	−44.183	1.442
	1700.00	58.484	367.285	322.049	17.488	76.901	−606.897	−139.362	−38.236	1.175
	1800.00	58.771	370.636	324.656	23.351	82.764	−643.794	−139.389	−32.286	0.937
	1900.00	59.051	373.821	327.161	29.242	88.655	−681.019	−139.403	−26.336	0.724
	2000.00	59.326	376.857	329.570	35.161	94.574	−718.554	−139.402	−20.385	0.532

References

Phase	H / S	C_p
GAS	Mi1	Mi1

Te2O2[g] DITELLURIUM DIOXIDE (GAS) 287.199

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	70.496	327.298	327.298	−108.784	0.000	−206.368	−108.784	−115.688	20.268
	300.00	70.670	327.735	327.300	−108.653	0.131	−206.974	−108.803	−115.731	20.151
	400.00	76.965	349.046	330.162	−101.231	7.553	−240.849	−109.722	−117.899	15.396
	500.00	80.178	366.598	335.748	−93.359	15.425	−276.658	−110.721	−119.832	12.519
	600.00	82.179	381.405	342.156	−85.234	23.550	−314.077	−112.011	−121.539	10.581
	700.00	83.606	394.185	348.696	−76.942	31.842	−352.872	−113.669	−123.002	9.178
	800.00	84.729	405.425	355.099	−68.523	40.261	−392.863	−150.969	−120.439	7.864
	900.00	85.673	415.461	361.258	−60.002	48.782	−433.916	−153.384	−116.478	6.760
	1000.00	86.508	424.531	367.139	−51.392	57.392	−475.923	−155.767	−112.249	5.863
	1100.00	87.271	432.813	372.739	−42.703	66.081	−518.796	−158.118	−107.783	5.118
	1200.00	87.984	440.437	378.067	−33.940	74.844	−562.464	−160.435	−103.105	4.488
	1300.00	88.663	447.506	383.140	−25.107	83.677	−606.865	−162.717	−98.234	3.947
	1400.00	89.317	454.101	387.975	−16.208	92.576	−651.949	−257.841	−88.207	3.291
	1500.00	89.952	460.285	392.592	−7.244	101.540	−697.672	−256.902	−76.123	2.651
	1600.00	90.574	466.110	397.007	1.782	110.566	−743.995	−255.910	−64.103	2.093
	1700.00	91.184	471.620	401.235	10.870	119.654	−790.883	−254.872	−52.146	1.602
	1800.00	91.786	476.849	405.292	20.019	128.803	−838.309	−253.788	−40.252	1.168
	1900.00	92.381	481.827	409.190	29.227	138.011	−886.245	−252.651	−28.420	0.781
	2000.00	92.970	486.581	412.942	38.495	147.279	−934.667	−251.456	−16.649	0.435

References

Phase	H / S	C_p
GAS	Mi1	Mi1

232.038 THORIUM **Th**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL-A	298.15	27.348	53.388	53.388	0.000	0.000	-15.918	0.000	0.000	0.000
	300.00	27.372	53.557	53.388	0.051	0.051	-16.016	0.000	0.000	0.000
	400.00	28.644	61.606	54.477	2.851	2.851	-21.791	0.000	0.000	0.000
	500.00	29.916	68.134	56.575	5.779	5.779	-28.288	0.000	0.000	0.000
	600.00	31.188	73.701	58.976	8.885	8.835	-35.386	0.000	0.000	0.000
	700.00	32.459	78.604	61.437	12.017	12.017	-43.006	0.000	0.000	0.000
	800.00	33.731	83.021	63.863	15.326	15.326	-51.090	0.000	0.000	0.000
	900.00	35.003	87.067	66.220	18.763	18.763	-59.598	0.000	0.000	0.000
	1000.00	36.275	90.821	68.494	22.327	22.327	-68.494	0.000	0.000	0.000
	1100.00	37.547	94.338	70.685	26.018	26.018	-77.754	0.000	0.000	0.000
	1200.00	38.819	97.660	72.796	29.837	29.837	-87.355	0.000	0.000	0.000
	1300.00	40.091	100.817	74.831	33.782	33.782	-97.280	0.000	0.000	0.000
	1400.00	41.363	103.835	76.796	37.855	37.855	-107.514	0.000	0.000	0.000
	1500.00	42.635	106.732	78.696	42.055	42.055	-118.043	0.000	0.000	0.000
	1600.00	43.907	109.524	80.536	46.382	46.382	-128.857	0.000	0.000	0.000
	1636.00	44.365	110.506	81.184	47.971	47.971	-132.818	0.000	0.000	0.000
			1.672		2.736					
SOL-B	1636.00	46.024	112.179	81.184	50.707	50.707	-132.818	0.000	0.000	0.000
	1700.00	46.024	113.945	82.385	53.652	53.652	-140.054	0.000	0.000	0.000
	1800.00	46.024	116.575	84.212	58.255	58.255	-151.581	0.000	0.000	0.000
	1900.00	46.024	119.064	85.981	62.857	62.857	-163.364	0.000	0.000	0.000
	2000.00	46.024	121.425	87.695	67.459	67.459	-175.390	0.000	0.000	0.000
	2028.00	46.024	122.064	88.165	68.748	68.748	-178.799	0.000	0.000	0.000
			7.949		16.121					
LIQ	2028.00	46.024	130.014	88.165	84.869	84.869	-178.799	0.000	0.000	0.000
	2100.00	46.024	131.619	89.628	88.183	88.183	-188.218	0.000	0.000	0.000
	2200.00	46.024	133.760	91.585	92.785	92.785	-201.488	0.000	0.000	0.000
	2300.00	46.024	135.806	93.464	97.388	97.388	-214.967	0.000	0.000	0.000
	2400.00	46.024	137.765	95.269	101.990	101.990	-228.646	0.000	0.000	0.000
	2500.00	46.024	139.644	97.007	106.592	106.592	-242.517	0.000	0.000	0.000
	2600.00	46.024	141.449	98.682	111.195	111.195	-256.572	0.000	0.000	0.000
	2700.00	46.024	143.186	100.298	115.797	115.797	-270.804	0.000	0.000	0.000
	2800.00	46.024	144.860	101.860	120.400	120.400	-285.207	0.000	0.000	0.000
	2900.00	46.024	146.475	103.370	125.002	125.002	-299.774	0.000	0.000	0.000
	3000.00	46.024	148.035	104.833	129.604	129.604	-314.500	0.000	0.000	0.000
	3100.00	46.024	149.544	106.252	134.207	134.207	-329.380	0.000	0.000	0.000
	3200.00	46.024	151.005	107.627	138.809	138.809	-344.408	0.000	0.000	0.000
	3300.00	46.024	152.421	108.963	143.412	143.412	-359.579	0.000	0.000	0.000
	3400.00	46.024	153.795	110.262	148.014	148.014	-374.890	0.000	0.000	0.000
	3500.00	46.024	155.130	111.525	152.616	152.616	-390.337	0.000	0.000	0.000
	3600.00	46.024	156.426	112.754	157.219	157.219	-405.915	0.000	0.000	0.000
	3700.00	46.024	157.687	113.952	161.821	161.821	-421.621	0.000	0.000	0.000
	3800.00	46.024	158.914	115.119	166.424	166.424	-437.451	0.000	0.000	0.000
	3900.00	46.024	160.110	116.257	171.026	171.026	-453.403	0.000	0.000	0.000
	4000.00	46.024	161.275	117.368	175.628	175.628	-469.472	0.000	0.000	0.000

Th THORIUM [continued] 232.038

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
LIQ	4100.00	46.024	162.412	118.453	180.231	180.231	−485.657	0.000	0.000	0.000
	4200.00	46.024	163.521	119.513	184.833	184.833	−501.954	0.000	0.000	0.000
	4300.00	46.024	164.604	120.549	189.436	189.436	−518.360	0.000	0.000	0.000
	4400.00	46.024	165.662	121.562	194.038	194.038	−534.874	0.000	0.000	0.000
	4500.00	46.024	166.696	122.554	198.640	198.640	−551.492	0.000	0.000	0.000
	4600.00	46.024	167.708	123.524	203.243	203.243	−568.212	0.000	0.000	0.000
	4700.00	46.024	168.697	124.475	207.845	207.845	−585.033	0.000	0.000	0.000
	4800.00	46.024	169.666	125.406	212.448	212.448	−601.951	0.000	0.000	0.000
	4900.00	46.024	170.615	126.319	217.050	217.050	−618.965	0.000	0.000	0.000
	5000.00	46.024	171.545	127.215	221.652	221.652	−636.073	0.000	0.000	0.000
	5056.00	46.024	172.058	127.709	224.230	224.230	−645.694	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL − A	Hu1, C_p1	Hu1		fcc
SOL − B	Hu1	Hu1		bcc
LIQ	Hu1	Hu1	Hu1	BPT = 5056., L = 514.14 kJ

232.038 THORIUM (GAS) **Th**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.794	190.163	190.163	575.300	0.000	518.603	575.300	534.520	−93.646
	300.00	20.796	190.292	190.164	575.338	0.038	518.251	575.288	534.267	−93.024
	400.00	20.852	196.282	190.980	577.421	2.121	498.908	574.569	520.699	−67.996
	500.00	21.081	200.954	192.524	579.515	4.215	479.038	573.736	507.325	−53.000
	600.00	21.643	204.842	194.262	581.648	6.348	458.743	572.814	494.129	−43.018
	700.00	22.554	208.242	196.021	583.855	8.555	438.086	571.838	481.091	−35.899
	800.00	23.764	211.330	197.744	586.169	10.869	417.105	570.842	468.195	−30.570
	900.00	25.190	214.210	199.415	588.615	13.315	395.827	569.852	455.424	−26.432
	1000.00	26.738	216.943	201.032	591.211	15.911	374.268	568.884	442.762	−23.128
	1100.00	28.302	219.565	202.599	593.963	18.663	352.442	567.945	430.196	−20.428
	1200.00	29.774	222.092	204.118	596.868	21.568	330.358	567.032	417.713	−18.183
	1300.00	31.086	224.527	205.595	599.911	24.611	308.026	566.129	405.307	−16.285
	1400.00	32.307	226.876	207.032	603.082	27.782	285.455	565.228	392.970	−14.662
	1500.00	33.360	229.142	208.431	606.367	31.067	262.654	564.313	380.697	−13.257
	1600.00	34.229	231.324	209.794	609.748	34.448	239.630	563.367	368.487	−12.030
	1700.00	34.923	233.421	211.122	613.207	37.907	216.392	559.555	356.446	−10.952
	1800.00	35.461	235.433	212.418	616.728	41.428	192.948	558.473	344.530	−9.998
	1900.00	35.866	237.362	213.680	620.295	44.995	169.308	557.438	332.672	−9.146
	2000.00	36.164	239.209	214.911	623.897	48.597	145.479	556.438	320.869	−8.380
	2100.00	36.374	240.979	216.110	627.525	52.225	121.469	539.342	309.687	−7.703
	2200.00	36.516	242.675	217.279	631.170	55.870	97.285	538.385	298.773	−7.094
	2300.00	36.607	244.300	218.419	634.826	59.526	72.936	537.439	287.903	−6.538
	2400.00	36.661	245.859	219.530	638.490	63.190	48.428	536.500	277.074	−6.030
	2500.00	36.689	247.357	220.613	642.158	66.858	23.766	535.565	266.283	−5.564
	2600.00	36.701	248.796	221.670	645.827	70.527	−1.042	534.632	255.530	−5.134
	2700.00	36.705	250.181	222.700	649.498	74.198	−25.991	533.700	244.813	−4.736
	2800.00	36.709	251.516	223.706	653.168	77.868	−51.076	532.769	234.131	−4.368
	2900.00	36.717	252.804	224.687	656.839	81.539	−76.293	531.838	223.482	−4.025
	3000.00	36.733	254.049	225.645	660.512	85.212	−101.636	530.908	212.865	−3.706
	3100.00	36.761	255.254	226.581	664.186	88.886	−127.101	529.980	202.279	−3.408
	3200.00	36.803	256.422	227.495	667.865	92.565	−152.685	529.055	191.722	−3.130
	3300.00	36.862	257.555	228.389	671.548	96.248	−178.384	528.136	181.195	−2.868
	3400.00	36.937	258.657	229.263	675.237	99.937	−204.195	527.224	170.695	−2.622
	3500.00	37.029	259.729	230.118	678.936	103.636	−230.115	526.319	160.222	−2.391
	3600.00	37.139	260.773	230.956	682.644	107.344	−256.140	525.425	149.775	−2.173
	3700.00	37.267	261.793	231.775	686.364	111.064	−282.269	524.543	139.353	−1.967
	3800.00	37.411	262.788	232.578	690.098	114.798	−308.498	523.674	128.954	−1.773
	3900.00	37.572	263.762	233.365	693.847	118.547	−334.825	522.821	118.577	−1.588
	4000.00	37.747	264.716	234.137	697.613	122.313	−361.249	521.984	108.223	−1.413
	4100.00	37.935	265.650	234.895	701.397	126.097	−387.768	521.166	97.889	−1.247
	4200.00	38.135	266.566	235.638	705.200	129.900	−414.379	520.367	87.575	−1.089
	4300.00	38.344	267.466	236.368	709.024	133.724	−441.081	519.588	77.280	−0.939
	4400.00	38.562	268.350	237.084	712.869	137.569	−467.872	518.831	67.002	−0.795
	4500.00	38.786	269.219	237.789	716.736	141.436	−494.750	518.096	56.742	−0.659
	4600.00	39.013	270.074	238.482	720.626	145.326	−521.715	517.384	46.497	−0.528
	4700.00	39.242	270.916	239.163	724.539	149.239	−548.765	516.694	36.268	−0.403
	4800.00	39.470	271.744	239.833	728.475	153.175	−575.898	516.027	26.053	−0.284
	4900.00	39.694	272.560	240.492	732.433	157.133	−603.113	515.383	15.852	−0.169
	5000.00	39.912	273.365	241.142	736.413	161.113	−630.409	514.761	5.664	−0.059

Th[g] THORIUM (GAS) [continued] 232.038

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	5100.00	40.122	274.157	241.781	740.415	165.115	−657.786	0.000	0.000	0.000
	5200.00	40.321	274.938	242.412	744.437	169.137	−685.240	0.000	0.000	0.000
	5300.00	40.505	275.708	243.033	748.479	173.179	−712.773	0.000	0.000	0.000
	5400.00	40.673	276.467	243.645	752.538	177.238	−740.382	0.000	0.000	0.000
	5500.00	40.821	277.214	244.248	756.613	181.313	−768.066	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

ThBr4 THORIUM TETRABROMIDE 551.654

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	125.188	220.999	220.999	−965.617	0.000	−1031.508	−965.617	−924.828	162.026
	300.00	125.298	221.774	221.001	−965.385	0.232	−1031.917	−965.716	−924.574	160.983
	400.00	129.731	258.485	225.977	−952.614	13.003	−1056.008	−1024.709	−898.584	117.343
	500.00	132.645	287.763	235.504	−939.488	26.129	−1083.369	−1021.895	−867.376	90.614
	600.00	134.962	312.158	246.303	−926.104	39.513	−1113.399	−1019.004	−836.742	72.845
	693.00	136.860	331.741	256.483	−913.463	52.154	−1143.360	−1016.265	−808.694	60.955
			6.038		4.184					
SOL−B	693.00	136.814	337.779	256.483	−909.279	56.338	−1143.360	−1012.081	−808.694	60.955
	700.00	136.945	339.155	257.303	−908.321	57.296	−1145.729	−1011.873	−806.640	60.192
	800.00	138.749	357.560	268.708	−894.535	71.082	−1180.583	−1008.893	−777.524	50.767
	900.00	140.461	374.002	279.510	−880.574	85.043	−1217.176	−1005.883	−748.784	43.458
	970.00	141.623	384.566	286.714	−870.701	94.916	−1243.730	−1003.762	−728.867	39.250
			64.744		62.802					
LIQ	970.00	171.544	449.310	286.714	−807.899	157.718	−1243.730	−940.960	−728.867	39.250
	1000.00	171.544	454.535	291.671	−802.753	162.864	−1257.288	−939.157	−722.335	37.731
	1100.00	171.544	470.885	307.232	−785.598	180.019	−1303.572	−933.239	−700.941	33.285
	1126.00	171.544	474.893	311.057	−781.138	184.479	−1315.867	−931.724	−695.468	32.262

References

Phase	H / S	C_p	Remarks	
SOL−A	Pa2	Pa2		
SOL−B	Pa2	Pa2		
LIQ	Pa2	Pa2	Pa2	BPT= 1126., L= 109.24 kJ

551.654 THORIUM TETRABROMIDE (GAS) **ThBr4**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	104.866	429.890	429.890	−760.580	0.000	−888.752	−760.580	−782.071	137.016
	300.00	104.905	430.539	429.892	−760.386	0.194	−889.548	−760.717	−782.204	136.194
	400.00	106.271	460.933	434.027	−749.817	10.763	−934.191	−821.913	−776.767	101.435
	500.00	106.907	484.723	441.873	−739.155	21.425	−981.517	−821.563	−765.523	79.974
	600.00	107.255	504.248	450.690	−728.445	32.135	−1030.994	−821.345	−754.338	65.671
	700.00	107.467	520.799	459.554	−717.708	42.872	−1082.268	−821.261	−743.179	55.457
	800.00	107.607	535.159	468.126	−706.954	53.626	−1135.081	−821.312	−732.022	47.796
	900.00	107.705	547.839	476.293	−696.188	64.392	−1189.243	−821.497	−720.851	41.837
	1000.00	107.776	559.191	484.025	−685.414	75.166	−1244.605	−821.819	−709.652	37.068
	1100.00	107.831	569.465	491.332	−674.634	85.946	−1301.046	−822.275	−698.415	33.165
	1200.00	107.873	578.850	498.240	−663.849	96.731	−1358.468	−822.867	−687.130	29.910
	1300.00	107.908	587.486	504.777	−653.059	107.521	−1416.791	−823.595	−675.790	27.154
	1400.00	107.937	595.484	510.974	−642.267	118.313	−1475.944	−824.458	−664.389	24.789
	1500.00	107.961	602.931	516.859	−631.472	129.108	−1535.869	−825.457	−652.921	22.737
	1600.00	107.982	609.900	522.459	−620.675	139.905	−1596.514	−826.592	−641.382	20.939
	1700.00	108.000	616.446	527.797	−609.876	150.704	−1657.835	−830.679	−629.660	19.347
	1800.00	108.016	622.620	532.895	−599.075	161.505	−1719.791	−832.107	−617.794	17.928
	1900.00	108.031	628.461	537.773	−588.273	172.307	−1782.348	−833.543	−605.849	16.656
	2000.00	108.045	634.002	542.447	−577.469	183.111	−1845.473	−834.987	−593.827	15.509

References

Phase	H / S	C_p
GAS	Pa2	Pa2

ThC1.94 THORIUM 1.94–CARBIDE 255.339

Phase	T [K]	C_p J / (K mol)	S J / (K mol)	−(G−H298)/T J / (K mol)	H kJ / mol	H−H298 kJ / mol	G kJ / mol	ΔH_f kJ / mol	ΔG_f kJ / mol	log K_f [−]
SOL−A	298.15	56.692	70.291	70.291	−147.695	0.000	−168.652	−147.695	−149.414	26.177
	300.00	56.809	70.642	70.292	−147.590	0.105	−168.783	−147.671	−149.425	26.017
	400.00	61.385	87.678	72.584	−141.657	6.038	−176.729	−146.551	−150.187	19.612
	500.00	64.255	101.702	77.047	−135.367	12.328	−186.218	−145.772	−151.194	15.795
	600.00	66.466	113.619	82.173	−128.828	18.867	−196.999	−145.353	−152.324	13.261
	700.00	68.368	124.010	87.423	−122.084	25.611	−208.891	−145.241	−153.498	11.454
	800.00	70.103	133.254	92.585	−115.160	32.535	−221.763	−145.359	−154.672	10.099
	900.00	71.741	141.606	97.575	−108.067	39.628	−235.513	−145.646	−155.820	9.044
	1000.00	73.316	149.247	102.366	−100.814	46.881	−250.061	−146.068	−156.929	8.197
	1100.00	74.851	156.307	106.952	−93.405	54.290	−265.343	−146.598	−157.990	7.502
	1200.00	76.356	162.884	111.342	−85.845	61.850	−281.306	−147.212	−158.999	6.921
	1300.00	77.841	169.055	115.547	−78.135	69.560	−297.906	−147.893	−159.954	6.427
	1400.00	79.312	174.878	119.579	−70.277	77.418	−315.105	−148.626	−160.855	6.002
	1500.00	80.771	180.399	123.451	−62.273	85.422	−332.871	−149.399	−161.702	5.631
	1600.00	82.224	185.659	127.176	−54.123	93.572	−351.176	−150.202	−162.496	5.305
	1700.00	83.671	190.687	130.765	−45.828	101.867	−369.996	−153.841	−163.130	5.012
			1.231		2.092					
SOL−B	1700.00	83.680	191.917	130.765	−43.736	103.959	−369.996	−151.749	−163.130	5.012
	1763.00	83.680	194.962	133.005	−38.464	109.231	−382.183	−152.331	−163.541	4.845
			5.933		10.460					
SOL−C	1763.00	83.680	200.895	133.005	−28.004	119.691	−382.183	−141.871	−163.541	4.845
	1800.00	83.680	202.633	134.418	−24.908	122.787	−389.648	−142.219	−163.993	4.759
	1900.00	83.680	207.158	138.129	−16.540	131.155	−410.140	−143.176	−165.176	4.541
	2000.00	83.680	211.450	141.689	−8.172	139.523	−431.072	−144.158	−166.309	4.344
	2100.00	83.680	215.533	145.108	0.196	147.891	−452.423	−161.285	−166.819	4.149
	2200.00	83.680	219.426	148.399	8.564	156.259	−474.172	−162.311	−167.059	3.966
	2300.00	83.680	223.145	151.568	16.932	164.627	−496.302	−163.355	−167.251	3.798
	2400.00	83.680	226.707	154.625	25.300	172.995	−518.796	−164.415	−167.398	3.643

References

Phase	H / S	C_p
SOL−A	Pa3	Pa3
SOL−B	Pa3	Pa3
SOL−C	Pa3	Pa3

373.849 THORIUM TETRACHLORIDE **ThCl4**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[-]
SOL-A	298.15	120.290	190.372	190.372	-1186.758	0.000	-1243.517	-1186.758	-1094.555	191.762
	300.00	120.418	191.116	190.374	-1186.535	0.223	-1243.870	-1186.712	-1093.983	190.479
	400.00	125.753	226.551	195.169	-1174.205	12.553	-1264.826	-1184.117	-1063.461	138.874
	500.00	129.471	255.029	204.386	-1161.436	25.322	-1288.951	-1181.417	-1033.608	107.980
	600.00	132.554	278.913	214.869	-1148.332	38.426	-1315.680	-1178.638	-1004.306	87.433
	679.00	134.768	295.444	223.299	-1137.772	48.986	-1338.378	-1176.386	-981.494	75.505
			7.395		5.021					
SOL-B	679.00	134.762	302.839	223.299	-1132.751	54.007	-1338.378	-1176.386	-981.494	75.505
	700.00	135.327	306.952	225.748	-1129.915	56.843	-1344.781	-1170.757	-975.631	72.802
	800.00	137.939	325.195	237.060	-1116.250	70.508	-1376.406	-1167.813	-947.955	61.895
	900.00	140.466	341.588	247.779	-1102.330	84.428	-1409.759	-1164.780	-920.654	53.433
	1000.00	142.939	356.516	257.917	-1088.159	98.599	-1444.675	-1161.656	-893.696	46.682
	1042.00	143.966	362.418	262.011	-1082.134	104.624	-1459.773	-1160.316	-882.469	44.237
			58.986		61.463					
LIQ	1042.00	167.360	421.403	262.011	-1020.671	166.087	-1459.773	-1160.316	-882.469	44.237
	1100.00	167.360	430.469	270.656	-1010.964	175.794	-1484.480	-1095.660	-870.512	41.337
	1200.00	167.360	445.031	284.590	-994.228	192.530	-1528.265	-1090.270	-850.283	37.012
	1300.00	167.360	458.427	297.453	-977.492	209.266	-1573.447	-1085.025	-830.498	33.370
	1400.00	167.360	470.830	309.400	-960.756	226.002	-1619.918	-1079.924	-811.112	30.263
	1500.00	167.360	482.376	320.551	-944.020	242.738	-1667.585	-1074.966	-792.085	27.583

References

Phase	H / S	C_p
SOL-A	Nb1,Ra3	Pa2
SOL-B	Pa2	Pa2
LIQ	Pa2	Pa2

ThCl4[g] THORIUM TETRACHLORIDE (GAS) 373.849

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	101.557	397.589	397.589	−966.261	0.000	−1084.802	−966.261	−935.840	163.955
	300.00	101.629	398.218	397.591	−966.073	0.188	−1085.538	−966.249	−935.652	162.911
	400.00	104.280	427.867	401.616	−955.760	10.501	−1126.907	−965.672	−925.543	120.863
	500.00	105.590	451.292	409.291	−945.260	21.001	−1170.906	−965.241	−915.564	95.648
	600.00	106.328	470.615	417.948	−934.661	31.600	−1217.030	−964.968	−905.656	78.844
	700.00	106.784	487.042	426.675	−924.004	42.257	−1264.933	−964.846	−895.783	66.844
	800.00	107.085	501.322	435.133	−913.309	52.952	−1314.367	−964.872	−885.917	57.844
	900.00	107.293	513.948	443.202	−902.590	63.671	−1365.143	−965.041	−876.038	50.844
	1000.00	107.443	525.260	450.852	−891.853	74.408	−1417.113	−965.350	−866.134	45.242
	1100.00	107.555	535.506	458.089	−881.103	85.158	−1470.159	−965.798	−856.192	40.657
	1200.00	107.640	544.869	464.937	−870.343	95.918	−1524.185	−966.384	−846.203	36.834
	1300.00	107.706	553.487	471.421	−859.575	106.686	−1579.108	−967.109	−836.159	33.597
	1400.00	107.758	561.471	477.572	−848.802	117.459	−1634.861	−967.970	−826.055	30.820
	1500.00	107.800	568.907	483.415	−838.024	128.237	−1691.384	−968.970	−815.884	28.412
	1600.00	107.834	575.865	488.978	−827.242	139.019	−1748.627	−970.107	−805.642	26.302
	1700.00	107.862	582.403	494.284	−816.458	149.803	−1806.543	−974.199	−795.216	24.434
	1800.00	107.885	588.569	499.352	−805.670	160.591	−1865.095	−975.635	−784.646	22.770
	1900.00	107.904	594.403	504.203	−794.881	171.380	−1924.246	−977.083	−773.996	21.279
	2000.00	107.920	599.938	508.852	−784.089	182.172	−1983.965	−978.544	−763.270	19.935

References

Phase	H / S	C_p
GAS	Nb1	Pa2

270.035 THORIUM DIFLUORIDE (GAS) **ThF2**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	52.416	295.219	295.219	−654.332	0.000	−742.352	−654.332	−665.971	116.675
	300.00	52.481	295.544	295.221	−654.235	0.097	−742.898	−654.344	−666.043	115.968
	400.00	54.788	311.004	297.313	−648.855	5.477	−773.257	−654.978	−669.849	87.473
	500.00	55.879	323.360	301.329	−643.316	11.016	−804.996	−655.730	−673.483	70.358
	600.00	56.491	333.607	305.879	−637.695	16.637	−837.859	−656.637	−676.950	58.934
	700.00	56.876	342.346	310.480	−632.025	22.307	−871.668	−657.700	−680.254	50.761
	800.00	57.141	349.959	314.949	−626.324	28.008	−906.291	−658.914	−683.395	44.621
	900.00	57.335	356.701	319.221	−620.600	33.732	−941.631	−660.274	−686.375	39.836
	1000.00	57.486	362.750	323.276	−614.858	39.474	−977.608	−661.777	−689.196	36.000
	1100.00	57.609	368.235	327.118	−609.103	45.229	−1014.162	−663.420	−691.859	32.854
	1200.00	57.713	373.252	330.756	−603.337	50.995	−1051.240	−665.200	−694.367	30.225
	1300.00	57.802	377.875	334.205	−597.561	56.771	−1088.799	−667.116	−696.721	27.995
	1400.00	57.882	382.162	337.480	−591.777	62.555	−1126.804	−669.168	−698.922	26.077
	1500.00	57.955	386.158	340.593	−585.985	68.347	−1165.222	−671.353	−700.972	24.410
	1600.00	58.022	389.900	343.559	−580.186	74.146	−1204.027	−673.671	−702.872	22.946
	1700.00	58.084	393.420	346.390	−574.381	79.951	−1243.194	−678.937	−704.514	21.647
	1800.00	58.143	396.741	349.096	−568.569	85.763	−1282.704	−681.541	−705.943	20.486
	1900.00	58.200	399.887	351.687	−562.752	91.580	−1322.537	−684.149	−707.227	19.443
	2000.00	58.254	402.873	354.172	−556.929	97.403	−1362.676	−686.761	−708.375	18.501

References

Phase	H / S	C_p
GAS	Pa2	Pa2

ThF3[g] THORIUM TRIFLUORIDE (GAS) 289.033

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	73.303	339.315	339.315	−1184.695	0.000	−1285.862	−1184.695	−1179.249	206.600
	300.00	73.414	339.768	339.316	−1184.559	0.136	−1286.490	−1184.697	−1179.215	205.320
	400.00	77.336	361.505	342.253	−1176.994	7.701	−1321.596	−1184.753	−1177.379	153.750
	500.00	79.190	378.983	347.909	−1169.158	15.537	−1358.650	−1184.890	−1175.523	122.806
	600.00	80.230	393.521	354.334	−1161.183	23.512	−1397.295	−1185.179	−1173.625	102.173
	700.00	80.885	405.941	360.841	−1153.125	31.570	−1437.284	−1185.629	−1171.666	87.431
	800.00	81.336	416.773	367.170	−1145.012	39.683	−1478.431	−1186.235	−1169.632	76.369
	900.00	81.668	426.373	373.225	−1136.861	47.834	−1520.597	−1186.992	−1167.513	67.761
	1000.00	81.926	434.991	378.978	−1128.681	56.014	−1563.673	−1187.896	−1165.301	60.869
	1100.00	82.135	442.810	384.431	−1120.478	64.217	−1607.569	−1188.944	−1162.992	55.226
	1200.00	82.312	449.964	389.598	−1112.255	72.440	−1652.213	−1190.132	−1160.581	50.519
	1300.00	82.465	456.559	394.499	−1104.016	80.679	−1697.543	−1191.458	−1158.066	46.532
	1400.00	82.601	462.675	399.153	−1095.763	88.932	−1743.509	−1192.922	−1155.443	43.110
	1500.00	82.725	468.379	403.580	−1087.497	97.198	−1790.064	−1194.521	−1152.711	40.141
	1600.00	82.840	473.721	407.798	−1079.218	105.477	−1837.172	−1196.254	−1149.868	37.539
	1700.00	82.947	478.747	411.825	−1070.929	113.766	−1884.798	−1200.938	−1146.804	35.237
	1800.00	83.049	483.491	415.676	−1062.629	122.066	−1932.912	−1202.959	−1143.561	33.185
	1900.00	83.146	487.984	419.365	−1054.319	130.376	−1981.488	−1204.986	−1140.206	31.346
	2000.00	83.239	492.251	422.903	−1046.000	138.695	−2030.501	−1207.018	−1136.744	29.689

References

Phase	H / S	C_p
GAS	Pa2	Pa2

308.032 THORIUM TETRAFLUORIDE **ThF4**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	110.543	142.047	142.047	−2098.038	0.000	−2140.389	−2098.038	−2003.545	351.013
	300.00	110.732	142.731	142.049	−2097.833	0.205	−2140.653	−2098.000	−2002.959	348.746
	400.00	117.672	175.663	146.492	−2086.370	11.668	−2156.635	−2095.764	−1971.609	257.466
	500.00	121.334	202.349	155.080	−2074.403	23.635	−2175.578	−2093.452	−1940.838	202.758
	600.00	123.706	224.694	164.871	−2062.144	35.894	−2196.961	−2091.194	−1910.529	166.326
	700.00	125.468	243.901	174.821	−2049.682	48.356	−2220.413	−2089.015	−1880.591	140.331
	800.00	126.905	260.751	184.531	−2037.062	60.976	−2245.662	−2086.916	−1850.961	120.855
	900.00	128.154	275.772	193.849	−2024.307	73.731	−2272.502	−2084.894	−1821.588	105.722
	1000.00	129.285	289.334	202.730	−2011.435	86.603	−2300.768	−2082.946	−1792.437	93.627
	1100.00	130.340	301.706	211.174	−1998.453	99.585	−2330.329	−2081.068	−1763.478	83.741
	1200.00	131.342	313.090	219.199	−1985.368	112.670	−2361.077	−2079.258	−1734.687	75.509
	1300.00	132.308	323.642	226.832	−1972.186	125.852	−2392.920	−2077.514	−1706.044	68.550
	1383.00	133.089	331.854	232.891	−1961.172	136.866	−2420.126	−2076.115	−1682.371	63.542
			30.253		41.840					
LIQ	1383.00	133.888	362.107	232.891	−1919.332	178.706	−2420.126	−2034.275	−1682.371	63.542
	1400.00	133.888	363.743	234.470	−1917.055	180.983	−2426.296	−2033.982	−1678.047	62.609
	1500.00	133.888	372.980	243.399	−1903.667	194.371	−2463.137	−2032.347	−1652.681	57.551
	1600.00	133.888	381.621	251.771	−1890.278	207.760	−2500.872	−2030.865	−1627.419	53.130
	1700.00	133.888	389.738	259.651	−1876.889	221.149	−2539.444	−2032.350	−1602.136	49.228
	1800.00	133.888	397.391	267.092	−1863.500	234.538	−2578.804	−2031.189	−1576.863	45.759
	1900.00	133.888	404.630	274.142	−1850.111	247.927	−2618.908	−2030.048	−1551.654	42.658
	2000.00	133.888	411.497	280.840	−1836.723	261.315	−2659.718	−2028.927	−1526.504	39.868

References

Phase	H / S	C_p
SOL	Pa2	Pa2
LIQ	Pa2	Pa2

ThF4[g] THORIUM TETRAFLUORIDE (GAS) 308.032

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	93.029	341.804	341.804	−1768.033	0.000	−1869.942	−1768.033	−1733.098	303.632
	300.00	93.171	342.380	341.806	−1767.861	0.172	−1870.575	−1768.027	−1732.881	301.721
	400.00	98.749	370.035	345.539	−1758.234	9.799	−1906.248	−1767.629	−1721.223	224.769
	500.00	101.770	392.426	352.749	−1748.194	19.839	−1944.407	−1767.243	−1709.668	178.608
	600.00	103.557	411.152	360.965	−1737.921	30.112	−1984.612	−1766.971	−1698.180	147.840
	700.00	104.694	427.207	369.309	−1727.504	40.529	−2026.549	−1766.837	−1686.728	125.865
	800.00	105.458	441.240	377.442	−1716.994	51.039	−2069.986	−1766.849	−1675.285	109.385
	900.00	105.995	453.694	385.235	−1706.420	61.613	−2114.745	−1767.007	−1663.831	96.566
	1000.00	106.385	464.883	392.650	−1695.800	72.233	−2160.683	−1767.311	−1652.352	86.310
	1100.00	106.677	475.037	399.685	−1685.146	82.887	−2207.687	−1767.762	−1640.836	77.917
	1200.00	106.900	484.329	406.357	−1674.467	93.566	−2255.662	−1768.357	−1629.272	70.920
	1300.00	107.075	492.893	412.689	−1663.768	104.265	−2304.528	−1769.097	−1617.652	64.998
	1400.00	107.213	500.833	418.705	−1653.053	114.980	−2354.220	−1769.980	−1605.971	59.919
	1500.00	107.324	508.234	424.429	−1642.326	125.707	−2404.677	−1771.007	−1594.221	55.516
	1600.00	107.414	515.163	429.886	−1631.589	136.444	−2455.851	−1772.177	−1582.398	51.660
	1700.00	107.488	521.678	435.096	−1620.844	147.189	−2507.696	−1776.305	−1570.388	48.252
	1800.00	107.549	527.823	440.078	−1610.092	157.941	−2560.174	−1777.781	−1558.233	45.219
	1900.00	107.600	533.640	444.851	−1599.334	168.699	−2613.250	−1779.271	−1545.995	42.502
	2000.00	107.643	539.160	449.429	−1588.572	179.461	−2666.892	−1780.776	−1533.679	40.056
	2100.00	107.679	544.413	453.828	−1577.806	190.227	−2721.073	−1798.417	−1520.714	37.826
	2200.00	107.709	549.423	458.061	−1567.037	200.996	−2775.766	−1799.951	−1507.454	35.792

References

Phase	H / S	C_p
GAS	Pa2	Pa2

ThH2 THORIUM DIHYDRIDE 234.054

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	36.694	50.710	50.710	−139.704	0.000	−154.823	−139.704	−99.943	17.510
	300.00	36.765	50.937	50.711	−139.636	0.068	−154.917	−139.740	−99.697	17.359
	400.00	40.634	62.044	52.199	−135.766	3.938	−160.584	−141.577	−86.066	11.239
	500.00	44.503	71.527	55.137	−131.509	8.195	−167.273	−143.171	−71.998	7.522
	600.00	48.372	79.983	58.585	−126.865	12.839	−174.855	−144.511	−57.634	5.017
	700.00	52.241	87.730	62.202	−121.835	17.869	−183.246	−145.600	−43.065	3.214
	800.00	56.110	94.958	65.850	−116.417	23.287	−192.384	−146.445	−28.356	1.851
	900.00	59.979	101.790	69.467	−110.613	29.091	−202.224	−147.052	−13.556	0.787
	1000.00	63.848	108.310	73.027	−104.421	35.283	−212.731	−147.428	1.299	−0.068

References

Phase	H / S	C_p
SOL	Nb1	e

739.656 THORIUM TETRAIODIDE **ThI4**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[-]
SOL	298.15	126.658	255.199	255.199	-664.800	0.000	-740.888	-664.800	-655.715	114.878
	300.00	126.767	255.983	255.201	-664.566	0.234	-741.360	-664.818	-655.658	114.160
	400.00	131.042	293.098	260.233	-651.654	13.146	-768.893	-697.984	-651.331	85.055
	500.00	133.723	322.644	269.860	-638.408	26.392	-799.730	-784.054	-631.395	65.961
	600.00	135.773	347.212	280.762	-624.930	39.870	-833.257	-781.133	-601.136	52.334
	700.00	137.524	368.276	291.795	-611.263	53.537	-869.056	-778.174	-571.370	42.636
	800.00	139.115	386.744	302.533	-597.430	67.370	-906.826	-775.195	-542.030	35.391
	839.00	139.708	393.380	306.602	-591.993	72.807	-922.039	-774.030	-530.691	33.040
			57.349		48.116					
LIQ	839.00	175.728	450.729	306.602	-543.877	120.923	-922.039	-725.914	-530.691	33.040
	900.00	175.728	463.063	316.794	-533.158	131.642	-949.914	-721.920	-516.640	29.985
	1000.00	175.728	481.578	332.363	-515.585	149.215	-997.163	-715.486	-494.177	25.813
	1100.00	175.728	498.326	346.701	-498.012	166.788	-1046.171	-709.194	-472.352	22.430
	1200.00	175.728	513.617	359.983	-480.440	184.360	-1096.779	-703.042	-451.093	19.636

References

Phase	H / S	C_p
SOL	Nb1	Pa2
LIQ	Pa2	Pa2

ThI4[g] THORIUM TETRAIODIDE (GAS) 739.656

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	106.292	468.701	468.701	−460.700	0.000	−600.443	−460.700	−515.270	90.273
	300.00	106.303	469.358	468.703	−460.503	0.197	−601.311	−460.756	−515.608	89.775
	400.00	107.131	500.049	472.882	−449.833	10.867	−649.853	−496.163	−532.290	69.510
	500.00	107.855	524.037	480.800	−439.082	21.618	−701.100	−584.727	−532.765	55.658
	600.00	108.375	543.750	489.698	−428.269	32.431	−754.519	−584.472	−522.398	45.479
	700.00	108.750	560.485	498.645	−417.412	43.288	−809.751	−584.323	−512.066	38.211
	800.00	109.030	575.026	507.304	−406.522	54.178	−866.543	−584.287	−501.747	32.761
	900.00	109.246	587.881	515.556	−395.608	65.092	−924.701	−584.370	−491.426	28.522
	1000.00	109.419	599.400	523.375	−384.674	76.026	−984.075	−584.576	−481.089	25.129
	1100.00	109.562	609.836	530.768	−373.725	86.975	−1044.545	−584.907	−470.725	22.353
	1200.00	109.683	619.375	537.760	−362.763	97.937	−1106.012	−585.365	−460.326	20.037
	1300.00	109.789	628.158	544.380	−351.789	108.911	−1168.394	−585.952	−449.883	18.077
	1400.00	109.883	636.298	550.659	−340.805	119.895	−1231.622	−586.669	−439.390	16.394
	1500.00	109.968	643.882	556.624	−329.812	130.888	−1295.636	−587.516	−428.841	14.934
	1600.00	110.046	650.982	562.302	−318.812	141.888	−1360.382	−588.495	−418.232	13.654
	1700.00	110.118	657.655	567.716	−307.804	152.896	−1425.818	−592.421	−407.448	12.519
	1800.00	110.186	663.951	572.889	−296.788	163.912	−1491.901	−593.685	−396.531	11.507
	1900.00	110.250	669.911	577.840	−285.766	174.934	−1558.597	−594.953	−385.543	10.599
	2000.00	110.312	675.567	582.587	−274.738	185.962	−1625.873	−596.227	−374.489	9.781

References

Phase	H / S	C_p
GAS	Nb1	e

246.045 THORIUM MONONITRIDE **ThN**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	44.901	56.070	56.070	−391.200	0.000	−407.917	−391.200	−363.436	63.672
	300.00	44.985	56.348	56.071	−391.117	0.083	−408.021	−391.194	−363.263	63.250
	400.00	48.264	69.786	57.881	−386.438	4.762	−414.352	−390.775	−354.011	46.229
	500.00	50.293	80.787	61.395	−381.504	9.696	−421.898	−390.239	−344.881	36.029
	600.00	51.831	90.098	65.423	−376.395	14.805	−430.454	−389.677	−335.862	29.239
	700.00	53.136	98.188	69.538	−371.145	20.055	−439.877	−389.131	−326.936	24.396
	800.00	54.317	105.361	73.576	−365.772	25.428	−450.061	−388.621	−318.087	20.769
	900.00	55.426	111.823	77.472	−360.284	30.916	−460.925	−388.159	−309.298	17.951
	1000.00	56.491	117.718	81.207	−354.688	36.512	−472.407	−387.747	−300.558	15.700
	1100.00	57.526	123.151	84.776	−348.987	42.213	−484.453	−387.385	−291.857	13.859
	1200.00	58.542	128.200	88.187	−343.184	48.016	−497.024	−387.075	−283.187	12.327
	1300.00	59.543	132.926	91.448	−337.279	53.921	−510.083	−386.813	−274.541	11.031
	1400.00	60.534	137.375	94.571	−331.275	59.925	−523.600	−386.598	−265.913	9.921
	1500.00	61.518	141.585	97.566	−325.173	66.027	−537.550	−386.430	−257.299	8.960
	1600.00	62.496	145.586	100.444	−318.972	72.228	−551.910	−386.306	−248.694	8.119
	1700.00	63.470	149.404	103.212	−312.674	78.526	−566.661	−389.041	−239.987	7.374
	1800.00	64.440	153.060	105.881	−306.278	84.922	−581.785	−389.022	−231.220	6.710
	1900.00	65.407	156.570	108.457	−299.786	91.414	−597.268	−388.917	−222.455	6.116
	2000.00	66.372	159.949	110.947	−293.197	98.003	−613.095	−388.725	−213.699	5.581

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	Ra3	Ra3	MPT= 3080.

Th3N4 TRITHORIUM TETRANITRIDE 752.141

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[	J / (K mol)	]	[		kJ / mol		]	
SOL	298.15	147.254	200.999	200.999	−1315.002	0.000	−1374.930	−1315.002	−1212.921	212.499
	300.00	147.611	201.911	201.002	−1314.729	0.273	−1375.303	−1314.989	−1212.287	211.078
	400.00	161.062	246.442	206.982	−1299.218	15.784	−1397.795	−1313.715	−1178.220	153.860
	500.00	168.691	283.264	218.665	−1282.703	32.299	−1424.335	−1311.862	−1144.554	119.571
	600.00	174.027	314.514	232.101	−1265.554	49.448	−1454.263	−1309.847	−1111.281	96.746
	700.00	178.281	341.669	245.856	−1247.933	67.069	−1487.101	−1307.857	−1078.345	80.467
	800.00	181.959	365.720	259.364	−1229.917	85.085	−1522.493	−1305.988	−1045.687	68.276
	900.00	185.301	387.348	272.403	−1211.552	103.450	−1560.165	−1304.286	−1013.254	58.808
	1000.00	188.435	407.035	284.896	−1192.864	122.138	−1599.898	−1302.770	−981.000	51.242
	1100.00	191.433	425.136	296.834	−1173.870	141.132	−1641.519	−1301.444	−948.888	45.059
	1200.00	194.338	441.918	308.233	−1154.580	160.422	−1684.882	−1300.307	−916.889	39.911
	1300.00	197.178	457.586	319.126	−1135.004	179.998	−1729.865	−1299.356	−884.978	35.559
	1400.00	199.970	472.301	329.547	−1115.146	199.856	−1776.367	−1298.584	−853.133	31.831
	1500.00	202.728	486.191	339.531	−1095.011	219.991	−1824.298	−1297.985	−821.337	28.601
	1600.00	205.459	499.362	349.112	−1074.602	240.400	−1873.581	−1297.555	−789.575	25.777
	1700.00	208.169	511.900	358.322	−1053.920	261.082	−1924.150	−1305.736	−757.509	23.275
	1800.00	210.863	523.875	367.189	−1032.968	282.034	−1975.943	−1305.689	−725.261	21.047
	1900.00	213.544	535.347	375.740	−1011.748	303.254	−2028.908	−1305.415	−693.021	19.052
	2000.00	216.216	546.369	383.998	−990.260	324.742	−2082.997	−1304.911	−660.802	17.258

References

Phase	H / S	C_p
SOL	Nb1	Ra3

508.089 DITHORIUM DINITRIDE MONOXIDE **Th2N2O**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	104.792	124.265	124.265	−1347.001	0.000	−1384.051	−1347.001	−1264.505	221.536
	300.00	105.044	124.914	124.267	−1346.807	0.194	−1384.281	−1346.989	−1263.993	220.081
	400.00	114.566	156.595	128.522	−1335.772	11.229	−1398.410	−1345.959	−1236.465	161.466
	500.00	119.980	182.785	136.833	−1324.025	22.976	−1415.417	−1344.536	−1209.252	126.330
	600.00	123.778	205.012	146.390	−1311.828	35.173	−1434.835	−1343.013	−1182.338	102.932
	700.00	126.811	224.327	156.174	−1299.294	47.707	−1456.323	−1341.514	−1155.678	86.238
	800.00	129.438	241.435	165.783	−1286.479	60.522	−1479.627	−1340.096	−1129.228	73.731
	900.00	131.829	256.820	175.057	−1273.414	73.587	−1504.553	−1338.784	−1102.950	64.014
	1000.00	134.072	270.827	183.944	−1260.118	86.883	−1530.945	−1337.587	−1076.811	56.247
	1100.00	136.220	283.707	192.436	−1246.603	100.398	−1558.681	−1336.505	−1050.787	49.898
	1200.00	138.302	295.649	200.545	−1232.877	114.124	−1587.656	−1335.539	−1024.856	44.611
	1300.00	140.338	306.800	208.295	−1218.944	128.057	−1617.784	−1334.683	−999.002	40.140
	1400.00	142.340	317.273	215.709	−1204.810	142.191	−1648.993	−1333.935	−973.209	36.311
	1500.00	144.318	327.162	222.812	−1190.477	156.524	−1681.219	−1333.291	−947.466	32.994
	1600.00	146.277	336.538	229.630	−1175.947	171.054	−1714.408	−1332.747	−921.762	30.092
	1700.00	148.222	345.465	236.183	−1161.222	185.779	−1748.512	−1337.935	−895.872	27.527
	1800.00	150.155	353.992	242.493	−1146.303	200.698	−1783.488	−1337.627	−869.877	25.243
	1900.00	152.079	362.162	248.578	−1131.191	215.810	−1819.298	−1337.160	−843.902	23.200
	2000.00	153.996	370.011	254.454	−1115.887	231.114	−1855.910	−1336.531	−817.957	21.363

References

Phase	H / S	C_p
SOL	Nb1/Ra3	Ra3

ThO[g] THORIUM MONOXIDE (GAS) 038

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	31.266	240.062	240.062	−25.104	0.000	−96.678	−25.104	−50.179	8.791
	300.00	31.296	240.255	240.062	−25.046	0.058	−97.123	−25.124	−50.334	8.764
	400.00	32.923	249.487	241.310	−21.833	3.271	−121.628	−26.197	−58.576	7.649
	500.00	34.109	256.970	243.717	−18.478	6.626	−146.963	−27.299	−66.544	6.952
	600.00	34.921	263.264	246.464	−15.024	10.080	−172.983	−28.480	−74.283	6.467
	700.00	35.532	268.695	249.261	−11.500	13.604	−199.587	−29.766	−81.817	6.105
	800.00	36.052	273.474	251.995	−7.920	17.184	−226.700	−31.165	−89.159	5.821
	900.00	36.544	277.749	254.623	−4.291	20.813	−254.265	−32.674	−96.319	5.590
	1000.00	37.041	281.625	257.132	−0.611	24.493	−282.236	−34.290	−103.305	5.396
	1100.00	37.560	285.179	259.523	3.118	28.222	−310.579	−36.006	−110.124	5.229
	1200.00	38.109	288.471	261.800	6.902	32.006	−339.264	−37.815	−116.783	5.083
	1300.00	38.690	291.544	263.971	10.741	35.845	−368.266	−39.713	−123.287	4.954
	1400.00	39.300	294.433	266.044	14.640	39.744	−397.566	−41.693	−129.642	4.837
	1500.00	39.937	297.166	268.029	18.602	43.706	−427.147	−43.752	−135.853	4.731
	1600.00	40.593	299.765	269.932	22.629	47.733	−456.995	−45.886	−141.924	4.633
	1700.00	41.263	302.246	271.760	26.721	51.825	−487.097	−50.910	−147.750	4.540
	1800.00	41.937	304.623	273.520	30.881	55.985	−517.441	−53.210	−153.380	4.451
	1900.00	42.609	306.909	275.218	35.109	60.213	−548.018	−55.455	−158.883	4.368
	2000.00	43.270	309.111	276.858	39.403	64.507	−578.820	−57.644	−164.270	4.290
	2100.00	43.910	311.238	278.445	43.762	68.866	−609.838	−75.901	−168.976	4.203
	2200.00	44.521	313.295	279.982	48.184	73.288	−641.065	−77.986	−173.359	4.116
	2300.00	45.094	315.287	281.474	52.665	77.769	−672.495	−80.023	−177.649	4.035
	2400.00	45.619	317.217	282.923	57.201	82.305	−704.120	−82.015	−181.850	3.958
	2500.00	46.086	319.089	284.333	61.787	86.891	−735.936	−83.969	−185.970	3.886

References

Phase	H / S	C_p
GAS	Nb1	Pa1

264.037 THORIUM DIOXIDE **ThO2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	61.798	65.229	65.229	−1226.414	0.000	−1245.862	−1226.414	−1168.780	204.765
	300.00	61.957	65.611	65.230	−1226.300	0.114	−1245.983	−1226.404	−1168.422	203.440
	400.00	67.825	84.344	67.744	−1219.774	6.640	−1253.512	−1225.651	−1149.198	150.070
	500.00	70.947	99.844	72.660	−1212.822	13.592	−1262.744	−1224.686	−1130.194	118.071
	600.00	72.989	112.970	78.313	−1205.619	20.795	−1273.402	−1223.698	−1111.389	96.755
	700.00	74.520	124.341	84.094	−1198.241	28.173	−1285.280	−1222.756	−1092.747	81.542
	800.00	75.780	134.376	89.764	−1190.724	35.690	−1298.225	−1221.886	−1074.234	70.140
	900.00	76.881	143.367	95.229	−1183.090	43.324	−1312.120	−1221.094	−1055.826	61.279
	1000.00	77.884	151.519	100.457	−1175.351	51.063	−1326.871	−1220.381	−1037.502	54.194
	1100.00	78.823	158.987	105.443	−1167.516	58.898	−1342.401	−1219.746	−1019.245	48.400
	1200.00	79.718	165.884	110.196	−1159.588	66.826	−1358.649	−1219.186	−1001.043	43.574
	1300.00	80.583	172.299	114.729	−1151.573	74.841	−1375.562	−1218.699	−982.885	39.493
	1400.00	81.425	178.302	119.058	−1143.473	82.941	−1393.095	−1218.285	−964.761	35.996
	1500.00	82.250	183.948	123.198	−1135.289	91.125	−1411.211	−1217.942	−946.665	32.966
	1600.00	83.063	189.282	127.163	−1127.023	99.391	−1429.875	−1217.670	−928.589	30.315
	1700.00	83.867	194.342	130.967	−1118.676	107.738	−1449.058	−1220.286	−910.419	27.974
	1800.00	84.663	199.158	134.623	−1110.250	116.164	−1468.735	−1220.178	−892.194	25.891
	1900.00	85.452	203.757	138.141	−1101.744	124.670	−1488.882	−1220.014	−873.977	24.027
	2000.00	86.237	208.160	141.533	−1093.160	133.254	−1509.480	−1219.794	−855.770	22.350
	2100.00	87.018	212.387	144.807	−1084.497	141.917	−1530.509	−1235.641	−837.003	20.819
	2200.00	87.796	216.453	147.972	−1075.756	150.658	−1551.952	−1235.310	−818.028	19.422
	2300.00	88.571	220.372	151.035	−1066.938	159.476	−1573.794	−1234.925	−799.069	18.147
	2400.00	89.343	224.158	154.003	−1058.042	168.372	−1596.022	−1234.485	−780.128	16.979
	2500.00	90.114	227.821	156.883	−1049.069	177.345	−1618.622	−1233.989	−761.206	15.905

References

Phase	H / S	C_p	Remarks	
SOL	Co1,Ra3	Pa1	Ra3	MPT= 3643.

ThO2[g] THORIUM DIOXIDE (GAS) 264.037

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	47.354	287.601	287.601	-497.896	0.000	-583.644	-497.896	-506.562	88.748
	300.00	47.421	287.894	287.601	-497.808	0.088	-584.176	-497.913	-506.616	88.210
	400.00	50.655	302.004	289.503	-492.896	5.000	-613.697	-498.773	-509.383	66.519
	500.00	52.816	313.557	293.193	-487.714	10.182	-644.493	-499.578	-511.943	53.482
	600.00	54.213	323.319	297.422	-482.358	15.538	-676.349	-500.436	-514.337	44.777
	700.00	55.147	331.750	301.738	-476.887	21.009	-709.112	-501.402	-516.579	38.548
	800.00	55.796	339.159	305.962	-471.338	26.558	-742.665	-502.500	-518.674	33.866
	900.00	56.263	345.759	310.024	-465.734	32.162	-776.917	-503.738	-520.623	30.216
	1000.00	56.609	351.706	313.899	-460.089	37.807	-811.795	-505.119	-522.426	27.289
	1100.00	56.872	357.114	317.586	-454.415	43.481	-847.241	-506.645	-524.084	24.887
	1200.00	57.076	362.072	321.089	-448.717	49.179	-883.203	-508.315	-525.597	22.879
	1300.00	57.237	366.647	324.420	-443.001	54.895	-919.642	-510.127	-526.965	21.174
	1400.00	57.367	370.894	327.590	-437.271	60.625	-956.522	-512.083	-528.187	19.707
	1500.00	57.472	374.855	330.610	-431.529	66.367	-993.811	-514.182	-529.265	18.431
	1600.00	57.559	378.567	333.493	-425.777	72.119	-1031.484	-516.424	-530.199	17.309
	1700.00	57.631	382.059	336.248	-420.017	77.879	-1069.517	-521.627	-530.878	16.312
	1800.00	57.692	385.355	338.885	-414.251	83.645	-1107.890	-524.179	-531.349	15.419
	1900.00	57.743	388.476	341.414	-408.479	89.417	-1146.583	-526.749	-531.677	14.617
	2000.00	57.787	391.439	343.842	-402.703	95.193	-1185.580	-529.337	-531.870	13.891
	2100.00	57.825	394.259	346.176	-396.922	100.974	-1224.866	-548.066	-531.360	13.217
	2200.00	57.857	396.950	348.423	-391.138	106.758	-1264.427	-550.692	-530.503	12.596
	2300.00	57.885	399.522	350.589	-385.351	112.545	-1304.252	-553.338	-529.526	12.026
	2400.00	57.909	401.986	352.680	-379.561	118.335	-1344.328	-556.004	-528.434	11.501
	2500.00	57.931	404.351	354.700	-373.769	124.127	-1384.645	-558.689	-527.230	11.016
	2600.00	57.949	406.623	356.653	-367.975	129.921	-1425.195	-561.393	-525.918	10.566
	2700.00	57.966	408.810	358.545	-362.179	135.717	-1465.967	-564.117	-524.502	10.147
	2800.00	57.980	410.919	360.378	-356.382	141.514	-1506.954	-566.860	-522.985	9.756
	2900.00	57.993	412.954	362.156	-350.583	147.313	-1548.149	-569.622	-521.369	9.391
	3000.00	58.004	414.920	363.882	-344.783	153.113	-1589.543	-572.401	-519.658	9.048
	3100.00	58.014	416.822	365.559	-338.982	158.914	-1631.130	-575.198	-517.854	8.726
	3200.00	58.023	418.664	367.190	-333.180	164.716	-1672.905	-578.012	-515.959	8.422
	3300.00	58.031	420.450	368.777	-327.378	170.518	-1714.861	-580.843	-513.976	8.136
	3400.00	58.037	422.182	370.323	-321.574	176.322	-1756.993	-583.690	-511.908	7.865
	3500.00	58.043	423.864	371.829	-315.770	182.126	-1799.296	-586.552	-509.755	7.608
	3600.00	58.049	425.500	373.297	-309.966	187.930	-1841.765	-589.429	-507.520	7.364
	3700.00	58.054	427.090	374.729	-304.161	193.735	-1884.395	-592.321	-505.205	7.132
	3800.00	58.058	428.638	376.128	-298.355	199.541	-1927.181	-595.226	-502.811	6.912
	3900.00	58.061	430.147	377.494	-292.549	205.347	-1970.121	-598.145	-500.341	6.701
	4000.00	58.064	431.617	378.828	-286.743	211.153	-2013.209	-601.076	-497.796	6.501

References

Phase	H / S	C_p
GAS	Nb1	Pa1

407.845

THORIUM DIBROMIDE OXIDE — ThOBr2

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	93.460	130.959	130.959	-1187.398	0.000	-1226.443	-1187.398	-1134.562	198.771
	300.00	93.588	131.538	130.961	-1187.225	0.173	-1226.686	-1187.443	-1134.234	197.488
	400.00	98.536	159.216	134.701	-1177.592	9.806	-1241.278	-1216.578	-1110.410	145.005
	500.00	101.482	181.542	141.909	-1167.582	19.816	-1258.352	-1214.717	-1084.081	113.253
	600.00	103.639	200.242	150.114	-1157.321	30.077	-1277.467	-1212.810	-1058.132	92.119
	700.00	105.425	216.356	158.453	-1146.866	40.532	-1298.315	-1210.900	-1032.504	77.046
	800.00	107.012	230.539	166.595	-1136.243	51.155	-1320.674	-1209.003	-1007.149	65.760
	900.00	108.483	243.229	174.417	-1125.467	61.931	-1344.373	-1207.124	-982.030	56.996
	1000.00	109.883	254.731	181.882	-1114.549	72.849	-1369.280	-1205.266	-957.119	49.995
	1100.00	111.236	265.268	188.990	-1103.492	83.906	-1395.287	-1203.428	-932.394	44.276
	1200.00	112.558	275.004	195.757	-1092.302	95.096	-1422.307	-1201.610	-907.835	39.517
	1300.00	113.856	284.065	202.206	-1080.982	106.416	-1450.266	-1199.812	-883.426	35.497
	1400.00	115.139	292.549	208.359	-1069.532	117.866	-1479.101	-1198.033	-859.156	32.055
	1500.00	116.409	300.536	214.241	-1057.954	129.444	-1508.759	-1196.273	-835.012	29.078

References

Phase	H / S	C_p
SOL	Nb1/Ra3	Ra3

318.943

THORIUM DICHLORIDE OXIDE — ThOCl2

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	91.265	123.399	123.399	-1232.201	0.000	-1268.992	-1232.201	-1155.970	202.521
	300.00	91.414	123.964	123.400	-1232.032	0.169	-1269.221	-1232.173	-1155.497	201.190
	400.00	97.030	151.124	127.065	-1222.578	9.623	-1283.027	-1230.472	-1130.188	147.587
	500.00	100.232	173.145	134.149	-1212.703	19.498	-1299.276	-1228.625	-1105.329	115.473
	600.00	102.483	191.628	142.230	-1202.562	29.639	-1317.539	-1226.755	-1080.846	94.096
	700.00	104.286	207.565	150.451	-1192.221	39.980	-1337.517	-1224.900	-1056.675	78.850
	800.00	105.850	221.595	158.484	-1181.713	50.488	-1358.989	-1223.075	-1032.768	67.433
	900.00	107.274	234.145	166.206	-1171.056	61.145	-1381.786	-1221.283	-1009.087	58.566
	1000.00	108.612	245.518	173.577	-1160.261	71.940	-1405.778	-1219.524	-985.604	51.483
	1100.00	109.894	255.930	180.597	-1149.335	82.866	-1430.858	-1217.798	-962.296	45.696

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	K3	K3	DEC. 2ThOCl2 = ThO2+ThCl4

ThOF2 THORIUM DIFLUORIDE OXIDE 286.034

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	86.252	104.600	104.600	-1665.199	0.000	-1696.385	-1665.199	-1589.422	278.460
	300.00	86.399	105.134	104.602	-1665.039	0.160	-1696.579	-1665.175	-1588.952	276.661
	400.00	92.157	130.862	108.070	-1656.082	9.117	-1708.427	-1663.718	-1563.757	204.206
	500.00	95.730	151.833	114.791	-1646.678	18.521	-1722.594	-1662.134	-1538.950	160.773
	600.00	98.443	169.535	122.477	-1636.964	28.235	-1738.685	-1660.529	-1514.463	131.846
	700.00	100.750	184.887	130.320	-1627.002	38.197	-1756.423	-1658.926	-1490.246	111.204
	800.00	102.841	198.479	138.007	-1616.821	48.378	-1775.604	-1657.330	-1466.258	95.737
	900.00	104.805	210.706	145.416	-1606.438	58.761	-1796.074	-1655.734	-1442.470	83.719
	1000.00	106.692	221.846	152.510	-1595.863	69.336	-1817.709	-1654.133	-1418.859	74.114
	1100.00	108.528	232.102	159.286	-1585.102	80.097	-1840.414	-1652.524	-1395.410	66.262
	1200.00	110.328	241.622	165.755	-1574.159	91.040	-1864.105	-1650.902	-1372.107	59.726
	1300.00	112.105	250.523	171.937	-1563.037	102.162	-1888.717	-1649.264	-1348.941	54.201
	1400.00	113.863	258.896	177.852	-1551.738	113.461	-1914.192	-1647.608	-1325.901	49.470
	1500.00	115.609	266.811	183.522	-1540.265	124.934	-1940.481	-1645.931	-1302.980	45.374

References

Phase	H / S	C_p
SOL	Nb1	Ra3

ThOI2 THORIUM DIIODIDE OXIDE 501.846

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	94.194	159.000	159.000	-1000.800	0.000	-1048.206	-1000.800	-967.078	169.428
	300.00	94.320	159.583	159.002	-1000.626	0.174	-1048.501	-1000.804	-966.869	168.347
	400.00	99.164	187.458	162.770	-990.925	9.875	-1065.908	-1017.028	-954.970	124.706
	500.00	102.005	209.912	170.026	-980.857	19.943	-1085.813	-1059.611	-935.370	97.717
	600.00	104.058	228.699	178.282	-970.549	30.251	-1107.769	-1057.690	-910.702	79.284
	700.00	105.739	244.869	186.666	-960.057	40.743	-1131.466	-1055.771	-886.356	66.141
	800.00	107.221	259.087	194.847	-949.408	51.392	-1156.678	-1053.871	-862.284	56.301
	900.00	108.588	271.796	202.704	-938.617	62.183	-1183.233	-1052.000	-838.449	48.662
	1000.00	109.883	283.304	210.197	-927.693	73.107	-1210.997	-1050.159	-814.820	42.562
	1100.00	111.132	293.836	217.329	-916.642	84.158	-1239.862	-1048.348	-791.374	37.579
	1200.00	112.348	303.558	224.115	-905.468	95.332	-1269.738	-1046.568	-768.091	33.434
	1300.00	113.543	312.598	230.577	-894.173	106.627	-1300.551	-1044.818	-744.956	29.933
	1400.00	114.721	321.056	236.741	-882.760	118.040	-1332.238	-1043.098	-721.954	26.936
	1500.00	115.886	329.010	242.630	-871.229	129.571	-1364.745	-1041.408	-699.075	24.344

References

Phase	H / S	C_p
SOL	Nb1	Ra3

263.012 THORIUM MONOPHOSPHIDE **ThP**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	46.025	71.099	71.099	-348.100	0.000	-369.298	-348.100	-341.135	59.766
	300.00	46.154	71.384	71.100	-348.015	0.085	-369.430	-348.109	-341.092	59.389
	400.00	50.888	85.396	72.978	-343.133	4.967	-377.291	-349.280	-338.501	44.204
	500.00	53.371	97.042	76.660	-337.909	10.191	-386.430	-349.616	-335.765	35.077
	600.00	54.968	106.923	80.902	-332.487	15.613	-396.641	-349.882	-332.969	28.988
	700.00	56.148	115.489	85.244	-326.929	21.171	-407.771	-350.139	-330.130	24.635
	800.00	57.104	123.050	89.507	-321.265	26.835	-419.705	-350.417	-327.253	21.367
	900.00	57.930	129.825	93.617	-315.512	32.588	-432.355	-350.734	-324.338	18.824
	1000.00	58.676	135.968	97.549	-309.682	38.418	-445.649	-351.100	-321.386	16.788
	1100.00	59.370	141.593	101.301	-303.779	44.321	-459.531	-351.521	-318.395	15.119
	1200.00	60.028	146.787	104.878	-297.809	50.291	-473.954	-415.573	-314.274	13.680
	1300.00	60.660	151.617	108.290	-291.774	56.326	-488.877	-415.342	-305.842	12.289
	1400.00	61.274	156.135	111.548	-285.677	62.423	-504.267	-415.180	-297.425	11.097
	1500.00	61.875	160.383	114.663	-279.520	68.580	-520.095	-415.089	-289.018	10.064
	1600.00	62.465	164.395	117.647	-273.303	74.797	-536.335	-415.070	-280.614	9.161
	1700.00	63.048	168.200	120.510	-267.027	81.073	-552.967	-417.938	-272.101	8.361
	1800.00	63.624	171.820	123.261	-260.693	87.407	-569.969	-418.083	-263.518	7.647
	1900.00	64.195	175.275	125.908	-254.303	93.797	-587.325	-418.174	-254.928	7.008
	2000.00	64.762	178.582	128.460	-247.855	100.245	-605.019	-418.210	-246.335	6.434
	2100.00	65.326	181.756	130.923	-241.350	106.750	-623.037	-434.312	-237.169	5.899
	2200.00	65.887	184.808	133.303	-234.790	113.310	-641.366	-434.239	-227.783	5.408
	2300.00	66.446	187.749	135.607	-228.173	119.927	-659.995	-434.113	-218.401	4.960
	2400.00	67.004	190.589	137.839	-221.500	126.600	-678.913	-433.932	-209.026	4.549
	2500.00	67.559	193.335	140.004	-214.772	133.328	-698.110	-433.697	-199.659	4.172
	2600.00	68.114	195.996	142.107	-207.989	140.111	-717.577	-433.408	-190.303	3.823
	2700.00	68.667	198.577	144.150	-201.150	146.950	-737.306	-433.066	-180.959	3.501
	2800.00	69.219	201.084	146.139	-194.255	153.845	-757.290	-432.670	-171.629	3.202
	2900.00	69.770	203.522	148.076	-187.306	160.794	-777.521	-432.220	-162.314	2.924
	3000.00	70.321	205.897	149.964	-180.301	167.799	-797.992	-431.717	-153.016	2.664
	3100.00	70.871	208.212	151.806	-173.242	174.858	-818.698	-431.160	-143.735	2.422
	3200.00	71.420	210.471	153.604	-166.127	181.973	-839.633	-430.549	-134.472	2.195
	3223.00	71.547	210.982	154.012	-164.483	183.617	-844.479	-430.401	-132.345	2.145

References

Phase	H / S	C_p	Remarks	
SOL	Nb1,Ra3	e	Ra3	MPT 3223.

Th3P4 TRITHORIUM TETRAPHOSPHIDE 820.009

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	163.148	221.999	221.999	-1142.002	0.000	-1208.191	-1142.002	-1111.458	194.723
	300.00	163.575	223.009	222.002	-1141.700	0.302	-1208.603	-1142.028	-1111.269	193.489
	400.00	179.090	272.481	228.642	-1124.466	17.536	-1233.459	-1146.203	-1100.088	143.657
	500.00	187.067	313.381	241.622	-1106.122	35.880	-1262.813	-1147.173	-1088.439	113.708
	600.00	192.076	347.960	256.538	-1087.149	54.853	-1295.925	-1147.896	-1076.622	93.728
	700.00	195.685	377.852	271.782	-1067.753	74.249	-1332.249	-1148.577	-1064.689	79.448
	800.00	198.547	404.175	286.718	-1048.037	93.965	-1371.377	-1149.320	-1052.656	68.731
	900.00	200.975	427.704	301.099	-1028.058	113.944	-1412.991	-1150.181	-1040.523	60.390
	1000.00	203.133	448.992	314.841	-1007.851	134.151	-1456.843	-1151.196	-1028.285	53.712
	1100.00	205.115	468.447	327.934	-987.437	154.565	-1502.729	-1152.387	-1015.938	48.243
	1200.00	206.978	486.375	340.400	-966.832	175.170	-1550.482	-1408.051	-999.117	43.490
	1300.00	208.755	503.013	352.276	-946.044	195.958	-1599.961	-1406.531	-965.102	38.778
	1400.00	210.472	518.546	363.604	-925.083	216.919	-1651.047	-1405.239	-931.196	34.743
	1500.00	212.143	533.125	374.424	-903.952	238.050	-1703.638	-1404.174	-897.375	31.249
	1600.00	213.779	546.868	384.777	-882.655	259.347	-1757.645	-1403.341	-863.616	28.194
	1700.00	215.389	559.877	394.697	-861.197	280.805	-1812.988	-1411.188	-829.577	25.490
	1800.00	216.978	572.233	404.220	-839.578	302.424	-1869.598	-1410.882	-795.373	23.081
	1900.00	218.551	584.007	413.375	-817.801	324.201	-1927.415	-1410.429	-761.189	20.927
	2000.00	220.110	595.257	422.190	-795.868	346.134	-1986.382	-1409.829	-727.034	18.988
	2100.00	221.658	606.034	430.690	-773.780	368.222	-2046.451	-1457.444	-691.195	17.193
	2200.00	223.197	616.381	438.897	-751.537	390.465	-2107.575	-1456.551	-654.727	15.545
	2300.00	224.729	626.336	446.831	-729.141	412.861	-2169.714	-1455.512	-618.303	14.042
	2400.00	226.255	635.933	454.512	-706.591	435.411	-2232.830	-1454.327	-581.928	12.665
	2500.00	227.775	645.200	461.955	-683.890	458.112	-2296.889	-1452.997	-545.605	11.400
	2600.00	229.291	654.163	469.176	-661.036	480.966	-2361.860	-1451.521	-509.338	10.233
	2700.00	230.803	662.845	476.189	-638.032	503.970	-2427.712	-1449.901	-473.130	9.153
	2800.00	232.312	671.266	483.006	-614.876	527.126	-2494.420	-1448.135	-436.985	8.152
	2900.00	233.818	679.444	489.640	-591.569	550.433	-2561.957	-1446.225	-400.906	7.221
	3000.00	235.322	687.396	496.100	-568.112	573.890	-2630.301	-1444.170	-364.895	6.353
	3100.00	236.824	695.137	502.396	-544.505	597.497	-2699.430	-1441.971	-328.955	5.543
	3200.00	238.323	702.680	508.538	-520.748	621.254	-2769.322	-1439.627	-293.088	4.784
	3300.00	239.821	710.036	514.533	-496.840	645.162	-2839.959	-1437.138	-257.297	4.073
	3400.00	241.318	717.218	520.389	-472.783	669.219	-2911.323	-1434.505	-221.584	3.404
	3500.00	242.813	724.234	526.113	-448.577	693.425	-2983.397	-1431.728	-185.949	2.775

References

Phase	H / S	C_p
SOL	Nb1	e

604.452 THORIUM 2–RHENIUM **ThRe2**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	77.984	123.637	123.637	–174.054	0.000	–210.916	–174.054	–173.218	30.347
	300.00	78.027	124.120	123.639	–173.910	0.144	–211.146	–174.054	–173.213	30.159
	400.00	80.383	146.889	126.727	–165.989	8.065	–224.745	–174.054	–172.933	22.583
	500.00	82.739	165.079	132.638	–157.833	16.221	–240.373	–174.054	–172.653	18.037
	600.00	85.094	180.373	139.352	–149.441	24.613	–257.665	–174.054	–172.372	15.006
	700.00	87.450	193.667	146.182	–140.814	33.240	–276.381	–174.056	–172.092	12.842
	800.00	89.805	205.498	152.870	–131.951	42.103	–296.350	–174.058	–171.811	11.218
	900.00	92.161	216.212	159.322	–122.853	51.201	–317.444	–174.060	–171.530	9.955
	1000.00	94.517	226.044	165.509	–113.519	60.535	–339.563	–174.063	–171.249	8.945
	1100.00	96.872	235.162	171.431	–103.950	70.104	–362.629	–174.067	–170.968	8.119
	1200.00	99.228	243.692	177.101	–94.145	79.909	–386.576	–174.071	–170.686	7.430
	1300.00	101.583	251.728	182.536	–84.104	89.950	–411.351	–174.076	–170.403	6.847
	1400.00	103.939	259.342	187.752	–73.828	100.226	–436.907	–174.081	–170.121	6.347
	1500.00	106.295	266.594	192.769	–63.317	110.737	–463.207	–174.087	–169.838	5.914

References

Phase	H / S	C_p
SOL	Ku1	e

264.104 THORIUM MONOSULFIDE **ThS**

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	47.719	69.789	69.789	–395.401	0.000	–416.209	–395.401	–390.734	68.455
	300.00	47.778	70.084	69.790	–395.313	0.088	–416.338	–395.405	–390.705	68.028
	400.00	50.067	84.179	71.696	–390.408	4.993	–424.079	–397.883	–389.011	50.800
	500.00	51.420	95.506	75.363	–385.329	10.072	–433.082	–399.634	–386.614	40.389
	600.00	52.404	104.972	79.530	–380.136	15.265	–443.119	–401.072	–383.867	33.419
	700.00	53.215	113.113	83.760	–374.854	20.547	–454.033	–402.282	–380.903	28.423
	800.00	53.932	120.266	87.885	–369.496	25.905	–465.709	–403.593	–377.762	24.665
	900.00	54.596	126.657	91.844	–364.069	31.332	–478.061	–457.810	–373.295	21.665
	1000.00	55.226	132.442	95.619	–358.578	36.823	–491.020	–457.718	–363.910	19.009
	1100.00	55.834	137.734	99.211	–353.025	42.376	–504.533	–457.698	–354.531	16.835
	1200.00	56.427	142.618	102.627	–347.412	47.989	–518.553	–457.751	–345.150	15.024
	1300.00	57.010	147.158	105.880	–341.740	53.661	–533.045	–457.879	–335.762	13.491
	1400.00	57.586	151.404	108.981	–336.010	59.391	–547.975	–458.081	–326.361	12.177
	1500.00	58.155	155.396	111.944	–330.223	65.178	–563.317	–458.358	–316.943	11.037
	1600.00	58.720	159.168	114.779	–324.379	71.022	–579.047	–458.709	–307.505	10.039
	1700.00	59.282	162.744	117.496	–318.479	76.922	–595.144	–461.952	–297.933	9.154
	1800.00	59.842	166.149	120.105	–312.523	82.878	–611.590	–462.475	–288.270	8.365
	1900.00	60.399	169.399	122.615	–306.510	88.891	–628.369	–462.946	–278.578	7.659
	2000.00	60.955	172.511	125.032	–300.443	94.958	–645.465	–463.365	–268.864	7.022

References

Phase	H / S	C_p	Remarks
SOL	Nb1/Ra3	Ra3	Ra3 MPT= 2600. (approx.)

ThS2 THORIUM DISULFIDE 296.170

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	74.667	96.232	96.232	-626.002	0.000	-654.694	-626.002	-619.661	108.562
	300.00	74.684	96.694	96.233	-625.864	0.138	-654.872	-625.999	-619.622	107.886
	400.00	75.647	118.311	99.174	-618.347	7.655	-665.672	-630.445	-617.326	80.615
	500.00	76.609	135.295	104.760	-610.735	15.267	-678.382	-633.565	-613.732	64.116
	600.00	77.571	149.347	111.053	-603.025	22.977	-692.634	-636.063	-609.515	53.063
	700.00	78.534	161.377	117.403	-595.220	30.782	-708.184	-638.059	-604.930	45.140
	800.00	79.496	171.927	123.572	-587.319	38.683	-724.860	-640.187	-600.057	39.180
	900.00	80.458	181.345	129.478	-579.321	46.681	-742.532	-748.039	-592.598	34.393
	1000.00	81.421	189.872	135.097	-571.227	54.775	-761.099	-747.179	-575.373	30.054
	1100.00	82.383	197.678	140.437	-563.037	62.965	-780.482	-746.365	-558.232	26.508
	1200.00	83.345	204.887	145.511	-554.750	71.252	-800.615	-745.594	-541.164	23.556
	1300.00	84.308	211.596	150.339	-546.368	79.634	-821.443	-744.864	-524.158	21.061
	1400.00	85.270	217.879	154.942	-537.889	88.113	-842.920	-744.176	-507.207	18.924
	1500.00	86.232	223.795	159.337	-529.314	96.688	-865.007	-743.529	-490.303	17.074
	1600.00	87.195	229.391	163.542	-520.643	105.359	-887.669	-742.921	-473.441	15.456
	1700.00	88.157	234.706	167.573	-511.875	114.127	-910.876	-745.169	-456.508	14.027
	1800.00	89.119	239.772	171.444	-503.011	122.991	-934.602	-744.661	-439.542	12.755
	1900.00	90.082	244.617	175.169	-494.051	131.951	-958.823	-744.065	-422.607	11.618
	2000.00	91.044	249.262	178.758	-484.995	141.007	-983.518	-743.380	-405.705	10.596
	2100.00	92.006	253.727	182.222	-475.842	150.160	-1008.669	-758.727	-388.268	9.658
	2188.00	92.853	257.521	185.175	-467.709	158.293	-1031.165	-757.973	-372.759	8.899

References

Phase	H / S	C_p	Remarks	
SOL	Nb1,Ra3	e	Ra3	MPT= 2188.

560.274 DITHORIUM TRISULFIDE **Th2S3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	122.218	180.000	180.000	−1083.999	0.000	−1137.666	−1083.999	−1077.158	188.714
	300.00	122.298	180.756	180.002	−1083.773	0.226	−1138.000	−1084.000	−1077.116	187.543
	400.00	125.635	216.434	184.844	−1071.363	12.636	−1157.937	−1090.936	−1074.523	140.318
	500.00	127.989	244.732	194.088	−1058.677	25.322	−1181.043	−1095.813	−1069.925	111.774
	600.00	129.955	268.245	204.543	−1045.778	38.221	−1206.725	−1099.751	−1064.353	92.660
	700.00	131.739	288.413	215.117	−1032.692	51.307	−1234.581	−1102.959	−1058.198	78.964
	800.00	133.425	306.115	225.408	−1019.433	64.566	−1264.325	−1106.399	−1051.575	68.661
	900.00	135.055	321.925	235.269	−1006.009	77.990	−1295.741	−1268.468	−1041.042	60.420
	1000.00	136.649	336.237	244.662	−992.424	91.575	−1328.661	−1267.515	−1015.824	53.061
	1100.00	138.221	349.335	253.590	−978.680	105.319	−1362.948	−1266.681	−990.696	47.044
	1200.00	139.777	361.429	262.079	−964.780	119.219	−1398.494	−1265.963	−965.640	42.033
	1300.00	141.322	372.678	270.159	−950.725	133.274	−1435.206	−1265.361	−940.638	37.795
	1400.00	142.859	383.207	277.862	−936.516	147.483	−1473.006	−1264.874	−915.678	34.164
	1500.00	144.390	393.116	285.218	−922.153	161.846	−1511.827	−1264.503	−890.749	31.019
	1600.00	145.916	402.483	292.257	−907.638	176.361	−1551.611	−1264.247	−865.841	28.267
	1700.00	147.439	411.375	299.005	−892.970	191.029	−1592.307	−1269.737	−840.728	25.832
	1800.00	148.960	419.845	305.485	−878.150	205.849	−1633.872	−1269.752	−815.491	23.665
	1900.00	150.478	427.940	311.718	−863.178	220.821	−1676.264	−1269.627	−790.258	21.726
	2000.00	151.994	435.697	317.725	−848.055	235.944	−1719.448	−1269.362	−765.034	19.981
	2100.00	153.509	443.149	323.521	−832.779	251.220	−1763.393	−1301.198	−738.682	18.374
	2200.00	155.023	450.326	329.123	−817.353	266.646	−1808.069	−1300.653	−711.908	16.903
	2270.00	156.082	455.198	332.936	−806.464	277.535	−1839.763	−1300.188	−693.182	15.951

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	e	Ra3	MPT 2230.

424.165 THORIUM DISULFATE **Th(SO4)2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	173.460	159.000	159.000	−2542.600	0.000	−2590.006	−2542.600	−2310.315	404.758
	300.00	173.887	160.075	159.004	−2542.279	0.321	−2590.301	−2542.631	−2308.874	402.011
	400.00	196.983	213.262	166.100	−2523.735	18.865	−2609.040	−2547.935	−2230.602	291.287
	500.00	220.078	259.698	180.263	−2502.882	39.718	−2632.731	−2550.050	−2151.034	224.717
	600.00	243.174	301.865	197.064	−2479.720	62.880	−2660.838	−2549.733	−2071.214	180.315
	700.00	266.270	341.085	214.867	−2454.247	88.353	−2693.007	−2547.081	−1991.643	148.618
	800.00	289.365	378.148	232.980	−2426.466	116.134	−2728.984	−2542.676	−1912.577	124.878
	900.00	312.461	413.564	251.091	−2396.374	146.226	−2768.582	−2642.056	−1831.860	106.318
	1000.00	335.557	447.680	269.053	−2363.973	178.627	−2811.653	−2630.737	−1742.427	91.015
	1100.00	358.652	480.745	286.802	−2329.263	213.337	−2858.083	−2617.439	−1654.223	78.553

References

Phase	H / S	C_p
SOL	Nb1	Ra3

Ti TITANIUM 47.880

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol	]		[−]
SOL−A	298.15	25.051	30.759	30.759	0.000	0.000	−9.171	0.000	0.000	0.000
	300.00	25.088	30.914	30.759	0.046	0.046	−9.228	0.000	0.000	0.000
	400.00	26.535	38.352	31.764	2.635	2.635	−12.706	0.000	0.000	0.000
	500.00	27.438	44.374	33.703	5.336	5.336	−16.851	0.000	0.000	0.000
	600.00	28.270	49.450	35.915	8.121	8.121	−21.549	0.000	0.000	0.000
	700.00	29.197	53.876	38.171	10.993	10.993	−26.720	0.000	0.000	0.000
	800.00	30.244	57.841	40.386	13.964	13.964	−32.309	0.000	0.000	0.000
	900.00	31.372	61.468	42.530	17.045	17.045	−38.277	0.000	0.000	0.000
	1000.00	32.512	64.833	44.594	20.239	20.239	−44.594	0.000	0.000	0.000
	1100.00	33.578	67.983	46.578	23.545	23.545	−51.236	0.000	0.000	0.000
	1166.00	34.195	69.957	47.846	25.782	25.782	−55.789	0.000	0.000	0.000
			3.578		4.172					
SOL−B	1166.00	29.386	73.536	47.846	29.954	29.954	−55.789	0.000	0.000	0.000
	1200.00	29.574	74.383	48.586	30.956	30.956	−58.303	0.000	0.000	0.000
	1300.00	30.169	76.773	50.663	33.943	33.943	−65.862	0.000	0.000	0.000
	1400.00	30.824	79.032	52.610	36.992	36.992	−73.654	0.000	0.000	0.000
	1500.00	31.548	81.183	54.444	40.110	40.110	−81.665	0.000	0.000	0.000
	1600.00	32.347	83.244	56.180	43.304	43.304	−89.887	0.000	0.000	0.000
	1700.00	33.217	85.231	57.830	46.581	46.581	−98.312	0.000	0.000	0.000
	1800.00	34.145	87.156	59.406	49.949	49.949	−106.932	0.000	0.000	0.000
	1900.00	35.104	89.028	60.916	53.412	53.412	−115.741	0.000	0.000	0.000
	1939.00	35.480	89.745	61.489	54.788	54.788	−119.227	0.000	0.000	0.000
			7.296		14.146					
LIQ	1939.00	35.564	97.040	61.489	68.934	68.934	−119.227	0.000	0.000	0.000
	2000.00	35.564	98.142	62.590	71.103	71.103	−125.180	0.000	0.000	0.000
	2100.00	35.564	99.877	64.325	74.660	74.660	−135.082	0.000	0.000	0.000
	2200.00	35.564	101.531	65.979	78.216	78.216	−145.153	0.000	0.000	0.000
	2300.00	35.564	103.112	67.559	81.773	81.773	−155.386	0.000	0.000	0.000
	2400.00	35.564	104.626	69.072	85.329	85.329	−165.773	0.000	0.000	0.000
	2500.00	35.564	106.078	70.524	88.885	88.885	−176.309	0.000	0.000	0.000
	2600.00	35.564	107.473	71.918	92.442	92.442	−186.987	0.000	0.000	0.000
	2700.00	35.564	108.815	73.260	95.998	95.998	−197.802	0.000	0.000	0.000
	2800.00	35.564	110.108	74.553	99.555	99.555	−208.748	0.000	0.000	0.000
	2900.00	35.564	111.356	75.801	103.111	103.111	−219.822	0.000	0.000	0.000
	3000.00	35.564	112.562	77.006	106.667	106.667	−231.018	0.000	0.000	0.000
	3100.00	35.564	113.728	78.172	110.224	110.224	−242.333	0.000	0.000	0.000
	3200.00	35.564	114.857	79.301	113.780	113.780	−253.763	0.000	0.000	0.000
	3300.00	35.564	115.951	80.395	117.337	117.337	−265.303	0.000	0.000	0.000
	3400.00	35.564	117.013	81.456	120.893	120.893	−276.952	0.000	0.000	0.000
	3500.00	35.564	118.044	82.487	124.449	124.449	−288.705	0.000	0.000	0.000
	3600.00	35.564	119.046	83.489	128.006	128.006	−300.560	0.000	0.000	0.000
	3630.96	35.564	119.350	83.793	129.107	129.107	−304.249	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL − A	Ja2	Ja1		hcp
SOL − B	Ja2	Ja1		bcc
LIQ	Ja2	Ja1	Ja2	BPT = 3630.956, L = 409.984 kJ

47.880 TITANIUM (GAS) **Ti[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	24.432	180.297	180.297	473.630	0.000	419.874	473.630	429.045	−75.167
	300.00	24.398	180.448	180.297	473.675	0.045	419.541	473.629	428.769	−74.655
	400.00	23.086	187.265	181.236	476.042	2.412	401.136	473.406	413.841	−54.042
	500.00	22.370	192.333	182.970	478.311	4.681	382.145	472.976	398.996	−41.683
	600.00	21.921	196.369	184.878	480.524	6.894	362.703	472.404	384.252	−33.452
	700.00	21.629	199.724	186.766	482.701	9.071	342.894	471.708	369.614	−27.581
	800.00	21.446	202.600	188.570	484.854	11.224	322.774	470.890	355.083	−23.185
	900.00	21.349	205.119	190.271	486.993	13.363	302.386	469.948	340.662	−19.772
	1000.00	21.327	207.367	191.871	489.126	15.496	281.759	468.887	326.353	−17.047
	1100.00	21.376	209.401	193.373	491.261	17.631	260.919	467.716	312.156	−14.823
	1200.00	21.481	211.265	194.788	493.403	19.773	239.885	462.447	298.188	−12.980
	1300.00	21.659	212.991	196.122	495.559	21.929	218.671	461.617	284.533	−11.433
	1400.00	21.911	214.605	197.385	497.737	24.107	197.290	460.746	270.944	−10.109
	1500.00	22.230	216.127	198.585	499.944	26.314	175.753	459.834	257.418	−8.964
	1600.00	22.608	217.574	199.727	502.185	28.555	154.067	458.881	243.955	−7.964
	1700.00	23.035	218.957	200.817	504.467	30.837	132.240	457.886	230.552	−7.084
	1800.00	23.504	220.287	201.862	506.794	33.164	110.278	456.844	217.209	−6.303
	1900.00	24.007	221.571	202.866	509.169	35.539	88.185	455.757	203.926	−5.606
	2000.00	24.537	222.815	203.832	511.596	37.966	65.965	440.493	191.145	−4.992
	2100.00	25.089	224.026	204.765	514.077	40.447	43.623	439.417	178.705	−4.445
	2200.00	25.659	225.206	205.668	516.614	42.984	21.161	438.398	166.314	−3.949
	2300.00	26.243	226.360	206.542	519.209	45.579	−1.418	437.437	153.968	−3.497
	2400.00	26.837	227.489	207.392	521.863	48.233	−24.110	436.534	141.663	−3.083
	2500.00	27.439	228.597	208.218	524.577	50.947	−46.915	435.692	129.394	−2.704
	2600.00	28.046	229.685	209.023	527.351	53.721	−69.829	434.909	117.158	−2.354
	2700.00	28.656	230.755	209.808	530.186	56.556	−92.851	434.188	104.951	−2.030
	2800.00	29.269	231.808	210.575	533.083	59.453	−115.979	433.528	92.769	−1.731
	2900.00	29.881	232.846	211.325	536.040	62.410	−139.212	432.929	80.610	−1.452
	3000.00	30.492	233.869	212.059	539.059	65.429	−162.548	432.391	68.470	−1.192
	3100.00	31.101	234.879	212.779	542.138	68.508	−185.985	431.915	56.348	−0.949
	3200.00	31.706	235.876	213.485	545.279	71.649	−209.523	431.499	44.239	−0.722
	3300.00	32.308	236.860	214.179	548.479	74.849	−233.160	431.143	32.143	−0.509
	3400.00	32.905	237.834	214.860	551.740	78.110	−256.895	430.847	20.057	−0.308
	3500.00	33.497	238.796	215.530	555.060	81.430	−280.727	430.611	7.978	−0.119
	3600.00	34.083	239.748	216.190	558.439	84.809	−304.654	430.434	−4.094	0.059
	3700.00	34.662	240.690	216.839	561.877	88.247	−328.676	0.000	0.000	0.000
	3800.00	35.235	241.622	217.479	565.371	91.741	−352.791	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Ja2	Ja1

Ti3(AsO4)2 TRITITANIUM DIARSENATE 357.481

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	264.486	339.364	339.364	−2617.259	0.000	−2718.440	−2617.259	−2547.307	446.278
	300.00	265.067	341.002	339.369	−2616.769	0.490	−2719.070	−2617.108	−2546.874	443.450
	400.00	288.320	420.753	350.085	−2588.992	28.267	−2757.293	−2608.053	−2524.783	329.703
	500.00	303.457	486.803	371.013	−2559.364	57.895	−2802.766	−2597.778	−2505.135	261.710
	600.00	315.399	543.217	395.125	−2528.404	88.855	−2854.334	−2586.737	−2487.633	216.568
	700.00	325.832	592.633	419.882	−2496.334	120.925	−2911.177	−2575.148	−2472.025	184.465
	800.00	335.461	636.777	444.283	−2463.264	153.995	−2972.685	−2563.130	−2458.109	160.498
	813.00	336.673	642.194	447.404	−2458.895	158.364	−2980.999	−2561.540	−2456.415	157.823

References

Phase	H / S	C_p
SOL	G1	G1

TiB TITANIUM MONOBORIDE 58.691

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	29.722	34.727	34.727	−160.247	0.000	−170.601	−160.247	−159.692	27.977
	300.00	30.021	34.912	34.728	−160.192	0.055	−170.665	−160.259	−159.688	27.804
	400.00	40.533	45.205	36.060	−156.589	3.658	−174.671	−160.610	−159.432	20.820
	500.00	45.396	54.832	38.869	−152.265	7.982	−179.682	−160.718	−159.124	16.624
	600.00	48.037	63.364	42.256	−147.582	12.665	−185.600	−160.800	−158.798	13.825
	700.00	49.628	70.898	45.820	−142.692	17.555	−192.321	−160.938	−158.454	11.824
	800.00	50.659	77.597	49.382	−137.675	22.572	−199.752	−161.174	−158.085	10.322
	900.00	51.365	83.607	52.856	−132.571	27.676	−207.818	−161.533	−157.678	9.151
	1000.00	51.869	89.046	56.208	−127.408	32.839	−216.455	−162.027	−157.225	8.213
	1100.00	52.241	94.008	59.422	−122.202	38.045	−225.611	−162.656	−156.715	7.442
	1200.00	52.523	98.566	62.497	−116.963	43.284	−235.243	−167.418	−156.023	6.792
	1300.00	52.742	102.780	65.435	−111.699	48.548	−245.313	−167.782	−155.060	6.230
	1400.00	52.915	106.695	68.244	−106.416	53.831	−255.789	−168.237	−154.065	5.748
	1500.00	53.054	110.350	70.931	−101.117	59.130	−266.643	−168.791	−153.033	5.329
	1600.00	53.167	113.778	73.503	−95.806	64.441	−277.851	−169.450	−151.962	4.961
	1700.00	53.260	117.004	75.968	−90.485	69.762	−289.392	−170.222	−150.846	4.635
	1800.00	53.338	120.051	78.333	−85.155	75.092	−301.246	−171.114	−149.681	4.344
	1900.00	53.403	122.936	80.605	−79.818	80.429	−313.397	−172.131	−148.463	4.082
	2000.00	53.458	125.677	82.791	−74.474	85.773	−325.829	−187.407	−146.744	3.833
	2100.00	53.505	128.286	84.896	−69.126	91.121	−338.528	−188.578	−144.682	3.599
	2200.00	53.545	130.776	86.925	−63.774	96.473	−351.482	−189.779	−142.563	3.385
	2300.00	53.580	133.157	88.884	−58.417	101.830	−364.680	−191.010	−140.390	3.188
	2400.00	53.610	135.438	90.776	−53.058	107.189	−378.110	−242.531	−137.093	2.984
	2500.00	53.636	137.627	92.607	−47.696	112.551	−391.764	−243.900	−132.672	2.772

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	DPT= 2500.

69.502 TITANIUM DIBORIDE **TiB2**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f [-]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	44.145	28.493	28.493	-323.800	0.000	-332.295	-323.800	-319.648	56.001
	300.00	44.431	28.767	28.494	-323.718	0.082	-332.348	-323.806	-319.622	55.651
	400.00	55.272	43.210	30.389	-318.672	5.128	-335.956	-324.079	-318.185	41.551
	500.00	61.486	56.261	34.284	-312.811	10.989	-340.942	-324.380	-316.678	33.083
	600.00	65.838	67.875	38.933	-306.435	17.365	-347.160	-324.750	-315.103	27.432
	700.00	69.275	78.290	43.825	-299.674	24.126	-354.477	-325.171	-313.463	23.391
	800.00	72.194	87.736	48.732	-292.597	31.203	-362.786	-325.632	-311.759	20.356
	900.00	74.784	96.391	53.553	-285.246	38.554	-371.998	-326.125	-309.996	17.992
	1000.00	77.143	104.394	58.242	-277.648	46.152	-382.042	-326.647	-308.176	16.097
	1100.00	79.329	111.850	62.781	-269.823	53.977	-392.859	-327.187	-306.303	14.545
	1200.00	81.375	118.842	67.164	-261.787	62.013	-404.397	-331.740	-304.261	13.244
	1300.00	83.304	125.432	71.395	-253.552	70.248	-416.614	-331.775	-301.970	12.133
	1400.00	85.128	131.673	75.480	-245.130	78.670	-429.472	-331.780	-299.677	11.181
	1500.00	86.858	137.606	79.425	-236.530	87.270	-442.938	-331.767	-297.384	10.356
	1600.00	88.500	143.264	83.240	-227.761	96.039	-456.984	-331.744	-295.092	9.634
	1700.00	90.059	148.677	86.931	-218.832	104.968	-471.583	-331.726	-292.802	8.997
	1800.00	91.538	153.866	90.506	-209.752	114.048	-486.711	-331.722	-290.513	8.430
	1900.00	92.941	158.854	93.973	-200.527	123.273	-502.349	-331.743	-288.223	7.924
	2000.00	94.268	163.655	97.338	-191.166	132.634	-518.476	-345.929	-285.486	7.456
	2100.00	95.522	168.285	100.607	-181.676	142.124	-535.074	-345.921	-282.464	7.026
	2200.00	96.704	172.756	103.785	-172.064	151.736	-552.128	-345.860	-279.444	6.635
	2300.00	97.814	177.079	106.879	-162.338	161.462	-569.621	-345.751	-276.427	6.278
	2400.00	98.853	181.265	109.891	-152.504	171.296	-587.539	-446.120	-271.278	5.904
	2500.00	99.823	185.320	112.828	-142.569	181.231	-605.869	-446.092	-263.994	5.516
	2600.00	100.722	189.253	115.692	-132.542	191.258	-624.599	-445.971	-256.712	5.157
	2700.00	101.553	193.070	118.487	-122.427	201.373	-643.716	-445.763	-249.436	4.826
	2800.00	102.315	196.777	121.218	-112.233	211.567	-663.209	-445.475	-242.170	4.518
	2900.00	103.007	200.380	123.885	-101.967	221.833	-683.068	-445.115	-234.915	4.231
	3000.00	103.632	203.883	126.494	-91.634	232.166	-703.282	-444.689	-227.674	3.964
	3100.00	104.188	207.290	129.046	-81.243	242.557	-723.841	-444.204	-220.448	3.715
	3193.00	104.644	210.376	131.370	-71.531	252.269	-743.263	-443.706	-213.743	3.497
			31.449		100.416					
LIQ	3193.00	108.784	241.825	131.370	28.885	352.685	-743.263	-343.290	-213.743	3.497
	3200.00	108.784	242.063	131.612	29.646	353.446	-744.957	-343.222	-213.459	3.484
	3300.00	108.784	245.411	135.010	40.525	364.325	-769.331	-342.250	-209.419	3.315
	3400.00	108.784	248.658	138.305	51.403	375.203	-794.036	-341.278	-205.408	3.156
	3500.00	108.784	251.812	141.503	62.281	386.081	-819.060	-340.306	-201.426	3.006

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	Ja1		
LIQ	Ja1	Ja1	Ja1	NDPT= 4250. GAS(Ti + B)

TiBr[g] TITANIUM MONOBROMIDE (GAS) 127.784

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
GAS	298.15	37.828	260.271	260.271	212.547	0.000	134.947	212.547	166.809	−29.224
	300.00	37.905	260.505	260.271	212.617	0.070	134.466	212.501	166.525	−28.995
	400.00	40.614	271.835	261.798	216.562	4.015	107.828	196.616	154.442	−20.168
	500.00	41.886	281.050	264.756	220.694	8.147	80.169	196.201	143.947	−15.038
	600.00	42.593	288.755	268.132	224.921	12.374	51.668	195.784	133.535	−11.625
	700.00	43.033	295.356	271.561	229.204	16.657	22.454	195.327	123.195	−9.193
	800.00	43.330	301.123	274.903	233.523	20.976	−7.376	194.801	112.925	−7.373
	900.00	43.545	306.240	278.106	237.867	25.320	−37.749	194.186	102.727	−5.962
	1000.00	43.708	310.836	281.153	242.230	29.683	−68.606	193.472	92.602	−4.837
	1100.00	43.838	315.008	284.044	246.608	34.061	−99.902	192.657	82.554	−3.920
	1200.00	43.945	318.827	286.786	250.997	38.450	−131.596	187.745	72.703	−3.165
	1300.00	44.036	322.349	289.388	255.396	42.849	−163.657	187.265	63.135	−2.537
	1400.00	44.115	325.615	291.860	259.804	47.257	−196.057	186.728	53.607	−2.000
	1500.00	44.185	328.661	294.213	264.219	51.672	−228.773	186.126	44.119	−1.536
	1600.00	44.249	331.515	296.456	268.640	56.093	−261.783	185.453	34.673	−1.132
	1700.00	44.308	334.199	298.598	273.068	60.521	−295.070	184.699	25.272	−0.777
	1800.00	44.363	336.733	300.647	277.502	64.955	−328.618	183.859	15.918	−0.462
	1900.00	44.415	339.133	302.610	281.941	69.394	−362.412	182.926	6.612	−0.182
	2000.00	44.464	341.413	304.494	286.385	73.838	−396.441	167.767	−2.196	0.057
	2100.00	44.511	343.583	306.304	290.834	78.287	−430.691	166.745	−10.669	0.265
	2200.00	44.556	345.655	308.046	295.287	82.740	−465.154	165.726	−19.094	0.453

References

Phase	H / S	C_p
GAS	Ja1	Ja1

TiBr2 TITANIUM DIBROMIDE 207.688

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	78.670	108.366	108.366	−405.430	0.000	−437.739	−405.430	−383.187	67.133
	300.00	78.691	108.852	108.367	−405.284	0.146	−437.940	−405.471	−383.049	66.695
	400.00	79.840	131.648	111.467	−397.358	8.072	−450.017	−434.615	−369.495	48.251
	500.00	80.989	149.587	117.360	−389.316	16.114	−464.110	−432.966	−353.406	36.920
	600.00	82.138	164.455	124.005	−381.160	24.270	−479.833	−431.313	−337.649	29.395
	700.00	83.287	177.203	130.715	−372.889	32.541	−496.931	−429.650	−322.169	24.041
	800.00	84.436	188.399	137.240	−364.503	40.927	−515.222	−427.982	−306.929	20.040
	900.00	85.585	198.411	143.490	−356.002	49.428	−534.571	−426.319	−291.897	16.941
	1000.00	86.734	207.487	149.443	−347.386	58.044	−554.873	−424.663	−277.050	14.472
	1100.00	87.883	215.808	155.103	−338.655	66.775	−576.043	−423.011	−262.369	12.459
	1200.00	89.032	223.504	160.486	−329.809	75.621	−598.014	−425.356	−247.719	10.783
	1208.00	89.124	224.096	160.906	−329.096	76.334	−599.804	−425.183	−246.535	10.660

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	SPT= 1208.0, L= 206.23 kJ

207.688

TITANIUM DIBROMIDE (GAS) — TiBr2[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	60.029	308.889	308.889	−179.075	0.000	−271.170	−179.075	−216.618	37.951
	300.00	60.051	309.260	308.890	−178.964	0.111	−271.742	−179.150	−216.851	37.757
	400.00	60.989	326.676	311.258	−172.908	6.167	−303.578	−210.165	−223.056	29.128
	500.00	61.497	340.346	315.757	−166.781	12.294	−336.954	−210.431	−226.250	23.636
	600.00	61.758	351.584	320.820	−160.617	18.458	−371.567	−210.770	−229.383	19.970
	700.00	61.902	361.116	325.913	−154.433	24.642	−407.214	−211.194	−232.453	17.346
	800.00	62.000	369.388	330.841	−148.238	30.837	−443.748	−211.718	−235.455	15.374
	900.00	62.088	376.696	335.538	−142.033	37.042	−481.059	−212.351	−238.385	13.836
	1000.00	62.191	383.242	339.987	−135.820	43.255	−519.062	−213.097	−241.239	12.601
	1100.00	62.318	389.176	344.193	−129.594	49.481	−557.687	−213.951	−244.013	11.587
	1200.00	62.477	394.605	348.171	−123.355	55.720	−596.880	−218.902	−246.585	10.734
	1300.00	62.672	399.613	351.938	−117.098	61.977	−636.594	−219.417	−248.872	10.000
	1400.00	62.902	404.266	355.511	−110.819	68.256	−676.791	−219.979	−251.117	9.369
	1500.00	63.169	408.614	358.908	−104.516	74.559	−717.437	−220.591	−253.320	8.821
	1600.00	63.472	412.701	362.144	−98.184	80.891	−758.505	−221.256	−255.480	8.341
	1700.00	63.809	416.558	365.232	−91.820	87.255	−799.970	−221.977	−257.598	7.915
	1800.00	64.178	420.216	368.186	−85.421	93.654	−841.810	−222.759	−259.671	7.535
	1900.00	64.578	423.697	371.017	−78.984	100.091	−884.007	−223.602	−261.699	7.195
	2000.00	65.006	427.020	373.735	−72.505	106.570	−926.544	−238.638	−263.236	6.875

References

Phase	H / S	C_p
GAS	Ja1	Ja1

287.592

TITANIUM TRIBROMIDE — TiBr3

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	101.744	176.565	176.565	−550.196	0.000	−602.839	−550.196	−525.596	92.082
	300.00	101.734	177.194	176.567	−550.008	0.188	−603.166	−550.264	−525.443	91.488
	400.00	105.824	206.842	180.582	−539.692	10.504	−622.429	−594.261	−507.998	66.338
	500.00	114.701	231.357	188.344	−528.689	21.507	−644.368	−591.497	−486.737	50.849
	600.00	125.513	253.206	197.361	−516.689	33.507	−668.613	−587.859	−466.111	40.579
	700.00	137.209	273.425	206.799	−503.558	46.638	−694.955	−583.203	−446.173	33.294
	800.00	147.277	292.404	216.326	−489.334	60.862	−723.257	−577.571	−426.971	27.878
	900.00	151.879	310.014	225.771	−474.377	75.819	−753.390	−571.332	−408.518	23.710
	1000.00	156.674	326.263	235.018	−458.951	91.245	−785.214	−564.748	−390.777	20.412
	1066.30	159.959	336.424	241.010	−448.455	101.741	−807.185	−560.183	−379.390	18.585

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	SPT= 1066.3, L= 138.76 kJ

TiBr3[g] TITANIUM TRIBROMIDE (GAS) 287.592

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[	J / (K mol)	]	[		kJ / mol		]	
GAS	298.15	79.332	359.097	359.097	−374.886	0.000	−481.951	−374.886	−404.708	70.903
	300.00	79.432	359.588	359.098	−374.739	0.147	−482.615	−374.995	−404.893	70.498
	400.00	83.115	383.014	362.267	−366.587	8.299	−519.793	−421.156	−405.362	52.935
	500.00	84.804	401.765	368.355	−358.181	16.705	−559.063	−420.988	−401.433	41.937
	600.00	85.599	417.306	375.256	−349.656	25.230	−600.039	−420.826	−397.538	34.609
	700.00	85.964	430.532	382.231	−341.075	33.811	−642.448	−420.720	−393.666	29.376
	800.00	86.113	442.023	389.003	−332.470	42.416	−686.088	−420.708	−389.803	25.452
	900.00	86.153	452.168	395.469	−323.856	51.030	−730.808	−420.810	−385.935	22.399
	1000.00	86.139	461.245	401.600	−315.241	59.645	−776.486	−421.038	−382.049	19.956
	1100.00	86.103	469.454	407.402	−306.629	68.257	−823.028	−421.391	−378.134	17.956
	1200.00	86.059	476.944	412.889	−298.021	76.865	−870.353	−425.863	−374.062	16.283
	1300.00	86.018	483.830	418.085	−289.417	85.469	−918.396	−425.925	−369.744	14.856
	1400.00	85.981	490.204	423.012	−280.817	94.069	−967.102	−426.061	−365.418	13.634
	1500.00	85.950	496.135	427.691	−272.221	102.665	−1016.422	−426.278	−361.079	12.574
	1600.00	85.921	501.681	432.144	−263.627	111.259	−1066.316	−426.582	−356.723	11.646
	1700.00	85.893	506.889	436.389	−255.036	119.850	−1116.747	−426.981	−352.345	10.826
	1800.00	85.860	511.797	440.443	−246.449	128.437	−1167.684	−427.481	−347.940	10.097
	1900.00	85.818	516.439	444.322	−237.865	137.021	−1219.098	−428.086	−343.506	9.444
	2000.00	85.761	520.839	448.039	−229.286	145.600	−1270.964	−442.933	−338.591	8.843

References

Phase	H / S	C_p
GAS	Ja1	Ja1

TiBr4 TITANIUM TETRABROMIDE 367.496

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[	J / (K mol)	]	[		kJ / mol		]	
SOL	298.15	131.504	243.509	243.509	−617.977	0.000	−690.579	−617.977	−590.646	103.479
	300.00	131.817	244.323	243.511	−617.733	0.244	−691.030	−618.060	−590.476	102.811
	311.40	133.751	249.275	243.632	−616.220	1.757	−693.844	−618.554	−589.418	98.870
			41.384		12.887					
LIQ	311.40	151.879	290.659	243.632	−603.333	14.644	−693.844	−605.667	−589.418	98.870
	400.00	151.879	328.688	258.436	−589.876	28.101	−721.351	−661.756	−573.013	74.828
	500.00	151.879	362.579	276.001	−574.688	43.289	−755.978	−656.653	−551.421	57.607
	503.50	151.879	363.638	276.607	−574.157	43.820	−757.248	−656.477	−550.685	57.130

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	MPT= 311.4
LIQ	Ja1	Ja1	Ja1	BPT= 503.5, L= 45.2 kJ

367.496 TITANIUM TETRABROMIDE (GAS) **TiBr4**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	100.654	398.635	398.635	−550.196	0.000	−669.049	−550.196	−569.116	99.707
	300.00	100.742	399.258	398.637	−550.010	0.186	−669.787	−550.336	−569.233	99.112
	400.00	103.853	428.730	402.634	−539.758	10.438	−711.250	−611.637	−562.911	73.509
	500.00	105.301	452.077	410.270	−529.292	20.904	−755.331	−611.257	−550.774	57.539
	600.00	106.096	471.353	418.891	−518.719	31.477	−801.530	−610.905	−538.711	46.899
	700.00	106.582	487.747	427.585	−508.083	42.113	−849.506	−610.612	−526.703	39.303
	800.00	106.903	502.001	436.016	−497.408	52.788	−899.009	−610.403	−514.731	33.609
	900.00	107.128	514.606	444.061	−486.706	63.490	−949.851	−610.296	−502.780	29.181
	1000.00	107.294	525.902	451.690	−475.984	74.212	−1001.886	−610.301	−490.834	25.639
	1100.00	107.421	536.134	458.909	−465.248	84.948	−1054.996	−610.416	−478.883	22.740
	1200.00	107.522	545.486	465.740	−454.501	95.695	−1109.084	−614.639	−466.797	20.319
	1300.00	107.604	554.095	472.210	−443.744	106.452	−1164.069	−614.440	−454.486	18.261
	1400.00	107.673	562.072	478.347	−432.981	117.215	−1219.882	−614.309	−442.187	16.498
	1500.00	107.731	569.503	484.179	−422.210	127.986	−1276.465	−614.250	−429.895	14.970
	1600.00	107.782	576.458	489.732	−411.435	138.761	−1333.767	−614.274	−417.604	13.633
	1700.00	107.827	582.993	495.027	−400.654	149.542	−1391.742	−614.386	−405.310	12.454
	1800.00	107.868	589.158	500.087	−389.869	160.327	−1450.353	−614.595	−393.005	11.405
	1900.00	107.905	594.991	504.930	−379.081	171.115	−1509.563	−614.905	−380.687	10.466
	2000.00	107.939	600.526	509.573	−368.288	181.908	−1569.341	−629.451	−367.904	9.609
	2100.00	107.970	605.794	514.030	−357.493	192.703	−1629.659	−629.868	−354.817	8.826
	2200.00	108.000	610.817	518.316	−346.694	203.502	−1690.492	−630.291	−341.709	8.113

References

Phase	H / S	C_p
GAS	Ja1	Ja1

TiC TITANIUM MONOCARBIDE 59.891

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[-]
SOL	298.15	33.818	24.230	24.230	-184.502	0.000	-191.726	-184.502	-180.844	31.683
	300.00	33.937	24.439	24.230	-184.439	0.063	-191.771	-184.502	-180.821	31.484
	400.00	40.685	35.150	25.644	-180.700	3.802	-194.760	-184.388	-179.605	23.454
	500.00	45.168	44.757	28.525	-176.386	8.116	-198.765	-184.106	-178.441	18.642
	600.00	47.645	53.234	31.952	-171.733	12.769	-203.673	-183.818	-177.336	15.438
	700.00	49.033	60.692	35.536	-166.893	17.609	-209.377	-183.628	-176.272	13.154
	800.00	49.905	67.300	39.102	-161.943	22.559	-215.783	-183.574	-175.226	11.441
	900.00	50.570	73.217	42.569	-156.919	27.583	-222.814	-183.662	-174.179	10.109
	1000.00	51.179	78.577	45.906	-151.831	32.671	-230.408	-183.889	-173.115	9.043
	1100.00	51.795	83.484	49.102	-146.683	37.819	-238.515	-184.235	-172.021	8.169
	1200.00	52.446	88.018	52.159	-141.471	43.031	-247.092	-188.680	-170.773	7.434
	1300.00	53.145	92.243	55.081	-136.192	48.310	-256.108	-188.679	-169.281	6.802
	1400.00	53.894	96.209	57.879	-130.840	53.662	-265.532	-188.706	-167.788	6.260
	1500.00	54.690	99.954	60.560	-125.411	59.091	-275.342	-188.754	-166.292	5.791
	1600.00	55.529	103.510	63.134	-119.901	64.601	-285.517	-188.822	-164.793	5.380
	1700.00	56.405	106.903	65.610	-114.305	70.197	-296.039	-188.907	-163.288	5.017
	1800.00	57.316	110.152	67.995	-108.619	75.883	-306.893	-189.009	-161.779	4.695
	1900.00	58.255	113.276	70.296	-102.840	81.662	-318.065	-189.128	-160.263	4.406
	2000.00	59.221	116.289	72.521	-96.967	87.535	-329.544	-203.393	-158.295	4.134
	2100.00	60.209	119.202	74.675	-90.995	93.507	-341.320	-203.438	-156.039	3.881
	2200.00	61.216	122.026	76.763	-84.924	99.578	-353.382	-203.393	-153.782	3.651
	2300.00	62.241	124.770	78.791	-78.752	105.750	-365.722	-203.256	-151.530	3.441
	2400.00	63.282	127.441	80.763	-72.476	112.026	-378.333	-203.024	-149.286	3.249
	2500.00	64.336	130.045	82.682	-66.095	118.407	-391.208	-202.695	-147.053	3.073
	2600.00	65.402	132.589	84.553	-59.608	124.894	-404.340	-202.268	-144.835	2.910
	2700.00	66.478	135.078	86.379	-53.014	131.488	-417.724	-201.742	-142.636	2.759
	2800.00	67.564	137.515	88.161	-46.312	138.190	-431.354	-201.114	-140.458	2.620
	2900.00	68.659	139.905	89.905	-39.501	145.001	-445.225	-200.383	-138.304	2.491
	3000.00	69.761	142.251	91.611	-32.580	151.922	-459.334	-199.550	-136.178	2.371
	3100.00	70.869	144.557	93.281	-25.549	158.953	-473.674	-198.613	-134.080	2.259
	3200.00	71.983	146.824	94.919	-18.406	166.096	-488.244	-197.571	-132.015	2.155
	3290.00	72.989	148.835	96.367	-11.883	172.619	-501.548	-196.543	-130.185	2.067
			21.619		71.128					
LIQ	3290.00	62.760	170.454	96.367	59.245	243.747	-501.548	-125.415	-130.185	2.067
	3300.00	62.760	170.645	96.592	59.873	244.375	-503.254	-125.398	-130.200	2.061
	3400.00	62.760	172.518	98.797	66.149	250.651	-520.413	-125.235	-130.348	2.003
	3500.00	62.760	174.337	100.930	72.425	256.927	-537.756	-125.079	-130.501	1.948

References

Phase	H / S	C_p
SOL	Nb1	Ja1
LIQ	Ja1	Ja1

83.333 TITANIUM MONOCHLORIDE (GAS) **TiCl[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	36.879	249.225	249.225	154.390	0.000	80.084	154.390	122.516	−21.464
	300.00	36.968	249.453	249.226	154.458	0.068	79.622	154.381	122.318	−21.297
	400.00	40.101	260.582	250.721	158.334	3.944	54.101	153.934	111.700	−14.587
	500.00	41.557	269.704	253.634	162.425	8.035	27.573	153.539	101.188	−10.571
	600.00	42.354	277.358	256.968	166.624	12.234	0.209	153.135	90.755	−7.901
	700.00	42.840	283.926	260.361	170.886	16.496	−27.863	152.686	80.393	−5.999
	800.00	43.159	289.669	263.673	175.187	20.797	−56.548	152.163	70.100	−4.577
	900.00	43.382	294.766	266.850	179.514	25.124	−85.775	151.548	59.879	−3.475
	1000.00	43.545	299.345	269.874	183.861	29.471	−115.484	150.829	49.731	−2.598
	1100.00	43.669	303.502	272.745	188.222	33.832	−145.630	150.008	39.660	−1.883
	1200.00	43.767	307.306	275.469	192.594	38.204	−176.173	145.087	29.787	−1.297
	1300.00	43.845	310.812	278.055	196.975	42.585	−207.081	144.594	20.198	−0.812
	1400.00	43.910	314.064	280.512	201.363	46.973	−238.327	144.042	10.650	−0.397
	1500.00	43.965	317.095	282.851	205.756	51.366	−269.887	143.424	1.143	−0.040
	1600.00	44.012	319.934	285.081	210.155	55.765	−301.740	142.731	−8.320	0.272
	1700.00	44.053	322.604	287.210	214.559	60.169	−333.868	141.955	−17.738	0.545
	1800.00	44.090	325.123	289.247	218.966	64.576	−366.255	141.089	−27.107	0.787
	1900.00	44.122	327.507	291.199	223.376	68.986	−398.888	140.129	−36.425	1.001
	2000.00	44.152	329.771	293.071	227.790	73.400	−431.753	124.938	−45.246	1.182

References

Phase	H / S	C_p
GAS	Ja1	Ja1

TiCl2 TITANIUM DICHLORIDE 118.785

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	69.849	87.362	87.362	−515.469	0.000	−541.516	−515.469	−465.823	81.610
	300.00	69.930	87.794	87.363	−515.340	0.129	−541.678	−515.449	−465.515	81.053
	400.00	73.412	108.423	90.152	−508.161	7.308	−551.530	−514.326	−449.038	58.638
	500.00	75.992	125.092	95.526	−500.686	14.783	−563.232	−513.123	−432.853	45.220
	600.00	78.217	139.147	101.655	−492.974	22.495	−576.462	−511.831	−416.919	36.296
	700.00	80.274	151.360	107.902	−485.048	30.421	−591.000	−510.454	−401.208	29.939
	800.00	82.242	162.208	114.024	−476.922	38.547	−606.688	−509.004	−385.700	25.184
	900.00	84.158	172.006	119.931	−468.601	46.868	−623.407	−507.490	−370.377	21.496
	1000.00	86.041	180.971	125.593	−460.091	55.378	−641.062	−505.915	−355.226	18.555
	1100.00	87.904	189.259	131.009	−451.394	64.075	−659.579	−504.277	−340.236	16.156
	1200.00	89.752	196.987	136.188	−442.511	72.958	−678.895	−506.570	−325.278	14.159
	1300.00	91.590	204.243	141.147	−433.444	82.025	−698.960	−504.262	−310.264	12.467
	1400.00	93.421	211.098	145.901	−424.193	91.276	−719.730	−501.842	−295.431	11.023
	1500.00	95.246	217.606	150.466	−414.760	100.709	−741.168	−499.315	−280.775	9.777
	1580.40	96.710	222.617	154.010	−407.043	108.426	−758.866	−497.211	−269.116	8.895

References

Phase	H / S	C_p	Remarks
SOL	Ja1	Ja1	SPT= 1580.4, L= 248.5 kJ

118.785

TITANIUM DICHLORIDE (GAS) — TiCl2[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
GAS	298.15	57.506	278.345	278.345	−237.233	0.000	−320.222	−237.233	−244.529	42.840
	300.00	57.553	278.701	278.346	−237.127	0.106	−320.737	−237.236	−244.574	42.584
	400.00	59.468	295.549	280.630	−231.266	5.967	−349.485	−237.431	−246.993	32.254
	500.00	60.487	308.940	284.999	−225.263	11.970	−379.733	−237.699	−249.354	26.050
	600.00	61.043	320.022	289.939	−219.184	18.049	−411.197	−238.041	−251.654	21.908
	700.00	61.370	329.458	294.928	−213.062	24.171	−443.682	−238.468	−253.890	18.946
	800.00	61.589	337.668	299.768	−206.913	30.320	−477.048	−238.996	−256.059	16.719
	900.00	61.762	344.932	304.391	−200.745	36.488	−511.185	−239.634	−258.154	14.983
	1000.00	61.925	351.448	308.776	−194.561	42.672	−546.009	−240.385	−260.173	13.590
	1100.00	62.097	357.358	312.928	−188.360	48.873	−581.454	−241.244	−262.111	12.447
	1200.00	62.291	362.769	316.859	−182.141	55.092	−617.464	−246.200	−263.848	11.485
	1300.00	62.513	367.764	320.585	−175.901	61.332	−653.994	−246.719	−265.297	10.660
	1400.00	62.766	372.406	324.123	−169.637	67.596	−691.005	−247.286	−266.706	9.951
	1500.00	63.051	376.746	327.488	−163.347	73.886	−728.465	−247.902	−268.072	9.335
	1600.00	63.368	380.825	330.695	−157.026	80.207	−766.346	−248.571	−269.395	8.795
	1700.00	63.717	384.677	333.759	−150.672	86.561	−804.623	−249.298	−270.674	8.317
	1800.00	64.097	388.329	336.690	−144.282	92.951	−843.274	−250.086	−271.909	7.891
	1900.00	64.504	391.806	339.500	−137.852	99.381	−882.283	−250.936	−273.099	7.508
	2000.00	64.939	395.125	342.199	−131.380	105.853	−921.630	−265.981	−273.797	7.151

References

Phase	H / S	C_p
GAS	Ja1	Ja1

154.238

TITANIUM TRICHLORIDE — TiCl3

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	97.097	139.746	139.746	−721.740	0.000	−763.405	−721.740	−654.451	114.657
	300.00	97.143	140.346	139.747	−721.560	0.180	−763.664	−721.701	−654.034	113.877
	400.00	99.119	168.581	143.584	−711.741	9.999	−779.173	−719.671	−631.788	82.503
	500.00	100.629	190.866	150.889	−701.751	19.989	−797.184	−717.739	−610.042	63.731
	600.00	101.954	209.332	159.134	−691.621	30.119	−817.220	−715.846	−588.681	51.249
	700.00	103.192	225.142	167.461	−681.363	40.377	−838.963	−713.976	−567.634	42.357
	800.00	104.384	238.999	175.555	−670.984	50.756	−862.184	−712.126	−546.855	35.706
	900.00	105.549	251.362	183.303	−660.488	61.252	−886.713	−710.298	−526.306	30.546
	1000.00	106.697	262.542	190.677	−649.875	71.865	−912.417	−708.492	−505.960	26.429
	1100.00	107.834	272.764	197.681	−639.149	82.591	−939.189	−706.701	−485.793	23.068
	1103.30	107.872	273.088	197.906	−638.793	82.947	−940.090	−706.642	−485.130	22.968

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	SPT= 1103.3, L= 166.15 kJ

TiCl3[g] TITANIUM TRICHLORIDE (GAS) 154.238

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	72.491	316.838	316.838	−539.318	0.000	−633.783	−539.318	−524.829	91.948
	300.00	72.668	317.287	316.840	−539.184	0.134	−634.370	−539.324	−524.739	91.365
	400.00	78.886	339.174	319.781	−531.561	7.757	−667.231	−539.491	−519.845	67.885
	500.00	81.725	357.118	325.510	−523.514	15.804	−702.073	−539.502	−514.930	53.794
	600.00	83.234	372.164	332.066	−515.259	24.059	−738.558	−539.484	−510.018	44.401
	700.00	84.116	385.067	338.738	−506.888	32.430	−776.435	−539.501	−505.106	37.692
	800.00	84.664	396.337	345.249	−498.447	40.871	−815.517	−539.588	−500.188	32.659
	900.00	85.016	406.331	351.491	−489.962	49.356	−855.660	−539.772	−495.253	28.744
	1000.00	85.248	415.301	357.431	−481.448	57.870	−896.749	−540.065	−490.292	25.610
	1100.00	85.401	423.434	363.068	−472.915	66.403	−938.692	−540.468	−485.296	23.045
	1200.00	85.500	430.870	368.412	−464.369	74.949	−981.413	−544.979	−480.139	20.900
	1300.00	85.562	437.716	373.484	−455.816	83.502	−1024.847	−545.072	−474.733	19.075
	1400.00	85.596	444.058	378.301	−447.258	92.060	−1068.939	−545.235	−469.317	17.510
	1500.00	85.609	449.964	382.884	−438.697	100.621	−1113.644	−545.475	−463.886	16.154
	1600.00	85.607	455.489	387.251	−430.137	109.181	−1158.919	−545.803	−458.436	14.966
	1700.00	85.593	460.679	391.419	−421.576	117.742	−1204.730	−546.225	−452.964	13.918
	1800.00	85.570	465.571	395.404	−413.018	126.300	−1251.045	−546.750	−447.463	12.985
	1900.00	85.540	470.196	399.220	−404.463	134.855	−1297.836	−547.383	−441.930	12.150
	2000.00	85.503	474.583	402.879	−395.910	143.408	−1345.076	−562.260	−435.917	11.385
	2100.00	85.461	478.754	406.394	−387.362	151.956	−1392.745	−563.017	−429.581	10.685
	2200.00	85.416	482.728	409.774	−378.818	160.500	−1440.821	−563.789	−423.209	10.048
	2273.00	85.381	485.516	412.162	−372.584	166.734	−1476.162	−564.364	−418.535	9.618

References

Phase	H / S	C_p
GAS	Ja1	Ja1

TiCl4 TITANIUM TETRACHLORIDE 189.691

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
LIQ	298.15	145.201	252.404	252.404	−804.165	0.000	−879.419	−804.165	−737.204	129.155
	300.00	145.219	253.302	252.407	−803.896	0.269	−879.887	−804.068	−736.789	128.286
	400.00	146.170	295.211	258.114	−789.326	14.839	−907.411	−799.022	−715.132	93.387
	408.00	146.243	298.106	258.870	−788.157	16.008	−909.784	−798.630	−713.458	91.341

References

Phase	H / S	C_p	Remarks	
LIQ	Ja1	Ja1	Ja1	MPT= 249.05, L= 9.967 kJ / BPT= 408., L= 35.77 kJ

189.691 TITANIUM TETRACHLORIDE (GAS) **TiCl4**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	95.610	354.913	354.913	−763.162	0.000	−868.979	−763.162	−726.764	127.326
	300.00	95.733	355.504	354.914	−762.985	0.177	−869.636	−763.157	−726.538	126.502
	400.00	100.469	383.772	358.736	−753.148	10.014	−906.657	−762.843	−714.377	93.288
	500.00	102.970	406.486	366.090	−742.964	20.198	−946.207	−762.501	−702.300	73.369
	600.00	104.431	425.400	374.443	−732.588	30.574	−987.828	−762.181	−690.291	60.095
	700.00	105.354	441.573	382.906	−722.095	41.067	−1031.196	−761.914	−678.331	50.618
	800.00	105.972	455.684	391.140	−711.527	51.635	−1076.074	−761.728	−666.405	43.512
	900.00	106.406	468.192	399.019	−700.907	62.255	−1122.279	−761.639	−654.496	37.986
	1000.00	106.720	479.420	406.508	−690.250	72.912	−1169.670	−761.659	−642.591	33.566
	1100.00	106.956	489.603	413.606	−679.565	83.597	−1218.129	−761.788	−630.679	29.948
	1200.00	107.136	498.917	420.333	−668.860	94.302	−1267.561	−766.022	−618.631	26.928
	1300.00	107.277	507.499	426.712	−658.140	105.022	−1317.888	−765.833	−606.357	24.364
	1400.00	107.389	515.453	432.770	−647.406	115.756	−1369.040	−765.711	−594.094	22.166
	1500.00	107.479	522.865	438.532	−636.662	126.500	−1420.960	−765.663	−581.838	20.261
	1600.00	107.553	529.804	444.022	−625.911	137.251	−1473.597	−765.698	−569.583	18.595
	1700.00	107.614	536.326	449.262	−615.152	148.010	−1526.907	−765.823	−557.322	17.124
	1800.00	107.664	542.479	454.271	−604.388	158.774	−1580.850	−766.047	−545.051	15.817
	1900.00	107.706	548.301	459.068	−593.620	169.542	−1635.392	−766.376	−532.765	14.647
	2000.00	107.742	553.827	463.669	−582.847	180.315	−1690.501	−780.945	−520.014	13.581
	2100.00	107.772	559.084	468.089	−572.072	191.090	−1746.148	−781.391	−506.957	12.610
	2200.00	107.798	564.098	472.340	−561.293	201.869	−1802.309	−781.849	−493.878	11.726
	2300.00	107.820	568.891	476.434	−550.512	212.650	−1858.961	−782.321	−480.778	10.919
	2400.00	107.839	573.480	480.383	−539.729	223.433	−1916.081	−782.808	−467.657	10.178
	2500.00	107.856	577.882	484.195	−528.944	234.218	−1973.650	−783.310	−454.515	9.497

References

Phase	H / S	C_p
GAS	Ja1	Ja1

TiF[g] TITANIUM MONOFLUORIDE (GAS) 66.878

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	35.346	237.342	237.342	−66.944	0.000	−137.708	−66.944	−98.305	17.223
	300.00	35.396	237.561	237.343	−66.879	0.065	−138.147	−66.954	−98.500	17.150
	400.00	38.283	248.146	238.766	−63.192	3.752	−162.451	−67.463	−108.936	14.226
	500.00	40.352	256.929	241.546	−59.252	7.692	−187.717	−67.905	−119.252	12.458
	600.00	41.611	264.407	244.748	−55.149	11.795	−213.793	−68.323	−129.483	11.272
	700.00	42.360	270.883	248.030	−50.947	15.997	−240.565	−68.769	−139.641	10.420
	800.00	42.807	276.571	251.249	−46.687	20.257	−267.943	−69.283	−149.732	9.776
	900.00	43.074	281.630	254.349	−42.391	24.553	−295.858	−69.892	−159.752	9.272
	1000.00	43.237	286.177	257.308	−38.075	28.869	−324.252	−70.610	−169.699	8.864
	1100.00	43.341	290.303	260.123	−33.746	33.198	−353.080	−71.440	−179.569	8.527
	1200.00	43.413	294.078	262.798	−29.408	37.536	−382.301	−76.377	−189.239	8.237
	1300.00	43.471	297.555	265.339	−25.064	41.880	−411.885	−76.893	−198.624	7.981
	1400.00	43.525	300.778	267.757	−20.714	46.230	−441.804	−77.474	−207.966	7.759
	1500.00	43.582	303.783	270.060	−16.359	50.585	−472.034	−78.125	−217.265	7.566
	1600.00	43.644	306.598	272.256	−11.998	54.946	−502.554	−78.853	−226.518	7.395
	1700.00	43.715	309.246	274.355	−7.630	59.314	−533.348	−79.663	−235.722	7.243
	1800.00	43.792	311.747	276.364	−3.254	63.690	−564.398	−80.562	−244.877	7.106
	1900.00	43.876	314.117	278.289	1.129	68.073	−595.692	−81.553	−253.979	6.982
	2000.00	43.965	316.369	280.137	5.521	72.465	−627.218	−96.769	−262.581	6.858

References

Phase	H / S	C_p
GAS	Pa2	Pa2

85.877 TITANIUM DIFLUORIDE (GAS) **TiF2[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
GAS	298.15	52.935	255.752	255.752	−688.268	0.000	−764.520	−688.268	−694.886	121.741
	300.00	53.030	256.080	255.753	−688.170	0.098	−764.994	−688.274	−694.927	120.998
	400.00	56.438	271.867	257.882	−682.674	5.594	−791.421	−688.581	−697.098	91.032
	500.00	58.153	284.663	262.000	−676.936	11.332	−819.268	−688.907	−699.190	73.044
	600.00	59.202	295.365	266.693	−671.065	17.203	−848.284	−689.294	−701.212	61.046
	700.00	59.936	304.549	271.461	−665.106	23.162	−878.291	−689.757	−703.163	52.471
	800.00	60.502	312.591	276.110	−659.083	29.185	−909.156	−690.312	−705.041	46.034
	900.00	60.971	319.745	280.568	−653.009	35.259	−940.779	−690.965	−706.844	41.024
	1000.00	61.379	326.190	284.813	−646.891	41.377	−973.081	−691.722	−708.569	37.012
	1100.00	61.748	332.058	288.846	−640.734	47.534	−1005.998	−692.578	−710.213	33.725
	1200.00	62.090	337.445	292.674	−634.542	53.726	−1039.477	−697.525	−711.656	30.978
	1300.00	62.412	342.428	296.312	−628.317	59.951	−1073.474	−698.033	−712.813	28.641
	1400.00	62.721	347.065	299.774	−622.060	66.208	−1107.951	−698.588	−713.930	26.637
	1500.00	63.020	351.402	303.072	−615.773	72.495	−1142.877	−699.196	−715.005	24.899
	1600.00	63.311	355.479	306.222	−609.457	78.811	−1178.223	−699.863	−716.037	23.376
	1700.00	63.596	359.326	309.233	−603.111	85.157	−1213.965	−700.597	−717.026	22.032
	1800.00	63.876	362.969	312.118	−596.738	91.530	−1250.081	−701.404	−717.970	20.835
	1900.00	64.153	366.430	314.887	−590.336	97.932	−1286.552	−702.288	−718.866	19.763
	2000.00	64.426	369.727	317.547	−583.907	104.361	−1323.362	−717.383	−719.269	18.785

References

Phase	H / S	C_p
GAS	Ja1	Ja1

104.875 TITANIUM TRIFLUORIDE **TiF3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	92.044	87.864	87.864	−1435.530	0.000	−1461.727	−1435.530	−1361.861	238.592
	300.00	92.052	88.433	87.866	−1435.360	0.170	−1461.890	−1435.493	−1361.404	237.041
	400.00	93.362	115.060	91.487	−1426.101	9.429	−1472.125	−1433.643	−1336.993	174.593
	500.00	95.560	136.120	98.378	−1416.659	18.871	−1484.719	−1431.947	−1313.029	137.171
	600.00	98.106	153.764	106.177	−1406.978	28.552	−1499.236	−1430.260	−1289.403	112.252
	700.00	100.818	169.090	114.093	−1397.032	38.498	−1515.395	−1428.512	−1266.064	94.475
	800.00	103.617	182.734	121.835	−1386.811	48.719	−1532.998	−1426.671	−1242.981	81.158
	900.00	106.468	195.103	129.300	−1376.307	59.223	−1551.900	−1424.719	−1220.136	70.815
	1000.00	109.350	206.469	136.456	−1365.517	70.013	−1571.986	−1422.644	−1197.514	62.552
	1100.00	112.253	217.027	143.306	−1354.437	81.093	−1593.166	−1420.429	−1175.107	55.801
	1200.00	115.170	226.919	149.866	−1343.066	92.464	−1615.369	−1422.062	−1152.790	50.180
	1300.00	118.097	236.253	156.155	−1331.402	104.128	−1638.532	−1419.005	−1130.473	45.423
	1308.90	118.357	237.060	156.703	−1330.350	105.180	−1640.638	−1418.723	−1128.498	45.035

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	SPT= 1308.9, L= 221.63 kJ

TiF3[g] TITANIUM TRIFLUORIDE (GAS) 104.875

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	65.095	291.316	291.316	−1188.674	0.000	−1275.530	−1188.674	−1175.664	205.971
	300.00	65.347	291.719	291.317	−1188.553	0.121	−1276.069	−1188.687	−1175.583	204.687
	400.00	74.184	311.911	294.010	−1181.514	7.160	−1306.278	−1189.056	−1171.146	152.936
	500.00	78.274	328.955	299.343	−1173.868	14.806	−1338.345	−1189.156	−1166.655	121.880
	600.00	80.496	343.440	305.516	−1165.919	22.755	−1371.984	−1189.202	−1162.150	101.174
	700.00	81.836	355.958	311.849	−1157.798	30.876	−1406.968	−1189.278	−1157.636	86.384
	800.00	82.706	366.946	318.063	−1149.568	39.106	−1443.124	−1189.428	−1153.107	75.290
	900.00	83.302	376.724	324.048	−1141.266	47.408	−1480.317	−1189.678	−1148.553	66.660
	1000.00	83.728	385.524	329.763	−1132.913	55.761	−1518.437	−1190.040	−1143.965	59.755
	1100.00	84.044	393.519	335.201	−1124.524	64.150	−1557.395	−1190.516	−1139.336	54.103
	1200.00	84.284	400.843	340.370	−1116.107	72.567	−1597.118	−1195.103	−1134.539	49.385
	1300.00	84.470	407.597	345.285	−1107.669	81.005	−1637.544	−1195.271	−1129.485	45.383
	1400.00	84.619	413.862	349.962	−1099.214	89.460	−1678.621	−1195.510	−1124.416	41.952
	1500.00	84.738	419.705	354.419	−1090.746	97.928	−1720.303	−1195.825	−1119.328	38.978
	1600.00	84.836	425.177	358.672	−1082.267	106.407	−1762.550	−1196.225	−1114.215	36.375
	1700.00	84.917	430.322	362.737	−1073.779	114.895	−1805.327	−1196.717	−1109.075	34.078
	1800.00	84.985	435.178	366.628	−1065.284	123.390	−1848.605	−1197.309	−1103.903	32.034
	1900.00	85.042	439.775	370.358	−1056.783	131.891	−1892.354	−1198.004	−1098.696	30.205
	2000.00	85.092	444.138	373.939	−1048.276	140.398	−1936.552	−1212.938	−1093.004	28.546

References

Phase	H / S	C_p
GAS	Ja1	Ja1

TiF4 TITANIUM TETRAFLUORIDE 123.874

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	114.265	133.972	133.972	−1649.333	0.000	−1689.277	−1649.333	−1559.179	273.162
	300.00	114.600	134.680	133.974	−1649.121	0.212	−1689.525	−1649.284	−1558.620	271.380
	400.00	126.650	169.504	138.641	−1636.988	12.345	−1704.789	−1646.166	−1528.849	199.647
	500.00	134.558	198.641	147.806	−1623.916	25.417	−1723.236	−1642.521	−1499.932	156.697
	558.30	138.804	213.712	153.912	−1615.947	33.386	−1735.262	−1640.193	−1483.436	138.791

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	SPT= 558.3, L= 97.78 kJ

123.874 TITANIUM TETRAFLUORIDE (GAS) **TiF4**[g]

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	84.543	314.914	314.914	-1551.427	0.000	-1645.318	-1551.427	-1515.221	265.460
	300.00	84.796	315.437	314.915	-1551.270	0.157	-1645.902	-1551.433	-1514.996	263.784
	400.00	93.764	341.241	318.372	-1542.280	9.147	-1678.776	-1551.458	-1502.836	196.250
	500.00	98.021	362.671	325.153	-1532.668	18.759	-1714.003	-1551.273	-1490.700	155.732
	600.00	100.424	380.773	332.954	-1522.736	28.691	-1751.200	-1551.072	-1478.605	128.724
	700.00	101.952	396.376	340.926	-1512.612	38.815	-1790.075	-1550.921	-1466.540	109.435
	800.00	103.013	410.063	348.730	-1502.360	49.067	-1830.411	-1550.853	-1454.491	94.969
	900.00	103.802	422.244	356.234	-1492.018	59.409	-1872.038	-1550.886	-1442.445	83.717
	1000.00	104.423	433.214	363.393	-1481.606	69.821	-1914.820	-1551.029	-1430.389	74.716
	1100.00	104.934	443.191	370.200	-1471.137	80.290	-1958.648	-1551.279	-1418.314	67.350
	1200.00	105.371	452.341	376.670	-1460.621	90.806	-2003.430	-1555.630	-1406.092	61.206
	1300.00	105.754	460.791	382.820	-1450.065	101.362	-2049.092	-1555.554	-1393.634	55.997
	1400.00	106.099	468.641	388.673	-1439.472	111.955	-2095.569	-1555.535	-1381.180	51.532
	1500.00	106.415	475.972	394.251	-1428.846	122.581	-2142.803	-1555.581	-1368.725	47.663
	1600.00	106.710	482.849	399.576	-1418.189	133.238	-2190.748	-1555.699	-1356.265	44.277
	1700.00	106.989	489.327	404.666	-1407.504	143.923	-2239.360	-1555.895	-1343.794	41.290
	1800.00	107.254	495.450	409.541	-1396.792	154.635	-2288.601	-1556.175	-1331.310	38.634
	1900.00	107.509	501.255	414.217	-1386.054	165.373	-2338.439	-1556.545	-1318.808	36.257
	2000.00	107.756	506.776	418.708	-1375.291	176.136	-2388.843	-1571.139	-1305.839	34.105
	2100.00	107.995	512.039	423.028	-1364.503	186.924	-2439.786	-1571.591	-1292.563	32.151
	2200.00	108.230	517.069	427.189	-1353.692	197.735	-2491.243	-1572.037	-1279.265	30.374
	2273.00	108.398	520.605	430.133	-1345.785	205.642	-2529.119	-1572.359	-1269.545	29.175

References

Phase	H / S	C_p
GAS	Ja1	Ja1

TiH2 TITANIUM DIHYDRIDE 49.896

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	30.275	29.711	29.711	-144.348	0.000	-153.206	-144.348	-105.073	18.408
	300.00	30.307	29.898	29.711	-144.292	0.056	-153.261	-144.392	-104.829	18.252
	400.00	38.565	39.571	30.973	-140.909	3.439	-156.737	-146.503	-91.305	11.923
	500.00	47.905	49.221	33.659	-136.567	7.781	-161.177	-147.785	-77.339	8.080
	600.00	54.856	58.604	37.041	-131.410	12.938	-166.572	-148.342	-63.188	5.501
	700.00	59.831	67.455	40.760	-125.662	18.686	-172.880	-148.404	-48.985	3.655
	800.00	63.439	75.692	44.618	-119.489	24.859	-180.043	-148.155	-34.797	2.272
	900.00	66.116	83.326	48.501	-113.005	31.343	-187.999	-147.726	-20.651	1.199
	1000.00	68.152	90.402	52.341	-106.287	38.061	-196.689	-147.206	-6.559	0.343
	1100.00	69.735	96.975	56.104	-99.390	44.958	-206.062	-146.653	7.479	-0.355
	1200.00	70.991	103.099	59.768	-92.351	51.997	-216.069	-150.104	21.585	-0.940
	1300.00	72.006	108.823	63.324	-85.199	59.149	-226.669	-149.060	35.851	-1.440
	1400.00	72.839	114.190	66.767	-77.956	66.392	-237.822	-148.030	50.036	-1.867
	1500.00	73.533	119.240	70.099	-70.636	73.712	-249.496	-147.036	64.148	-2.234
	1600.00	74.119	124.005	73.320	-63.253	81.095	-261.661	-146.098	78.196	-2.553
	1700.00	74.620	128.514	76.436	-55.815	88.533	-274.289	-145.231	92.188	-2.833
	1800.00	75.053	132.792	79.449	-48.331	96.017	-287.356	-144.449	106.130	-3.080
	1900.00	75.430	136.860	82.364	-40.806	103.542	-300.840	-143.759	120.032	-3.300
	2000.00	75.763	140.737	85.187	-33.246	111.102	-314.721	-157.301	134.345	-3.509

References

Phase	H / S	C_p
SOL	Ja1	Ja1

174.784 TITANIUM MONOIODIDE (GAS) **TiI[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	38.466	268.806	268.806	274.052	0.000	193.908	274.052	220.392	−38.612
	300.00	38.494	269.044	268.807	274.123	0.071	193.410	274.026	220.059	−38.316
	400.00	40.438	280.381	270.339	278.069	4.017	165.916	264.564	202.565	−26.452
	500.00	41.937	289.578	273.296	282.193	8.141	137.404	241.891	189.267	−19.773
	600.00	42.853	297.312	276.671	286.437	12.385	108.049	241.474	178.782	−15.564
	700.00	43.392	303.962	280.106	290.751	16.699	77.978	241.035	168.368	−12.564
	800.00	43.706	309.779	283.459	295.107	21.055	47.285	240.534	158.020	−10.318
	900.00	43.890	314.938	286.676	299.488	25.436	16.044	239.944	147.740	−8.575
	1000.00	44.001	319.568	289.737	303.883	29.831	−15.685	239.250	137.531	−7.184
	1100.00	44.075	323.766	292.643	308.287	34.235	−47.855	238.452	127.397	−6.050
	1200.00	44.133	327.604	295.399	312.698	38.646	−80.427	233.550	117.459	−5.113
	1300.00	44.186	331.138	298.014	317.114	43.062	−113.366	233.076	107.804	−4.332
	1400.00	44.244	334.415	300.498	321.535	47.483	−146.646	232.541	98.188	−3.663
	1500.00	44.311	337.470	302.862	325.963	51.911	−180.242	231.941	88.611	−3.086
	1600.00	44.389	340.332	305.116	330.398	56.346	−214.133	231.268	79.078	−2.582
	1700.00	44.477	343.025	307.267	334.841	60.789	−248.302	230.518	69.588	−2.138
	1800.00	44.576	345.570	309.325	339.293	65.241	−282.733	229.684	60.145	−1.745
	1900.00	44.684	347.983	311.297	343.756	69.704	−317.412	228.762	50.751	−1.395
	2000.00	44.799	350.278	313.189	348.230	74.178	−352.326	213.620	41.853	−1.093

References

Phase	H / S	C_p
GAS	Ja1	Ja1

301.689 TITANIUM DIIODIDE **TiI2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	86.232	122.591	122.591	−266.102	0.000	−302.653	−266.102	−258.854	45.350
	300.00	86.245	123.125	122.593	−265.942	0.160	−302.880	−266.090	−258.809	45.063
	400.00	86.971	148.035	125.984	−257.282	8.820	−316.496	−281.656	−255.904	33.418
	500.00	87.698	167.520	132.413	−248.548	17.554	−332.308	−323.817	−245.433	25.640
	600.00	88.426	183.574	139.641	−239.742	26.360	−349.886	−321.547	−229.970	20.021
	700.00	89.154	197.260	146.918	−230.863	35.239	−368.945	−319.303	−214.885	16.035
	800.00	89.881	209.212	153.973	−221.911	44.191	−389.281	−317.095	−200.119	13.066
	900.00	90.609	219.840	160.712	−212.887	53.215	−410.743	−314.931	−185.628	10.774
	1000.00	91.337	229.425	167.112	−203.789	62.313	−433.214	−312.816	−171.374	8.952
	1100.00	92.065	238.164	173.180	−194.619	71.483	−456.600	−310.746	−157.331	7.471
	1200.00	92.793	246.206	178.935	−185.376	80.726	−480.824	−312.715	−143.355	6.240
	1300.00	93.521	253.662	184.400	−176.061	90.041	−505.822	−310.194	−129.344	5.197
	1357.30	93.938	257.705	187.410	−170.690	95.412	−520.473	−308.747	−121.404	4.672

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	SPT= 1357.3, L= 216.73 kJ

TiI2[g] TITANIUM DIIODIDE (GAS) 301.689

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	60.572	323.533	323.533	−19.665	0.000	−116.126	−19.665	−72.328	12.672
	300.00	60.588	323.907	323.534	−19.553	0.112	−116.725	−19.700	−72.654	12.650
	400.00	61.313	341.445	325.920	−13.455	6.210	−150.033	−37.830	−89.442	11.680
	500.00	61.713	355.174	330.447	−7.301	12.364	−184.889	−82.571	−98.013	10.239
	600.00	61.912	366.446	335.536	−1.119	18.546	−220.986	−82.924	−101.070	8.799
	700.00	62.016	375.998	340.651	5.078	24.743	−258.121	−83.362	−104.061	7.765
	800.00	62.087	384.284	345.599	11.283	30.948	−296.144	−83.900	−106.982	6.985
	900.00	62.157	391.601	350.312	17.495	37.160	−334.945	−84.549	−109.830	6.374
	1000.00	62.246	398.154	354.774	23.715	43.380	−374.439	−85.311	−112.599	5.882
	1100.00	62.364	404.092	358.992	29.945	49.610	−414.556	−86.181	−115.287	5.475
	1200.00	62.516	409.525	362.979	36.189	55.854	−455.240	−91.150	−117.772	5.126
	1300.00	62.705	414.536	366.755	42.450	62.115	−496.447	−91.683	−119.969	4.820
	1400.00	62.932	419.191	370.336	48.731	68.396	−538.136	−92.265	−122.123	4.556
	1500.00	63.196	423.541	373.740	55.038	74.703	−580.275	−92.897	−124.234	4.326
	1600.00	63.496	427.629	376.981	61.372	81.037	−622.835	−93.583	−126.301	4.123
	1700.00	63.830	431.489	380.075	67.738	87.403	−665.793	−94.326	−128.323	3.943
	1800.00	64.197	435.147	383.034	74.139	93.804	−709.126	−95.131	−130.300	3.781
	1900.00	64.593	438.629	385.869	80.578	100.243	−752.816	−95.998	−132.231	3.635
	2000.00	65.018	441.953	388.591	87.059	106.724	−796.847	−111.059	−133.669	3.491

References

Phase	H / S	C_p
GAS	Ja1	Ja1

TiI3 TITANIUM TRIIODIDE 428.593

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	116.770	192.464	192.464	−322.168	0.000	−379.551	−322.168	−318.439	55.789
	300.00	116.784	193.186	192.466	−321.952	0.216	−379.908	−322.149	−318.416	55.441
	400.00	117.512	226.883	197.056	−310.237	11.931	−400.990	−345.482	−316.456	41.325
	500.00	118.240	253.183	205.746	−298.450	23.718	−425.041	−408.685	−303.154	31.670
	600.00	118.968	274.805	215.507	−286.589	35.579	−451.472	−405.237	−282.372	24.583
	700.00	119.696	293.199	225.324	−274.656	47.512	−479.895	−401.820	−262.165	19.563
	800.00	120.424	309.229	234.832	−262.650	59.518	−510.033	−398.443	−242.445	15.830
	900.00	121.152	323.455	243.903	−250.571	71.597	−541.681	−395.115	−223.146	12.951
	999.00	121.873	336.136	252.425	−238.542	83.626	−574.341	−391.872	−204.402	10.688

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	SPT= 999., L= 148.1 kJ

428.593

TITANIUM TRIIODIDE (GAS) — TiI3[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	80.790	382.109	382.109	−150.206	0.000	−264.132	−150.206	−203.019	35.568
	300.00	80.884	382.609	382.110	−150.056	0.150	−264.839	−150.254	−203.347	35.406
	400.00	84.075	406.386	385.330	−141.784	8.422	−304.338	−177.028	−219.804	28.703
	500.00	85.416	425.310	391.499	−133.300	16.906	−345.956	−243.536	−224.068	23.408
	600.00	86.028	440.945	398.475	−124.724	25.482	−389.291	−243.372	−220.191	19.169
	700.00	86.297	454.229	405.515	−116.106	34.100	−434.067	−243.270	−216.337	16.143
	800.00	86.382	465.760	412.341	−107.471	42.735	−480.079	−243.264	−212.491	13.874
	900.00	86.335	475.931	418.853	−98.835	51.371	−527.173	−243.379	−208.639	12.109
	1000.00	86.287	485.025	425.023	−90.204	60.002	−575.229	−243.624	−204.767	10.696
	1100.00	86.239	493.247	430.858	−81.578	68.628	−624.149	−243.995	−200.864	9.538
	1200.00	86.190	500.748	436.374	−72.956	77.250	−673.855	−248.487	−196.803	8.567
	1300.00	86.142	507.645	441.594	−64.340	85.866	−724.279	−248.568	−192.493	7.734
	1400.00	86.094	514.028	446.543	−55.728	94.478	−775.366	−248.726	−188.174	7.021
	1500.00	86.046	519.966	451.242	−47.121	103.085	−827.070	−248.968	−183.841	6.402
	1600.00	85.998	525.518	455.713	−38.519	111.687	−879.347	−249.299	−179.489	5.860
	1700.00	85.950	530.730	459.974	−29.921	120.285	−932.162	−249.727	−175.113	5.381
	1800.00	85.902	535.641	464.043	−21.329	128.877	−985.483	−250.259	−170.710	4.954
	1900.00	85.854	540.284	467.934	−12.741	137.465	−1039.281	−250.900	−166.273	4.571
	2000.00	85.805	544.687	471.663	−4.158	146.048	−1093.531	−265.783	−161.355	4.214

References

Phase	H / S	C_p
GAS	Ja1	Ja1

555.498

TITANIUM TETRAIODIDE — TiI4

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	125.653	246.019	246.019	−375.723	0.000	−449.074	−375.723	−370.647	64.936
	300.00	125.947	246.797	246.022	−375.490	0.233	−449.529	−375.738	−370.616	64.530
	379.00	138.507	277.649	249.473	−365.044	10.679	−470.273	−376.456	−369.188	50.882
			26.164		9.916					
SOL−B	379.00	148.114	303.812	249.473	−355.128	20.595	−470.273	−366.540	−369.188	50.882
	400.00	148.114	311.800	252.537	−352.018	23.705	−476.738	−398.132	−368.261	48.090
	428.00	148.114	321.821	256.746	−347.871	27.852	−485.610	−399.249	−366.132	44.684
			46.336		19.832					
LIQ	428.00	156.482	368.157	256.746	−328.039	47.684	−485.610	−379.417	−366.132	44.684
	500.00	156.482	392.488	274.586	−316.772	58.951	−513.016	−461.974	−356.117	37.203
	600.00	156.482	421.018	296.686	−301.124	74.599	−553.735	−456.613	−335.451	29.204
	651.80	156.482	433.976	307.089	−293.018	82.705	−575.884	−453.880	−325.105	26.054

References

Phase	H / S	C_p	Remarks	
SOL−A	Ja1	Ja1		
SOL−B	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	BPT= 651.8, L= 56.5 kJ

TiI4[g] TITANIUM TETRAIODIDE (GAS) 555.498

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	104.247	433.070	433.070	−277.274	0.000	−406.394	−277.274	−327.967	57.459
	300.00	104.294	433.715	433.072	−277.081	0.193	−407.196	−277.329	−328.282	57.159
	400.00	105.931	463.976	437.187	−266.558	10.716	−452.149	−312.672	−343.672	44.879
	500.00	106.691	487.705	445.003	−255.923	21.351	−499.775	−401.125	−342.876	35.820
	600.00	107.106	507.197	453.792	−245.231	32.043	−549.549	−400.721	−331.266	28.839
	700.00	107.358	523.728	462.632	−234.507	42.767	−601.117	−400.394	−319.717	23.858
	800.00	107.523	538.075	471.186	−223.762	53.512	−654.223	−400.165	−308.208	20.124
	900.00	107.637	550.746	479.335	−213.004	64.270	−708.676	−400.048	−296.722	17.221
	1000.00	107.720	562.092	487.054	−202.236	75.038	−764.328	−400.050	−285.242	14.900
	1100.00	107.783	572.362	494.350	−191.461	85.813	−821.058	−400.169	−273.757	13.000
	1200.00	107.831	581.742	501.247	−180.680	96.594	−878.770	−404.402	−262.136	11.410
	1300.00	107.870	590.375	507.775	−169.895	107.379	−937.382	−404.219	−250.289	10.057
	1400.00	107.901	598.370	513.964	−159.106	118.168	−996.824	−404.107	−238.452	8.897
	1500.00	107.928	605.815	519.842	−148.315	128.959	−1057.038	−404.074	−226.622	7.892
	1600.00	107.950	612.781	525.436	−137.521	139.753	−1117.971	−404.126	−214.790	7.012
	1700.00	107.969	619.326	530.768	−126.725	150.549	−1179.580	−404.272	−202.953	6.236
	1800.00	107.986	625.498	535.861	−115.927	161.347	−1241.824	−404.518	−191.104	5.546
	1900.00	108.001	631.337	540.734	−105.128	172.146	−1304.668	−404.869	−179.238	4.928
	2000.00	108.014	636.877	545.404	−94.327	182.947	−1368.082	−419.460	−166.907	4.359

References

Phase	H / S	C_p
GAS	Ja1	Ja1

61.887 TITANIUM MONONITRIDE **TiN**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	37.072	30.292	30.292	−337.858	0.000	−346.890	−337.858	−309.155	54.163
	300.00	37.251	30.522	30.293	−337.789	0.069	−346.946	−337.863	−308.977	53.798
	400.00	43.664	42.241	31.847	−333.701	4.157	−350.597	−337.821	−299.341	39.090
	500.00	46.844	52.360	34.964	−329.160	8.698	−355.340	−337.451	−289.759	30.271
	600.00	48.751	61.082	38.607	−324.373	13.485	−361.022	−336.941	−280.267	24.399
	700.00	50.057	68.701	42.374	−319.429	18.429	−367.520	−336.391	−270.865	20.212
	800.00	51.043	75.452	46.095	−314.372	23.486	−374.734	−335.859	−261.541	17.077
	900.00	51.842	81.511	49.699	−309.227	28.631	−382.587	−335.383	−252.281	14.642
	1000.00	52.526	87.010	53.159	−304.007	33.851	−391.017	−334.978	−243.069	12.697
	1100.00	53.134	92.045	56.469	−298.724	39.134	−399.973	−334.649	−233.895	11.107
	1200.00	53.691	96.692	59.629	−293.382	44.476	−409.413	−338.393	−224.628	9.778
	1300.00	54.211	101.011	62.648	−287.987	49.871	−419.301	−337.681	−215.177	8.646
	1400.00	54.706	105.047	65.534	−282.541	55.317	−429.606	−337.001	−205.779	7.678
	1500.00	55.180	108.837	68.296	−277.046	60.812	−440.302	−336.359	−196.429	6.840
	1600.00	55.640	112.413	70.943	−271.505	66.353	−451.366	−335.761	−187.120	6.109
	1700.00	56.089	115.800	73.483	−265.919	71.939	−462.778	−335.215	−177.847	5.465
	1800.00	56.529	119.018	75.924	−260.288	77.570	−474.521	−334.726	−168.605	4.893
	1900.00	56.961	122.086	78.273	−254.613	83.245	−486.577	−334.299	−159.388	4.382
	2000.00	57.388	125.019	80.538	−248.896	88.962	−498.933	−348.067	−149.747	3.911
	2100.00	57.810	127.829	82.723	−243.136	94.722	−511.577	−347.666	−139.840	3.478
	2200.00	58.228	130.528	84.835	−237.334	100.524	−524.495	−347.231	−129.954	3.085
	2300.00	58.643	133.125	86.879	−231.490	106.368	−537.679	−346.760	−120.088	2.727
	2400.00	59.056	135.630	88.858	−225.605	112.253	−551.117	−346.254	−110.243	2.399
	2500.00	59.466	138.049	90.778	−219.679	118.179	−564.802	−345.713	−100.421	2.098
	2600.00	59.874	140.389	92.641	−213.712	124.146	−578.725	−345.136	−90.620	1.821
	2700.00	60.281	142.657	94.452	−207.705	130.153	−592.878	−344.522	−80.843	1.564
	2800.00	60.686	144.856	96.213	−201.656	136.202	−607.254	−343.872	−71.089	1.326
	2900.00	61.090	146.993	97.927	−195.568	142.290	−621.847	−343.186	−61.358	1.105
	3000.00	61.493	149.071	99.597	−189.438	148.420	−636.650	−342.463	−51.652	0.899
	3100.00	61.895	151.094	101.226	−183.269	154.589	−651.659	−341.703	−41.971	0.707
	3200.00	62.296	153.065	102.815	−177.059	160.799	−666.867	−340.907	−32.315	0.527
	3223.00	62.388	153.511	103.176	−175.626	162.232	−670.393	−340.718	−30.097	0.488
			19.473		62.760					
LIQ	3223.00	66.944	172.984	103.176	−112.866	224.992	−670.393	−277.958	−30.097	0.488
	3300.00	66.944	174.565	104.823	−107.711	230.147	−683.774	−276.974	−24.188	0.383
	3400.00	66.944	176.563	106.904	−101.017	236.841	−701.331	−275.698	−16.546	0.254
	3500.00	66.944	178.504	108.922	−94.322	243.536	−719.084	−274.425	−8.943	0.133

References

Phase	H / S	C_p
SOL	Sh1	Sh1
LIQ	Sh1	Sh1

TiO TITANIUM MONOXIDE 63.879

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL-A	298.15	39.950	34.769	34.769	-542.665	0.000	-553.031	-542.665	-513.278	89.924
	300.00	40.070	35.016	34.770	-542.591	0.074	-553.096	-542.665	-513.096	89.338
	400.00	44.976	47.277	36.408	-538.317	4.348	-557.228	-542.465	-503.261	65.719
	500.00	48.244	57.682	39.649	-533.648	9.017	-562.490	-542.026	-493.507	51.556
	600.00	50.834	66.714	43.424	-528.691	13.974	-568.719	-541.433	-483.857	42.123
	700.00	53.096	74.723	47.333	-523.492	19.173	-575.798	-540.735	-474.315	35.394
	800.00	55.181	81.951	51.216	-518.077	24.588	-583.638	-539.959	-464.878	30.353
	900.00	57.162	88.565	55.003	-512.459	30.206	-592.168	-539.125	-455.543	26.439
	1000.00	59.079	94.687	58.669	-506.647	36.018	-601.334	-538.238	-446.303	23.312
	1100.00	60.955	100.406	62.207	-500.645	42.020	-611.092	-537.296	-437.155	20.759
	1200.00	62.804	105.790	65.616	-494.457	48.208	-621.405	-540.293	-427.976	18.629
	1265.00	63.996	109.134	67.767	-490.336	52.329	-628.390	-539.270	-421.919	17.422
			3.308		4.184					
SOL-B	1265.00	64.001	112.441	67.767	-486.152	56.513	-628.390	-535.086	-421.919	17.422
	1300.00	64.638	114.197	68.993	-483.901	58.764	-632.356	-534.515	-418.796	16.827
	1400.00	66.449	119.053	72.397	-477.346	65.319	-644.021	-532.817	-409.957	15.296
	1500.00	68.249	123.699	75.663	-470.611	72.054	-656.160	-531.020	-401.244	13.973
	1600.00	70.040	128.161	78.806	-463.697	78.968	-668.755	-529.133	-392.653	12.819
	1700.00	71.825	132.461	81.836	-456.604	86.061	-681.787	-527.164	-384.183	11.804
	1800.00	73.604	136.617	84.765	-449.332	93.333	-695.242	-525.118	-375.831	10.906
	1900.00	75.380	140.644	87.600	-441.883	100.782	-709.106	-523.001	-367.594	10.106
	2000.00	77.152	144.555	90.351	-434.256	108.409	-723.367	-534.947	-359.026	9.377
	2023.00	77.559	145.440	90.972	-432.477	110.188	-726.702	-534.420	-357.006	9.218
			20.682		41.840					
LIQ	2023.00	66.944	166.122	90.972	-390.637	152.028	-726.702	-492.580	-357.006	9.218
	2100.00	66.944	168.623	93.774	-385.482	157.183	-739.590	-491.623	-351.864	8.752
	2200.00	66.944	171.737	97.247	-378.788	163.877	-756.609	-490.389	-345.238	8.197
	2300.00	66.944	174.713	100.551	-372.094	170.571	-773.933	-489.166	-338.668	7.691
	2400.00	66.944	177.562	103.701	-365.399	177.266	-791.547	-487.954	-332.150	7.229
	2500.00	66.944	180.295	106.710	-358.705	183.960	-809.441	-486.754	-325.683	6.805
	2600.00	66.944	182.920	109.591	-352.010	190.655	-827.603	-485.564	-319.264	6.414
	2700.00	66.944	185.447	112.354	-345.316	197.349	-846.022	-484.385	-312.890	6.053
	2800.00	66.944	187.881	115.009	-338.622	204.043	-864.689	-483.216	-306.560	5.719
	2900.00	66.944	190.230	117.562	-331.927	210.738	-883.595	-482.056	-300.271	5.408
	3000.00	66.944	192.500	120.023	-325.233	217.432	-902.733	-480.907	-294.022	5.119

References

Phase	H / S	C_p
SOL-A	Ja1	Ja1
SOL-B	Ja1	Ja1
LIQ	Ja1	Ja1

63.879 TITANIUM MONOXIDE (GAS) **TiO[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	32.479	233.476	233.476	54.392	0.000	−15.219	54.392	24.534	−4.298
	300.00	32.500	233.677	233.477	54.452	0.060	−15.651	54.379	24.349	−4.240
	400.00	34.011	243.228	234.769	57.776	3.384	−39.515	53.628	14.452	−1.887
	500.00	35.291	250.963	237.258	61.245	6.853	−64.237	52.867	4.745	−0.496
	600.00	36.177	257.481	240.100	64.821	10.429	−89.668	52.078	−4.806	0.418
	700.00	36.787	263.106	242.994	68.471	14.079	−115.704	51.228	−14.220	1.061
	800.00	37.214	268.048	245.823	72.172	17.780	−142.266	50.290	−23.507	1.535
	900.00	37.520	272.450	248.541	75.910	21.518	−169.295	49.244	−32.670	1.896
	1000.00	37.745	276.415	251.134	79.673	25.281	−196.742	48.083	−41.711	2.179
	1100.00	37.915	280.021	253.599	83.457	29.065	−224.566	46.806	−50.629	2.404
	1200.00	38.046	283.326	255.940	87.255	32.863	−252.736	41.419	−59.307	2.582
	1300.00	38.150	286.376	258.165	91.065	36.673	−281.223	40.450	−67.662	2.719
	1400.00	38.237	289.206	260.283	94.885	40.493	−310.004	39.414	−75.940	2.833
	1500.00	38.313	291.847	262.300	98.712	44.320	−339.058	38.303	−84.141	2.930
	1600.00	38.383	294.322	264.225	102.547	48.155	−368.368	37.110	−92.266	3.012
	1700.00	38.452	296.651	266.064	106.389	51.997	−397.917	35.829	−100.313	3.082
	1800.00	38.522	298.851	267.825	110.237	55.845	−427.694	34.452	−108.282	3.142
	1900.00	38.598	300.935	269.514	114.093	59.701	−457.684	32.975	−116.172	3.194
	2000.00	38.680	302.917	271.135	117.957	63.565	−487.877	17.266	−123.537	3.226
	2100.00	38.773	304.807	272.693	121.830	67.438	−518.264	15.690	−130.538	3.247
	2200.00	38.877	306.613	274.194	125.712	71.320	−548.836	14.111	−137.464	3.264
	2300.00	38.996	308.343	275.642	129.606	75.214	−579.584	12.533	−144.319	3.278
	2400.00	39.131	310.006	277.039	133.512	79.120	−610.502	10.957	−151.105	3.289
	2500.00	39.283	311.606	278.390	137.432	83.040	−641.583	9.383	−157.825	3.298
	2600.00	39.454	313.150	279.698	141.369	86.977	−672.822	7.816	−164.482	3.304
	2700.00	39.647	314.643	280.964	145.324	90.932	−704.212	6.255	−171.080	3.310
	2800.00	39.863	316.089	282.193	149.299	94.907	−735.749	4.705	−177.619	3.314
	2900.00	40.103	317.491	283.386	153.297	98.905	−767.428	3.168	−184.104	3.316
	3000.00	40.369	318.855	284.546	157.321	102.929	−799.246	1.647	−190.535	3.318

References

Phase	H / S	C_p
GAS	Ja1	Ja1

TiO2 TITANIUM DIOXIDE (RUTILE) 79.879

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	55.103	50.292	50.292	−944.747	0.000	−959.741	−944.747	−889.406	155.820
	300.00	55.288	50.633	50.293	−944.645	0.102	−959.835	−944.746	−889.063	154.800
	400.00	62.836	67.675	52.565	−938.703	6.044	−965.773	−944.364	−870.544	113.681
	500.00	67.204	82.207	57.078	−932.182	12.565	−973.286	−943.603	−852.173	89.026
	600.00	69.930	94.719	62.334	−925.316	19.431	−982.147	−942.681	−833.972	72.604
	700.00	71.762	105.645	67.757	−918.226	26.521	−992.177	−941.718	−815.930	60.885
	800.00	73.074	115.317	73.109	−910.981	33.766	−1003.234	−940.781	−798.025	52.106
	900.00	74.066	123.984	78.289	−903.622	41.125	−1015.207	−939.907	−780.233	45.284
	1000.00	74.849	131.829	83.257	−896.174	48.573	−1028.004	−939.116	−762.535	39.831
	1100.00	75.491	138.994	88.003	−888.657	56.090	−1041.550	−938.413	−744.912	35.373
	1200.00	76.035	145.587	92.531	−881.080	63.667	−1055.784	−941.797	−727.229	31.655
	1300.00	76.508	151.692	96.849	−873.452	71.295	−1070.651	−940.739	−709.392	28.504
	1400.00	76.928	157.377	100.972	−865.780	78.967	−1086.108	−939.729	−691.634	25.805
	1500.00	77.310	162.698	104.912	−858.068	86.679	−1102.115	−938.776	−673.947	23.469
	1600.00	77.661	167.699	108.681	−850.319	94.428	−1118.637	−937.888	−656.321	21.427
	1700.00	77.988	172.417	112.293	−842.536	102.211	−1135.645	−937.075	−638.748	19.626
	1800.00	78.297	176.883	115.758	−834.722	110.025	−1153.112	−936.344	−621.221	18.027
	1900.00	78.591	181.125	119.088	−826.877	117.870	−1171.014	−935.702	−603.732	16.598
	2000.00	78.872	185.163	122.292	−819.004	125.743	−1189.330	−949.283	−585.830	15.300
	2100.00	79.144	189.018	125.378	−811.103	133.644	−1208.041	−948.724	−567.671	14.120
	2130.00	79.224	190.141	126.282	−808.728	136.019	−1213.728	−948.555	−562.228	13.788
			31.429		66.944					
LIQ	2130.00	100.416	221.570	126.282	−741.784	202.963	−1213.728	−881.611	−562.228	13.788
	2200.00	100.416	224.817	129.366	−734.754	209.993	−1229.352	−879.740	−551.763	13.101
	2300.00	100.416	229.281	133.614	−724.713	220.034	−1252.059	−877.085	−536.914	12.194
	2400.00	100.416	233.555	137.690	−714.671	230.076	−1275.202	−874.453	−522.181	11.365
	2500.00	100.416	237.654	141.607	−704.630	240.117	−1298.764	−871.842	−507.556	10.605
	2600.00	100.416	241.592	145.377	−694.588	250.159	−1322.727	−869.253	−493.036	9.905
	2700.00	100.416	245.382	149.011	−684.546	260.201	−1347.077	−866.685	−478.615	9.259
	2800.00	100.416	249.034	152.519	−674.505	270.242	−1371.799	−864.138	−464.289	8.661
	2900.00	100.416	252.557	155.908	−664.463	280.284	−1396.880	−861.611	−450.053	8.106
	3000.00	100.416	255.962	159.187	−654.422	290.325	−1422.307	−859.102	−435.904	7.590

References

Phase	H / S	C_p
SOL	Ja1	Ja1
LIQ	Ja1	Ja1

79.879 TITANIUM DIOXIDE (ANATASE) **TiO2[A]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	55.271	49.907	49.907	−938.722	0.000	−953.602	−938.722	−883.266	154.745
	300.00	55.472	50.249	49.908	−938.620	0.102	−953.694	−938.720	−882.922	153.730
	400.00	63.591	67.437	52.196	−932.626	6.096	−959.600	−938.286	−864.372	112.875
	500.00	68.144	82.162	56.754	−926.018	12.704	−967.099	−937.439	−845.986	88.380
	600.00	70.889	94.848	62.071	−919.056	19.666	−975.965	−936.421	−827.789	72.065
	700.00	72.659	105.918	67.561	−911.873	26.849	−986.015	−935.364	−809.768	60.426
	800.00	73.863	115.703	72.980	−904.543	34.179	−997.106	−934.343	−791.896	51.705
	900.00	74.718	124.455	78.221	−897.112	41.610	−1009.121	−933.397	−774.148	44.930
	1000.00	75.349	132.362	83.247	−889.607	49.115	−1021.969	−932.549	−756.500	39.515
	1100.00	75.827	139.567	88.044	−882.047	56.675	−1035.570	−931.804	−738.932	35.089
	1200.00	76.199	146.181	92.617	−874.445	64.277	−1049.862	−935.162	−721.308	31.398
	1300.00	76.494	152.292	96.975	−866.810	71.912	−1064.790	−934.096	−703.530	28.268
	1400.00	76.734	157.970	101.132	−859.148	79.574	−1080.306	−933.097	−685.832	25.589
	1500.00	76.930	163.271	105.100	−851.464	87.258	−1096.371	−932.173	−668.203	23.269
	1600.00	77.094	168.242	108.892	−843.763	94.959	−1112.949	−931.332	−650.633	21.241
	1700.00	77.233	172.920	112.522	−836.046	102.676	−1130.010	−930.585	−633.113	19.453
	1800.00	77.352	177.338	116.002	−828.317	110.405	−1147.525	−929.940	−615.634	17.865
	1900.00	77.454	181.523	119.341	−820.577	118.145	−1165.470	−929.401	−598.188	16.445
	2000.00	77.544	185.498	122.550	−812.827	125.895	−1183.822	−943.105	−580.322	15.156

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	TPT 918. (ANATASE − RUTILE)

Ti2O3 DITITANIUM TRIOXIDE 143.758

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL−A	298.15	95.805	77.237	77.237	−1520.884	0.000	−1543.912	−1520.884	−1433.824	251.200
	300.00	96.199	77.830	77.238	−1520.706	0.178	−1544.056	−1520.881	−1433.283	249.557
	400.00	117.528	108.426	81.266	−1510.020	10.864	−1553.391	−1519.829	−1404.195	183.369
	470.00	132.459	128.551	86.821	−1501.270	19.614	−1561.690	−1518.038	−1384.095	153.825
			2.421		1.138					
SOL−B	470.00	127.613	130.973	86.821	−1500.132	20.752	−1561.690	−1516.900	−1384.095	153.825
	500.00	130.243	138.952	89.711	−1496.263	24.621	−1565.739	−1516.062	−1375.644	143.713
	600.00	136.449	163.295	99.992	−1482.902	37.982	−1580.879	−1513.010	−1347.842	117.340
	700.00	140.329	184.641	110.592	−1469.050	51.834	−1598.299	−1509.784	−1320.568	98.542
	800.00	142.969	203.562	121.054	−1454.877	66.007	−1617.727	−1506.559	−1293.758	84.474
	900.00	144.888	220.518	131.180	−1440.480	80.404	−1638.946	−1503.431	−1267.347	73.555
	1000.00	146.359	235.862	140.893	−1425.914	94.970	−1661.777	−1500.447	−1241.276	64.838
	1100.00	147.538	249.869	150.172	−1411.218	109.666	−1686.073	−1497.625	−1215.497	57.719
	1200.00	148.518	262.750	159.024	−1396.413	124.471	−1711.713	−1502.967	−1189.730	51.788
	1300.00	149.357	274.671	167.467	−1381.519	139.365	−1738.591	−1499.420	−1163.771	46.761
	1400.00	150.095	285.768	175.526	−1366.545	154.339	−1766.620	−1495.965	−1138.082	42.462
	1500.00	150.758	296.146	183.225	−1351.502	169.382	−1795.721	−1492.619	−1112.637	38.745
	1600.00	151.363	305.895	190.590	−1336.396	184.488	−1825.828	−1489.402	−1087.410	35.500
	1700.00	151.924	315.089	197.646	−1321.231	199.653	−1856.882	−1486.330	−1062.381	32.643
	1800.00	152.450	323.787	204.414	−1306.012	214.872	−1888.829	−1483.421	−1037.527	30.108
	1900.00	152.949	332.043	210.916	−1290.742	230.142	−1921.624	−1480.684	−1012.831	27.845
	2000.00	153.425	339.901	217.170	−1275.423	245.461	−1955.225	−1506.393	−987.384	25.788
	2100.00	153.884	347.398	223.195	−1260.058	260.826	−1989.592	−1503.819	−961.497	23.916
	2115.00	153.951	348.493	224.079	−1257.749	263.135	−1994.812	−1503.431	−957.624	23.651
			49.456		104.600					
LIQ	2115.00	156.900	397.949	224.079	−1153.149	367.735	−1994.812	−1398.831	−957.624	23.651
	2200.00	156.900	404.132	230.917	−1139.812	381.072	−2028.902	−1396.398	−939.941	22.317
	2300.00	156.900	411.106	238.601	−1124.122	396.762	−2069.666	−1393.567	−919.257	20.877
	2400.00	156.900	417.784	245.929	−1108.432	412.452	−2111.113	−1390.769	−898.694	19.560
	2500.00	156.900	424.189	252.932	−1092.742	428.142	−2153.214	−1388.004	−878.248	18.350
	2600.00	156.900	430.342	259.638	−1077.052	443.832	−2195.943	−1385.271	−857.912	17.236
	2700.00	156.900	436.264	266.071	−1061.362	459.522	−2239.275	−1382.570	−837.680	16.206
	2800.00	156.900	441.970	272.251	−1045.672	475.212	−2283.188	−1379.900	−817.548	15.252
	2900.00	156.900	447.476	278.199	−1029.982	490.902	−2327.662	−1377.259	−797.511	14.365
	3000.00	156.900	452.795	283.931	−1014.292	506.592	−2372.677	−1374.647	−777.564	13.539

References

Phase	H / S	C_p
SOL−A	Ja1	Ja1
SOL−B	Ja1	Ja1
LIQ	Ja1	Ja1

223.637 TRITITANIUM PENTOXIDE **Ti3O5**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL-A	298.15	154.808	129.369	129.369	-2459.146	0.000	-2497.717	-2459.146	-2317.294	405.980
	300.00	155.477	130.329	129.372	-2458.859	0.287	-2497.958	-2459.134	-2316.413	403.323
	400.00	182.841	179.219	135.851	-2441.799	17.347	-2513.486	-2457.268	-2269.062	296.309
	450.00	190.025	201.212	141.907	-2432.459	26.687	-2523.004	-2455.739	-2245.626	260.665
			29.473		13.263					
SOL-B	450.00	181.586	230.685	141.907	-2419.196	39.950	-2523.004	-2442.476	-2245.626	260.665
	500.00	184.096	249.947	151.763	-2410.054	49.092	-2535.027	-2441.272	-2223.818	232.321
	600.00	189.117	283.955	171.034	-2391.393	67.753	-2561.766	-2438.866	-2180.553	189.834
	700.00	194.138	313.485	189.320	-2372.231	86.915	-2591.670	-2436.457	-2137.692	159.517
	800.00	199.158	339.736	206.511	-2352.566	106.580	-2624.355	-2434.048	-2095.176	136.801
	900.00	204.179	363.483	222.653	-2332.399	126.747	-2659.534	-2431.635	-2052.961	119.151
	1000.00	209.200	385.256	237.840	-2311.730	147.416	-2696.986	-2429.205	-2011.017	105.045
	1100.00	214.221	405.430	252.169	-2290.559	168.587	-2736.532	-2426.723	-1969.317	93.515
	1200.00	219.242	424.285	265.735	-2268.886	190.260	-2778.028	-2436.156	-1927.490	83.901
	1300.00	224.262	442.032	278.620	-2246.711	212.435	-2821.352	-2431.898	-1885.272	75.751
	1400.00	229.283	458.835	290.898	-2224.033	235.113	-2866.403	-2427.402	-1843.391	68.778
	1500.00	234.304	474.825	302.631	-2200.854	258.292	-2913.092	-2422.679	-1801.840	62.746
	1600.00	239.325	490.107	313.874	-2177.173	281.973	-2961.344	-2417.748	-1760.610	57.478
	1700.00	244.346	504.767	324.675	-2152.989	306.157	-3011.093	-2412.627	-1719.695	52.840
	1800.00	249.366	518.875	335.074	-2128.303	330.843	-3062.279	-2407.335	-1679.086	48.726
	1900.00	254.387	532.493	345.108	-2103.116	356.030	-3114.852	-2401.883	-1638.776	45.053
	2000.00	259.408	545.669	354.809	-2077.426	381.720	-3168.763	-2438.675	-1597.422	41.720
	2050.00	261.918	552.105	359.542	-2064.393	394.753	-3196.208	-2435.701	-1576.427	40.168
			83.680		171.544					
LIQ	2050.00	267.776	635.785	359.542	-1892.849	566.297	-3196.208	-2264.157	-1576.427	40.168
	2100.00	267.776	642.238	366.197	-1879.460	579.686	-3228.159	-2260.842	-1559.694	38.795
	2200.00	267.776	654.695	379.029	-1852.682	606.464	-3293.010	-2254.254	-1526.460	36.243
	2300.00	267.776	666.598	391.275	-1825.905	633.241	-3359.079	-2247.722	-1493.525	33.919
	2400.00	267.776	677.994	402.986	-1799.127	660.019	-3426.313	-2241.246	-1460.873	31.795
	2500.00	267.776	688.925	414.207	-1772.350	686.796	-3494.663	-2234.824	-1428.490	29.847
	2600.00	267.776	699.428	424.976	-1745.572	713.574	-3564.084	-2228.456	-1396.362	28.053
	2700.00	267.776	709.534	435.329	-1718.794	740.352	-3634.535	-2222.141	-1364.478	26.397
	2800.00	267.776	719.272	445.297	-1692.017	767.129	-3705.978	-2215.877	-1332.828	24.864
	2900.00	267.776	728.669	454.908	-1665.239	793.907	-3778.378	-2209.663	-1301.400	23.441
	3000.00	267.776	737.747	464.185	-1638.462	820.684	-3851.701	-2203.497	-1270.186	22.116

References

Phase	H / S	C_p
SOL-A	Ja1	Ja1
SOL-B	Ja1	Ja1
LIQ	Ja1	Ja1

Ti_4O_7 TETRATITANIUM HEPTAOXIDE 303.516

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	208.488	198.740	198.740	-3404.521	0.000	-3463.775	-3404.521	-3213.016	562.907
	300.00	209.201	200.032	198.744	-3404.135	0.386	-3464.144	-3404.510	-3211.828	559.229
	400.00	239.910	264.774	207.362	-3381.556	22.965	-3487.466	-3402.687	-3147.813	411.062
	500.00	258.868	320.508	224.554	-3356.544	47.977	-3516.798	-3399.183	-3084.476	322.233
	600.00	271.153	368.865	244.668	-3330.003	74.518	-3551.322	-3394.840	-3021.933	263.083
	700.00	279.673	411.340	265.507	-3302.438	102.083	-3590.376	-3390.155	-2960.150	220.889
	800.00	285.957	449.114	286.140	-3274.142	130.379	-3633.433	-3385.423	-2899.044	189.288
	900.00	290.843	483.088	306.168	-3245.293	159.228	-3680.072	-3380.815	-2838.526	164.744
	1000.00	294.814	513.944	325.426	-3216.004	188.517	-3729.947	-3376.420	-2778.509	145.134
	1100.00	298.162	542.204	343.867	-3186.350	218.171	-3782.774	-3372.271	-2718.921	129.111
	1200.00	301.074	568.275	361.495	-3156.386	248.135	-3838.315	-3384.373	-2659.223	115.753
	1300.00	303.669	592.478	378.343	-3126.146	278.375	-3896.367	-3378.621	-2599.028	104.430
	1400.00	306.031	615.070	394.454	-3095.659	308.862	-3956.757	-3372.977	-2539.272	94.741
	1500.00	308.216	636.259	409.876	-3064.946	339.575	-4019.334	-3367.479	-2479.914	86.358
	1600.00	310.265	656.217	424.654	-3034.021	370.500	-4083.968	-3362.165	-2420.918	79.035
	1700.00	312.208	675.085	438.836	-3002.896	401.625	-4150.541	-3357.073	-2362.247	72.583
	1800.00	314.066	692.984	452.462	-2971.582	432.939	-4218.952	-3352.236	-2303.868	66.857
	1900.00	315.857	710.013	465.573	-2940.085	464.436	-4289.109	-3347.677	-2245.751	61.740
	1950.00	316.731	718.228	471.946	-2924.271	480.250	-4324.816	-3402.091	-2216.461	59.372
			115.865		225.936					
LIQ	1950.00	368.192	834.093	471.946	-2698.335	706.186	-4324.816	-3176.155	-2216.461	59.372
	2000.00	368.192	843.415	481.117	-2679.925	724.596	-4366.755	-3171.453	-2191.913	57.247
	2100.00	368.192	861.379	498.800	-2643.106	761.415	-4452.002	-3162.108	-2143.166	53.308
	2200.00	368.192	878.507	515.673	-2606.287	798.234	-4539.003	-3152.843	-2094.863	49.738
	2300.00	368.192	894.874	531.807	-2569.467	835.054	-4627.678	-3143.657	-2046.979	46.488
	2400.00	368.192	910.544	547.264	-2532.648	871.873	-4717.954	-3134.548	-1999.493	43.518
	2500.00	368.192	925.574	562.098	-2495.829	908.692	-4809.765	-3125.516	-1952.384	40.793
	2600.00	368.192	940.015	576.357	-2459.010	945.511	-4903.049	-3116.559	-1905.636	38.285
	2700.00	368.192	953.911	590.085	-2422.191	982.330	-4997.750	-3107.676	-1859.231	35.969
	2800.00	368.192	967.301	603.319	-2385.371	1019.150	-5093.815	-3098.865	-1813.154	33.825
	2900.00	368.192	980.222	616.094	-2348.552	1055.969	-5191.195	-3090.124	-1767.390	31.834
	3000.00	368.192	992.704	628.441	-2311.733	1092.788	-5289.844	-3081.449	-1721.927	29.981

References

Phase	H / S	C_p
SOL	Ja1	Ja1
LIQ	Ja1	Ja1

99.332 TITANIUM CHLORIDE OXIDE (GAS) **TiOCl[g]**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[-]
GAS	298.15	51.660	263.668	263.668	-244.346	0.000	-322.959	-244.346	-249.944	43.789
	300.00	51.734	263.988	263.669	-244.250	0.096	-323.447	-244.355	-249.979	43.525
	400.00	55.086	279.363	265.742	-238.898	5.448	-350.643	-244.811	-251.783	32.879
	500.00	57.213	291.902	269.759	-233.275	11.071	-379.226	-245.203	-253.479	26.481
	600.00	58.562	302.461	274.353	-227.481	16.865	-408.958	-245.592	-255.099	22.208
	700.00	59.455	311.560	279.033	-221.577	22.769	-439.669	-246.026	-256.650	19.151
	800.00	60.073	319.542	283.608	-215.599	28.747	-471.233	-246.540	-258.133	16.854
	900.00	60.516	326.644	288.003	-209.569	34.777	-503.548	-247.156	-259.546	15.064
	1000.00	60.843	333.038	292.192	-203.500	40.846	-536.538	-247.883	-260.885	13.627
	1100.00	61.092	338.849	296.173	-197.402	46.944	-570.137	-248.723	-262.146	12.448
	1200.00	61.286	344.174	299.955	-191.283	53.063	-604.291	-253.671	-263.206	11.457
	1300.00	61.439	349.085	303.547	-185.147	59.199	-638.958	-254.199	-263.980	10.607
	1400.00	61.562	353.643	306.965	-178.996	65.350	-674.097	-254.795	-264.710	9.876
	1500.00	61.662	357.894	310.220	-172.835	71.511	-709.676	-255.467	-265.395	9.242
	1600.00	61.745	361.876	313.325	-166.665	77.681	-745.667	-256.222	-266.033	8.685
	1700.00	61.815	365.622	316.293	-160.486	83.860	-782.043	-257.069	-266.621	8.192
	1800.00	61.873	369.157	319.132	-154.302	90.044	-818.784	-258.015	-267.156	7.753
	1900.00	61.923	372.503	321.854	-148.112	96.234	-855.868	-259.066	-267.635	7.358
	2000.00	61.966	375.681	324.466	-141.918	102.428	-893.279	-274.357	-267.612	6.989

References

Phase	H / S	C_p
GAS	Ja1	Ja1

TiOCl2[g] TITANIUM DICHLORIDE OXIDE (GAS) 134.785

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	71.957	321.010	321.010	−545.594	0.000	−641.303	−545.594	−535.028	93.735
	300.00	72.042	321.455	321.011	−545.461	0.133	−641.897	−545.597	−534.962	93.145
	400.00	75.727	342.728	323.886	−538.057	7.537	−675.149	−545.735	−531.395	69.393
	500.00	77.954	359.886	329.426	−530.364	15.230	−710.307	−545.843	−527.797	55.139
	600.00	79.341	374.230	335.731	−522.494	23.100	−747.032	−545.973	−524.176	45.634
	700.00	80.249	386.534	342.130	−514.512	31.082	−785.085	−546.167	−520.529	38.842
	800.00	80.873	397.293	348.367	−506.454	39.140	−824.288	−546.454	−516.848	33.747
	900.00	81.318	406.845	354.344	−498.343	47.251	−864.504	−546.852	−513.125	29.781
	1000.00	81.646	415.431	360.031	−490.194	55.400	−905.625	−547.370	−509.351	26.606
	1100.00	81.895	423.225	365.427	−482.016	63.578	−947.564	−548.006	−505.519	24.005
	1200.00	82.087	430.359	370.545	−473.817	71.777	−990.248	−552.756	−501.506	21.830
	1300.00	82.240	436.936	375.402	−465.600	79.994	−1033.617	−553.091	−497.222	19.979
	1400.00	82.362	443.035	380.018	−457.370	88.224	−1077.619	−553.497	−492.909	18.391
	1500.00	82.461	448.721	384.411	−449.129	96.465	−1122.210	−553.983	−488.565	17.013
	1600.00	82.543	454.046	388.598	−440.878	104.716	−1167.351	−554.556	−484.186	15.807
	1700.00	82.612	459.052	392.597	−432.620	112.974	−1213.009	−555.225	−479.768	14.741
	1800.00	82.670	463.775	396.421	−424.356	121.238	−1259.152	−555.997	−475.307	13.793
	1900.00	82.719	468.247	400.085	−416.087	129.507	−1305.755	−556.877	−470.801	12.943
	2000.00	82.761	472.491	403.600	−407.813	137.781	−1352.794	−572.001	−465.800	12.165

References

Phase	H / S	C_p
GAS	Ja1	Ja1

82.878 TITANIUM FLUORIDE OXIDE (GAS) **TiOF[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	48.478	250.677	250.677	−433.044	0.000	−507.783	−433.044	−437.799	76.700
	300.00	48.567	250.977	250.678	−432.954	0.090	−508.247	−433.057	−437.828	76.233
	400.00	52.765	265.559	252.637	−427.875	5.169	−534.099	−433.659	−439.323	57.370
	500.00	55.524	277.653	256.466	−422.450	10.594	−561.277	−434.146	−440.681	46.038
	600.00	57.297	287.944	260.876	−416.803	16.241	−589.570	−434.600	−441.946	38.475
	700.00	58.480	296.871	265.395	−411.011	22.033	−618.820	−435.082	−443.133	33.067
	800.00	59.300	304.737	269.831	−405.119	27.925	−648.908	−435.633	−444.246	29.006
	900.00	59.891	311.757	274.106	−399.158	33.886	−679.739	−436.279	−445.285	25.844
	1000.00	60.329	318.091	278.193	−393.146	39.898	−711.237	−437.033	−446.247	23.310
	1100.00	60.662	323.857	282.086	−387.096	45.948	−743.339	−437.896	−447.127	21.232
	1200.00	60.921	329.147	285.791	−381.016	52.028	−775.993	−442.866	−447.805	19.492
	1300.00	61.126	334.032	289.316	−374.913	58.131	−809.155	−443.415	−448.195	18.009
	1400.00	61.292	338.568	292.674	−368.792	64.252	−842.787	−444.031	−448.540	16.735
	1500.00	61.427	342.802	295.876	−362.656	70.388	−876.858	−444.721	−448.838	15.630
	1600.00	61.539	346.770	298.934	−356.508	76.536	−911.339	−445.496	−449.088	14.661
	1700.00	61.632	350.503	301.859	−350.349	82.695	−946.204	−446.361	−449.287	13.805
	1800.00	61.711	354.028	304.660	−344.182	88.862	−981.433	−447.326	−449.431	13.042
	1900.00	61.778	357.367	307.347	−338.007	95.037	−1017.004	−448.395	−449.520	12.358
	2000.00	61.835	360.537	309.928	−331.826	101.218	−1052.900	−463.704	−449.104	11.729

References

Phase	H / S	C_p
GAS	Ja1	Ja1

TiOF2[g] TITANIUM DIFLUORIDE OXIDE (GAS) 101.876

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	62.785	284.688	284.688	−924.664	0.000	−1009.544	−924.664	−909.327	159.310
	300.00	62.936	285.077	284.690	−924.548	0.116	−1010.071	−924.679	−909.232	158.311
	400.00	69.540	304.160	287.246	−917.898	6.766	−1039.563	−925.318	−903.978	118.047
	500.00	73.600	320.151	292.273	−910.725	13.939	−1070.800	−925.738	−898.592	93.875
	600.00	76.142	333.811	298.085	−903.229	21.435	−1103.515	−926.079	−893.130	77.754
	700.00	77.813	345.683	304.056	−895.525	29.139	−1137.503	−926.426	−887.612	66.234
	800.00	78.962	356.153	309.926	−887.683	36.981	−1172.605	−926.829	−882.040	57.591
	900.00	79.783	365.503	315.591	−879.744	44.920	−1208.696	−927.320	−876.413	50.866
	1000.00	80.389	373.942	321.011	−871.734	52.930	−1245.675	−927.916	−870.726	45.482
	1100.00	80.847	381.626	326.178	−863.671	60.993	−1283.460	−928.620	−864.974	41.074
	1200.00	81.202	388.677	331.096	−855.568	69.096	−1321.980	−933.431	−859.033	37.393
	1300.00	81.481	395.188	335.779	−847.433	77.231	−1361.177	−933.821	−852.818	34.267
	1400.00	81.706	401.235	340.241	−839.273	85.391	−1401.002	−934.280	−846.571	31.586
	1500.00	81.888	406.878	344.498	−831.093	93.571	−1441.410	−934.815	−840.287	29.261
	1600.00	82.038	412.168	348.563	−822.897	101.767	−1482.366	−935.436	−833.966	27.226
	1700.00	82.163	417.145	352.453	−814.686	109.978	−1523.834	−936.151	−827.603	25.429
	1800.00	82.268	421.845	356.179	−806.465	118.199	−1565.785	−936.968	−821.194	23.830
	1900.00	82.356	426.295	359.753	−798.233	126.431	−1608.194	−937.891	−814.738	22.399
	2000.00	82.432	430.522	363.186	−789.994	134.670	−1651.037	−953.057	−807.785	21.097

References

Phase	H / S	C_p
GAS	Ja1	Ja1

79.946 TITANIUM MONOSULFIDE **TiS**

Phase	T [K]	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[–]
SOL	298.15	48.094	56.484	56.484	−271.960	0.000	−288.801	−271.960	−270.072	47.316
	300.00	48.108	56.782	56.485	−271.871	0.089	−288.905	−271.960	−270.061	47.022
	400.00	48.844	70.722	58.381	−267.023	4.937	−295.312	−274.282	−269.329	35.171
	500.00	49.580	81.700	61.985	−262.102	9.858	−302.952	−275.964	−267.920	27.989
	600.00	50.317	90.805	66.051	−257.107	14.853	−311.590	−277.330	−266.175	23.173
	700.00	51.053	98.617	70.158	−252.039	19.921	−321.071	−278.443	−264.227	19.717
	800.00	51.790	105.482	74.153	−246.897	25.063	−331.282	−279.632	−262.117	17.114
	900.00	52.526	111.624	77.981	−241.681	30.279	−342.143	−333.703	−258.698	15.014
	1000.00	53.262	117.197	81.628	−236.392	35.568	−353.588	−333.443	−250.378	13.078
	1100.00	53.999	122.308	85.097	−231.028	40.932	−365.567	−333.228	−242.083	11.496
	1200.00	54.735	127.038	88.398	−225.592	46.368	−378.037	−337.051	−233.686	10.172
	1300.00	55.471	131.448	91.541	−220.081	51.879	−390.964	−336.381	−225.099	9.045
	1400.00	56.208	135.586	94.541	−214.497	57.463	−404.318	−335.706	−216.564	8.080
	1500.00	56.944	139.489	97.409	−208.840	63.120	−418.073	−335.030	−208.078	7.246
	1600.00	57.681	143.188	100.155	−203.109	68.851	−432.209	−334.361	−199.636	6.517
	1700.00	58.417	146.706	102.791	−197.304	74.656	−446.705	−333.706	−191.236	5.876
	1800.00	59.153	150.066	105.325	−191.425	80.535	−461.545	−333.072	−182.874	5.307
	1900.00	59.890	153.284	107.765	−185.473	86.487	−476.713	−332.463	−174.546	4.799
	2000.00	60.626	156.375	110.119	−179.447	92.513	−492.197	−346.013	−165.805	4.330
	2100.00	61.363	159.351	112.393	−173.348	98.612	−507.984	−345.359	−156.811	3.900
	2200.00	62.099	162.222	114.593	−167.175	104.785	−524.064	−344.634	−147.849	3.510

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1	Mi1	MPT= 2200.

TiS[g] TITANIUM MONOSULFIDE (GAS) 79.946

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	33.738	246.505	246.505	330.536	0.000	257.040	330.536	275.769	−48.314
	300.00	33.779	246.714	246.506	330.598	0.062	256.584	330.510	275.429	−47.956
	400.00	35.237	256.661	247.852	334.060	3.524	231.395	326.801	257.378	−33.610
	500.00	35.924	264.606	250.435	337.621	7.085	205.318	323.760	240.351	−25.109
	600.00	36.307	271.193	253.362	341.235	10.699	178.519	321.012	223.935	−19.495
	700.00	36.547	276.809	256.320	344.878	14.342	151.112	318.474	207.956	−15.518
	800.00	36.711	281.700	259.193	348.542	18.006	123.181	315.806	192.347	−12.559
	900.00	36.830	286.031	261.939	352.219	21.683	94.791	260.197	178.235	−10.345
	1000.00	36.921	289.917	264.546	355.907	25.371	65.990	258.855	169.200	−8.838
	1100.00	36.995	293.439	267.015	359.602	29.066	36.819	257.403	160.303	−7.612
	1200.00	37.056	296.661	269.353	363.305	32.769	7.312	251.846	151.663	−6.602
	1300.00	37.108	299.629	271.570	367.013	36.477	−22.505	250.713	143.360	−5.760
	1400.00	37.155	302.381	273.673	370.727	40.191	−52.607	249.518	135.147	−5.042
	1500.00	37.196	304.946	275.674	374.444	43.908	−82.974	248.254	127.021	−4.423
	1600.00	37.234	307.348	277.579	378.166	47.630	−113.590	246.913	118.982	−3.884
	1700.00	37.270	309.606	279.397	381.891	51.355	−144.439	245.489	111.029	−3.412
	1800.00	37.303	311.737	281.135	385.620	55.084	−175.507	243.973	103.163	−2.994
	1900.00	37.334	313.755	282.799	389.351	58.815	−206.783	242.362	95.384	−2.622
	2000.00	37.365	315.671	284.395	393.086	62.550	−238.255	226.520	88.137	−2.302
	2100.00	37.394	317.494	285.929	396.824	66.288	−269.914	224.813	81.260	−2.021
	2200.00	37.422	319.235	287.403	400.565	70.029	−301.751	223.106	74.464	−1.768

References

Phase	H / S	C_p
GAS	Mi1	Mi1

112.012 TITANIUM DISULFIDE **TiS2**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	67.912	78.366	78.366	−407.103	0.000	−430.468	−407.103	−402.182	70.461
	300.00	68.124	78.787	78.368	−406.977	0.126	−430.613	−407.108	−402.152	70.021
	400.00	79.563	99.952	81.176	−399.593	7.510	−439.573	−411.475	−400.313	52.276
	420.00	81.851	103.889	82.164	−397.979	9.124	−441.612	−411.620	−399.752	49.716
			0.000		0.000					
SOL−B	420.00	71.751	103.889	82.164	−397.979	9.124	−441.612	−411.620	−399.752	49.716
	500.00	73.471	116.545	86.678	−392.170	14.933	−450.442	−414.557	−397.229	41.498
	600.00	75.622	130.130	92.817	−384.715	22.388	−462.793	−417.039	−393.511	34.258
	700.00	77.772	141.949	99.009	−377.045	30.058	−476.410	−418.861	−389.442	29.061
	800.00	79.923	152.474	105.046	−369.161	37.942	−491.140	−420.667	−385.118	25.146
	900.00	82.073	162.012	110.854	−361.061	46.042	−506.871	−528.061	−378.258	21.954
	1000.00	84.224	170.770	116.413	−352.746	54.357	−523.516	−526.610	−361.691	18.893

References

Phase	H / S	C_p
SOL−A	Mi1	Mi1
SOL−B	Mi1	Mi1

TI THALLIUM 204.383

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	26.315	64.183	64.183	0.000	0.000	−19.136	0.000	0.000	0.000
	300.00	26.319	64.345	64.183	0.049	0.049	−19.255	0.000	0.000	0.000
	400.00	27.440	72.036	65.224	2.725	2.725	−26.090	0.000	0.000	0.000
	500.00	29.460	78.367	67.236	5.565	5.565	−33.618	0.000	0.000	0.000
	507.00	29.618	78.777	67.392	5.772	5.772	−34.168	0.000	0.000	0.000
			0.744		0.377					
SOL−B	507.00	32.010	79.521	67.392	6.149	6.149	−34.168	0.000	0.000	0.000
	577.00	32.680	83.703	69.122	8.413	8.413	−39.883	0.000	0.000	0.000
			7.179		4.142					
LIQ	577.00	29.706	90.882	69.122	12.555	12.555	−39.883	0.000	0.000	0.000
	600.00	29.706	92.043	69.978	13.239	13.239	−41.987	0.000	0.000	0.000
	700.00	29.706	96.622	73.466	16.209	16.209	−51.426	0.000	0.000	0.000
	800.00	29.706	100.589	76.614	19.180	19.180	−61.291	0.000	0.000	0.000
	900.00	29.706	104.088	79.476	22.151	22.151	−71.528	0.000	0.000	0.000
	1000.00	29.706	107.218	82.096	25.121	25.121	−82.096	0.000	0.000	0.000
	1100.00	29.706	110.049	84.511	28.092	28.092	−92.962	0.000	0.000	0.000
	1200.00	29.706	112.634	86.748	31.062	31.062	−104.098	0.000	0.000	0.000
	1300.00	29.706	115.011	88.832	34.033	34.033	−115.482	0.000	0.000	0.000
	1400.00	29.706	117.213	90.782	37.004	37.004	−127.094	0.000	0.000	0.000
	1500.00	29.706	119.262	92.613	39.974	39.974	−138.919	0.000	0.000	0.000
	1600.00	29.706	121.180	94.339	42.945	42.945	−150.942	0.000	0.000	0.000
	1700.00	29.706	122.981	95.971	45.916	45.916	−163.151	0.000	0.000	0.000
	1744.00	29.706	123.740	96.662	47.223	47.223	−168.579	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL − A	Hu1	Hu1		hcp
SOL − B	Hu1	Hu1		bcc
LIQ	Hu1	Hu1	Hu1	BPT = 1744., L = 164.08 kJ

204.383 THALLIUM (GAS) **Tl[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.786	180.963	180.963	180.958	0.000	127.004	180.958	146.140	−25.603
	300.00	20.786	181.091	180.963	180.996	0.038	126.669	180.948	145.924	−25.408
	400.00	20.786	187.071	181.779	183.075	2.117	108.247	180.350	134.336	−17.543
	500.00	20.786	191.709	183.318	185.154	4.196	89.299	179.588	122.917	−12.841
	600.00	20.786	195.499	185.042	187.232	6.274	69.933	173.994	111.920	−9.743
	700.00	20.786	198.703	186.771	189.311	8.353	50.219	173.102	101.645	−7.585
	800.00	20.793	201.480	188.440	191.390	10.432	30.206	172.210	91.497	−5.974
	900.00	20.796	203.929	190.027	193.469	12.511	9.933	171.319	81.462	−4.728
	1000.00	20.811	206.120	191.529	195.549	14.591	−10.571	170.428	71.525	−3.736
	1100.00	20.848	208.105	192.947	197.632	16.674	−31.284	169.540	61.678	−2.929
	1200.00	20.913	209.922	194.287	199.720	18.762	−52.186	168.658	51.912	−2.260
	1300.00	21.011	211.600	195.555	201.816	20.858	−73.263	167.783	42.218	−1.696
	1400.00	21.143	213.161	196.757	203.923	22.965	−94.502	166.920	32.592	−1.216
	1500.00	21.313	214.626	197.900	206.046	25.088	−115.892	166.071	23.027	−0.802
	1600.00	21.521	216.007	198.989	208.187	27.229	−137.425	165.242	13.518	−0.441
	1700.00	21.768	217.319	200.029	210.351	29.393	−159.092	164.436	4.060	−0.125
	1800.00	22.055	218.572	201.025	212.542	31.584	−180.887	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

343.302 THALLIUM ARSENATE **TlAsO4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	145.686	299.742	299.742	−948.555	0.000	−1037.923	−948.555	−885.812	155.191
	300.00	146.253	300.645	299.745	−948.285	0.270	−1038.478	−948.488	−885.423	154.166
	400.00	168.841	346.121	305.792	−932.423	16.132	−1070.872	−943.751	−865.062	112.966
	500.00	183.389	385.446	317.882	−914.773	33.782	−1107.496	−937.626	−846.078	88.389
	566.00	191.123	408.663	327.133	−902.409	46.146	−1133.712	−933.624	−834.224	76.988

References

Phase	H / S	C_p
SOL	G1	G1

TlBr THALLIUM BROMIDE 284.287

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol	]		[-]
SOL	298.15	50.480	122.591	122.591	-173.218	0.000	-209.769	-173.218	-167.942	29.423
	300.00	50.535	122.904	122.592	-173.125	0.093	-209.996	-173.243	-167.909	29.236
	400.00	53.503	137.848	124.610	-167.923	5.295	-223.062	-187.958	-163.064	21.294
	500.00	56.471	150.106	128.518	-162.424	10.794	-237.477	-187.146	-156.933	16.395
	600.00	59.440	160.664	133.015	-156.628	16.590	-253.027	-190.883	-150.722	13.122
	700.00	62.408	170.050	137.647	-150.536	22.682	-269.571	-189.629	-144.124	10.755
	733.20	63.393	172.964	139.181	-148.448	24.770	-275.265	-189.149	-141.977	10.115
			22.369		16.401					
LIQ	733.20	77.918	195.333	139.181	-132.047	41.171	-275.265	-172.748	-141.977	10.115
	800.00	75.391	202.019	144.154	-126.926	46.292	-288.541	-170.864	-139.258	9.093
	900.00	71.609	210.680	151.078	-119.576	53.642	-309.188	-168.363	-135.461	7.862
	1000.00	67.827	218.029	157.416	-112.604	60.614	-330.634	-166.245	-131.923	6.891
	1100.00	64.044	224.316	163.219	-106.011	67.207	-352.759	-164.508	-128.578	6.106
	1200.00	60.262	229.727	168.541	-99.795	73.423	-375.468	-163.153	-125.374	5.457

References

Phase	H / S	C_p
SOL	Pa2	Pa2
LIQ	Pa2	Pa2

TlCl THALLIUM CHLORIDE 239.836

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol	]		[-]
SOL	298.15	50.935	111.294	111.294	-204.179	0.000	-237.361	-204.179	-184.964	32.405
	300.00	50.970	111.610	111.295	-204.085	0.094	-237.568	-204.165	-184.845	32.184
	400.00	52.897	126.537	113.318	-198.891	5.288	-249.506	-203.381	-178.523	23.313
	500.00	54.823	138.547	117.200	-193.505	10.674	-262.779	-202.621	-172.397	18.010
	600.00	56.749	148.713	121.626	-187.927	16.252	-277.154	-206.533	-166.171	14.466
	700.00	58.676	157.605	126.143	-182.156	22.023	-292.479	-205.571	-159.517	11.903
	704.00	58.753	157.940	126.323	-181.921	22.258	-293.110	-205.529	-159.254	11.816
			22.108		15.564					
LIQ	704.00	74.894	180.048	126.323	-166.357	37.822	-293.110	-189.965	-159.254	11.816
	800.00	74.894	189.622	133.357	-159.167	45.012	-310.864	-187.406	-155.233	10.136
	900.00	74.894	198.443	140.108	-151.678	52.501	-330.276	-184.750	-151.371	8.785
	1000.00	74.894	206.334	146.343	-144.188	59.991	-350.522	-182.102	-147.805	7.721
	1100.00	74.894	213.472	152.126	-136.699	67.480	-371.518	-179.460	-144.503	6.862
	1200.00	74.894	219.989	157.514	-129.209	74.970	-393.196	-176.823	-141.441	6.157

References

Phase	H / S	C_p
SOL	Nb1,Pa2	Pa2
LIQ	Pa2	Pa2

239.836

THALLIUM CHLORIDE (GAS) **TICl[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	36.243	256.254	256.254	−67.446	0.000	−143.848	−67.446	−91.451	16.022
	300.00	36.258	256.478	256.255	−67.379	0.067	−144.322	−67.459	−91.600	15.949
	400.00	36.756	266.987	257.684	−63.725	3.721	−170.520	−68.214	−99.537	12.998
	500.00	36.987	275.217	260.397	−60.036	7.410	−197.645	−69.152	−107.263	11.206
	600.00	37.112	281.972	263.447	−56.331	11.115	−225.514	−74.937	−114.530	9.971
	700.00	37.187	287.699	266.513	−52.616	14.830	−254.005	−76.031	−121.043	9.032
	800.00	37.236	292.668	269.479	−48.894	18.552	−283.029	−77.133	−127.398	8.318
	900.00	37.270	297.056	272.304	−45.169	22.277	−312.519	−78.241	−133.614	7.755
	1000.00	37.294	300.984	274.979	−41.441	26.005	−342.425	−79.354	−139.707	7.298
	1100.00	37.312	304.540	277.507	−37.710	29.736	−372.704	−80.471	−145.689	6.918
	1200.00	37.325	307.787	279.897	−33.978	33.468	−403.323	−81.592	−151.568	6.598
	1300.00	37.336	310.775	282.159	−30.245	37.201	−434.253	−82.716	−157.354	6.323
	1400.00	37.344	313.542	284.303	−26.511	40.935	−465.470	−83.843	−163.053	6.084
	1500.00	37.351	316.119	286.339	−22.776	44.670	−496.955	−84.973	−168.671	5.874

References

Phase	H / S	C_p
GAS	Pa2	Pa2

310.741

THALLIUM TRICHLORIDE **TICl3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	108.746	152.298	152.298	−315.055	0.000	−360.463	−315.055	−241.543	42.317
	300.00	108.993	152.971	152.300	−314.854	0.201	−360.745	−314.997	−241.087	41.977
	400.00	122.382	186.160	156.735	−303.285	11.770	−377.749	−311.304	−216.979	28.335
	500.00	135.771	214.907	165.552	−290.377	24.678	−397.831	−306.594	−193.922	20.259

References

Phase	H / S	C_p
SOL	Nb1/e	e

TI2CI2[g] DITHALLIUM DICHLORIDE (GAS) 479.672

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	81.128	386.878	386.878	-238.906	0.000	-354.254	-238.906	-249.459	43.704
	300.00	81.152	387.380	386.880	-238.756	0.150	-354.970	-238.916	-249.525	43.446
	400.00	82.013	410.862	390.076	-230.591	8.315	-394.936	-239.571	-252.970	33.034
	500.00	82.413	429.211	396.135	-222.368	16.538	-436.973	-240.600	-256.210	26.766
	600.00	82.631	444.257	402.939	-214.115	24.791	-480.669	-251.328	-258.701	22.522
	700.00	82.764	457.006	409.775	-205.844	33.062	-525.749	-252.676	-259.824	19.388
	800.00	82.851	468.063	416.385	-197.563	41.343	-572.014	-254.041	-260.752	17.025
	900.00	82.911	477.826	422.680	-189.275	49.631	-619.318	-255.420	-261.508	15.178
	1000.00	82.955	486.564	428.639	-180.982	57.924	-667.545	-256.809	-262.110	13.691
	1100.00	82.988	494.472	434.270	-172.684	66.222	-716.603	-258.207	-262.573	12.469
	1200.00	83.014	501.694	439.592	-164.384	74.522	-766.417	-259.612	-262.908	11.444
	1300.00	83.035	508.339	444.628	-156.082	82.824	-816.923	-261.024	-263.125	10.572
	1400.00	83.052	514.494	449.402	-147.777	91.129	-868.068	-262.442	-263.234	9.821
	1500.00	83.066	520.224	453.934	-139.471	99.435	-919.807	-263.866	-263.241	9.167

References

Phase	H / S	C_p
GAS	Pa2	Pa2

TIF THALLIUM FLUORIDE 223.382

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL-A	298.15	53.382	95.688	95.688	-324.678	0.000	-353.207	-324.678	-303.840	53.231
	300.00	53.473	96.019	95.689	-324.579	0.099	-353.385	-324.657	-303.710	52.881
	356.30	56.259	105.448	96.501	-321.490	3.188	-359.061	-323.954	-299.840	43.957
			0.940		0.335					
SOL-B	356.30	53.639	106.388	96.501	-321.155	3.523	-359.061	-323.619	-299.840	43.957
	400.00	55.126	112.678	97.930	-318.779	5.899	-363.850	-323.139	-296.952	38.778
	500.00	58.533	125.345	102.181	-313.096	11.582	-375.768	-321.979	-290.538	30.352
	595.40	61.787	135.842	106.750	-307.357	17.321	-388.237	-325.431	-284.431	24.953
			23.331		13.891					
LIQ	595.40	67.279	159.173	106.750	-293.466	31.212	-388.237	-311.540	-284.431	24.953
	600.00	67.279	159.691	107.154	-293.156	31.522	-388.970	-311.448	-284.222	24.744
	700.00	67.279	170.062	115.419	-286.428	38.250	-405.471	-309.466	-279.841	20.882
	800.00	67.279	179.046	122.824	-279.700	44.978	-422.937	-307.512	-275.743	18.004
	900.00	67.279	186.970	129.519	-272.972	51.706	-441.245	-305.579	-271.888	15.780
	1000.00	67.279	194.058	135.625	-266.245	58.433	-460.303	-303.662	-268.247	14.012
	1100.00	67.279	200.471	141.233	-259.517	65.161	-480.035	-301.758	-264.798	12.574
	1200.00	67.279	206.325	146.417	-252.789	71.889	-500.379	-299.865	-261.522	11.384

References

Phase	H / S	C_p
SOL-A	Nb1/L2	Pa2
SOL-B	Pa2	Pa2
LIQ	Pa2	Pa2

223.382 THALLIUM FLUORIDE (GAS) **TlF**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	34.699	244.585	244.585	−185.853	0.000	−258.776	−185.853	−209.408	36.687
	300.00	34.727	244.799	244.585	−185.789	0.064	−259.229	−185.866	−209.554	36.487
	400.00	35.847	254.960	245.963	−182.254	3.599	−284.238	−186.615	−217.340	28.382
	500.00	36.475	263.032	248.597	−178.635	7.218	−310.152	−187.518	−224.921	23.497
	600.00	36.868	269.720	251.576	−174.967	10.886	−336.799	−193.259	−232.050	20.202
	700.00	37.138	275.424	254.586	−171.266	14.587	−364.063	−194.304	−238.433	17.792
	800.00	37.338	280.397	257.508	−167.542	18.311	−391.859	−195.354	−244.665	15.975
	900.00	37.496	284.804	260.301	−163.800	22.053	−420.124	−196.406	−250.766	14.554
	1000.00	37.627	288.762	262.952	−160.043	25.810	−448.805	−197.461	−256.750	13.411
	1100.00	37.741	292.354	265.464	−156.275	29.578	−477.864	−198.516	−262.628	12.471
	1200.00	37.843	295.642	267.844	−152.496	33.357	−507.266	−199.571	−268.409	11.684
	1300.00	37.937	298.675	270.101	−148.707	37.146	−536.984	−200.626	−274.103	11.014
	1400.00	38.026	301.489	272.243	−144.908	40.945	−566.994	−201.680	−279.716	10.436
	1500.00	38.112	304.116	274.282	−141.101	44.752	−597.275	−202.732	−285.253	9.933
	1600.00	38.195	306.578	276.224	−137.286	48.567	−627.811	−203.782	−290.720	9.491
	1700.00	38.278	308.896	278.078	−133.462	52.391	−658.586	−204.830	−296.121	9.099
	1800.00	38.360	311.087	279.852	−129.631	56.222	−689.586	−369.531	−296.110	8.593
	1900.00	38.443	313.163	281.551	−125.790	60.063	−720.800	−369.824	−292.023	8.028
	2000.00	38.527	315.137	283.181	−121.942	63.911	−752.216	−370.148	−287.920	7.520

References

Phase	H / S	C_p
GAS	Pa2	Pa2

Tl2F2[g] DITHALLIUM DIFLUORIDE (GAS) 446.763

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	78.403	357.979	357.980	-513.795	0.000	-620.527	-513.795	-521.791	91.416
	300.00	78.459	358.465	357.981	-513.650	0.145	-621.189	-513.805	-521.841	90.861
	400.00	80.452	381.350	361.088	-505.690	8.105	-658.230	-514.411	-524.433	68.484
	500.00	81.380	399.413	367.010	-497.593	16.202	-697.300	-515.359	-526.838	55.038
	600.00	81.890	414.300	373.688	-489.428	24.367	-738.008	-526.013	-528.510	46.011
	700.00	82.202	426.948	380.415	-481.222	32.573	-780.086	-527.298	-528.826	39.461
	800.00	82.409	437.939	386.934	-472.991	40.804	-823.342	-528.614	-528.954	34.537
	900.00	82.554	447.655	393.151	-464.742	49.053	-867.631	-529.955	-528.917	30.698
	1000.00	82.662	456.358	399.044	-456.481	57.314	-912.839	-531.315	-528.728	27.618
	1100.00	82.744	464.241	404.619	-448.211	65.584	-958.876	-532.693	-528.403	25.092
	1200.00	82.810	471.443	409.892	-439.933	73.862	-1005.665	-534.084	-527.952	22.981
	1300.00	82.863	478.074	414.885	-431.649	82.146	-1053.145	-535.489	-527.384	21.191
	1400.00	82.908	484.216	419.620	-423.361	90.434	-1101.264	-536.904	-526.708	19.652
	1500.00	82.947	489.938	424.120	-415.068	98.727	-1149.975	-538.329	-525.930	18.314
	1600.00	82.980	495.292	428.402	-406.771	107.024	-1199.239	-539.764	-525.056	17.141
	1700.00	83.010	500.324	432.487	-398.472	115.323	-1249.022	-541.208	-524.093	16.103
	1800.00	83.037	505.069	436.388	-390.169	123.626	-1299.294	-869.971	-512.341	14.868
	1900.00	83.062	509.560	440.122	-381.864	131.931	-1350.028	-869.932	-492.474	13.539
	2000.00	83.084	513.821	443.702	-373.557	140.238	-1401.198	-869.969	-472.607	12.343

References

Phase	H / S	C_p
GAS	Pa2	Pa2

331.288 THALLIUM IODIDE **TII**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	52.509	127.696	127.696	−123.846	0.000	−161.918	−123.846	−125.469	21.982
	300.00	52.534	128.021	127.697	−123.749	0.097	−162.155	−123.848	−125.479	21.848
	400.00	53.923	143.324	129.774	−118.426	5.420	−175.756	−132.020	−125.723	16.418
	451.00	54.632	149.837	131.681	−115.658	8.188	−183.234	−132.733	−124.877	14.463
			2.022		0.912					
SOL−B	451.00	53.567	151.859	131.681	−114.746	9.100	−183.234	−131.821	−124.877	14.463
	500.00	55.877	157.501	133.938	−112.064	11.782	−190.815	−152.596	−122.185	12.765
	600.00	60.592	168.105	138.763	−106.241	17.605	−207.104	−156.322	−115.933	10.093
	700.00	65.306	177.800	143.657	−99.946	23.900	−224.406	−154.879	−109.310	8.157
	714.80	66.004	179.173	144.378	−98.974	24.872	−227.047	−154.626	−108.349	7.918
			20.575		14.707					
LIQ	714.80	71.965	199.748	144.378	−84.267	39.579	−227.047	−139.919	−108.349	7.918
	800.00	71.965	207.852	150.714	−78.136	45.710	−244.418	−137.925	−104.700	6.836
	900.00	71.965	216.328	157.543	−70.939	52.907	−265.635	−135.590	−100.687	5.844
	1000.00	71.965	223.911	163.807	−63.743	60.103	−287.653	−133.258	−96.934	5.063
	1100.00	71.965	230.769	169.588	−56.546	67.300	−310.393	−130.929	−93.415	4.436
	1200.00	71.965	237.031	174.951	−49.350	74.496	−333.788	−128.604	−90.107	3.922

References

Phase	H / S	C_p
SOL−A	Tk1,Nb1	Pa2
SOL−B	Pa2	Pa2
LIQ	Pa2	Pa2

TlI[g] THALLIUM IODIDE (GAS) 331.288

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	37.206	276.458	276.459	7.100	0.000	−75.326	7.100	−38.876	6.811
	300.00	37.224	276.689	276.459	7.169	0.069	−75.838	7.070	−39.161	6.819
	400.00	37.834	287.493	277.928	10.926	3.826	−104.071	−2.668	−54.039	7.057
	500.00	38.116	295.970	280.719	14.725	7.625	−133.260	−25.807	−64.630	6.752
	600.00	38.270	302.934	283.859	18.545	11.445	−163.215	−31.536	−72.044	6.272
	700.00	38.362	308.841	287.016	22.377	15.277	−193.811	−32.556	−78.715	5.874
	800.00	38.422	313.967	290.072	26.217	19.117	−224.957	−33.573	−85.240	5.566
	900.00	38.463	318.495	292.983	30.061	22.961	−256.585	−34.589	−91.637	5.318
	1000.00	38.493	322.550	295.741	33.909	26.809	−288.641	−35.606	−97.921	5.115
	1100.00	38.515	326.219	298.347	37.759	30.659	−321.082	−36.623	−104.104	4.943
	1200.00	38.531	329.571	300.812	41.612	34.512	−353.874	−37.642	−110.193	4.797
	1300.00	38.544	332.656	303.144	45.465	38.365	−386.987	−38.663	−116.198	4.669
	1400.00	38.554	335.513	305.355	49.320	42.220	−420.398	−39.686	−122.124	4.556
	1500.00	38.563	338.173	307.456	53.176	46.076	−454.083	−40.711	−127.977	4.457
	1600.00	38.569	340.662	309.454	57.033	49.933	−488.027	−41.738	−133.761	4.367

References

Phase	H / S	C_p
GAS	Nb1/Tk1,e	Tk1,e

Tl2O THALLIUM OXIDE 424.766

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	78.865	145.185	145.185	−169.034	0.000	−212.321	−169.034	−143.466	25.135
	300.00	78.934	145.673	145.186	−168.888	0.146	−212.590	−169.013	−143.308	24.952
	400.00	82.096	168.837	148.323	−160.828	8.206	−228.363	−167.791	−134.922	17.619
	500.00	84.651	187.437	154.346	−152.488	16.546	−246.207	−166.661	−126.840	13.251
	600.00	86.967	203.078	161.198	−143.906	25.128	−265.753	−175.005	−118.466	10.313
	700.00	89.171	216.650	168.171	−135.099	33.935	−286.754	−173.766	−109.138	8.144
	800.00	91.314	228.698	174.998	−126.074	42.960	−309.032	−172.351	−100.000	6.529
	852.00	92.414	234.483	178.453	−121.297	47.737	−321.076	−171.545	−95.322	5.844
			35.407		30.167					
LIQ	852.00	111.713	269.890	178.453	−91.130	77.904	−321.076	−141.378	−95.322	5.844
	900.00	111.713	276.013	183.495	−85.768	83.266	−334.179	−139.689	−92.774	5.384
	1000.00	111.713	287.783	193.345	−74.596	94.438	−362.379	−136.190	−87.749	4.584

References

Phase	H / S	C_p
SOL	Pa1	Pa1
LIQ	Pa1	Pa1

424.766

THALLIUM OXIDE (GAS) **Tl2O[g]**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	52.172	317.466	317.466	6.276	0.000	-88.376	6.276	-19.522	3.420
	300.00	52.229	317.789	317.467	6.373	0.097	-88.964	6.248	-19.682	3.427
	400.00	54.337	333.141	319.546	11.714	5.438	-121.542	4.752	-28.101	3.670
	500.00	55.458	345.397	323.532	17.208	10.932	-155.490	3.035	-36.123	3.774
	600.00	56.191	355.576	328.048	22.793	16.517	-190.553	-8.306	-43.266	3.767
	700.00	56.741	364.281	332.617	28.441	22.165	-226.556	-10.227	-48.940	3.652
	800.00	57.192	371.888	337.061	34.138	27.862	-263.373	-12.140	-54.340	3.548
	900.00	57.587	378.648	341.313	39.877	33.601	-300.906	-14.044	-59.500	3.453
	1000.00	57.947	384.734	345.356	45.654	39.378	-339.080	-15.940	-64.449	3.366

References

Phase	H / S	C_p
GAS	Pa2	Pa1

456.765

DITHALLIUM TRIOXIDE **Tl2O3**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	105.438	158.992	158.992	-394.551	0.000	-441.954	-394.551	-311.936	54.650
	300.00	105.836	159.645	158.994	-394.356	0.195	-442.249	-394.534	-311.423	54.224
	400.00	119.890	192.302	163.351	-382.971	11.580	-459.891	-392.958	-283.928	37.077
	500.00	126.522	219.846	171.973	-370.614	23.937	-480.538	-390.872	-256.909	26.839
	600.00	130.232	243.271	181.954	-357.761	36.790	-503.724	-398.104	-229.810	20.007
	700.00	132.563	263.534	192.194	-344.613	49.938	-529.087	-395.780	-201.943	15.069
	800.00	134.158	281.345	202.247	-331.273	63.278	-556.349	-393.386	-174.415	11.388
	900.00	135.327	297.217	211.934	-317.796	76.755	-585.291	-390.958	-147.189	8.543
	1000.00	136.229	311.524	221.189	-304.216	90.335	-615.740	-388.513	-120.235	6.280
	1100.00	136.959	324.543	230.002	-290.556	103.995	-647.553	-386.057	-93.526	4.441
	1107.00	137.005	325.412	230.603	-289.597	104.954	-649.828	-385.885	-91.665	4.325

References

Phase	H / S	C_p	Remarks	
SOL	Pa1	Pa1	Tk1	MPT= 1107.

TI2S THALLIUM SULFIDE 440.833

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	80.279	158.992	158.992	−94.977	0.000	−142.380	−94.977	−94.551	16.565
	300.00	80.333	159.489	158.994	−94.828	0.149	−142.675	−94.968	−94.548	16.462
	400.00	83.262	183.000	162.179	−86.649	8.328	−159.849	−96.722	−94.392	12.326
	500.00	86.190	201.894	168.292	−78.176	16.801	−179.123	−97.833	−93.706	9.789
	600.00	89.119	217.867	175.257	−69.411	25.566	−200.131	−107.989	−92.290	8.035
	700.00	92.048	231.825	182.361	−60.352	34.625	−222.630	−108.182	−89.654	6.690
	730.00	92.927	235.706	184.474	−57.578	37.399	−229.643	−108.182	−88.859	6.358
			31.523		23.012					
LIQ	730.00	99.579	267.229	184.474	−34.566	60.411	−229.643	−85.170	−88.859	6.358
	800.00	99.579	276.348	192.120	−27.595	67.382	−248.673	−84.726	−89.235	5.826
	900.00	99.579	288.076	202.143	−17.637	77.340	−276.906	−136.916	−88.681	5.147
	1000.00	99.579	298.568	211.270	−7.679	87.298	−306.247	−134.734	−83.439	4.358
	1100.00	99.579	308.059	219.645	2.279	97.256	−336.586	−132.560	−78.414	3.724
	1200.00	99.579	316.723	227.379	12.237	107.214	−367.832	−130.392	−73.588	3.203
	1300.00	99.579	324.694	234.562	22.194	117.171	−399.908	−128.229	−68.942	2.770
	1400.00	99.579	332.074	241.267	32.152	127.129	−432.751	−126.071	−64.462	2.405

References

Phase	H / S	C_p
SOL	Mi1	e
LIQ	Mi1	e

504.830 THALLIUM SULFATE **Tl2SO4**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	137.840	230.538	230.538	−931.777	0.000	−1000.512	−931.777	−830.353	145.474
	300.00	138.072	231.392	230.541	−931.522	0.255	−1000.939	−931.770	−829.724	144.468
	400.00	150.624	272.832	236.107	−917.087	14.690	−1026.220	−933.211	−795.717	103.910
	500.00	163.176	307.791	247.031	−901.397	30.380	−1055.292	−933.222	−761.352	79.538
	600.00	175.728	338.651	259.775	−884.452	47.325	−1087.642	−941.518	−726.549	63.252
	700.00	188.280	366.682	273.074	−866.251	65.526	−1122.929	−939.078	−690.897	51.555
	773.00	197.443	385.806	282.825	−852.172	79.605	−1150.401	−936.630	−665.135	44.946
			0.000		0.000					
SOL−B	773.00	197.443	385.806	282.825	−852.172	79.605	−1150.401	−936.630	−665.135	44.946
	800.00	200.832	392.643	286.416	−846.796	84.981	−1160.910	−935.598	−655.669	42.811
	900.00	213.384	417.022	299.586	−826.085	105.692	−1201.405	−983.845	−619.786	35.971
	905.00	214.012	418.206	300.239	−825.016	106.761	−1203.493	−983.509	−617.765	35.656
			26.352		23.849					
LIQ	905.00	205.016	444.558	300.239	−801.167	130.610	−1203.493	−959.660	−617.765	35.656
	1000.00	205.016	465.023	314.937	−781.691	150.086	−1246.714	−954.152	−582.155	30.409
	1100.00	205.016	484.563	329.484	−761.189	170.588	−1294.209	−948.452	−545.232	25.891
	1200.00	205.016	502.402	343.161	−740.688	191.089	−1343.570	−942.838	−508.825	22.149

References

Phase	H / S	C_p
SOL−A	Nb1	e
SOL−B	Tk1	e
LIQ	Tk1	e

TlSe — THALLIUM SELENIDE — 283.343

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL−A	298.15	49.915	115.311	115.311	−61.296	0.000	−95.676	−61.296	−63.941	11.202
	300.00	49.957	115.620	115.312	−61.204	0.092	−95.890	−61.299	−63.957	11.136
	400.00	50.836	130.157	117.288	−56.149	5.147	−108.211	−61.588	−64.807	8.463
	465.00	50.919	137.818	119.636	−52.841	8.455	−116.927	−61.972	−65.303	7.336
			0.540		0.251					
SOL−B	465.00	51.463	138.358	119.636	−52.590	8.706	−116.927	−61.721	−65.303	7.336
	500.00	51.463	142.093	121.079	−50.789	10.507	−121.835	−67.879	−65.480	6.841
	600.00	51.463	151.476	125.387	−45.643	15.653	−136.528	−73.921	−64.621	5.626
	619.00	51.463	153.080	126.212	−44.665	16.631	−139.421	−74.175	−64.322	5.428
			35.622		22.050					
LIQ	619.00	78.743	188.702	126.212	−22.615	38.681	−139.421	−52.125	−64.322	5.428
	700.00	78.743	198.385	134.015	−16.237	45.059	−155.106	−51.000	−65.989	4.924
	800.00	78.743	208.900	142.733	−8.362	52.934	−175.482	−49.611	−68.225	4.455

References

Phase	H / S	C_p
SOL−A	Pa3	Pa3
SOL−B	Pa3	Pa3
LIQ	Pa3	Pa3

Tl2Se — THALLIUM SELENIDE — 487.727

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	79.477	173.636	173.636	−94.140	0.000	−145.910	−94.140	−95.038	16.650
	300.00	79.538	174.128	173.638	−93.993	0.147	−146.231	−94.137	−95.044	16.549
	400.00	82.801	197.456	176.796	−85.876	8.264	−164.859	−94.040	−95.365	12.453
	500.00	86.065	216.284	182.869	−77.433	16.707	−185.574	−100.088	−95.601	9.987
	600.00	89.328	232.264	189.802	−68.663	25.477	−208.021	−110.180	−94.127	8.194
	663.00	91.384	241.283	194.271	−62.971	31.169	−222.941	−110.444	−92.427	7.282

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	e	Mi1	MPT= 663.

536.367 **THALLIUM TELLURIDE** **Tl2Te**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−C	298.15	76.098	174.054	174.054	−80.333	0.000	−132.227	−80.333	−79.198	13.875
	300.00	76.149	174.525	174.056	−80.192	0.141	−132.550	−80.337	−79.191	13.788
	400.00	78.868	196.804	177.075	−72.441	7.892	−151.163	−80.624	−78.770	10.286
	500.00	81.588	214.696	182.866	−64.418	15.915	−171.766	−81.188	−78.249	8.175
	600.00	84.308	229.811	189.462	−56.124	24.209	−194.010	−91.367	−77.080	6.710
	700.00	87.027	243.011	196.189	−47.557	32.776	−217.665	−92.090	−74.641	5.570
	726.00	87.734	246.198	197.923	−45.285	35.048	−224.025	−109.767	−73.909	5.318

References

Phase	H / S	C_p	Remarks
SOL−C	Mi1	Mi1	Mi1 MPT= 726., L= 23.43 kJ

168.934 **THULIUM** **Tm**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	27.020	74.015	74.015	0.000	0.000	−22.068	0.000	0.000	0.000
	300.00	27.030	74.182	74.016	0.050	0.050	−22.205	0.000	0.000	0.000
	400.00	27.176	81.991	75.079	2.765	2.765	−30.032	0.000	0.000	0.000
	500.00	27.212	88.055	77.090	5.483	5.483	−38.545	0.000	0.000	0.000
	600.00	27.549	93.041	79.345	8.217	8.217	−47.607	0.000	0.000	0.000
	700.00	28.327	97.340	81.615	11.007	11.007	−57.131	0.000	0.000	0.000
	800.00	29.604	101.200	83.826	13.899	13.899	−67.060	0.000	0.000	0.000
	900.00	30.602	104.749	85.956	16.913	16.913	−77.360	0.000	0.000	0.000
	1000.00	31.463	108.018	88.001	20.017	20.017	−88.001	0.000	0.000	0.000
	1100.00	32.273	111.055	89.960	23.204	23.204	−98.956	0.000	0.000	0.000
	1200.00	33.049	113.897	91.838	26.471	26.471	−110.205	0.000	0.000	0.000
	1300.00	33.800	116.572	93.639	29.813	29.813	−121.730	0.000	0.000	0.000
	1400.00	34.534	119.104	95.368	33.230	33.230	−133.515	0.000	0.000	0.000
	1500.00	35.254	121.511	97.031	36.720	36.720	−145.547	0.000	0.000	0.000
	1600.00	35.965	123.809	98.633	40.281	40.281	−157.813	0.000	0.000	0.000
	1700.00	36.668	126.010	100.180	43.912	43.912	−170.305	0.000	0.000	0.000
	1800.00	37.364	128.126	101.674	47.614	47.614	−183.013	0.000	0.000	0.000
	1818.00	37.489	128.498	101.937	48.288	48.288	−185.322	0.000	0.000	0.000
			9.263		16.841					
LIQ	1818.00	41.380	137.762	101.937	65.129	65.129	−185.322	0.000	0.000	0.000
	1900.00	41.380	139.587	103.523	68.522	68.522	−196.694	0.000	0.000	0.000
	2000.00	41.380	141.710	105.380	72.660	72.660	−210.760	0.000	0.000	0.000
	2100.00	41.380	143.729	107.158	76.798	76.798	−225.033	0.000	0.000	0.000
	2200.00	41.380	145.654	108.865	80.936	80.936	−239.503	0.000	0.000	0.000
	2217.00	41.380	145.972	109.148	81.639	81.639	−241.981	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks
SOL	Hu1	Hu1	
LIQ	Hu1	Hu1	Hu1 BPT= 2217., L= 190.69 kJ

Tm[g] THULIUM (GAS) 168.934

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	20.786	190.113	190.113	232.212	0.000	175.530	232.212	197.597	-34.618
	300.00	20.786	190.242	190.114	232.250	0.038	175.178	232.200	197.383	-34.367
	400.00	20.786	196.222	190.929	234.329	2.117	155.840	231.564	185.872	-24.272
	500.00	20.786	200.860	192.469	236.408	4.196	135.978	230.925	174.523	-18.232
	600.00	20.786	204.650	194.193	238.486	6.274	115.696	230.269	163.304	-14.217
	700.00	20.786	207.854	195.921	240.565	8.353	95.067	229.558	152.198	-11.357
	800.00	20.786	210.630	197.590	242.644	10.432	74.140	228.744	141.200	-9.219
	900.00	20.786	213.078	199.178	244.722	12.510	52.952	227.809	130.313	-7.563
	1000.00	20.792	215.268	200.679	246.801	14.589	31.533	226.784	119.534	-6.244
	1100.00	20.797	217.250	202.097	248.880	16.668	9.905	225.676	108.862	-5.169
	1200.00	20.805	219.060	203.436	250.960	18.748	-11.911	224.490	98.294	-4.279
	1300.00	20.821	220.726	204.703	253.042	20.830	-33.902	223.228	87.828	-3.529
	1400.00	20.846	222.270	205.903	255.125	22.913	-56.052	221.895	77.463	-2.890
	1500.00	20.883	223.709	207.043	257.211	24.999	-78.352	220.492	67.195	-2.340
	1600.00	20.932	225.058	208.127	259.302	27.090	-100.791	219.021	57.022	-1.862
	1700.00	20.995	226.329	209.161	261.398	29.186	-123.361	217.486	46.944	-1.442
	1800.00	21.073	227.531	210.148	263.501	31.289	-146.055	215.888	36.958	-1.072
	1900.00	21.165	228.673	211.093	265.613	33.401	-168.865	197.091	27.829	-0.765
	2000.00	21.272	229.761	212.000	267.735	35.523	-191.788	195.075	18.972	-0.496
	2100.00	21.394	230.802	212.870	269.868	37.656	-214.816	193.070	10.217	-0.254
	2200.00	21.532	231.800	213.708	272.014	39.802	-237.946	191.079	1.556	-0.037
	2300.00	21.686	232.761	214.516	274.175	41.963	-261.175	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

408.646

THULIUM TRIBROMIDE (GAS) — TmBr3[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	79.840	401.196	401.196	−545.594	0.000	−665.211	−545.594	−575.071	100.750
	300.00	79.879	401.690	401.198	−545.446	0.148	−665.953	−545.706	−575.254	100.161
	400.00	81.268	424.889	404.351	−537.379	8.215	−707.334	−592.077	−575.578	75.163
	500.00	81.916	443.101	410.345	−529.216	16.378	−750.767	−592.170	−571.442	59.698
	600.00	82.272	458.070	417.089	−521.005	24.589	−795.847	−592.271	−567.288	49.387
	700.00	82.489	470.770	423.873	−512.766	32.828	−842.305	−592.425	−563.112	42.020
	800.00	82.634	481.795	430.440	−504.510	41.084	−889.946	−592.682	−558.909	36.493
	900.00	82.735	491.534	436.697	−496.241	49.353	−938.622	−593.064	−554.665	32.192
	1000.00	82.810	500.255	442.625	−487.964	57.630	−988.219	−593.539	−550.374	28.749
	1100.00	82.868	508.150	448.228	−479.680	65.914	−1038.645	−594.101	−546.031	25.929
	1200.00	82.914	515.363	453.527	−471.391	74.203	−1089.826	−594.748	−541.633	23.577
	1300.00	82.951	522.001	458.542	−463.097	82.497	−1141.698	−595.475	−537.178	21.584
	1400.00	82.983	528.150	463.297	−454.800	90.794	−1194.210	−596.283	−532.664	19.874
	1500.00	83.010	533.876	467.814	−446.501	99.093	−1247.314	−597.168	−528.089	18.390
	1600.00	83.033	539.234	472.112	−438.199	107.395	−1300.973	−598.131	−523.453	17.089
	1700.00	83.055	544.268	476.210	−429.894	115.700	−1355.150	−599.170	−518.754	15.939
	1800.00	83.074	549.016	480.124	−421.588	124.006	−1409.817	−600.284	−513.992	14.916
	1900.00	83.091	553.508	483.869	−413.280	132.314	−1464.945	−618.611	−508.400	13.977
	2000.00	83.107	557.771	487.458	−404.970	140.624	−1520.511	−620.174	−502.559	13.125

References

Phase	H / S	C_p
GAS	Pa2	Pa2

275.292

THULIUM TRICHLORIDE — TmCl3

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	97.685	146.858	146.858	−986.587	0.000	−1030.373	−986.587	−908.522	159.169
	300.00	97.724	147.463	146.860	−986.406	0.181	−1030.645	−986.550	−908.038	158.103
	400.00	99.506	175.833	150.716	−976.540	10.047	−1046.874	−984.600	−882.162	115.198
	500.00	100.960	198.197	158.054	−966.516	20.071	−1065.614	−982.649	−856.777	89.507
	600.00	102.285	216.722	166.332	−956.353	30.234	−1086.386	−980.674	−831.788	72.414
	700.00	103.549	232.585	174.690	−946.061	40.526	−1108.870	−978.687	−807.131	60.229
	800.00	104.780	246.493	182.814	−935.644	50.943	−1132.838	−976.720	−782.757	51.109
	900.00	105.993	258.904	190.591	−925.105	61.482	−1158.119	−974.784	−758.628	44.030
	1000.00	107.194	270.134	197.993	−914.446	72.141	−1184.580	−972.840	−734.715	38.378
	1100.00	108.387	280.407	205.024	−903.667	82.920	−1212.114	−970.879	−710.997	33.762

References

Phase	H / S	C_p
SOL	Nb1/e	e

TmCl3[g] THULIUM TRICHLORIDE (GAS) 275.292

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	78.090	374.126	374.126	−665.674	0.000	−777.220	−665.674	−655.369	114.818
	300.00	78.149	374.609	374.127	−665.529	0.145	−777.912	−665.674	−655.305	114.099
	400.00	80.256	397.423	377.223	−657.594	8.080	−816.563	−665.654	−651.851	85.123
	500.00	81.240	415.449	383.129	−649.514	16.160	−857.239	−665.648	−648.402	67.738
	600.00	81.781	430.313	389.791	−641.361	24.313	−899.548	−665.682	−644.951	56.148
	700.00	82.114	442.947	396.505	−633.165	32.509	−943.227	−665.791	−641.488	47.868
	800.00	82.336	453.927	403.011	−624.941	40.733	−988.083	−666.018	−638.002	41.657
	900.00	82.493	463.634	409.218	−616.700	48.974	−1033.970	−666.379	−634.480	36.824
	1000.00	82.610	472.332	415.102	−608.444	57.230	−1080.776	−666.839	−630.912	32.955
	1100.00	82.700	480.210	420.669	−600.178	65.496	−1128.409	−667.391	−627.293	29.788
	1200.00	82.773	487.409	425.935	−591.905	73.769	−1176.795	−668.029	−623.620	27.145
	1300.00	82.833	494.037	430.922	−583.624	82.050	−1225.872	−668.751	−619.891	24.908
	1400.00	82.884	500.177	435.652	−575.338	90.336	−1275.587	−669.554	−616.103	22.987
	1500.00	82.928	505.897	440.146	−567.048	98.626	−1325.894	−670.435	−612.254	21.321
	1600.00	82.967	511.251	444.425	−558.753	106.921	−1376.754	−671.396	−608.345	19.860
	1700.00	83.002	516.282	448.505	−550.454	115.220	−1428.133	−672.434	−604.373	18.570
	1800.00	83.034	521.027	452.404	−542.153	123.521	−1480.001	−673.549	−600.337	17.421
	1900.00	83.064	525.517	456.135	−533.848	131.826	−1532.330	−691.878	−595.472	16.371
	2000.00	83.091	529.778	459.711	−525.540	140.134	−1585.096	−693.446	−590.357	15.419

References

Phase	H / S	C_p
GAS	Pa2	Pa2

225.929 THULIUM TRIFLUORIDE **TmF3**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)		] [		kJ / mol		]	[−]
SOL−A	298.15	94.967	115.478	115.478	−1505.403	0.000	−1539.833	−1505.403	−1427.070	250.017
	300.00	95.079	116.066	115.480	−1505.227	0.176	−1540.047	−1505.364	−1426.584	248.390
	400.00	99.426	144.080	119.270	−1495.479	9.924	−1553.111	−1503.151	−1400.653	182.907
	500.00	102.055	166.567	126.555	−1485.397	20.006	−1568.680	−1500.831	−1375.296	143.676
	600.00	104.008	185.353	134.832	−1475.090	30.313	−1586.302	−1498.469	−1350.410	117.564
	700.00	105.641	201.512	143.230	−1464.606	40.797	−1605.664	−1496.100	−1325.921	98.941
	800.00	107.104	215.715	151.420	−1453.967	51.436	−1626.539	−1493.763	−1301.770	84.997
	900.00	108.468	228.409	159.282	−1443.188	62.215	−1648.757	−1491.469	−1277.909	74.168
	1000.00	109.770	239.906	166.778	−1432.276	73.127	−1672.181	−1489.181	−1254.303	65.518
	1100.00	111.032	250.427	173.911	−1421.235	84.168	−1696.705	−1486.887	−1230.926	58.452
	1200.00	112.267	260.141	180.697	−1410.070	95.333	−1722.240	−1484.581	−1207.759	52.572
	1300.00	113.483	269.176	187.160	−1398.783	106.620	−1748.711	−1482.256	−1184.784	47.605
	1326.00	113.797	271.426	188.790	−1395.828	109.575	−1755.739	−1481.648	−1178.841	46.438
			22.845		30.292					
SOL−B	1326.00	97.843	294.271	188.790	−1365.536	139.867	−1755.739	−1451.356	−1178.841	46.438
	1400.00	97.843	299.584	194.507	−1358.296	147.107	−1777.713	−1450.830	−1163.647	43.416
	1431.00	97.843	301.727	196.807	−1355.262	150.141	−1787.034	−1450.625	−1157.291	42.244
			20.175		28.870					
LIQ	1431.00	140.336	321.902	196.807	−1326.392	179.011	−1787.034	−1421.755	−1157.291	42.244
	1500.00	140.336	328.510	202.715	−1316.709	188.694	−1809.475	−1418.398	−1144.618	39.859

References

Phase	H / S	C_p
SOL−A	Pa2	Pa2
SOL−B	Pa2	Pa2
LIQ	Pa2	Pa2

TmF3[g] THULIUM TRIFLUORIDE (GAS) 225.929

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	70.864	339.369	339.369	−1215.870	0.000	−1317.053	−1215.870	−1204.290	210.987
	300.00	70.971	339.808	339.370	−1215.739	0.131	−1317.681	−1215.876	−1204.218	209.673
	400.00	75.310	360.880	342.214	−1208.404	7.466	−1352.756	−1216.076	−1200.298	156.743
	500.00	77.773	377.974	347.711	−1200.739	15.131	−1389.725	−1216.173	−1196.341	124.981
	600.00	79.262	392.296	353.981	−1192.881	22.989	−1428.258	−1216.260	−1192.367	103.805
	700.00	80.221	404.591	360.353	−1184.904	30.966	−1468.117	−1216.398	−1188.375	88.678
	800.00	80.872	415.348	366.569	−1176.847	39.023	−1509.125	−1216.642	−1184.357	77.331
	900.00	81.331	424.901	372.530	−1168.736	47.134	−1551.147	−1217.016	−1180.299	68.503
	1000.00	81.667	433.489	378.204	−1160.585	55.285	−1594.074	−1217.490	−1176.195	61.438
	1100.00	81.919	441.285	383.589	−1152.405	63.465	−1637.818	−1218.057	−1172.039	55.655
	1200.00	82.112	448.421	388.699	−1144.203	71.667	−1682.309	−1218.714	−1167.827	50.834
	1300.00	82.263	455.000	393.549	−1135.984	79.886	−1727.484	−1219.457	−1163.557	46.752
	1400.00	82.383	461.101	398.159	−1127.751	88.119	−1773.293	−1220.285	−1159.227	43.251
	1500.00	82.480	466.788	402.547	−1119.508	96.362	−1819.690	−1221.197	−1154.834	40.215
	1600.00	82.559	472.114	406.730	−1111.256	104.614	−1866.638	−1222.191	−1150.378	37.556
	1700.00	82.623	477.121	410.725	−1102.997	112.873	−1914.103	−1223.266	−1145.857	35.208
	1800.00	82.677	481.845	414.546	−1094.732	121.138	−1962.053	−1224.421	−1141.271	33.119
	1900.00	82.721	486.317	418.207	−1086.462	129.408	−2010.463	−1242.793	−1135.852	31.227
	2000.00	82.759	490.561	421.719	−1078.188	137.682	−2059.309	−1244.406	−1130.181	29.517

References

Phase	H / S	C_p
GAS	Pa2	Pa2

549.648 THULIUM TRIIODIDE (GAS) **TmI3**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	81.434	429.794	429.794	−329.699	0.000	−457.842	−329.699	−383.833	67.246
	300.00	81.455	430.297	429.795	−329.548	0.151	−458.638	−329.749	−384.169	66.890
	400.00	82.183	453.845	433.001	−321.361	8.338	−502.899	−356.735	−401.039	52.370
	500.00	82.522	472.225	439.075	−313.124	16.575	−549.236	−423.506	−405.655	42.379
	600.00	82.707	487.288	445.893	−304.862	24.837	−597.235	−423.606	−402.076	35.004
	700.00	82.820	500.046	452.741	−296.585	33.114	−646.618	−423.763	−398.477	29.735
	800.00	82.893	511.110	459.361	−288.299	41.400	−697.188	−424.027	−394.848	25.781
	900.00	82.945	520.877	465.664	−280.007	49.692	−748.797	−424.420	−391.178	22.703
	1000.00	82.983	529.618	471.630	−271.711	57.988	−801.329	−424.908	−387.459	20.239
	1100.00	83.011	537.529	477.267	−263.411	66.288	−854.693	−425.488	−383.687	18.220
	1200.00	83.033	544.753	482.594	−255.109	74.590	−908.812	−426.154	−379.858	16.535
	1300.00	83.051	551.400	487.634	−246.804	82.895	−963.624	−426.904	−375.970	15.107
	1400.00	83.066	557.555	492.412	−238.499	91.200	−1019.075	−427.735	−372.022	13.880
	1500.00	83.078	563.286	496.948	−230.191	99.508	−1075.121	−428.648	−368.011	12.815
	1600.00	83.089	568.648	501.263	−221.883	107.816	−1131.720	−429.640	−363.937	11.881
	1700.00	83.098	573.686	505.377	−213.574	116.125	−1188.840	−430.710	−359.798	11.055
	1800.00	83.106	578.436	509.305	−205.264	124.435	−1246.448	−431.859	−355.594	10.319
	1900.00	83.113	582.929	513.063	−196.953	132.746	−1304.518	−450.222	−350.557	9.637
	2000.00	83.120	587.193	516.664	−188.641	141.058	−1363.026	−451.823	−345.270	9.018

References

Phase	H / S	C_p
GAS	Pa2	Pa2

Tm2O3 DITHULIUM TRIOXIDE 385.867

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	116.736	139.746	139.746	−1888.658	0.000	−1930.323	−1888.658	−1794.441	314.379
	300.00	116.898	140.468	139.748	−1888.442	0.216	−1930.582	−1888.623	−1793.857	312.338
	400.00	122.730	175.007	144.417	−1876.422	12.236	−1946.425	−1886.489	−1762.577	230.169
	500.00	125.670	202.740	153.401	−1863.988	24.670	−1965.358	−1884.080	−1731.875	180.928
	600.00	127.471	225.823	163.602	−1851.325	37.333	−1986.819	−1881.626	−1701.665	148.143
	700.00	128.734	245.573	173.935	−1838.512	50.146	−2010.412	−1879.274	−1671.860	124.756
	800.00	129.711	262.829	183.991	−1825.588	63.070	−2035.851	−1877.140	−1642.378	107.236
	900.00	130.521	278.155	193.618	−1812.575	76.083	−2062.914	−1875.263	−1613.148	93.625
	1000.00	131.228	291.944	202.772	−1799.487	89.171	−2091.430	−1873.575	−1584.116	82.746
	1100.00	131.867	304.481	211.457	−1786.332	102.326	−2121.261	−1872.058	−1555.245	73.852
	1200.00	132.460	315.981	219.695	−1773.115	115.543	−2152.292	−1870.698	−1526.505	66.447
	1300.00	133.021	326.606	227.516	−1759.841	128.817	−2184.428	−1869.483	−1497.873	60.185
	1400.00	133.558	336.484	234.950	−1746.512	142.146	−2217.588	−1868.408	−1469.328	54.821
	1500.00	134.078	345.716	242.030	−1733.130	155.528	−2251.703	−1867.466	−1440.856	50.175
	1600.00	134.584	354.385	248.784	−1719.697	168.961	−2286.713	−1866.656	−1412.443	46.112
	1680.00	134.982	360.961	253.971	−1708.914	179.744	−2315.329	−1866.100	−1389.746	43.210
			0.772		1.297					
SOL−B	1680.00	133.888	361.733	253.971	−1707.617	181.041	−2315.329	−1864.803	−1389.746	43.210
	1700.00	133.888	363.318	255.248	−1704.939	183.719	−2322.579	−1864.700	−1384.091	42.528
	1800.00	133.888	370.971	261.466	−1691.550	197.108	−2359.297	−1864.288	−1355.833	39.345
	1900.00	133.888	378.210	267.422	−1678.161	210.497	−2396.760	−1898.324	−1326.060	36.456
	2000.00	133.888	385.077	273.134	−1664.773	223.885	−2434.927	−1898.855	−1295.927	33.846

References

Phase	H / S	C_p
SOL−A	Nb1	Pa1
SOL−B	Pa1	Pa1

238.029 URANIUM **U**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL−A	298.15	27.654	50.292	50.292	0.000	0.000	−14.994	0.000	0.000	0.000
	300.00	27.690	50.463	50.292	0.051	0.051	−15.088	0.000	0.000	0.000
	400.00	29.701	58.701	51.402	2.920	2.920	−20.561	0.000	0.000	0.000
	500.00	32.007	65.569	53.566	6.002	6.002	−26.783	0.000	0.000	0.000
	600.00	34.760	71.640	56.080	9.336	9.336	−33.648	0.000	0.000	0.000
	700.00	38.012	77.236	58.707	12.970	12.970	−41.095	0.000	0.000	0.000
	800.00	41.785	82.553	61.358	16.956	16.956	−49.086	0.000	0.000	0.000
	900.00	46.088	87.717	64.001	21.345	21.345	−57.601	0.000	0.000	0.000
	941.00	48.007	89.812	65.080	23.274	23.274	−61.240	0.000	0.000	0.000
			2.966		2.791					
SOL−B	941.00	42.928	92.778	65.080	26.065	26.065	−61.240	0.000	0.000	0.000
	1000.00	42.928	95.389	66.792	28.597	28.597	−66.792	0.000	0.000	0.000
	1048.00	42.928	97.402	68.148	30.658	30.658	−71.419	0.000	0.000	0.000
			4.539		4.757					
SOL−C	1048.00	38.284	101.941	68.148	35.415	35.415	−71.419	0.000	0.000	0.000
	1100.00	38.284	103.795	69.790	37.406	37.406	−76.769	0.000	0.000	0.000
	1200.00	38.284	107.126	72.764	41.234	41.234	−87.317	0.000	0.000	0.000
	1300.00	38.284	110.190	75.527	45.062	45.062	−98.185	0.000	0.000	0.000
	1400.00	38.284	113.027	78.105	48.891	48.891	−109.347	0.000	0.000	0.000
	1405.00	38.284	113.164	78.230	49.082	49.082	−109.913	0.000	0.000	0.000
			6.063		8.519					
LIQ	1405.00	47.907	119.227	78.230	57.601	57.601	−109.913	0.000	0.000	0.000
	1500.00	47.907	122.362	80.927	62.152	62.152	−121.390	0.000	0.000	0.000
	1600.00	47.907	125.453	83.614	66.943	66.943	−133.782	0.000	0.000	0.000
	1700.00	47.907	128.358	86.161	71.734	71.734	−146.474	0.000	0.000	0.000
	1800.00	47.907	131.096	88.582	76.524	76.524	−159.448	0.000	0.000	0.000
	1900.00	47.907	133.686	90.889	81.315	81.315	−172.689	0.000	0.000	0.000
	2000.00	47.907	136.143	93.091	86.106	86.106	−186.181	0.000	0.000	0.000
	2100.00	47.907	138.481	95.197	90.896	90.896	−199.913	0.000	0.000	0.000
	2200.00	47.907	140.709	97.215	95.687	95.687	−213.874	0.000	0.000	0.000
	2300.00	47.907	142.839	99.153	100.478	100.478	−228.052	0.000	0.000	0.000
	2400.00	47.907	144.878	101.016	105.268	105.268	−242.439	0.000	0.000	0.000
	2500.00	47.907	146.834	102.810	110.059	110.059	−257.025	0.000	0.000	0.000
	2600.00	47.907	148.712	104.540	114.850	114.850	−271.803	0.000	0.000	0.000
	2700.00	47.907	150.520	106.209	119.640	119.640	−286.765	0.000	0.000	0.000
	2800.00	47.907	152.263	107.823	124.431	124.431	−301.905	0.000	0.000	0.000
	2900.00	47.907	153.944	109.385	129.222	129.222	−317.215	0.000	0.000	0.000
	3000.00	47.907	155.568	110.897	134.012	134.012	−332.691	0.000	0.000	0.000
	3100.00	47.907	157.139	112.364	138.803	138.803	−348.327	0.000	0.000	0.000
	3200.00	47.907	158.660	113.787	143.594	143.594	−364.118	0.000	0.000	0.000
	3300.00	47.907	160.134	115.169	148.384	148.384	−380.058	0.000	0.000	0.000
	3400.00	47.907	161.564	116.513	153.175	153.175	−396.143	0.000	0.000	0.000
	3500.00	47.907	162.953	117.820	157.966	157.966	−412.369	0.000	0.000	0.000

U URANIUM [continued] 238.029

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		J / (K mol)			kJ / mol					
LIQ	3600.00	47.907	164.302	119.092	162.757	162.757	−428.732	0.000	0.000	0.000
	3700.00	47.907	165.615	120.332	167.547	167.547	−445.228	0.000	0.000	0.000
	3800.00	47.907	166.893	121.541	172.338	172.338	−461.854	0.000	0.000	0.000
	3900.00	47.907	168.137	122.719	177.129	177.129	−478.606	0.000	0.000	0.000
	4000.00	47.907	169.350	123.870	181.919	181.919	−495.480	0.000	0.000	0.000
	4100.00	47.907	170.533	124.994	186.710	186.710	−512.475	0.000	0.000	0.000
	4200.00	47.907	171.687	126.092	191.501	191.501	−529.586	0.000	0.000	0.000
	4300.00	47.907	172.815	127.165	196.291	196.291	−546.811	0.000	0.000	0.000
	4400.00	47.907	173.916	128.215	201.082	201.082	−564.148	0.000	0.000	0.000
	4402.00	47.907	173.938	128.236	201.178	201.178	−564.496	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL − A	Hu1	Hu1		end-centered-orthorhombic
SOL − B	Hu1	Hu1		complex tetragonal (σ-structure)
SOL − C	Hu1	Hu1		bcc
LIQ	Hu1	Hu1	Hu1	BPT = 4402., L = 464.11 kJ

238.029 URANIUM (GAS) **U**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	23.693	199.787	199.787	523.000	0.000	463.434	523.000	478.428	−83.819
	300.00	23.710	199.933	199.787	523.044	0.044	463.064	522.993	478.152	−83.254
	400.00	23.953	206.811	200.723	525.435	2.435	442.711	522.516	463.272	−60.497
	500.00	23.694	212.131	202.494	527.819	4.819	421.753	521.817	448.536	−46.858
	600.00	23.408	216.425	204.469	530.173	7.173	400.318	520.837	433.967	−37.780
	700.00	23.257	220.019	206.441	532.505	9.505	378.491	519.535	419.587	−31.310
	800.00	23.360	223.130	208.337	534.835	11.835	356.331	517.879	405.417	−26.471
	900.00	23.672	225.897	210.137	537.184	14.184	333.877	515.839	391.477	−22.721
	1000.00	24.218	228.418	211.841	539.577	16.577	311.159	510.980	377.951	−19.742
	1100.00	24.955	230.759	213.455	542.034	19.034	288.199	504.629	364.968	−17.331
	1200.00	25.833	232.967	214.990	544.573	21.573	265.012	503.339	352.329	−15.336
	1300.00	26.805	235.073	216.454	547.204	24.204	241.609	502.142	339.794	−13.653
	1400.00	27.836	237.097	217.857	549.936	26.936	218.000	501.045	327.348	−12.213
	1500.00	28.895	239.053	219.205	552.772	29.772	194.192	490.620	315.582	−10.990
	1600.00	29.960	240.952	220.505	555.715	32.715	170.191	488.772	303.974	−9.924
	1700.00	31.011	242.800	221.763	558.764	35.764	146.003	487.030	292.478	−8.987
	1800.00	32.036	244.602	222.982	561.916	38.916	121.633	485.392	281.081	−8.157
	1900.00	33.023	246.361	224.166	565.169	42.169	97.084	483.855	269.773	−7.417
	2000.00	33.962	248.078	225.319	568.519	45.519	72.362	482.414	258.543	−6.752
	2100.00	34.904	249.759	226.443	571.964	48.964	47.470	481.067	247.383	−6.153
	2200.00	35.722	251.402	227.540	575.496	52.496	22.412	479.809	236.285	−5.610
	2300.00	36.443	253.006	228.613	579.105	56.105	−2.809	478.627	225.243	−5.115
	2400.00	37.090	254.571	229.662	582.782	59.782	−28.188	477.514	214.250	−4.663
	2500.00	37.676	256.097	230.689	586.521	63.521	−53.722	476.462	203.303	−4.248
	2600.00	38.214	257.585	231.695	590.316	67.316	−79.406	475.466	192.396	−3.865
	2700.00	38.712	259.037	232.681	594.162	71.162	−105.238	474.522	181.527	−3.512
	2800.00	39.176	260.453	233.647	598.057	75.057	−131.213	473.626	170.692	−3.184
	2900.00	39.612	261.836	234.596	601.997	78.997	−157.327	472.775	159.888	−2.880
	3000.00	40.024	263.186	235.526	605.979	82.979	−183.579	471.966	149.113	−2.596
	3100.00	40.414	264.505	236.440	610.001	87.001	−209.964	471.198	138.364	−2.331
	3200.00	40.786	265.794	237.337	614.061	91.061	−236.479	470.467	127.639	−2.083
	3300.00	41.141	267.054	238.219	618.157	95.157	−263.121	469.773	116.936	−1.851
	3400.00	41.480	268.287	239.085	622.288	99.288	−289.889	469.113	106.254	−1.632
	3500.00	41.806	269.494	239.937	626.453	103.453	−316.778	468.487	95.591	−1.427
	3600.00	42.118	270.677	240.774	630.649	107.649	−343.787	467.893	84.946	−1.233
	3700.00	42.418	271.835	241.598	634.876	111.876	−370.912	467.329	74.316	−1.049
	3800.00	42.706	272.970	242.409	639.132	116.132	−398.153	466.794	63.701	−0.876
	3900.00	42.983	274.083	243.207	643.417	120.417	−425.506	466.288	53.100	−0.711
	4000.00	43.249	275.174	243.992	647.728	124.728	−452.969	465.809	42.512	−0.555
	4100.00	43.504	276.245	244.766	652.066	129.066	−480.540	465.356	31.935	−0.407
	4200.00	43.750	277.297	245.528	656.429	133.429	−508.217	464.928	21.369	−0.266
	4300.00	43.985	278.329	246.279	660.816	137.816	−535.999	464.524	10.813	−0.131
	4400.00	44.210	279.343	247.019	665.226	142.226	−563.882	464.144	0.266	−0.003
	4500.00	44.426	280.339	247.748	669.657	146.657	−591.866	0.000	0.000	0.000
	4600.00	44.631	281.317	248.467	674.110	151.110	−619.949	0.000	0.000	0.000
	4700.00	44.828	282.279	249.176	678.583	155.583	−648.129	0.000	0.000	0.000
	4800.00	45.014	283.225	249.876	683.076	160.076	−676.405	0.000	0.000	0.000
	4900.00	45.192	284.155	250.566	687.586	164.586	−704.774	0.000	0.000	0.000
	5000.00	45.359	285.070	251.247	692.114	169.114	−733.235	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

UB2 URANIUM DIBORIDE 259.651

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	55.769	55.522	55.522	−161.502	0.000	−178.056	−161.502	−159.585	27.959
	300.00	56.213	55.868	55.523	−161.398	0.104	−178.159	−161.492	−159.573	27.784
	400.00	71.151	74.429	57.952	−154.911	6.591	−184.683	−160.602	−159.056	20.771
	500.00	77.316	91.058	62.949	−147.447	14.055	−192.977	−159.682	−158.781	16.588
	600.00	80.325	105.449	68.862	−139.550	21.952	−202.819	−159.080	−158.664	13.813
	700.00	82.102	117.974	75.003	−131.423	30.079	−214.004	−158.897	−158.615	11.836
	800.00	83.452	129.027	81.079	−123.143	38.359	−226.365	−159.169	−158.561	10.353
	900.00	84.758	138.931	86.966	−114.733	46.769	−239.771	−159.913	−158.446	9.196
	1000.00	86.224	147.935	92.619	−106.186	55.316	−254.121	−163.543	−158.058	8.256
	1100.00	87.963	156.232	98.030	−97.479	64.023	−269.335	−168.704	−157.247	7.467
	1200.00	90.046	163.973	103.206	−88.582	72.920	−285.349	−168.813	−156.200	6.799
	1300.00	92.515	171.275	108.164	−79.457	82.045	−302.115	−168.800	−155.149	6.234
	1400.00	95.399	178.234	112.922	−70.065	91.437	−319.593	−168.615	−154.104	5.750
	1500.00	98.718	184.927	117.501	−60.363	101.139	−337.753	−177.643	−152.474	5.310
	1600.00	102.484	191.415	121.918	−50.307	111.195	−356.571	−177.929	−150.785	4.923
	1700.00	106.709	197.753	126.193	−39.851	121.651	−376.031	−177.896	−149.088	4.581
	1800.00	111.398	203.983	130.342	−28.950	132.552	−396.118	−177.495	−147.403	4.278
	1900.00	116.557	210.142	134.381	−17.556	143.946	−416.825	−176.675	−145.752	4.007
	2000.00	122.190	216.262	138.322	−5.622	155.880	−438.146	−175.387	−144.155	3.765
	2100.00	128.299	222.369	142.179	6.898	168.400	−460.077	−173.583	−142.636	3.548
	2200.00	134.889	228.488	145.963	20.053	181.555	−482.620	−171.213	−141.215	3.353
	2300.00	141.959	234.638	149.684	33.892	195.394	−505.776	−168.227	−139.916	3.178

References

Phase	H / S	C_p
SOL	Nb1	Ku1,Tk1,e

UB4 URANIUM TETRABORIDE 281.273

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	78.911	71.128	71.128	−245.601	0.000	−266.808	−245.601	−244.860	42.899
	300.00	79.480	71.618	71.130	−245.454	0.147	−266.940	−245.590	−244.856	42.633
	400.00	100.489	97.733	74.547	−236.327	9.274	−275.420	−244.789	−244.728	31.958
	500.00	111.776	121.473	81.605	−225.667	19.934	−286.404	−244.134	−244.795	25.574
	600.00	119.235	142.549	90.041	−214.096	31.505	−299.625	−243.820	−244.962	21.326
	700.00	124.887	161.370	98.910	−201.879	43.722	−314.838	−243.857	−245.154	18.294
	800.00	129.576	178.360	107.797	−189.150	56.451	−331.838	−244.246	−245.317	16.018
	900.00	133.705	193.865	116.511	−175.982	69.619	−350.461	−244.996	−245.410	14.243
	1000.00	137.486	208.150	124.970	−162.421	83.180	−370.571	−248.536	−245.235	12.810
	1100.00	141.040	221.422	133.142	−148.493	97.108	−392.057	−253.537	−244.650	11.617
	1200.00	144.440	233.841	141.022	−134.218	111.383	−414.827	−253.446	−243.846	10.614

References

Phase	H / S	C_p
SOL	Ra1	e

367.761

URANIUM DODECABORIDE **UB12**

Phase	T [K]	C_p [J / (K mol)]	S [J / (K mol)]	−(G−H298)/T [J / (K mol)]	H [kJ / mol]	H−H298 [kJ / mol]	G [kJ / mol]	ΔH_f [kJ / mol]	ΔG_f [kJ / mol]	log K_f [−]
SOL	298.15	169.580	139.746	139.746	−396.999	0.000	−438.664	−396.999	−402.811	70.571
	300.00	171.373	140.800	139.749	−396.684	0.315	−438.924	−396.987	−402.847	70.142
	400.00	234.938	200.085	147.400	−375.925	21.074	−455.959	−395.474	−405.004	52.888
	500.00	265.182	256.115	163.636	−350.759	46.240	−478.817	−394.157	−407.556	42.577
	600.00	282.310	306.107	183.299	−323.314	73.685	−506.978	−393.814	−410.285	35.718
	700.00	293.246	350.502	204.075	−294.500	102.499	−539.852	−394.494	−412.990	30.818
	800.00	300.881	390.185	224.903	−264.773	132.226	−576.922	−396.150	−415.531	27.131
	900.00	306.598	425.969	245.289	−234.387	162.612	−617.759	−398.739	−417.808	24.249
	1000.00	311.122	458.514	265.009	−203.493	193.506	−662.008	−404.646	−419.583	21.917
	1100.00	314.868	488.348	283.975	−172.188	224.811	−709.371	−412.510	−420.688	19.977
	1200.00	318.084	515.887	302.168	−140.537	256.462	−759.601	−415.754	−421.291	18.338

References

Phase	H / S	C_p
SOL	Nb1/Ra1	e

477.741

URANIUM TRIBROMIDE **UBr3**

Phase	T [K]	C_p [J / (K mol)]	S [J / (K mol)]	−(G−H298)/T [J / (K mol)]	H [kJ / mol]	H−H298 [kJ / mol]	G [kJ / mol]	ΔH_f [kJ / mol]	ΔG_f [kJ / mol]	log K_f [−]
SOL	298.15	108.704	192.464	192.464	−699.146	0.000	−756.529	−699.146	−673.463	117.988
	300.00	108.752	193.137	192.466	−698.945	0.201	−756.886	−699.206	−673.303	117.232
	400.00	111.389	224.784	196.763	−687.938	11.208	−777.851	−742.790	−655.566	85.608
	500.00	114.022	249.922	204.965	−676.667	22.479	−801.628	−740.140	−634.066	66.240
	600.00	116.653	270.944	214.256	−665.133	34.013	−827.700	−737.518	−613.099	53.375
	700.00	119.284	289.123	223.681	−653.337	45.809	−855.723	−734.959	−592.566	44.218
	800.00	121.915	305.223	232.887	−641.277	57.869	−885.455	−732.506	−572.393	37.373
	900.00	124.545	319.735	241.743	−628.954	70.192	−916.715	−730.208	−552.518	32.067
	1000.00	127.176	332.993	250.215	−616.368	82.778	−949.361	−730.523	−532.725	27.827
			43.932		43.932					
LIQ	1000.00	132.633	376.925	250.215	−572.436	126.710	−949.361	−686.591	−532.725	27.827
	1100.00	132.633	389.566	262.317	−559.172	139.974	−987.695	−687.795	−517.269	24.563
	1200.00	132.633	401.107	273.409	−545.909	153.237	−1027.237	−684.030	−501.933	21.849
	1300.00	132.633	411.723	283.646	−532.646	166.500	−1067.886	−680.273	−486.911	19.564
	1400.00	132.633	421.552	293.150	−519.383	179.763	−1109.556	−676.525	−472.177	17.617
	1500.00	132.633	430.703	302.018	−506.119	193.027	−1152.174	−682.219	−457.105	15.918
	1600.00	132.633	439.263	310.332	−492.856	206.290	−1195.676	−679.450	−442.188	14.436
	1700.00	132.633	447.304	318.155	−479.593	219.553	−1240.009	−676.690	−427.443	13.134
	1800.00	132.633	454.885	325.542	−466.329	232.817	−1285.122	−673.936	−412.861	11.981

References

Phase	H / S	C_p
SOL	Nb1	Pa2
LIQ	Ra1	e

UBr4 URANIUM TETRABROMIDE 557.645

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	128.115	238.501	238.501	−802.500	0.000	−873.609	−802.500	−767.852	134.524
	300.00	128.169	239.293	238.503	−802.263	0.237	−874.051	−802.594	−767.637	133.657
	400.00	131.125	276.569	243.566	−789.298	13.202	−899.926	−861.462	−743.732	97.121
	500.00	134.094	306.148	253.223	−776.038	26.462	−929.112	−858.668	−714.623	74.656
	600.00	137.069	330.859	264.158	−762.479	40.021	−960.995	−855.881	−686.076	59.728
	700.00	140.046	352.212	275.246	−748.624	53.876	−995.172	−853.130	−657.994	49.100
	792.00	142.787	369.671	285.218	−735.613	66.887	−1028.393	−850.667	−632.504	41.715
			61.280		48.534					
LIQ	792.00	171.544	430.951	285.218	−687.079	115.421	−1028.393	−802.133	−632.504	41.715
	800.00	171.544	432.675	286.684	−685.707	116.793	−1031.847	−801.694	−630.792	41.187
	900.00	171.544	452.880	304.050	−668.553	133.947	−1076.145	−796.443	−609.750	35.389
	1000.00	171.544	470.954	319.852	−651.398	151.102	−1122.352	−794.073	−589.102	30.772
	1040.00	171.544	477.682	325.794	−644.537	157.963	−1141.326	−791.945	−580.946	29.178

References

Phase	H / S	C_p	Remarks
SOL	Nb1	Pa2	
LIQ	Pa2	Pa2	Pa2 NBPT= 1040.

UBr4[g] URANIUM TETRABROMIDE (GAS) 557.645

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	119.616	458.559	458.559	−593.300	0.000	−730.019	−593.300	−624.262	109.368
	300.00	119.807	459.299	458.561	−593.079	0.221	−730.868	−593.410	−624.454	108.727
	400.00	126.520	494.823	463.359	−580.714	12.586	−778.644	−652.878	−622.450	81.284
	500.00	129.629	523.428	472.607	−567.890	25.410	−829.603	−650.520	−615.115	64.261
	600.00	131.318	547.225	483.116	−554.835	38.465	−883.170	−648.236	−608.251	52.953
	700.00	132.337	567.551	493.762	−541.648	51.652	−938.933	−646.154	−601.755	44.904
	800.00	132.999	585.268	504.117	−528.379	64.921	−996.593	−644.366	−595.539	38.885
	900.00	133.454	600.961	514.022	−515.055	78.245	−1055.920	−642.946	−589.525	34.215
	1000.00	133.779	615.039	523.432	−501.692	91.608	−1116.732	−644.367	−583.482	30.478
	1100.00	134.021	627.802	532.349	−488.302	104.998	−1178.884	−647.330	−577.238	27.411
	1200.00	134.204	639.471	540.796	−474.890	118.410	−1242.256	−645.306	−570.956	24.853
	1300.00	134.348	650.219	548.806	−461.462	131.838	−1306.747	−643.278	−564.842	22.696
	1400.00	134.462	660.180	556.410	−448.022	145.278	−1372.273	−641.249	−558.885	20.852
	1500.00	134.555	669.460	563.640	−434.571	158.729	−1438.761	−648.653	−552.466	19.239
	1600.00	134.631	678.147	570.528	−421.111	172.189	−1506.146	−647.590	−546.088	17.828
	1700.00	134.694	686.310	577.101	−407.645	185.655	−1574.372	−646.529	−539.777	16.585
	1800.00	134.747	694.011	583.385	−394.173	199.127	−1643.392	−645.474	−533.528	15.483
	1900.00	134.793	701.297	589.400	−380.696	212.604	−1713.161	−644.424	−527.337	14.498
	2000.00	134.831	708.212	595.170	−367.214	226.086	−1783.639	−643.379	−521.202	13.612

References

Phase	H / S	C_p
GAS	Nb1/e	e

637.549 URANIUM PENTABROMIDE **UBr5**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	160.676	292.880	292.880	−810.859	0.000	−898.181	−810.859	−769.733	134.854
	300.00	160.815	293.874	292.883	−810.562	0.297	−898.724	−810.963	−769.478	133.978
	400.00	166.963	341.034	299.271	−794.154	16.705	−930.568	−883.629	−740.465	96.695
	500.00	171.711	378.815	311.525	−777.214	33.645	−966.621	−879.001	−705.207	73.672

References

Phase	H / S	C_p
SOL	Nb1	Nb1,e

250.040 URANIUM MONOCARBIDE **UC**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	50.126	59.204	59.204	−97.906	0.000	−115.558	−97.906	−98.852	17.318
	300.00	50.265	59.514	59.205	−97.813	0.093	−115.667	−97.880	−98.858	17.213
	400.00	55.181	74.747	61.248	−92.507	5.399	−122.405	−96.479	−99.396	12.980
	500.00	57.564	87.342	65.245	−86.858	11.048	−130.529	−95.243	−100.273	10.475
	600.00	59.010	97.974	69.837	−81.024	16.882	−139.808	−94.324	−101.372	8.825
	700.00	60.061	107.152	74.527	−75.068	22.838	−150.075	−93.781	−102.595	7.656
	800.00	60.942	115.231	79.120	−69.017	28.889	−161.202	−93.640	−103.868	6.782
	900.00	61.757	122.456	83.541	−62.882	35.024	−173.093	−93.926	−105.134	6.102
	1000.00	62.564	129.005	87.765	−56.666	41.240	−185.671	−97.082	−106.180	5.546
	1100.00	63.394	135.007	91.791	−50.369	47.537	−198.876	−101.782	−106.850	5.074
	1200.00	64.266	140.560	95.626	−43.986	53.920	−212.657	−101.473	−107.324	4.672
	1300.00	65.192	145.740	99.284	−37.514	60.392	−226.975	−101.121	−107.826	4.332
	1400.00	66.179	150.607	102.778	−30.946	66.960	−241.795	−100.710	−108.357	4.043
	1500.00	67.235	155.208	106.121	−24.276	73.630	−257.088	−109.661	−108.313	3.772
	1600.00	68.361	159.583	109.327	−17.496	80.410	−272.829	−110.056	−108.210	3.533
	1700.00	69.561	163.763	112.407	−10.601	87.305	−288.998	−110.355	−108.085	3.321
	1800.00	70.838	167.775	115.372	−3.582	94.324	−305.576	−110.547	−107.945	3.132
	1900.00	72.191	171.641	118.233	3.569	101.475	−322.548	−110.622	−107.798	2.964
	2000.00	73.624	175.380	120.997	10.859	108.765	−339.900	−110.569	−107.650	2.812
	2100.00	75.136	179.008	123.673	18.297	116.203	−357.620	−110.382	−107.508	2.674
	2200.00	76.729	182.540	126.269	25.889	123.795	−375.698	−110.050	−107.378	2.549
	2300.00	78.402	185.987	128.791	33.645	131.551	−394.125	−109.564	−107.267	2.436
	2400.00	80.158	189.361	131.245	41.572	139.478	−412.893	−108.915	−107.181	2.333
	2500.00	81.995	192.670	133.636	49.679	147.585	−431.995	−108.095	−107.125	2.238
	2600.00	83.915	195.923	135.969	57.974	155.880	−451.425	−107.094	−107.105	2.152
	2700.00	85.917	199.127	138.249	66.465	164.371	−471.178	−105.904	−107.127	2.073
	2800.00	88.003	202.289	140.480	75.160	173.066	−491.250	−104.518	−107.197	2.000
	2900.00	90.172	205.415	142.665	84.068	181.974	−511.635	−102.925	−107.321	1.933
	3000.00	92.424	208.510	144.808	93.197	191.103	−532.331	−101.117	−107.502	1.872

References

Phase	H / S	C_p
SOL	Pa3	Pa3

UC1.94 URANIUM 1.94–CARBIDE 261.330

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	60.752	71.044	71.044	–87.027	0.000	–108.209	–87.027	–89.894	15.749
	300.00	60.953	71.421	71.045	–86.914	0.113	–108.341	–86.996	–89.912	15.655
	400.00	68.340	90.099	73.542	–80.404	6.623	–116.444	–85.366	–91.132	11.901
	500.00	72.380	105.817	78.469	–73.353	13.674	–126.261	–83.979	–92.742	9.689
	600.00	75.161	119.272	84.175	–65.969	21.058	–137.532	–82.995	–94.594	8.235
	700.00	77.362	131.028	90.046	–58.339	28.688	–150.059	–82.450	–96.576	7.207
	800.00	79.256	141.485	95.834	–50.507	36.520	–163.694	–82.335	–98.607	6.438
	900.00	80.972	150.920	101.439	–42.494	44.533	–178.322	–82.655	–100.627	5.840
	1000.00	82.576	159.535	106.824	–34.316	52.711	–193.851	–85.841	–102.422	5.350
	1100.00	84.105	167.478	111.982	–25.981	61.046	–210.207	–90.561	–103.840	4.931
	1200.00	85.584	174.860	116.918	–17.497	69.530	–227.328	–90.261	–105.060	4.573
	1300.00	87.026	181.767	121.643	–8.866	78.161	–245.163	–89.905	–106.307	4.271
	1400.00	88.441	188.268	126.172	–0.092	86.935	–263.668	–89.478	–107.584	4.014
	1500.00	89.838	194.418	130.519	8.822	95.849	–282.805	–98.403	–108.289	3.771
	1600.00	91.221	200.260	134.696	17.875	104.902	–302.541	–98.765	–108.935	3.556
	1700.00	92.594	205.832	138.718	27.066	114.093	–322.848	–99.029	–109.562	3.366
	1800.00	93.961	211.163	142.596	36.393	123.420	–343.700	–99.187	–110.177	3.197

References

Phase	H / S	C_p
SOL	Pa3	Pa3

512.091 DIURANIUM TRICARBIDE **U2C3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	107.361	137.779	137.779	−181.586	0.000	−222.665	−181.586	−187.541	32.856
	300.00	107.721	138.444	137.781	−181.387	0.199	−222.920	−181.537	−187.579	32.660
	400.00	119.958	171.382	142.189	−169.909	11.677	−238.461	−178.906	−189.994	24.811
	500.00	125.424	198.802	150.851	−157.610	23.976	−257.012	−176.765	−193.028	20.166
	600.00	128.735	221.979	160.825	−144.893	36.693	−278.081	−175.458	−196.419	17.100
	700.00	131.465	242.031	171.025	−131.882	49.704	−301.304	−175.050	−199.957	14.921
	800.00	134.271	259.766	181.030	−118.597	62.989	−326.410	−175.508	−203.494	13.287
	900.00	137.468	275.760	190.681	−105.015	76.571	−353.199	−176.802	−206.923	12.009
	1000.00	141.219	290.433	199.932	−91.085	90.501	−381.518	−183.735	−209.836	10.961
	1100.00	145.620	304.094	208.787	−76.749	104.837	−411.252	−193.582	−211.944	10.064
	1200.00	150.727	316.978	217.271	−61.938	119.648	−442.311	−193.164	−213.629	9.299
	1300.00	156.576	329.268	225.417	−46.579	135.007	−474.628	−192.337	−215.364	8.653
	1400.00	163.191	341.109	233.260	−30.597	150.989	−508.150	−190.999	−217.182	8.103
	1500.00	170.587	352.616	240.835	−13.915	167.671	−542.838	−207.918	−217.904	7.588
	1600.00	178.778	363.883	248.174	3.547	185.133	−578.665	−207.190	−218.589	7.136
	1700.00	187.770	374.987	255.308	21.868	203.454	−615.610	−205.662	−219.344	6.740
	1800.00	197.571	385.993	262.263	41.128	222.714	−653.659	−203.245	−220.214	6.390
	1900.00	208.185	396.956	269.064	61.409	242.995	−692.807	−199.849	−221.245	6.082
	2000.00	219.617	407.921	275.732	82.792	264.378	−733.050	−195.389	−222.481	5.811

References

Phase	H / S	C_p
SOL	Pa3	Pa3

UCl3 URANIUM TRICHLORIDE 344.387

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	102.521	158.992	158.992	−861.904	0.000	−909.307	−861.904	−794.530	139.198
	300.00	102.512	159.626	158.994	−861.714	0.190	−909.602	−861.860	−794.112	138.267
	400.00	103.265	189.172	163.017	−851.442	10.462	−927.111	−859.657	−771.870	100.796
	500.00	105.286	212.418	170.652	−841.021	20.883	−947.230	−857.674	−750.156	78.368
	600.00	107.806	231.832	179.273	−830.369	31.535	−969.468	−855.809	−728.829	63.450
	700.00	110.561	248.655	188.009	−819.452	42.452	−993.510	−854.042	−707.807	52.817
	800.00	113.442	263.605	196.541	−808.253	53.651	−1019.137	−852.386	−687.030	44.858
	900.00	116.396	277.137	204.756	−796.761	65.143	−1046.184	−850.872	−666.454	38.680
	1000.00	119.395	289.555	212.623	−784.972	76.932	−1074.527	−851.947	−645.872	33.737
	1100.00	122.423	301.077	220.147	−772.881	89.023	−1104.066	−854.295	−625.137	29.685
	1110.00	122.727	302.186	220.881	−771.656	90.248	−1107.082	−854.016	−623.055	29.320
			41.840		46.442					
LIQ	1110.00	129.704	344.026	220.881	−725.214	136.690	−1107.082	−807.574	−623.055	29.320
	1200.00	129.704	354.137	230.501	−713.540	148.364	−1138.505	−804.428	−608.218	26.475
	1300.00	129.704	364.519	240.416	−700.570	161.334	−1174.445	−800.946	−592.009	23.787
	1400.00	129.704	374.131	249.628	−687.599	174.305	−1211.383	−797.475	−576.067	21.493
	1500.00	129.704	383.080	258.230	−674.629	187.275	−1249.249	−803.449	−559.766	19.493
	1600.00	129.704	391.451	266.298	−661.659	200.245	−1287.980	−800.964	−543.602	17.747
	1700.00	129.704	399.314	273.893	−648.688	213.216	−1327.522	−798.489	−527.593	16.211
	1800.00	129.704	406.728	281.069	−635.718	226.186	−1367.828	−796.024	−511.729	14.850
	1900.00	129.704	413.741	287.869	−622.747	239.157	−1408.855	−793.571	−496.002	13.636
	2000.00	129.704	420.394	294.330	−609.777	252.127	−1450.564	−791.129	−480.403	12.547

References

Phase	H / S	C_p
SOL	Pa2	Pa2
LIQ	Ra1	e

379.840 URANIUM TETRACHLORIDE **UCl4**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	121.854	197.100	197.100	−1019.201	0.000	−1077.966	−1019.201	−929.927	162.919
	300.00	121.928	197.854	197.102	−1018.976	0.225	−1078.332	−1019.152	−929.374	161.818
	400.00	125.978	233.485	201.933	−1006.580	12.621	−1099.974	−1016.560	−899.840	117.507
	500.00	130.028	262.031	211.189	−993.780	25.421	−1124.796	−1013.983	−870.958	90.988
	600.00	134.077	286.096	221.719	−980.575	38.626	−1152.232	−1011.383	−842.596	73.355
	700.00	138.127	307.068	232.445	−966.964	52.237	−1181.912	−1008.761	−814.672	60.792
	800.00	142.176	325.777	242.962	−952.949	66.252	−1213.571	−1006.141	−787.124	51.394
	863.00	144.727	336.650	249.409	−943.912	75.289	−1234.441	−1004.509	−769.940	46.602
			52.846		45.606					
LIQ	863.00	159.943	389.496	249.409	−898.306	120.895	−1234.441	−958.903	−769.940	46.602
	900.00	162.172	396.256	255.307	−892.347	126.854	−1248.978	−957.379	−761.870	44.218
	1000.00	168.197	413.655	270.282	−875.828	143.373	−1289.483	−955.596	−740.207	38.664

References

Phase	H / S	C_p
SOL	Nb1	Pa2
LIQ	Pa2	Pa2

UCl4[g] URANIUM TETRACHLORIDE (GAS) 379.840

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	127.528	419.003	419.003	−809.600	0.000	−934.526	−809.600	−786.487	137.789
	300.00	127.645	419.792	419.006	−809.364	0.236	−935.302	−809.541	−786.344	136.915
	400.00	131.754	457.160	424.073	−796.365	13.235	−979.229	−806.344	−779.095	101.739
	500.00	133.679	486.790	433.756	−783.083	26.517	−1026.478	−803.286	−772.640	80.717
	600.00	134.743	511.265	444.694	−769.657	39.943	−1076.416	−800.465	−766.780	66.754
	700.00	135.402	532.089	455.729	−756.147	53.453	−1128.610	−797.944	−761.370	56.814
	800.00	135.844	550.200	466.430	−742.584	67.016	−1182.744	−795.776	−756.298	49.381
	900.00	136.160	566.220	476.645	−728.983	80.617	−1238.581	−794.015	−751.473	43.614
	1000.00	136.398	580.579	486.333	−715.354	94.246	−1295.933	−795.122	−746.656	39.001
	1100.00	136.585	593.588	495.501	−701.705	107.895	−1354.651	−797.788	−741.669	35.219
	1200.00	136.738	605.479	504.178	−688.038	121.562	−1414.613	−795.478	−736.670	32.066
	1300.00	136.866	616.429	512.397	−674.358	135.242	−1475.716	−793.172	−731.863	29.407
	1400.00	136.976	626.576	520.195	−660.666	148.934	−1537.872	−790.870	−727.233	27.133
	1500.00	137.072	636.030	527.605	−646.963	162.637	−1601.008	−798.007	−722.161	25.148
	1600.00	137.159	644.879	534.661	−633.252	176.348	−1665.058	−796.678	−717.148	23.412
	1700.00	137.239	653.197	541.392	−619.532	190.068	−1729.966	−795.355	−712.218	21.884
	1800.00	137.312	661.043	547.823	−605.804	203.796	−1795.682	−794.038	−707.366	20.527
	1900.00	137.380	668.469	553.979	−592.070	217.530	−1862.161	−792.729	−702.586	19.315
	2000.00	137.444	675.517	559.881	−578.328	231.272	−1929.363	−791.429	−697.876	18.227
	2100.00	137.506	682.225	565.549	−564.581	245.019	−1997.253	−790.137	−693.230	17.243
	2200.00	137.564	688.623	570.999	−550.827	258.773	−2065.798	−788.854	−688.645	16.351

References

Phase	H / S	C_p
GAS	Nb1	e

UCl5 URANIUM PENTACHLORIDE 415.292

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	144.580	242.701	242.701	−1059.000	0.000	−1131.361	−1059.000	−950.061	166.447
	300.00	144.719	243.596	242.704	−1058.732	0.268	−1131.811	−1058.941	−949.386	165.303
	400.00	150.867	286.125	248.461	−1043.934	15.066	−1158.384	−1055.679	−913.357	119.272
	500.00	155.616	320.315	259.522	−1028.604	30.396	−1188.761	−1052.357	−878.159	91.741
	600.00	159.814	349.063	272.112	−1012.829	46.171	−1222.267	−1049.005	−843.634	73.445
			59.273		35.564					
LIQ	600.00	186.690	408.337	272.112	−977.265	81.735	−1222.267	−1013.441	−843.634	73.445
	700.00	186.690	437.115	293.681	−958.596	100.404	−1264.577	−1007.599	−815.801	60.876
	800.00	186.690	462.044	313.203	−939.927	119.073	−1309.563	−1002.178	−788.776	51.502

References

Phase	H / S	C_p
SOL	Nb1	e
LIQ	e	e

415.292 URANIUM PENTACHLORIDE (GAS) **UCl5[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	143.095	435.798	435.798	−926.714	0.000	−1056.647	−926.714	−875.347	153.357
	300.00	143.240	436.683	435.800	−926.449	0.265	−1057.454	−926.657	−875.029	152.356
	400.00	148.367	478.698	441.494	−911.832	14.882	−1103.312	−923.577	−858.284	112.080
	500.00	150.762	512.091	452.389	−896.863	29.851	−1152.909	−920.617	−842.307	87.995
	600.00	152.082	539.706	464.707	−881.715	44.999	−1205.538	−917.891	−826.906	71.989
	700.00	152.895	563.215	477.142	−866.463	60.251	−1260.714	−915.466	−811.938	60.588
	800.00	153.437	583.669	489.208	−851.145	75.569	−1318.080	−913.396	−797.294	52.058
	900.00	153.822	601.765	500.728	−835.781	90.933	−1377.369	−911.735	−782.885	45.437
	1000.00	154.109	617.987	511.657	−820.384	106.330	−1438.371	−912.944	−768.473	40.141
	1100.00	154.333	632.686	522.002	−804.961	121.753	−1500.916	−915.713	−753.880	35.799
	1200.00	154.513	646.123	531.793	−789.519	137.195	−1564.866	−913.509	−739.266	32.179
	1300.00	154.662	658.496	541.070	−774.060	152.654	−1630.105	−911.311	−724.835	29.124
	1400.00	154.789	669.963	549.872	−758.587	168.127	−1696.535	−909.119	−710.572	26.512
	1500.00	154.900	680.646	558.238	−743.102	183.612	−1764.072	−916.368	−695.861	24.232
	1600.00	154.998	690.646	566.205	−727.607	199.107	−1832.641	−915.154	−681.200	22.239
	1700.00	155.086	700.046	573.804	−712.103	214.611	−1902.181	−913.948	−666.615	20.483
	1800.00	155.167	708.912	581.066	−696.590	230.124	−1972.633	−912.752	−652.100	18.923
	1900.00	155.242	717.304	588.018	−681.070	245.644	−2043.947	−911.566	−637.652	17.530
	2000.00	155.312	725.269	594.683	−665.542	261.172	−2116.079	−910.391	−623.266	16.278

References

Phase	H / S	C_p
GAS	e	e

450.745 URANIUM HEXACHLORIDE **UCl6**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	175.700	285.801	285.801	−1091.999	0.000	−1177.210	−1091.999	−962.649	168.652
	300.00	175.867	286.888	285.804	−1091.674	0.325	−1177.740	−1091.913	−961.847	167.472
	400.00	182.974	338.529	292.797	−1073.706	18.293	−1209.118	−1087.215	−919.196	120.035
	452.00	185.801	361.065	299.378	−1064.116	27.883	−1227.318	−1084.740	−897.508	103.719
			46.283		20.920					
LIQ	452.00	213.970	407.348	299.378	−1043.196	48.803	−1227.318	−1063.820	−897.508	103.719
	500.00	213.970	428.943	310.797	−1032.926	59.073	−1247.397	−1060.230	−880.032	91.936
	600.00	213.970	467.955	333.838	−1011.529	80.470	−1292.302	−1053.073	−844.672	73.535

References

Phase	H / S	C_p
SOL	Nb1	Ra1,e
LIQ	e	e

UCl_6[g] URANIUM HEXACHLORIDE (GAS) 450.745

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	166.596	430.999	430.999	−1013.001	0.000	−1141.503	−1013.001	−926.942	162.396
	300.00	166.742	432.030	431.002	−1012.693	0.308	−1142.302	−1012.932	−926.408	161.302
	400.00	171.868	480.805	437.617	−995.726	17.275	−1188.048	−1009.235	−898.127	117.283
	500.00	174.264	519.443	450.253	−978.406	34.595	−1238.128	−1005.710	−870.762	90.968
	600.00	175.584	551.342	464.521	−960.908	52.093	−1291.713	−1002.452	−844.083	73.484
	700.00	176.397	578.474	478.910	−943.306	69.695	−1348.238	−999.515	−817.926	61.034
	800.00	176.939	602.066	492.862	−925.638	87.363	−1407.291	−996.948	−792.164	51.723
	900.00	177.324	622.930	506.177	−907.923	105.078	−1468.561	−994.800	−766.700	44.498
	1000.00	177.611	641.629	518.804	−890.176	122.825	−1531.805	−995.529	−741.286	38.721
	1100.00	177.834	658.568	530.752	−872.403	140.598	−1596.828	−997.825	−715.739	33.988
	1200.00	178.014	674.049	542.057	−854.611	158.390	−1663.470	−995.153	−690.213	30.044
	1300.00	178.163	688.304	552.766	−836.802	176.199	−1731.597	−992.491	−664.909	26.716
	1400.00	178.290	701.512	562.925	−818.979	194.022	−1801.096	−989.840	−639.810	23.872
	1500.00	178.401	713.817	572.579	−801.144	211.857	−1871.869	−996.633	−614.294	21.392
	1600.00	178.499	725.334	581.770	−783.299	229.702	−1943.833	−994.966	−588.859	19.224
	1700.00	178.588	736.158	590.536	−765.445	247.556	−2016.913	−993.312	−563.528	17.315
	1800.00	178.669	746.368	598.913	−747.582	265.419	−2091.044	−991.671	−538.294	15.621
	1900.00	178.744	756.030	606.930	−729.711	283.290	−2166.168	−990.043	−513.151	14.108
	2000.00	178.814	765.200	614.616	−711.833	301.168	−2242.234	−988.431	−488.093	12.748

References

Phase	H / S	C_p
GAS	Nb1	e

UF_3 URANIUM TRIFLUORIDE 295.024

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	95.088	123.428	123.428	−1508.750	0.000	−1545.550	−1508.750	−1439.861	252.258
	300.00	95.144	124.016	123.430	−1508.574	0.176	−1545.779	−1508.712	−1439.433	250.628
	400.00	98.198	151.806	127.198	−1498.907	9.843	−1559.629	−1506.734	−1416.642	184.995
	500.00	101.253	174.046	134.415	−1488.934	19.816	−1575.958	−1504.888	−1394.336	145.665
	600.00	104.307	192.777	142.621	−1478.656	30.094	−1594.323	−1503.154	−1372.390	119.477
	700.00	107.361	209.085	150.975	−1468.073	40.677	−1614.433	−1501.530	−1350.726	100.792
	800.00	110.416	223.621	159.163	−1457.184	51.566	−1636.081	−1500.036	−1329.286	86.793
	900.00	113.470	236.802	167.069	−1445.990	62.760	−1659.112	−1498.702	−1308.024	75.916
	1000.00	116.524	248.916	174.656	−1434.490	74.260	−1683.406	−1499.975	−1286.736	67.212

References

Phase	H / S	C_p
SOL	Pa2	Pa2

314.023 URANIUM TETRAFLUORIDE **UF4**

Phase	T	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	116.025	151.670	151.670	–1920.874	0.000	–1966.094	–1920.874	–1830.173	320.639
	300.00	116.171	152.388	151.672	–1920.659	0.215	–1966.376	–1920.826	–1829.611	318.564
	400.00	121.628	186.648	156.306	–1908.737	12.137	–1983.397	–1918.200	–1799.601	235.004
	500.00	124.671	214.142	165.215	–1896.411	24.463	–2003.481	–1915.682	–1770.246	184.936
	600.00	126.763	237.066	175.332	–1883.834	37.040	–2026.073	–1913.385	–1741.379	151.601
	700.00	128.407	256.734	185.589	–1871.073	49.801	–2050.787	–1911.359	–1712.876	127.816
	800.00	129.811	273.974	195.582	–1858.160	62.714	–2077.340	–1909.644	–1684.642	109.996
	900.00	131.077	289.338	205.161	–1845.115	75.759	–2105.519	–1908.283	–1656.602	96.147
	1000.00	132.256	303.210	214.284	–1831.948	88.926	–2135.158	–1909.729	–1628.529	85.066
	1100.00	133.379	315.868	222.952	–1818.666	102.208	–2166.121	–1912.668	–1600.255	75.990
	1200.00	134.463	327.520	231.186	–1805.273	115.601	–2198.298	–1910.560	–1571.946	68.425
	1300.00	135.521	338.325	239.017	–1791.774	129.100	–2231.597	–1908.383	–1543.816	62.031
	1309.00	135.615	339.260	239.703	–1790.554	130.320	–2234.646	–1908.183	–1541.293	61.504
			35.895		46.986					
LIQ	1309.00	165.561	375.155	239.703	–1743.568	177.306	–2234.646	–1861.197	–1541.293	61.504
	1400.00	165.561	386.282	248.873	–1728.502	192.372	–2269.297	–1856.464	–1519.215	56.683

References

Phase	H / S	C_p
SOL	Pa2	Pa2
LIQ	Pa2	Pa2

314.023 URANIUM TETRAFLUORIDE (GAS) **UF4[g]**

Phase	T	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[–]
GAS	298.15	91.274	369.875	369.875	–1605.401	0.000	–1715.679	–1605.401	–1579.758	276.767
	300.00	91.452	370.440	369.876	–1605.232	0.169	–1716.364	–1605.399	–1579.599	275.033
	400.00	97.798	397.743	373.556	–1595.726	9.675	–1754.823	–1605.189	–1571.028	205.155
	500.00	100.881	419.932	380.683	–1585.776	19.625	–1795.743	–1605.048	–1562.508	163.234
	600.00	102.680	438.497	388.814	–1575.591	29.810	–1838.690	–1605.143	–1553.995	135.287
	700.00	103.872	454.420	397.076	–1565.260	40.141	–1883.354	–1605.547	–1545.443	115.322
	800.00	104.741	468.349	405.133	–1554.828	50.573	–1929.507	–1606.311	–1536.810	100.343
	900.00	105.422	480.727	412.857	–1544.318	61.083	–1976.973	–1607.487	–1528.056	88.686
	1000.00	105.986	491.864	420.210	–1533.747	71.654	–2025.611	–1611.528	–1518.983	79.344
	1100.00	106.474	501.989	427.192	–1523.124	82.277	–2075.312	–1617.126	–1509.446	71.678
	1200.00	106.910	511.273	433.817	–1512.454	92.947	–2125.981	–1617.741	–1499.630	65.277
	1300.00	107.310	519.846	440.109	–1501.743	103.658	–2177.543	–1618.352	–1489.762	59.859
	1400.00	107.683	527.812	446.092	–1490.993	114.408	–2229.930	–1618.956	–1479.848	55.214
	1500.00	108.036	535.254	451.791	–1480.207	125.194	–2283.088	–1628.985	–1469.285	51.165

References

Phase	H / S	C_p
GAS	Pa2	Pa2

UF4.25 URANIUM 4.25–FLUORIDE 318.772

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	121.820	157.695	157.695	−1962.296	0.000	−2009.313	−1962.296	−1865.834	326.886
	300.00	121.965	158.449	157.697	−1962.070	0.226	−2009.605	−1962.245	−1865.235	324.766
	400.00	127.423	194.376	162.559	−1949.569	12.727	−2027.319	−1959.441	−1833.322	239.407
	500.00	130.465	223.163	171.897	−1936.663	25.633	−2048.244	−1956.763	−1802.106	188.265
	600.00	132.558	247.144	182.495	−1923.507	38.789	−2071.793	−1954.322	−1771.408	154.215
	700.00	134.202	267.705	193.234	−1910.166	52.130	−2097.560	−1952.160	−1741.098	129.922

References

Phase	H / S	C_p
SOL	Nb1	e

UF4.5 URANIUM 4.5–FLUORIDE 323.522

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	127.619	164.850	164.850	−2008.320	0.000	−2057.470	−2008.320	−1906.433	333.999
	300.00	127.764	165.639	164.852	−2008.084	0.236	−2057.776	−2008.265	−1905.801	331.829
	400.00	133.222	203.235	169.941	−1995.002	13.318	−2076.296	−2005.283	−1872.096	244.471
	500.00	136.265	233.315	179.708	−1981.516	26.804	−2098.174	−2002.446	−1839.133	192.133
	600.00	138.357	258.354	190.787	−1967.780	40.540	−2122.792	−1999.859	−1806.717	157.289
	700.00	140.001	279.809	202.009	−1953.860	54.460	−2149.726	−1997.560	−1774.713	132.431

References

Phase	H / S	C_p
SOL	Nb1	e

333.021 URANIUM PENTAFLUORIDE **UF5**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−B	298.15	139.229	179.494	179.494	−2083.214	0.000	−2136.730	−2083.214	−1970.577	345.237
	300.00	139.375	180.355	179.496	−2082.956	0.258	−2137.063	−2083.152	−1969.879	342.986
	400.00	144.832	221.291	185.041	−2068.714	14.500	−2157.230	−2079.812	−1932.626	252.375
	500.00	147.875	253.962	195.668	−2054.067	29.147	−2181.048	−2076.655	−1896.200	198.095
	600.00	149.968	281.117	207.710	−2039.170	44.044	−2207.840	−2073.775	−1860.384	161.961

References

Phase	H / S	C_p
SOL−B	Nb1	e

333.021 URANIUM PENTAFLUORIDE (GAS) **UF5[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	109.713	389.000	389.000	−1937.000	0.000	−2052.980	−1937.000	−1886.827	330.564
	300.00	109.912	389.679	389.002	−1936.797	0.203	−2053.701	−1936.993	−1886.516	328.472
	400.00	118.086	422.530	393.425	−1925.358	11.642	−2094.370	−1936.456	−1869.766	244.166
	500.00	122.767	449.429	402.019	−1913.295	23.705	−2138.009	−1935.883	−1853.161	193.598
	600.00	125.607	472.083	411.858	−1900.865	36.135	−2184.115	−1935.470	−1836.659	159.895
	700.00	127.439	491.593	421.888	−1888.207	48.793	−2232.321	−1935.322	−1820.207	135.825
	800.00	128.681	508.696	431.692	−1875.397	61.603	−2282.354	−1935.512	−1803.753	117.773
	900.00	129.558	523.906	441.109	−1862.483	74.517	−2333.998	−1936.107	−1787.252	103.729
	1000.00	130.198	537.591	450.084	−1849.493	87.507	−2387.084	−1939.570	−1770.496	92.481
	1100.00	130.677	550.024	458.613	−1836.448	100.552	−2441.474	−1944.600	−1753.334	83.259
	1200.00	131.043	561.410	466.712	−1823.362	113.638	−2497.054	−1944.662	−1735.944	75.564
	1300.00	131.329	571.911	474.405	−1810.242	126.758	−2553.727	−1944.738	−1718.547	69.052
	1400.00	131.555	581.652	481.722	−1797.098	139.902	−2611.411	−1944.828	−1701.145	63.470
	1500.00	131.736	590.735	488.690	−1783.933	153.067	−2670.035	−1954.368	−1683.129	58.612
	1600.00	131.882	599.242	495.337	−1770.752	166.248	−2729.539	−1955.452	−1665.011	54.357
	1700.00	132.001	607.241	501.686	−1757.557	179.443	−2789.867	−1956.552	−1646.825	50.601
	1800.00	132.099	614.789	507.762	−1744.352	192.648	−2850.972	−1957.669	−1628.574	47.260
	1900.00	132.179	621.933	513.585	−1731.138	205.862	−2912.811	−1958.803	−1610.260	44.269
	2000.00	132.246	628.715	519.173	−1717.917	219.083	−2975.346	−1959.954	−1591.886	41.576

References

Phase	H / S	C_p
GAS	Nb1	Pa2

UF6 URANIUM HEXAFLUORIDE 352.019

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	167.485	227.601	227.601	−2197.002	0.000	−2264.861	−2197.002	−2068.477	362.389
	300.00	168.197	228.639	227.604	−2196.691	0.311	−2265.283	−2196.917	−2067.680	360.015
	337.00	182.439	249.013	228.843	−2190.205	6.797	−2274.122	−2194.978	−2051.851	318.035
			56.988		19.205					
LIQ	337.00	217.568	306.001	228.843	−2171.000	26.002	−2274.122	−2175.773	−2051.851	318.035
	400.00	217.568	343.288	244.016	−2157.293	39.709	−2294.608	−2170.027	−2029.195	264.986

References

Phase	H / S	C_p
SOL	Nb1	Ku1
LIQ	Ku1	e

UF6[g] URANIUM HEXAFLUORIDE (GAS) 352.019

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	129.640	377.900	377.900	−2147.400	0.000	−2260.071	−2147.400	−2063.686	361.549
	300.00	129.945	378.702	377.902	−2147.160	0.240	−2260.771	−2147.385	−2063.167	359.229
	400.00	140.778	417.786	383.157	−2133.548	13.852	−2300.663	−2146.283	−2035.250	265.776
	500.00	145.954	449.816	393.386	−2119.185	28.215	−2344.093	−2145.091	−2007.632	209.736
	600.00	148.903	476.709	405.093	−2104.430	42.970	−2390.456	−2144.089	−1980.238	172.395
	700.00	150.801	499.815	417.013	−2089.439	57.961	−2439.309	−2143.383	−1952.990	145.734
	800.00	152.138	520.043	428.654	−2074.288	73.112	−2490.323	−2143.036	−1925.820	125.743
	900.00	153.150	538.024	439.825	−2059.022	88.378	−2543.243	−2143.102	−1898.668	110.196
	1000.00	153.959	554.203	450.468	−2043.665	103.735	−2597.868	−2146.038	−1871.321	97.748
	1100.00	154.637	568.909	460.577	−2028.234	119.166	−2654.034	−2150.535	−1843.620	87.546
	1200.00	155.224	582.390	470.174	−2012.741	134.659	−2711.609	−2150.054	−1815.740	79.037
	1300.00	155.748	594.836	479.291	−1997.191	150.209	−2770.478	−2149.574	−1787.900	71.839
	1400.00	156.226	606.396	487.962	−1981.592	165.808	−2830.546	−2149.091	−1760.097	65.670
	1500.00	156.669	617.189	496.221	−1965.947	181.453	−2891.732	−2158.039	−1731.722	60.304
	1600.00	157.087	627.314	504.101	−1950.259	197.141	−2953.962	−2158.511	−1703.286	55.607
	1700.00	157.485	636.849	511.632	−1934.531	212.869	−3017.175	−2158.978	−1674.820	51.461
	1800.00	157.867	645.862	518.841	−1918.763	228.637	−3081.315	−2159.438	−1646.327	47.775
	1900.00	158.237	654.407	525.754	−1902.958	244.442	−3146.332	−2159.892	−1617.808	44.477
	2000.00	158.597	662.533	532.391	−1887.116	260.284	−3212.182	−2160.339	−1589.266	41.507

References

Phase	H / S	C_p
GAS	Nb1	Pa2

241.053 URANIUM TRIHYDRIDE (BETA) **UH3[B]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	49.367	63.597	63.597	−127.194	0.000	−146.155	−127.194	−72.718	12.740
	300.00	49.367	63.902	63.598	−127.103	0.091	−146.273	−127.234	−72.379	12.602
	400.00	50.855	78.251	65.544	−122.111	5.083	−153.412	−129.470	−53.760	7.020
	500.00	53.819	89.902	69.283	−116.885	10.309	−161.836	−131.709	−34.573	3.612
	600.00	57.363	100.022	73.580	−111.329	15.865	−171.342	−133.881	−14.940	1.301
	700.00	61.181	109.149	78.019	−105.403	21.791	−181.807	−135.997	5.051	−0.377
	800.00	65.145	117.576	82.443	−99.088	28.106	−193.148	−138.096	25.344	−1.655
	900.00	69.194	125.482	86.790	−92.371	34.823	−205.305	−140.231	45.901	−2.664

References

Phase	H / S	C_p	Remarks
SOL	Ku1	Ra1,e	DEC.

618.742 URANIUM TRIIODIDE **UI3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	112.255	222.170	222.170	−460.658	0.000	−526.898	−460.658	−459.962	80.583
	300.00	112.300	222.865	222.173	−460.450	0.208	−527.310	−460.653	−459.958	80.086
	400.00	114.726	255.504	226.606	−449.099	11.559	−551.301	−484.628	−458.911	59.928
	500.00	117.153	281.365	235.059	−437.505	23.153	−578.188	−548.406	−446.369	46.632
	600.00	119.579	302.939	244.623	−425.668	34.990	−607.432	−545.531	−426.232	37.107
	700.00	122.006	321.554	254.313	−413.589	47.069	−638.677	−542.730	−406.572	30.339
	800.00	124.432	338.004	263.766	−401.267	59.391	−671.671	−540.052	−387.305	25.288
	900.00	126.858	352.800	272.850	−388.703	71.955	−706.223	−537.547	−368.365	21.379

References

Phase	H / S	C_p
SOL	Nb1	Pa2

UI4 URANIUM TETRAIODIDE 745.647

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	126.356	263.592	263.592	-512.122	0.000	-590.712	-512.122	-506.462	88.730
	300.00	126.648	264.375	263.594	-511.888	0.234	-591.200	-512.141	-506.427	88.177
	400.00	137.244	302.458	268.715	-498.625	13.497	-619.608	-545.023	-503.276	65.721
	500.00	142.683	333.722	278.686	-484.604	27.518	-651.465	-630.472	-484.634	50.629
	600.00	146.092	360.058	290.111	-470.154	41.968	-686.189	-626.859	-455.806	39.681
	700.00	148.543	382.771	301.763	-455.417	56.705	-723.356	-623.281	-427.581	31.906
	779.00	150.106	398.739	310.801	-443.618	68.504	-754.236	-620.558	-405.644	27.200
			49.413		38.493					
LIQ	779.00	165.686	448.152	310.801	-405.125	106.997	-754.236	-582.065	-405.644	27.200
	800.00	165.686	452.560	314.465	-401.646	110.476	-763.694	-581.040	-400.902	26.176
	900.00	165.686	472.075	330.914	-385.077	127.045	-809.945	-576.421	-378.667	21.977
	1000.00	165.686	489.531	345.918	-368.509	143.613	-858.040	-574.680	-356.757	18.635

References

Phase	H / S	C_p
SOL	Nb1	Ra1
LIQ	Pa2	Ra1

UI4[g] URANIUM TETRAIODIDE (GAS) 745.647

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	124.599	494.001	494.001	-301.700	0.000	-448.987	-301.700	-364.737	63.900
	300.00	124.716	494.773	494.004	-301.469	0.231	-449.901	-301.722	-365.128	63.574
	400.00	128.825	531.298	498.956	-288.763	12.937	-501.282	-335.162	-384.950	50.269
	500.00	130.750	560.274	508.422	-275.774	25.926	-555.911	-421.642	-389.081	40.647
	600.00	131.815	584.215	519.117	-262.641	39.059	-613.170	-419.346	-382.787	33.325
	700.00	132.473	604.588	529.908	-249.424	52.276	-672.636	-417.289	-376.861	28.122
	800.00	132.915	622.308	540.375	-236.154	65.546	-734.000	-415.548	-371.208	24.237
	900.00	133.231	637.982	550.366	-222.846	78.854	-797.029	-414.189	-365.752	21.228
	1000.00	133.470	652.032	559.842	-209.510	92.190	-861.542	-415.682	-360.259	18.818
	1100.00	133.657	664.763	568.811	-196.153	105.547	-927.392	-418.722	-354.558	16.837
	1200.00	133.809	676.399	577.299	-182.780	118.920	-994.458	-416.780	-348.811	15.183
	1300.00	133.937	687.115	585.339	-169.392	132.308	-1062.641	-414.836	-343.225	13.791
	1400.00	134.047	697.044	592.968	-155.993	145.707	-1131.855	-412.893	-337.790	12.603
	1500.00	134.144	706.296	600.218	-142.583	159.117	-1202.027	-420.385	-331.887	11.557
	1600.00	134.231	714.956	607.122	-129.165	172.535	-1273.095	-419.409	-326.019	10.643
	1700.00	134.310	723.096	613.707	-115.738	185.962	-1345.001	-418.437	-320.211	9.839
	1800.00	134.383	730.775	619.999	-102.303	199.397	-1417.699	-417.469	-314.461	9.125
	1900.00	134.451	738.043	626.023	-88.861	212.839	-1491.143	-416.506	-308.765	8.489
	2000.00	134.516	744.941	631.797	-75.413	226.287	-1565.295	-415.548	-303.119	7.917

References

Phase	H / S	C_p
GAS	Nb1	e

252.036 URANIUM NITRIDE **UN**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[	J / (K mol)	]	[		kJ / mol		]	
SOL	298.15	47.573	62.425	62.425	−290.788	0.000	−309.400	−290.788	−265.842	46.574
	300.00	47.649	62.720	62.426	−290.700	0.088	−309.516	−290.778	−265.687	46.260
	400.00	50.749	76.893	64.338	−285.766	5.022	−316.523	−290.171	−257.412	33.615
	500.00	52.788	88.447	68.039	−280.584	10.204	−324.808	−289.541	−249.296	26.044
	600.00	54.405	98.219	72.276	−275.222	15.566	−334.153	−289.005	−241.299	21.007
	700.00	55.821	106.714	76.602	−269.710	21.078	−344.409	−288.648	−233.379	17.415
	800.00	57.131	114.254	80.846	−264.061	26.727	−355.464	−288.540	−225.494	14.723
	900.00	58.378	121.055	84.942	−258.286	32.502	−367.235	−288.742	−217.605	12.629
	1000.00	59.586	127.269	88.868	−252.387	38.401	−379.656	−291.716	−209.510	10.944
	1100.00	60.769	133.004	92.623	−246.369	44.419	−392.673	−296.155	−201.062	9.548
	1200.00	61.935	138.341	96.213	−240.234	50.554	−406.244	−295.522	−192.445	8.377
	1300.00	63.090	143.345	99.648	−233.982	56.806	−420.330	−294.796	−183.884	7.389
	1400.00	64.236	148.062	102.939	−227.616	63.172	−434.903	−293.975	−175.382	6.544
	1500.00	65.375	152.533	106.098	−221.136	69.652	−449.935	−302.490	−166.337	5.792
	1600.00	66.510	156.788	109.134	−214.541	76.247	−465.402	−302.436	−157.261	5.134
	1700.00	67.640	160.854	112.058	−207.834	82.954	−481.286	−302.282	−148.192	4.553
	1800.00	68.768	164.752	114.878	−201.013	89.775	−497.568	−302.027	−139.135	4.038
	1900.00	69.894	168.501	117.602	−194.080	96.708	−514.231	−301.669	−130.094	3.577
	2000.00	71.017	172.114	120.238	−187.035	103.753	−531.263	−301.209	−121.075	3.162
	2100.00	72.139	175.606	122.791	−179.877	110.911	−548.650	−300.644	−112.082	2.788
	2200.00	73.259	178.988	125.269	−172.607	118.181	−566.381	−299.975	−103.118	2.448
	2300.00	74.378	182.269	127.677	−165.225	125.563	−584.444	−299.200	−94.187	2.139
	2400.00	75.495	185.458	130.018	−157.731	133.057	−602.832	−298.320	−85.292	1.856
	2500.00	76.612	188.563	132.298	−150.126	140.662	−621.533	−297.333	−76.436	1.597
	2600.00	77.727	191.589	134.521	−142.409	148.379	−640.541	−296.240	−67.621	1.359
	2700.00	78.841	194.544	136.689	−134.581	156.207	−659.849	−295.040	−58.851	1.139
	2800.00	79.954	197.431	138.807	−126.641	164.147	−679.448	−293.734	−50.127	0.935
	2900.00	81.066	200.256	140.878	−118.590	172.198	−699.333	−292.319	−41.451	0.747
	3000.00	82.176	203.023	142.903	−110.428	180.360	−719.497	−290.798	−32.826	0.572

References

Phase	H / S	C_p
SOL	Pa3	Pa3

UO2 URANIUM DIOXIDE 270.028

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	63.607	77.032	77.032	−1084.899	0.000	−1107.866	−1084.899	−1031.707	180.751
	300.00	63.832	77.426	77.033	−1084.781	0.118	−1108.009	−1084.887	−1031.377	179.579
	400.00	72.062	97.067	79.655	−1077.934	6.965	−1116.761	−1083.879	−1013.677	132.373
	500.00	76.354	113.651	84.841	−1070.494	14.405	−1127.320	−1082.580	−996.275	104.080
	600.00	79.095	127.829	90.854	−1062.714	22.185	−1139.411	−1081.293	−979.136	85.241
	700.00	81.105	140.179	97.037	−1054.699	30.200	−1152.825	−1080.168	−962.202	71.800
	800.00	82.724	151.118	103.126	−1046.505	38.394	−1167.400	−1079.297	−945.413	61.729
	900.00	84.117	160.944	109.014	−1038.162	46.737	−1183.011	−1078.748	−928.714	53.901
	1000.00	85.368	169.872	114.660	−1029.687	55.212	−1199.559	−1080.987	−911.892	47.632
	1100.00	86.528	178.064	120.057	−1021.091	63.808	−1216.961	−1084.709	−894.790	42.490
	1200.00	87.625	185.640	125.210	−1012.383	72.516	−1235.151	−1083.378	−877.583	38.200
	1300.00	88.678	192.696	130.133	−1003.568	81.331	−1254.072	−1081.974	−860.490	34.575
	1400.00	89.699	199.305	134.840	−994.649	90.250	−1273.676	−1080.497	−843.508	31.472
	1500.00	90.696	205.527	139.347	−985.629	99.270	−1293.920	−1088.380	−826.028	28.765
	1600.00	91.675	211.412	143.669	−976.510	108.389	−1314.770	−1087.719	−808.559	26.397
	1700.00	92.640	216.999	147.820	−967.294	117.605	−1336.193	−1086.985	−791.133	24.309
	1800.00	93.594	222.321	151.812	−957.983	126.916	−1358.161	−1086.180	−773.753	22.454
	1900.00	94.540	227.407	155.658	−948.576	136.323	−1380.649	−1085.304	−756.419	20.795
	2000.00	95.478	232.280	159.368	−939.075	145.824	−1403.635	−1084.356	−739.134	19.304
	2100.00	106.270	237.335	162.960	−928.712	156.187	−1427.116	−1082.570	−721.915	17.957
	2200.00	112.185	242.412	166.456	−917.795	167.104	−1451.103	−1080.252	−704.793	16.734
	2300.00	118.738	247.542	169.870	−906.254	178.645	−1475.600	−1077.332	−687.789	15.620
	2400.00	125.825	252.743	173.214	−894.030	190.869	−1500.614	−1073.751	−670.927	14.602
	2500.00	133.361	258.031	176.501	−881.074	203.825	−1526.151	−1069.461	−654.228	13.669
	2600.00	141.279	263.415	179.740	−867.345	217.554	−1552.223	−1064.418	−637.716	12.812
	2700.00	149.524	268.900	182.940	−852.808	232.091	−1578.838	−1058.589	−621.412	12.022
	2800.00	158.049	274.491	186.110	−837.431	247.468	−1606.006	−1051.941	−605.340	11.293
	2900.00	166.817	280.190	189.255	−821.190	263.709	−1633.740	−1044.448	−589.519	10.618
	3000.00	175.795	285.996	192.383	−804.061	280.838	−1662.048	−1036.087	−573.972	9.994
	3100.00	184.958	291.909	195.498	−786.024	298.875	−1690.942	−1026.837	−558.718	9.414
	3115.00	186.347	292.805	195.964	−783.240	301.659	−1695.328	−1025.371	−556.457	9.331
			24.413		76.048					
LIQ	3115.00	131.545	317.219	195.964	−707.192	377.707	−1695.328	−949.323	−556.457	9.331
	3200.00	131.545	320.760	199.232	−696.010	388.889	−1722.442	−945.627	−545.787	8.909
	3300.00	131.545	324.808	202.977	−682.856	402.043	−1754.722	−941.294	−533.359	8.442
	3400.00	131.545	328.735	206.618	−669.701	415.198	−1787.400	−936.978	−521.062	8.005
	3500.00	131.545	332.548	210.162	−656.547	428.352	−1820.465	−932.678	−508.891	7.595
	3600.00	131.545	336.254	213.613	−643.392	441.507	−1853.906	−928.394	−496.844	7.209

References

Phase	H / S	C_p
SOL	Nb1	Pa1
LIQ	Pa1	Pa1

286.027 URANIUM TRIOXIDE (ORTHORHOMBIC) **UO3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−C	298.15	81.667	96.107	96.107	−1222.983	0.000	−1251.637	−1222.983	−1144.896	200.581
	300.00	81.868	96.612	96.108	−1222.832	0.151	−1251.815	−1222.964	−1144.411	199.260
	400.00	89.191	121.302	99.425	−1214.232	8.751	−1262.753	−1221.690	−1118.408	146.049
	500.00	93.004	141.651	105.897	−1205.106	17.877	−1275.931	−1220.234	−1092.755	114.159
	600.00	95.434	158.836	113.325	−1195.676	27.307	−1290.978	−1218.878	−1067.390	92.925
	700.00	97.211	173.687	120.911	−1186.040	36.943	−1307.621	−1217.758	−1042.235	77.773
	800.00	98.641	186.764	128.342	−1176.245	46.738	−1325.657	−1216.954	−1017.219	66.418
	900.00	99.869	198.455	135.494	−1166.319	56.664	−1344.928	−1216.525	−992.282	57.591

References

Phase	H / S	C_p
SOL−C	Fi1,Nb1	Pa1

842.082 TRIURANIUM OCTAOXIDE (ORTHORHOMBIC) **U3O8**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	237.236	282.592	282.592	−3574.810	0.000	−3659.065	−3574.810	−3369.423	590.309
	300.00	237.996	284.061	282.596	−3574.370	0.440	−3659.589	−3574.741	−3368.149	586.447
	400.00	265.975	356.861	292.332	−3548.998	25.812	−3691.743	−3569.859	−3299.968	430.932
	500.00	280.910	417.955	311.519	−3521.592	53.218	−3730.569	−3563.934	−3233.173	337.767
	600.00	290.710	470.088	333.710	−3492.983	81.827	−3775.036	−3557.967	−3167.585	275.763
	700.00	298.086	515.477	356.504	−3463.529	111.281	−3824.363	−3552.434	−3102.967	231.546
	800.00	304.170	555.689	378.936	−3433.408	141.402	−3877.959	−3547.618	−3039.096	198.433
	900.00	309.503	591.828	400.617	−3402.720	172.090	−3935.365	−3543.718	−2975.776	172.710

References

Phase	H / S	C_p
SOL−A	Nb1	Ku1,e

U4O9 TETRAURANIUM NONAOXIDE 1096.110

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL−1	298.15	294.554	334.218	334.218	−4510.770	0.000	−4610.417	−4510.770	−4275.199	748.997
	300.00	296.060	336.045	334.224	−4510.224	0.546	−4611.037	−4510.673	−4273.737	744.124
	348.00	411.706	385.412	337.782	−4494.195	16.575	−4628.318	−4506.428	−4236.085	635.834
			0.000		0.000					
SOL−2	348.00	411.706	385.412	337.782	−4494.195	16.575	−4628.318	−4506.428	−4236.085	635.834
	400.00	312.294	429.453	347.034	−4477.802	32.968	−4649.583	−4503.095	−4195.987	547.940
	500.00	324.678	500.913	370.883	−4445.755	65.015	−4696.212	−4497.141	−4119.902	430.403
	600.00	332.986	560.858	397.681	−4412.864	97.906	−4749.379	−4491.806	−4044.967	352.146
	700.00	340.875	612.780	424.782	−4379.171	131.599	−4808.117	−4487.296	−3970.863	296.309
	800.00	348.872	658.818	451.212	−4344.685	166.085	−4871.739	−4483.768	−3897.340	254.470
	900.00	357.019	700.378	476.624	−4309.392	201.378	−4939.732	−4481.356	−3824.194	221.950
	1000.00	365.304	738.421	500.928	−4273.277	237.493	−5011.698	−4489.829	−3750.593	195.911
	1100.00	373.747	773.633	524.138	−4236.326	274.444	−5087.322	−4503.902	−3675.937	174.556
	1200.00	382.414	806.523	546.314	−4198.520	312.250	−5166.347	−4497.380	−3600.950	156.745
	1300.00	391.406	837.485	567.533	−4159.832	350.938	−5248.562	−4490.129	−3526.536	141.698
	1400.00	400.853	866.834	587.872	−4120.223	390.547	−5333.791	−4482.094	−3452.710	128.822
			7.979		11.171					
SOL−3	1400.00	413.379	874.813	587.872	−4109.052	401.718	−5333.791	−4470.923	−3452.710	128.822
	1500.00	413.379	903.333	607.963	−4067.714	443.056	−5422.714	−4499.016	−3377.892	117.629
	1600.00	413.379	930.012	627.266	−4026.377	484.393	−5514.396	−4493.343	−3303.337	107.843

References

Phase	H / S	C_p	Remarks	
SOL−1	Fi1,Pa1	Pa1	Pa1	2nd order TPT= 348.
SOL−2	Pa1	Pa1		
SOL−3	Pa1	Pa1		

UOBr2 URANIUM DIBROMIDE OXIDE 413.836

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	97.988	157.569	157.569	−973.617	0.000	−1020.596	−973.617	−929.638	162.869
	300.00	98.219	158.176	157.571	−973.436	0.181	−1020.888	−973.654	−929.365	161.817
	400.00	106.818	187.759	161.546	−963.132	10.485	−1038.236	−1002.186	−908.597	118.651
	500.00	111.533	212.143	169.300	−952.196	21.421	−1058.267	−999.554	−885.501	92.508
	600.00	114.719	232.774	178.204	−940.875	32.742	−1080.540	−996.866	−862.943	75.126
	700.00	117.183	250.650	187.305	−929.276	44.341	−1104.730	−994.263	−840.830	62.744
	800.00	119.263	266.436	196.229	−917.451	56.166	−1130.600	−991.840	−819.079	53.480
	900.00	121.119	280.592	204.829	−905.430	68.187	−1157.964	−989.669	−797.617	46.293

References

Phase	H / S	C_p
SOL	Nb1	Nb1,e

493.740

URANIUM TRIBROMIDE OXIDE **UOBr3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	121.121	205.016	205.016	−953.952	0.000	−1015.078	−953.952	−901.429	157.927
	300.00	121.350	205.766	205.018	−953.728	0.224	−1015.457	−954.016	−901.103	156.896
	400.00	130.112	242.014	209.901	−941.107	12.845	−1037.912	−997.472	−874.365	114.180
	500.00	135.269	271.641	219.377	−927.820	26.132	−1063.641	−994.336	−843.948	88.167
	600.00	139.006	296.647	230.226	−914.099	39.853	−1092.087	−991.106	−814.173	70.880
	700.00	142.074	318.312	241.296	−900.041	53.911	−1122.859	−987.912	−784.938	58.573
	800.00	144.785	337.463	252.143	−885.696	68.256	−1155.666	−984.843	−756.153	49.372
	900.00	147.288	354.662	262.594	−871.091	82.861	−1190.287	−981.966	−727.742	42.237
	1000.00	149.662	370.304	272.595	−856.243	97.709	−1226.547	−981.749	−699.474	36.537
	1100.00	151.951	384.677	282.140	−841.161	112.791	−1264.306	−982.890	−671.178	31.872

References

Phase	H / S	C_p
SOL	Nb1	e

429.836

URANIUM DIBROMIDE DIOXIDE **UO2Br2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	97.987	169.452	169.452	−1137.630	0.000	−1188.152	−1137.630	−1066.612	186.866
	300.00	98.167	170.059	169.454	−1137.449	0.181	−1188.466	−1137.694	−1066.171	185.637
	400.00	105.127	199.360	173.402	−1127.247	10.383	−1206.991	−1167.814	−1036.090	135.300
	500.00	109.290	223.296	181.060	−1116.512	21.118	−1228.160	−1166.913	−1003.263	104.810
	600.00	112.352	243.503	189.827	−1105.424	32.206	−1251.526	−1166.037	−970.616	84.500
	700.00	114.895	261.018	198.774	−1094.059	43.571	−1276.772	−1165.296	−938.107	70.002
	800.00	117.160	276.510	207.541	−1082.454	55.176	−1303.663	−1164.761	−905.691	59.136
	900.00	119.265	290.433	215.990	−1070.632	66.998	−1332.021	−1164.491	−873.327	50.687
	1000.00	121.269	303.103	224.078	−1058.605	79.025	−1361.708	−1166.944	−840.812	43.919

References

Phase	H / S	C_p
SOL	Nb1	e

UOCl — URANIUM CHLORIDE OXIDE — 289.481

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	72.991	102.926	102.926	−947.258	0.000	−977.946	−947.258	−899.108	157.520
	300.00	73.028	103.378	102.928	−947.123	0.135	−978.136	−947.233	−898.809	156.497
	400.00	75.713	124.728	105.821	−939.695	7.563	−989.586	−945.892	−882.871	115.291
	500.00	79.086	141.978	111.379	−931.958	15.300	−1002.947	−944.553	−867.270	90.603
	600.00	82.730	156.716	117.735	−923.869	23.389	−1017.899	−943.195	−851.941	74.168
	700.00	86.502	169.751	124.252	−915.408	31.850	−1034.234	−941.834	−836.839	62.446
	800.00	90.343	181.552	130.688	−906.566	40.692	−1051.808	−940.499	−821.931	53.667
	900.00	94.223	192.417	136.951	−897.338	49.920	−1070.514	−939.226	−807.188	46.848

References

Phase	H / S	C_p
SOL	K1/e	e

UOCl2 — URANIUM DICHLORIDE OXIDE — 324.934

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	95.061	138.323	138.323	−1066.920	0.000	−1108.161	−1066.920	−996.062	174.506
	300.00	95.239	138.912	138.325	−1066.744	0.176	−1108.417	−1066.885	−995.622	173.353
	400.00	102.209	167.364	142.157	−1056.837	10.083	−1123.783	−1064.799	−972.174	126.953
	500.00	106.579	190.669	149.599	−1046.385	20.535	−1141.720	−1062.530	−949.278	99.170
	600.00	109.926	210.406	158.130	−1035.554	31.366	−1161.798	−1060.248	−926.843	80.689
	700.00	112.789	227.571	166.851	−1024.416	42.504	−1183.716	−1058.048	−904.784	67.516
	800.00	115.395	242.804	175.410	−1013.005	53.915	−1207.248	−1055.997	−883.032	57.656

References

Phase	H / S	C_p
SOL	Nb1	K3,e

360.386 URANIUM TRICHLORIDE OXIDE **UOCl3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	116.935	171.498	171.498	−1163.001	0.000	−1214.133	−1163.001	−1068.773	187.245
	300.00	117.012	172.222	171.500	−1162.785	0.216	−1214.451	−1162.957	−1068.189	185.988
	400.00	121.105	206.446	176.139	−1150.878	12.123	−1233.457	−1160.605	−1036.954	135.412
	500.00	125.143	233.905	185.033	−1138.565	24.436	−1255.518	−1158.260	−1006.313	105.129
	600.00	129.161	257.076	195.158	−1125.850	37.151	−1280.096	−1155.912	−976.144	84.981
	700.00	133.167	277.287	205.477	−1112.734	50.267	−1306.835	−1153.573	−946.367	70.619
	800.00	137.169	295.331	215.600	−1099.217	63.784	−1335.481	−1151.267	−916.924	59.869
	900.00	141.167	311.718	225.383	−1085.300	77.701	−1365.846	−1149.031	−887.767	51.525

References

Phase	H / S	C_p
SOL	Nb1	K3,e

340.933 URANIUM DICHLORIDE DIOXIDE **UO2Cl2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	107.860	150.540	150.540	−1243.903	0.000	−1288.787	−1243.903	−1146.105	200.793
	300.00	108.142	151.208	150.542	−1243.703	0.200	−1289.066	−1243.872	−1145.499	199.449
	400.00	118.282	183.902	154.931	−1232.315	11.588	−1305.875	−1241.790	−1113.005	145.344
	500.00	123.353	210.895	163.506	−1220.209	23.694	−1325.656	−1239.396	−1081.084	112.940
	600.00	126.428	233.676	173.352	−1207.709	36.194	−1347.914	−1237.025	−1049.646	91.380
	700.00	128.562	253.334	183.406	−1194.954	48.949	−1372.287	−1234.836	−1018.592	76.008
	800.00	130.194	270.612	193.249	−1182.013	61.890	−1398.502	−1232.922	−987.835	64.499

References

Phase	H / S	C_p
SOL	Nb1	K3,e

UO2F2 URANIUM DIFLUORIDE DIOXIDE 308.025

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	103.221	135.562	135.562	−1648.078	0.000	−1688.496	−1648.078	−1551.873	271.882
	300.00	103.513	136.201	135.564	−1647.887	0.191	−1688.747	−1648.050	−1551.276	270.101
	400.00	114.056	167.623	139.776	−1636.939	11.139	−1703.988	−1646.156	−1519.287	198.399
	500.00	119.399	193.704	148.031	−1625.242	22.836	−1722.093	−1643.962	−1487.822	155.432
	600.00	122.695	215.784	157.530	−1613.126	34.952	−1742.596	−1641.813	−1456.799	126.826
	700.00	125.024	234.881	167.247	−1600.734	47.344	−1765.151	−1639.861	−1426.121	106.418
	800.00	126.839	251.699	176.773	−1588.138	59.940	−1789.497	−1638.193	−1395.704	91.130
	900.00	128.354	266.728	185.948	−1575.376	72.702	−1815.431	−1636.874	−1365.476	79.250
	1000.00	129.683	280.321	194.717	−1562.473	85.605	−1842.795	−1638.365	−1335.209	69.744
	1100.00	130.891	292.739	203.071	−1549.444	98.634	−1871.457	−1641.360	−1304.737	61.957
	1200.00	132.015	304.177	211.026	−1536.298	111.780	−1901.310	−1639.319	−1274.224	55.466
	1300.00	133.082	314.786	218.605	−1523.043	125.035	−1932.264	−1637.222	−1243.885	49.980
	1400.00	134.106	324.686	225.832	−1509.683	138.395	−1964.243	−1635.067	−1213.708	45.284
	1500.00	135.099	333.972	232.735	−1496.222	151.856	−1997.181	−1642.286	−1183.082	41.199

References

Phase	H / S	C_p
SOL	Nb1	e

UO3*H2O URANIUM TRIOXIDE MONOHYDRATE 304.042

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	117.347	125.938	125.938	−1533.854	0.000	−1571.403	−1533.854	−1395.117	244.419
	300.00	117.780	126.666	125.941	−1533.637	0.217	−1571.636	−1533.850	−1394.256	242.762
	400.00	135.248	163.167	130.799	−1520.907	12.947	−1586.174	−1532.836	−1347.840	176.010
	500.00	146.817	194.653	140.495	−1506.775	27.079	−1604.102	−1530.828	−1301.808	135.999
	600.00	156.063	222.261	151.869	−1491.619	42.235	−1624.975	−1528.253	−1256.239	109.365
	700.00	164.213	246.940	163.718	−1475.598	58.256	−1648.457	−1525.315	−1211.131	90.376
	800.00	171.779	269.367	175.543	−1458.795	75.059	−1674.288	−1522.124	−1166.463	76.162

References

Phase	H / S	C_p
SOL	Nb1	e

322.058 URANIUM TRIOXIDE DIHYDRATE **UO3*2H2O**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	154.405	167.000	167.000	−1826.701	0.000	−1876.492	−1826.701	−1630.662	285.685
	300.00	154.837	167.957	167.003	−1826.415	0.286	−1876.802	−1826.709	−1629.445	283.712
	400.00	172.305	215.119	173.315	−1809.979	16.722	−1896.027	−1826.381	−1563.705	204.199
	500.00	183.874	254.874	185.756	−1792.142	34.559	−1919.579	−1825.119	−1498.168	156.513
	600.00	193.121	289.238	200.203	−1773.280	53.421	−1946.823	−1823.348	−1432.938	124.748
	700.00	201.271	319.630	215.134	−1753.554	73.147	−1977.295	−1821.268	−1368.030	102.084
	800.00	208.837	347.005	229.935	−1733.045	93.656	−2010.649	−1818.992	−1303.435	85.106

References

Phase	H / S	C_p
SOL	Nb1	e

394.038 URANIUM DINITRATE DIOXIDE **UO2(NO3)2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	187.662	242.672	242.672	−1349.340	0.000	−1421.693	−1349.340	−1104.912	193.576
	300.00	187.964	243.834	242.676	−1348.993	0.347	−1422.143	−1349.315	−1103.395	192.118
	400.00	198.803	299.602	250.206	−1329.582	19.758	−1449.422	−1347.574	−1021.668	133.416
	500.00	204.179	344.599	264.732	−1309.406	39.934	−1481.706	−1345.656	−940.416	98.245
	600.00	207.406	382.132	281.258	−1288.815	60.525	−1518.095	−1344.022	−859.529	74.829
	700.00	209.617	414.279	298.019	−1267.958	81.382	−1557.954	−1342.860	−778.879	58.121

References

Phase	H / S	C_p
SOL	Nb1	e

UO2SO4 URANIUM SULFATE DIOXIDE 366.091

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL−B	298.15	145.245	154.808	154.808	−1845.102	0.000	−1891.258	−1845.102	−1683.212	294.892
	300.00	145.488	155.707	154.811	−1844.833	0.269	−1891.545	−1845.089	−1682.208	292.898
	400.00	154.293	198.935	160.645	−1829.786	15.316	−1909.360	−1846.405	−1627.953	212.589
	500.00	158.728	233.888	171.912	−1814.114	30.988	−1931.058	−1846.894	−1573.308	164.362
	600.00	161.443	263.084	184.741	−1798.096	47.006	−1955.947	−1847.265	−1518.553	132.202
	700.00	163.346	288.121	197.764	−1781.852	63.250	−1983.537	−1847.729	−1463.735	109.225

References

Phase	H / S	C_p
SOL−B	Nb1	e

US URANIUM SULFIDE 270.095

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	50.539	77.990	77.990	−317.984	0.000	−341.237	−317.984	−316.685	55.482
	300.00	50.603	78.303	77.991	−317.890	0.094	−341.381	−317.984	−316.677	55.138
	400.00	53.092	93.239	80.010	−312.693	5.291	−349.988	−320.236	−316.150	41.285
	500.00	54.593	105.258	83.897	−307.304	10.680	−359.933	−321.831	−314.969	32.905
	600.00	55.705	115.313	88.318	−301.787	16.197	−370.975	−323.224	−313.460	27.289
	700.00	56.634	123.972	92.807	−296.169	21.815	−382.949	−324.550	−311.730	23.262
	800.00	57.465	131.589	97.188	−290.463	27.521	−395.734	−326.190	−309.792	20.227
	900.00	58.239	138.403	101.396	−284.678	33.306	−409.240	−381.000	−306.471	17.787
	1000.00	58.977	144.577	105.410	−278.817	39.167	−423.394	−384.226	−297.986	15.565
	1100.00	59.693	150.232	109.231	−272.883	45.101	−438.138	−388.943	−289.122	13.729
	1200.00	60.393	155.456	112.868	−266.879	51.105	−453.426	−388.616	−280.061	12.191
	1300.00	61.081	160.317	116.333	−260.805	57.179	−469.217	−388.224	−271.030	10.890
	1400.00	61.762	164.869	119.639	−254.663	63.321	−485.479	−387.770	−262.032	9.777
	1500.00	62.437	169.153	122.799	−248.453	69.531	−502.182	−396.685	−252.462	8.792
	1600.00	63.107	173.204	125.824	−242.175	75.809	−519.302	−397.067	−242.834	7.928
	1700.00	63.774	177.050	128.725	−235.831	82.153	−536.816	−397.386	−233.185	7.165
	1800.00	64.438	180.714	131.512	−229.421	88.563	−554.706	−397.642	−223.518	6.486
	1900.00	65.100	184.216	134.195	−222.944	95.040	−572.954	−397.837	−213.839	5.879
	2000.00	65.760	187.572	136.780	−216.401	101.583	−591.544	−397.969	−204.151	5.332

References

Phase	H / S	C_p	Remarks	
SOL	Nb1	Mi1	Mi1	MPT= 2735.

270.095 URANIUM SULFIDE (GAS) **US[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	33.787	263.952	263.953	305.001	0.000	226.304	305.001	250.856	−43.949
	300.00	33.827	264.162	263.953	305.064	0.063	225.815	304.970	250.520	−43.619
	400.00	35.269	274.120	265.301	308.528	3.527	198.881	300.986	232.719	−30.390
	500.00	35.947	282.071	267.887	312.093	7.092	171.058	297.566	216.021	−22.568
	600.00	36.326	288.661	270.816	315.708	10.707	142.511	294.271	200.026	−17.414
	700.00	36.563	294.280	273.776	319.354	14.353	113.357	290.972	184.577	−13.773
	800.00	36.724	299.173	276.652	323.018	18.017	83.680	287.292	169.622	−11.075
	900.00	36.842	303.506	279.400	326.697	21.696	53.541	230.375	156.310	−9.072
	1000.00	36.932	307.393	282.008	330.386	25.385	22.993	224.976	148.401	−7.752
	1100.00	37.004	310.916	284.478	334.083	29.082	−7.925	218.022	141.092	−6.700
	1200.00	37.064	314.139	286.818	337.786	32.785	−39.180	216.049	134.185	−5.841
	1300.00	37.116	317.107	289.035	341.495	36.494	−70.744	214.076	127.443	−5.121
	1400.00	37.161	319.860	291.139	345.209	40.208	−102.594	212.102	120.853	−4.509
	1500.00	37.202	322.425	293.141	348.927	43.926	−134.710	200.695	115.010	−4.005
	1600.00	37.240	324.827	295.047	352.649	47.648	−167.074	197.758	109.394	−3.571
	1700.00	37.274	327.086	296.866	356.375	51.374	−199.671	194.821	103.961	−3.194
	1800.00	37.307	329.217	298.604	360.104	55.103	−232.487	191.882	98.701	−2.864
	1900.00	37.338	331.235	300.269	363.836	58.835	−265.510	188.943	93.604	−2.573
	2000.00	37.367	333.151	301.866	367.572	62.571	−298.730	186.003	88.663	−2.316

References

Phase	H / S	C_p
GAS	Nb1/Mi1	e

US2 URANIUM DISULFIDE 302.161

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−B	298.15	74.667	110.458	110.458	−527.184	0.000	−560.117	−527.184	−526.007	92.154
	300.00	74.684	110.920	110.459	−527.046	0.138	−560.322	−527.181	−526.000	91.585
	400.00	75.647	132.537	113.400	−519.529	7.655	−572.544	−531.696	−525.428	68.614
	500.00	76.609	149.520	118.985	−511.917	15.267	−586.677	−534.969	−523.532	54.693
	600.00	77.571	163.573	125.278	−504.207	22.977	−602.351	−537.746	−520.970	45.354
	700.00	78.534	175.603	131.629	−496.402	30.782	−619.324	−540.195	−517.981	38.652
	800.00	79.496	186.152	137.798	−488.501	38.683	−637.422	−542.998	−514.623	33.601
	900.00	80.458	195.571	143.703	−480.503	46.681	−656.517	−651.803	−508.580	29.517
	1000.00	81.421	204.098	149.323	−472.409	54.775	−676.507	−654.632	−492.483	25.725
	1100.00	82.383	211.903	154.662	−464.219	62.965	−697.313	−658.934	−476.048	22.606
	1200.00	83.345	219.113	159.737	−455.932	71.252	−718.868	−658.173	−459.455	20.000
	1300.00	84.308	225.822	164.565	−447.550	79.634	−741.118	−657.327	−442.929	17.797
	1400.00	85.270	232.105	169.167	−439.071	88.113	−764.018	−656.394	−426.471	15.912
	1500.00	86.232	238.021	173.562	−430.496	96.688	−787.527	−664.808	−409.477	14.259
	1600.00	87.195	243.617	177.767	−421.825	105.359	−811.612	−664.664	−392.459	12.812
	1700.00	88.157	248.932	181.798	−413.057	114.127	−836.241	−664.432	−375.453	11.536
	1800.00	89.119	253.998	185.670	−404.193	122.991	−861.390	−664.113	−358.463	10.402
	1900.00	90.082	258.842	189.394	−395.233	131.951	−887.033	−663.705	−341.493	9.388
	2000.00	91.044	263.487	192.984	−386.177	141.007	−913.151	−663.208	−324.547	8.476

References

Phase	H / S	C_p	Remarks	
SOL−B	Nb1	Mi1	Mi1	MPT= 2120.

572.256 DIURANIUM TRISULFIDE **U2S3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	141.400	199.200	199.200	−854.000	0.000	−913.392	−854.000	−854.730	149.745
	300.00	141.482	200.075	199.203	−853.738	0.262	−913.761	−853.967	−854.735	148.823
	400.00	144.923	241.286	204.798	−839.405	14.595	−935.919	−859.114	−854.966	111.647
	500.00	147.381	273.899	215.469	−824.785	29.215	−961.735	−862.365	−853.626	89.178
	600.00	149.452	300.957	227.526	−809.941	44.059	−990.515	−864.918	−851.619	74.140
	700.00	151.341	324.139	239.711	−794.901	59.099	−1021.798	−867.074	−849.235	63.371
	800.00	153.132	344.465	251.560	−779.676	74.324	−1055.248	−869.901	−846.506	55.271
	900.00	154.866	362.602	262.909	−764.276	89.724	−1090.618	−1031.898	−839.912	48.747
	1000.00	156.565	379.007	273.711	−748.704	105.296	−1127.711	−1036.337	−818.280	42.743
	1100.00	158.241	394.008	283.975	−732.964	121.036	−1166.372	−1043.739	−796.092	37.803
	1200.00	159.902	407.848	293.728	−717.056	136.944	−1206.474	−1041.034	−773.696	33.678
	1300.00	161.552	420.712	303.007	−700.984	153.016	−1247.910	−1038.180	−751.533	30.197
	1400.00	163.193	432.745	311.849	−684.746	169.254	−1290.589	−1035.177	−729.595	27.222
	1500.00	164.829	444.060	320.290	−668.345	185.655	−1334.435	−1050.890	−706.664	24.608
	1600.00	166.460	454.749	328.362	−651.781	202.219	−1379.380	−1049.512	−683.760	22.322
	1700.00	168.087	464.890	336.098	−635.053	218.947	−1425.366	−1047.983	−660.946	20.308
	1800.00	169.712	474.543	343.523	−618.163	235.837	−1472.342	−1046.305	−638.227	18.521
	1900.00	171.335	483.763	350.663	−601.111	252.889	−1520.260	−1044.476	−615.605	16.924
	2000.00	172.956	492.592	357.541	−583.896	270.104	−1569.081	−1042.496	−593.084	15.490

References

Phase	H / S	C_p	Remarks
SOL	Nb1	Nb1,e	Mi1 MPT= 2300.

430.156 URANIUM DISULFATE **U(SO4)2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	173.460	161.084	161.084	−2317.936	0.000	−2365.963	−2317.936	−2087.195	365.668
	300.00	173.887	162.158	161.087	−2317.615	0.321	−2366.262	−2317.968	−2085.764	363.164
	400.00	196.983	215.346	168.184	−2299.071	18.865	−2385.209	−2323.339	−2008.002	262.218
	500.00	220.078	261.782	182.346	−2278.218	39.718	−2409.109	−2325.608	−1928.916	201.512
	600.00	243.174	303.949	199.148	−2255.056	62.880	−2437.425	−2325.570	−1849.537	161.017
	700.00	266.270	343.168	216.950	−2229.583	88.353	−2469.801	−2323.370	−1770.348	132.105
	800.00	289.365	380.231	235.063	−2201.802	116.134	−2505.987	−2319.641	−1691.584	110.449
	900.00	312.461	415.647	253.174	−2171.710	146.226	−2545.793	−2419.974	−1611.068	93.504
	1000.00	335.557	449.764	271.137	−2139.309	178.627	−2589.073	−2412.343	−1521.549	79.478

References

Phase	H / S	C_p
SOL	Nb1/Ra1	e

USe URANIUM SELENIDE 316.989

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	54.811	96.525	96.525	-275.726	0.000	-304.505	-275.726	-276.911	48.514
	300.00	54.823	96.864	96.526	-275.625	0.101	-304.684	-275.723	-276.918	48.216
	400.00	55.463	112.723	98.684	-270.110	5.616	-315.200	-275.745	-277.324	36.215
	500.00	56.103	125.168	102.780	-264.532	11.194	-327.116	-282.059	-277.596	29.000
	600.00	56.743	135.454	107.393	-258.890	16.836	-340.162	-283.265	-276.593	24.080
	700.00	57.384	144.249	112.045	-253.183	22.543	-354.157	-284.708	-275.371	20.548
	800.00	58.024	151.953	116.562	-247.413	28.313	-368.975	-286.437	-273.923	17.885
	900.00	58.664	158.824	120.883	-241.579	34.147	-384.520	-288.507	-272.238	15.800
	1000.00	59.304	165.038	124.992	-235.680	40.046	-400.718	-293.375	-270.138	14.111
	1100.00	59.944	170.721	128.895	-229.718	46.008	-417.510	-353.047	-262.540	12.467
	1200.00	60.584	175.964	132.602	-223.691	52.035	-434.848	-352.917	-254.318	11.070
	1300.00	61.224	180.838	136.127	-217.601	58.125	-452.691	-352.711	-246.109	9.889
	1400.00	61.865	185.399	139.485	-211.446	64.280	-471.005	-352.429	-237.919	8.877
	1500.00	62.505	189.689	142.690	-205.228	70.498	-489.762	-361.503	-229.145	7.980
	1600.00	63.145	193.743	145.756	-198.945	76.781	-508.935	-362.030	-220.304	7.192

References

Phase	H / S	C_p
SOL	Mi1	Mi1,e

50.941 **VANADIUM** **V**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	24.894	28.911	28.911	0.000	0.000	−8.620	0.000	0.000	0.000
	300.00	24.930	29.066	28.912	0.046	0.046	−8.674	0.000	0.000	0.000
	400.00	26.233	36.440	29.908	2.612	2.612	−11.963	0.000	0.000	0.000
	500.00	26.945	42.375	31.828	5.274	5.274	−15.914	0.000	0.000	0.000
	600.00	27.488	47.337	34.010	7.996	7.996	−20.406	0.000	0.000	0.000
	700.00	28.032	51.615	36.226	10.772	10.772	−25.359	0.000	0.000	0.000
	800.00	28.660	55.397	38.391	13.605	13.605	−30.713	0.000	0.000	0.000
	900.00	29.495	58.817	40.473	16.510	16.510	−36.426	0.000	0.000	0.000
	1000.00	30.489	61.976	42.467	19.508	19.508	−42.467	0.000	0.000	0.000
	1100.00	31.552	64.931	44.377	22.610	22.610	−48.814	0.000	0.000	0.000
	1200.00	32.679	67.724	46.207	25.821	25.821	−55.448	0.000	0.000	0.000
	1300.00	33.873	70.386	47.965	29.148	29.148	−62.355	0.000	0.000	0.000
	1400.00	35.142	72.943	49.659	32.598	32.598	−69.522	0.000	0.000	0.000
	1500.00	36.488	75.413	51.294	36.179	36.179	−76.940	0.000	0.000	0.000
	1600.00	37.911	77.813	52.876	39.898	39.898	−84.602	0.000	0.000	0.000
	1700.00	39.411	80.156	54.412	43.763	43.763	−92.501	0.000	0.000	0.000
	1800.00	40.981	82.452	55.907	47.782	47.782	−100.632	0.000	0.000	0.000
	1900.00	42.615	84.712	57.363	51.962	51.962	−108.990	0.000	0.000	0.000
	2000.00	44.305	86.940	58.787	56.307	56.307	−117.573	0.000	0.000	0.000
	2100.00	46.042	89.144	60.180	60.824	60.824	−126.377	0.000	0.000	0.000
	2175.00	47.368	90.782	61.207	64.327	64.327	−133.125	0.000	0.000	0.000
			9.622		20.928					
LIQ	2175.00	41.840	100.405	61.207	85.255	85.255	−133.125	0.000	0.000	0.000
	2200.00	41.840	100.883	61.655	86.301	86.301	−135.641	0.000	0.000	0.000
	2300.00	41.840	102.743	63.401	90.485	90.485	−145.823	0.000	0.000	0.000
	2400.00	41.840	104.523	65.078	94.669	94.669	−156.187	0.000	0.000	0.000
	2500.00	41.840	106.231	66.690	98.853	98.853	−166.725	0.000	0.000	0.000
	2600.00	41.840	107.872	68.243	103.037	103.037	−177.431	0.000	0.000	0.000
	2700.00	41.840	109.451	69.740	107.221	107.221	−188.297	0.000	0.000	0.000
	2800.00	41.840	110.973	71.185	111.405	111.405	−199.319	0.000	0.000	0.000
	2900.00	41.840	112.441	72.583	115.589	115.589	−210.490	0.000	0.000	0.000
	3000.00	41.840	113.860	73.935	119.773	119.773	−221.806	0.000	0.000	0.000
	3100.00	41.840	115.231	75.245	123.957	123.957	−233.261	0.000	0.000	0.000
	3200.00	41.840	116.560	76.516	128.141	128.141	−244.850	0.000	0.000	0.000
	3300.00	41.840	117.847	77.749	132.325	132.325	−256.571	0.000	0.000	0.000
	3400.00	41.840	119.096	78.947	136.509	136.509	−268.419	0.000	0.000	0.000
	3500.00	41.840	120.309	80.111	140.693	140.693	−280.389	0.000	0.000	0.000
	3600.00	41.840	121.488	81.244	144.877	144.877	−292.479	0.000	0.000	0.000
	3679.00	41.840	122.396	82.118	148.182	148.182	−302.113	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL	Hu1	Hu1		
LIQ	Hu1	Hu1	Hu1	BPT= 3679., L= 451.84 kJ

V[g] VANADIUM (GAS) 50.941

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	26.012	182.298	182.298	514.214	0.000	459.862	514.214	468.482	−82.076
	300.00	25.983	182.458	182.298	514.262	0.048	459.525	514.216	468.198	−81.521
	400.00	24.645	189.730	183.299	516.787	2.573	440.895	514.174	452.858	−59.137
	500.00	24.199	195.167	185.151	519.222	5.008	421.639	513.949	437.553	−45.711
	600.00	24.291	199.582	187.199	521.644	7.430	401.895	513.648	422.301	−36.765
	700.00	24.579	203.347	189.243	524.087	9.873	381.744	513.315	407.102	−30.378
	800.00	24.881	206.650	191.217	526.560	12.346	361.241	512.955	391.953	−25.592
	900.00	25.112	209.594	193.098	529.061	14.847	340.426	512.551	376.852	−21.872
	1000.00	25.243	212.248	194.883	531.579	17.365	319.331	512.071	361.799	−18.898
	1100.00	25.272	214.656	196.572	534.106	19.892	297.984	511.496	346.799	−16.468
	1200.00	25.219	216.853	198.172	536.631	22.417	276.407	510.810	331.855	−14.445
	1300.00	25.111	218.868	199.688	539.148	24.934	254.620	510.000	316.974	−12.736
	1400.00	24.982	220.724	201.125	541.652	27.438	232.639	509.055	302.161	−11.274
	1500.00	24.874	222.444	202.490	544.145	29.931	210.479	507.966	287.420	−10.009
	1600.00	24.773	224.046	203.787	546.627	32.413	188.154	506.730	272.756	−8.905
	1700.00	24.663	225.544	205.024	549.099	34.885	165.674	505.336	258.175	−7.933
	1800.00	24.569	226.951	206.203	551.561	37.347	143.048	503.778	243.680	−7.071
	1900.00	24.504	228.278	207.330	554.014	39.800	120.286	502.052	229.276	−6.303
	2000.00	24.472	229.534	208.409	556.462	42.248	97.395	500.155	214.968	−5.614
	2100.00	24.479	230.728	209.444	558.910	44.696	74.382	498.085	200.759	−4.994
	2200.00	24.523	231.867	210.438	561.360	47.146	51.251	475.058	186.892	−4.437
	2300.00	24.606	232.959	211.393	563.816	49.602	28.010	473.331	173.832	−3.948
	2400.00	24.726	234.009	212.314	566.282	52.068	4.661	471.613	160.848	−3.501
	2500.00	24.882	235.021	213.202	568.762	54.548	−18.791	469.909	147.934	−3.091
	2600.00	25.073	236.001	214.060	571.260	57.046	−42.342	468.222	135.088	−2.714
	2700.00	25.297	236.951	214.890	573.778	59.564	−65.990	466.557	122.307	−2.366
	2800.00	25.553	237.876	215.695	576.320	62.106	−89.732	464.915	109.587	−2.044
	2900.00	25.839	238.777	216.475	578.889	64.675	−113.564	463.300	96.926	−1.746
	3000.00	26.155	239.658	217.233	581.489	67.275	−137.486	461.716	84.319	−1.468
	3100.00	26.498	240.522	217.971	584.121	69.907	−161.495	460.164	71.765	−1.209
	3200.00	26.869	241.369	218.689	586.789	72.575	−185.590	458.648	59.260	−0.967
	3300.00	27.266	242.201	219.389	589.496	75.282	−209.769	457.171	46.802	−0.741
	3400.00	27.687	243.022	220.072	592.243	78.029	−234.030	455.734	34.389	−0.528
	3500.00	28.134	243.831	220.739	595.034	80.820	−258.373	454.341	22.017	−0.329
	3600.00	28.603	244.630	221.392	597.871	83.657	−282.796	452.994	9.684	−0.141
	3700.00	29.096	245.420	222.030	600.756	86.542	−307.298	0.000	0.000	0.000
	3800.00	29.611	246.203	222.656	603.691	89.477	−331.879	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

61.753 VANADIUM BORIDE **VB**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	36.018	29.288	29.288	−138.490	0.000	−147.222	−138.490	−136.864	23.978
	300.00	36.157	29.511	29.289	−138.423	0.067	−147.277	−138.490	−136.854	23.828
	400.00	41.703	40.748	30.783	−134.504	3.986	−150.803	−138.502	−136.307	17.800
	500.00	45.252	50.457	33.770	−130.147	8.343	−155.375	−138.537	−135.755	14.182
	600.00	47.967	58.956	37.274	−125.481	13.009	−160.854	−138.574	−135.194	11.770
	700.00	50.245	66.525	40.922	−120.568	17.922	−167.135	−138.591	−134.630	10.046
	800.00	52.252	73.368	44.557	−115.441	23.049	−174.135	−138.581	−134.064	8.753
	900.00	54.069	79.629	48.111	−110.123	28.367	−181.789	−138.550	−133.501	7.748
	1000.00	55.736	85.413	51.555	−104.632	33.858	−190.045	−138.520	−132.942	6.944
	1100.00	57.278	90.799	54.881	−98.980	39.510	−198.859	−138.500	−132.385	6.286
	1200.00	58.709	95.845	58.086	−93.180	45.310	−208.194	−138.499	−131.829	5.738
	1300.00	60.598	100.623	61.176	−87.209	51.281	−218.019	−138.497	−131.274	5.275
	1400.00	62.443	105.181	64.158	−81.058	57.432	−228.311	−138.485	−130.718	4.877
	1500.00	64.372	109.554	67.039	−74.718	63.772	−239.049	−138.460	−130.164	4.533
	1600.00	66.385	113.773	69.829	−68.181	70.309	−250.217	−138.418	−129.613	4.231
	1700.00	68.483	117.860	72.535	−61.438	77.052	−261.799	−138.357	−129.064	3.966
	1800.00	70.665	121.835	75.164	−54.481	84.009	−273.785	−138.274	−128.520	3.730
	1900.00	72.932	125.716	77.723	−47.302	91.188	−286.163	−138.166	−127.980	3.518
	2000.00	75.285	129.517	80.218	−39.892	98.598	−298.925	−138.029	−127.448	3.329
	2100.00	77.722	133.249	82.654	−32.242	106.248	−312.064	−137.859	−126.923	3.157
	2200.00	80.245	136.922	85.038	−24.345	114.145	−325.573	−158.435	−126.167	2.996
	2300.00	82.854	140.546	87.373	−16.190	122.300	−339.447	−157.496	−124.720	2.832
	2400.00	85.547	144.129	89.663	−7.771	130.719	−353.681	−206.584	−122.251	2.661
	2500.00	88.326	147.677	91.913	0.922	139.412	−368.272	−205.250	−118.763	2.481

References

Phase	H / S	C_p	Remarks
SOL	e	M5	DPT= 2843. (peritec.)

VB2 VANADIUM DIBORIDE 72.564

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	46.978	30.125	30.125	−203.761	0.000	−212.743	−203.761	−200.646	35.152
	300.00	47.234	30.416	30.126	−203.674	0.087	−212.799	−203.762	−200.627	34.932
	400.00	57.408	45.540	32.119	−198.393	5.368	−216.608	−203.777	−199.579	26.062
	500.00	63.795	59.078	36.183	−192.313	11.448	−221.853	−203.820	−198.526	20.740
	600.00	68.544	71.147	41.023	−185.687	18.074	−228.375	−203.877	−197.461	17.191
	700.00	72.387	82.011	46.116	−178.635	25.126	−236.042	−203.910	−196.389	14.655
	800.00	75.633	91.894	51.229	−171.229	32.532	−244.745	−203.905	−195.315	12.753
	900.00	78.429	100.968	56.259	−163.523	40.238	−254.394	−203.867	−194.243	11.274
	1000.00	80.850	109.359	61.154	−155.556	48.205	−264.915	−203.823	−193.176	10.090
	1100.00	82.943	117.166	65.896	−147.364	56.397	−276.246	−203.793	−192.113	9.123
	1200.00	84.732	124.462	70.476	−138.978	64.783	−288.332	−203.795	−191.051	8.316
	1300.00	87.355	131.357	74.896	−130.361	73.400	−301.126	−203.789	−189.989	7.634
	1400.00	89.806	137.920	79.165	−121.504	82.257	−314.592	−203.761	−188.929	7.049
	1500.00	92.342	144.202	83.293	−112.397	91.364	−328.700	−203.703	−187.871	6.542
	1600.00	94.962	150.245	87.290	−103.033	100.728	−343.424	−203.610	−186.819	6.099
	1700.00	97.666	156.083	91.166	−93.402	110.359	−358.742	−203.477	−185.773	5.708
	1800.00	100.455	161.744	94.930	−83.497	120.264	−374.635	−203.300	−184.736	5.361
	1900.00	103.329	167.252	98.592	−73.308	130.453	−391.086	−203.074	−183.711	5.051
	2000.00	106.288	172.627	102.160	−62.828	140.933	−408.081	−202.795	−182.699	4.772
	2100.00	109.333	177.886	105.641	−52.048	151.713	−425.608	−202.457	−181.702	4.520
	2200.00	112.462	183.044	109.043	−40.959	162.802	−443.655	−222.839	−180.483	4.285
	2300.00	115.677	188.113	112.371	−29.552	174.209	−462.213	−221.678	−178.583	4.056
	2400.00	118.977	193.106	115.631	−17.820	185.941	−481.275	−320.777	−174.601	3.800
	2500.00	122.363	198.031	118.829	−5.754	198.007	−500.832	−319.245	−168.541	3.521

References

Phase	H / S	C_p	Remarks
SOL	e	M5	MPT= 3020.

174.447 TRIVANADIUM DIBORIDE **V3B2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	97.096	86.944	86.944	−303.758	0.000	−329.680	−303.758	−300.344	52.619
	300.00	97.395	87.545	86.945	−303.578	0.180	−329.842	−303.758	−300.323	52.291
	400.00	109.403	117.368	90.930	−293.183	10.575	−340.130	−303.792	−299.174	39.068
	500.00	117.212	142.665	98.813	−281.832	21.926	−353.164	−303.886	−298.010	31.133
	600.00	123.323	164.593	107.989	−269.795	33.963	−368.551	−303.977	−296.825	25.841
	700.00	128.591	184.007	117.488	−257.195	46.563	−385.999	−304.014	−295.629	22.060
	800.00	133.375	201.494	126.913	−244.093	59.665	−405.289	−303.979	−294.433	19.225
	900.00	137.847	217.464	136.100	−230.530	73.228	−426.248	−303.893	−293.245	17.020
	1000.00	142.094	232.209	144.983	−216.531	87.227	−448.741	−303.815	−292.066	15.256
	1100.00	146.170	245.945	153.544	−202.117	101.641	−472.656	−303.765	−290.894	13.813
	1200.00	150.105	258.833	161.786	−187.302	116.456	−497.901	−303.761	−289.725	12.611
	1300.00	155.038	271.051	169.725	−172.034	131.724	−524.401	−303.757	−288.555	11.594
	1400.00	159.966	282.720	177.382	−156.286	147.472	−552.093	−303.738	−287.386	10.723
	1500.00	165.146	293.931	184.781	−140.033	163.725	−580.929	−303.696	−286.220	9.967
	1600.00	170.578	304.762	191.943	−123.248	180.510	−610.867	−303.622	−285.057	9.306
	1700.00	176.264	315.272	198.890	−105.908	197.850	−641.871	−303.511	−283.900	8.723
	1800.00	182.205	325.514	205.641	−87.987	215.771	−673.912	−303.355	−282.750	8.205
	1900.00	188.400	335.530	212.215	−69.459	234.299	−706.966	−303.148	−281.611	7.742
	2000.00	194.851	345.357	218.627	−50.299	253.459	−741.012	−302.880	−280.484	7.325
	2100.00	201.557	355.025	224.893	−30.480	273.278	−776.033	−302.538	−279.372	6.949
	2173.00	206.614	361.998	229.382	−15.583	288.175	−802.204	−302.234	−278.572	6.696

References

Phase	H / S	C_p	Remarks
SOL	e	M5	DPT= 2173. (peritec.)

V3B4 TRIVANADIUM TETRABORIDE 196.068

Phase	T [K]	C_p J / (K mol)	S J / (K mol)	−(G−H298)/T J / (K mol)	H kJ / mol	H−H298 kJ / mol	G kJ / mol	ΔH_f kJ / mol	ΔG_f kJ / mol	log K_f [−]
SOL	298.15	119.013	88.659	88.659	−486.599	0.000	−513.033	−486.599	−480.220	84.133
	300.00	119.547	89.397	88.661	−486.378	0.221	−513.197	−486.601	−480.180	83.607
	400.00	140.812	126.993	93.643	−473.259	13.340	−524.056	−486.639	−478.035	62.425
	500.00	154.299	159.950	103.681	−458.465	28.134	−538.440	−486.752	−475.872	49.714
	600.00	164.477	189.016	115.529	−442.507	44.092	−555.917	−486.883	−473.683	41.238
	700.00	172.876	215.019	127.917	−425.628	60.971	−576.141	−486.951	−471.477	35.182
	800.00	180.138	238.588	140.301	−407.969	78.630	−598.839	−486.925	−469.267	30.640
	900.00	186.567	260.183	152.438	−389.628	96.971	−623.793	−486.826	−467.065	27.108
	1000.00	192.323	280.144	164.223	−370.678	115.921	−650.822	−486.721	−464.875	24.283
	1100.00	197.500	298.721	175.615	−351.182	135.417	−679.776	−486.650	−462.694	21.972
	1200.00	202.151	316.109	186.606	−331.196	155.403	−710.526	−486.652	−460.517	20.046
	1300.00	208.551	332.561	197.206	−310.637	175.962	−742.967	−486.640	−458.340	18.416
	1400.00	214.693	348.240	207.438	−289.477	197.122	−777.013	−486.589	−456.164	17.020
	1500.00	221.086	363.269	217.329	−267.690	218.909	−812.593	−486.481	−453.995	15.809
	1600.00	227.732	377.748	226.906	−245.252	241.347	−849.648	−486.304	−451.834	14.751
	1700.00	234.631	391.760	236.193	−222.136	264.463	−888.127	−486.049	−449.687	13.817
	1800.00	241.785	405.372	245.215	−198.317	288.282	−927.987	−485.706	−447.558	12.988
	1900.00	249.194	418.642	253.995	−173.770	312.829	−969.190	−485.263	−445.450	12.246
	2000.00	256.858	431.618	262.553	−148.470	338.129	−1011.705	−484.710	−443.368	11.580
	2100.00	264.778	444.341	270.908	−122.390	364.209	−1055.505	−484.033	−441.317	10.977
	2200.00	272.953	456.846	279.076	−95.506	391.093	−1100.566	−545.567	−438.582	10.413
	2300.00	281.384	469.164	287.074	−67.791	418.808	−1146.868	−542.528	−433.785	9.852
	2400.00	290.072	481.322	294.915	−39.220	447.379	−1194.394	−739.803	−424.860	9.247
	2500.00	299.015	493.344	302.612	−9.768	476.831	−1243.128	−735.602	−411.820	8.605

References

Phase	H / S	C_p	Remarks
SOL	e	M5	MPT= 2883.

VBr2 VANADIUM DIBROMIDE 210.749

Phase	T [K]	C_p J / (K mol)	S J / (K mol)	−(G−H298)/T J / (K mol)	H kJ / mol	H−H298 kJ / mol	G kJ / mol	ΔH_f kJ / mol	ΔG_f kJ / mol	log K_f [−]
SOL	298.15	77.381	125.520	125.520	−364.426	0.000	−401.850	−364.426	−347.849	60.942
	300.00	77.404	125.999	125.521	−364.283	0.143	−402.082	−364.469	−347.746	60.548
	400.00	78.659	148.438	128.573	−356.480	7.946	−415.855	−393.714	−336.075	43.887
	500.00	79.914	166.126	134.375	−348.551	15.875	−431.614	−392.139	−321.847	33.623
	600.00	81.170	180.807	140.925	−340.497	23.929	−448.981	−390.525	−307.939	26.809
	700.00	82.425	193.413	147.543	−332.317	32.109	−467.706	−388.857	−294.306	21.961
	800.00	83.680	204.501	153.984	−324.012	40.414	−487.613	−387.133	−280.916	18.342
	900.00	84.935	214.430	160.158	−315.581	48.845	−508.568	−385.364	−267.745	15.540

References

Phase	H / S	C_p
SOL	Tk1	e

290.654 VANADIUM TRIBROMIDE **VBr3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	101.653	142.256	142.256	−446.014	0.000	−488.428	−446.014	−411.736	72.134
	300.00	101.713	142.885	142.258	−445.826	0.188	−488.691	−446.082	−411.523	71.652
	400.00	104.935	172.587	146.286	−435.493	10.521	−504.528	−490.039	−390.840	51.038
	500.00	108.156	196.349	153.999	−424.839	21.175	−523.013	−487.584	−366.320	38.269
	600.00	111.378	216.353	162.767	−413.862	32.152	−543.674	−484.907	−342.315	29.801
	700.00	114.600	233.764	171.691	−402.563	43.451	−566.198	−481.987	−318.777	23.787
	800.00	117.821	249.277	180.437	−390.942	55.072	−590.364	−478.821	−295.675	19.306
	900.00	121.043	263.340	188.879	−378.999	67.015	−616.005	−475.418	−272.983	15.844
	1000.00	124.265	276.260	196.980	−366.734	79.280	−642.994	−471.800	−250.683	13.094

References

Phase	H / S	C_p
SOL	Tk1	e

370.557 VANADIUM TETRABROMIDE (GAS) **VBr4**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	99.751	334.829	334.829	−351.456	0.000	−451.285	−351.456	−351.903	61.652
	300.00	99.853	335.447	334.831	−351.271	0.185	−451.905	−351.597	−351.905	61.272
	400.00	103.496	364.745	338.801	−341.078	10.378	−486.976	−412.935	−339.380	44.318
	500.00	105.228	388.046	346.400	−330.633	20.823	−524.656	−412.535	−321.037	33.538
	600.00	106.206	407.325	354.994	−320.057	31.399	−564.452	−412.119	−302.776	26.359
	700.00	106.829	423.747	363.672	−309.403	42.053	−606.026	−411.711	−284.585	21.236
	800.00	107.263	438.042	372.094	−298.698	52.758	−649.131	−411.334	−266.450	17.397
	900.00	107.587	450.695	380.138	−287.954	63.502	−693.580	−411.010	−248.360	14.414
	1000.00	107.843	462.044	387.771	−277.182	74.274	−739.227	−410.768	−230.301	12.030

References

Phase	H / S	C_p
GAS	Tk1/Ku1	e

VC0.88 VANADIUM 0.88–CARBIDE 61.511

Phase	T [K]	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[–]
SOL	298.15	31.966	25.104	25.104	–101.671	0.000	–109.156	–101.671	–99.030	17.350
	300.00	32.148	25.302	25.105	–101.612	0.059	–109.202	–101.672	–99.013	17.240
	400.00	39.078	35.613	26.463	–98.011	3.660	–112.256	–101.550	–98.138	12.816
	500.00	43.034	44.790	29.230	–93.891	7.780	–116.286	–101.263	–97.317	10.167
	600.00	45.777	52.891	32.512	–89.444	12.227	–121.178	–100.928	–96.558	8.406
	700.00	47.913	60.114	35.949	–84.756	16.915	–126.835	–100.581	–95.857	7.153
	800.00	49.697	66.631	39.383	–79.873	21.798	–133.178	–100.225	–95.207	6.216
	900.00	51.249	72.576	42.746	–74.824	26.847	–140.142	–99.869	–94.601	5.491
	1000.00	52.635	78.049	46.006	–69.629	32.042	–147.677	–99.537	–94.034	4.912
	1100.00	53.890	83.125	49.153	–64.301	37.370	–155.739	–99.237	–93.498	4.440
	1200.00	55.037	87.864	52.183	–58.854	42.817	–164.291	–98.977	–92.988	4.048
	1300.00	56.089	92.311	55.101	–53.297	48.374	–173.302	–98.764	–92.498	3.717
	1400.00	57.055	96.504	57.910	–47.639	54.032	–182.745	–98.606	–92.023	3.433
	1500.00	57.941	100.471	60.616	–41.889	59.782	–192.595	–98.513	–91.556	3.188
	1600.00	58.751	104.237	63.226	–36.054	65.617	–202.832	–98.495	–91.093	2.974
	1700.00	59.490	107.821	65.744	–30.141	71.530	–213.436	–98.563	–90.629	2.785

References

Phase	H / S	C_p
SOL	Pa3	Pa3

113.894

DIVANADIUM CARBIDE

V2C

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	55.900	51.129	51.129	−117.152	0.000	−132.396	−117.152	−113.445	19.875
	300.00	56.080	51.475	51.130	−117.048	0.104	−132.491	−117.156	−113.422	19.748
	400.00	64.091	68.780	53.435	−111.014	6.138	−138.526	−117.292	−112.150	14.645
	500.00	69.713	83.718	58.032	−104.309	12.843	−146.168	−117.241	−110.868	11.582
	600.00	73.999	96.822	63.427	−97.115	20.037	−155.208	−117.071	−109.608	9.542
	700.00	77.490	108.499	69.047	−89.536	27.616	−165.485	−116.821	−108.382	8.088
	800.00	80.466	119.046	74.648	−81.634	35.518	−176.871	−116.511	−107.198	6.999
	900.00	83.082	128.677	80.124	−73.454	43.698	−189.264	−116.173	−106.054	6.155
	1000.00	85.433	137.554	85.429	−65.027	52.125	−202.581	−115.861	−104.947	5.482
	1100.00	87.581	145.799	90.547	−56.374	60.778	−216.754	−115.601	−103.868	4.932
	1200.00	89.572	153.506	95.476	−47.516	69.636	−231.723	−115.410	−102.810	4.475
	1300.00	91.439	160.750	100.221	−38.464	78.688	−247.439	−115.304	−101.765	4.089
	1400.00	93.209	167.592	104.791	−29.231	87.921	−263.860	−115.300	−100.725	3.758
	1500.00	94.906	174.081	109.196	−19.825	97.327	−280.946	−115.415	−99.681	3.471
	1600.00	96.550	180.259	113.446	−10.252	106.900	−298.666	−115.664	−98.624	3.220
	1700.00	98.160	186.160	117.551	−0.516	116.636	−316.989	−116.064	−97.548	2.997
	1800.00	99.753	191.816	121.521	9.380	126.532	−335.889	−116.626	−96.443	2.799
	1900.00	101.346	197.252	125.365	19.435	136.587	−355.345	−117.365	−95.303	2.620
	2000.00	102.955	202.491	129.091	29.650	146.802	−375.333	−118.288	−94.118	2.458

References

Phase	H / S	C_p
SOL	Pa3	Pa3

121.847

VANADIUM DICHLORIDE

VCl2

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	71.868	97.069	97.069	−451.872	0.000	−480.813	−451.872	−405.671	71.072
	300.00	71.934	97.514	97.070	−451.739	0.133	−480.993	−451.848	−405.384	70.584
	400.00	74.681	118.616	99.929	−444.397	7.475	−491.844	−450.540	−390.093	50.941
	500.00	76.594	135.495	105.410	−436.829	15.043	−504.577	−449.204	−375.135	39.190
	600.00	78.178	149.603	111.631	−429.089	22.783	−518.851	−447.821	−360.451	31.380
	700.00	79.607	161.763	117.944	−421.199	30.673	−534.433	−446.383	−346.002	25.819
	800.00	80.953	172.482	124.104	−413.170	38.702	−551.156	−444.894	−331.763	21.662
	900.00	82.251	182.092	130.023	−405.010	46.862	−568.892	−443.363	−317.713	18.440
	1000.00	83.519	190.824	135.673	−396.721	55.151	−587.545	−441.814	−303.835	15.871
	1100.00	84.768	198.843	141.056	−388.307	63.565	−607.033	−440.255	−290.112	13.776
	1200.00	86.004	206.271	146.185	−379.768	72.104	−627.294	−438.691	−276.532	12.037
	1300.00	87.230	213.204	151.076	−371.106	80.766	−648.271	−437.130	−263.082	10.571

References

Phase	H / S	C_p	Remarks
SOL	Pa2/Br1	Pa2	Br1,Tk1 NSPT= 1300. / MPT= 1623.

VCl_2[g] VANADIUM DICHLORIDE (GAS) 121.847

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	74.471	284.203	284.203	−203.080	0.000	−287.815	−203.080	−212.673	37.259
	300.00	74.493	284.664	284.204	−202.942	0.138	−288.341	−203.051	−212.733	37.040
	400.00	75.433	306.233	287.139	−195.442	7.638	−317.936	−201.585	−216.185	28.231
	500.00	76.111	323.141	292.709	−187.864	15.216	−349.434	−200.239	−219.993	22.983
	600.00	76.686	337.070	298.975	−180.224	22.856	−382.465	−198.956	−224.065	19.507
	700.00	77.212	348.931	305.285	−172.528	30.552	−416.780	−197.713	−228.349	17.040
	800.00	77.712	359.274	311.401	−164.782	38.298	−452.201	−196.505	−232.808	15.201
	900.00	78.196	368.455	317.240	−156.987	46.093	−488.596	−195.340	−237.417	13.779
	1000.00	78.672	376.718	322.781	−149.143	53.937	−525.861	−194.236	−242.152	12.649
	1100.00	79.141	384.239	328.032	−141.252	61.828	−563.915	−193.201	−246.994	11.729
	1200.00	79.606	391.145	333.007	−133.315	69.765	−602.689	−192.238	−251.927	10.966
	1300.00	80.068	397.535	337.728	−125.331	77.749	−642.127	−191.355	−256.938	10.324
	1400.00	80.528	403.485	342.215	−117.301	85.779	−682.181	−190.556	−262.013	9.776
	1500.00	80.987	409.057	346.487	−109.226	93.854	−722.811	−189.850	−267.142	9.303
	1600.00	81.444	414.298	350.563	−101.104	101.976	−763.981	−189.243	−272.316	8.890
	1700.00	81.901	419.250	354.459	−92.937	110.143	−805.661	−188.745	−277.523	8.527
	1800.00	82.356	423.944	358.190	−84.724	118.356	−847.823	−188.361	−282.757	8.205
	1900.00	82.811	428.409	361.770	−76.466	126.614	−890.442	−188.100	−288.009	7.918
	2000.00	83.266	432.668	365.209	−68.162	134.918	−933.498	−187.966	−293.272	7.659

References

Phase	H / S	C_p
GAS	Tk1,e	e

VCl_3 VANADIUM TRICHLORIDE 157.300

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	93.174	130.096	130.096	−581.120	0.000	−619.908	−581.120	−511.505	89.614
	300.00	93.325	130.673	130.098	−580.947	0.173	−620.149	−581.088	−511.073	88.986
	400.00	98.935	158.386	133.838	−571.301	9.819	−634.655	−579.208	−488.012	63.728
	500.00	102.019	180.821	141.063	−561.241	19.879	−651.652	−577.166	−465.446	48.625
	600.00	104.110	199.616	149.298	−550.929	30.191	−670.699	−575.029	−443.302	38.593
	700.00	105.730	215.790	157.668	−540.435	40.685	−691.488	−572.826	−421.521	31.454
	800.00	107.101	230.000	165.840	−529.791	51.329	−713.792	−570.574	−400.059	26.121
	900.00	108.326	242.687	173.686	−519.019	62.101	−737.437	−568.295	−378.881	21.990

References

Phase	H / S	C_p
SOL	Pa2	Pa2

192.752 VANADIUM TETRACHLORIDE **VCl4**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
LIQ	298.15	161.712	254.998	254.998	−569.401	0.000	−645.429	−569.401	−503.764	88.257
	300.00	161.712	255.998	255.001	−569.102	0.299	−645.901	−569.274	−503.357	87.642
	400.00	161.712	302.520	261.344	−552.931	16.470	−673.939	−562.603	−482.402	62.995
	422.70	161.712	311.446	263.797	−549.260	20.141	−680.908	−561.136	−477.891	59.055

References

Phase	H / S	C_p	Remarks
LIQ	Nb1,e	e	Pa2/e MPT= 247., L= 2.30 kJ / BPT= 422.7, L= 36.0 kJ

192.752 VANADIUM TETRACHLORIDE (GAS) **VCl4[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	93.135	362.398	362.398	−525.502	0.000	−633.551	−525.502	−491.887	86.176
	300.00	93.341	362.975	362.400	−525.330	0.172	−634.222	−525.501	−491.678	85.609
	400.00	100.489	390.959	366.166	−515.585	9.917	−671.969	−525.257	−480.432	62.738
	500.00	103.656	413.765	373.479	−505.359	20.143	−712.241	−524.834	−469.272	49.025
	600.00	105.256	432.821	381.825	−494.905	30.597	−754.597	−524.373	−458.203	39.890
	700.00	106.116	449.117	390.303	−484.332	41.170	−798.714	−523.929	−447.210	33.371
	800.00	106.582	463.321	398.561	−473.694	51.808	−844.351	−523.536	−436.278	28.486
	900.00	106.818	475.890	406.468	−463.023	62.479	−891.324	−523.220	−425.391	24.689
	1000.00	106.912	487.150	413.983	−452.336	73.166	−939.485	−523.014	−414.533	21.653
	1100.00	106.913	497.340	421.105	−441.644	83.858	−988.718	−522.931	−403.690	19.170
	1200.00	106.851	506.641	427.852	−430.955	94.547	−1038.924	−522.981	−392.849	17.100
	1300.00	106.744	515.189	434.245	−420.275	105.227	−1090.021	−523.174	−381.998	15.349
	1400.00	106.604	523.095	440.313	−409.607	115.895	−1141.940	−523.519	−371.126	13.847
	1500.00	106.441	530.445	446.080	−398.955	126.547	−1194.622	−524.024	−360.225	12.544
	1600.00	106.260	537.308	451.569	−388.320	137.182	−1248.013	−524.701	−349.283	11.403
	1700.00	106.064	543.745	456.804	−377.703	147.799	−1302.069	−525.556	−338.295	10.395
	1800.00	105.857	549.801	461.804	−367.107	158.395	−1356.749	−526.600	−327.250	9.497
	1900.00	105.642	555.519	466.587	−356.532	168.970	−1412.018	−527.839	−316.142	8.691
	2000.00	105.420	560.932	471.170	−345.979	179.523	−1467.843	−529.281	−304.964	7.965

References

Phase	H / S	C_p
GAS	Nb1,e	Pa2

VF3 VANADIUM TRIFLUORIDE 107.937

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	89.879	97.069	97.069	−1297.040	0.000	−1325.981	−1297.040	−1226.666	214.907
	300.00	90.082	97.625	97.071	−1296.874	0.166	−1326.161	−1297.007	−1226.230	213.506
	400.00	97.161	124.658	100.708	−1287.460	9.580	−1337.323	−1294.980	−1202.934	157.087
	500.00	100.378	146.726	107.775	−1277.565	19.475	−1350.927	−1292.791	−1180.174	123.292
	600.00	102.076	165.192	115.848	−1267.434	29.606	−1366.549	−1290.591	−1157.858	100.801
	700.00	103.055	181.007	124.054	−1257.173	39.867	−1383.878	−1288.431	−1135.907	84.762
	800.00	103.652	194.810	132.054	−1246.835	50.205	−1402.683	−1286.336	−1114.262	72.754
	900.00	104.027	207.042	139.720	−1236.450	60.590	−1422.788	−1284.327	−1092.875	63.429
	1000.00	104.263	218.015	147.010	−1226.034	71.006	−1444.050	−1282.431	−1071.705	55.980

References

Phase	H / S	C_p	Remarks
SOL	Pa2	Pa2	Tk1 TPT= 793. / MPT= 1679.

VF4 VANADIUM TETRAFLUORIDE 126.935

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	107.037	121.336	121.336	−1403.314	0.000	−1439.490	−1403.314	−1309.944	229.497
	300.00	107.110	121.998	121.338	−1403.116	0.198	−1439.715	−1403.278	−1309.364	227.981
	400.00	111.085	153.356	125.587	−1392.206	11.108	−1453.549	−1401.362	−1278.350	166.935
	500.00	115.060	178.571	133.741	−1380.899	22.415	−1470.185	−1399.442	−1247.818	130.359
	600.00	119.035	199.901	143.034	−1369.194	34.120	−1489.135	−1397.406	−1217.682	106.009
	700.00	123.010	218.548	152.517	−1357.092	46.222	−1510.076	−1395.179	−1187.902	88.642
	800.00	126.984	235.234	161.831	−1344.592	58.722	−1532.779	−1392.725	−1158.455	75.639
	900.00	130.959	250.420	170.843	−1331.695	71.619	−1557.073	−1390.028	−1129.331	65.545
	1000.00	134.934	264.423	179.510	−1318.400	84.914	−1582.824	−1387.093	−1100.520	57.485

References

Phase	H / S	C_p
SOL	Nb1/e	e

145.934 VANADIUM PENTAFLUORIDE (GAS) **VF5[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	98.576	325.876	325.876	−1436.158	0.000	−1533.318	−1436.158	−1373.540	240.638
	300.00	98.831	326.486	325.878	−1435.975	0.183	−1533.921	−1436.166	−1373.151	239.087
	400.00	110.006	356.571	329.903	−1425.491	10.667	−1568.119	−1436.282	−1352.112	176.568
	500.00	116.882	381.919	337.840	−1414.118	22.040	−1605.078	−1435.979	−1331.099	139.059
	600.00	121.190	403.639	347.041	−1402.199	33.959	−1644.383	−1435.464	−1310.169	114.060
	700.00	124.022	422.548	356.507	−1389.929	46.229	−1685.713	−1434.846	−1289.334	96.211
	800.00	125.969	439.243	365.826	−1377.424	58.734	−1728.819	−1434.189	−1268.592	82.831
	900.00	127.360	454.165	374.827	−1364.754	71.404	−1773.502	−1433.543	−1247.931	72.428
	1000.00	128.385	467.639	383.445	−1351.964	84.194	−1819.603	−1432.952	−1227.340	64.110
	1100.00	129.160	479.914	391.666	−1339.085	97.073	−1866.990	−1432.441	−1206.804	57.306
	1200.00	129.761	491.179	399.496	−1326.138	110.020	−1915.553	−1432.025	−1186.311	51.639
	1300.00	130.234	501.585	406.953	−1313.137	123.021	−1965.197	−1431.718	−1165.848	46.844
	1400.00	130.613	511.251	414.062	−1300.094	136.064	−2015.845	−1431.532	−1145.405	42.736
	1500.00	130.920	520.273	420.845	−1287.017	149.141	−2067.426	−1431.478	−1124.970	39.175
	1600.00	131.173	528.730	427.327	−1273.912	162.246	−2119.881	−1431.567	−1104.534	36.059
	1700.00	131.383	536.689	433.528	−1260.784	175.374	−2173.156	−1431.808	−1084.087	33.310
	1800.00	131.559	544.204	439.470	−1247.636	188.522	−2227.204	−1432.212	−1063.622	30.866
	1900.00	131.707	551.321	445.171	−1234.473	201.685	−2281.983	−1432.784	−1043.130	28.678
	2000.00	131.834	558.080	450.649	−1221.296	214.862	−2337.456	−1433.534	−1022.604	26.708

References

Phase	H / S	C_p	Remarks
GAS	Pa2	Pa2	Tk1 MPT= 292.65 / NBPT= 321.15

304.750 VANADIUM DIIODIDE **VI2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	74.836	146.440	146.440	−256.061	0.000	−299.722	−256.061	−256.474	44.933
	300.00	74.852	146.903	146.441	−255.923	0.138	−299.993	−256.069	−256.477	44.657
	400.00	75.689	168.551	149.387	−248.396	7.665	−315.816	−272.747	−255.967	33.426
	500.00	76.525	185.530	154.978	−240.785	15.276	−333.550	−315.992	−247.612	25.868
	600.00	77.362	199.557	161.272	−233.090	22.971	−352.824	−314.771	−234.051	20.376
	700.00	78.199	211.545	167.618	−225.312	30.749	−373.394	−313.531	−220.695	16.468
	800.00	79.036	222.041	173.779	−217.451	38.610	−395.084	−312.275	−207.518	13.550
	900.00	79.873	231.399	179.670	−209.505	46.556	−417.764	−311.014	−194.500	11.288
	1000.00	80.709	239.858	185.273	−201.476	54.585	−441.334	−309.771	−181.620	9.487

References

Phase	H / S	C_p
SOL	Tk1/Ku1	e

VI2[g] VANADIUM DIIODIDE (GAS) 304.750

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
GAS	298.15	100.416	276.160	276.160	−21.757	0.000	−104.094	−21.757	−60.846	10.660
	300.00	100.532	276.782	276.162	−21.571	0.186	−104.606	−21.718	−61.089	10.637
	400.00	104.600	306.344	280.165	−11.285	10.472	−133.823	−35.637	−73.974	9.660
	500.00	106.483	329.910	287.838	−0.721	21.036	−165.676	−75.928	−79.738	8.330
	600.00	107.506	349.423	296.523	9.983	31.740	−199.671	−71.697	−80.897	7.043
	700.00	108.122	366.045	305.297	20.767	42.524	−235.465	−67.452	−82.766	6.176
	800.00	108.523	380.511	313.814	31.601	53.358	−272.808	−63.224	−85.243	5.566
	900.00	108.797	393.310	321.949	42.467	64.224	−311.511	−59.042	−88.247	5.122
	1000.00	108.993	404.783	329.669	53.357	75.114	−351.426	−54.938	−91.713	4.791
	1100.00	109.138	415.179	336.978	64.264	86.021	−392.432	−50.927	−95.585	4.539
	1200.00	109.249	424.680	343.896	75.184	96.941	−434.432	−47.020	−99.818	4.345
	1300.00	109.335	433.428	350.451	86.113	107.870	−477.343	−43.225	−104.373	4.194
	1400.00	109.403	441.533	356.671	97.050	118.807	−521.096	−39.552	−109.215	4.075
	1500.00	109.458	449.083	362.583	107.993	129.750	−565.631	−36.010	−114.316	3.981
	1600.00	109.503	456.149	368.212	118.942	140.699	−610.897	−32.607	−119.648	3.906
	1700.00	109.540	462.789	373.582	129.894	151.651	−656.847	−29.352	−125.188	3.847
	1800.00	109.572	469.051	378.714	140.849	162.606	−703.442	−26.254	−130.916	3.799
	1900.00	109.598	474.976	383.626	151.808	173.565	−750.646	−23.319	−136.811	3.761
	2000.00	109.621	480.598	388.335	162.769	184.526	−798.427	−20.553	−142.857	3.731

References

Phase	H / S	C_p
GAS	Tk1,e	e

VI3 VANADIUM TRIIODIDE 431.655

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	99.731	202.924	202.924	−272.378	0.000	−332.880	−272.378	−272.318	47.709
	300.00	99.747	203.541	202.926	−272.193	0.185	−333.256	−272.391	−272.318	47.415
	400.00	100.583	232.351	206.848	−262.177	10.201	−355.117	−297.399	−271.325	35.431
	500.00	101.420	254.885	214.283	−252.077	20.301	−379.519	−362.250	−258.570	27.013
	600.00	102.257	273.450	222.642	−241.893	30.485	−405.963	−360.415	−238.006	20.720

References

Phase	H / S	C_p
SOL	Tk1/Ku1	e

57.455 VANADIUM 0.465–NITRIDE **VN0.465**

Phase	T	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	28.848	26.711	26.711	–132.214	0.000	–140.178	–132.214	–118.276	20.721
	300.00	28.944	26.889	26.711	–132.161	0.053	–140.227	–132.219	–118.189	20.579
	400.00	32.709	35.786	27.899	–129.059	3.155	–143.373	–132.362	–113.484	14.819
	500.00	35.064	43.353	30.252	–125.664	6.550	–147.340	–132.312	–108.767	11.363
	600.00	36.864	49.910	32.994	–122.064	10.150	–152.011	–132.128	–104.074	9.060
	700.00	38.402	55.711	35.833	–118.299	13.915	–157.297	–131.846	–99.419	7.419
	800.00	39.800	60.931	38.649	–114.388	17.826	–163.133	–131.492	–94.810	6.190
	900.00	41.117	65.696	41.393	–110.342	21.872	–169.468	–131.088	–90.248	5.238
	1000.00	42.384	70.094	44.046	–106.167	26.047	–176.260	–130.665	–85.733	4.478
	1100.00	43.617	74.191	46.603	–101.866	30.348	–183.477	–130.233	–81.261	3.859
	1200.00	44.828	78.039	49.064	–97.444	34.770	–191.090	–129.800	–76.828	3.344
	1300.00	46.023	81.674	51.433	–92.901	39.313	–199.078	–129.373	–72.431	2.910
	1400.00	47.207	85.128	53.718	–88.240	43.974	–207.419	–128.960	–68.067	2.540
	1500.00	48.382	88.425	55.923	–83.460	48.754	–216.098	–128.568	–63.731	2.219
	1600.00	49.551	91.585	58.053	–78.564	53.650	–225.100	–128.204	–59.421	1.940
	1700.00	50.715	94.624	60.116	–73.550	58.664	–234.411	–127.876	–55.132	1.694
	1800.00	51.875	97.556	62.115	–68.421	63.793	–244.021	–127.591	–50.861	1.476
	1900.00	53.032	100.391	64.055	–63.175	69.039	–253.919	–127.355	–46.605	1.281
	2000.00	54.186	103.141	65.941	–57.814	74.400	–264.096	–127.174	–42.360	1.106

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	NDPT= 2875.

VN VANADIUM NITRIDE 64.948

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	38.022	37.263	37.263	−217.150	0.000	−228.260	−217.150	−191.076	33.476
	300.00	38.159	37.498	37.263	−217.080	0.070	−228.329	−217.153	−190.914	33.241
	400.00	43.294	49.266	38.833	−212.977	4.173	−232.683	−217.075	−182.169	23.789
	500.00	46.188	59.261	41.945	−208.492	8.658	−238.123	−216.721	−173.480	18.123
	600.00	48.209	67.869	45.565	−203.768	13.382	−244.489	−216.211	−164.877	14.354
	700.00	49.819	75.425	49.302	−198.864	18.286	−251.662	−215.604	−156.368	11.668
	800.00	51.212	82.170	52.997	−193.811	23.339	−259.547	−214.939	−147.951	9.660
	900.00	52.478	88.276	56.583	−188.626	28.524	−268.074	−214.247	−139.619	8.103
	1000.00	53.666	93.868	60.036	−183.318	33.832	−277.186	−213.558	−131.364	6.862
	1100.00	54.804	99.036	63.349	−177.894	39.256	−286.834	−212.884	−123.178	5.849
	1200.00	55.907	103.852	66.526	−172.358	44.792	−296.981	−212.233	−115.051	5.008
	1300.00	56.985	108.370	69.573	−166.714	50.436	−307.594	−211.613	−106.978	4.298
	1400.00	58.046	112.632	72.498	−160.962	56.188	−318.647	−211.028	−98.952	3.692
	1500.00	59.094	116.672	75.309	−155.105	62.045	−330.113	−210.486	−90.965	3.168
	1600.00	60.132	120.519	78.015	−149.143	68.007	−341.975	−209.993	−83.014	2.710
	1700.00	61.162	124.196	80.625	−143.079	74.071	−354.212	−209.557	−75.091	2.307
	1800.00	62.062	127.717	83.144	−136.918	80.232	−366.809	−209.189	−67.192	1.950
	1900.00	62.985	131.097	85.579	−130.666	86.484	−379.750	−208.901	−59.312	1.631
	2000.00	63.916	134.352	87.937	−124.321	92.829	−393.024	−208.696	−51.444	1.344
	2100.00	64.842	137.493	90.222	−117.883	99.267	−406.617	−208.578	−43.585	1.084
	2200.00	65.758	140.530	92.440	−111.353	105.797	−420.519	−229.334	−35.490	0.843
	2300.00	66.660	143.473	94.596	−104.731	112.419	−434.720	−228.714	−26.692	0.606
	2400.00	67.547	146.329	96.692	−98.021	119.129	−449.211	−228.010	−17.923	0.390
	2500.00	68.418	149.104	98.733	−91.223	125.927	−463.983	−227.224	−9.185	0.192
	2600.00	69.273	151.804	100.723	−84.338	132.812	−479.029	−226.356	−0.481	0.010
	2619.00	69.433	152.309	101.095	−83.020	134.130	−481.918	−226.183	1.169	−0.023

References

Phase	H / S	C_p	Remarks
SOL	Nb1	Ja1	Ja1 NDPT= 2619.

66.941 VANADIUM OXIDE **VO**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	45.512	38.995	38.995	−431.789	0.000	−443.415	−431.789	−404.213	70.816
	300.00	45.637	39.277	38.996	−431.705	0.084	−443.488	−431.778	−404.042	70.350
	400.00	49.571	53.039	40.846	−426.912	4.877	−448.127	−431.037	−394.902	51.569
	500.00	51.674	64.337	44.448	−421.845	9.944	−454.013	−430.161	−385.968	40.322
	600.00	53.519	73.923	48.582	−416.584	15.205	−460.938	−429.202	−377.219	32.840
	700.00	55.327	82.309	52.813	−411.142	20.647	−468.758	−428.163	−368.636	27.508
	800.00	57.102	89.813	56.977	−405.520	26.269	−477.370	−427.043	−360.207	23.519
	900.00	58.820	96.639	61.010	−399.723	32.066	−486.698	−425.853	−351.924	20.425
	1000.00	60.454	102.921	64.891	−393.759	38.030	−496.680	−424.618	−343.775	17.957
	1100.00	62.085	108.760	68.617	−387.631	44.158	−507.268	−423.347	−335.752	15.944
	1200.00	63.677	114.231	72.192	−381.343	50.446	−518.420	−422.044	−327.846	14.271
	1300.00	65.244	119.390	75.626	−374.897	56.892	−530.103	−420.716	−320.050	12.860
	1400.00	66.792	124.282	78.929	−368.295	63.494	−542.289	−419.371	−312.357	11.654
	1500.00	68.324	128.942	82.109	−361.539	70.250	−554.952	−418.017	−304.760	10.613
	1600.00	69.842	133.400	85.176	−354.630	77.159	−568.071	−416.661	−297.254	9.704
	1700.00	71.350	137.680	88.139	−347.571	84.218	−581.626	−415.313	−289.833	8.905
	1800.00	72.849	141.800	91.007	−340.361	91.428	−595.601	−413.980	−282.490	8.198
	1900.00	74.340	145.779	93.786	−333.001	98.788	−609.981	−412.669	−275.221	7.566
	2000.00	75.826	149.630	96.482	−325.493	106.296	−624.753	−411.388	−268.020	7.000
	2063.00	76.759	151.996	98.141	−320.686	111.103	−634.254	−410.598	−263.516	6.672
			26.365		54.392					
LIQ	2063.00	62.760	178.362	98.141	−266.294	165.495	−634.254	−356.206	−263.516	6.672
	2100.00	62.760	179.477	99.565	−263.972	167.817	−640.874	−356.277	−261.853	6.513
	2200.00	62.760	182.397	103.264	−257.696	174.093	−658.969	−377.382	−257.110	6.105
	2300.00	62.760	185.187	106.765	−251.420	180.369	−677.350	−377.205	−251.647	5.715
	2400.00	62.760	187.858	110.089	−245.144	186.645	−696.003	−377.040	−246.192	5.358
	2500.00	62.760	190.420	113.251	−238.868	192.921	−714.917	−376.885	−240.743	5.030
	2600.00	62.760	192.881	116.267	−232.592	199.197	−734.083	−376.741	−235.300	4.727
	2700.00	62.760	195.250	119.149	−226.316	205.473	−753.491	−376.608	−229.863	4.447
	2800.00	62.760	197.532	121.908	−220.040	211.749	−773.130	−376.485	−224.430	4.187
	2900.00	62.760	199.735	124.554	−213.764	218.025	−792.994	−376.371	−219.002	3.945
	3000.00	62.760	201.862	127.095	−207.488	224.301	−813.075	−376.268	−213.577	3.719

References

Phase	H / S	C_p
SOL	Ja1,Nb1	Ja1
LIQ	Ja1	Ja1

VO[g] VANADIUM OXIDE (GAS) 66.941

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	30.702	230.899	230.899	127.612	0.000	58.769	127.612	97.972	-17.164
	300.00	30.725	231.089	230.899	127.669	0.057	58.342	127.596	97.788	-17.026
	400.00	32.246	240.133	232.122	130.816	3.204	34.763	126.691	87.988	-11.490
	500.00	33.535	247.474	234.481	134.109	6.497	10.372	125.792	78.416	-8.192
	600.00	34.465	253.675	237.176	137.511	9.899	-14.694	124.893	69.026	-6.009
	700.00	35.141	259.041	239.925	140.993	13.381	-40.336	123.972	59.787	-4.461
	800.00	35.646	263.768	242.616	144.534	16.922	-66.481	123.011	50.682	-3.309
	900.00	36.034	267.990	245.205	148.118	20.506	-93.073	121.988	41.702	-2.420
	1000.00	36.337	271.803	247.677	151.738	24.126	-120.065	120.878	32.840	-1.715
	1100.00	36.578	275.278	250.031	155.384	27.772	-147.422	119.668	24.094	-1.144
	1200.00	36.771	278.469	252.269	159.052	31.440	-175.111	118.350	15.462	-0.673
	1300.00	36.924	281.419	254.400	162.737	35.125	-203.108	116.917	6.946	-0.279
	1400.00	37.044	284.160	256.429	166.435	38.823	-231.388	115.359	-1.456	0.054
	1500.00	37.197	286.721	258.364	170.148	42.536	-259.934	113.670	-9.742	0.339
	1600.00	37.305	289.125	260.212	173.873	46.261	-288.727	111.843	-17.910	0.585
	1700.00	37.397	291.390	261.980	177.608	49.996	-317.754	109.866	-25.960	0.798
	1800.00	37.487	293.530	263.674	181.353	53.741	-347.001	107.733	-33.889	0.983
	1900.00	37.583	295.559	265.299	185.106	57.494	-376.456	105.438	-41.695	1.146
	2000.00	37.691	297.489	266.861	188.870	61.258	-406.109	102.974	-49.376	1.290
	2100.00	37.813	299.331	268.363	192.645	65.033	-435.951	100.340	-56.930	1.416
	2200.00	37.950	301.093	269.811	196.433	68.821	-465.973	76.747	-64.114	1.522
	2300.00	38.100	302.784	271.208	200.235	72.623	-496.167	74.450	-70.465	1.600
	2400.00	38.265	304.409	272.558	204.053	76.441	-526.528	72.158	-76.717	1.670
	2500.00	38.443	305.974	273.864	207.889	80.277	-557.047	69.872	-82.873	1.732
	2600.00	38.634	307.486	275.128	211.742	84.130	-587.721	67.593	-88.938	1.787
	2700.00	38.836	308.948	276.354	215.616	88.004	-618.543	65.324	-94.915	1.836
	2800.00	39.048	310.364	277.543	219.510	91.898	-649.509	63.065	-100.808	1.881
	2900.00	39.270	311.738	278.699	223.426	95.814	-680.614	60.818	-106.621	1.920
	3000.00	39.501	313.073	279.822	227.364	99.752	-711.855	58.584	-112.357	1.956

References

Phase	H / S	C_p
GAS	Ja1	Ja1

82.940 VANADIUM DIOXIDE (GAS) **VO2**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	43.910	265.249	265.250	−232.630	0.000	−311.714	−232.630	−241.930	42.385
	300.00	43.979	265.521	265.250	−232.549	0.081	−312.205	−232.649	−241.987	42.134
	400.00	47.621	278.688	267.021	−227.963	4.667	−339.438	−233.601	−244.952	31.987
	500.00	50.317	289.622	270.478	−223.058	9.572	−367.869	−234.416	−247.693	25.876
	600.00	52.196	298.972	274.467	−217.927	14.703	−397.310	−235.167	−250.278	21.789
	700.00	53.528	307.124	278.563	−212.637	19.993	−427.624	−235.907	−252.738	18.860
	800.00	54.488	314.338	282.592	−207.234	25.396	−458.704	−236.674	−255.090	16.656
	900.00	55.181	320.798	286.485	−201.748	30.882	−490.466	−237.499	−257.344	14.936
	1000.00	55.713	326.640	290.213	−196.203	36.427	−522.843	−238.414	−259.500	13.555
	1100.00	56.124	331.970	293.770	−190.610	42.020	−555.777	−239.432	−261.561	12.420
	1200.00	56.439	336.867	297.160	−184.981	47.649	−589.222	−240.563	−263.523	11.471
	1300.00	56.685	341.395	300.391	−179.325	53.305	−623.138	−241.816	−265.387	10.663
	1400.00	56.881	345.603	303.472	−173.646	58.984	−657.491	−243.201	−267.149	9.967
	1500.00	57.041	349.533	306.413	−167.950	64.680	−692.250	−244.727	−268.807	9.361
	1600.00	57.173	353.219	309.225	−162.239	70.391	−727.389	−246.402	−270.358	8.826
	1700.00	57.283	356.689	311.916	−156.516	76.114	−762.886	−248.237	−271.800	8.351
	1800.00	57.377	359.965	314.495	−150.783	81.847	−798.721	−250.239	−273.129	7.926
	1900.00	57.457	363.070	316.970	−145.041	87.589	−834.874	−252.416	−274.343	7.542
	2000.00	57.526	366.019	319.350	−139.292	93.338	−871.329	−254.775	−275.436	7.194
	2100.00	57.587	368.827	321.639	−133.536	99.094	−908.073	−257.321	−276.408	6.875
	2200.00	57.640	371.507	323.846	−127.775	104.855	−945.091	−280.845	−277.013	6.577
	2300.00	57.687	374.071	325.974	−122.008	110.622	−982.370	−283.093	−276.789	6.286
	2400.00	57.730	376.527	328.030	−116.237	116.393	−1019.901	−285.359	−276.466	6.017
	2500.00	57.768	378.884	330.017	−110.462	122.168	−1057.672	−287.643	−276.049	5.768
	2600.00	57.802	381.150	331.940	−104.684	127.946	−1095.675	−289.944	−275.540	5.536
	2700.00	57.834	383.333	333.804	−98.902	133.728	−1133.900	−292.264	−274.942	5.319
	2800.00	57.862	385.436	335.610	−93.117	139.513	−1172.339	−294.601	−274.258	5.116
	2900.00	57.889	387.467	337.364	−87.330	145.300	−1210.985	−296.955	−273.490	4.926
	3000.00	57.913	389.430	339.067	−81.539	151.091	−1249.830	−299.326	−272.640	4.747

References

Phase	H / S	C_p
GAS	Ja1	Ja1

V2O3 DIVANADIUM TRIOXIDE 149.881

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	104.952	98.073	98.073	−1218.799	0.000	−1248.039	−1218.799	−1139.053	199.557
	300.00	105.273	98.723	98.075	−1218.605	0.194	−1248.222	−1218.778	−1138.558	198.241
	400.00	117.545	130.899	102.378	−1207.391	11.408	−1259.750	−1217.154	−1112.039	145.217
	500.00	123.735	157.865	110.856	−1195.295	23.504	−1274.227	−1214.969	−1086.006	113.454
	600.00	127.354	180.768	120.649	−1182.728	36.071	−1291.188	−1212.585	−1060.436	92.319
	700.00	130.053	200.607	130.686	−1169.854	48.945	−1310.279	−1210.145	−1035.271	77.253
	800.00	132.642	218.141	140.542	−1156.720	62.079	−1331.233	−1207.684	−1010.456	65.976
	900.00	135.251	233.913	150.055	−1143.327	75.472	−1353.849	−1205.207	−985.952	57.223
	1000.00	137.961	248.303	159.171	−1129.667	89.132	−1377.970	−1202.738	−961.722	50.235
	1100.00	140.784	261.583	167.885	−1115.731	103.068	−1403.472	−1200.268	−937.740	44.530
	1200.00	143.715	273.958	176.214	−1101.506	117.293	−1430.256	−1197.789	−913.983	39.785
	1300.00	146.738	285.580	184.185	−1086.985	131.814	−1458.239	−1195.296	−890.434	35.778
	1400.00	149.838	296.568	191.823	−1072.156	146.643	−1487.351	−1192.788	−867.077	32.351
	1500.00	153.004	307.013	199.157	−1057.015	161.784	−1517.534	−1190.270	−843.900	29.387
	1600.00	156.222	316.990	206.212	−1041.554	177.245	−1548.738	−1187.748	−820.891	26.799
	1700.00	159.485	326.559	213.012	−1025.769	193.030	−1580.919	−1185.232	−798.039	24.521
	1800.00	162.785	335.768	219.577	−1009.655	209.144	−1614.038	−1182.730	−775.335	22.500
	1900.00	166.115	344.658	225.928	−993.211	225.588	−1648.062	−1180.254	−752.770	20.695
	2000.00	169.470	353.264	232.081	−976.432	242.367	−1682.960	−1177.810	−730.334	19.074
	2100.00	172.848	361.614	238.051	−959.316	259.483	−1718.706	−1175.406	−708.020	17.611
	2200.00	176.243	369.734	243.853	−941.862	276.937	−1755.275	−1214.618	−685.339	16.272
	2300.00	179.655	377.643	249.499	−924.067	294.732	−1792.646	−1210.937	−661.362	15.020
	2340.00	181.023	380.752	251.716	−916.853	301.946	−1807.814	−1209.378	−651.818	14.550
			50.065		117.152					
LIQ	2340.00	156.900	430.817	251.716	−799.701	419.098	−1807.814	−1092.226	−651.818	14.550
	2400.00	156.900	434.790	256.243	−790.287	428.512	−1833.783	−1091.304	−640.537	13.941
	2500.00	156.900	441.195	263.514	−774.597	444.202	−1877.584	−1089.794	−621.786	12.992
	2600.00	156.900	447.348	270.467	−758.907	459.892	−1922.013	−1088.317	−603.095	12.116
	2700.00	156.900	453.270	277.128	−743.217	475.582	−1967.046	−1086.871	−584.461	11.307
	2800.00	156.900	458.976	283.522	−727.527	491.272	−2012.660	−1085.456	−565.879	10.557
	2900.00	156.900	464.482	289.667	−711.837	506.962	−2058.834	−1084.070	−547.347	9.859
	3000.00	156.900	469.801	295.584	−696.147	522.652	−2105.550	−1082.714	−528.862	9.208

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	TPT= 168.8, L= 1.623 kJ
LIQ	Ja1	Ja1		

165.881 DIVANADIUM TETRAOXIDE **V2O4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[	J / (K mol)	]	[		kJ / mol		]	
SOL−1	298.15	115.399	103.512	103.512	−1427.162	0.000	−1458.024	−1427.162	−1318.455	230.988
	300.00	115.788	104.227	103.514	−1426.948	0.214	−1458.216	−1427.149	−1317.781	229.446
	340.00	124.201	119.235	104.489	−1422.148	5.014	−1462.688	−1426.731	−1303.222	200.216
			26.459		8.996					
SOL−2	340.00	127.518	145.694	104.489	−1413.152	14.010	−1462.688	−1417.735	−1303.222	200.216
	400.00	135.276	167.076	112.301	−1405.252	21.910	−1472.082	−1416.528	−1283.110	167.557
	500.00	143.290	198.201	126.455	−1391.289	35.873	−1490.389	−1414.005	−1250.038	130.591
	600.00	148.420	224.808	140.684	−1376.688	50.474	−1511.572	−1411.168	−1217.507	105.993
	700.00	152.187	247.982	154.393	−1361.649	65.513	−1535.237	−1408.190	−1185.465	88.460
	800.00	155.417	268.522	167.399	−1346.264	80.898	−1561.081	−1405.146	−1153.854	75.339
	900.00	158.186	286.990	179.678	−1330.581	96.581	−1588.872	−1402.082	−1122.627	65.156
	1000.00	160.680	303.788	191.262	−1314.636	112.526	−1618.424	−1399.058	−1091.739	57.027
	1100.00	163.000	319.212	202.202	−1298.451	128.711	−1649.584	−1396.094	−1061.151	50.390
	1200.00	165.205	333.490	212.555	−1282.040	145.122	−1682.228	−1393.203	−1030.830	44.871
	1300.00	167.330	346.798	222.375	−1265.412	161.750	−1716.250	−1390.396	−1000.746	40.210
	1400.00	169.398	359.275	231.713	−1248.576	178.586	−1751.560	−1387.686	−970.876	36.224
	1500.00	171.426	371.031	240.613	−1231.534	195.628	−1788.081	−1385.088	−941.195	32.775
	1600.00	173.422	382.159	249.115	−1214.291	212.871	−1825.745	−1382.618	−911.683	29.763
	1700.00	175.395	392.732	257.254	−1196.850	230.312	−1864.494	−1380.292	−882.322	27.110
	1800.00	177.350	402.812	265.063	−1179.213	247.949	−1904.275	−1378.125	−853.093	24.756
	1818.00	177.700	404.579	266.436	−1176.018	251.144	−1911.542	−1377.753	−847.844	24.360
			61.644		112.068					
LIQ	1818.00	213.384	466.222	266.436	−1063.950	363.212	−1911.542	−1265.685	−847.844	24.360
	1900.00	213.384	475.636	275.263	−1046.452	380.710	−1950.161	−1261.201	−829.099	22.794
	2000.00	213.384	486.581	285.557	−1025.114	402.048	−1998.276	−1256.079	−806.491	21.063
	2100.00	213.384	496.992	295.380	−1003.775	423.387	−2047.459	−1251.346	−784.129	19.504
	2200.00	213.384	506.919	304.771	−982.437	444.725	−2097.659	−1288.577	−761.504	18.080
	2300.00	213.384	516.404	313.768	−961.098	466.064	−2148.828	−1283.268	−737.666	16.753
	2400.00	213.384	525.486	322.402	−939.760	487.402	−2200.926	−1278.004	−714.057	15.541
	2500.00	213.384	534.197	330.701	−918.422	508.740	−2253.913	−1272.783	−690.666	14.431

References

Phase	H / S	C_p
SOL−1	Ja1	Ja1
SOL−2	Ja1	Ja1
LIQ	Ja1	Ja1

V2O5 DIVANADIUM PENTAOXIDE 181.880

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	132.686	130.541	130.541	−1550.590	0.000	−1589.511	−1550.590	−1419.359	248.666
	300.00	133.124	131.363	130.543	−1550.344	0.246	−1589.753	−1550.572	−1418.545	246.991
	400.00	150.950	172.336	136.009	−1536.059	14.531	−1604.993	−1548.848	−1374.759	179.525
	500.00	161.754	207.274	146.858	−1520.382	30.208	−1624.019	−1546.140	−1331.536	139.105
	600.00	168.314	237.400	159.497	−1503.848	46.742	−1646.288	−1542.950	−1288.910	112.210
	700.00	173.233	263.730	172.546	−1486.761	63.829	−1671.372	−1539.551	−1246.836	93.040
	800.00	177.252	287.132	185.434	−1469.231	81.359	−1698.937	−1536.031	−1205.259	78.695
	900.00	180.748	308.215	197.924	−1451.328	99.262	−1728.722	−1532.449	−1164.128	67.564
	943.00	182.144	316.684	203.148	−1443.525	107.065	−1742.158	−1530.907	−1146.566	63.511
			68.417		64.517					
LIQ	943.00	190.790	385.100	203.148	−1379.008	171.582	−1742.158	−1466.390	−1146.566	63.511
	1000.00	190.790	396.298	213.841	−1368.133	182.457	−1764.431	−1463.907	−1127.309	58.885
	1100.00	190.790	414.482	231.268	−1349.054	201.536	−1804.985	−1459.804	−1093.850	51.943
	1200.00	190.790	431.083	247.237	−1329.975	220.615	−1847.275	−1456.019	−1060.751	46.173
	1300.00	190.790	446.354	261.975	−1310.896	239.694	−1891.157	−1452.552	−1027.955	41.304
	1400.00	190.790	460.493	275.656	−1291.817	258.773	−1936.508	−1449.406	−995.414	37.139
	1500.00	190.790	473.657	288.422	−1272.738	277.852	−1983.223	−1446.592	−963.086	33.538
	1600.00	190.790	485.970	300.388	−1253.659	296.931	−2031.211	−1444.119	−930.935	30.392
	1700.00	190.790	497.537	311.648	−1234.580	316.010	−2080.392	−1442.001	−898.927	27.621
	1800.00	190.790	508.442	322.281	−1215.501	335.089	−2130.696	−1440.249	−867.034	25.161
	1900.00	190.790	518.757	332.353	−1196.422	354.168	−2182.061	−1438.878	−835.228	22.962
	2000.00	190.790	528.544	341.920	−1177.343	373.247	−2234.430	−1437.896	−803.484	20.985
	2100.00	190.790	537.852	351.030	−1158.264	392.326	−2287.754	−1437.315	−771.780	19.197
	2200.00	190.790	546.728	359.726	−1139.185	411.405	−2341.986	−1478.710	−739.614	17.561
	2300.00	190.790	555.209	368.042	−1120.106	430.484	−2397.086	−1477.576	−706.044	16.035
	2400.00	190.790	563.329	376.011	−1101.027	449.563	−2453.016	−1476.497	−672.522	14.637
	2500.00	190.790	571.117	383.660	−1081.948	468.642	−2509.741	−1475.472	−639.045	13.352

References

Phase	H / S	C_p	Remarks	
SOL	Nb1,Ja1	Ja1		
LIQ	Ja1	Ja1		NDPT= 1963., V2O5 = V2O4 + 1/2 O2

VOCl3 VANADIUM TRICHLORIDE OXIDE 173.299

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
LIQ	298.15	150.624	244.346	244.346	−734.710	0.000	−807.562	−734.710	−668.576	117.132
	300.00	150.624	245.277	244.348	−734.431	0.279	−808.015	−734.599	−668.166	116.338
	400.00	150.624	288.609	250.257	−719.369	15.341	−834.813	−728.789	−646.907	84.477

References

Phase	H / S	C_p	Remarks	
LIQ	Nb1	e	Tk1	MPT= 195., L= 9.6 kJ

173.299 VANADIUM TRICHLORIDE OXIDE (GAS) **VOCl3**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	89.910	344.290	344.290	−695.590	0.000	−798.240	−695.590	−659.254	115.499
	300.00	90.026	344.846	344.291	−695.424	0.166	−798.877	−695.591	−659.029	114.747
	400.00	94.094	371.386	347.882	−686.188	9.402	−834.743	−695.609	−646.838	84.468
	500.00	95.977	392.608	354.777	−676.674	18.916	−872.978	−695.642	−634.642	66.301
	600.00	97.000	410.205	362.591	−667.021	28.569	−913.144	−695.743	−622.434	54.188
	700.00	97.616	425.208	370.491	−657.288	38.302	−954.933	−695.928	−610.203	45.534
	800.00	98.016	438.271	378.164	−647.505	48.085	−998.122	−696.205	−597.938	39.041
	900.00	98.291	449.832	385.497	−637.689	57.901	−1042.538	−696.585	−585.633	33.989
	1000.00	98.487	460.199	392.458	−627.849	67.741	−1088.048	−697.087	−573.280	29.945

References

Phase	H / S	C_p
GAS	Nb1	e

W TUNGSTEN 183.850

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	24.297	32.660	32.660	0.000	0.000	−9.738	0.000	0.000	0.000
	300.00	24.313	32.811	32.661	0.045	0.045	−9.798	0.000	0.000	0.000
	400.00	24.925	39.898	33.623	2.510	2.510	−13.449	0.000	0.000	0.000
	500.00	25.365	45.508	35.458	5.025	5.025	−17.729	0.000	0.000	0.000
	600.00	25.791	50.170	37.532	7.583	7.583	−22.519	0.000	0.000	0.000
	700.00	26.225	54.179	39.631	10.183	10.183	−27.742	0.000	0.000	0.000
	800.00	26.667	57.709	41.674	12.828	12.828	−33.339	0.000	0.000	0.000
	900.00	27.114	60.876	43.635	15.517	15.517	−39.271	0.000	0.000	0.000
	1000.00	27.564	63.756	45.505	18.251	18.251	−45.505	0.000	0.000	0.000
	1100.00	28.017	66.404	47.286	21.030	21.030	−52.015	0.000	0.000	0.000
	1200.00	28.473	68.862	48.983	23.854	23.854	−58.779	0.000	0.000	0.000
	1300.00	28.931	71.159	50.601	26.725	26.725	−65.782	0.000	0.000	0.000
	1400.00	29.393	73.320	52.148	29.641	29.641	−73.007	0.000	0.000	0.000
	1500.00	29.859	75.363	53.628	32.603	32.603	−80.442	0.000	0.000	0.000
	1600.00	30.331	77.305	55.047	35.613	35.613	−88.076	0.000	0.000	0.000
	1700.00	30.810	79.158	56.412	38.670	38.670	−95.900	0.000	0.000	0.000
	1800.00	31.269	80.932	57.725	41.772	41.772	−103.905	0.000	0.000	0.000
	1900.00	31.800	82.636	58.992	44.925	44.925	−112.084	0.000	0.000	0.000
	2000.00	32.306	84.281	60.215	48.131	48.131	−120.430	0.000	0.000	0.000
	2100.00	32.766	85.868	61.399	51.385	51.385	−128.938	0.000	0.000	0.000
	2200.00	33.194	87.402	62.546	54.683	54.683	−137.602	0.000	0.000	0.000
	2300.00	33.627	88.887	63.660	58.024	58.024	−146.417	0.000	0.000	0.000
	2400.00	34.110	90.328	64.741	61.410	61.410	−155.378	0.000	0.000	0.000
	2500.00	34.696	91.732	65.793	64.849	64.849	−164.481	0.000	0.000	0.000
	2600.00	35.435	93.107	66.817	68.354	68.354	−173.723	0.000	0.000	0.000
	2700.00	36.380	94.461	67.816	71.943	71.943	−183.102	0.000	0.000	0.000
	2800.00	37.580	95.805	68.791	75.639	75.639	−192.615	0.000	0.000	0.000
	2900.00	39.081	97.149	69.746	79.469	79.469	−202.263	0.000	0.000	0.000
	3000.00	40.930	98.504	70.682	83.467	83.467	−212.046	0.000	0.000	0.000
	3100.00	43.166	99.881	71.601	87.668	87.668	−221.965	0.000	0.000	0.000
	3200.00	45.830	101.293	72.507	92.114	92.114	−232.023	0.000	0.000	0.000
	3300.00	48.958	102.750	73.401	96.849	96.849	−242.225	0.000	0.000	0.000
	3400.00	52.585	104.264	74.287	101.922	101.922	−252.575	0.000	0.000	0.000
	3500.00	56.743	105.847	75.166	107.384	107.384	−263.080	0.000	0.000	0.000
	3600.00	61.464	107.510	76.041	113.290	113.290	−273.747	0.000	0.000	0.000
	3680.00	65.664	108.906	76.740	118.372	118.372	−282.403	0.000	0.000	0.000
			9.619		35.397					
LIQ	3680.00	35.564	118.525	76.740	153.769	153.769	−282.403	0.000	0.000	0.000
	3700.00	35.564	118.718	76.966	154.480	154.480	−284.776	0.000	0.000	0.000
	3800.00	35.564	119.666	78.078	158.037	158.037	−296.695	0.000	0.000	0.000
	3900.00	35.564	120.590	79.156	161.593	161.593	−308.708	0.000	0.000	0.000
	4000.00	35.564	121.490	80.203	165.150	165.150	−320.812	0.000	0.000	0.000
	4100.00	35.564	122.369	81.221	168.706	168.706	−333.005	0.000	0.000	0.000
	4200.00	35.564	123.226	82.211	172.262	172.262	−345.285	0.000	0.000	0.000
	4300.00	35.564	124.062	83.174	175.819	175.819	−357.650	0.000	0.000	0.000
	4400.00	35.564	124.880	84.113	179.375	179.375	−370.097	0.000	0.000	0.000
	4500.00	35.564	125.679	85.028	182.932	182.932	−382.625	0.000	0.000	0.000

183.850 TUNGSTEN [continued] **W**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
LIQ	4600.00	35.564	126.461	85.920	186.488	186.488	−395.232	0.000	0.000	0.000
	4700.00	35.564	127.226	86.791	190.044	190.044	−407.917	0.000	0.000	0.000
	4800.00	35.564	127.975	87.641	193.601	193.601	−420.677	0.000	0.000	0.000
	4900.00	35.564	128.708	88.472	197.157	197.157	−433.511	0.000	0.000	0.000
	5000.00	35.564	129.426	89.284	200.714	200.714	−446.418	0.000	0.000	0.000
	5100.00	35.564	130.131	90.078	204.270	204.270	−459.396	0.000	0.000	0.000
	5200.00	35.564	130.821	90.855	207.826	207.826	−472.444	0.000	0.000	0.000
	5300.00	35.564	131.499	91.615	211.383	211.383	−485.560	0.000	0.000	0.000
	5400.00	35.564	132.163	92.360	214.939	214.939	−498.743	0.000	0.000	0.000
	5500.00	35.564	132.816	93.089	218.496	218.496	−511.992	0.000	0.000	0.000
	5600.00	35.564	133.457	93.805	222.052	222.052	−525.306	0.000	0.000	0.000
	5700.00	35.564	134.086	94.506	225.608	225.608	−538.683	0.000	0.000	0.000
	5800.00	35.564	134.705	95.194	229.165	229.165	−552.123	0.000	0.000	0.000
	5900.00	35.564	135.313	95.868	232.721	232.721	−565.624	0.000	0.000	0.000
	5931.00	35.564	135.499	96.075	233.824	233.824	−569.821	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Hu1	BPT= 5931., L= 806.78 kJ

W[g] TUNGSTEN (GAS) 183.850

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	21.304	173.951	173.951	851.026	0.000	799.163	851.026	808.900	−141.716
	300.00	21.348	174.082	173.951	851.065	0.039	798.841	851.020	808.639	−140.797
	400.00	23.169	180.464	174.809	853.288	2.262	781.102	850.778	794.551	−103.758
	500.00	26.319	185.946	176.497	855.750	4.724	762.777	850.726	780.507	−81.539
	600.00	30.366	191.097	178.504	858.582	7.556	743.924	850.999	766.443	−66.725
	700.00	34.374	196.084	180.661	861.822	10.796	724.563	851.638	752.305	−56.138
	800.00	37.738	200.903	182.892	865.435	14.409	704.712	852.607	738.052	−48.190
	900.00	40.096	205.495	185.151	869.336	18.310	684.390	853.819	723.662	−42.000
	1000.00	41.226	209.790	187.403	873.413	22.387	663.623	855.162	709.128	−37.041
	1100.00	41.470	213.738	189.620	877.556	26.530	642.444	856.526	694.459	−32.977
	1200.00	40.946	217.328	191.782	881.681	30.655	620.888	857.827	679.667	−29.585
	1300.00	40.013	220.570	193.874	885.732	34.706	598.990	859.007	664.772	−26.711
	1400.00	38.882	223.495	195.887	889.677	38.651	576.784	860.037	649.791	−24.244
	1500.00	37.684	226.137	197.817	893.506	42.480	554.300	860.903	634.742	−22.104
	1600.00	36.499	228.531	199.663	897.215	46.189	531.565	861.602	619.641	−20.229
	1700.00	35.375	230.710	201.426	900.808	49.782	508.601	862.138	604.501	−18.574
	1800.00	34.343	232.702	203.109	904.293	53.267	485.429	862.521	589.334	−17.102
	1900.00	33.420	234.533	204.716	907.680	56.654	462.066	862.755	574.150	−15.784
	2000.00	32.614	236.227	206.249	910.981	59.955	438.527	862.850	558.957	−14.598
	2100.00	31.927	237.801	207.715	914.207	63.181	414.825	862.822	543.763	−13.525
	2200.00	31.358	239.272	209.116	917.370	66.344	390.971	862.687	528.573	−12.550
	2300.00	30.901	240.656	210.458	920.482	69.456	366.973	862.458	513.390	−11.659
	2400.00	30.551	241.963	211.743	923.554	72.528	342.842	862.144	498.220	−10.843
	2500.00	30.299	243.205	212.977	926.595	75.569	318.583	861.746	483.064	−10.093
	2600.00	30.136	244.390	214.163	929.617	78.591	294.203	861.262	467.926	−9.401
	2700.00	30.051	245.525	215.303	932.625	81.599	269.707	860.682	452.809	−8.760
	2800.00	30.032	246.618	216.402	935.629	84.603	245.099	859.990	437.714	−8.166
	2900.00	30.069	247.672	217.463	938.634	87.608	220.384	859.165	422.647	−7.613
	3000.00	30.150	248.693	218.487	941.644	90.618	195.566	858.178	407.611	−7.097
	3100.00	30.326	249.684	219.477	944.668	93.642	170.647	857.000	392.611	−6.615
	3200.00	30.536	250.650	220.436	947.711	96.685	145.630	855.597	377.653	−6.165
	3300.00	30.785	251.594	221.366	950.777	99.751	120.517	853.927	362.742	−5.742
	3400.00	31.072	252.517	222.269	953.869	102.843	95.312	851.947	347.887	−5.345
	3500.00	31.392	253.422	223.146	956.992	105.966	70.015	849.608	333.094	−4.971
	3600.00	31.739	254.311	223.999	960.148	109.122	44.628	846.859	318.375	−4.619
	3700.00	32.111	255.186	224.831	963.341	112.315	19.153	808.860	303.928	−4.291
	3800.00	32.502	256.047	225.641	966.571	115.545	−6.409	808.534	290.286	−3.990
	3900.00	32.908	256.897	226.431	969.842	118.816	−32.056	808.248	276.652	−3.705
	4000.00	33.326	257.735	227.203	973.153	122.127	−57.788	808.004	263.024	−3.435
	4100.00	33.751	258.563	227.958	976.507	125.481	−83.603	807.801	249.402	−3.177
	4200.00	34.182	259.382	228.697	979.904	128.878	−109.500	807.641	235.785	−2.932
	4300.00	34.614	260.191	229.420	983.344	132.318	−135.479	807.525	222.171	−2.699
	4400.00	35.046	260.992	230.128	986.827	135.801	−161.538	807.451	208.559	−2.476
	4500.00	35.474	261.784	230.823	990.353	139.327	−187.677	807.421	194.948	−2.263
	4600.00	35.897	262.569	231.505	993.921	142.895	−213.895	807.433	181.337	−2.059
	4700.00	36.314	263.345	232.174	997.532	146.506	−240.191	807.487	167.726	−1.864
	4800.00	36.723	264.114	232.831	1001.184	150.158	−266.564	807.583	154.113	−1.677
	4900.00	37.122	264.875	233.477	1004.876	153.850	−293.013	807.719	140.498	−1.498
	5000.00	37.511	265.629	234.113	1008.608	157.582	−319.538	807.894	126.879	−1.326

183.850 TUNGSTEN (GAS) [continued] **W[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	5100.00	37.889	266.376	234.738	1012.378	161.352	−346.139	808.108	113.257	−1.160
	5200.00	38.255	267.115	235.354	1016.185	165.159	−372.813	808.359	99.630	−1.001
	5300.00	38.610	267.847	235.960	1020.028	169.002	−399.562	808.646	85.998	−0.848
	5400.00	38.953	268.572	236.557	1023.907	172.881	−426.383	808.968	72.360	−0.700
	5500.00	39.285	269.290	237.146	1027.819	176.793	−453.276	809.323	58.716	−0.558
	5600.00	39.604	270.001	237.726	1031.763	180.737	−480.240	809.711	45.065	−0.420
	5700.00	39.912	270.704	238.299	1035.739	184.713	−507.276	810.131	31.407	−0.288
	5800.00	40.210	271.401	238.863	1039.745	188.719	−534.381	810.581	17.742	−0.160
	5900.00	40.497	272.091	239.421	1043.781	192.755	−561.556	811.060	4.068	−0.036
	6000.00	40.775	272.774	239.971	1047.844	196.818	−588.799	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Ja1,Hu1	Hu1

263.754 TUNGSTEN BROMIDE (GAS) **WBr[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	36.033	272.488	272.488	586.178	0.000	504.936	586.178	537.364	−94.144
	300.00	36.049	272.711	272.488	586.245	0.067	504.431	586.130	537.061	−93.511
	400.00	36.683	283.179	273.911	589.885	3.707	476.613	570.064	523.971	−68.424
	500.00	37.013	291.403	276.617	593.571	7.393	447.870	569.389	512.525	−53.543
	600.00	37.214	298.170	279.662	597.283	11.105	418.381	568.684	501.218	−43.635
	700.00	37.362	303.918	282.727	601.012	14.834	388.269	567.945	490.032	−36.567
	800.00	37.494	308.916	285.695	604.755	18.577	357.622	567.169	478.954	−31.272
	900.00	37.626	313.340	288.525	608.511	22.333	326.505	566.358	467.975	−27.161
	1000.00	37.767	317.311	291.209	612.281	26.103	294.969	565.511	457.089	−23.876
	1100.00	37.918	320.918	293.748	616.065	29.887	263.055	564.629	446.289	−21.192
	1200.00	38.082	324.224	296.152	619.865	33.687	230.796	563.715	435.571	−18.960
	1300.00	38.256	327.279	298.430	623.682	37.504	198.219	562.769	424.930	−17.074
	1400.00	38.440	330.121	300.594	627.516	41.338	165.347	561.792	414.364	−15.460
	1500.00	38.629	332.779	302.652	631.370	45.192	132.200	560.784	403.868	−14.064
	1600.00	38.822	335.279	304.614	635.242	49.064	98.796	559.746	393.441	−12.845
	1700.00	39.016	337.638	306.487	639.134	52.956	65.149	558.677	383.080	−11.771
	1800.00	39.206	339.874	308.281	643.045	56.867	31.273	557.579	372.782	−10.818
	1900.00	39.390	341.998	310.000	646.975	60.797	−2.822	556.447	362.546	−9.967
	2000.00	39.564	344.023	311.651	650.923	64.745	−37.124	555.277	352.371	−9.203

References

Phase	H / S	C_p
GAS	Ja1	Ja1

WBr5 TUNGSTEN PENTABROMIDE 583.370

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[	kJ / mol	]			[−]
SOL	298.15	155.468	271.960	271.960	−311.708	0.000	−392.793	−311.708	−269.602	47.233
	300.00	155.653	272.922	271.963	−311.420	0.288	−393.297	−311.815	−269.340	46.896
	400.00	165.687	319.075	278.188	−295.353	16.355	−422.983	−384.419	−239.993	31.340
	500.00	175.728	357.125	290.275	−278.283	33.425	−456.845	−379.093	−204.484	21.362
	559.00	181.653	377.051	298.396	−267.740	43.968	−478.511	−375.533	−184.079	17.201
			30.687		17.154					
LIQ	559.00	182.004	407.737	298.396	−250.586	61.122	−478.511	−358.379	−184.079	17.201
	600.00	182.004	420.620	306.313	−243.124	68.584	−495.496	−355.788	−171.388	14.921
	633.00	182.004	430.364	312.528	−237.118	74.590	−509.538	−353.713	−161.302	13.311

References

Phase	H / S	C_p	Remarks
SOL	Ja1	Ja1	
LIQ	Ja1	Ja1	Ja1 BPT= 633.0, L= 81.50 kJ

WBr5[g] TUNGSTEN PENTABROMIDE (GAS) 583.370

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[	kJ / mol	]			[−]
GAS	298.15	127.212	461.605	461.605	−199.158	0.000	−336.785	−199.158	−213.594	37.421
	300.00	127.277	462.392	461.607	−198.923	0.235	−337.640	−199.317	−213.684	37.206
	400.00	129.694	499.382	466.634	−186.059	13.099	−385.812	−275.124	−202.821	26.486
	500.00	130.881	528.464	476.196	−173.024	26.134	−437.256	−273.834	−184.895	19.316
	600.00	131.529	552.390	486.960	−159.900	39.258	−491.334	−272.564	−167.226	14.558
	700.00	131.916	572.696	497.794	−146.726	52.432	−547.614	−271.330	−149.768	11.176
	800.00	132.171	590.329	508.283	−133.521	65.637	−605.784	−270.138	−132.484	8.650
	900.00	132.357	605.908	518.281	−120.294	78.864	−665.611	−268.994	−115.347	6.695
	1000.00	132.509	619.861	527.754	−107.051	92.107	−726.912	−267.898	−98.334	5.136
	1100.00	132.648	632.497	536.711	−93.793	105.365	−789.540	−266.852	−81.429	3.867
	1200.00	132.785	644.045	545.181	−80.521	118.637	−853.375	−265.853	−64.617	2.813
	1300.00	132.927	654.679	553.200	−67.236	131.922	−918.318	−264.902	−47.886	1.924
	1400.00	133.079	664.535	560.805	−53.936	145.222	−984.285	−263.997	−31.226	1.165
	1500.00	133.244	673.722	568.030	−40.620	158.538	−1051.203	−263.136	−14.630	0.509
	1600.00	133.423	682.327	574.907	−27.286	171.872	−1119.010	−262.318	1.910	−0.062
	1700.00	133.616	690.422	581.467	−13.935	185.223	−1187.651	−261.543	18.400	−0.565
	1800.00	133.825	698.065	587.734	−0.563	198.595	−1257.079	−260.806	34.846	−1.011
	1900.00	134.048	705.306	593.733	12.831	211.989	−1327.251	−260.111	51.252	−1.409
	2000.00	134.286	712.188	599.485	26.247	225.405	−1398.128	−259.457	67.622	−1.766

References

Phase	H / S	C_p
GAS	Ja1	Ja1

663.274 TUNGSTEN HEXABROMIDE **WBr6**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	181.393	313.800	313.800	−343.088	0.000	−436.647	−343.088	−290.766	50.941
	300.00	181.594	314.923	313.803	−342.752	0.336	−437.229	−343.217	−290.441	50.570
	400.00	192.465	368.653	321.056	−324.049	19.039	−471.510	−430.426	−254.611	33.249
	500.00	203.342	412.768	335.110	−304.259	38.829	−510.643	−424.227	−211.356	22.080
	582.00	212.263	444.308	348.314	−287.219	55.869	−545.807	−418.424	−176.888	15.876

References

Phase	H / S	C_p	Remarks
SOL	Ja1	Ja1	Ja1 subl., MPT= 582. (p= 50 atm)

663.274 TUNGSTEN HEXABROMIDE (GAS) **WBr6**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	151.367	482.525	482.525	−243.090	0.000	−386.955	−243.090	−241.073	42.235
	300.00	151.445	483.461	482.527	−242.810	0.280	−387.848	−243.275	−241.060	41.972
	400.00	154.217	527.463	488.508	−227.508	15.582	−438.493	−333.884	−221.594	28.937
	500.00	155.541	562.034	499.880	−212.013	31.077	−493.030	−331.981	−193.742	20.240
	600.00	156.273	590.463	512.678	−196.419	46.671	−550.697	−330.100	−166.272	14.475
	700.00	156.719	614.589	525.557	−180.768	62.322	−610.980	−328.255	−139.114	10.381
	800.00	157.011	635.536	538.024	−165.080	78.010	−673.509	−326.455	−112.217	7.327
	900.00	157.212	654.041	549.906	−149.368	93.722	−738.006	−324.704	−85.543	4.965
	1000.00	157.357	670.613	561.163	−133.640	109.450	−804.253	−323.006	−59.061	3.085
	1100.00	157.464	685.616	571.806	−117.898	125.192	−872.076	−321.363	−32.746	1.555
	1200.00	157.545	699.321	581.869	−102.148	140.942	−941.333	−319.775	−6.579	0.286
	1300.00	157.608	711.934	591.395	−86.390	156.700	−1011.904	−318.244	19.458	−0.782
	1400.00	157.658	723.616	600.428	−70.627	172.463	−1083.689	−316.772	45.380	−1.693
	1500.00	157.698	734.495	609.007	−54.859	188.231	−1156.601	−315.358	71.198	−2.479
	1600.00	157.731	744.673	617.172	−39.087	204.003	−1230.564	−314.003	96.924	−3.164
	1700.00	157.758	754.237	624.956	−23.313	219.777	−1305.515	−312.709	122.567	−3.766
	1800.00	157.780	763.254	632.391	−7.536	235.554	−1381.394	−311.473	148.135	−4.299
	1900.00	157.799	771.786	639.505	8.243	251.333	−1458.149	−310.301	173.637	−4.774
	2000.00	157.815	779.880	646.323	24.024	267.114	−1535.736	−309.195	199.078	−5.199
	2100.00	157.828	787.580	652.868	39.806	282.896	−1614.112	−308.151	224.466	−5.583
	2200.00	157.840	794.923	659.159	55.590	298.680	−1693.240	−307.165	249.806	−5.931
	2300.00	157.850	801.939	665.216	71.374	314.464	−1773.086	−306.235	275.101	−6.248
	2400.00	157.858	808.657	671.053	87.160	330.250	−1853.618	−305.363	300.358	−6.537
	2500.00	157.866	815.102	676.687	102.946	346.036	−1934.808	−304.559	325.580	−6.803

References

Phase	H / S	C_p
GAS	Ja1	Ja1

WC TUNGSTEN CARBIDE 195.861

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	35.378	32.384	32.384	−40.166	0.000	−49.821	−40.166	−38.372	6.723
	300.00	35.521	32.603	32.385	−40.100	0.066	−49.881	−40.161	−38.361	6.679
	400.00	40.843	43.645	33.854	−36.250	3.916	−53.708	−39.813	−37.810	4.937
	500.00	43.711	53.093	36.782	−32.010	8.156	−58.557	−39.419	−37.355	3.902
	600.00	45.601	61.240	40.195	−27.539	12.627	−64.283	−39.086	−36.975	3.219
	700.00	47.019	68.380	43.722	−22.905	17.261	−70.771	−38.831	−36.644	2.734
	800.00	48.175	74.736	47.209	−18.144	22.022	−77.933	−38.638	−36.346	2.373
	900.00	49.170	80.469	50.591	−13.276	26.890	−85.698	−38.492	−36.068	2.093
	1000.00	50.059	85.696	53.844	−8.314	31.852	−94.010	−38.383	−35.805	1.870
	1100.00	50.870	90.506	56.961	−3.267	36.899	−102.823	−38.304	−35.551	1.688
	1200.00	51.621	94.965	59.944	1.858	42.024	−112.099	−38.249	−35.304	1.537
	1300.00	52.325	99.125	62.800	7.056	47.222	−121.806	−38.213	−35.060	1.409
	1400.00	52.989	103.027	65.536	12.322	52.488	−131.916	−38.192	−34.818	1.299
	1500.00	53.618	106.705	68.159	17.653	57.819	−142.404	−38.183	−34.578	1.204
	1600.00	54.215	110.184	70.678	23.045	63.211	−153.250	−38.185	−34.337	1.121
	1700.00	54.784	113.488	73.099	28.495	68.661	−164.435	−38.196	−34.096	1.048
	1800.00	55.325	116.635	75.431	34.001	74.167	−175.942	−38.213	−33.855	0.982
	1900.00	55.840	119.640	77.680	39.559	79.725	−187.757	−38.242	−33.612	0.924
	2000.00	56.331	122.517	79.850	45.168	85.334	−199.866	−38.286	−33.367	0.871
	2100.00	56.797	125.277	81.948	50.824	90.990	−212.257	−38.343	−33.120	0.824
	2200.00	57.241	127.929	83.978	56.526	96.692	−224.918	−38.409	−32.870	0.780
	2300.00	57.661	130.483	85.945	62.272	102.438	−237.839	−38.484	−32.616	0.741
	2400.00	58.059	132.946	87.852	68.058	108.224	−251.012	−38.571	−32.359	0.704
	2500.00	58.435	135.323	89.704	73.883	114.049	−264.426	−38.681	−32.098	0.671

References

Phase	H / S	C_p	Remarks
SOL	Hu1,A1	A1	Hu1 MPT= 3049. (peritec.)

379.711 DITUNGSTEN CARBIDE **W2C**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	76.611	56.066	56.066	−26.359	0.000	−43.075	−26.359	−21.888	3.835
	300.00	76.832	56.540	56.067	−26.217	0.142	−43.179	−26.323	−21.860	3.806
	400.00	84.998	79.908	59.198	−18.075	8.284	−50.038	−24.148	−20.691	2.702
	500.00	89.362	99.384	65.343	−9.339	17.020	−59.031	−21.773	−20.100	2.100
	600.00	92.229	115.945	72.432	−0.251	26.108	−69.818	−19.381	−19.990	1.740
	700.00	94.390	130.330	79.698	9.084	35.443	−82.147	−17.025	−20.279	1.513
	800.00	96.174	143.054	86.837	18.614	44.973	−95.829	−14.708	−20.902	1.365
	900.00	97.740	154.474	93.729	28.312	54.671	−110.715	−12.421	−21.814	1.266
	1000.00	99.169	164.847	100.330	38.158	64.517	−126.689	−10.162	−22.979	1.200
	1100.00	100.510	174.362	106.633	48.143	74.502	−143.656	−7.925	−24.369	1.157
	1200.00	101.790	183.163	112.649	58.258	84.617	−161.537	−5.704	−25.962	1.130
	1300.00	103.027	191.359	118.392	68.499	94.858	−180.268	−3.495	−27.740	1.115
	1400.00	104.234	199.039	123.881	78.862	105.221	−199.792	−1.293	−29.688	1.108
	1500.00	105.417	206.271	129.135	89.345	115.704	−220.061	0.906	−31.793	1.107
	1600.00	106.583	213.111	134.171	99.945	126.304	−241.033	3.103	−34.044	1.111
	1700.00	107.736	219.608	139.008	110.661	137.020	−262.672	5.301	−36.433	1.119
	1800.00	108.879	225.798	143.659	121.492	147.851	−284.944	7.507	−38.952	1.130
	1900.00	110.012	231.715	148.139	132.437	158.796	−307.822	9.710	−41.593	1.143
	2000.00	111.140	237.387	152.460	143.494	169.853	−331.279	11.909	−44.350	1.158
	2100.00	112.261	242.837	156.635	154.664	181.023	−355.292	14.112	−47.217	1.174
	2200.00	113.378	248.085	160.673	165.946	192.305	−379.840	16.328	−50.190	1.192
	2300.00	114.492	253.149	164.584	177.340	203.699	−404.903	18.561	−53.263	1.210
	2400.00	115.602	258.045	168.377	188.845	215.204	−430.464	20.806	−56.434	1.228
	2500.00	116.710	262.787	172.059	200.460	226.819	−456.507	23.047	−59.698	1.247
	2600.00	117.815	267.386	175.638	212.187	238.546	−483.017	25.260	−63.052	1.267
	2700.00	118.919	271.853	179.119	224.023	250.382	−509.980	27.408	−66.490	1.286
	2800.00	120.021	276.198	182.509	235.970	262.329	−537.383	29.446	−70.005	1.306
	2900.00	121.121	280.429	185.813	248.027	274.386	−565.216	31.318	−73.590	1.326
	3000.00	122.220	284.553	189.036	260.194	286.553	−593.466	32.959	−77.237	1.345
	3068.00	122.967	287.301	191.183	268.531	294.890	−612.909	33.906	−79.745	1.358

References

Phase	H / S	C_p
SOL	Sh1	Sh1

351.912 TUNGSTEN HEXACARBONYL **W(CO)6**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		J / (K mol)			kJ / mol					[−]
SOL	298.15	241.417	332.210	332.210	−951.860	0.000	−1050.908	−951.860	−847.408	148.462
	300.00	241.881	333.704	332.214	−951.413	0.447	−1051.524	−951.716	−846.760	147.434
	400.00	266.985	406.727	342.001	−925.970	25.890	−1088.661	−943.873	−812.950	106.160

References

Phase	H / S	C_p
SOL	Tk1	Tk1,e

W(CO)6[g] TUNGSTEN HEXACARBONYL (GAS) 351.912

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	208.781	501.350	501.350	−875.040	0.000	−1024.518	−875.040	−821.017	143.839
	300.00	209.467	502.644	501.354	−874.653	0.387	−1025.446	−874.956	−820.682	142.893
	400.00	235.173	566.859	509.935	−852.270	22.770	−1079.014	−870.174	−803.303	104.901
	500.00	249.536	621.001	526.882	−827.981	47.059	−1138.481	−865.562	−787.130	82.231
	600.00	259.434	667.416	546.529	−802.508	72.532	−1202.957	−861.608	−771.827	67.194
	700.00	267.224	708.012	566.758	−776.163	98.877	−1271.771	−858.296	−757.133	56.498
	800.00	273.891	744.139	586.714	−749.100	125.940	−1344.411	−855.433	−742.881	48.505
	900.00	279.904	776.751	606.046	−721.406	153.634	−1420.482	−852.840	−728.970	42.308
	1000.00	285.512	806.535	624.627	−693.132	181.908	−1499.667	−850.402	−715.338	37.365
	1100.00	290.854	833.999	642.429	−664.312	210.728	−1581.711	−848.023	−701.947	33.333
	1200.00	296.016	859.529	659.469	−634.968	240.072	−1666.403	−845.623	−688.773	29.982
	1300.00	301.051	883.423	675.787	−605.113	269.927	−1753.563	−843.137	−675.803	27.154
	1400.00	305.994	905.914	691.429	−574.760	300.280	−1843.040	−840.515	−663.028	24.738
	1500.00	310.868	927.192	706.443	−543.917	331.123	−1934.705	−837.714	−650.447	22.651
	1600.00	315.691	947.409	720.877	−512.588	362.452	−2028.444	−834.700	−638.060	20.831
	1700.00	320.473	966.692	734.774	−480.780	394.260	−2124.156	−831.448	−625.868	19.231
	1800.00	325.224	985.144	748.175	−448.495	426.545	−2221.754	−827.936	−613.875	17.814
	1900.00	329.950	1002.855	761.116	−415.736	459.304	−2321.160	−824.156	−602.085	16.552
	2000.00	334.656	1019.899	773.632	−382.506	492.534	−2422.303	−820.102	−590.500	15.422

References

Phase	H / S	C_p
GAS	Tk1	e

219.303 TUNGSTEN CHLORIDE (GAS) **WCl[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	34.879	262.028	262.028	553.543	0.000	475.419	553.543	518.418	−90.825
	300.00	34.904	262.244	262.028	553.608	0.065	474.934	553.531	518.200	−90.227
	400.00	35.856	272.432	263.411	557.151	3.608	448.179	552.876	506.521	−66.145
	500.00	36.382	280.494	266.049	560.765	7.222	420.518	552.190	495.011	−51.713
	600.00	36.740	287.160	269.028	564.422	10.879	392.126	551.471	483.642	−42.105
	700.00	37.019	292.846	272.035	568.111	14.568	363.119	550.721	472.396	−35.251
	800.00	37.255	297.804	274.952	571.825	18.282	333.581	549.938	461.260	−30.117
	900.00	37.468	302.205	277.741	575.561	22.018	303.576	549.122	450.224	−26.130
	1000.00	37.664	306.163	280.388	579.318	25.775	273.155	548.274	439.281	−22.946
	1100.00	37.851	309.761	282.897	583.093	29.550	242.356	547.394	428.424	−20.344
	1200.00	38.031	313.063	285.276	586.888	33.345	211.212	546.482	417.648	−18.180
	1300.00	38.207	316.114	287.532	590.700	37.157	179.752	545.537	406.950	−16.351
	1400.00	38.379	318.952	289.676	594.529	40.986	147.997	544.560	396.326	−14.787
	1500.00	38.548	321.605	291.717	598.375	44.832	115.967	543.549	385.773	−13.434
	1600.00	38.715	324.098	293.664	602.238	48.695	83.681	542.505	375.289	−12.252
	1700.00	38.881	326.450	295.524	606.118	52.575	51.152	541.426	364.871	−11.211
	1800.00	39.046	328.677	297.304	610.015	56.472	18.395	540.315	354.517	−10.288
	1900.00	39.210	330.793	299.012	613.927	60.384	−14.579	539.166	344.226	−9.463
	2000.00	39.372	332.808	300.652	617.856	64.313	−47.760	537.977	333.997	−8.723
	2100.00	39.535	334.733	302.229	621.802	68.259	−81.138	536.752	323.827	−8.055
	2200.00	39.697	336.576	303.749	625.763	72.220	−114.704	535.495	313.718	−7.449
	2300.00	39.858	338.344	305.215	629.741	76.198	−148.451	534.208	303.665	−6.896
	2400.00	40.019	340.044	306.631	633.735	80.192	−182.371	532.888	293.670	−6.392
	2500.00	40.180	341.681	308.000	637.745	84.202	−216.457	531.526	283.730	−5.928
	2600.00	40.341	343.260	309.326	641.771	88.228	−250.705	530.109	273.846	−5.502
	2700.00	40.501	344.785	310.611	645.813	92.270	−285.108	528.621	264.018	−5.108
	2800.00	40.661	346.261	311.858	649.871	96.328	−319.660	527.036	254.247	−4.743
	2900.00	40.821	347.691	313.069	653.945	100.402	−354.358	525.328	244.534	−4.405
	3000.00	40.981	349.077	314.247	658.035	104.492	−389.197	523.464	234.883	−4.090

References

Phase	H / S	C_p
GAS	Ja1	Ja1

WCl2 TUNGSTEN DICHLORIDE 254.755

Phase	T [K]	C_p J / (K mol)	S J / (K mol)	−(G−H298)/T J / (K mol)	H kJ / mol	H−H298 kJ / mol	G kJ / mol	ΔH_f kJ / mol	ΔG_f kJ / mol	log K_f [−]
SOL	298.15	77.823	130.541	130.541	−257.316	0.000	−296.237	−257.316	−219.977	38.539
	300.00	77.863	131.022	130.542	−257.172	0.144	−296.479	−257.280	−219.745	38.261
	400.00	80.049	153.721	133.622	−249.276	8.040	−310.765	−255.316	−207.529	27.101
	500.00	82.238	171.819	139.511	−241.162	16.154	−327.072	−253.288	−195.815	20.457
	600.00	84.427	187.006	146.194	−232.829	24.487	−345.033	−251.148	−184.519	16.064
	700.00	86.617	200.185	152.986	−224.277	33.039	−364.406	−248.873	−173.592	12.954
	800.00	88.807	211.894	159.631	−215.505	41.811	−385.021	−246.452	−163.001	10.643
	862.00	90.165	218.573	163.633	−209.957	47.359	−398.367	−244.873	−156.593	9.489

References

Phase	H / S	C_p	Remarks
SOL	Ja1	Ja1	Ja1 NDPT= 862.

WCl2[g] TUNGSTEN DICHLORIDE (GAS) 254.755

Phase	T [K]	C_p J / (K mol)	S J / (K mol)	−(G−H298)/T J / (K mol)	H kJ / mol	H−H298 kJ / mol	G kJ / mol	ΔH_f kJ / mol	ΔG_f kJ / mol	log K_f [−]
GAS	298.15	58.389	309.725	309.725	−12.552	0.000	−104.897	−12.552	−28.637	5.017
	300.00	58.411	310.087	309.727	−12.444	0.108	−105.470	−12.552	−28.737	5.003
	400.00	59.346	327.029	312.030	−6.553	5.999	−137.364	−12.593	−34.128	4.457
	500.00	60.021	340.346	316.409	−0.583	11.969	−170.756	−12.709	−39.500	4.126
	600.00	60.593	351.341	321.341	5.448	18.000	−205.357	−12.871	−44.843	3.904
	700.00	61.117	360.721	326.313	11.534	24.086	−240.971	−13.062	−50.157	3.743
	800.00	61.615	368.915	331.137	17.671	30.223	−277.461	−13.275	−55.442	3.620
	900.00	62.099	376.200	335.746	23.857	36.409	−314.724	−13.504	−60.699	3.523
	1000.00	62.573	382.768	340.126	30.090	42.642	−352.678	−13.746	−65.930	3.444
	1100.00	63.040	388.754	344.278	36.371	48.923	−391.258	−13.998	−71.137	3.378
	1200.00	63.504	394.259	348.217	42.698	55.250	−430.412	−14.259	−76.320	3.322
	1300.00	63.965	399.360	351.957	49.072	61.624	−470.096	−14.529	−81.480	3.274
	1400.00	64.424	404.117	355.515	55.491	68.043	−510.273	−14.806	−86.620	3.232
	1500.00	64.881	408.577	358.905	61.956	74.508	−550.910	−15.092	−91.740	3.195
	1600.00	65.337	412.779	362.142	68.467	81.019	−591.980	−15.387	−96.840	3.162
	1700.00	65.792	416.754	365.239	75.024	87.576	−633.458	−15.691	−101.922	3.132
	1800.00	66.246	420.527	368.207	81.626	94.178	−675.324	−16.001	−106.985	3.105
	1900.00	66.700	424.121	371.056	88.273	100.825	−717.558	−16.325	−112.031	3.080
	2000.00	67.153	427.554	373.795	94.966	107.518	−760.143	−16.663	−117.060	3.057
	2100.00	67.606	430.842	376.434	101.704	114.256	−803.064	−17.011	−122.071	3.036
	2200.00	68.059	433.997	378.979	108.487	121.039	−846.307	−17.366	−127.065	3.017
	2273.00	68.389	436.224	380.782	113.467	126.019	−878.070	−17.629	−130.701	3.004

References

Phase	H / S	C_p
GAS	Ja1	Ja1

325.661 TUNGSTEN TETRACHLORIDE **WCl4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	129.534	198.322	198.322	−443.086	0.000	−502.216	−443.086	−359.433	62.971
	300.00	129.639	199.123	198.324	−442.846	0.240	−502.583	−443.017	−358.915	62.493
	400.00	135.485	237.214	203.478	−429.592	13.494	−524.477	−439.162	−331.454	43.284
	500.00	141.301	268.075	213.405	−415.751	27.335	−549.788	−434.977	−305.004	31.864
	600.00	146.880	294.335	224.757	−401.339	41.747	−577.940	−430.394	−279.433	24.327
	700.00	152.151	317.377	236.375	−386.385	56.701	−608.549	−425.394	−254.662	19.003
	800.00	157.083	338.019	247.812	−370.920	72.166	−641.336	−419.985	−230.636	15.059

References

Phase	H / S	C_p	Remarks
SOL	Ja1	Ja1	Ja1 NDPT= 771. 3 WCl4 = WCl2 + 2WCl

325.661 TUNGSTEN TETRACHLORIDE (GAS) **WCl4[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	98.813	379.180	379.180	−335.975	0.000	−449.027	−335.975	−306.245	53.653
	300.00	98.921	379.791	379.182	−335.792	0.183	−449.730	−335.963	−306.061	53.290
	400.00	102.742	408.850	383.118	−325.682	10.293	−489.222	−335.252	−296.199	38.680
	500.00	104.536	431.991	390.658	−315.308	20.667	−531.304	−334.535	−286.520	29.932
	600.00	105.531	451.146	399.189	−304.801	31.174	−575.488	−333.856	−276.981	24.113
	700.00	106.149	467.463	407.806	−294.215	41.760	−621.439	−333.224	−267.553	19.965
	800.00	106.566	481.666	416.170	−283.578	52.397	−668.911	−332.642	−258.211	16.859
	900.00	106.867	494.236	424.159	−272.905	63.070	−717.718	−332.110	−248.940	14.448
	1000.00	107.095	505.508	431.740	−262.206	73.769	−767.715	−331.627	−239.725	12.522
	1100.00	107.276	515.724	438.918	−251.488	84.487	−818.784	−331.195	−230.556	10.948
	1200.00	107.425	525.065	445.713	−240.752	95.223	−870.831	−330.812	−221.425	9.638
	1300.00	107.550	533.669	452.152	−230.003	105.972	−923.773	−330.479	−212.323	8.531
	1400.00	107.660	541.643	458.263	−219.243	116.732	−977.543	−330.197	−203.245	7.583
	1500.00	107.757	549.074	464.072	−208.472	127.503	−1032.084	−329.966	−194.185	6.762
	1600.00	107.845	556.032	469.605	−197.692	138.283	−1087.343	−329.787	−185.139	6.044
	1700.00	107.925	562.572	474.883	−186.903	149.072	−1143.276	−329.662	−176.103	5.411
	1800.00	108.000	568.743	479.928	−176.107	159.868	−1199.845	−329.589	−167.072	4.848
	1900.00	108.071	574.584	484.757	−165.303	170.672	−1257.014	−329.573	−158.044	4.345
	2000.00	108.138	580.129	489.388	−154.493	181.482	−1314.752	−329.618	−149.015	3.892

References

Phase	H / S	C_p
GAS	Ja1	Ja1

WCl5 TUNGSTEN PENTACHLORIDE 361.113

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	155.645	217.568	217.568	-512.958	0.000	-577.826	-512.958	-401.783	70.391
	300.00	155.868	218.531	217.571	-512.670	0.288	-578.229	-512.872	-401.093	69.837
	400.00	167.542	264.985	223.826	-496.494	16.464	-602.488	-507.830	-364.572	47.608
	500.00	178.849	303.589	236.020	-479.173	33.785	-630.968	-501.950	-329.420	34.414
	526.00	181.761	312.729	239.587	-474.485	38.473	-638.981	-500.274	-320.491	31.826
			39.112		20.573					
LIQ	526.00	182.004	351.841	239.587	-453.912	59.046	-638.981	-479.701	-320.491	31.826
	560.90	182.004	363.533	246.939	-447.560	65.398	-651.466	-477.410	-310.002	28.869

References

Phase	H / S	C_p	Remarks
SOL	Ja1	Ja1	
LIQ	Ja1	Ja1	Ja1 BPT= 560.9, L= 68.057 kJ

WCl5[g] TUNGSTEN PENTACHLORIDE (GAS) 361.113

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	120.230	405.539	405.539	-412.542	0.000	-533.453	-412.542	-357.410	62.617
	300.00	120.366	406.283	405.541	-412.319	0.223	-534.204	-412.521	-357.068	62.171
	400.00	125.450	441.698	410.335	-399.997	12.545	-576.676	-411.332	-338.760	44.237
	500.00	128.011	469.995	419.533	-387.311	25.231	-622.309	-410.088	-320.761	33.510
	600.00	129.471	493.475	429.956	-374.431	38.111	-670.516	-408.854	-303.011	26.379
	700.00	130.381	513.506	440.496	-361.435	51.107	-720.889	-407.651	-285.467	21.302
	800.00	130.993	530.959	450.736	-348.364	64.178	-773.131	-406.488	-268.092	17.505
	900.00	131.430	546.414	460.525	-335.242	77.300	-827.015	-405.368	-250.860	14.560
	1000.00	131.764	560.280	469.819	-322.082	90.460	-882.361	-404.295	-233.750	12.210
	1100.00	132.035	572.851	478.623	-308.891	103.651	-939.027	-403.268	-216.746	10.292
	1200.00	132.268	584.350	486.961	-295.676	116.866	-996.896	-402.287	-199.833	8.699
	1300.00	132.482	594.945	494.866	-282.438	130.104	-1055.867	-401.352	-183.000	7.353
	1400.00	132.687	604.771	502.369	-269.180	143.362	-1115.859	-400.462	-166.237	6.202
	1500.00	132.892	613.932	509.505	-255.901	156.641	-1176.799	-399.618	-149.537	5.207
	1600.00	133.105	622.516	516.303	-242.601	169.941	-1238.626	-398.817	-132.891	4.338
	1700.00	133.330	630.592	522.790	-229.279	183.263	-1301.286	-398.061	-116.294	3.573
	1800.00	133.572	638.220	528.993	-215.934	196.608	-1364.730	-397.344	-99.740	2.894
	1900.00	133.833	645.448	534.934	-202.564	209.978	-1428.916	-396.671	-83.225	2.288
	2000.00	134.118	652.320	540.633	-189.167	223.375	-1493.807	-396.041	-66.745	1.743

References

Phase	H / S	C_p
GAS	Ja1	Ja1

396.566 TUNGSTEN HEXACHLORIDE **WCl6**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
S.-A1	298.15	175.430	238.488	238.488	-593.710	0.000	-664.815	-593.710	-455.511	79.804
	300.00	175.739	239.574	238.491	-593.385	0.325	-665.257	-593.619	-454.654	79.162
	400.00	192.462	292.421	245.584	-574.975	18.735	-691.944	-588.075	-409.134	53.427
	450.00	200.824	315.573	252.091	-565.143	28.567	-707.151	-584.821	-386.958	44.917
			9.298		4.184					
S.-A2	450.00	209.200	324.871	252.091	-560.959	32.751	-707.151	-580.637	-386.958	44.917
	500.00	209.200	346.912	260.490	-550.499	43.211	-723.955	-576.826	-365.643	38.198
	503.00	209.200	348.164	261.009	-549.871	43.839	-724.998	-576.600	-364.377	37.839
			31.360		15.774					
SOL-B	503.00	188.280	379.523	261.009	-534.097	59.613	-724.998	-560.826	-364.377	37.839
	555.00	188.280	398.046	272.995	-524.307	69.403	-745.222	-558.015	-344.209	32.396
			12.061		6.694					
LIQ	555.00	200.832	410.107	272.995	-517.613	76.097	-745.222	-551.321	-344.209	32.396
	600.00	200.832	425.765	283.873	-508.575	85.135	-764.034	-548.366	-327.533	28.514
	612.90	200.832	430.037	286.905	-505.985	87.725	-769.554	-547.526	-322.794	27.510

References

Phase	H / S	C_p	Remarks	
S.-A1	Ja1	Ja1		
S.-A2	Ja1	Ja1		
SOL-B	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	BPT= 612.9, L= 59.911 kJ

WCl6[g] TUNGSTEN HEXACHLORIDE (GAS) 396.566

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	143.938	419.346	419.346	−493.712	0.000	−618.740	−493.712	−409.436	71.731
	300.00	144.092	420.237	419.349	−493.446	0.266	−619.517	−493.679	−408.913	71.198
	400.00	149.769	462.572	425.082	−478.716	14.996	−663.745	−491.816	−380.935	49.745
	500.00	152.583	496.327	436.071	−463.584	30.128	−711.747	−489.911	−353.436	36.923
	600.00	154.173	524.299	448.511	−448.239	45.473	−762.819	−488.030	−326.318	28.408
	700.00	155.157	548.145	461.084	−432.769	60.943	−816.470	−486.191	−299.512	22.350
	800.00	155.806	568.908	473.292	−417.219	76.493	−872.345	−484.401	−272.966	17.823
	900.00	156.256	587.287	484.956	−401.615	92.097	−930.173	−482.663	−246.641	14.315
	1000.00	156.580	603.768	496.028	−385.972	107.740	−989.740	−480.978	−220.508	11.518
	1100.00	156.822	618.703	506.512	−370.301	123.411	−1050.875	−479.347	−194.540	9.238
	1200.00	157.005	632.357	516.438	−354.610	139.102	−1113.438	−477.772	−168.718	7.344
	1300.00	157.148	644.930	525.845	−338.902	154.810	−1177.310	−476.253	−143.026	5.747
	1400.00	157.262	656.580	534.772	−323.181	170.531	−1242.393	−474.792	−117.448	4.382
	1500.00	157.352	667.433	543.259	−307.450	186.262	−1308.600	−473.390	−91.973	3.203
	1600.00	157.426	677.591	551.340	−291.711	202.001	−1375.856	−472.048	−66.589	2.174
	1700.00	157.487	687.137	559.050	−275.965	217.747	−1444.098	−470.769	−41.288	1.269
	1800.00	157.538	696.140	566.419	−260.214	233.498	−1513.266	−469.550	−16.060	0.466
	1900.00	157.580	704.659	573.472	−244.458	249.254	−1583.310	−468.400	9.103	−0.250
	2000.00	157.615	712.743	580.236	−228.698	265.014	−1654.183	−467.321	34.206	−0.893

References

Phase	H / S	C_p
GAS	Ja1	Ja1

722.227 DITUNGSTEN DECACHLORIDE (GAS) **W2Cl10**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	263.459	711.389	711.389	−868.598	0.000	−1080.699	−868.598	−728.612	127.650
	300.00	263.662	713.020	711.394	−868.110	0.488	−1082.016	−868.514	−727.744	126.711
	400.00	271.256	790.046	721.845	−841.318	27.280	−1157.336	−863.988	−681.503	88.995
	500.00	275.112	851.032	741.796	−813.980	54.618	−1239.496	−859.534	−636.400	66.484
	600.00	277.319	901.403	764.321	−786.349	82.249	−1327.191	−855.195	−592.182	51.554
	700.00	278.696	944.263	787.042	−758.543	110.055	−1419.527	−850.975	−548.682	40.943
	800.00	279.609	981.541	809.075	−730.625	137.973	−1515.858	−846.872	−505.779	33.024
	900.00	280.245	1014.513	830.105	−702.631	165.967	−1615.693	−842.884	−463.383	26.894
	1000.00	280.705	1044.065	850.049	−674.582	194.016	−1718.647	−839.009	−421.425	22.013
	1100.00	281.047	1070.836	868.923	−646.494	222.104	−1824.413	−835.247	−379.850	18.038
	1200.00	281.309	1095.302	886.783	−618.375	250.223	−1932.737	−831.597	−338.612	14.739
	1300.00	281.512	1117.827	903.701	−590.234	278.364	−2043.409	−828.061	−297.674	11.961
	1400.00	281.673	1138.695	919.750	−562.074	306.524	−2156.248	−824.639	−257.004	9.589
	1500.00	281.803	1158.133	935.001	−533.900	334.698	−2271.100	−821.334	−216.575	7.542
	1600.00	281.908	1176.324	949.522	−505.714	362.884	−2387.833	−818.147	−176.362	5.758
	1700.00	281.995	1193.417	963.371	−477.519	391.079	−2506.328	−815.082	−136.345	4.189
	1800.00	282.066	1209.538	976.603	−449.316	419.282	−2626.484	−812.134	−96.505	2.801
	1900.00	282.126	1224.790	989.268	−421.106	447.492	−2748.207	−809.319	−56.825	1.562
	2000.00	282.177	1239.262	1001.409	−392.891	475.707	−2871.416	−806.640	−17.290	0.452

References

Phase	H / S	C_p
GAS	Ja1	Ja1

WF[g] TUNGSTEN FLUORIDE (GAS) 202.848

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
GAS	298.15	32.382	250.731	250.731	386.183	0.000	311.428	386.183	351.397	−61.563
	300.00	32.431	250.931	250.732	386.243	0.060	310.964	386.169	351.181	−61.146
	400.00	34.211	260.538	252.029	389.586	3.403	285.371	385.440	339.629	−44.351
	500.00	35.141	268.281	254.531	393.058	6.875	258.918	384.716	328.260	−34.293
	600.00	35.736	274.744	257.376	396.604	10.421	231.758	383.967	317.039	−27.601
	700.00	36.172	280.286	260.262	400.200	14.017	204.000	383.188	305.945	−22.830
	800.00	36.524	285.140	263.075	403.835	17.652	175.723	382.375	294.965	−19.259
	900.00	36.827	289.460	265.771	407.503	21.320	146.989	381.530	284.090	−16.488
	1000.00	37.100	293.354	268.338	411.200	25.017	117.845	380.653	273.309	−14.276
	1100.00	37.353	296.902	270.776	414.923	28.740	88.330	379.743	262.619	−12.471
	1200.00	37.592	300.163	273.091	418.670	32.487	58.474	378.802	252.013	−10.970
	1300.00	37.822	303.181	275.291	422.441	36.258	28.305	377.829	241.486	−9.703
	1400.00	38.045	305.992	277.384	426.234	40.051	−2.155	376.825	231.035	−8.620
	1500.00	38.262	308.624	279.380	430.049	43.866	−32.887	375.790	220.658	−7.684
	1600.00	38.476	311.101	281.286	433.886	47.703	−63.875	374.722	210.350	−6.867
	1700.00	38.687	313.439	283.109	437.744	51.561	−95.103	373.623	200.111	−6.149
	1800.00	38.895	315.657	284.856	441.624	55.441	−126.558	372.493	189.936	−5.512
	1900.00	39.102	317.765	286.533	445.523	59.340	−158.230	371.328	179.826	−4.944
	2000.00	39.307	319.776	288.146	449.444	63.261	−190.108	370.127	169.778	−4.434

References

Phase	H / S	C_p
GAS	Ja1	Ja1

297.840 TUNGSTEN HEXAFLUORIDE (GAS) **WF6**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	119.032	341.122	341.122	−1721.716	0.000	−1823.422	−1721.716	−1632.294	285.971
	300.00	119.341	341.859	341.124	−1721.496	0.220	−1824.053	−1721.714	−1631.739	284.111
	400.00	132.427	378.145	345.983	−1708.851	12.865	−1860.109	−1721.176	−1601.808	209.175
	500.00	140.213	408.604	355.545	−1695.186	26.530	−1899.489	−1720.115	−1572.081	164.234
	600.00	145.022	434.626	366.611	−1680.907	40.809	−1941.682	−1718.812	−1542.594	134.295
	700.00	148.157	457.233	377.978	−1666.237	55.479	−1986.300	−1717.394	−1513.335	112.926
	800.00	150.301	477.165	389.155	−1651.308	70.408	−2033.040	−1715.928	−1484.284	96.914
	900.00	151.826	494.961	399.940	−1636.197	85.519	−2081.662	−1714.449	−1455.417	84.470
	1000.00	152.946	511.018	410.258	−1620.956	100.760	−2131.974	−1712.983	−1426.714	74.524
	1100.00	153.790	525.637	420.093	−1605.617	116.099	−2183.818	−1711.543	−1398.158	66.393
	1200.00	154.442	539.048	429.455	−1590.204	131.512	−2237.062	−1710.139	−1369.730	59.623
	1300.00	154.954	551.431	438.367	−1574.734	146.982	−2291.593	−1708.778	−1341.418	53.899
	1400.00	155.363	562.929	446.859	−1559.217	162.499	−2347.318	−1707.466	−1313.209	48.996
	1500.00	155.693	573.660	454.959	−1543.664	178.052	−2404.154	−1706.206	−1285.093	44.751
	1600.00	155.964	583.717	462.695	−1528.080	193.636	−2462.028	−1705.002	−1257.058	41.039
	1700.00	156.188	593.179	470.095	−1512.473	209.243	−2520.877	−1703.856	−1229.097	37.766
	1800.00	156.374	602.112	477.183	−1496.844	224.872	−2580.646	−1702.767	−1201.202	34.858
	1900.00	156.531	610.571	483.983	−1481.199	240.517	−2641.284	−1701.744	−1173.365	32.258
	2000.00	156.664	618.604	490.515	−1465.539	256.177	−2702.746	−1700.787	−1145.581	29.919

References

Phase	H / S	C_p	Remarks
GAS	Ja1	Ja1	Ja1 MPT= 275.2, L= 4.10 kJ / BPT= 290.0, L= 27.05 kJ

WO[g] TUNGSTEN OXIDE (GAS) 199.849

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	30.151	245.710	245.710	425.094	0.000	351.836	425.094	392.155	−68.704
	300.00	30.217	245.897	245.711	425.150	0.056	351.381	425.078	391.951	−68.245
	400.00	32.596	254.962	246.931	428.306	3.212	326.322	424.284	381.032	−49.758
	500.00	33.775	262.375	249.301	431.631	6.537	300.443	423.564	370.304	−38.685
	600.00	34.481	268.600	252.013	435.046	9.952	273.886	422.841	359.719	−31.316
	700.00	34.964	273.953	254.774	438.520	13.426	246.752	422.087	349.258	−26.062
	800.00	35.328	278.647	257.471	442.035	16.941	219.117	421.289	338.907	−22.128
	900.00	35.622	282.825	260.060	445.583	20.489	191.040	420.445	328.660	−19.075
	1000.00	35.874	286.592	262.528	449.158	24.064	162.566	419.556	318.509	−16.637
	1100.00	36.098	290.022	264.874	452.757	27.663	133.733	418.621	308.449	−14.647
	1200.00	36.302	293.172	267.102	456.377	31.283	104.571	417.642	298.476	−12.992
	1300.00	36.494	296.085	269.221	460.017	34.923	75.106	416.620	288.587	−11.596
	1400.00	36.675	298.796	271.238	463.675	38.581	45.361	415.556	278.778	−10.401
	1500.00	36.849	301.332	273.161	467.352	42.258	15.353	414.449	269.046	−9.369
	1600.00	37.018	303.716	274.997	471.045	45.951	−14.901	413.300	259.390	−8.468
	1700.00	37.182	305.965	276.753	474.755	49.661	−45.386	412.107	249.807	−7.676
	1800.00	37.343	308.095	278.435	478.481	53.387	−76.090	410.873	240.295	−6.973
	1900.00	37.502	310.118	280.050	482.224	57.130	−107.001	409.592	230.853	−6.347
	2000.00	37.658	312.046	281.602	485.982	60.888	−138.110	408.263	221.480	−5.784

References

Phase	H / S	C_p
GAS	Ja1	Ja1

215.849 TUNGSTEN DIOXIDE **WO2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	55.730	50.543	50.543	−589.693	0.000	−604.762	−589.693	−533.860	93.530
	300.00	55.907	50.888	50.544	−589.590	0.103	−604.856	−589.689	−533.514	92.893
	400.00	63.438	68.091	52.838	−583.592	6.101	−610.828	−589.127	−514.856	67.233
	500.00	68.139	82.790	57.396	−576.996	12.697	−618.391	−588.105	−496.400	51.859
	600.00	71.311	95.511	62.712	−570.014	19.679	−627.320	−586.841	−478.175	41.629
	700.00	73.636	106.686	68.212	−562.762	26.931	−637.442	−585.444	−460.173	34.338
	800.00	75.463	116.642	73.655	−555.303	34.390	−648.617	−583.967	−442.377	28.884
	900.00	76.980	125.620	78.938	−547.679	42.014	−660.738	−582.437	−424.769	24.653
	1000.00	78.236	133.801	84.022	−539.914	49.779	−673.715	−580.867	−407.335	21.277
	1100.00	79.020	141.296	88.893	−532.049	57.644	−687.475	−579.291	−390.058	18.522
	1200.00	79.860	148.206	93.551	−524.107	65.586	−701.954	−577.723	−372.924	16.233
	1300.00	81.099	154.643	98.006	−516.064	73.629	−717.100	−576.132	−355.921	14.301
	1400.00	82.885	160.715	102.270	−507.869	81.824	−732.871	−574.467	−339.044	12.650
	1500.00	85.210	166.510	106.361	−499.469	90.224	−749.234	−572.670	−322.290	11.223
	1600.00	87.953	172.095	110.296	−490.813	98.880	−766.166	−570.691	−305.661	9.979
	1700.00	90.908	177.516	114.091	−481.871	107.822	−783.648	−568.498	−289.163	8.885
	1800.00	93.804	182.795	117.762	−472.634	117.059	−801.664	−566.079	−272.800	7.916
	1900.00	96.321	187.937	121.321	−463.123	126.570	−820.202	−563.461	−256.577	7.054
	2000.00	98.108	192.927	124.777	−453.394	136.299	−839.247	−560.700	−240.497	6.281

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	DPT= 199.7, 3 WO2 = 2 WO3 + W

WO2[g] TUNGSTEN DIOXIDE (GAS) 215.849

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	43.586	285.458	285.458	76.567	0.000	−8.542	76.567	62.360	−10.925
	300.00	43.703	285.728	285.459	76.648	0.081	−9.071	76.548	62.272	−10.842
	400.00	48.057	298.972	287.235	81.262	4.695	−38.327	75.726	57.645	−7.528
	500.00	50.442	309.973	290.715	86.196	9.629	−68.790	75.087	53.201	−5.558
	600.00	52.017	319.317	294.723	91.324	14.757	−100.267	74.497	48.879	−4.255
	700.00	53.179	327.427	298.828	96.586	20.019	−132.613	73.904	44.656	−3.332
	800.00	54.093	334.590	302.859	101.951	25.384	−165.720	73.288	40.520	−2.646
	900.00	54.839	341.005	306.748	107.399	30.832	−199.506	72.641	36.462	−2.116
	1000.00	55.459	346.816	310.468	112.915	36.348	−233.901	71.961	32.479	−1.697
	1100.00	55.977	352.127	314.018	118.487	41.920	−268.852	71.246	28.565	−1.356
	1200.00	56.405	357.017	317.400	124.107	47.540	−304.313	70.492	24.718	−1.076
	1300.00	56.754	361.546	320.624	129.766	53.199	−340.244	69.697	20.935	−0.841
	1400.00	57.030	365.762	323.699	135.456	58.889	−376.612	68.858	17.215	−0.642
	1500.00	57.236	369.705	326.636	141.170	64.603	−413.387	67.968	13.557	−0.472
	1600.00	57.375	373.403	329.445	146.901	70.334	−450.544	67.023	9.960	−0.325
	1700.00	57.450	376.884	332.134	152.643	76.076	−488.061	66.015	6.424	−0.197
	1800.00	57.461	380.169	334.712	158.389	81.822	−525.915	64.943	2.950	−0.086
	1900.00	57.410	383.274	337.187	164.133	87.566	−564.088	63.794	−0.464	0.013
	2000.00	57.297	386.216	339.566	169.868	93.301	−602.564	62.562	−3.814	0.100

References

Phase	H / S	C_p
GAS	Ja1	Ja1

227.368 TUNGSTEN 2.72–OXIDE **WO2.72**

Phase	T	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	67.784	68.408	68.408	–781.153	0.000	–801.549	–781.153	–708.627	124.149
	300.00	68.057	68.829	68.410	–781.027	0.126	–801.676	–781.146	–708.177	123.305
	400.00	78.067	89.959	71.223	–773.658	7.495	–809.642	–780.283	–683.962	89.316
	500.00	83.355	107.998	76.821	–765.565	15.588	–819.564	–778.864	–660.038	68.954
	600.00	86.784	123.517	83.341	–757.048	24.105	–831.158	–777.202	–636.426	55.406
	700.00	89.334	137.094	90.071	–748.237	32.916	–844.203	–775.418	–613.104	45.750
	800.00	91.418	149.163	96.717	–739.196	41.957	–858.527	–773.560	–590.042	38.526
	900.00	93.229	160.037	103.158	–729.962	51.191	–873.995	–771.647	–567.216	32.920
	1000.00	94.871	169.946	109.349	–720.556	60.597	–890.502	–769.683	–544.607	28.447
	1100.00	96.403	179.061	115.277	–710.992	70.161	–907.958	–767.670	–522.196	24.797
	1200.00	97.860	187.512	120.949	–701.278	79.875	–926.292	–765.607	–499.971	21.763
	1300.00	99.263	195.400	126.376	–691.421	89.732	–945.442	–763.494	–477.920	19.203
	1400.00	100.629	202.807	131.573	–681.427	99.726	–965.356	–761.329	–456.034	17.015
	1500.00	101.966	209.795	136.557	–671.297	109.856	–985.989	–759.114	–434.304	15.124
	1600.00	103.281	216.418	141.344	–661.034	120.119	–1007.303	–756.848	–412.724	13.474
	1700.00	104.580	222.718	145.946	–650.641	130.512	–1029.262	–754.533	–391.286	12.023
	1800.00	105.865	228.732	150.380	–640.119	141.034	–1051.837	–752.166	–369.987	10.737
	1900.00	107.140	234.490	154.656	–629.468	151.685	–1075.000	–749.755	–348.820	9.590
	2000.00	108.407	240.018	158.787	–618.691	162.462	–1098.727	–747.300	–327.782	8.561

References

Phase	H / S	C_p
SOL	Ja1	Ja1

WO2.90 TUNGSTEN 2.90–OXIDE 230.248

Phase	T	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	70.765	73.387	73.387	–820.064	0.000	–841.944	–820.064	–743.518	130.261
	300.00	71.057	73.826	73.389	–819.933	0.131	–842.081	–820.057	–743.043	129.375
	400.00	81.713	95.923	76.329	–812.226	7.838	–850.596	–819.124	–717.488	93.694
	500.00	87.264	114.808	82.186	–803.753	16.311	–861.157	–817.600	–692.248	72.319
	600.00	90.807	131.051	89.009	–794.839	25.225	–873.469	–815.825	–667.341	58.097
	700.00	93.401	145.252	96.050	–785.623	34.441	–887.299	–813.929	–642.743	47.962
	800.00	95.490	157.865	103.004	–776.175	43.889	–902.467	–811.965	–618.421	40.379
	900.00	97.284	169.218	109.740	–766.535	53.529	–918.830	–809.951	–594.349	34.495
	1000.00	98.896	179.552	116.212	–756.724	63.340	–936.276	–807.894	–570.503	29.800
	1100.00	100.389	189.049	122.408	–746.759	73.305	–954.713	–805.797	–546.865	25.968
	1200.00	101.801	197.845	128.332	–736.649	83.415	–974.063	–803.657	–523.419	22.784
	1300.00	103.155	206.047	133.998	–726.401	93.663	–994.262	–801.474	–500.155	20.096
	1400.00	104.468	213.740	139.422	–716.020	104.044	–1015.255	–799.248	–477.059	17.799
	1500.00	105.750	220.991	144.621	–705.508	114.556	–1036.995	–796.979	–454.125	15.814
	1600.00	107.009	227.857	149.610	–694.870	125.194	–1059.441	–794.668	–431.343	14.082
	1700.00	108.249	234.381	154.407	–684.107	135.957	–1082.555	–792.315	–408.707	12.558
	1800.00	109.476	240.603	159.024	–673.221	146.843	–1106.307	–789.919	–386.211	11.208
	1900.00	110.691	246.555	163.475	–662.212	157.852	–1130.667	–787.486	–363.849	10.003
	2000.00	111.898	252.263	167.773	–651.083	168.981	–1155.610	–785.018	–341.616	8.922

References

Phase	H / S	C_p
SOL	Ja1	Ja1

231.208 TUNGSTEN 2.96–OXIDE **WO2.96**

Phase	T	C_p	S	–(G–H298)/T	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[–]
SOL	298.15	71.732	74.894	74.894	–834.959	0.000	–857.289	–834.959	–757.027	132.628
	300.00	72.031	75.338	74.895	–834.826	0.133	–857.427	–834.951	–756.544	131.726
	400.00	82.929	97.754	77.877	–827.008	7.951	–866.110	–833.996	–730.527	95.397
	500.00	88.593	116.923	83.820	–818.407	16.552	–876.869	–832.437	–704.832	73.633
	600.00	92.196	133.414	90.744	–809.357	25.602	–889.405	–830.620	–679.479	59.154
	700.00	94.826	147.833	97.891	–800.000	34.959	–903.483	–828.681	–654.441	48.835
	800.00	96.937	160.637	104.949	–790.409	44.550	–918.918	–826.673	–629.685	41.114
	900.00	98.747	172.161	111.787	–780.623	54.336	–935.568	–824.616	–605.185	35.124
	1000.00	100.369	182.650	118.357	–770.665	64.294	–953.316	–822.517	–580.916	30.344
	1100.00	101.869	192.288	124.646	–760.553	74.406	–972.069	–820.376	–556.859	26.443
	1200.00	103.286	201.213	130.659	–750.294	84.665	–991.750	–818.195	–532.999	23.201
	1300.00	104.645	209.534	136.410	–739.897	95.062	–1012.292	–815.971	–509.322	20.465
	1400.00	105.960	217.338	141.915	–729.367	105.592	–1033.639	–813.704	–485.819	18.126
	1500.00	107.244	224.692	147.190	–718.706	116.253	–1055.744	–811.395	–462.479	16.105
	1600.00	108.505	231.654	152.254	–707.919	127.040	–1078.565	–809.044	–439.294	14.341
	1700.00	109.746	238.269	157.120	–697.006	137.953	–1102.064	–806.653	–416.258	12.790
	1800.00	110.973	244.577	161.805	–685.970	148.989	–1126.208	–804.218	–393.363	11.415
	1900.00	112.189	250.609	166.321	–674.812	160.147	–1150.970	–801.748	–370.605	10.189
	2000.00	113.396	256.395	170.681	–663.532	171.427	–1176.322	–799.243	–347.978	9.088

References

Phase	H / S	C_p
SOL	Ja1	Ja1

WO3 TUNGSTEN TRIOXIDE 231.848

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[	J / (K mol)	]	[		kJ / mol		]	
SOL−1	298.15	72.791	75.898	75.898	−842.909	0.000	−865.538	−842.909	−764.053	133.859
	300.00	73.063	76.349	75.899	−842.774	0.135	−865.679	−842.901	−763.564	132.948
	400.00	83.186	98.929	78.909	−834.901	8.008	−874.473	−841.949	−737.239	96.274
	500.00	88.739	118.137	84.885	−826.283	16.626	−885.351	−840.434	−711.229	74.302
	600.00	92.495	134.666	91.837	−817.211	25.698	−898.011	−838.660	−685.552	59.683
	700.00	95.401	149.150	99.011	−807.812	35.097	−912.217	−836.743	−660.184	49.264
	800.00	97.854	162.053	106.099	−798.146	44.763	−927.788	−834.727	−635.098	41.468
	900.00	100.045	173.707	112.974	−788.249	54.660	−944.586	−832.628	−610.269	35.419
	1000.00	102.072	184.354	119.587	−778.142	64.767	−962.496	−830.448	−585.679	30.593
	1050.00	103.043	189.358	122.791	−773.015	69.894	−971.840	−829.327	−573.468	28.528
			1.414		1.485					
SOL−2	1050.00	98.143	190.772	122.791	−771.530	71.379	−971.840	−827.842	−573.468	28.528
	1100.00	98.961	195.356	125.986	−766.602	76.307	−981.494	−826.950	−561.376	26.658
	1200.00	100.598	204.037	132.133	−756.624	86.285	−1001.469	−825.120	−537.313	23.389
	1300.00	102.236	212.154	137.980	−746.482	96.427	−1022.283	−823.223	−513.405	20.629
	1400.00	103.873	219.790	143.553	−736.177	106.732	−1043.883	−821.253	−489.647	18.269
	1500.00	105.510	227.013	148.879	−725.708	117.201	−1066.227	−819.208	−466.031	16.229
	1600.00	107.147	233.875	153.978	−715.075	127.834	−1089.274	−817.086	−442.555	14.448
	1700.00	108.784	240.419	158.872	−704.278	138.631	−1112.991	−814.884	−419.214	12.881
	1745.00	109.521	243.271	161.012	−699.366	143.543	−1123.874	−813.866	−408.753	12.236
			42.080		73.429					
LIQ	1745.00	131.796	285.351	161.012	−625.937	216.972	−1123.874	−740.437	−408.753	12.236
	1800.00	131.796	289.441	164.874	−618.689	224.220	−1139.682	−737.970	−398.338	11.559
	1900.00	131.796	296.567	171.619	−605.509	237.400	−1168.985	−733.554	−379.590	10.436
	2000.00	131.796	303.327	178.037	−592.329	250.580	−1198.983	−729.224	−361.073	9.430
	2100.00	131.796	309.757	184.157	−579.150	263.759	−1229.640	−724.976	−342.770	8.526
	2110.00	131.796	310.383	184.754	−577.832	265.077	−1232.740	−724.556	−340.951	8.441

References

Phase	H / S	C_p	Remarks
SOL−1	Ja1	Ja1	
SOL−2	Ja1	Ja1	
LIQ	Ja1	Ja1	Ja1 NBPT= 2110., GAS (W3O9 + W2O6 + W4O12 + W3O8)

231.848 TUNGSTEN TRIOXIDE (GAS) **WO3**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	60.715	286.295	286.295	−292.880	0.000	−378.239	−292.880	−276.754	48.486
	300.00	60.906	286.671	286.296	−292.767	0.113	−378.769	−292.894	−276.654	48.170
	400.00	67.957	305.284	288.786	−286.281	6.599	−408.394	−293.329	−271.161	35.410
	500.00	71.717	320.887	293.690	−279.281	13.599	−439.725	−293.433	−265.603	27.747
	600.00	74.133	334.190	299.359	−271.981	20.899	−472.495	−293.430	−260.036	22.638
	700.00	75.875	345.755	305.179	−264.477	28.403	−506.505	−293.408	−254.472	18.989
	800.00	77.221	355.978	310.902	−256.819	36.061	−541.602	−293.401	−248.911	16.252
	900.00	78.304	365.138	316.428	−249.041	43.839	−577.666	−293.420	−243.349	14.124
	1000.00	79.194	373.436	321.721	−241.165	51.715	−614.601	−293.470	−237.783	12.421
	1100.00	79.931	381.019	326.772	−233.208	59.672	−652.329	−293.556	−232.211	11.027
	1200.00	80.540	388.001	331.587	−225.183	67.697	−690.785	−293.679	−226.629	9.865
	1300.00	81.035	394.468	336.179	−217.103	75.777	−729.912	−293.844	−221.035	8.881
	1400.00	81.427	400.489	340.560	−208.979	83.901	−769.663	−294.056	−215.426	8.038
	1500.00	81.721	406.117	344.745	−200.821	92.059	−809.997	−294.322	−209.801	7.306
	1600.00	81.923	411.398	348.747	−192.638	100.242	−850.875	−294.649	−204.156	6.665
	1700.00	82.036	416.369	352.580	−184.440	108.440	−892.266	−295.045	−198.489	6.099
	1800.00	82.062	421.059	356.255	−176.234	116.646	−934.140	−295.516	−192.796	5.595
	1900.00	82.004	425.494	359.784	−168.030	124.850	−976.469	−296.075	−187.074	5.143
	2000.00	81.862	429.697	363.175	−159.836	133.044	−1019.231	−296.730	−181.321	4.736

References

Phase	H / S	C_p
GAS	Ja1	Ja1

W2O6[g] DITUNGSTEN HEXAOXIDE (GAS) 463.696

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	153.657	415.581	415.581	−1163.989	0.000	−1287.894	−1163.989	−1084.925	190.074
	300.00	153.939	416.532	415.584	−1163.704	0.285	−1288.664	−1163.957	−1084.435	188.817
	400.00	164.899	462.494	421.776	−1147.702	16.287	−1332.699	−1161.798	−1058.232	138.191
	500.00	170.765	499.983	433.786	−1130.891	33.098	−1380.882	−1159.194	−1032.638	107.879
	600.00	174.215	531.447	447.512	−1113.628	50.361	−1432.496	−1156.525	−1007.578	87.717
	700.00	176.402	558.479	461.479	−1096.089	67.900	−1487.024	−1153.952	−982.958	73.349
	800.00	177.869	582.136	475.113	−1078.371	85.618	−1544.080	−1151.533	−958.698	62.597
	900.00	178.899	603.149	488.194	−1060.530	103.459	−1603.363	−1149.286	−934.730	54.250
	1000.00	179.647	622.038	500.650	−1042.600	121.389	−1664.639	−1147.211	−911.003	47.586
	1100.00	180.207	639.188	512.476	−1024.606	139.383	−1727.713	−1145.302	−887.476	42.143
	1200.00	180.636	654.887	523.699	−1006.563	157.426	−1792.428	−1143.555	−864.116	37.614
	1300.00	180.970	669.359	534.354	−988.482	175.507	−1858.650	−1141.963	−840.895	33.788
	1400.00	181.236	682.781	544.483	−970.372	193.617	−1926.265	−1140.525	−817.791	30.512
	1500.00	181.449	695.292	554.124	−952.237	211.752	−1995.176	−1139.239	−794.784	27.677
	1600.00	181.623	707.009	563.317	−934.083	229.906	−2065.297	−1138.105	−771.859	25.199
	1700.00	181.766	718.024	572.097	−915.913	248.076	−2136.554	−1137.125	−748.999	23.014
	1800.00	181.885	728.417	580.495	−897.731	266.258	−2208.881	−1136.294	−726.193	21.074
	1900.00	181.984	738.254	588.542	−879.537	284.452	−2282.219	−1135.626	−703.428	19.339
	2000.00	182.067	747.590	596.263	−861.334	302.655	−2356.515	−1135.123	−680.695	17.778

References

Phase	H / S	C_p
GAS	Ja1	Ja1

679.545 TRITUNGSTEN OCTAOXIDE **W3O8[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	206.289	493.821	493.821	−1710.001	0.000	−1857.234	−1710.001	−1583.363	277.399
	300.00	206.679	495.099	493.825	−1709.619	0.382	−1858.149	−1709.971	−1582.577	275.551
	400.00	223.560	557.062	502.159	−1688.040	21.961	−1910.864	−1707.672	−1540.425	201.159
	500.00	233.815	608.144	518.399	−1665.129	44.872	−1969.201	−1704.541	−1498.965	156.596
	600.00	240.207	651.382	537.053	−1641.404	68.597	−2032.233	−1701.128	−1458.169	126.945
	700.00	244.398	688.746	556.116	−1617.160	92.841	−2099.282	−1697.704	−1417.947	105.809
	800.00	247.276	721.580	574.788	−1592.568	117.433	−2169.832	−1694.394	−1378.210	89.988
	900.00	249.330	750.830	592.753	−1567.732	142.269	−2243.479	−1691.246	−1338.877	77.706
	1000.00	250.844	777.182	609.900	−1542.719	167.282	−2319.901	−1688.283	−1299.886	67.899
	1100.00	251.990	801.146	626.213	−1517.575	192.426	−2398.836	−1685.513	−1261.182	59.889
	1200.00	252.877	823.112	641.719	−1492.330	217.671	−2480.064	−1682.937	−1222.721	53.224
	1300.00	253.577	843.381	656.462	−1467.006	242.995	−2563.401	−1680.555	−1184.468	47.593
	1400.00	254.139	862.195	670.493	−1441.619	268.382	−2648.691	−1678.370	−1146.391	42.772
	1500.00	254.595	879.744	683.865	−1416.182	293.819	−2735.798	−1676.385	−1108.463	38.600
	1600.00	254.971	896.188	696.627	−1390.703	319.298	−2824.604	−1674.603	−1070.660	34.953
	1700.00	255.284	911.655	708.825	−1365.189	344.812	−2915.003	−1673.028	−1032.963	31.739
	1800.00	255.546	926.254	720.503	−1339.648	370.353	−3006.906	−1671.657	−995.353	28.884
	1900.00	255.769	940.077	731.699	−1314.082	395.919	−3100.228	−1670.509	−957.813	26.332
	2000.00	255.959	953.201	742.448	−1288.495	421.506	−3194.898	−1669.590	−920.328	24.036

References

Phase	H / S	C_p
GAS	Ja1	Ja1

W3O9[g] TRITUNGSTEN NONAOXIDE (GAS) 695.545

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	222.952	504.700	504.700	−2023.382	0.000	−2173.858	−2023.382	−1869.405	327.512
	300.00	223.428	506.080	504.704	−2022.969	0.413	−2174.793	−2023.349	−1868.449	325.326
	400.00	243.542	573.361	513.740	−1999.534	23.848	−2228.878	−2020.679	−1817.177	237.299
	500.00	255.458	629.099	531.401	−1974.533	48.849	−2289.083	−2016.988	−1766.716	184.568
	600.00	262.809	676.375	551.725	−1948.592	74.790	−2354.417	−2012.938	−1717.040	149.482
	700.00	267.599	717.271	572.519	−1922.056	101.326	−2424.146	−2008.850	−1668.047	124.471
	800.00	270.876	753.231	592.906	−1895.122	128.260	−2497.707	−2004.866	−1619.635	105.751
	900.00	273.208	785.277	612.533	−1867.912	155.470	−2574.662	−2001.047	−1571.712	91.220
	1000.00	274.923	814.156	631.275	−1840.501	182.881	−2654.657	−1997.417	−1524.204	79.616
	1100.00	276.219	840.422	649.113	−1812.941	210.441	−2737.406	−1993.985	−1477.051	70.139
	1200.00	277.220	864.501	666.072	−1785.267	238.115	−2822.669	−1990.755	−1430.201	62.255
	1300.00	278.009	886.723	682.202	−1757.504	265.878	−2910.244	−1987.726	−1383.612	55.594
	1400.00	278.640	907.350	697.556	−1729.671	293.711	−2999.960	−1984.901	−1337.249	49.893
	1500.00	279.153	926.592	712.191	−1701.780	321.602	−3091.668	−1982.283	−1291.081	44.959
	1600.00	279.575	944.622	726.160	−1673.843	349.539	−3185.238	−1979.876	−1245.081	40.648
	1700.00	279.925	961.582	739.515	−1645.868	377.514	−3280.557	−1977.685	−1199.224	36.848
	1800.00	280.219	977.591	752.301	−1617.860	405.522	−3377.523	−1975.706	−1153.491	33.473
	1900.00	280.467	992.748	764.560	−1589.825	433.557	−3476.047	−1973.959	−1107.861	30.457
	2000.00	280.679	1007.140	776.333	−1561.768	461.614	−3576.047	−1972.450	−1062.317	27.745

References

Phase	H / S	C_p
GAS	Ja1	Ja1

927.393 TETRATUNGSTEN DODECAOXIDE (GAS) **W4O12[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	309.195	605.116	605.116	−2804.117	0.000	−2984.532	−2804.117	−2578.594	451.759
	300.00	309.772	607.030	605.122	−2803.544	0.573	−2985.654	−2804.050	−2577.195	448.730
	400.00	334.303	699.806	617.604	−2771.236	32.881	−3051.159	−2799.429	−2502.224	326.757
	500.00	348.909	776.110	641.904	−2737.014	67.103	−3125.069	−2793.620	−2428.580	253.712
	600.00	357.937	840.583	669.785	−2701.638	102.479	−3205.988	−2787.432	−2356.151	205.121
	700.00	363.829	896.232	698.251	−2665.530	138.587	−3292.893	−2781.255	−2284.761	170.491
	800.00	367.864	945.094	726.115	−2628.933	175.184	−3385.009	−2775.258	−2214.246	144.575
	900.00	370.737	988.598	752.907	−2591.996	212.121	−3481.733	−2769.509	−2144.467	124.462
	1000.00	372.852	1027.773	778.467	−2554.811	249.306	−3582.584	−2764.031	−2075.314	108.403
	1100.00	374.452	1063.388	802.775	−2517.442	286.675	−3687.170	−2758.834	−2006.696	95.290
	1200.00	375.688	1096.025	825.872	−2479.933	324.184	−3795.163	−2753.916	−1938.539	84.382
	1300.00	376.664	1126.136	847.826	−2442.313	361.804	−3906.291	−2749.275	−1870.781	75.169
	1400.00	377.445	1154.080	868.715	−2404.606	399.511	−4020.318	−2744.913	−1803.370	67.285
	1500.00	378.081	1180.143	888.618	−2366.829	437.288	−4137.044	−2740.832	−1736.261	60.462
	1600.00	378.604	1204.561	907.609	−2328.994	475.123	−4256.292	−2737.038	−1669.415	54.501
	1700.00	379.039	1227.527	925.759	−2291.111	513.006	−4377.908	−2733.534	−1602.798	49.248
	1800.00	379.404	1249.203	943.132	−2253.188	550.929	−4501.754	−2730.316	−1536.378	44.585
	1900.00	379.714	1269.725	959.786	−2215.232	588.885	−4627.710	−2727.410	−1470.129	40.417
	2000.00	379.978	1289.209	975.774	−2177.247	626.870	−4755.665	−2724.824	−1404.025	36.669

References

Phase	H / S	C_p
GAS	Ja1	Ja1

341.660 TUNGSTEN TETRACHLORIDE OXIDE **WOCl4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	146.256	172.799	172.799	−671.114	0.000	−722.634	−671.114	−549.270	96.230
	300.00	146.450	173.705	172.802	−670.843	0.271	−722.955	−671.041	−548.514	95.505
	400.00	156.900	217.266	178.671	−655.676	15.438	−742.582	−666.759	−508.298	66.377
	484.00	165.686	247.985	188.096	−642.127	28.987	−762.152	−662.590	−475.422	51.309
			93.760		45.380					
LIQ	484.00	182.004	341.746	188.096	−596.747	74.367	−762.152	−617.210	−475.422	51.309
	492.00	182.004	344.729	190.618	−595.291	75.823	−764.898	−616.656	−473.083	50.226

References

Phase	H / S	C_p	Remarks
SOL	Ja1	Ja1	
LIQ	Ja1	Ja1	Ja1 BPT= 492., L= 43.9 kJ

WOCl4[g] TUNGSTEN TETRACHLORIDE OXIDE (GAS) 341.660

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	106.157	377.088	377.088	-573.208	0.000	-685.637	-573.208	-512.272	89.748
	300.00	106.334	377.745	377.090	-573.011	0.197	-686.335	-573.209	-511.894	89.129
	400.00	114.524	409.531	381.368	-561.943	11.265	-725.755	-573.026	-491.471	64.179
	500.00	119.827	435.701	389.695	-550.205	23.003	-768.055	-572.474	-471.140	49.220
	600.00	123.222	457.870	399.258	-538.041	35.167	-812.763	-571.717	-450.942	39.258
	700.00	125.483	477.046	409.031	-525.598	47.610	-859.530	-570.857	-430.880	32.153
	800.00	127.053	493.910	418.609	-512.967	60.241	-908.095	-569.949	-410.945	26.832
	900.00	128.185	508.944	427.826	-500.202	73.006	-958.251	-569.027	-391.125	22.700
	1000.00	129.028	522.495	436.626	-487.339	85.869	-1009.834	-568.112	-371.407	19.400
	1100.00	129.671	534.824	445.001	-474.403	98.805	-1062.709	-567.216	-351.780	16.705
	1200.00	130.174	546.129	452.964	-461.410	111.798	-1116.765	-566.350	-332.233	14.462
	1300.00	130.576	556.565	460.537	-448.371	124.837	-1171.906	-565.519	-312.758	12.567
	1400.00	130.901	566.254	467.747	-435.297	137.911	-1228.053	-564.730	-293.344	10.945
	1500.00	131.170	575.295	474.618	-422.193	151.015	-1285.136	-563.986	-273.986	9.541
	1600.00	131.394	583.768	481.178	-409.065	164.143	-1343.093	-563.293	-254.675	8.314
	1700.00	131.584	591.739	487.450	-395.915	177.293	-1401.873	-562.653	-235.407	7.233
	1800.00	131.746	599.265	493.455	-382.749	190.459	-1461.426	-562.067	-216.174	6.273
	1900.00	131.885	606.392	499.213	-369.567	203.641	-1521.712	-561.544	-196.972	5.415
	2000.00	132.007	613.160	504.742	-356.372	216.836	-1582.693	-561.086	-177.797	4.644

References

Phase	H / S	C_p
GAS	Ja1	Ja1

WO2Cl2 TUNGSTEN DICHLORIDE DIOXIDE 286.754

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	104.356	200.832	200.832	-780.316	0.000	-840.194	-780.316	-702.770	123.122
	300.00	104.570	201.478	200.834	-780.123	0.193	-840.566	-780.285	-702.289	122.279
	400.00	115.369	233.069	205.068	-769.116	11.200	-862.343	-778.181	-676.584	88.353
	500.00	125.423	259.901	213.414	-757.073	23.243	-887.023	-775.283	-651.504	68.062
	600.00	135.183	283.633	223.175	-744.041	36.275	-914.221	-771.604	-627.081	54.592
	642.00	139.236	292.915	227.436	-738.278	42.038	-926.330	-769.824	-617.025	50.203

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	NDPT= 642., GAS (WOCl4 + WO2Cl2 + WCl6)

286.754

TUNGSTEN DICHLORIDE DIOXIDE (GAS) **WO2Cl2[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	87.217	354.076	354.076	−671.532	0.000	−777.100	−671.532	−639.675	112.068
	300.00	87.340	354.616	354.077	−671.371	0.161	−777.755	−671.533	−639.478	111.343
	400.00	93.356	380.606	357.580	−662.321	9.211	−814.564	−671.387	−628.805	82.114
	500.00	97.465	401.913	364.380	−652.766	18.766	−853.722	−670.976	−618.203	64.583
	600.00	100.148	419.937	372.176	−642.876	28.656	−894.838	−670.439	−607.698	52.905
	700.00	101.953	435.519	380.137	−632.765	38.767	−937.628	−669.860	−597.287	44.570
	800.00	103.215	449.220	387.934	−622.503	49.029	−981.879	−669.285	−586.959	38.324
	900.00	104.129	461.432	395.434	−612.134	59.398	−1027.423	−668.735	−576.701	33.471
	1000.00	104.812	472.440	402.593	−601.685	69.847	−1074.125	−668.224	−566.503	29.591
	1100.00	105.335	482.455	409.405	−591.177	80.355	−1121.878	−667.757	−556.354	26.419
	1200.00	105.745	491.639	415.881	−580.622	90.910	−1170.589	−667.340	−546.245	23.777
	1300.00	106.073	500.117	422.038	−570.030	101.502	−1220.182	−666.974	−536.169	21.544
	1400.00	106.339	507.987	427.900	−559.409	112.123	−1270.592	−666.664	−526.119	19.630
	1500.00	106.560	515.332	433.487	−548.764	122.768	−1321.762	−666.411	−516.089	17.972
	1600.00	106.744	522.215	438.819	−538.099	133.433	−1373.643	−666.218	−506.074	16.522
	1700.00	106.900	528.691	443.917	−527.416	144.116	−1426.191	−666.088	−496.070	15.242
	1800.00	107.034	534.805	448.798	−516.719	154.813	−1479.369	−666.019	−486.071	14.105
	1900.00	107.150	540.596	453.479	−506.010	165.522	−1533.142	−666.021	−476.074	13.088
	2000.00	107.251	546.094	457.973	−495.290	176.242	−1587.478	−666.094	−466.075	12.173

References

Phase	H / S	C_p
GAS	Ja1	Ja1

275.843

TUNGSTEN TETRAFLUORIDE OXIDE **WOF4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	133.603	175.728	175.728	−1394.360	0.000	−1446.753	−1394.360	−1285.507	225.215
	300.00	133.890	176.555	175.731	−1394.113	0.247	−1447.079	−1394.301	−1284.831	223.709
	379.00	146.963	209.294	179.394	−1383.028	11.332	−1462.350	−1391.380	−1256.342	173.152
			13.248		5.021					
LIQ	379.00	182.004	222.542	179.394	−1378.007	16.353	−1462.350	−1386.359	−1256.342	173.152
	400.00	182.004	232.357	181.919	−1374.185	20.175	−1467.128	−1384.751	−1249.182	163.126
	460.00	182.004	257.794	190.196	−1363.265	31.095	−1481.850	−1380.251	−1229.170	139.577

References

Phase	H / S	C_p	Remarks
SOL	Ja1	Ja1	
LIQ	Ja1	Ja1	Ja1 BPT= 460., L= 56.11 kJ

WOF4[g] TUNGSTEN TETRAFLUORIDE OXIDE (GAS) 275.843

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	95.862	334.704	334.704	−1336.621	0.000	−1436.413	−1336.621	−1275.166	223.404
	300.00	96.120	335.298	334.706	−1336.443	0.178	−1437.033	−1336.631	−1274.785	221.960
	400.00	107.749	364.658	338.630	−1326.210	10.411	−1472.073	−1336.776	−1254.127	163.772
	500.00	115.109	389.556	346.390	−1315.038	21.583	−1509.816	−1336.375	−1233.504	128.863
	600.00	119.783	410.987	355.413	−1303.277	33.344	−1549.869	−1335.697	−1212.990	105.600
	700.00	122.886	429.700	364.717	−1291.133	45.488	−1591.923	−1334.882	−1192.602	88.993
	800.00	125.037	446.258	373.895	−1278.731	57.890	−1635.737	−1334.004	−1172.336	76.546
	900.00	126.585	461.079	382.773	−1266.146	70.475	−1681.117	−1333.107	−1152.181	66.871
	1000.00	127.735	474.478	391.284	−1253.427	83.194	−1727.905	−1332.213	−1132.126	59.136
	1100.00	128.611	486.696	399.411	−1240.608	96.013	−1775.973	−1331.341	−1112.160	52.812
	1200.00	129.292	497.917	407.159	−1227.711	108.910	−1825.211	−1330.500	−1092.272	47.545
	1300.00	129.831	508.288	414.544	−1214.754	121.867	−1875.528	−1329.697	−1072.452	43.092
	1400.00	130.264	517.926	421.588	−1201.749	134.872	−1926.845	−1328.940	−1052.693	39.276
	1500.00	130.616	526.925	428.314	−1188.704	147.917	−1979.092	−1328.232	−1032.986	35.972
	1600.00	130.904	535.365	434.744	−1175.628	160.993	−2032.211	−1327.579	−1013.325	33.082
	1700.00	131.141	543.308	440.899	−1162.525	174.096	−2086.149	−1326.982	−993.702	30.533
	1800.00	131.337	550.809	446.798	−1149.401	187.220	−2140.858	−1326.443	−974.114	28.268
	1900.00	131.500	557.915	452.461	−1136.259	200.362	−2196.297	−1325.970	−954.553	26.242
	2000.00	131.634	564.664	457.904	−1123.102	213.519	−2252.429	−1325.565	−935.015	24.420

References

Phase	H / S	C_p
GAS	Ja1	Ja1

WO2I2[g] TUNGSTEN DIIODIDE DIOXIDE (GAS) 469.658

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	92.071	377.088	377.088	−428.860	0.000	−541.289	−428.860	−435.759	76.343
	300.00	92.284	377.658	377.090	−428.689	0.171	−541.987	−428.890	−435.801	75.880
	400.00	103.081	405.714	380.842	−418.911	9.949	−581.197	−446.186	−437.339	57.111
	500.00	113.135	429.804	388.277	−408.097	20.763	−622.999	−489.139	−430.984	45.025
	600.00	122.897	451.296	397.019	−396.294	32.566	−667.072	−486.805	−419.558	36.526
	700.00	132.521	470.965	406.196	−383.522	45.338	−713.198	−483.651	−408.588	30.489
	800.00	142.071	489.285	415.450	−369.792	59.068	−761.220	−479.675	−398.127	25.995
	900.00	151.578	506.567	424.622	−355.109	73.751	−811.020	−474.867	−388.213	22.531
	1000.00	161.059	523.029	433.646	−339.477	89.383	−862.506	−469.218	−378.880	19.791

References

Phase	H / S	C_p	Remarks	
GAS	Tk1/e	e	Tk1	SPT= 841., L= 164.8 kJ

247.982

TUNGSTEN DISULFIDE

WS2

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	63.545	64.852	64.852	−259.408	0.000	−278.744	−259.408	−249.891	43.780
	300.00	63.693	65.246	64.853	−259.290	0.118	−278.864	−259.420	−249.832	43.500
	400.00	69.462	84.446	67.432	−252.602	6.806	−286.381	−264.359	−246.377	32.174
	500.00	72.971	100.347	72.471	−245.470	13.938	−295.643	−267.546	−241.552	25.235
	600.00	75.589	113.891	78.273	−238.037	21.371	−306.372	−269.823	−236.119	20.556
	700.00	77.788	125.712	84.224	−230.366	29.042	−318.364	−271.372	−230.375	17.191
	800.00	79.763	136.230	90.079	−222.487	36.921	−331.471	−272.857	−224.419	14.653
	900.00	81.607	145.732	95.743	−214.418	44.990	−345.577	−379.890	−215.969	12.535
	1000.00	83.371	154.422	101.183	−206.168	53.240	−360.591	−378.044	−197.854	10.335
	1100.00	85.082	162.449	106.392	−197.745	61.663	−376.439	−376.085	−179.929	8.544
	1200.00	86.757	169.924	111.378	−189.153	70.255	−393.062	−374.014	−162.187	7.060
	1300.00	88.406	176.934	116.154	−180.395	79.013	−410.408	−371.834	−144.622	5.811
	1400.00	90.037	183.545	120.734	−171.472	87.936	−428.435	−369.546	−127.229	4.747
	1500.00	91.655	189.812	125.132	−162.388	97.020	−447.106	−367.151	−110.004	3.831

References

Phase	H / S	C_p	Remarks
SOL	Mi1	Mi1	Tk1 TPT= 2073.

131.290

XENON (GAS)

Xe[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.786	169.683	169.683	0.000	0.000	−50.591	0.000	0.000	0.000
	300.00	20.786	169.811	169.683	0.038	0.038	−50.905	0.000	0.000	0.000
	400.00	20.786	175.791	170.499	2.117	2.117	−68.199	0.000	0.000	0.000
	500.00	20.786	180.429	172.038	4.196	4.196	−86.019	0.000	0.000	0.000
	600.00	20.786	184.219	173.762	6.274	6.274	−104.257	0.000	0.000	0.000
	700.00	20.786	187.423	175.491	8.353	8.353	−122.843	0.000	0.000	0.000
	800.00	20.786	190.199	177.160	10.432	10.432	−141.728	0.000	0.000	0.000
	900.00	20.786	192.647	178.747	12.510	12.510	−160.872	0.000	0.000	0.000
	1000.00	20.786	194.837	180.249	14.589	14.589	−180.249	0.000	0.000	0.000
	1100.00	20.786	196.818	181.666	16.667	16.667	−199.833	0.000	0.000	0.000
	1200.00	20.786	198.627	183.005	18.746	18.746	−219.607	0.000	0.000	0.000
	1300.00	20.786	200.291	184.272	20.825	20.825	−239.554	0.000	0.000	0.000
	1400.00	20.786	201.831	185.472	22.903	22.903	−259.661	0.000	0.000	0.000
	1500.00	20.786	203.265	186.611	24.982	24.982	−279.916	0.000	0.000	0.000
	1600.00	20.786	204.607	187.694	27.060	27.060	−300.311	0.000	0.000	0.000
	1700.00	20.786	205.867	188.726	29.139	29.139	−320.835	0.000	0.000	0.000
	1800.00	20.786	207.055	189.712	31.218	31.218	−341.482	0.000	0.000	0.000
	1900.00	20.786	208.179	190.655	33.296	33.296	−362.244	0.000	0.000	0.000
	2000.00	20.786	209.245	191.558	35.375	35.375	−383.115	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

247.982

TUNGSTEN DISULFIDE

WS2

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[——— J / (K mol) ———]			[——— kJ / mol ———]					[−]
SOL	298.15	63.545	64.852	64.852	−259.408	0.000	−278.744	−259.408	−249.891	43.780
	300.00	63.693	65.246	64.853	−259.290	0.118	−278.864	−259.420	−249.832	43.500
	400.00	69.462	84.446	67.432	−252.602	6.806	−286.381	−264.359	−246.377	32.174
	500.00	72.971	100.347	72.471	−245.470	13.938	−295.643	−267.546	−241.552	25.235
	600.00	75.589	113.891	78.273	−238.037	21.371	−306.372	−269.823	−236.119	20.556
	700.00	77.788	125.712	84.224	−230.366	29.042	−318.364	−271.372	−230.375	17.191
	800.00	79.763	136.230	90.079	−222.487	36.921	−331.471	−272.857	−224.419	14.653
	900.00	81.607	145.732	95.743	−214.418	44.990	−345.577	−379.890	−215.969	12.535
	1000.00	83.371	154.422	101.183	−206.168	53.240	−360.591	−378.044	−197.854	10.335
	1100.00	85.082	162.449	106.392	−197.745	61.663	−376.439	−376.085	−179.929	8.544
	1200.00	86.757	169.924	111.378	−189.153	70.255	−393.062	−374.014	−162.187	7.060
	1300.00	88.406	176.934	116.154	−180.395	79.013	−410.408	−371.834	−144.622	5.811
	1400.00	90.037	183.545	120.734	−171.472	87.936	−428.435	−369.546	−127.229	4.747
	1500.00	91.655	189.812	125.132	−162.388	97.020	−447.106	−367.151	−110.004	3.831

References

Phase	H / S	C_p	Remarks
SOL	Mi1	Mi1	Tk1 TPT= 2073.

131.290

XENON (GAS)

Xe[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[——— J / (K mol) ———]			[——— kJ / mol ———]					[−]
GAS	298.15	20.786	169.683	169.683	0.000	0.000	−50.591	0.000	0.000	0.000
	300.00	20.786	169.811	169.683	0.038	0.038	−50.905	0.000	0.000	0.000
	400.00	20.786	175.791	170.499	2.117	2.117	−68.199	0.000	0.000	0.000
	500.00	20.786	180.429	172.038	4.196	4.196	−86.019	0.000	0.000	0.000
	600.00	20.786	184.219	173.762	6.274	6.274	−104.257	0.000	0.000	0.000
	700.00	20.786	187.423	175.491	8.353	8.353	−122.843	0.000	0.000	0.000
	800.00	20.786	190.199	177.160	10.432	10.432	−141.728	0.000	0.000	0.000
	900.00	20.786	192.647	178.747	12.510	12.510	−160.872	0.000	0.000	0.000
	1000.00	20.786	194.837	180.249	14.589	14.589	−180.249	0.000	0.000	0.000
	1100.00	20.786	196.818	181.666	16.667	16.667	−199.833	0.000	0.000	0.000
	1200.00	20.786	198.627	183.005	18.746	18.746	−219.607	0.000	0.000	0.000
	1300.00	20.786	200.291	184.272	20.825	20.825	−239.554	0.000	0.000	0.000
	1400.00	20.786	201.831	185.472	22.903	22.903	−259.661	0.000	0.000	0.000
	1500.00	20.786	203.265	186.611	24.982	24.982	−279.916	0.000	0.000	0.000
	1600.00	20.786	204.607	187.694	27.060	27.060	−300.311	0.000	0.000	0.000
	1700.00	20.786	205.867	188.726	29.139	29.139	−320.835	0.000	0.000	0.000
	1800.00	20.786	207.055	189.712	31.218	31.218	−341.482	0.000	0.000	0.000
	1900.00	20.786	208.179	190.655	33.296	33.296	−362.244	0.000	0.000	0.000
	2000.00	20.786	209.245	191.558	35.375	35.375	−383.115	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

Y YTTRIUM 88.906

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	26.525	44.434	44.434	0.000	0.000	−13.248	0.000	0.000	0.000
	300.00	26.539	44.598	44.435	0.049	0.049	−13.330	0.000	0.000	0.000
	400.00	27.166	52.323	45.484	2.736	2.736	−18.193	0.000	0.000	0.000
	500.00	27.810	58.452	47.485	5.484	5.484	−23.742	0.000	0.000	0.000
	600.00	28.530	63.585	49.752	8.300	8.300	−29.851	0.000	0.000	0.000
	700.00	29.284	68.040	52.053	11.191	11.191	−36.437	0.000	0.000	0.000
	800.00	30.044	72.000	54.303	14.157	14.157	−43.442	0.000	0.000	0.000
	900.00	30.798	75.582	56.471	17.199	17.199	−50.824	0.000	0.000	0.000
	1000.00	31.541	78.865	58.549	20.316	20.316	−58.549	0.000	0.000	0.000
	1100.00	32.275	81.906	60.536	23.507	23.507	−66.589	0.000	0.000	0.000
	1200.00	33.008	84.746	62.436	26.771	26.771	−74.923	0.000	0.000	0.000
	1300.00	33.745	87.417	64.256	30.109	30.109	−83.533	0.000	0.000	0.000
	1400.00	34.497	89.945	66.001	33.521	33.521	−92.402	0.000	0.000	0.000
	1500.00	35.275	92.351	67.678	37.009	37.009	−101.518	0.000	0.000	0.000
	1600.00	36.087	94.654	69.293	40.577	40.577	−110.869	0.000	0.000	0.000
	1700.00	36.947	96.867	70.850	44.228	44.228	−120.445	0.000	0.000	0.000
	1752.00	37.416	97.987	71.639	46.162	46.162	−125.512	0.000	0.000	0.000
			2.849		4.992					
SOL−B	1752.00	35.020	100.836	71.639	51.154	51.154	−125.512	0.000	0.000	0.000
	1799.00	35.020	101.764	72.414	52.800	52.800	−130.273	0.000	0.000	0.000
			6.335		11.397					
LIQ	1799.00	43.095	108.099	72.414	64.197	64.197	−130.273	0.000	0.000	0.000
	1800.00	43.095	108.123	72.434	64.240	64.240	−130.381	0.000	0.000	0.000
	1900.00	43.095	110.453	74.374	68.549	68.549	−141.311	0.000	0.000	0.000
	2000.00	43.095	112.663	76.234	72.859	72.859	−152.468	0.000	0.000	0.000
	2100.00	43.095	114.766	78.019	77.168	77.168	−163.840	0.000	0.000	0.000
	2200.00	43.095	116.771	79.735	81.478	81.478	−175.418	0.000	0.000	0.000
	2300.00	43.095	118.686	81.387	85.787	85.787	−187.191	0.000	0.000	0.000
	2400.00	43.095	120.520	82.980	90.097	90.097	−199.152	0.000	0.000	0.000
	2500.00	43.095	122.280	84.517	94.406	94.406	−211.293	0.000	0.000	0.000
	2600.00	43.095	123.970	86.002	98.716	98.716	−223.606	0.000	0.000	0.000
	2700.00	43.095	125.596	87.439	103.025	103.025	−236.085	0.000	0.000	0.000
	2800.00	43.095	127.164	88.830	107.335	107.335	−248.723	0.000	0.000	0.000
	2900.00	43.095	128.676	90.178	111.645	111.645	−261.515	0.000	0.000	0.000
	3000.00	43.095	130.137	91.486	115.954	115.954	−274.457	0.000	0.000	0.000
	3100.00	43.095	131.550	92.755	120.264	120.264	−287.541	0.000	0.000	0.000
	3200.00	43.095	132.918	93.989	124.573	124.573	−300.765	0.000	0.000	0.000
	3300.00	43.095	134.244	95.189	128.883	128.883	−314.123	0.000	0.000	0.000
	3400.00	43.095	135.531	96.357	133.192	133.192	−327.613	0.000	0.000	0.000
	3500.00	43.095	136.780	97.494	137.502	137.502	−341.228	0.000	0.000	0.000
	3600.00	43.095	137.994	98.602	141.811	141.811	−354.967	0.000	0.000	0.000
	3607.00	43.095	138.078	98.679	142.113	142.113	−355.934	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL−A	Hu1	Hu1		hcp
SOL−B	Hu1	Hu1		bcc (uncertain)
LIQ	Hu1	Hu1	Hu1	BPT = 3607., L = 363.34 kJ

88.906 YTTRIUM (GAS) **Y**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	25.860	179.469	179.469	424.676	0.000	371.167	424.676	384.415	−67.348
	300.00	25.867	179.629	179.470	424.724	0.048	370.835	424.675	384.165	−66.889
	400.00	25.303	187.022	180.481	427.292	2.616	352.483	424.557	370.677	−48.405
	500.00	24.368	192.566	182.368	429.775	5.099	333.492	424.291	357.234	−37.320
	600.00	23.594	196.937	184.445	432.171	7.495	314.009	423.871	343.860	−29.936
	700.00	23.000	200.528	186.494	434.500	9.824	294.130	423.309	330.567	−24.667
	800.00	22.551	203.568	188.443	436.776	12.100	273.922	422.619	317.364	−20.722
	900.00	22.212	206.204	190.273	439.014	14.338	253.430	421.814	304.254	−17.658
	1000.00	21.957	208.530	191.985	441.221	16.545	232.691	420.905	291.240	−15.213
	1100.00	21.767	210.614	193.585	443.407	18.731	211.732	419.900	278.321	−13.216
	1200.00	21.629	212.501	195.084	445.577	20.901	190.575	418.805	265.498	−11.557
	1300.00	21.530	214.228	196.491	447.734	23.058	169.237	417.625	252.770	−10.156
	1400.00	21.462	215.821	197.816	449.884	25.208	147.734	416.363	240.136	−8.960
	1500.00	21.417	217.300	199.066	452.027	27.351	126.077	415.018	227.594	−7.926
	1600.00	21.413	218.682	200.249	454.168	29.492	104.277	413.591	215.146	−7.024
	1700.00	21.461	219.982	201.372	456.312	31.636	82.343	412.083	202.789	−6.231
	1800.00	21.557	221.211	202.441	458.462	33.786	60.283	394.222	190.664	−5.533
	1900.00	21.704	222.380	203.460	460.625	35.949	38.103	392.076	179.414	−4.932
	2000.00	21.906	223.498	204.434	462.805	38.129	15.809	389.946	168.276	−4.395
	2100.00	22.168	224.573	205.367	465.008	40.332	−6.595	387.840	157.245	−3.911
	2200.00	22.496	225.612	206.264	467.241	42.565	−29.105	385.763	146.313	−3.474
	2300.00	22.893	226.620	207.127	469.509	44.833	−51.717	383.722	135.475	−3.077
	2400.00	23.362	227.604	207.960	471.822	47.146	−74.428	381.725	124.724	−2.715
	2500.00	23.901	228.568	208.765	474.184	49.508	−97.237	379.778	114.056	−2.383
	2600.00	24.511	229.517	209.545	476.604	51.928	−120.141	377.888	103.465	−2.079
	2700.00	25.189	230.455	210.302	479.089	54.413	−143.140	376.063	92.945	−1.798
	2800.00	25.931	231.384	211.039	481.644	56.968	−166.232	374.309	82.491	−1.539
	2900.00	26.732	232.308	211.756	484.277	59.601	−189.416	372.632	72.099	−1.299
	3000.00	27.587	233.229	212.456	486.992	62.316	−212.693	371.038	61.763	−1.075
	3100.00	28.488	234.148	213.141	489.796	65.120	−236.062	369.532	51.479	−0.867
	3200.00	29.430	235.067	213.812	492.691	68.015	−259.523	368.118	41.242	−0.673
	3300.00	30.404	235.987	214.470	495.683	71.007	−283.076	366.800	31.048	−0.491
	3400.00	31.402	236.910	215.117	498.773	74.097	−306.720	365.581	20.892	−0.321
	3500.00	32.414	237.835	215.752	501.964	77.288	−330.458	364.462	10.771	−0.161
	3600.00	33.433	238.762	216.379	505.256	80.580	−354.287	363.445	0.680	−0.010
	3700.00	34.447	239.692	216.996	508.650	83.974	−378.210	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

YAsO4 — YTTRIUM ARSENATE — 227.825

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	120.750	160.540	160.540	−1515.110	0.000	−1562.975	−1515.110	−1416.752	248.209
	300.00	121.056	161.288	160.542	−1514.886	0.224	−1563.273	−1515.090	−1416.142	246.572
	400.00	133.037	197.928	165.457	−1502.122	12.988	−1581.293	−1513.460	−1383.380	180.651
	500.00	140.495	228.464	175.090	−1488.423	26.687	−1602.655	−1511.195	−1351.113	141.150
	600.00	146.172	254.598	186.216	−1474.080	41.030	−1626.839	−1508.610	−1319.335	114.858
	700.00	151.009	277.502	197.654	−1459.216	55.894	−1653.468	−1505.823	−1288.007	96.112
	784.00	154.717	294.824	207.151	−1446.374	68.736	−1677.516	−1503.355	−1262.011	84.082

References

Phase	H / S	C_p
SOL	G1	G1

YCl3 — YTTRIUM TRICHLORIDE — 195.264

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	92.047	136.817	136.817	−999.976	0.000	−1040.768	−999.976	−927.737	162.536
	300.00	92.221	137.387	136.819	−999.806	0.170	−1041.022	−999.949	−927.288	161.455
	400.00	98.431	164.889	140.526	−990.231	9.745	−1056.186	−998.261	−903.313	117.961
	500.00	101.479	187.214	147.703	−980.220	19.756	−1073.827	−996.355	−879.794	91.911
	600.00	103.281	205.888	155.887	−969.976	30.000	−1093.508	−994.380	−856.666	74.579
	700.00	104.496	221.905	164.201	−959.583	40.393	−1114.917	−992.393	−833.871	62.224
	800.00	105.398	235.920	172.308	−949.087	50.889	−1137.823	−990.421	−811.360	52.976
	900.00	106.117	248.377	180.081	−938.510	61.466	−1162.049	−988.475	−789.095	45.798
	994.00	106.689	258.948	187.047	−928.507	71.469	−1185.901	−986.675	−768.362	40.377
			31.654		31.464					
LIQ	994.00	135.712	290.602	187.047	−897.043	102.933	−1185.901	−955.211	−768.362	40.377
	1000.00	135.712	291.418	187.671	−896.229	103.747	−1187.647	−954.923	−767.235	40.076
	1100.00	135.712	304.353	197.700	−882.658	117.318	−1217.446	−950.173	−748.697	35.553
	1200.00	135.712	316.162	207.087	−869.086	130.890	−1248.480	−945.512	−730.587	31.802
	1300.00	135.712	327.024	215.901	−855.515	144.461	−1280.647	−940.938	−712.863	28.643
	1400.00	135.712	337.082	224.202	−841.944	158.032	−1313.858	−936.450	−695.487	25.949
	1500.00	135.712	346.445	232.043	−828.373	171.603	−1348.040	−932.050	−678.430	23.625
	1600.00	135.712	355.204	239.470	−814.802	185.174	−1383.127	−927.741	−661.663	21.601
	1700.00	135.712	363.431	246.522	−801.230	198.746	−1419.063	−923.526	−645.163	19.823

References

Phase	H / S	C_p
SOL	Pa2	Dw4
LIQ	Dw4	Dw4

145.901 YTTRIUM TRIFLUORIDE **YF3**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL−A	298.15	86.915	88.701	88.701	−1718.369	0.000	−1744.815	−1718.369	−1640.872	287.474
	300.00	87.169	89.239	88.702	−1718.208	0.161	−1744.980	−1718.344	−1640.391	285.618
	400.00	96.161	115.730	92.253	−1708.978	9.391	−1755.270	−1716.621	−1614.651	210.852
	500.00	100.412	137.695	99.211	−1699.127	19.242	−1767.974	−1714.563	−1589.393	166.043
	600.00	102.796	156.231	107.210	−1688.957	29.412	−1782.695	−1712.418	−1564.560	136.207
	700.00	104.299	172.198	115.380	−1678.597	39.772	−1799.135	−1710.274	−1540.087	114.923
	800.00	105.333	186.197	123.376	−1668.112	50.257	−1817.069	−1708.165	−1515.918	98.979
	900.00	106.093	198.649	131.060	−1657.539	60.830	−1836.323	−1706.106	−1492.012	86.594
	1000.00	106.684	209.859	138.389	−1646.899	71.470	−1856.758	−1704.104	−1468.332	76.698
	1100.00	107.164	220.050	145.356	−1636.206	82.163	−1878.261	−1702.161	−1444.849	68.610
	1200.00	107.568	229.392	151.976	−1625.469	92.900	−1900.740	−1700.280	−1421.540	61.878
	1300.00	107.920	238.016	158.267	−1614.694	103.675	−1924.116	−1698.463	−1398.386	56.188
	1350.00	108.080	242.092	161.296	−1609.294	109.075	−1936.119	−1697.579	−1386.862	53.661
			24.050		32.468					
SOL−B	1350.00	122.303	266.143	161.296	−1576.826	141.543	−1936.119	−1665.111	−1386.862	53.661
	1400.00	122.303	270.591	165.121	−1570.711	147.658	−1949.538	−1663.536	−1376.585	51.361
	1428.00	122.303	273.013	167.213	−1567.287	151.082	−1957.148	−1662.665	−1370.855	50.144
			19.587		27.970					
LIQ	1428.00	133.683	292.599	167.213	−1539.317	179.052	−1957.148	−1634.695	−1370.855	50.144
	1500.00	133.683	299.175	173.390	−1529.691	188.678	−1978.454	−1631.670	−1357.627	47.277
	1600.00	133.683	307.803	181.524	−1516.323	202.046	−2008.808	−1627.554	−1339.492	43.730
	1700.00	133.683	315.907	189.193	−1502.955	215.414	−2039.997	−1623.540	−1321.612	40.608
	1800.00	133.683	323.549	196.447	−1489.587	228.782	−2071.974	−1635.902	−1303.823	37.836

References

Phase	H / S	C_p	Remarks	
SOL−A	Pa2	Pa2		orthorhombic
SOL−B	S3	Pa2		hexagonal
LIQ	S3	Pa2		

YI3 YTTRIUM TRIIODIDE 469.619

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	96.018	207.108	207.108	−616.722	0.000	−678.471	−616.722	−613.282	107.444
	300.00	96.141	207.702	207.110	−616.544	0.178	−678.855	−616.744	−613.260	106.778
	400.00	100.892	236.085	210.947	−606.667	10.055	−701.101	−642.012	−611.079	79.799
	500.00	103.709	258.922	218.333	−596.428	20.294	−725.889	−706.811	−597.110	62.380
	600.00	105.765	278.020	226.733	−585.950	30.772	−752.762	−704.777	−575.359	50.089
	700.00	107.461	294.454	235.260	−575.286	41.436	−781.404	−702.648	−553.957	41.337
	800.00	108.966	308.903	243.580	−564.464	52.258	−811.586	−700.450	−532.865	34.793
	900.00	110.359	321.819	251.569	−553.497	63.225	−843.134	−698.196	−512.052	29.719
	1000.00	111.684	333.515	259.188	−542.394	74.328	−875.910	−695.891	−491.492	25.673

References

Phase	H / S	C_p
SOL	Nb1/e	e

YN YTTRIUM NITRIDE 102.913

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	39.302	37.656	37.656	−299.156	0.000	−310.383	−299.156	−268.571	47.053
	300.00	39.416	37.899	37.657	−299.083	0.073	−310.453	−299.159	−268.381	46.729
	400.00	43.623	49.888	39.263	−294.906	4.250	−314.861	−299.127	−258.117	33.707
	500.00	45.919	59.890	42.417	−290.420	8.736	−320.364	−298.859	−247.893	25.897
	600.00	47.463	68.406	46.056	−285.746	13.410	−326.790	−298.494	−237.733	20.696
	700.00	48.651	75.814	49.790	−280.939	18.217	−334.009	−298.098	−227.637	16.986
	800.00	49.650	82.378	53.461	−276.022	23.134	−341.924	−297.703	−217.598	14.208
	900.00	50.538	88.278	57.007	−271.012	28.144	−350.462	−297.323	−207.608	12.049
	1000.00	51.359	93.645	60.406	−265.917	33.239	−359.562	−296.965	−197.659	10.325
	1100.00	52.134	98.577	63.655	−260.742	38.414	−369.177	−296.629	−187.745	8.915
	1200.00	52.879	103.145	66.758	−255.491	43.665	−379.266	−296.317	−177.861	7.742
	1300.00	53.603	107.407	69.723	−250.167	48.989	−389.796	−296.027	−168.001	6.750
	1400.00	54.311	111.405	72.559	−244.771	54.385	−400.738	−295.760	−158.163	5.901
	1500.00	55.008	115.176	75.275	−239.305	59.851	−412.069	−295.517	−148.344	5.166
	1600.00	55.696	118.748	77.882	−233.770	65.386	−423.767	−295.299	−138.539	4.523
	1700.00	56.377	122.145	80.386	−228.166	70.990	−435.813	−295.109	−128.748	3.956
	1800.00	57.053	125.387	82.797	−222.494	76.662	−448.191	−311.224	−118.825	3.448
	1900.00	57.725	128.489	85.121	−216.756	82.400	−460.886	−311.579	−108.126	2.973
	2000.00	58.393	131.467	87.364	−210.950	88.206	−473.884	−311.877	−97.410	2.544
	2100.00	59.058	134.332	89.533	−205.077	94.079	−487.175	−312.116	−86.681	2.156
	2200.00	59.722	137.095	91.632	−199.138	100.018	−500.747	−312.297	−75.941	1.803

References

Phase	H / S	C_p
SOL	Ku1/e	e

225.810 DIYTTRIUM TRIOXIDE **Y2O3**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	102.509	99.081	99.081	−1905.310	0.000	−1934.851	−1905.310	−1816.608	318.262
	300.00	102.795	99.716	99.083	−1905.120	0.190	−1935.035	−1905.300	−1816.058	316.204
	400.00	113.045	130.891	103.264	−1894.259	11.051	−1946.616	−1904.268	−1786.444	233.286
	500.00	118.108	156.716	111.449	−1882.677	22.633	−1961.035	−1902.770	−1757.157	183.569
	600.00	121.128	178.537	120.860	−1870.704	34.606	−1977.826	−1901.170	−1728.184	150.452
	700.00	123.184	197.372	130.475	−1858.483	46.827	−1996.643	−1899.612	−1699.478	126.817
	800.00	124.726	213.926	139.893	−1846.084	59.226	−2017.224	−1898.152	−1670.988	109.104
	900.00	125.969	228.690	148.954	−1833.547	71.763	−2039.368	−1896.808	−1642.675	95.338
	1000.00	127.027	242.018	157.605	−1820.896	84.414	−2062.915	−1895.583	−1614.504	84.333
	1100.00	127.963	254.170	165.839	−1808.146	97.164	−2087.733	−1894.479	−1586.451	75.334
	1200.00	128.817	265.341	173.672	−1795.306	110.004	−2113.716	−1893.491	−1558.493	67.839
	1300.00	129.613	275.684	181.126	−1782.385	122.925	−2140.774	−1892.619	−1530.612	61.501
	1330.00	129.843	278.644	183.292	−1778.493	126.817	−2149.089	−1892.380	−1522.261	59.786
			0.975		1.297					
SOL−B	1330.00	131.796	279.619	183.292	−1777.196	128.114	−2149.089	−1891.083	−1522.261	59.786
	1400.00	131.796	286.379	188.279	−1767.970	137.340	−2168.901	−1890.448	−1502.866	56.073
	1500.00	131.796	295.472	195.126	−1754.790	150.520	−2197.998	−1889.707	−1475.209	51.371
	1600.00	131.796	303.978	201.666	−1741.611	163.699	−2227.975	−1889.163	−1447.595	47.259
	1700.00	131.796	311.968	207.922	−1728.431	176.879	−2258.777	−1888.824	−1420.008	43.632
	1800.00	131.796	319.501	213.913	−1715.252	190.058	−2290.354	−1921.241	−1392.153	40.399
	1900.00	131.796	326.627	219.660	−1702.072	203.238	−2322.663	−1922.290	−1362.730	37.464
	2000.00	131.796	333.387	225.179	−1688.892	216.418	−2355.667	−1923.373	−1333.252	34.821

References

Phase	H / S	C_p
SOL−A	Nb1	Pa1
SOL−B	Pa1	Pa1

$Y_2Zr_2O_7$ DIYTTRIUM DIZIRCONIUM HEPTAOXIDE 472.255

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	215.034	199.995	199.995	-4121.993	0.000	-4181.622	-4121.993	-3917.872	686.395
	300.00	215.736	201.328	199.999	-4121.595	0.398	-4181.993	-4121.976	-3916.605	681.942
	400.00	241.134	267.351	208.829	-4098.584	23.409	-4205.524	-4119.857	-3848.413	502.551
	500.00	253.969	322.672	226.223	-4073.769	48.224	-4235.105	-4116.493	-3780.927	394.991
	600.00	261.858	369.722	246.318	-4047.951	74.042	-4269.784	-4112.749	-3714.163	323.347
	700.00	267.412	410.526	266.927	-4021.473	100.520	-4308.842	-4108.975	-3648.031	272.219
	800.00	271.722	446.525	287.170	-3994.509	127.484	-4351.729	-4105.323	-3582.433	233.909
	900.00	275.308	478.742	306.698	-3967.153	154.840	-4398.021	-4101.865	-3517.282	204.138
	1000.00	278.445	507.914	325.384	-3939.462	182.531	-4447.377	-4098.637	-3452.504	180.340
	1100.00	281.289	534.588	343.207	-3911.474	210.519	-4499.521	-4095.655	-3388.037	160.884
	1200.00	283.932	559.178	360.193	-3883.211	238.782	-4554.225	-4100.346	-3323.387	144.663
	1300.00	286.435	582.004	376.388	-3854.692	267.301	-4611.297	-4096.780	-3258.786	130.940
	1400.00	288.835	603.320	391.845	-3825.928	296.065	-4670.575	-4093.308	-3194.456	119.187
	1500.00	291.160	623.327	406.617	-3796.927	325.066	-4731.918	-4089.955	-3130.370	109.009

References

Phase	H / S	C_p
SOL	K5/e	e

173.040 YTTERBIUM **Yb**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	26.736	59.831	59.831	0.000	0.000	−17.839	0.000	0.000	0.000
	300.00	26.762	59.997	59.832	0.049	0.049	−17.950	0.000	0.000	0.000
	400.00	27.615	67.809	60.892	2.767	2.767	−24.357	0.000	0.000	0.000
	500.00	31.004	74.253	62.931	5.661	5.661	−31.466	0.000	0.000	0.000
	600.00	29.832	80.202	65.330	8.923	8.923	−39.198	0.000	0.000	0.000
	700.00	30.322	84.829	67.793	11.925	11.925	−47.455	0.000	0.000	0.000
	800.00	30.820	88.912	70.182	14.983	14.983	−56.146	0.000	0.000	0.000
	900.00	31.359	92.571	72.470	18.091	18.091	−65.223	0.000	0.000	0.000
	1000.00	31.940	95.907	74.649	21.258	21.258	−74.649	0.000	0.000	0.000
	1033.00	32.022	96.946	75.345	22.313	22.313	−77.832	0.000	0.000	0.000
			1.693		1.749					
SOL−B	1033.00	36.108	98.639	75.345	24.062	24.062	−77.832	0.000	0.000	0.000
	1097.00	36.108	100.809	76.768	26.373	26.373	−84.215	0.000	0.000	0.000
			6.980		7.657					
LIQ	1097.00	36.777	107.789	76.768	34.030	34.030	−84.215	0.000	0.000	0.000
	1100.00	36.777	107.890	76.853	34.141	34.141	−84.538	0.000	0.000	0.000
	1200.00	36.777	111.090	79.575	37.818	37.818	−95.489	0.000	0.000	0.000
	1300.00	36.777	114.034	82.114	41.496	41.496	−106.748	0.000	0.000	0.000
	1400.00	36.777	116.759	84.492	45.174	45.174	−118.289	0.000	0.000	0.000
	1465.00	36.777	118.428	85.961	47.564	47.564	−125.933	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL − A	Hu1	Hu1	Hu1	fcc, 2nd order TPT = 553.
SOL − B	Hu1	Hu1		bcc
LIQ	Hu1	Hu1	Hu1	BPT = 1465., L = 128.83 kJ

Yb[g] YTTERBIUM (GAS) 173.040

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.786	173.126	173.126	152.088	0.000	100.470	152.088	118.309	−20.727
	300.00	20.786	173.255	173.127	152.126	0.038	100.150	152.077	118.100	−20.563
	400.00	20.786	179.235	173.942	154.205	2.117	82.511	151.438	106.868	−13.956
	500.00	20.786	183.873	175.482	156.284	4.196	64.347	150.623	95.813	−10.010
	600.00	20.786	187.663	177.205	158.362	6.274	45.765	149.440	84.963	−7.397
	700.00	20.786	190.867	178.934	160.441	8.353	26.834	148.516	74.289	−5.544
	800.00	20.786	193.642	180.603	162.520	10.432	7.606	147.536	63.752	−4.163
	900.00	20.786	196.091	182.191	164.598	12.510	−11.883	146.507	53.340	−3.096
	1000.00	20.786	198.281	183.692	166.677	14.589	−31.604	145.419	43.045	−2.248
	1100.00	20.786	200.262	185.110	168.755	16.667	−51.533	134.615	33.005	−1.567
	1200.00	20.786	202.070	186.449	170.834	18.746	−71.651	133.016	23.839	−1.038
	1300.00	20.786	203.734	187.715	172.913	20.825	−91.942	131.417	14.806	−0.595
	1400.00	20.786	205.275	188.915	174.991	22.903	−112.393	129.817	5.896	−0.220
	1500.00	20.786	206.709	190.054	177.070	24.982	−132.993	0.000	0.000	0.000
	1600.00	20.786	208.050	191.137	179.148	27.060	−153.732	0.000	0.000	0.000
	1700.00	20.786	209.310	192.170	181.227	29.139	−174.601	0.000	0.000	0.000
	1800.00	20.786	210.498	193.155	183.306	31.218	−195.592	0.000	0.000	0.000
	1900.00	20.786	211.622	194.098	185.384	33.296	−216.698	0.000	0.000	0.000
	2000.00	20.786	212.689	195.001	187.463	35.375	−237.914	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

YbCl2 YTTERBIUM DICHLORIDE 243.945

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	82.937	130.541	130.541	−799.562	0.000	−838.483	−799.562	−754.122	132.119
	300.00	82.969	131.054	130.542	−799.409	0.153	−838.725	−799.521	−753.840	131.255
	400.00	84.684	155.157	133.817	−791.026	8.536	−853.089	−797.323	−738.945	96.496
	500.00	86.400	174.238	140.058	−782.472	17.090	−869.591	−795.234	−724.598	75.698
	600.00	88.115	190.143	147.116	−773.746	25.816	−887.832	−793.405	−710.639	61.867
	700.00	89.830	203.854	154.264	−764.849	34.713	−907.547	−791.187	−697.019	52.012
	800.00	91.546	215.962	161.234	−755.780	43.782	−928.549	−788.881	−683.723	44.643
	900.00	93.261	226.843	167.929	−746.540	53.022	−950.698	−786.474	−670.722	38.928
	1000.00	94.977	236.758	174.324	−737.128	62.434	−973.886	−783.970	−657.994	34.370

References

Phase	H / S	C_p
SOL	Nb1/e	e

279.398 YTTERBIUM TRICHLORIDE **YbCl3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	95.348	147.695	147.695	−959.810	0.000	−1003.845	−959.810	−886.223	155.263
	300.00	95.391	148.285	147.697	−959.634	0.176	−1004.119	−959.777	−885.767	154.226
	400.00	97.239	175.999	151.463	−949.996	9.814	−1020.395	−958.057	−861.358	112.482
	500.00	98.596	197.849	158.632	−940.201	19.609	−1039.126	−956.514	−837.369	87.479
	600.00	99.759	215.930	166.717	−930.283	29.527	−1059.840	−955.310	−813.651	70.835
	700.00	100.831	231.389	174.878	−920.253	39.557	−1082.225	−953.797	−790.161	58.963
	800.00	101.854	244.920	182.805	−910.118	49.692	−1106.054	−952.279	−766.888	50.073
	900.00	102.849	256.974	190.389	−899.883	59.927	−1131.160	−950.739	−743.807	43.169
	1000.00	103.826	267.861	197.600	−889.549	70.261	−1157.410	−949.184	−720.897	37.656

References

Phase	H / S	C_p
SOL	Nb1/e	e

279.398 YTTERBIUM TRICHLORIDE (GAS) **YbCl3**[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	78.068	369.988	369.988	−638.897	0.000	−749.209	−638.897	−631.587	110.651
	300.00	78.128	370.471	369.989	−638.753	0.144	−749.894	−638.896	−631.541	109.961
	400.00	80.244	393.280	373.085	−630.819	8.078	−788.131	−638.881	−629.094	82.151
	500.00	81.232	411.304	378.989	−622.740	16.157	−828.392	−639.052	−626.635	65.464
	600.00	81.775	426.167	385.650	−614.587	24.310	−870.287	−639.614	−624.098	54.333
	700.00	82.108	438.799	392.363	−606.392	32.505	−913.551	−639.936	−621.487	46.376
	800.00	82.330	449.779	398.869	−598.169	40.728	−957.992	−640.330	−618.826	40.405
	900.00	82.487	459.485	405.075	−589.928	48.969	−1003.464	−640.784	−616.111	35.758
	1000.00	82.603	468.182	410.958	−581.673	57.224	−1049.855	−641.308	−613.342	32.038
	1100.00	82.694	476.060	416.524	−573.408	65.489	−1097.074	−651.557	−610.375	28.984
	1200.00	82.766	483.258	421.790	−565.135	73.762	−1145.045	−652.607	−606.585	26.404
	1300.00	82.825	489.885	426.776	−556.855	82.042	−1193.706	−653.665	−602.707	24.217
	1400.00	82.875	496.025	431.506	−548.570	90.327	−1243.006	−654.729	−598.748	22.340
	1500.00	82.919	501.745	436.000	−540.280	98.617	−1292.897	−784.018	−591.811	20.609
	1600.00	82.957	507.097	440.278	−531.987	106.910	−1343.342	−783.497	−579.015	18.903
	1700.00	82.992	512.128	444.358	−523.689	115.208	−1394.306	−782.983	−566.250	17.399
	1800.00	83.023	516.872	448.256	−515.388	123.509	−1445.758	−782.476	−553.516	16.063
	1900.00	83.052	521.362	451.987	−507.085	131.812	−1497.672	−781.977	−540.810	14.868
	2000.00	83.078	525.622	455.563	−498.778	140.119	−1550.023	−781.487	−528.129	13.793

References

Phase	H / S	C_p
GAS	Pa2	Pa2

Yb2O3 DIYTTERBIUM TRIOXIDE 394.078

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	115.352	133.101	133.101	−1814.517	0.000	−1854.201	−1814.517	−1726.777	302.524
	300.00	115.572	133.816	133.104	−1814.303	0.214	−1854.448	−1814.484	−1726.233	300.564
	400.00	123.310	168.282	137.750	−1802.304	12.213	−1869.617	−1812.376	−1697.119	221.621
	500.00	126.906	196.229	146.742	−1789.774	24.743	−1887.888	−1810.222	−1668.564	174.314
	600.00	128.871	219.556	156.988	−1776.976	37.541	−1908.710	−1808.687	−1640.374	142.807
	700.00	130.066	239.518	167.386	−1764.025	50.492	−1931.687	−1806.623	−1612.486	120.325
	800.00	130.851	256.941	177.515	−1750.976	63.541	−1956.529	−1804.696	−1584.886	103.482
	900.00	131.397	272.386	187.214	−1737.862	76.655	−1983.010	−1802.905	−1557.518	90.396
	1000.00	131.795	286.252	196.437	−1724.702	89.815	−2010.954	−1801.271	−1530.342	79.937
	1100.00	132.096	298.828	205.182	−1711.507	103.010	−2040.217	−1819.106	−1503.037	71.373
	1200.00	132.332	310.332	213.472	−1698.285	116.232	−2070.684	−1818.563	−1474.328	64.176
	1300.00	132.521	320.932	221.336	−1685.042	129.475	−2102.254	−1818.050	−1445.663	58.087
	1365.00	132.625	327.401	226.234	−1676.424	138.093	−2123.326	−1817.732	−1427.052	54.609
			0.460		0.628					
SOL−B	1365.00	134.516	327.861	226.234	−1675.796	138.721	−2123.326	−1817.104	−1427.052	54.609
	1400.00	134.516	331.266	228.817	−1671.088	143.429	−2134.861	−1816.872	−1417.053	52.871
	1500.00	134.516	340.547	235.960	−1657.637	156.880	−2168.457	−2072.674	−1382.717	48.150
	1600.00	134.516	349.228	242.771	−1644.185	170.332	−2202.951	−2068.880	−1336.843	43.643
	1700.00	134.516	357.383	249.275	−1630.734	183.783	−2238.285	−2065.124	−1291.206	39.674
	1800.00	134.516	365.072	255.497	−1617.282	197.235	−2274.412	−2061.403	−1245.789	36.152
	1900.00	134.516	372.345	261.457	−1603.831	210.686	−2311.286	−2057.718	−1200.578	33.006
	2000.00	134.516	379.245	267.176	−1590.379	224.138	−2348.868	−2054.068	−1155.560	30.180

References

Phase	H / S	C_p
SOL−A	Nb1	Pa1
SOL−B	Pa1	Pa1

65.390 ZINC **Zn**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	25.402	41.631	41.631	0.000	0.000	−12.412	0.000	0.000	0.000
	300.00	25.414	41.788	41.631	0.047	0.047	−12.489	0.000	0.000	0.000
	400.00	26.260	49.207	42.637	2.628	2.628	−17.055	0.000	0.000	0.000
	500.00	27.324	55.178	44.566	5.306	5.306	−22.283	0.000	0.000	0.000
	600.00	28.473	60.261	46.769	8.095	8.095	−28.061	0.000	0.000	0.000
	692.65	29.575	64.427	48.857	10.784	10.784	−33.841	0.000	0.000	0.000
			10.571		7.322					
LIQ	692.65	31.380	74.998	48.857	18.106	18.106	−33.841	0.000	0.000	0.000
	700.00	31.380	75.329	49.133	18.337	18.337	−34.393	0.000	0.000	0.000
	800.00	31.380	79.519	52.675	21.475	21.475	−42.140	0.000	0.000	0.000
	900.00	31.380	83.215	55.867	24.613	24.613	−50.280	0.000	0.000	0.000
	1000.00	31.380	86.521	58.770	27.751	27.751	−58.770	0.000	0.000	0.000
	1100.00	31.380	89.512	61.431	30.889	30.889	−67.574	0.000	0.000	0.000
	1179.00	31.380	91.688	63.386	33.368	33.368	−74.733	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL	Hu1	Hu1	Hu1	MPT= 692.655
LIQ	Hu1	Hu1	Hu1	BPT= 1179., L= 115.33 kJ

Zn[g] ZINC (GAS) 65.390

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	20.786	160.984	160.984	130.415	0.000	82.418	130.415	94.830	−16.614
	300.00	20.786	161.113	160.985	130.453	0.038	82.120	130.406	94.609	−16.473
	400.00	20.786	167.093	161.800	132.532	2.117	65.695	129.904	82.750	−10.806
	500.00	20.786	171.731	163.340	134.611	4.196	48.745	129.305	71.028	−7.420
	600.00	20.786	175.521	165.063	136.689	6.274	31.377	128.594	59.438	−5.175
	700.00	20.786	178.725	166.792	138.768	8.353	13.661	120.431	48.054	−3.586
	800.00	20.786	181.500	168.461	140.847	10.432	−4.354	119.372	37.786	−2.467
	900.00	20.786	183.949	170.049	142.925	12.510	−22.629	118.312	27.652	−1.605
	1000.00	20.786	186.139	171.550	145.004	14.589	−41.135	117.253	17.635	−0.921
	1100.00	20.786	188.120	172.968	147.082	16.667	−59.849	116.193	7.725	−0.367
	1200.00	20.786	189.928	174.307	149.161	18.746	−78.753	0.000	0.000	0.000
	1300.00	20.786	191.592	175.573	151.240	20.825	−97.830	0.000	0.000	0.000
	1400.00	20.786	193.133	176.773	153.318	22.903	−117.068	0.000	0.000	0.000
	1500.00	20.786	194.567	177.912	155.397	24.982	−136.453	0.000	0.000	0.000
	1600.00	20.786	195.908	178.995	157.475	27.060	−155.978	0.000	0.000	0.000
	1700.00	20.786	197.168	180.028	159.554	29.139	−175.632	0.000	0.000	0.000
	1800.00	20.786	198.356	181.013	161.633	31.218	−195.409	0.000	0.000	0.000
	1900.00	20.786	199.480	181.956	163.711	33.296	−215.301	0.000	0.000	0.000
	2000.00	20.786	200.547	182.859	165.790	35.375	−235.303	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Hu1	Hu1

346.013 ZINC ARSENIDE **Zn3As2**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL−3	298.15	125.233	168.038	168.038	−133.888	0.000	−183.988	−133.888	−125.460	21.980
	300.00	125.311	168.813	168.040	−133.656	0.232	−184.300	−133.889	−125.408	21.835
	400.00	129.495	205.435	173.005	−120.916	12.972	−203.090	−133.904	−122.578	16.007
	463.00	132.131	224.564	178.747	−112.675	21.213	−216.648	−133.908	−120.794	13.628
			0.000		0.000					
SOL−2	463.00	132.131	224.564	178.747	−112.675	21.213	−216.648	−133.908	−120.794	13.628
	500.00	133.679	234.781	182.519	−107.757	26.131	−225.148	−133.913	−119.746	12.510
	600.00	137.863	259.523	193.343	−94.180	39.708	−249.894	−133.949	−116.910	10.178
	700.00	142.047	281.089	204.370	−80.185	53.703	−276.947	−156.034	−113.831	8.494
	800.00	146.231	300.330	215.183	−65.771	68.117	−306.035	−156.498	−107.767	7.036
	900.00	150.415	317.795	225.629	−50.939	82.949	−336.954	−156.645	−101.663	5.900
	965.00	153.134	328.378	232.196	−41.073	92.815	−357.958	−156.548	−97.695	5.288
			0.000		0.000					
SOL−1	965.00	153.134	328.378	232.196	−41.073	92.815	−357.958	−156.548	−97.695	5.288
	1000.00	153.134	333.833	235.659	−35.714	98.174	−369.547	−156.453	−95.562	4.992
	1100.00	153.134	348.429	245.258	−20.400	113.488	−403.671	−156.228	−89.484	4.249
	1200.00	153.134	361.753	254.419	−5.087	128.801	−439.190	−501.632	−77.151	3.358
	1218.00	153.134	364.033	256.022	−2.330	131.558	−445.722	−501.109	−70.788	3.036
			127.100		154.808					
LIQ	1218.00	154.808	491.133	256.022	152.478	286.366	−445.722	−346.301	−70.788	3.036
	1300.00	154.808	501.220	271.173	165.172	299.060	−486.413	−344.084	−52.316	2.102
	1400.00	154.808	512.692	288.020	180.653	314.541	−537.116	−342.395	−29.944	1.117
	1500.00	154.808	523.373	303.358	196.134	330.022	−588.925	−535.384	5.216	−0.182

References

Phase	H / S	C_p	Remarks	
SOL−3	Tk1	e	Tk1	TPT= 463.
SOL−2	u	e	Tk1	TPT= 965.
SOL−1	u	e		
LIQ	Tk1	e		

Zn3(AsO4)2 — ZINC ARSENATE — 474.008

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	255.279	281.918	281.918	−2134.744	0.000	−2218.798	−2134.744	−1915.611	335.607
	300.00	255.945	283.499	281.923	−2134.271	0.473	−2219.321	−2134.721	−1914.252	333.301
	400.00	281.754	361.055	292.322	−2107.251	27.493	−2251.673	−2132.340	−1841.069	240.419
	500.00	297.369	425.714	312.717	−2078.246	56.498	−2291.102	−2128.739	−1768.653	184.770
	600.00	308.973	480.996	336.267	−2047.907	86.837	−2336.504	−2124.651	−1697.014	147.738
	700.00	318.682	529.370	360.469	−2016.513	118.231	−2387.072	−2142.356	−1625.846	121.322
	800.00	327.382	572.501	384.325	−1984.204	150.540	−2442.204	−2138.273	−1552.332	101.357
	900.00	335.495	611.534	407.436	−1951.056	183.688	−2501.436	−2133.726	−1479.358	85.860
	979.00	341.639	640.017	425.067	−1924.308	210.436	−2550.885	−2129.775	−1422.085	75.875

References

Phase	H / S	C_p
SOL	G1	G1

ZnBr2 — ZINC BROMIDE — 225.198

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	65.692	135.980	135.980	−329.700	0.000	−370.242	−329.700	−312.449	54.740
	300.00	65.772	136.387	135.981	−329.578	0.122	−370.494	−329.765	−312.342	54.384
	400.00	70.124	155.904	138.613	−322.784	6.916	−385.145	−360.034	−300.274	39.212
	500.00	74.475	172.019	143.726	−315.554	14.146	−401.563	−359.174	−285.427	29.818
	600.00	78.827	185.982	149.630	−307.889	21.811	−419.478	−358.017	−270.782	23.574
	675.15	82.097	195.473	154.211	−301.842	27.858	−433.816	−356.949	−259.918	20.109
			23.177		15.648					
LIQ	675.15	113.805	218.650	154.211	−286.194	43.506	−433.816	−341.301	−259.918	20.109
	700.00	113.805	222.764	156.572	−283.366	46.334	−439.301	−347.471	−256.866	19.168
	800.00	113.805	237.960	165.817	−271.985	57.715	−462.354	−342.976	−244.229	15.947
	900.00	113.805	251.365	174.592	−260.605	69.095	−486.833	−338.491	−232.155	13.474
	943.00	113.805	256.676	178.215	−255.711	73.989	−497.757	−336.565	−227.120	12.581

References

Phase	H / S	C_p	Remarks	
SOL	Tk1	Ku1		
LIQ	Tk1	Ku1	Tk1	NBPT= 943., L= 109.6 kJ

225.198

ZINC BROMIDE (GAS) — ZnBr2[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	59.147	300.520	300.520	−185.770	0.000	−275.370	−185.770	−217.576	38.118
	300.00	59.199	300.886	300.521	−185.661	0.109	−275.926	−185.848	−217.774	37.918
	400.00	61.032	318.205	302.870	−179.636	6.134	−306.918	−216.886	−222.047	28.996
	500.00	61.880	331.926	307.357	−173.486	12.284	−339.448	−217.106	−223.312	23.329
	600.00	62.341	343.252	312.423	−167.272	18.498	−373.224	−217.400	−224.528	19.547
	700.00	62.619	352.885	317.533	−161.023	24.747	−408.043	−225.128	−225.608	16.835
	800.00	62.799	361.259	322.486	−154.752	31.018	−443.759	−225.742	−225.635	14.732
	900.00	62.923	368.663	327.214	−148.466	37.304	−480.262	−226.351	−225.585	13.093
	1000.00	63.011	375.298	331.696	−142.169	43.601	−517.466	−226.958	−225.467	11.777
	1100.00	63.076	381.306	335.937	−135.864	49.906	−555.301	−227.565	−225.288	10.698
	1200.00	63.126	386.797	339.950	−129.554	56.216	−593.710	−343.306	−222.965	9.705
	1300.00	63.165	391.851	343.751	−123.239	62.531	−632.646	−342.855	−212.955	8.557
	1400.00	63.196	396.533	347.356	−116.921	68.849	−672.068	−342.407	−202.980	7.573
	1500.00	63.220	400.894	350.781	−110.600	75.170	−711.942	−341.962	−193.036	6.722
	1600.00	63.241	404.975	354.042	−104.277	81.493	−752.238	−341.520	−183.122	5.978
	1700.00	63.258	408.810	357.152	−97.952	87.818	−792.929	−341.082	−173.236	5.323
	1800.00	63.272	412.426	360.123	−91.626	94.144	−833.992	−340.647	−163.375	4.741
	1900.00	63.284	415.847	362.967	−85.298	100.472	−875.407	−340.216	−153.539	4.221
	2000.00	63.294	419.093	365.693	−78.969	106.801	−917.156	−339.788	−143.724	3.754

References

Phase	H / S	C_p
GAS	Tk1	e

125.399

ZINC CARBONATE — ZnCO3

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	80.077	82.400	82.400	−812.780	0.000	−837.347	−812.780	−731.477	128.152
	300.00	80.333	82.896	82.401	−812.632	0.148	−837.500	−812.776	−730.972	127.274
	400.00	94.140	107.897	85.717	−803.908	8.872	−847.067	−812.127	−703.779	91.904
	500.00	107.947	130.387	92.434	−793.804	18.976	−858.997	−810.620	−676.848	70.710

References

Phase	H / S	C_p
SOL	Nb1	Ku1

ZnCl2 — ZINC CHLORIDE — 136.295

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	71.338	111.462	111.462	−415.053	0.000	−448.285	−415.053	−369.351	64.709
	300.00	71.412	111.903	111.463	−414.921	0.132	−448.492	−415.031	−369.067	64.260
	400.00	74.758	132.931	114.308	−407.604	7.449	−460.776	−413.761	−353.934	46.219
	500.00	77.437	149.908	119.783	−399.991	15.062	−474.945	−412.398	−339.134	35.429
	590.00	79.620	162.902	125.392	−392.922	22.131	−489.034	−411.104	−326.055	28.867
			17.375		10.251					
LIQ	590.00	79.481	180.277	125.392	−382.671	32.382	−489.034	−400.853	−326.055	28.867
	600.00	79.713	181.615	126.318	−381.875	33.178	−490.844	−400.707	−324.789	28.275
	700.00	82.026	194.076	135.126	−373.788	41.265	−509.641	−406.538	−312.176	23.295
	800.00	84.339	205.180	143.201	−365.470	49.583	−529.614	−405.063	−298.794	19.509
	900.00	86.651	215.247	150.656	−356.920	58.133	−550.643	−403.377	−285.609	16.576
	999.50	88.953	224.452	157.550	−348.184	66.869	−572.524	−401.486	−272.688	14.251

References

Phase	H / S	C_p	Remarks
SOL	Nb1,Tk1	Pa2	
LIQ	Tk1	Pa2	e BPT= 999.5, L= 125.08 kJ

ZnCl2[g] — ZINC CHLORIDE (GAS) — 136.295

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	56.902	276.672	276.672	−265.684	0.000	−348.174	−265.684	−269.239	47.170
	300.00	56.969	277.024	276.673	−265.579	0.105	−348.686	−265.688	−269.261	46.883
	400.00	59.310	293.782	278.942	−259.748	5.936	−377.261	−265.906	−270.419	35.313
	500.00	60.394	307.146	283.292	−253.757	11.927	−407.330	−266.164	−271.519	28.365
	600.00	60.982	318.214	288.217	−247.685	17.999	−438.614	−266.517	−272.559	23.728
	700.00	61.337	327.644	293.192	−241.568	24.116	−470.918	−274.318	−273.453	20.405
	800.00	61.568	335.850	298.023	−235.422	30.262	−504.102	−275.015	−273.282	17.843
	900.00	61.726	343.111	302.637	−229.257	36.427	−538.057	−275.714	−273.023	15.846
	1000.00	61.839	349.621	307.015	−223.078	42.606	−572.699	−276.414	−272.687	14.244
	1100.00	61.922	355.519	311.161	−216.890	48.794	−607.961	−277.118	−272.280	12.929
	1200.00	61.986	360.910	315.085	−210.695	54.989	−643.786	−392.958	−269.720	11.741
	1300.00	62.035	365.873	318.804	−204.493	61.191	−680.129	−392.609	−259.464	10.425
	1400.00	62.074	370.472	322.332	−198.288	67.396	−716.949	−392.263	−249.235	9.299
	1500.00	62.106	374.756	325.686	−192.079	73.605	−754.212	−391.921	−239.031	8.324
	1600.00	62.132	378.765	328.879	−185.867	79.817	−791.891	−391.584	−228.849	7.471
	1700.00	62.153	382.532	331.926	−179.653	86.031	−829.957	−391.251	−218.688	6.719
	1800.00	62.171	386.085	334.837	−173.436	92.248	−868.390	−390.924	−208.547	6.052
	1900.00	62.187	389.447	337.623	−167.218	98.466	−907.168	−390.602	−198.424	5.455
	2000.00	62.200	392.637	340.295	−160.999	104.685	−946.274	−390.286	−188.318	4.918

References

Phase	H / S	C_p
GAS	Tk1	e

103.387 ZINC FLUORIDE **ZnF2**

Phase	T	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[–]
SOL–A	298.15	65.647	73.680	73.680	–764.417	0.000	–786.385	–764.417	–713.509	125.004
	300.00	65.775	74.087	73.681	–764.295	0.122	–786.521	–764.400	–713.193	124.178
	400.00	71.075	93.796	76.333	–757.432	6.985	–794.950	–763.331	–696.278	90.925
	500.00	74.785	110.071	81.500	–750.131	14.286	–805.167	–762.072	–679.657	71.003
	600.00	77.869	123.985	87.448	–742.495	21.922	–816.886	–760.698	–663.302	57.746
	700.00	80.659	136.201	93.558	–734.567	29.850	–829.907	–766.562	–647.106	48.288
	800.00	83.290	147.144	99.584	–726.369	38.048	–844.084	–765.107	–630.138	41.144
	900.00	85.830	157.102	105.429	–717.912	46.505	–859.303	–763.437	–613.365	35.599
	1000.00	88.314	166.274	111.061	–709.204	55.213	–875.478	–761.547	–596.790	31.173
	1090.00	90.517	173.978	115.941	–701.157	63.260	–890.793	–759.659	–582.043	27.892
			2.879		3.138					
SOL–B	1090.00	90.772	176.857	115.941	–698.019	66.398	–890.793	–756.521	–582.043	27.892
	1100.00	91.040	177.687	116.499	–697.110	67.307	–892.566	–756.297	–580.443	27.563
	1200.00	93.713	185.723	121.936	–687.872	76.545	–910.740	–869.060	–562.470	24.484
	1220.00	94.248	187.277	122.994	–685.993	78.424	–914.470	–868.344	–557.366	23.864
			32.717		39.915					
LIQ	1220.00	100.416	219.994	122.994	–646.078	118.339	–914.470	–828.429	–557.366	23.864
	1300.00	100.416	226.372	129.162	–638.044	126.373	–932.327	–825.057	–539.699	21.685
	1400.00	100.416	233.813	136.375	–628.003	136.414	–955.341	–820.857	–517.906	19.323
	1500.00	100.416	240.741	143.104	–617.961	146.456	–979.073	–816.671	–496.413	17.287
	1600.00	100.416	247.222	149.411	–607.919	156.498	–1003.475	–812.498	–475.199	15.514
	1700.00	100.416	253.310	155.346	–597.878	166.539	–1028.504	–808.336	–454.245	13.957
	1776.30	100.416	257.718	159.649	–590.216	174.201	–1048.001	–805.169	–438.423	12.892

References

Phase	H / S	C_p	Remarks	
SOL–A	Nb1,Tk1	Pa2		
SOL–B	Pa2	Pa2		
LIQ	Pa2	Pa2	Tk1	BPT= 1776., L= 184.9 kJ

ZnF2[g] ZINC FLUORIDE (GAS) 103.387

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	51.882	254.500	254.500	−494.520	0.000	−570.399	−494.520	−497.524	87.164
	300.00	52.033	254.821	254.501	−494.424	0.096	−570.870	−494.529	−497.542	86.630
	400.00	57.360	270.627	256.620	−488.917	5.603	−597.168	−494.816	−498.496	65.097
	500.00	59.881	283.728	260.771	−483.042	11.478	−624.905	−494.982	−499.396	52.172
	600.00	61.298	294.781	265.542	−476.977	17.543	−653.845	−495.180	−500.261	43.552
	700.00	62.194	304.303	270.415	−470.799	23.721	−683.811	−502.794	−501.010	37.386
	800.00	62.811	312.650	275.184	−464.547	29.973	−714.667	−503.286	−500.721	32.694
	900.00	63.268	320.076	279.767	−458.242	36.278	−746.310	−503.767	−500.372	29.041
	1000.00	63.624	326.761	284.137	−451.897	42.623	−778.657	−504.240	−499.969	26.116
	1100.00	63.914	332.839	288.293	−445.519	49.001	−811.642	−504.707	−499.519	23.720
	1200.00	64.159	338.411	292.240	−439.115	55.405	−845.208	−620.303	−496.938	21.631
	1300.00	64.374	343.555	295.992	−432.689	61.831	−879.310	−619.701	−486.682	19.555
	1400.00	64.565	348.333	299.562	−426.242	68.278	−913.907	−619.096	−476.472	17.777
	1500.00	64.739	352.793	302.964	−419.776	74.744	−948.966	−618.486	−466.306	16.238
	1600.00	64.901	356.977	306.210	−413.294	81.226	−984.457	−617.872	−456.181	14.893
	1700.00	65.053	360.916	309.314	−406.796	87.724	−1020.353	−617.255	−446.094	13.707
	1800.00	65.197	364.638	312.285	−400.284	94.236	−1056.632	−616.633	−436.044	12.654
	1900.00	65.335	368.167	315.134	−393.757	100.763	−1093.274	−616.008	−426.028	11.712
	2000.00	65.467	371.522	317.870	−387.217	107.303	−1130.260	−615.379	−416.045	10.866

References

Phase	H / S	C_p
GAS	Tk1,e	Tk1,e

ZnI2 ZINC IODIDE 319.199

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	65.692	161.500	161.500	−208.150	0.000	−256.301	−208.150	−209.261	36.662
	300.00	65.772	161.907	161.501	−208.028	0.122	−256.600	−208.176	−209.268	36.437
	400.00	70.124	181.424	164.133	−201.234	6.916	−273.803	−225.601	−208.863	27.275
	500.00	74.475	197.539	169.246	−194.004	14.146	−292.773	−269.243	−200.466	20.943
	600.00	78.827	211.502	175.150	−186.339	21.811	−313.240	−268.118	−186.811	16.263
	700.00	83.178	223.980	181.249	−178.238	29.912	−335.024	−274.022	−173.291	12.931
	719.00	84.005	226.219	182.408	−176.650	31.500	−339.301	−273.746	−170.561	12.391
			23.277		16.736					
LIQ	719.00	87.864	249.496	182.408	−159.914	48.236	−339.301	−257.010	−170.561	12.391
	800.00	87.864	258.875	189.684	−152.797	55.353	−359.897	−255.491	−160.904	10.506
	900.00	87.864	269.224	197.958	−144.011	64.139	−386.312	−253.623	−149.193	8.659
	1000.00	87.864	278.481	205.556	−135.224	72.926	−413.706	−251.762	−137.690	7.192
	1022.84	87.864	280.466	207.206	−133.217	74.933	−420.089	−251.338	−135.089	6.899

References

Phase	H / S	C_p	Remarks
SOL	Tk1	e	
LIQ	Tk1	e	e BPT= 1022.84, L= 109.732 kJ

319.199 ZINC IODIDE (GAS) **ZnI2[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	54.886	316.800	316.800	−65.438	0.000	−159.892	−65.438	−112.852	19.771
	300.00	54.938	317.140	316.801	−65.336	0.102	−160.478	−65.484	−113.146	19.700
	400.00	56.771	333.233	318.983	−59.738	5.700	−193.031	−84.105	−128.091	16.727
	500.00	57.619	346.003	323.154	−54.014	11.424	−227.015	−129.253	−134.708	14.073
	600.00	58.080	356.553	327.867	−48.227	17.211	−262.158	−130.006	−135.730	11.816
	700.00	58.358	365.528	332.622	−42.404	23.034	−298.273	−138.188	−136.540	10.189
	800.00	58.538	373.333	337.234	−36.558	28.880	−335.225	−139.252	−136.232	8.895
	900.00	58.662	380.236	341.636	−30.698	34.740	−372.910	−140.310	−135.791	7.881
	1000.00	58.750	386.421	345.810	−24.827	40.611	−411.248	−141.365	−135.232	7.064
	1100.00	58.815	392.024	349.761	−18.949	46.489	−450.175	−142.419	−134.568	6.390
	1200.00	58.865	397.144	353.499	−13.065	52.373	−489.637	−258.609	−131.718	5.734
	1300.00	58.904	401.857	357.040	−7.176	58.262	−529.590	−258.606	−121.144	4.868
	1400.00	58.935	406.223	360.399	−1.284	64.154	−569.997	−258.607	−110.570	4.125
	1500.00	58.959	410.290	363.591	4.611	70.049	−610.825	−258.611	−99.996	3.482
	1600.00	58.980	414.096	366.630	10.508	75.946	−652.046	−258.618	−89.421	2.919
	1700.00	58.997	417.672	369.528	16.406	81.844	−693.636	−258.630	−78.846	2.423
	1800.00	59.011	421.045	372.298	22.307	87.745	−735.574	−258.647	−68.270	1.981
	1900.00	59.023	424.236	374.948	28.209	93.647	−777.839	−258.668	−57.693	1.586
	2000.00	59.033	427.263	377.489	34.111	99.549	−820.415	−258.693	−47.115	1.231

References

Phase	H / S	C_p
GAS	Tk1	e

224.183 ZINC NITRIDE **Zn3N2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	109.334	108.784	108.784	−22.602	0.000	−55.036	−22.602	39.329	−6.890
	300.00	109.495	109.461	108.786	−22.400	0.202	−55.238	−22.594	39.713	−6.915
	400.00	118.198	142.153	113.185	−11.015	11.587	−67.876	−21.870	60.390	−7.886
	500.00	126.901	169.463	121.778	1.240	23.842	−83.491	−20.589	80.817	−8.443
	600.00	135.603	193.369	131.756	14.365	36.967	−101.656	−18.815	100.940	−8.788
	700.00	144.306	214.925	142.122	28.361	50.963	−122.087	−38.587	120.962	−9.026

References

Phase	H / S	C_p
SOL	Nb1/Pa3	Pa3

ZnO ZINC OXIDE 81.389

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	41.086	43.639	43.639	−350.460	0.000	−363.471	−350.460	−320.476	56.146
	300.00	41.179	43.894	43.640	−350.384	0.076	−363.552	−350.458	−320.290	55.768
	400.00	44.684	56.277	45.305	−346.071	4.389	−368.582	−350.212	−310.265	40.517
	500.00	46.698	66.480	48.550	−341.495	8.965	−374.735	−349.843	−300.321	31.374
	600.00	48.125	75.126	52.277	−336.750	13.710	−381.826	−349.468	−290.452	25.286
	700.00	49.274	82.633	56.089	−331.879	18.581	−389.722	−356.465	−280.565	20.936
	800.00	50.276	89.280	59.830	−326.900	23.560	−398.324	−356.293	−269.734	17.612
	900.00	51.192	95.255	63.440	−321.826	28.634	−407.556	−356.060	−258.927	15.028
	1000.00	52.055	100.694	66.897	−316.664	33.796	−417.357	−355.766	−248.150	12.962
	1100.00	52.883	105.694	70.200	−311.417	39.043	−427.680	−355.412	−237.405	11.273
	1200.00	53.687	110.330	73.353	−306.088	44.372	−438.484	−470.129	−224.605	9.777
	1300.00	54.475	114.659	76.366	−300.680	49.780	−449.736	−468.591	−204.207	8.205
	1400.00	55.250	118.724	79.248	−295.193	55.267	−461.407	−466.990	−183.930	6.862
	1500.00	56.017	122.562	82.009	−289.630	60.830	−473.473	−465.326	−163.769	5.703
	1600.00	56.776	126.202	84.658	−283.990	66.470	−485.913	−463.598	−143.721	4.692
	1700.00	57.531	129.666	87.205	−278.275	72.185	−498.708	−461.808	−123.783	3.803
	1800.00	58.281	132.976	89.656	−272.484	77.976	−511.841	−459.954	−103.952	3.017
	1900.00	59.028	136.147	92.020	−266.619	83.841	−525.298	−458.036	−84.226	2.316
	2000.00	59.772	139.194	94.303	−260.679	89.781	−539.066	−456.056	−64.603	1.687
	2100.00	60.514	142.128	96.511	−254.664	95.796	−553.133	−454.013	−45.081	1.121
	2200.00	61.255	144.960	98.649	−248.576	101.884	−567.489	−451.908	−25.657	0.609
	2248.00	61.609	146.286	99.652	−245.627	104.833	−574.479	−450.875	−16.368	0.380
			24.196		54.392					
LIQ	2248.00	60.668	170.482	99.652	−191.235	159.225	−574.479	−396.483	−16.368	0.380
	2300.00	60.668	171.869	101.270	−188.080	162.380	−583.380	−395.406	−7.587	0.172
	2400.00	60.668	174.451	104.265	−182.014	168.446	−600.697	−393.344	9.230	−0.201
	2500.00	60.668	176.928	107.123	−175.947	174.513	−618.267	−391.293	25.962	−0.542

References

Phase	H / S	C_p	Remarks	
SOL	Co1	Pa1	Ku1,Tk1	MPT= 2248.
LIQ	e	e		

404.297 TRIZINC DISULFATE OXIDE **Zn3O(SO4)2**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	246.856	290.579	290.579	-2366.742	0.000	-2453.378	-2366.742	-2121.786	371.728
	300.00	247.532	292.108	290.584	-2366.285	0.457	-2453.917	-2366.755	-2120.266	369.171
	400.00	278.387	367.833	300.698	-2339.888	26.854	-2487.021	-2370.633	-2037.949	266.129
	500.00	298.556	432.279	320.734	-2310.970	55.772	-2527.109	-2371.319	-1954.718	204.208
	600.00	312.310	487.997	344.075	-2280.388	86.354	-2573.187	-2370.475	-1871.451	162.924
	700.00	322.655	536.948	368.202	-2248.620	118.122	-2624.484	-2390.696	-1788.182	133.436
	800.00	331.193	580.605	392.073	-2215.917	150.825	-2680.400	-2389.143	-1702.213	111.143
	900.00	338.746	620.057	415.247	-2182.414	184.328	-2740.465	-2492.791	-1614.151	93.683
	1000.00	345.724	656.112	437.557	-2148.186	218.556	-2804.299	-2487.227	-1516.818	79.230
	1100.00	352.306	689.375	458.957	-2113.282	253.460	-2871.594	-2481.213	-1420.065	67.433
	1200.00	358.544	720.299	479.462	-2077.736	289.006	-2942.096	-2820.150	-1317.611	57.354

References

Phase	H / S	C_p
SOL	Pa3	Pa3

141.474 ZINC METASILICATE **ZnSiO3**

Phase	T [K]	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[-]
SOL	298.15	84.762	89.538	89.538	-1262.572	0.000	-1289.268	-1262.572	-1179.497	206.643
	300.00	84.852	90.062	89.539	-1262.415	0.157	-1289.434	-1262.581	-1178.982	205.279
	400.00	89.705	115.137	92.925	-1253.687	8.885	-1299.742	-1263.013	-1151.048	150.311
	500.00	94.558	135.676	99.480	-1244.474	18.098	-1312.312	-1263.345	-1123.016	117.321
	600.00	99.412	153.345	107.017	-1234.776	27.796	-1326.782	-1263.552	-1094.929	95.322
	700.00	104.265	169.034	114.776	-1224.592	37.980	-1342.915	-1270.940	-1066.741	79.601
	800.00	109.119	183.273	122.461	-1213.923	48.649	-1360.541	-1270.923	-1037.567	67.746
	900.00	113.972	196.406	129.957	-1202.768	59.804	-1379.533	-1270.576	-1008.415	58.527
	1000.00	118.826	208.665	137.221	-1191.128	71.444	-1399.793	-1269.876	-979.320	51.154
	1100.00	123.679	220.218	144.246	-1179.003	83.569	-1421.243	-1268.808	-950.313	45.127
	1200.00	128.532	231.187	151.038	-1166.392	96.180	-1443.817	-1382.492	-919.330	40.017
	1300.00	133.386	241.667	157.609	-1153.296	109.276	-1467.464	-1379.591	-880.849	35.393
	1400.00	138.239	251.730	163.975	-1139.715	122.857	-1492.137	-1376.292	-842.605	31.438
	1500.00	143.093	261.433	170.150	-1125.649	136.923	-1517.798	-1372.591	-804.611	28.019
	1600.00	147.946	270.823	176.151	-1111.097	151.475	-1544.413	-1368.484	-766.878	25.036
	1700.00	152.800	279.938	181.989	-1096.059	166.513	-1571.953	-1414.146	-728.966	22.398

References

Phase	H / S	C_p
SOL	S5	e

Zn2SiO4 ZINC ORTHOSILICATE (WILLEMITE) 222.863

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	121.830	131.378	131.378	−1644.412	0.000	−1683.582	−1644.412	−1530.818	268.193
	300.00	122.317	132.133	131.380	−1644.186	0.226	−1683.826	−1644.426	−1530.113	266.416
	400.00	140.737	170.147	136.438	−1630.928	13.484	−1698.987	−1644.394	−1491.977	194.832
	500.00	151.247	202.766	146.524	−1616.291	28.121	−1717.674	−1643.510	−1453.964	151.895
	600.00	158.644	231.026	158.305	−1600.780	43.632	−1739.395	−1642.273	−1416.167	123.288
	700.00	164.571	255.939	170.508	−1584.610	59.802	−1763.768	−1655.545	−1378.437	102.860
	800.00	169.715	278.257	182.606	−1567.891	76.521	−1790.497	−1654.284	−1338.932	87.423
	900.00	174.402	298.521	194.377	−1550.683	93.729	−1819.351	−1652.724	−1299.604	75.427
	1000.00	178.807	317.126	205.734	−1533.020	111.392	−1850.146	−1650.871	−1260.465	65.840
	1100.00	183.028	334.367	216.653	−1514.927	129.485	−1882.731	−1648.727	−1221.526	58.005
	1200.00	187.122	350.469	227.141	−1496.419	147.993	−1916.981	−1876.560	−1178.616	51.304
	1300.00	191.128	365.605	237.216	−1477.506	166.906	−1952.792	−1871.712	−1120.648	45.028
	1400.00	195.069	379.914	246.902	−1458.195	186.217	−1990.075	−1866.569	−1063.065	39.663
	1500.00	198.963	393.505	256.226	−1438.493	205.919	−2028.751	−1861.132	−1005.860	35.027
	1600.00	202.820	406.469	265.214	−1418.404	226.008	−2068.755	−1855.399	−949.027	30.983
	1700.00	206.650	418.880	273.891	−1397.930	246.482	−2110.027	−1899.550	−892.115	27.411
	1785.00	209.888	429.041	281.038	−1380.227	264.185	−2146.066	−1894.007	−841.879	24.636
			46.880		83.680					
LIQ	1785.00	213.384	475.921	281.038	−1296.547	347.865	−2146.066	−1810.327	−841.879	24.636
	1800.00	213.384	477.706	282.670	−1293.347	351.065	−2153.218	−1809.275	−833.745	24.195
	1900.00	213.384	489.243	293.241	−1272.008	372.404	−2201.570	−1802.293	−779.739	21.437
	2000.00	213.384	500.188	303.317	−1250.670	393.742	−2251.047	−1795.356	−726.100	18.964

References

Phase	H / S	C_p	Remarks	
SOL	S5	S5	S5	MPT= 1785.
LIQ	e			

242.658 DIZINC TITANIUM TETRAOXIDE **Zn2TiO4**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	137.319	143.101	143.101	−1652.061	0.000	−1694.727	−1652.061	−1538.402	269.522
	300.00	137.807	143.952	143.104	−1651.807	0.254	−1694.992	−1652.056	−1537.697	267.737
	400.00	155.765	186.378	148.766	−1637.016	15.045	−1711.568	−1650.958	−1499.706	195.842
	500.00	165.322	222.253	159.974	−1620.922	31.139	−1732.048	−1649.038	−1462.106	152.745
	600.00	171.573	252.980	172.977	−1604.059	48.002	−1755.847	−1646.859	−1424.923	124.051
	700.00	176.262	279.794	186.361	−1586.658	65.403	−1782.514	−1659.322	−1387.953	103.570
	800.00	180.119	303.589	199.555	−1568.834	83.227	−1811.705	−1657.419	−1349.314	88.101
	900.00	183.492	325.003	212.324	−1550.650	101.411	−1843.153	−1655.403	−1310.921	76.084
	1000.00	186.565	344.497	224.581	−1532.146	119.915	−1876.642	−1653.292	−1272.758	66.482
	1100.00	189.441	362.414	236.308	−1513.344	138.717	−1912.000	−1651.091	−1234.810	58.636
	1200.00	192.184	379.016	247.517	−1494.262	157.799	−1949.081	−1883.062	−1192.769	51.920
	1300.00	194.832	394.504	258.234	−1474.910	177.151	−1987.766	−1878.020	−1135.449	45.623
	1400.00	197.412	409.038	268.492	−1455.298	196.763	−2027.950	−1872.840	−1078.521	40.240
	1500.00	199.942	422.744	278.323	−1435.430	216.631	−2069.546	−1867.530	−1021.969	35.588
	1600.00	202.433	435.728	287.759	−1415.311	236.750	−2112.475	−1862.096	−965.774	31.529
	1700.00	204.894	448.074	296.829	−1394.944	257.117	−2156.670	−1856.548	−909.924	27.959
	1800.00	207.332	459.855	305.561	−1374.332	277.729	−2202.071	−1850.894	−854.402	24.794
	1900.00	209.752	471.129	313.981	−1353.478	298.583	−2248.624	−1845.138	−799.198	21.971
	2000.00	212.157	481.950	322.110	−1332.383	319.678	−2296.282	−1853.417	−743.855	19.427

References

Phase	H / S	C_p
SOL	Nb1	Ku1,e

ZnP2 ZINC DIPHOSPHIDE 127.338

Phase	T [K]	C_p J / (K mol)	S J / (K mol)	−(G−H298)/T J / (K mol)	H kJ / mol	H−H298 kJ / mol	G kJ / mol	ΔH_f kJ / mol	ΔG_f kJ / mol	log K_f [−]
SOL	298.15	73.184	60.250	60.250	−101.671	0.000	−119.634	−101.671	−82.732	14.494
	300.00	73.253	60.703	60.251	−101.536	0.135	−119.746	−101.671	−82.615	14.384
	400.00	76.248	82.213	63.164	−94.051	7.620	−126.936	−103.270	−75.883	9.909
	500.00	78.534	99.481	68.756	−86.309	15.362	−136.049	−103.471	−69.010	7.209
	600.00	80.540	113.979	75.117	−78.353	23.318	−146.741	−103.570	−62.107	5.407
	700.00	82.414	126.536	81.585	−70.205	31.466	−158.780	−110.929	−55.116	4.113
	800.00	84.217	137.660	87.912	−61.873	39.798	−172.001	−111.000	−47.136	3.078
	900.00	85.980	147.681	94.005	−53.363	48.308	−186.276	−110.893	−39.157	2.273
	1000.00	87.718	156.830	99.837	−44.678	56.993	−201.508	−110.611	−31.200	1.630
	1100.00	89.438	165.271	105.407	−35.820	65.851	−217.618	−110.156	−23.280	1.105
	1200.00	91.148	173.127	110.726	−26.790	74.881	−234.543	−351.806	−11.140	0.485
	1258.00	92.136	177.452	113.704	−21.475	80.196	−244.710	−349.850	5.279	−0.219
			74.168		93.303					
LIQ	1258.00	91.211	251.620	113.704	71.828	173.499	−244.710	−256.547	5.279	−0.219
	1300.00	91.211	254.615	118.208	75.659	177.330	−255.341	−255.151	13.997	−0.562
	1400.00	91.211	261.375	128.196	84.780	186.451	−281.145	−251.834	34.577	−1.290
	1500.00	91.211	267.668	137.287	93.901	195.572	−307.601	−248.525	54.919	−1.912
	1600.00	91.211	273.555	145.621	103.022	204.693	−334.665	−245.224	75.041	−2.450
	1700.00	91.211	279.084	153.311	112.143	213.814	−362.300	−241.928	94.957	−2.918
	1800.00	91.211	284.298	160.445	121.264	222.935	−390.472	−238.639	114.678	−3.328

References

Phase	H / S	C_p
SOL	Ku1	e
LIQ	Tk1	e

258.118 TRIZINC DIPHOSPHIDE **Zn3P2**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL−1	298.15	116.870	150.624	150.624	−194.974	0.000	−239.883	−194.974	−178.156	31.212
	300.00	117.129	151.348	150.626	−194.758	0.216	−240.162	−194.987	−178.051	31.002
	400.00	127.139	186.567	155.360	−182.491	12.483	−257.118	−196.966	−171.955	22.455
	500.00	133.173	215.628	164.593	−169.457	25.517	−277.271	−197.231	−165.665	17.307
	600.00	137.641	240.319	175.208	−155.908	39.066	−300.099	−197.315	−159.342	13.872
	700.00	141.370	261.823	186.078	−141.953	53.021	−325.229	−219.350	−152.778	11.400
	800.00	144.705	280.921	196.762	−127.647	67.327	−352.383	−219.723	−143.238	9.352
	900.00	147.811	298.146	207.085	−113.019	81.955	−381.351	−219.775	−133.671	7.758
	1000.00	150.775	313.874	216.989	−98.089	96.885	−411.963	−219.524	−124.115	6.483
	1100.00	153.646	328.379	226.464	−82.867	112.107	−444.085	−218.982	−114.598	5.442
	1153.00	155.140	335.644	231.317	−74.685	120.289	−461.683	−218.579	−109.578	4.964
			0.000		0.000					
SOL−2	1153.00	155.140	335.644	231.317	−74.685	120.289	−461.683	−218.579	−109.578	4.964
	1200.00	156.453	341.869	235.526	−67.362	127.612	−477.605	−690.700	−96.696	4.209
	1300.00	159.216	354.501	244.197	−51.578	143.396	−512.430	−684.868	−47.430	1.906
	1400.00	161.947	366.401	252.505	−35.520	159.454	−548.481	−678.770	1.376	−0.051
	1466.00	163.736	373.902	257.802	−24.772	170.202	−572.912	−674.602	33.344	−1.188
			111.307		163.176					
LIQ	1466.00	155.645	485.209	257.802	138.404	333.378	−572.912	−511.426	33.344	−1.188
	1500.00	155.645	488.777	262.997	143.696	338.670	−589.470	−509.524	45.957	−1.600
	1600.00	155.645	498.822	277.426	159.260	354.234	−638.855	−503.936	82.806	−2.703
	1700.00	155.645	508.258	290.730	174.825	369.799	−689.214	−498.355	119.307	−3.666
	1800.00	155.645	517.155	303.064	190.389	385.363	−740.489	−492.779	155.479	−4.512

References

Phase	H / S	C_p
SOL−1	Tk1/Ku1	e
SOL−2	u	e
LIQ	Tk1	e

Zn3(PO4)2 ZINC PHOSPHATE 386.113

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	234.054	237.000	237.000	−2899.500	0.000	−2970.162	−2899.500	−2663.777	466.683
	300.00	234.340	238.449	237.004	−2899.067	0.433	−2970.601	−2899.513	−2662.314	463.550
	400.00	249.820	307.984	246.381	−2874.859	24.641	−2998.052	−2901.435	−2582.797	337.279
	500.00	265.300	365.393	264.598	−2849.103	50.397	−3031.799	−2901.215	−2503.146	261.502
	600.00	280.780	415.131	285.629	−2821.799	77.701	−3070.877	−2900.182	−2423.615	210.994
	700.00	296.260	459.576	307.357	−2792.947	106.553	−3114.650	−2920.338	−2344.089	174.918
	800.00	311.740	500.147	328.955	−2762.547	136.953	−3162.664	−2917.965	−2261.915	147.688
	900.00	327.220	537.758	350.090	−2730.599	168.901	−3214.581	−2914.318	−2180.114	126.531
	1000.00	342.700	573.035	370.638	−2697.103	202.397	−3270.138	−2909.349	−2098.790	109.630
	1100.00	358.180	606.424	390.568	−2662.059	237.441	−3329.125	−2903.021	−2018.029	95.828
	1200.00	373.660	638.253	409.892	−2625.467	274.033	−3391.371	−3367.848	−1929.458	83.987
	1215.00	375.982	642.910	412.740	−2619.844	279.656	−3400.980	−3365.860	−1911.491	82.178
			15.638		19.000					
SOL−B	1215.00	377.000	658.547	412.740	−2600.844	298.656	−3400.980	−3346.860	−1911.491	82.178
	1300.00	377.000	684.040	429.655	−2568.799	330.701	−3458.052	−3335.465	−1811.464	72.786
	1333.00	377.000	693.491	436.070	−2556.358	343.142	−3480.782	−3331.067	−1772.833	69.470

References

Phase	H / S	C_p	Remarks	
SOL−A	e	e		
SOL−B	e	e	Tk1	MPT= 1333.

97.456 ZINC SULFIDE (WURTZITE) **ZnS**

Phase	T	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[–]
SOL–W	298.15	45.882	67.990	67.990	–191.836	0.000	–212.107	–191.836	–190.137	33.311
	300.00	45.951	68.274	67.991	–191.751	0.085	–212.233	–191.840	–190.127	33.104
	400.00	48.509	81.887	69.830	–187.013	4.823	–219.768	–194.264	–189.436	24.738
	500.00	49.932	92.877	73.376	–182.085	9.751	–228.524	–195.917	–188.060	19.646
	600.00	50.907	102.071	77.413	–177.041	14.795	–238.284	–197.238	–186.356	16.224
	700.00	51.671	109.978	81.513	–171.911	19.925	–248.895	–205.659	–184.378	13.758
	800.00	52.323	116.921	85.514	–166.711	25.125	–260.247	–206.956	–181.251	11.834
	900.00	52.909	123.118	89.354	–161.448	30.388	–272.255	–261.039	–176.806	10.262
	1000.00	53.455	128.721	93.015	–156.130	35.706	–284.851	–260.694	–167.465	8.747
	1100.00	53.974	133.840	96.497	–150.758	41.078	–297.983	–260.302	–158.161	7.510
	1200.00	54.475	138.558	99.808	–145.336	46.500	–311.606	–375.000	–146.805	6.390
	1300.00	54.963	142.938	102.959	–139.864	51.972	–325.683	–373.461	–127.850	5.137
	1400.00	55.442	147.029	105.963	–134.344	57.492	–340.184	–371.878	–109.016	4.067
	1500.00	55.914	150.870	108.830	–128.776	63.060	–355.081	–370.253	–90.297	3.144
	1600.00	56.381	154.493	111.572	–123.161	68.675	–370.350	–368.585	–71.688	2.340
	1700.00	56.844	157.925	114.198	–117.500	74.336	–385.973	–366.875	–53.184	1.634
	1800.00	57.304	161.188	116.719	–111.792	80.044	–401.930	–365.122	–34.782	1.009
	1900.00	57.761	164.298	119.142	–106.039	85.797	–418.205	–363.328	–16.478	0.453
	1995.00	58.193	167.127	121.360	–100.531	91.305	–433.949	–361.586	0.822	–0.022
			5.453		10.878					
LIQ	1995.00	60.668	172.579	121.360	–89.653	102.183	–433.949	–350.708	0.822	–0.022
	2000.00	60.668	172.731	121.488	–89.350	102.486	–434.812	–350.602	1.703	–0.044
	2100.00	60.668	175.691	123.999	–83.283	108.553	–452.235	–348.503	19.266	–0.479
	2200.00	60.668	178.513	126.414	–77.216	114.620	–469.946	–346.407	36.730	–0.872
	2300.00	60.668	181.210	128.738	–71.149	120.687	–487.933	–344.314	54.098	–1.229
	2400.00	60.668	183.792	130.978	–65.083	126.753	–506.184	–342.225	71.376	–1.553
	2500.00	60.668	186.269	133.141	–59.016	132.820	–524.688	–340.140	88.566	–1.850

References

Phase	H / S	C_p	Remarks
SOL–W	Mi1	Mi1,e	e/H4 DPT= 1907. GAS (Zn + S2) / DPT= 1862.acc.vapor press.data
LIQ	e	Mi1,e	

ZnS[g] ZINC SULFIDE (GAS) 97.456

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	35.154	247.802	247.802	202.087	0.000	128.205	202.087	150.174	−26.310
	300.00	35.181	248.020	247.803	202.152	0.065	127.746	202.063	149.852	−26.092
	400.00	36.115	258.288	249.196	205.724	3.637	102.408	198.472	132.741	−17.334
	500.00	36.552	266.399	251.854	209.359	7.272	76.160	195.528	116.624	−12.184
	600.00	36.792	273.086	254.852	213.028	10.941	49.176	192.831	101.104	−8.802
	700.00	36.940	278.770	257.873	216.715	14.628	21.576	182.967	86.093	−6.424
	800.00	37.038	283.709	260.801	220.414	18.327	−6.553	180.168	72.443	−4.730
	900.00	37.108	288.076	263.593	224.121	22.034	−35.147	124.531	60.302	−3.500
	1000.00	37.160	291.988	266.241	227.835	25.748	−64.154	123.271	53.233	−2.781
	1100.00	37.200	295.532	268.745	231.553	29.466	−93.532	122.009	46.290	−2.198
	1200.00	37.232	298.770	271.114	235.275	33.188	−123.250	5.610	41.551	−1.809
	1300.00	37.259	301.752	273.358	238.999	36.912	−153.278	5.402	44.555	−1.790
	1400.00	37.282	304.514	275.486	242.726	40.639	−183.593	5.192	47.574	−1.775
	1500.00	37.301	307.086	277.508	246.455	44.368	−214.174	4.978	50.609	−1.762
	1600.00	37.319	309.494	279.432	250.186	48.099	−245.005	4.763	53.658	−1.752
	1700.00	37.334	311.757	281.268	253.919	51.832	−276.068	4.544	56.721	−1.743
	1800.00	37.349	313.892	283.022	257.653	55.566	−307.352	4.323	59.796	−1.735
	1900.00	37.362	315.911	284.700	261.389	59.302	−338.843	4.099	62.884	−1.729
	2000.00	37.374	317.828	286.309	265.126	63.039	−370.531	3.873	65.984	−1.723

References

Phase	H / S	C_p
GAS	Mi1	Mi1

ZnS[S] ZINC SULFIDE (SPHALERITE) 97.456

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−S	298.15	45.358	57.656	57.656	−205.183	0.000	−222.373	−205.183	−200.403	35.110
	300.00	45.435	57.936	57.656	−205.099	0.084	−222.480	−205.188	−200.374	34.888
	400.00	48.321	71.451	59.479	−200.394	4.789	−228.975	−207.646	−198.643	25.940
	500.00	49.940	82.421	63.005	−195.475	9.708	−236.686	−209.307	−196.221	20.499
	600.00	51.061	91.630	67.029	−190.423	14.760	−245.401	−210.619	−193.473	16.843
	700.00	51.945	99.570	71.124	−185.271	19.912	−254.970	−219.019	−190.453	14.212
	800.00	52.705	106.557	75.125	−180.038	25.145	−265.283	−220.283	−186.286	12.163
	900.00	53.391	112.805	78.970	−174.732	30.451	−276.256	−274.323	−180.808	10.494
	1000.00	54.032	118.463	82.641	−169.361	35.822	−287.824	−273.924	−170.438	8.903
	1100.00	54.644	123.642	86.136	−163.927	41.256	−299.933	−273.471	−160.111	7.603
	1200.00	55.235	128.422	89.464	−158.433	46.750	−312.539	−388.097	−147.738	6.431
	1293.00	55.772	132.565	92.416	−153.271	51.912	−324.677	−386.592	−129.167	5.218

References

Phase	H / S	C_p	Remarks	
SOL−S	Mi1,e	Mi1	Mi1	TPT= 1293. (SPHALERITE − WURTZITE)

161.454 ZINC SULFATE **ZnSO4**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−2	298.15	99.062	110.499	110.499	−982.801	0.000	−1015.746	−982.801	−871.448	152.674
	300.00	99.203	111.113	110.501	−982.618	0.183	−1015.951	−982.815	−870.757	151.612
	400.00	106.818	140.694	114.483	−972.317	10.484	−1028.594	−985.619	−833.216	108.807
	500.00	114.432	165.348	122.254	−961.254	21.547	−1043.928	−987.254	−794.940	83.047
	600.00	122.047	186.885	131.266	−949.430	33.371	−1061.561	−988.115	−756.380	65.849
	700.00	129.662	206.270	140.618	−936.845	45.956	−1081.234	−995.590	−717.662	53.553
	800.00	137.277	224.081	149.952	−923.498	59.303	−1102.763	−995.415	−677.964	44.267
	900.00	144.892	240.690	159.121	−909.389	73.412	−1126.010	−1047.461	−637.168	36.980
	1000.00	152.507	256.350	168.068	−894.519	88.282	−1150.869	−1044.488	−591.733	30.909
	1015.00	153.649	258.629	169.390	−892.223	90.578	−1154.731	−1043.986	−584.945	30.103
			20.075		20.376					
SOL−1	1015.00	145.185	278.704	169.390	−871.847	110.954	−1154.731	−1023.610	−584.945	30.103
	1100.00	145.185	290.380	178.294	−859.506	123.295	−1178.924	−1021.474	−548.297	26.036
	1200.00	145.185	303.012	188.168	−844.988	137.813	−1208.603	−1134.174	−503.300	21.908
	1300.00	145.185	314.633	197.455	−830.469	152.332	−1239.493	−1130.754	−450.866	18.116
	1400.00	145.185	325.393	206.214	−815.951	166.850	−1271.501	−1127.400	−398.693	14.875
	1500.00	145.185	335.409	214.497	−801.433	181.368	−1304.547	−1124.106	−346.758	12.075

References

Phase	H / S	C_p	Remarks	
SOL−2	Nb1	Tk1,e	Tk1	α-Zincosite
SOL−1	Pa3	Pa3		

179.469 ZINC SULFATE MONOHYDRATE **ZnSO4*H2O**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	153.559	145.515	145.515	−1301.517	0.000	−1344.902	−1301.517	−1131.059	198.157
	300.00	153.720	146.466	145.518	−1301.233	0.284	−1345.172	−1301.511	−1130.001	196.751
	400.00	162.423	191.880	151.652	−1285.426	16.091	−1362.178	−1303.200	−1072.811	140.095
	500.00	171.126	229.059	163.521	−1268.748	32.769	−1383.277	−1303.673	−1015.171	106.054
	600.00	179.828	261.028	177.167	−1251.200	50.317	−1407.817	−1303.318	−957.488	83.357
	700.00	188.531	289.402	191.210	−1232.783	68.734	−1435.364	−1309.526	−899.853	67.148
	800.00	197.234	315.145	205.116	−1213.494	88.023	−1465.610	−1308.031	−841.424	54.939

References

Phase	H / S	C_p
SOL	Tk1	Tk1,e

ZnSO4*2H2O ZINC SULFATE DIHYDRATE 197.484

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	198.738	192.464	192.464	−1596.033	0.000	−1653.416	−1596.033	−1370.028	240.023
	300.00	198.928	193.694	192.468	−1595.665	0.368	−1653.773	−1596.024	−1368.626	238.299
	365.00	205.605	233.340	196.312	−1582.518	13.515	−1667.687	−1595.607	−1319.395	188.817

References

Phase	H / S	C_p	Remarks	
SOL	Tk1	Tk1,e	Tk1	MPT= 365.

ZnSO4*6H2O ZINC SULFATE HEXAHYDRATE 269.545

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	357.966	355.891	355.891	−2778.971	0.000	−2885.080	−2778.971	−2323.514	407.070
	300.00	358.226	358.106	355.898	−2778.309	0.662	−2885.740	−2778.990	−2320.688	404.068
	400.00	372.267	463.084	370.116	−2741.784	37.187	−2927.018	−2781.918	−2167.708	283.074
	500.00	386.309	547.662	397.430	−2703.855	75.116	−2977.686	−2783.400	−2013.991	210.400
	600.00	400.350	619.335	428.587	−2664.522	114.449	−3036.123	−2783.804	−1860.050	161.932
	700.00	414.392	682.104	460.410	−2623.785	155.186	−3101.258	−2790.519	−1706.051	127.307
	800.00	428.433	738.355	491.696	−2581.644	197.327	−3172.328	−2789.277	−1551.203	101.283

References

Phase	H / S	C_p	Remarks	
SOL	Tk1	Tk1,e	Tk1	NDPT= 344. (LIQ + ZnSO4*H2O)

287.561

ZINC SULFATE HEPTAHYDRATE **ZnSO4*7H2O**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	379.151	388.694	388.694	−3078.537	0.000	−3194.426	−3078.537	−2563.315	449.082
	300.00	379.430	391.040	388.701	−3077.835	0.702	−3195.147	−3078.597	−2560.118	445.756
	400.00	394.543	502.265	403.764	−3039.137	39.400	−3240.043	−3083.743	−2386.744	311.677
	500.00	409.655	591.928	432.707	−2998.927	79.610	−3294.891	−3087.396	−2212.078	231.094
	600.00	424.768	667.953	465.734	−2957.206	121.331	−3357.977	−3089.921	−2036.756	177.315
	700.00	439.881	734.566	499.475	−2913.973	164.564	−3428.169	−3098.705	−1861.023	138.871
	800.00	454.993	794.290	532.656	−2869.229	209.308	−3504.662	−3099.482	−1684.149	109.964

References

Phase	H / S	C_p	Remarks	
SOL	Tk1	Tk1,e	Tk1	NDPT= 321. (LIQ + ZnSO4*6H2O)

144.350

ZINC SELENIDE **ZnSe**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	51.888	70.291	70.291	−158.992	0.000	−179.949	−158.992	−154.938	27.144
	300.00	51.898	70.612	70.292	−158.896	0.096	−180.080	−158.990	−154.913	26.973
	400.00	52.476	85.621	72.335	−153.677	5.315	−187.926	−159.020	−153.557	20.052
	500.00	53.053	97.393	76.211	−148.401	10.591	−197.097	−165.232	−152.077	15.887
	600.00	53.631	107.117	80.575	−143.067	15.925	−207.337	−166.202	−149.355	13.003
	700.00	54.208	115.427	84.974	−137.675	21.317	−218.474	−174.566	−146.389	10.924
	800.00	54.785	122.704	89.245	−132.225	26.767	−230.388	−175.769	−142.281	9.290
	900.00	55.363	129.190	93.329	−126.718	32.274	−242.988	−176.914	−138.026	8.011
	1000.00	55.940	135.053	97.213	−121.153	37.839	−256.205	−178.001	−133.646	6.981
	1100.00	56.517	140.411	100.900	−115.530	43.462	−269.982	−232.342	−124.207	5.898
	1200.00	57.095	145.354	104.401	−109.849	49.143	−284.274	−347.002	−112.307	4.889
	1300.00	57.672	149.947	107.730	−104.111	54.881	−299.041	−345.398	−92.814	3.729

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	Mi1	Mi1	MPT= 1799.

ZnSe[g] ZINC SELENIDE (GAS) 144.350

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	36.175	249.936	249.936	237.233	0.000	162.715	237.233	187.726	−32.889
	300.00	36.190	250.160	249.937	237.300	0.067	162.252	237.206	187.419	−32.633
	400.00	36.714	260.654	251.364	240.949	3.716	136.687	235.606	171.057	−22.338
	500.00	36.958	268.876	254.074	244.634	7.401	110.196	227.803	155.217	−16.215
	600.00	37.091	275.627	257.120	248.337	11.104	82.961	225.202	140.942	−12.270
	700.00	37.172	281.351	260.183	252.050	14.817	55.105	215.159	127.189	−9.491
	800.00	37.225	286.318	263.146	255.770	18.537	26.716	212.227	114.822	−7.497
	900.00	37.262	290.705	265.969	259.495	22.262	−2.140	209.299	102.823	−5.968
	1000.00	37.289	294.632	268.643	263.223	25.990	−31.410	206.374	91.149	−4.761
	1100.00	37.309	298.187	271.170	266.953	29.720	−61.054	150.140	84.722	−4.023
	1200.00	37.325	301.434	273.558	270.684	33.451	−91.037	33.532	80.930	−3.523
	1300.00	37.338	304.423	275.819	274.417	37.184	−121.332	33.130	84.896	−3.411
	1400.00	37.348	307.190	277.962	278.152	40.919	−151.914	32.742	88.892	−3.317
	1500.00	37.357	309.767	279.998	281.887	44.654	−182.764	32.367	92.916	−3.236
	1600.00	37.365	312.178	281.934	285.623	48.390	−213.862	32.006	96.965	−3.166
	1700.00	37.371	314.444	283.781	289.360	52.127	−245.194	31.658	101.035	−3.104
	1800.00	37.377	316.580	285.544	293.097	55.864	−276.747	31.323	105.126	−3.051
	1900.00	37.382	318.601	287.231	296.835	59.602	−308.506	31.002	109.235	−3.003
	2000.00	37.386	320.518	288.848	300.574	63.341	−340.463	30.694	113.361	−2.961

References

Phase	H / S	C_p
GAS	Mi1	Mi1

ZnSeO3 ZINC SELENITE 192.348

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	93.661	98.324	98.324	−652.286	0.000	−681.601	−652.286	−564.843	98.958
	300.00	93.763	98.904	98.326	−652.113	0.173	−681.784	−652.288	−564.300	98.253
	400.00	99.286	126.634	102.069	−642.460	9.826	−693.114	−652.341	−534.960	69.859
	500.00	104.809	149.383	109.321	−632.255	20.031	−706.947	−658.213	−505.533	52.813
	600.00	110.332	168.980	117.667	−621.498	30.788	−722.886	−658.499	−474.965	41.349
	700.00	115.855	186.402	126.264	−610.189	42.097	−740.670	−665.828	−444.295	33.154
	800.00	121.378	202.233	134.785	−598.327	53.959	−760.114	−665.624	−412.656	26.944
	894.00	126.569	216.000	142.609	−586.674	65.612	−779.778	−665.023	−382.962	22.376
			51.949		46.442					
LIQ	894.00	140.164	267.949	142.609	−540.232	112.054	−779.778	−618.581	−382.962	22.376
	900.00	140.164	268.886	143.447	−539.391	112.895	−781.389	−618.448	−381.381	22.135
	1000.00	140.164	283.654	156.743	−525.374	126.912	−809.029	−616.277	−355.157	18.552

References

Phase	H / S	C_p
SOL	Tk1	e
LIQ	Tk1	e

192.990

ZINC TELLURIDE

ZnTe

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	49.688	77.822	77.822	−119.244	0.000	−142.447	−119.244	−115.277	20.196
	300.00	49.723	78.130	77.823	−119.152	0.092	−142.591	−119.247	−115.252	20.067
	400.00	51.597	92.691	79.796	−114.086	5.158	−151.162	−119.447	−113.894	14.873
	500.00	53.472	104.406	83.583	−108.833	10.411	−161.036	−119.778	−112.471	11.750
	600.00	55.346	114.321	87.900	−103.392	15.852	−171.984	−120.253	−110.967	9.661
	700.00	57.220	122.993	92.306	−97.763	21.481	−183.858	−128.215	−109.294	8.156
	800.00	59.095	130.756	96.636	−91.948	27.296	−196.552	−146.728	−104.651	6.833
	900.00	60.969	137.825	100.825	−85.944	33.300	−209.987	−147.628	−99.335	5.765
	1000.00	62.844	144.345	104.855	−79.754	39.490	−224.099	−148.341	−93.929	4.906
	1100.00	64.718	150.423	108.724	−73.376	45.868	−238.841	−148.866	−88.461	4.201
	1200.00	66.593	156.134	112.440	−66.810	52.434	−254.172	−264.339	−80.864	3.520
	1300.00	68.467	161.539	116.010	−60.057	59.187	−270.058	−263.430	−65.610	2.636

References

Phase	H / S	C_p	Remarks
SOL	Mi1	Mi1	Mi1 MPT= 1570.

192.990

ZINC TELLURIDE (GAS)

ZnTe[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	36.507	257.844	257.844	255.224	0.000	178.348	255.224	205.518	−36.006
	300.00	36.518	258.070	257.844	255.292	0.068	177.871	255.197	205.209	−35.730
	400.00	36.903	268.636	259.283	258.965	3.741	151.511	253.605	188.779	−24.652
	500.00	37.082	276.892	262.009	262.666	7.442	124.220	251.720	172.785	−18.051
	600.00	37.180	283.662	265.070	266.379	11.155	96.182	249.518	157.199	−13.685
	700.00	37.240	289.399	268.147	270.100	14.876	67.521	239.649	142.086	−10.603
	800.00	37.279	294.374	271.121	273.826	18.602	38.327	219.047	130.229	−8.503
	900.00	37.306	298.766	273.953	277.556	22.332	8.666	215.872	119.317	−6.925
	1000.00	37.326	302.698	276.635	281.287	26.063	−21.411	212.700	108.759	−5.681
	1100.00	37.341	306.256	279.168	285.021	29.797	−51.861	209.530	98.519	−4.678
	1200.00	37.353	309.506	281.563	288.755	33.531	−82.652	91.227	90.656	−3.946
	1300.00	37.362	312.496	283.829	292.491	37.267	−113.754	89.119	90.694	−3.644
	1400.00	37.370	315.265	285.977	296.228	41.004	−145.144	40.572	93.385	−3.484
	1500.00	37.376	317.844	288.016	299.965	44.741	−176.800	40.039	97.176	−3.384
	1600.00	37.382	320.256	289.957	303.703	48.479	−208.707	39.514	101.002	−3.297
	1700.00	37.386	322.522	291.806	307.441	52.217	−240.847	38.995	104.861	−3.222
	1800.00	37.391	324.660	293.573	311.180	55.956	−273.207	38.481	108.751	−3.156
	1900.00	37.394	326.681	295.263	314.920	59.696	−305.775	37.976	112.668	−3.097
	2000.00	37.398	328.599	296.882	318.659	63.435	−338.540	37.482	116.612	−3.046

References

Phase	H / S	C_p
GAS	Mi1	Mi1

ZnWO4 ZINC TUNGSTATE 313.238

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	124.933	129.704	129.704	−1228.841	0.000	−1267.512	−1228.841	−1123.033	196.751
	300.00	125.129	130.477	129.706	−1228.610	0.231	−1267.753	−1228.810	−1122.377	195.423
	400.00	133.158	167.671	134.723	−1215.662	13.179	−1282.730	−1226.851	−1087.180	141.971
	500.00	138.674	198.004	144.438	−1202.058	26.783	−1301.060	−1224.558	−1052.524	109.956
	600.00	143.202	223.697	155.560	−1187.959	40.882	−1322.177	−1222.125	−1018.344	88.655
	700.00	147.263	246.081	166.927	−1173.433	55.408	−1345.690	−1226.951	−984.500	73.464
	800.00	151.074	265.996	178.088	−1158.515	70.326	−1371.311	−1224.489	−950.030	62.031
	900.00	154.741	284.003	188.872	−1143.223	85.618	−1398.825	−1221.835	−915.880	53.156
	1000.00	158.318	300.492	199.220	−1127.570	101.271	−1428.061	−1218.977	−882.036	46.073
	1100.00	161.837	315.747	209.129	−1111.561	117.280	−1458.883	−1215.904	−848.489	40.291
	1200.00	165.315	329.978	218.613	−1095.203	133.638	−1491.177	−1327.741	−813.142	35.395
	1300.00	168.765	343.346	227.699	−1078.499	150.342	−1524.849	−1323.151	−770.443	30.957
	1400.00	172.195	355.979	236.415	−1061.451	167.390	−1559.821	−1318.325	−728.107	27.166
	1500.00	175.610	367.976	244.789	−1044.061	184.780	−1596.024	−1313.258	−686.124	23.893
	1600.00	179.013	379.418	252.848	−1026.329	202.512	−1633.398	−1307.949	−644.487	21.040

References

Phase	H / S	C_p
SOL	Tk1	e

91.224 ZIRCONIUM **Zr**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL−A	298.15	25.202	38.869	38.869	0.000	0.000	−11.589	0.000	0.000	0.000
	300.00	25.218	39.025	38.869	0.047	0.047	−11.661	0.000	0.000	0.000
	400.00	25.935	46.383	39.868	2.606	2.606	−15.947	0.000	0.000	0.000
	500.00	26.564	52.238	41.776	5.231	5.231	−20.888	0.000	0.000	0.000
	600.00	27.281	57.142	43.939	7.922	7.922	−26.363	0.000	0.000	0.000
	700.00	28.053	61.404	46.136	10.688	10.688	−32.295	0.000	0.000	0.000
	800.00	28.966	65.208	48.286	13.537	13.537	−38.629	0.000	0.000	0.000
	900.00	30.003	68.678	50.362	16.485	16.485	−45.326	0.000	0.000	0.000
	1000.00	31.128	71.897	52.356	19.541	19.541	−52.356	0.000	0.000	0.000
	1100.00	32.306	74.919	54.271	22.712	22.712	−59.698	0.000	0.000	0.000
	1135.00	32.724	75.937	54.924	23.850	23.850	−62.338	0.000	0.000	0.000
			3.539		4.017					
SOL−B	1135.00	28.329	79.476	54.924	27.867	27.867	−62.338	0.000	0.000	0.000
	1200.00	28.511	81.059	56.297	29.714	29.714	−67.556	0.000	0.000	0.000
	1300.00	28.879	83.355	58.291	32.583	32.583	−75.778	0.000	0.000	0.000
	1400.00	29.353	85.512	60.159	35.494	35.494	−84.223	0.000	0.000	0.000
	1500.00	29.934	87.556	61.918	38.457	38.457	−92.877	0.000	0.000	0.000
	1600.00	30.621	89.509	63.582	41.484	41.484	−101.731	0.000	0.000	0.000
	1700.00	31.414	91.389	65.163	44.585	44.585	−110.776	0.000	0.000	0.000
	1800.00	32.314	93.209	66.670	47.770	47.770	−120.007	0.000	0.000	0.000
	1900.00	33.320	94.983	68.114	51.051	51.051	−129.417	0.000	0.000	0.000
	2000.00	34.433	96.720	69.501	54.438	54.438	−139.002	0.000	0.000	0.000
	2100.00	35.652	98.429	70.838	57.941	57.941	−148.760	0.000	0.000	0.000
	2125.00	35.973	98.853	71.165	58.837	58.837	−151.226	0.000	0.000	0.000
			9.845		20.920					
LIQ	2125.00	41.840	108.698	71.165	79.757	79.757	−151.226	0.000	0.000	0.000
	2200.00	41.840	110.149	72.469	82.895	82.895	−159.433	0.000	0.000	0.000
	2300.00	41.840	112.009	74.148	87.079	87.079	−170.541	0.000	0.000	0.000
	2400.00	41.840	113.789	75.763	91.263	91.263	−181.832	0.000	0.000	0.000
	2500.00	41.840	115.497	77.319	95.447	95.447	−193.297	0.000	0.000	0.000
	2600.00	41.840	117.138	78.819	99.631	99.631	−204.929	0.000	0.000	0.000
	2700.00	41.840	118.717	80.268	103.815	103.815	−216.722	0.000	0.000	0.000
	2800.00	41.840	120.239	81.668	107.999	107.999	−228.671	0.000	0.000	0.000
	2900.00	41.840	121.707	83.024	112.183	112.183	−240.768	0.000	0.000	0.000
	3000.00	41.840	123.126	84.337	116.367	116.367	−253.010	0.000	0.000	0.000
	3100.00	41.840	124.498	85.610	120.551	120.551	−265.392	0.000	0.000	0.000
	3200.00	41.840	125.826	86.846	124.735	124.735	−277.908	0.000	0.000	0.000
	3300.00	41.840	127.113	88.047	128.919	128.919	−290.556	0.000	0.000	0.000
	3400.00	41.840	128.363	89.215	133.103	133.103	−303.330	0.000	0.000	0.000
	3500.00	41.840	129.575	90.351	137.287	137.287	−316.227	0.000	0.000	0.000
	3600.00	41.840	130.754	91.457	141.471	141.471	−329.244	0.000	0.000	0.000
	3700.00	41.840	131.900	92.534	145.655	145.655	−342.377	0.000	0.000	0.000
	3800.00	41.840	133.016	93.585	149.839	149.839	−355.623	0.000	0.000	0.000
	3900.00	41.840	134.103	94.610	154.023	154.023	−368.979	0.000	0.000	0.000
	4000.00	41.840	135.162	95.611	158.207	158.207	−382.443	0.000	0.000	0.000

Zr ZIRCONIUM [continued] 91.224

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol		]	[−]
LIQ	4100.00	41.840	136.195	96.588	162.391	162.391	−396.011	0.000	0.000	0.000
	4200.00	41.840	137.204	97.543	166.575	166.575	−409.681	0.000	0.000	0.000
	4300.00	41.840	138.188	98.477	170.759	170.759	−423.451	0.000	0.000	0.000
	4400.00	41.840	139.150	99.390	174.943	174.943	−437.318	0.000	0.000	0.000
	4500.00	41.840	140.090	100.284	179.127	179.127	−451.280	0.000	0.000	0.000
	4600.00	41.840	141.010	101.160	183.311	183.311	−465.335	0.000	0.000	0.000
	4700.00	41.840	141.910	102.017	187.495	187.495	−479.481	0.000	0.000	0.000
	4702.63	41.840	141.933	102.040	187.605	187.605	−479.855	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
SOL − A	Ja2	Ja2		hcp
SOL − B	Ja2	Ja2		bcc
LIQ	Ja2	Ja2	Ja2	BPT = 4702.633, L = 561.294 kJ

91.224 ZIRCONIUM (GAS) **Zr**[g]

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	24.775	183.027	183.027	610.027	0.000	555.458	610.027	567.046	-99.344
	300.00	24.798	183.180	183.027	610.073	0.046	555.119	610.026	566.780	-98.685
	400.00	25.271	190.410	184.009	612.587	2.560	536.423	609.981	552.370	-72.132
	500.00	24.923	196.019	185.873	615.100	5.073	517.091	609.869	537.979	-56.202
	600.00	24.431	200.518	187.951	617.567	7.540	497.256	609.645	523.620	-45.585
	700.00	24.105	204.257	190.021	619.992	9.965	477.012	609.304	509.307	-38.005
	800.00	24.054	207.469	192.006	622.398	12.371	456.422	608.860	495.051	-32.324
	900.00	24.280	210.313	193.885	624.812	14.785	435.531	608.327	480.856	-27.908
	1000.00	24.751	212.893	195.658	627.262	17.235	414.369	607.721	466.725	-24.379
	1100.00	25.396	215.281	197.335	629.768	19.741	392.959	607.056	452.657	-21.495
	1200.00	26.138	217.523	198.925	632.344	22.317	371.317	602.630	438.874	-19.104
	1300.00	26.913	219.645	200.438	634.997	24.970	349.458	602.414	425.236	-17.086
	1400.00	27.675	221.668	201.882	637.726	27.699	327.392	602.233	411.614	-15.358
	1500.00	28.392	223.602	203.266	640.530	30.503	305.127	602.073	398.004	-13.860
	1600.00	29.046	225.456	204.596	643.403	33.376	282.674	601.919	384.405	-12.550
	1700.00	29.629	227.234	205.875	646.337	36.310	260.039	601.752	370.815	-11.394
	1800.00	30.137	228.943	207.110	649.326	39.299	237.229	601.556	357.236	-10.367
	1900.00	30.574	230.584	208.302	652.362	42.335	214.252	601.311	343.669	-9.448
	2000.00	30.948	232.162	209.456	655.439	45.412	191.115	601.001	330.117	-8.622
	2100.00	31.269	233.680	210.574	658.550	48.523	167.822	600.609	316.582	-7.875
	2200.00	31.550	235.141	211.658	661.691	51.664	144.380	578.797	303.813	-7.213
	2300.00	31.807	236.549	212.709	664.859	54.832	120.795	577.781	291.337	-6.616
	2400.00	32.055	237.908	213.731	668.052	58.025	97.072	576.790	278.904	-6.070
	2500.00	32.314	239.222	214.725	671.271	61.244	73.215	575.824	266.512	-5.568
	2600.00	32.541	240.494	215.691	674.513	64.486	49.229	574.882	254.158	-5.106
	2700.00	32.782	241.726	216.633	677.779	67.752	25.118	573.964	241.840	-4.679
	2800.00	33.029	242.923	217.551	681.070	71.043	0.885	573.071	229.556	-4.282
	2900.00	33.284	244.086	218.446	684.385	74.358	-23.466	572.203	217.303	-3.914
	3000.00	33.547	245.219	219.319	687.727	77.700	-47.931	571.360	205.079	-3.571
	3100.00	33.819	246.324	220.173	691.095	81.068	-72.509	570.544	192.883	-3.250
	3200.00	34.098	247.402	221.007	694.491	84.464	-97.195	569.756	180.713	-2.950
	3300.00	34.383	248.455	221.823	697.915	87.888	-121.988	568.996	168.568	-2.668
	3400.00	34.673	249.486	222.621	701.368	91.341	-146.885	568.265	156.445	-2.403
	3500.00	34.965	250.495	223.403	704.849	94.822	-171.885	567.563	144.342	-2.154
	3600.00	35.258	251.485	224.170	708.361	98.334	-196.984	566.890	132.260	-1.919
	3700.00	35.550	252.455	224.921	711.901	101.874	-222.181	566.246	120.196	-1.697
	3800.00	35.840	253.406	225.658	715.470	105.443	-247.474	565.632	108.149	-1.487
	3900.00	36.125	254.341	226.382	719.069	109.042	-272.862	565.046	96.117	-1.287
	4000.00	36.404	255.259	227.092	722.695	112.668	-298.342	564.489	84.101	-1.098
	4100.00	36.676	256.162	227.790	726.349	116.322	-323.913	563.959	72.098	-0.919
	4200.00	36.939	257.049	228.476	730.030	120.003	-349.574	563.456	60.107	-0.748
	4300.00	37.192	257.921	229.151	733.737	123.710	-375.322	562.978	48.129	-0.585
	4400.00	37.434	258.779	229.815	737.468	127.441	-401.157	562.526	36.161	-0.429
	4500.00	37.663	259.622	230.468	741.223	131.196	-427.077	562.097	24.203	-0.281
	4600.00	37.878	260.453	231.110	745.000	134.973	-453.081	561.690	12.254	-0.139
	4700.00	38.079	261.269	231.743	748.798	138.771	-479.167	561.304	0.314	-0.003
	4800.00	38.264	262.073	232.367	752.616	142.589	-505.335	0.000	0.000	0.000

References

Phase	H / S	C_p
GAS	Ja2	Ja2

ZrB2 ZIRCONIUM DIBORIDE 112.846

Phase	T [K]	C_p J / (K mol)	S J / (K mol)	-(G-H298)/T J / (K mol)	H kJ / mol	H-H298 kJ / mol	G kJ / mol	ΔH_f kJ / mol	ΔG_f kJ / mol	log K_f [-]
SOL	298.15	48.369	35.941	35.941	-322.586	0.000	-333.302	-322.586	-318.236	55.754
	300.00	48.616	36.241	35.942	-322.496	0.090	-333.368	-322.585	-318.209	55.405
	400.00	57.619	51.626	37.978	-317.127	5.459	-337.777	-322.505	-316.764	41.365
	500.00	62.293	65.031	42.081	-311.111	11.475	-343.626	-322.574	-315.325	32.942
	600.00	65.262	76.668	46.897	-304.724	17.862	-350.724	-322.840	-313.854	27.323
	700.00	67.427	86.898	51.896	-298.085	24.501	-358.913	-323.276	-312.324	23.306
	800.00	69.162	96.018	56.851	-291.252	31.334	-368.067	-323.860	-310.721	20.288
	900.00	70.649	104.252	61.668	-284.260	38.326	-378.087	-324.580	-309.037	17.936
	1000.00	71.980	111.766	66.308	-277.128	45.458	-388.894	-325.428	-307.265	16.050
	1100.00	73.211	118.685	70.759	-269.868	52.718	-400.421	-326.399	-305.403	14.502
	1200.00	74.372	125.105	75.023	-262.488	60.098	-412.614	-331.199	-303.225	13.199
	1300.00	75.485	131.102	79.109	-254.995	67.591	-425.428	-331.858	-300.868	12.089
	1400.00	76.563	136.736	83.026	-247.392	75.194	-438.822	-332.545	-298.458	11.136
	1500.00	77.615	142.054	86.785	-239.683	82.903	-452.764	-333.267	-295.999	10.308
	1600.00	78.647	147.096	90.399	-231.870	90.716	-467.224	-334.033	-293.489	9.581
	1700.00	79.663	151.895	93.876	-223.954	98.632	-482.175	-334.851	-290.931	8.939
	1800.00	80.668	156.477	97.228	-215.938	106.648	-497.596	-335.729	-288.322	8.367
	1900.00	81.663	160.865	100.462	-207.821	114.765	-513.464	-336.676	-285.663	7.853
	2000.00	82.650	165.079	103.588	-199.605	122.981	-529.763	-337.703	-282.952	7.390
	2100.00	83.632	169.135	106.614	-191.291	131.295	-546.475	-338.817	-280.187	6.969
	2200.00	84.608	173.048	109.545	-182.879	139.707	-563.585	-361.353	-276.622	6.568
	2300.00	85.579	176.831	112.389	-174.370	148.216	-581.080	-363.089	-272.731	6.194
	2400.00	86.548	180.493	115.150	-165.763	156.823	-598.947	-465.314	-266.628	5.803
	2500.00	87.513	184.046	117.836	-157.060	165.526	-617.175	-467.145	-258.312	5.397
	2600.00	88.476	187.497	120.449	-148.261	174.325	-635.753	-468.879	-249.924	5.021
	2700.00	89.436	190.854	122.995	-139.365	183.221	-654.671	-470.517	-241.471	4.672
	2800.00	90.395	194.124	125.477	-130.374	192.212	-673.921	-472.060	-232.959	4.346
	2900.00	91.352	197.313	127.899	-121.286	201.300	-693.493	-473.507	-224.394	4.042
	3000.00	92.307	200.426	130.265	-112.103	210.483	-713.381	-474.858	-215.781	3.757
	3100.00	93.262	203.468	132.577	-102.825	219.761	-733.576	-476.113	-207.124	3.490
	3200.00	94.215	206.444	134.839	-93.451	229.135	-754.072	-477.273	-198.428	3.239
	3300.00	95.167	209.358	137.054	-83.982	238.604	-774.863	-478.338	-189.698	3.003
	3323.00	95.386	210.020	137.556	-81.791	240.795	-779.686	-478.570	-187.685	2.950
			31.478		104.600					
LIQ	3323.00	96.232	241.497	137.556	22.809	345.395	-779.686	-373.970	-187.685	2.950
	3400.00	96.232	243.702	139.935	30.219	352.805	-798.366	-373.970	-183.360	2.817
	3500.00	96.232	246.491	142.940	39.842	362.428	-822.877	-375.582	-177.720	2.652
	3600.00	96.232	249.202	145.854	49.466	372.052	-847.662	-376.493	-172.054	2.496
	3700.00	96.232	251.839	148.683	59.089	381.675	-872.715	-377.403	-166.363	2.349
	3800.00	96.232	254.405	151.432	68.712	391.298	-898.027	-378.314	-160.647	2.208

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	NDPT= 4466.

171.128 ZIRCONIUM MONOBROMIDE (GAS) **ZrBr**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	36.058	265.375	265.375	301.248	0.000	222.126	301.248	256.406	−44.921
	300.00	36.085	265.598	265.376	301.315	0.067	221.635	301.198	256.128	−44.596
	400.00	36.753	276.095	266.802	304.965	3.717	194.527	285.048	244.383	−31.913
	500.00	37.092	284.332	269.514	308.657	7.409	166.491	284.269	234.305	−24.478
	600.00	37.517	291.130	272.566	312.386	11.138	137.708	283.448	224.389	−19.535
	700.00	38.028	296.951	275.644	316.163	14.915	108.297	282.592	214.613	−16.015
	800.00	38.585	302.065	278.633	319.994	18.746	78.342	281.698	204.963	−13.383
	900.00	39.158	306.643	281.495	323.881	22.633	47.902	280.759	195.426	−11.342
	1000.00	39.723	310.798	284.221	327.825	26.577	17.027	279.765	185.998	−9.716
	1100.00	40.267	314.610	286.813	331.825	30.577	−14.246	278.707	176.672	−8.389
	1200.00	40.780	318.136	289.278	335.877	34.629	−45.885	273.867	167.667	−7.298
	1300.00	41.256	321.419	291.625	339.979	38.731	−77.865	273.208	158.843	−6.382
	1400.00	41.689	324.492	293.864	344.127	42.879	−110.162	272.549	150.071	−5.599
	1500.00	42.077	327.382	296.004	348.316	47.068	−142.757	271.876	141.346	−4.922
	1600.00	42.417	330.109	298.051	352.541	51.293	−175.633	271.173	132.666	−4.331
	1700.00	42.707	332.689	300.013	356.797	55.549	−208.774	270.425	124.032	−3.811
	1800.00	42.948	335.137	301.897	361.080	59.832	−242.167	269.616	115.444	−3.350
	1900.00	43.137	337.465	303.708	365.385	64.137	−275.798	268.731	106.903	−2.939
	2000.00	43.274	339.681	305.452	369.706	68.458	−309.656	267.753	98.410	−2.570

References

Phase	H / S	C_p
GAS	Ja1	Ja1

ZrBr2 ZIRCONIUM DIBROMIDE 251.032

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	86.722	115.897	115.897	−404.618	0.000	−439.173	−404.618	−382.203	66.960
	300.00	86.743	116.433	115.898	−404.458	0.160	−439.388	−404.644	−382.063	66.523
	400.00	87.889	141.545	119.315	−395.726	8.892	−452.344	−432.954	−368.580	48.132
	500.00	89.035	161.280	125.803	−386.880	17.738	−467.520	−430.425	−352.779	36.855
	600.00	90.181	177.614	133.116	−377.919	26.699	−484.487	−427.873	−337.489	29.381
	700.00	91.328	191.602	140.495	−368.843	35.775	−502.965	−425.299	−322.628	24.075
	800.00	92.474	203.872	147.666	−359.653	44.965	−522.751	−422.706	−308.138	20.119
	900.00	93.620	214.830	154.530	−350.349	54.269	−543.695	−420.107	−293.973	17.062
			69.733		62.760					
LIQ	900.00	91.002	284.563	154.530	−287.589	117.029	−543.695	−357.347	−293.973	17.062
	1000.00	91.002	294.151	168.021	−278.488	126.130	−572.639	−355.068	−287.054	14.994
	1100.00	91.002	302.824	179.888	−269.388	135.230	−602.495	−352.912	−280.358	13.313
	1200.00	91.002	310.743	190.468	−260.288	144.330	−633.179	−354.593	−273.631	11.911
	1300.00	91.002	318.027	200.003	−251.188	153.430	−664.623	−352.148	−266.984	10.728
	1400.00	91.002	324.771	208.678	−242.088	162.530	−696.767	−349.750	−260.523	9.720
	1500.00	91.002	331.049	216.629	−232.987	171.631	−729.561	−347.410	−254.232	8.853
	1553.10	91.002	334.215	220.595	−228.155	176.463	−747.224	−346.195	−250.955	8.440

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	BPT= 1553.1, L= 131.84 kJ

251.032

ZIRCONIUM DIBROMIDE (GAS) **ZrBr2[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	60.689	316.838	316.838	−174.473	0.000	−268.938	−174.473	−211.968	37.136
	300.00	60.704	317.214	316.839	−174.361	0.112	−269.525	−174.547	−212.201	36.947
	400.00	61.384	334.778	319.229	−168.254	6.219	−302.165	−205.482	−218.401	28.520
	500.00	61.760	348.520	323.763	−162.094	12.379	−336.354	−205.640	−221.614	23.152
	600.00	61.944	359.799	328.857	−155.908	18.565	−371.787	−205.863	−224.789	19.570
	700.00	62.040	369.355	333.977	−149.708	24.765	−408.257	−206.164	−227.921	17.008
	800.00	62.105	377.644	338.929	−143.501	30.972	−445.616	−206.554	−231.003	15.083
	900.00	62.172	384.963	343.645	−137.287	37.186	−483.754	−207.045	−234.031	13.583
	1000.00	62.258	391.517	348.110	−131.066	43.407	−522.583	−207.646	−236.998	12.380
	1100.00	62.374	397.456	352.331	−124.835	49.638	−562.037	−208.359	−239.900	11.392
	1200.00	62.524	402.890	356.321	−118.590	55.883	−602.058	−212.896	−242.510	10.556
	1300.00	62.712	407.901	360.098	−112.329	62.144	−642.601	−213.288	−244.962	9.843
	1400.00	62.938	412.557	363.681	−106.047	68.426	−683.626	−213.708	−247.383	9.230
	1500.00	63.201	416.908	367.086	−99.740	74.733	−725.102	−214.162	−249.773	8.698
	1600.00	63.500	420.996	370.329	−93.405	81.068	−766.999	−214.657	−252.131	8.231
	1700.00	63.834	424.856	373.424	−87.039	87.434	−809.293	−215.199	−254.457	7.818
	1800.00	64.200	428.515	376.384	−80.637	93.836	−851.963	−215.796	−256.749	7.451
	1900.00	64.597	431.996	379.220	−74.198	100.275	−894.990	−216.455	−259.006	7.121
	2000.00	65.022	435.320	381.942	−67.717	106.756	−938.357	−217.185	−261.227	6.823

References

Phase	H / S	C_p
GAS	Ja1	Ja1

330.936

ZIRCONIUM TRIBROMIDE **ZrBr3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	99.502	172.046	172.046	−635.968	0.000	−687.264	−635.968	−607.603	106.449
	300.00	99.582	172.662	172.048	−635.784	0.184	−687.582	−636.040	−607.427	105.762
	400.00	102.426	201.756	175.995	−625.664	10.304	−706.366	−680.203	−588.694	76.876
	500.00	103.798	224.774	183.530	−615.346	20.622	−727.733	−678.048	−566.066	59.136
	600.00	104.590	243.775	192.033	−604.923	31.045	−751.188	−675.894	−543.872	47.348
	700.00	105.109	259.939	200.608	−594.437	41.531	−776.394	−673.776	−522.036	38.955
	800.00	105.483	274.000	208.922	−583.906	52.062	−803.106	−671.717	−500.501	32.679
	900.00	105.771	286.441	216.858	−573.343	62.625	−831.140	−669.737	−479.219	27.813
	1000.00	106.007	297.598	224.383	−562.754	73.214	−860.351	−667.852	−458.152	23.931
	1100.00	106.209	307.711	231.506	−552.143	83.825	−890.625	−666.072	−437.269	20.764

References

Phase	H / S	C_p	Remarks	
SOL	Ja1		Ja1	NSPT= 1100.

ZrBr3[g] ZIRCONIUM TRIBROMIDE (GAS) 330.936

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	79.431	371.607	371.607	−430.952	0.000	−541.747	−430.952	−462.086	80.956
	300.00	79.476	372.098	371.608	−430.805	0.147	−542.434	−431.062	−462.279	80.490
	400.00	81.055	395.211	374.749	−422.767	8.185	−580.852	−477.307	−463.180	60.485
	500.00	81.788	413.386	380.724	−414.621	16.331	−621.314	−477.323	−459.647	48.019
	600.00	82.189	428.336	387.450	−406.420	24.532	−663.422	−477.391	−456.106	39.708
	700.00	82.432	441.025	394.220	−398.188	32.764	−706.906	−477.528	−452.549	33.770
	800.00	82.592	452.044	400.774	−389.937	41.015	−751.572	−477.747	−448.966	29.314
	900.00	82.702	461.778	407.022	−381.672	49.280	−797.272	−478.066	−445.351	25.847
	1000.00	82.783	470.496	412.941	−373.397	57.555	−843.893	−478.496	−441.694	23.072
	1100.00	82.844	478.389	418.538	−365.116	65.836	−891.344	−479.045	−437.988	20.798
	1200.00	82.891	485.600	423.830	−356.829	74.123	−939.549	−483.430	−434.005	18.892
	1300.00	82.929	492.236	428.841	−348.538	82.414	−988.445	−483.686	−429.876	17.273
	1400.00	82.960	498.383	433.591	−340.243	90.709	−1037.979	−483.989	−425.726	15.884
	1500.00	82.986	504.108	438.103	−331.946	99.006	−1088.107	−484.351	−421.552	14.680
	1600.00	83.008	509.464	442.398	−323.646	107.306	−1138.789	−484.782	−417.352	13.625
	1700.00	83.027	514.497	446.492	−315.344	115.608	−1189.989	−485.293	−413.122	12.694
	1800.00	83.044	519.243	450.404	−307.041	123.911	−1241.678	−485.894	−408.860	11.865
	1900.00	83.059	523.733	454.146	−298.736	132.216	−1293.829	−486.597	−404.562	11.122
	2000.00	83.072	527.994	457.733	−290.429	140.523	−1346.418	−487.412	−400.223	10.453
	2100.00	83.084	532.048	461.176	−282.121	148.831	−1399.421	−488.349	−395.841	9.846
	2200.00	83.095	535.913	464.486	−273.813	157.139	−1452.821	−510.743	−390.666	9.276
	2300.00	83.105	539.607	467.672	−265.502	165.450	−1506.598	−512.374	−385.172	8.748
	2400.00	83.115	543.144	470.744	−257.191	173.761	−1560.737	−514.011	−379.606	8.262
	2500.00	83.124	546.537	473.708	−248.880	182.072	−1615.222	−515.654	−373.972	7.814

References

Phase	H / S	C_p
GAS	Ja1	Ja1

ZrBr4 ZIRCONIUM TETRABROMIDE 410.840

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	124.804	224.681	224.681	−760.651	0.000	−827.640	−760.651	−725.288	127.067
	300.00	124.925	225.453	224.683	−760.420	0.231	−828.056	−760.747	−725.068	126.246
	400.00	129.283	262.071	229.646	−747.681	12.970	−852.509	−819.532	−700.929	91.532
	500.00	131.646	291.192	239.143	−734.626	26.025	−880.222	−816.486	−671.629	70.165
	600.00	133.333	315.350	249.888	−721.374	39.277	−910.584	−813.361	−642.950	55.974
	700.00	134.733	336.011	260.751	−707.969	52.682	−943.176	−810.192	−614.798	45.877
	720.00	134.994	339.810	262.894	−705.272	55.379	−949.935	−809.555	−609.225	44.198

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	NSPT= 628.5, MPT= 720.

410.840 ZIRCONIUM TETRABROMIDE (GAS) **ZrBr4**[g]

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	102.668	414.493	414.493	-644.754	0.000	-768.335	-644.754	-665.984	116.678
	300.00	102.729	415.128	414.495	-644.564	0.190	-769.102	-644.891	-666.115	115.981
	400.00	104.948	445.027	418.556	-634.166	10.588	-812.176	-706.016	-660.596	86.265
	500.00	106.035	468.575	426.289	-623.611	21.143	-857.898	-705.470	-649.305	67.832
	600.00	106.646	487.966	435.000	-612.974	31.780	-905.754	-704.961	-638.120	55.553
	700.00	107.021	504.436	443.772	-602.289	42.465	-955.395	-704.513	-627.017	46.789
	800.00	107.268	518.744	452.269	-591.574	53.180	-1006.569	-704.143	-615.972	40.219
	900.00	107.438	531.389	460.371	-580.838	63.916	-1059.088	-703.869	-604.968	35.111
	1000.00	107.560	542.715	468.049	-570.088	74.666	-1112.803	-703.706	-593.989	31.027
	1100.00	107.651	552.971	475.311	-559.327	85.427	-1167.596	-703.663	-583.020	27.685
	1200.00	107.720	562.341	482.178	-548.559	96.195	-1223.368	-707.455	-571.829	24.891
	1300.00	107.774	570.966	488.681	-537.784	106.970	-1280.039	-707.120	-560.540	22.523
	1400.00	107.816	578.954	494.847	-527.004	117.750	-1337.540	-706.834	-549.276	20.494
	1500.00	107.851	586.394	500.705	-516.221	128.533	-1395.812	-706.609	-538.030	18.736
	1600.00	107.879	593.355	506.280	-505.434	139.320	-1454.803	-706.454	-526.797	17.198
	1700.00	107.902	599.896	511.597	-494.645	150.109	-1514.469	-706.381	-515.571	15.842
	1800.00	107.922	606.064	516.675	-483.854	160.900	-1574.770	-706.401	-504.347	14.636
	1900.00	107.938	611.900	521.535	-473.061	171.693	-1635.670	-706.525	-493.119	13.557
	2000.00	107.953	617.436	526.193	-462.267	182.487	-1697.140	-706.764	-481.881	12.585

References

Phase	H / S	C_p
GAS	Ja1	Ja1

ZrC ZIRCONIUM CARBIDE 103.235

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
SOL	298.15	37.904	33.321	33.321	−196.648	0.000	−206.583	−196.648	−193.282	33.862
	300.00	38.026	33.556	33.322	−196.578	0.070	−206.645	−196.640	−193.262	33.650
	400.00	43.580	45.309	34.887	−192.479	4.169	−210.603	−196.138	−192.207	25.100
	500.00	47.136	55.446	38.009	−187.930	8.718	−215.653	−195.544	−191.292	19.984
	600.00	49.414	64.256	41.666	−183.094	13.554	−221.648	−194.980	−190.496	16.584
	700.00	50.949	71.996	45.458	−178.071	18.577	−228.468	−194.501	−189.788	14.162
	800.00	52.042	78.874	49.213	−172.919	23.729	−236.018	−194.123	−189.141	12.350
	900.00	52.863	85.053	52.858	−167.672	28.976	−244.220	−193.856	−188.536	10.942
	1000.00	53.513	90.658	56.362	−162.352	34.296	−253.010	−193.711	−187.954	9.818
	1100.00	54.050	95.784	59.716	−156.973	39.675	−262.335	−193.693	−187.380	8.898
	1200.00	54.515	100.507	62.921	−151.544	45.104	−272.153	−197.512	−186.581	8.122
	1300.00	54.931	104.888	65.983	−146.072	50.576	−282.426	−197.199	−185.683	7.461
	1400.00	55.315	108.973	68.909	−140.559	56.089	−293.121	−196.926	−184.807	6.895
	1500.00	55.679	112.801	71.709	−135.009	61.639	−304.212	−196.700	−183.950	6.406
	1600.00	56.030	116.406	74.391	−129.424	67.224	−315.674	−196.525	−183.106	5.978
	1700.00	56.374	119.813	76.964	−123.804	72.844	−327.486	−196.409	−182.271	5.601
	1800.00	56.714	123.045	79.435	−118.149	78.499	−339.630	−196.361	−181.441	5.265
	1900.00	57.053	126.121	81.812	−112.461	84.187	−352.090	−196.388	−180.612	4.965
	2000.00	57.392	129.056	84.101	−106.739	89.909	−364.850	−196.500	−179.779	4.695
	2100.00	57.734	131.864	86.309	−100.982	95.666	−377.897	−196.706	−178.938	4.451
	2200.00	58.078	134.558	88.441	−95.192	101.456	−391.219	−218.339	−177.340	4.211
	2300.00	58.424	137.147	90.503	−89.367	107.281	−404.805	−219.177	−175.457	3.985
	2400.00	58.774	139.641	92.499	−83.507	113.141	−418.645	−219.989	−173.539	3.777
	2500.00	59.126	142.047	94.433	−77.612	119.036	−432.730	−220.773	−171.587	3.585
	2600.00	59.481	144.373	96.309	−71.682	124.966	−447.052	−221.531	−169.605	3.407
	2700.00	59.837	146.625	98.131	−65.716	130.932	−461.602	−222.259	−167.594	3.242
	2800.00	60.195	148.807	99.902	−59.714	136.934	−476.375	−222.959	−165.556	3.088
	2900.00	60.554	150.926	101.625	−53.677	142.971	−491.362	−223.630	−163.494	2.945
	3000.00	60.913	152.985	103.303	−47.603	149.045	−506.558	−224.272	−161.410	2.810
	3100.00	61.271	154.988	104.938	−41.494	155.154	−521.957	−224.885	−159.304	2.684
	3200.00	61.627	156.939	106.533	−35.349	161.299	−537.554	−225.468	−157.179	2.566
	3300.00	61.982	158.841	108.089	−29.169	167.479	−553.343	−226.022	−155.036	2.454
	3400.00	62.333	160.696	109.609	−22.953	173.695	−569.320	−226.547	−152.877	2.349
	3500.00	62.680	162.508	111.095	−16.702	179.946	−585.481	−227.044	−150.703	2.249
	3600.00	63.022	164.279	112.548	−10.417	186.231	−601.821	−227.512	−148.516	2.155
	3700.00	63.358	166.010	113.970	−4.098	192.550	−618.335	−227.954	−146.315	2.066
	3800.00	63.688	167.704	115.361	2.254	198.902	−635.021	−228.368	−144.103	1.981
	3805.00	63.704	167.788	115.430	2.573	199.221	−635.860	−228.388	−143.992	1.977
			20.893		79.496					
LIQ	3805.00	62.760	188.680	115.430	82.069	278.717	−635.860	−148.892	−143.992	1.977
	3900.00	62.760	190.228	117.233	88.031	284.679	−653.858	−149.365	−143.864	1.927
	4000.00	62.760	191.817	119.078	94.307	290.955	−672.961	−149.869	−143.717	1.877

References

Phase	H / S	C_p
SOL	Ja1	Ja1
LIQ	Ja1	Ja1

126.677 ZIRCONIUM MONOCHLORIDE (GAS) **ZrCl[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	34.995	254.497	254.497	205.434	0.000	129.556	205.434	174.406	−30.555
	300.00	35.031	254.713	254.497	205.499	0.065	129.085	205.421	174.213	−30.333
	400.00	36.067	264.962	255.888	209.064	3.630	103.079	204.692	163.920	−21.406
	500.00	36.614	273.070	258.541	212.698	7.264	76.163	203.917	153.815	−16.069
	600.00	37.164	279.794	261.539	216.387	10.953	48.511	203.097	143.871	−12.525
	700.00	37.754	285.566	264.568	220.133	14.699	20.236	202.238	134.067	−10.004
	800.00	38.363	290.647	267.517	223.938	18.504	−8.580	201.342	124.389	−8.122
	900.00	38.971	295.201	270.344	227.805	22.371	−37.876	200.398	114.826	−6.664
	1000.00	39.561	299.338	273.040	231.732	26.298	−67.606	199.399	105.371	−5.504
	1100.00	40.123	303.135	275.606	235.716	30.282	−97.732	198.335	96.020	−4.560
	1200.00	40.649	306.649	278.048	239.755	34.321	−128.224	193.490	86.989	−3.787
	1300.00	41.133	309.922	280.375	243.845	38.411	−159.054	192.824	78.141	−3.140
	1400.00	41.573	312.987	282.596	247.980	42.546	−190.201	192.158	69.345	−2.587
	1500.00	41.965	315.869	284.719	252.158	46.724	−221.645	191.478	60.596	−2.110
	1600.00	42.308	318.588	286.752	256.372	50.938	−253.369	190.767	51.893	−1.694
	1700.00	42.601	321.162	288.701	260.618	55.184	−285.358	190.010	43.237	−1.328
	1800.00	42.843	323.604	290.573	264.890	59.456	−317.597	189.192	34.626	−1.005
	1900.00	43.032	325.926	292.373	269.184	63.750	−350.075	188.297	26.063	−0.717
	2000.00	43.170	328.137	294.106	273.495	68.061	−382.779	187.308	17.550	−0.458

References

Phase	H / S	C_p
GAS	Ja1	Ja1

ZrCl2 ZIRCONIUM DICHLORIDE 162.129

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[	J / (K mol)	]	[		kJ / mol	]		[−]
SOL	298.15	72.610	110.039	110.039	−430.952	0.000	−463.760	−430.952	−385.649	67.564
	300.00	72.692	110.489	110.041	−430.818	0.134	−463.964	−430.927	−385.368	67.099
	400.00	76.016	131.899	112.937	−423.367	7.585	−476.127	−429.504	−370.393	48.368
	500.00	78.240	149.112	118.506	−415.649	15.303	−490.205	−427.981	−355.790	37.169
	600.00	80.040	163.540	124.842	−407.733	23.219	−505.857	−426.391	−341.500	29.730
	700.00	81.699	176.007	131.280	−399.644	31.308	−522.848	−424.744	−327.481	24.437
	800.00	83.142	187.011	137.572	−391.401	39.551	−541.010	−423.056	−313.701	20.483
	900.00	84.523	196.884	143.623	−383.017	47.935	−560.213	−421.346	−300.134	17.419
	1000.00	85.923	205.862	149.405	−374.495	56.457	−580.357	−419.621	−286.758	14.979
			26.778		26.778					
LIQ	1000.00	91.002	232.640	149.405	−347.717	83.235	−580.357	−392.843	−286.758	14.979
	1100.00	91.002	241.313	157.372	−338.617	92.335	−604.061	−390.668	−276.256	13.118
	1200.00	91.002	249.231	164.702	−329.517	101.435	−628.594	−392.334	−265.725	11.567
	1300.00	91.002	256.515	171.488	−320.417	110.535	−653.886	−389.875	−255.274	10.257
	1400.00	91.002	263.259	177.805	−311.316	119.636	−679.879	−387.467	−245.011	9.141
	1500.00	91.002	269.538	183.714	−302.216	128.736	−706.523	−385.119	−234.917	8.181
	1563.90	91.002	273.334	187.299	−296.401	134.551	−723.868	−383.655	−228.550	7.634

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	BPT= 1563.9, L= 188. kJ

162.129 ZIRCONIUM DICHLORIDE (GAS) **$ZrCl_2$[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	57.679	292.571	292.571	−186.188	0.000	−273.418	−186.188	−195.307	34.217
	300.00	57.723	292.928	292.572	−186.081	0.107	−273.960	−186.191	−195.364	34.016
	400.00	59.523	309.805	294.861	−180.210	5.978	−304.132	−186.347	−198.398	25.908
	500.00	60.507	323.204	299.236	−174.204	11.984	−335.806	−186.536	−201.390	21.039
	600.00	61.050	334.288	304.181	−168.124	18.064	−368.696	−186.782	−204.339	17.789
	700.00	61.372	343.725	309.173	−162.001	24.187	−402.609	−187.102	−207.241	15.465
	800.00	61.589	351.935	314.016	−155.853	30.335	−437.401	−187.508	−210.092	13.718
	900.00	61.761	359.200	318.641	−149.685	36.503	−472.965	−188.014	−212.886	12.356
	1000.00	61.924	365.715	323.028	−143.501	42.687	−509.216	−188.627	−215.617	11.263
	1100.00	62.096	371.625	327.181	−137.300	48.888	−546.087	−189.351	−218.282	10.365
	1200.00	62.290	377.036	331.114	−131.081	55.107	−583.524	−193.898	−220.655	9.605
	1300.00	62.512	382.031	334.841	−124.841	61.347	−621.481	−194.300	−222.868	8.955
	1400.00	62.764	386.672	338.379	−118.577	67.611	−659.919	−194.728	−225.050	8.397
	1500.00	63.049	391.012	341.745	−112.287	73.901	−698.805	−195.190	−227.200	7.912
	1600.00	63.366	395.091	344.953	−105.966	80.222	−738.112	−195.692	−229.318	7.486
	1700.00	63.716	398.943	348.016	−99.613	86.575	−777.816	−196.242	−231.403	7.110
	1800.00	64.095	402.596	350.948	−93.222	92.966	−817.894	−196.848	−233.454	6.775
	1900.00	64.503	406.072	353.758	−86.793	99.395	−858.329	−197.516	−235.470	6.474
	2000.00	64.938	409.391	356.458	−80.321	105.867	−899.103	−198.256	−237.448	6.202

References

Phase	H / S	C_p
GAS	Ja1	Ja1

197.582 ZIRCONIUM TRICHLORIDE **$ZrCl_3$**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	96.195	145.603	145.603	−714.209	0.000	−757.621	−714.209	−646.248	113.220
	300.00	96.307	146.199	145.605	−714.031	0.178	−757.891	−714.172	−645.827	112.448
	400.00	100.706	174.570	149.443	−704.159	10.050	−773.986	−712.060	−623.359	81.402
	500.00	103.467	197.356	156.822	−693.942	20.267	−792.620	−709.824	−601.441	62.832
	600.00	105.583	216.413	165.208	−683.486	30.723	−813.334	−707.512	−579.980	50.492
	700.00	107.393	232.828	173.723	−672.836	41.373	−835.815	−705.142	−558.911	41.706
	800.00	109.040	247.277	182.032	−662.013	52.196	−859.834	−702.727	−538.185	35.140
	900.00	110.592	260.210	190.012	−651.031	63.178	−885.220	−700.281	−517.764	30.050
	1000.00	112.086	271.940	197.627	−639.896	74.313	−911.836	−697.815	−497.617	25.993
	1045.90	112.758	276.985	201.000	−634.736	79.473	−924.435	−696.678	−488.453	24.394

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	NSPT= 1045.9

ZrCl3[g] ZIRCONIUM TRICHLORIDE (GAS) 197.582

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	76.031	339.013	339.013	−524.255	0.000	−625.332	−524.255	−513.960	90.044
	300.00	76.101	339.484	339.015	−524.114	0.141	−625.959	−524.255	−513.896	89.477
	400.00	79.328	361.846	342.042	−516.333	7.922	−661.072	−524.235	−510.444	66.657
	500.00	81.577	379.804	347.857	−508.282	15.973	−698.183	−524.164	−507.004	52.966
	600.00	83.185	394.827	354.467	−500.039	24.216	−736.935	−524.065	−503.581	43.841
	700.00	84.375	407.744	361.177	−491.658	32.597	−777.079	−523.965	−500.175	37.324
	800.00	85.274	419.072	367.720	−483.174	41.081	−818.431	−523.888	−496.782	32.437
	900.00	85.955	429.157	373.997	−474.611	49.644	−860.852	−523.861	−493.396	28.636
	1000.00	86.469	438.241	379.974	−465.988	58.267	−904.229	−523.907	−490.010	25.595
	1100.00	86.849	446.501	385.652	−457.321	66.934	−948.473	−524.042	−486.614	23.107
	1200.00	87.121	454.070	391.043	−448.622	75.633	−993.507	−527.990	−482.980	21.024
	1300.00	87.305	461.052	396.163	−439.900	84.355	−1039.267	−527.797	−479.238	19.256
	1400.00	87.420	467.526	401.032	−431.163	93.092	−1085.700	−527.642	−475.508	17.741
	1500.00	87.480	473.560	405.668	−422.418	101.837	−1132.758	−527.543	−471.788	16.429
	1600.00	87.501	479.206	410.090	−413.669	110.586	−1180.399	−527.515	−468.073	15.281
	1700.00	87.496	484.511	414.313	−404.919	119.336	−1228.588	−527.570	−464.356	14.268
	1800.00	87.478	489.512	418.353	−396.170	128.085	−1277.291	−527.723	−460.634	13.367
	1900.00	87.459	494.241	422.224	−387.423	136.832	−1326.481	−527.983	−456.900	12.561
	2000.00	87.452	498.727	425.938	−378.678	145.577	−1376.131	−528.362	−453.150	11.835

References

Phase	H / S	C_p
GAS	Ja1	Ja1

ZrCl4 ZIRCONIUM TETRACHLORIDE 233.035

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	119.771	181.418	181.418	−979.809	0.000	−1033.899	−979.809	−889.266	155.796
	300.00	119.913	182.160	181.420	−979.587	0.222	−1034.235	−979.760	−888.704	154.737
	400.00	125.394	217.491	186.201	−967.293	12.516	−1054.289	−976.959	−858.768	112.144
	500.00	128.691	245.849	195.388	−954.578	25.231	−1077.503	−974.011	−829.560	86.664
	600.00	131.128	269.536	205.826	−941.582	38.227	−1103.304	−970.977	−800.953	69.729
	700.00	133.159	289.906	216.416	−928.366	51.443	−1131.300	−967.879	−772.860	57.672
	710.00	133.348	291.796	217.464	−927.033	52.776	−1134.209	−967.566	−770.076	56.654

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	NSPT= 609., MPT= 710., L= 50. kJ

233.035 ZIRCONIUM TETRACHLORIDE (GAS) **ZrCl4**[g]

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	98.230	367.716	367.716	-869.979	0.000	-979.613	-869.979	-834.980	146.285
	300.00	98.333	368.324	367.718	-869.797	0.182	-980.294	-869.969	-834.763	145.345
	400.00	102.202	397.210	371.630	-859.747	10.232	-1018.631	-869.413	-823.110	107.487
	500.00	104.185	420.250	379.128	-849.418	20.561	-1059.543	-868.850	-811.600	84.787
	600.00	105.324	439.355	387.619	-838.938	31.041	-1102.551	-868.332	-800.199	69.664
	700.00	106.034	455.648	396.202	-828.367	41.612	-1147.321	-867.881	-788.881	58.867
	800.00	106.505	469.839	404.539	-817.739	52.240	-1193.610	-867.512	-777.621	50.773
	900.00	106.831	482.404	412.506	-807.071	62.908	-1241.235	-867.244	-766.402	44.481
	1000.00	107.067	493.673	420.069	-796.375	73.604	-1290.048	-867.086	-755.207	39.448
	1100.00	107.242	503.886	427.232	-785.660	84.319	-1339.934	-867.049	-744.022	35.331
	1200.00	107.375	513.223	434.014	-774.928	95.051	-1390.796	-870.848	-732.613	31.890
	1300.00	107.479	521.822	440.442	-764.186	105.793	-1442.554	-870.520	-721.107	28.974
	1400.00	107.561	529.790	446.543	-753.433	116.546	-1495.139	-870.241	-709.625	26.476
	1500.00	107.628	537.213	452.343	-742.674	127.305	-1548.494	-870.022	-698.160	24.312
	1600.00	107.682	544.161	457.867	-731.908	138.071	-1602.566	-869.875	-686.708	22.419
	1700.00	107.728	550.691	463.137	-721.138	148.841	-1657.312	-869.812	-675.262	20.748
	1800.00	107.767	556.850	468.174	-710.363	159.616	-1712.692	-869.843	-663.818	19.263
	1900.00	107.800	562.677	472.996	-699.585	170.394	-1768.671	-869.981	-652.369	17.935
	2000.00	107.829	568.207	477.619	-688.803	181.176	-1825.218	-870.236	-640.910	16.739

References

Phase	H / S	C_p
GAS	Ja1	Ja1

ZrF[g] ZIRCONIUM MONOFLUORIDE (GAS) 110.222

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	33.427	242.781	242.781	82.843	0.000	10.458	82.843	52.278	-9.159
	300.00	33.464	242.988	242.782	82.905	0.062	10.008	82.829	52.089	-9.069
	400.00	34.993	252.844	244.115	86.335	3.492	-14.803	82.093	41.953	-5.478
	500.00	36.020	260.768	246.679	89.887	7.044	-40.497	81.339	32.004	-3.343
	600.00	36.866	267.412	249.596	93.533	10.690	-66.914	80.557	22.210	-1.934
	700.00	37.639	273.153	252.560	97.258	14.415	-93.949	79.742	12.550	-0.936
	800.00	38.385	278.228	255.458	101.060	18.217	-121.523	78.890	3.009	-0.196
	900.00	39.127	282.792	258.245	104.935	22.092	-149.578	77.994	-6.423	0.373
	1000.00	39.875	286.953	260.911	108.885	26.042	-178.068	77.048	-15.753	0.823
	1100.00	40.532	290.784	263.455	112.905	30.062	-206.957	76.044	-24.985	1.186
	1200.00	41.171	294.339	265.882	116.991	34.148	-236.216	71.263	-33.901	1.476
	1300.00	41.756	297.658	268.200	121.138	38.295	-265.817	70.668	-42.640	1.713
	1400.00	42.278	300.772	270.417	125.340	42.497	-295.740	70.078	-51.334	1.915
	1500.00	42.737	303.705	272.539	129.591	46.748	-325.966	69.478	-59.986	2.089
	1600.00	43.137	306.476	274.574	133.885	51.042	-356.476	68.850	-68.596	2.239
	1700.00	43.486	309.102	276.529	138.217	55.374	-387.256	68.180	-77.166	2.371
	1800.00	43.790	311.596	278.408	142.581	59.738	-418.292	67.452	-85.695	2.487
	1900.00	44.055	313.971	280.218	146.974	64.131	-449.571	66.653	-94.182	2.589
	2000.00	44.287	316.237	281.963	151.391	68.548	-481.083	65.767	-102.625	2.680
	2100.00	44.489	318.403	283.647	155.830	72.987	-512.815	64.782	-111.020	2.761
	2200.00	44.666	320.476	285.274	160.288	77.445	-544.760	42.361	-118.621	2.816
	2300.00	44.822	322.465	286.848	164.763	81.920	-576.908	40.722	-125.902	2.859
	2400.00	44.959	324.376	288.372	169.252	86.409	-609.250	39.093	-133.111	2.897
	2500.00	45.080	326.214	289.849	173.754	90.911	-641.781	37.474	-140.253	2.930
	2600.00	45.188	327.984	291.282	178.267	95.424	-674.491	35.862	-147.330	2.960
	2700.00	45.283	329.691	292.673	182.791	99.948	-707.375	34.256	-154.346	2.986
	2800.00	45.367	331.340	294.025	187.324	104.481	-740.427	32.655	-161.302	3.009
	2900.00	45.443	332.933	295.339	191.864	109.021	-773.641	31.059	-168.201	3.030
	3000.00	45.510	334.475	296.618	196.412	113.569	-807.012	29.466	-175.044	3.048

References

Phase	H / S	C_p
GAS	Ja1	Ja1

129.221 ZIRCONIUM DIFLUORIDE **ZrF2**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	65.949	75.312	75.312	−962.320	0.000	−984.774	−962.320	−912.722	159.905
	300.00	66.024	75.720	75.313	−962.198	0.122	−984.914	−962.303	−912.414	158.865
	400.00	69.849	95.249	77.950	−955.401	6.919	−993.500	−961.278	−895.935	116.997
	500.00	73.228	111.206	83.052	−948.243	14.077	−1003.846	−960.109	−879.732	91.905
	600.00	76.162	124.823	88.906	−940.770	21.550	−1015.664	−958.799	−863.778	75.199
	700.00	78.651	136.756	94.907	−933.025	29.295	−1028.755	−957.371	−848.052	63.282
	800.00	80.663	147.393	100.815	−925.058	37.262	−1042.972	−955.859	−832.537	54.359
	900.00	82.440	156.998	106.532	−916.901	45.419	−1058.199	−954.297	−817.216	47.430
	1000.00	83.985	165.766	112.024	−908.577	53.743	−1074.344	−952.710	−802.069	41.896
	1100.00	85.296	173.834	117.281	−900.111	62.209	−1091.329	−951.122	−787.082	37.375
	1175.00	86.127	179.488	121.073	−893.682	68.638	−1104.581	−953.778	−775.799	34.488
			32.048		37.656					
LIQ	1175.00	100.416	211.536	121.073	−856.026	106.294	−1104.581	−916.122	−775.799	34.488
	1200.00	100.416	213.650	122.980	−853.516	108.804	−1109.896	−915.257	−772.822	33.640
	1300.00	100.416	221.687	130.268	−843.474	118.846	−1131.668	−911.830	−761.092	30.581
	1400.00	100.416	229.129	137.067	−833.433	128.887	−1154.213	−908.462	−749.623	27.969
	1500.00	100.416	236.057	143.438	−823.391	138.929	−1177.477	−905.161	−738.393	25.713
	1600.00	100.416	242.538	149.431	−813.349	148.971	−1201.410	−901.936	−727.381	23.747
	1700.00	100.416	248.625	155.089	−803.308	159.012	−1225.971	−898.797	−716.568	22.017
	1800.00	100.416	254.365	160.446	−793.266	169.054	−1251.123	−895.754	−705.937	20.486
	1900.00	100.416	259.794	165.534	−783.225	179.095	−1276.834	−892.816	−695.472	19.120
	2000.00	100.416	264.945	170.376	−773.183	189.137	−1303.073	−889.993	−685.159	17.895
	2100.00	100.416	269.844	174.997	−763.141	199.179	−1329.814	−887.297	−674.984	16.789
	2200.00	100.416	274.516	179.416	−753.100	209.220	−1357.034	−906.059	−664.189	15.770
	2300.00	100.416	278.979	183.648	−743.058	219.262	−1384.711	−904.061	−653.240	14.836
	2400.00	100.416	283.253	187.710	−733.017	229.303	−1412.824	−902.071	−642.377	13.981
	2500.00	100.416	287.352	191.614	−722.975	239.345	−1441.355	−900.089	−631.598	13.197
	2527.00	100.416	288.431	192.643	−720.264	242.056	−1449.129	−899.555	−628.701	12.996

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	BPT= 2527., L= 288.7 kJ

ZrF2[g] ZIRCONIUM DIFLUORIDE (GAS) 129.221

Phase	T [K]	C_p J / (K mol)	S J / (K mol)	−(G−H298)/T J / (K mol)	H kJ / mol	H−H298 kJ / mol	G kJ / mol	ΔH_f kJ / mol	ΔG_f kJ / mol	log K_f [−]
GAS	298.15	48.656	283.366	283.366	−558.146	0.000	−642.632	−558.146	−570.580	99.963
	300.00	48.730	283.667	283.367	−558.056	0.090	−643.156	−558.161	−570.657	99.360
	400.00	52.016	298.173	285.322	−553.006	5.140	−672.275	−558.883	−574.710	75.049
	500.00	53.977	310.010	289.113	−547.697	10.449	−702.703	−559.563	−578.588	60.445
	600.00	55.147	319.964	293.448	−542.236	15.910	−734.215	−560.266	−582.328	50.696
	700.00	55.885	328.524	297.861	−536.682	21.464	−766.649	−561.028	−585.946	43.724
	800.00	56.389	336.021	302.172	−531.067	27.079	−799.884	−561.868	−589.449	38.487
	900.00	56.767	342.685	306.311	−525.409	32.737	−833.825	−562.805	−592.842	34.408
	1000.00	57.081	348.683	310.253	−519.716	38.430	−868.399	−563.849	−596.124	31.138
	1100.00	57.368	354.137	313.998	−513.993	44.153	−903.544	−565.004	−599.297	28.458
	1200.00	57.650	359.141	317.554	−508.243	49.903	−939.211	−569.984	−602.138	26.210
	1300.00	57.941	363.766	320.933	−502.463	55.683	−975.360	−570.819	−604.783	24.300
	1400.00	58.249	368.072	324.149	−496.654	61.492	−1011.954	−571.683	−607.364	22.661
	1500.00	58.579	372.101	327.212	−490.813	67.333	−1048.965	−572.583	−609.881	21.238
	1600.00	58.933	375.893	330.138	−484.937	73.209	−1086.366	−573.524	−612.337	19.991
	1700.00	59.313	379.477	332.936	−479.025	79.121	−1124.136	−574.514	−614.733	18.888
	1800.00	59.718	382.879	335.616	−473.074	85.072	−1162.256	−575.561	−617.069	17.907
	1900.00	60.147	386.119	338.190	−467.081	91.065	−1200.707	−576.672	−619.345	17.027
	2000.00	60.600	389.216	340.664	−461.043	97.103	−1239.475	−577.854	−621.561	16.234

References

Phase	H / S	C_p
GAS	Ja1	Ja1

ZrF3 ZIRCONIUM TRIFLUORIDE 148.219

Phase	T [K]	C_p J / (K mol)	S J / (K mol)	−(G−H298)/T J / (K mol)	H kJ / mol	H−H298 kJ / mol	G kJ / mol	ΔH_f kJ / mol	ΔG_f kJ / mol	log K_f [−]
SOL	298.15	83.684	87.864	87.864	−1401.640	0.000	−1427.837	−1401.640	−1325.553	232.231
	300.00	83.923	88.382	87.866	−1401.485	0.155	−1428.000	−1401.619	−1325.081	230.717
	400.00	92.660	113.882	91.283	−1392.600	9.040	−1438.153	−1400.114	−1299.780	169.734
	500.00	97.227	135.094	97.986	−1383.086	18.554	−1450.633	−1398.269	−1274.906	133.188
	600.00	100.152	153.095	105.709	−1373.208	28.432	−1465.065	−1396.292	−1250.417	108.859
	700.00	102.301	168.702	113.618	−1363.081	38.559	−1481.172	−1394.255	−1226.266	91.505
	800.00	104.038	182.479	121.381	−1352.762	48.878	−1498.745	−1392.195	−1202.407	78.509
	900.00	105.534	194.821	128.867	−1342.281	59.359	−1517.621	−1390.134	−1178.808	68.416
	1000.00	106.881	206.011	136.031	−1331.660	69.980	−1537.671	−1388.088	−1155.437	60.354
	1100.00	108.131	216.257	142.865	−1320.908	80.732	−1558.791	−1386.068	−1132.270	53.767
	1200.00	109.314	225.717	149.380	−1310.036	91.604	−1580.896	−1387.790	−1109.064	48.276
	1300.00	110.450	234.512	155.594	−1299.047	102.593	−1603.913	−1385.290	−1085.938	43.634
	1400.00	111.553	242.738	161.528	−1287.947	113.693	−1627.780	−1382.744	−1063.006	39.661
	1500.00	112.630	250.471	167.203	−1276.737	124.903	−1652.444	−1380.164	−1040.257	36.225

References

Phase	H / S	C_p	Remarks
SOL	Ja1	Ja1	Ja2 DEC. 4ZrF3 = 3ZrF4 + Zr at T NSPT= 1468.

148.219 ZIRCONIUM TRIFLUORIDE (GAS) **ZrF3**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	67.840	305.541	305.541	−1105.413	0.000	−1196.510	−1105.413	−1094.226	191.704
	300.00	67.962	305.961	305.543	−1105.287	0.126	−1197.076	−1105.421	−1094.157	190.510
	400.00	73.664	326.341	308.282	−1098.190	7.223	−1228.726	−1105.703	−1090.353	142.385
	500.00	77.553	343.224	313.631	−1090.616	14.797	−1262.228	−1105.799	−1086.501	113.506
	600.00	80.217	357.614	319.792	−1082.720	22.693	−1297.288	−1105.803	−1082.640	94.252
	700.00	82.111	370.130	326.108	−1074.598	30.815	−1333.689	−1105.773	−1078.782	80.500
	800.00	83.497	381.189	332.316	−1066.314	39.099	−1371.266	−1105.747	−1074.928	70.186
	900.00	84.528	391.086	338.306	−1057.910	47.503	−1409.888	−1105.763	−1071.076	62.164
	1000.00	85.300	400.034	344.038	−1049.417	55.996	−1449.451	−1105.846	−1067.218	55.746
	1100.00	85.875	408.192	349.505	−1040.857	64.556	−1489.869	−1106.017	−1063.347	50.494
	1200.00	86.298	415.684	354.712	−1032.247	73.166	−1531.068	−1110.002	−1059.235	46.107
	1300.00	86.600	422.604	359.672	−1023.601	81.812	−1572.986	−1109.844	−1055.011	42.391
	1400.00	86.809	429.030	364.399	−1014.930	90.483	−1615.572	−1109.728	−1050.798	39.206
	1500.00	86.947	435.024	368.910	−1006.242	99.171	−1658.778	−1109.669	−1046.591	36.446
	1600.00	87.030	440.638	373.219	−997.543	107.870	−1702.564	−1109.681	−1042.386	34.030
	1700.00	87.077	445.916	377.342	−988.837	116.576	−1746.894	−1109.779	−1038.178	31.899
	1800.00	87.103	450.894	381.291	−980.128	125.285	−1791.737	−1109.974	−1033.961	30.005
	1900.00	87.121	455.604	385.080	−971.417	133.996	−1837.064	−1110.278	−1029.730	28.309
	2000.00	87.146	460.073	388.719	−962.704	142.709	−1882.850	−1110.700	−1025.480	26.783

References

Phase	H / S	C_p
GAS	Ja1	Ja1

ZrF4 ZIRCONIUM TETRAFLUORIDE 167.218

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	103.426	104.700	104.700	−1911.251	0.000	−1942.467	−1911.251	−1809.952	317.096
	300.00	103.699	105.341	104.702	−1911.059	0.192	−1942.662	−1911.222	−1809.324	315.031
	400.00	113.925	136.746	108.915	−1900.118	11.133	−1954.817	−1909.268	−1775.635	231.874
	500.00	119.654	162.831	117.165	−1888.418	22.833	−1969.834	−1906.918	−1742.493	182.037
	600.00	123.614	185.015	126.671	−1876.245	35.006	−1987.254	−1904.382	−1709.844	148.855
	700.00	126.738	204.312	136.414	−1863.722	47.529	−2006.741	−1901.726	−1677.630	125.186
	723.00	127.385	208.420	138.640	−1860.800	50.451	−2011.487	−1901.101	−1670.277	120.673
			0.000		0.000					
SOL−B	723.00	127.385	208.420	138.640	−1860.800	50.451	−2011.487	−1901.101	−1670.277	120.673
	800.00	129.416	221.414	145.990	−1850.912	60.339	−2028.043	−1898.977	−1645.803	107.460
	900.00	131.836	236.799	155.239	−1837.848	73.403	−2050.966	−1896.156	−1614.325	93.693
	1000.00	134.095	250.807	164.106	−1824.550	86.701	−2075.357	−1893.275	−1583.164	82.696
	1100.00	136.248	263.689	172.581	−1811.032	100.219	−2101.090	−1890.341	−1552.295	73.712
	1200.00	138.330	275.634	180.677	−1797.303	113.948	−2128.064	−1891.070	−1521.473	66.228
	1205.00	138.433	276.209	181.072	−1796.611	114.640	−2129.443	−1890.895	−1519.933	65.886

References

Phase	H / S	C_p	Remarks	
SOL−A	Ja1	Ja1	Ja1	TPT(A−B) = 723.
SOL−B	u	Ja1	Ja1	MPT= 1205., L= 64.22 kJ / NSPT= 1179.

167.218 ZIRCONIUM TETRAFLUORIDE (GAS) **ZrF4**[g]

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	87.392	319.349	319.349	-1673.600	0.000	-1768.814	-1673.600	-1636.298	286.673
	300.00	87.558	319.890	319.350	-1673.438	0.162	-1769.405	-1673.601	-1636.067	284.865
	400.00	94.568	346.126	322.880	-1664.302	9.298	-1802.752	-1673.451	-1623.570	212.016
	500.00	98.719	367.713	329.752	-1654.620	18.980	-1838.476	-1673.120	-1611.136	168.314
	600.00	101.274	385.955	337.639	-1644.610	28.990	-1876.183	-1672.748	-1598.774	139.186
	700.00	102.935	401.700	345.692	-1634.394	39.206	-1915.584	-1672.398	-1586.473	118.384
	800.00	104.067	415.524	353.574	-1624.041	49.559	-1956.460	-1672.106	-1574.219	102.786
	900.00	104.870	427.830	361.154	-1613.592	60.008	-1998.639	-1671.900	-1561.997	90.656
	1000.00	105.457	438.911	368.385	-1603.074	70.526	-2041.985	-1671.799	-1549.792	80.953
	1100.00	105.899	448.984	375.261	-1592.505	81.095	-2086.387	-1671.814	-1537.591	73.014
	1200.00	106.239	458.213	381.795	-1581.897	91.703	-2131.753	-1675.665	-1525.163	66.389
	1300.00	106.506	466.728	388.005	-1571.260	102.340	-2178.006	-1675.389	-1512.632	60.778
	1400.00	106.719	474.629	393.913	-1560.598	113.002	-2225.079	-1675.164	-1500.121	55.970
	1500.00	106.891	481.998	399.543	-1549.917	123.683	-2272.914	-1675.000	-1487.624	51.804
	1600.00	107.033	488.901	404.914	-1539.221	134.379	-2321.463	-1674.911	-1475.136	48.158
	1700.00	107.151	495.394	410.047	-1528.512	145.088	-2370.681	-1674.905	-1462.651	44.942
	1800.00	107.251	501.521	414.961	-1517.791	155.809	-2420.529	-1674.996	-1450.163	42.083
	1900.00	107.336	507.322	419.670	-1507.062	166.538	-2470.974	-1675.193	-1437.667	39.524
	2000.00	107.410	512.830	424.192	-1496.324	177.276	-2521.984	-1675.507	-1425.158	37.221

References

Phase	H / S	C_p
GAS	Ja1	Ja1

ZrH[g] ZIRCONIUM HYDRIDE (GAS) 92.232

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	29.553	216.163	216.163	516.306	0.000	451.857	516.306	482.927	-84.607
	300.00	29.588	216.346	216.163	516.361	0.055	451.457	516.287	482.720	-84.049
	400.00	31.066	225.075	217.344	519.399	3.093	429.369	515.313	471.679	-61.595
	500.00	32.136	232.127	219.617	522.561	6.255	406.497	514.389	460.879	-48.148
	600.00	33.015	238.066	222.210	525.820	9.514	382.980	513.492	450.261	-39.199
	700.00	33.775	243.213	224.851	529.160	12.854	358.911	512.598	439.793	-32.818
	800.00	34.448	247.768	227.436	532.572	16.266	334.357	511.683	429.455	-28.041
	900.00	35.048	251.861	229.926	536.047	19.741	309.372	510.724	419.233	-24.332
	1000.00	35.583	255.582	232.309	539.579	23.273	283.997	509.698	409.122	-21.370
	1100.00	36.057	258.996	234.582	543.162	26.856	258.266	508.590	399.117	-18.952
	1200.00	36.474	262.151	236.749	546.789	30.483	232.207	503.676	389.439	-16.952
	1300.00	36.834	265.086	238.818	550.454	34.148	205.843	502.913	379.950	-15.267
	1400.00	37.139	267.827	240.793	554.153	37.847	179.196	502.119	370.521	-13.824
	1500.00	37.390	270.398	242.682	557.880	41.574	152.284	501.278	361.150	-12.576
	1600.00	37.586	272.818	244.490	561.630	45.324	125.122	500.375	351.837	-11.486
	1700.00	37.729	275.101	246.224	565.396	49.090	97.725	499.394	342.583	-10.526
	1800.00	37.819	277.260	247.889	569.174	52.868	70.106	498.319	333.389	-9.675
	1900.00	37.856	279.306	249.489	572.958	56.652	42.276	497.136	324.258	-8.914
	2000.00	37.840	281.248	251.029	576.743	60.437	14.248	495.829	315.193	-8.232
	2100.00	37.771	283.092	252.512	580.524	64.218	-13.970	494.384	306.196	-7.616
	2200.00	37.649	284.847	253.943	584.295	67.989	-42.368	471.463	298.017	-7.076
	2273.00	37.527	286.074	254.955	587.039	70.733	-63.207	469.873	292.288	-6.717

References

Phase	H / S	C_p
GAS	Ja1	Ja1

218.128 ZIRCONIUM MONOIODIDE (GAS) **ZrI[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	36.910	275.709	275.710	591.199	0.000	508.996	591.199	537.899	−94.238
	300.00	36.921	275.938	275.710	591.267	0.068	508.486	591.170	537.568	−93.599
	400.00	37.342	286.624	277.164	594.983	3.784	480.333	581.507	520.223	−67.934
	500.00	37.586	294.985	279.922	598.730	7.531	451.238	558.533	507.138	−52.980
	600.00	37.760	301.853	283.022	602.498	11.299	421.386	557.734	496.933	−43.262
	700.00	37.901	307.685	286.139	606.281	15.082	390.901	556.870	486.867	−36.330
	800.00	38.025	312.754	289.156	610.077	18.878	359.874	555.930	476.929	−31.140
	900.00	38.138	317.239	292.032	613.885	22.686	328.370	554.901	467.115	−27.111
	1000.00	38.245	321.263	294.757	617.705	26.506	296.442	553.770	457.421	−23.893
	1100.00	38.348	324.913	297.336	621.534	30.335	264.130	552.531	447.845	−21.266
	1200.00	38.448	328.254	299.775	625.374	34.175	231.469	547.468	438.608	−19.092
	1300.00	38.546	331.336	302.086	629.224	38.025	198.488	546.546	429.574	−17.260
	1400.00	38.643	334.196	304.278	633.083	41.884	165.209	545.587	420.612	−15.693
	1500.00	38.739	336.865	306.363	636.953	45.754	131.655	544.583	411.719	−14.337
	1600.00	38.834	339.368	308.348	640.831	49.632	97.842	543.522	402.896	−13.153
	1700.00	38.928	341.725	310.243	644.719	53.520	63.786	542.393	394.141	−12.110
	1800.00	39.022	343.953	312.054	648.617	57.418	29.501	541.186	385.455	−11.186
	1900.00	39.115	346.065	313.789	652.524	61.325	−5.001	539.890	376.838	−10.360
	2000.00	39.208	348.074	315.454	656.440	65.241	−39.708	538.494	368.292	−9.619
	2100.00	39.301	349.989	317.053	660.365	69.166	−74.612	536.989	359.819	−8.950
	2200.00	39.393	351.820	318.592	664.300	73.101	−109.704	514.039	352.165	−8.361
	2273.00	39.461	353.107	319.680	667.178	75.979	−135.434	512.452	346.820	−7.970

References

Phase	H / S	C_p
GAS	Ja1	Ja1

ZrI2 ZIRCONIUM DIIODIDE 345.033

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[	J / (K mol)	]	[		kJ / mol		]	[−]
SOL	298.15	94.138	150.206	150.206	−259.408	0.000	−304.192	−259.408	−257.975	45.196
	300.00	94.156	150.788	150.207	−259.234	0.174	−304.470	−259.381	−257.966	44.916
	400.00	95.030	177.998	153.911	−249.773	9.635	−320.973	−274.119	−257.140	33.579
	500.00	95.832	199.290	160.934	−240.230	19.178	−339.875	−315.394	−248.963	26.009
	600.00	96.628	216.832	168.831	−230.607	28.801	−360.707	−312.213	−235.976	20.544
	700.00	97.439	231.788	176.783	−220.904	38.504	−383.156	−309.039	−223.521	16.679
			35.863		25.104					
LIQ	700.00	97.439	267.651	176.783	−195.800	63.608	−383.156	−283.935	−223.521	16.679
	800.00	106.166	281.232	188.997	−185.620	73.788	−410.605	−280.376	−215.124	14.046
	900.00	114.882	294.240	199.972	−174.567	84.841	−439.383	−276.052	−207.219	12.027
	1000.00	123.593	306.795	210.030	−162.643	96.765	−469.438	−270.971	−199.836	10.438
	1100.00	132.299	318.983	219.384	−149.849	109.559	−500.730	−265.143	−192.999	9.165
	1200.00	141.003	330.868	228.181	−136.184	123.224	−533.225	−262.281	−186.503	8.118
	1298.00	149.531	342.267	236.365	−121.947	137.461	−566.210	−254.587	−180.615	7.268

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1		
LIQ	Ja1	Ja1	Ja1	BPT= 1298., L= 113. kJ

345.033 ZIRCONIUM DIIODIDE (GAS) **ZrI2[g]**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	57.243	344.871	344.871	−66.944	0.000	−169.767	−66.944	−123.551	21.646
	300.00	57.255	345.225	344.872	−66.838	0.106	−170.406	−66.986	−123.902	21.573
	400.00	57.666	361.761	347.124	−61.089	5.855	−205.794	−85.435	−141.961	18.538
	500.00	57.857	374.652	351.388	−55.312	11.632	−242.638	−130.476	−151.726	15.851
	600.00	57.961	385.210	356.171	−49.520	17.424	−280.647	−131.127	−155.916	13.574
	700.00	58.024	394.150	360.975	−43.721	23.223	−319.626	−131.856	−159.991	11.939
	800.00	58.066	401.901	365.617	−37.916	29.028	−359.437	−132.673	−163.956	10.705
	900.00	58.094	408.742	370.036	−32.108	34.836	−399.976	−133.593	−167.812	9.740
	1000.00	58.115	414.864	374.218	−26.298	40.646	−441.162	−134.626	−171.560	8.961
	1100.00	58.130	420.404	378.169	−20.485	46.459	−482.930	−135.779	−175.198	8.319
	1200.00	58.142	425.462	381.902	−14.672	52.272	−525.227	−140.769	−178.505	7.770
	1300.00	58.152	430.117	385.434	−8.857	58.087	−568.009	−141.631	−181.615	7.297
	1400.00	58.160	434.427	388.782	−3.041	63.903	−611.239	−142.540	−184.657	6.890
	1500.00	58.166	438.439	391.960	2.775	69.719	−654.884	−143.507	−187.632	6.534
	1600.00	58.171	442.193	394.984	8.592	75.536	−698.918	−144.543	−190.540	6.220
	1700.00	58.176	445.720	397.865	14.409	81.353	−743.315	−145.659	−193.381	5.942
	1800.00	58.180	449.046	400.617	20.227	87.171	−788.055	−146.864	−196.154	5.692
	1900.00	58.184	452.191	403.250	26.045	92.989	−833.118	−148.171	−198.857	5.467
	2000.00	58.187	455.176	405.772	31.864	98.808	−878.488	−149.589	−201.489	5.262

References

Phase	H / S	C_p
GAS	Ja1	Ja1

471.937 ZIRCONIUM TRIIODIDE **ZrI3**

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	103.887	204.598	204.598	−397.480	0.000	−458.481	−397.480	−394.950	69.194
	300.00	103.934	205.240	204.600	−397.288	0.192	−458.860	−397.486	−394.935	68.764
	400.00	105.577	235.399	208.700	−386.801	10.679	−480.960	−422.016	−393.184	51.345
	500.00	106.339	259.049	216.490	−376.201	21.279	−505.725	−486.331	−379.801	39.678
	600.00	106.754	278.477	225.250	−365.544	31.936	−532.630	−483.992	−358.716	31.229
	700.00	107.006	294.954	234.061	−354.855	42.625	−561.323	−481.713	−338.017	25.223
	800.00	107.171	309.254	242.586	−344.146	53.334	−591.549	−479.512	−317.641	20.740
	900.00	107.285	321.884	250.709	−333.422	64.058	−623.118	−477.407	−297.534	17.268
	970.00	107.345	329.922	256.139	−325.910	71.570	−645.935	−475.998	−283.598	15.272

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	NSPT= 970.

ZrI3[g] ZIRCONIUM TRIIODIDE (GAS) 471.937

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	80.820	397.799	397.799	−221.752	0.000	−340.356	−221.752	−276.825	48.499
	300.00	80.849	398.299	397.800	−221.602	0.150	−341.092	−221.800	−277.167	48.259
	400.00	81.843	421.714	400.986	−213.461	8.291	−382.146	−248.676	−294.371	38.441
	500.00	82.305	440.032	407.030	−205.251	16.501	−425.267	−315.382	−299.343	31.272
	600.00	82.556	455.062	413.820	−197.007	24.745	−470.044	−315.455	−296.130	25.780
	700.00	82.709	467.801	420.645	−188.743	33.009	−516.203	−315.601	−292.898	21.856
	800.00	82.809	478.852	427.245	−180.467	41.285	−563.548	−315.833	−289.640	18.912
	900.00	82.878	488.610	433.532	−172.182	49.570	−611.931	−316.166	−286.347	16.619
	1000.00	82.928	497.344	439.484	−163.892	57.860	−661.236	−316.613	−283.011	14.783
	1100.00	82.965	505.250	445.109	−155.597	66.155	−711.372	−317.182	−279.624	13.278
	1200.00	82.994	512.470	450.426	−147.299	74.453	−762.263	−321.588	−275.959	12.012
	1300.00	83.017	519.114	455.458	−138.998	82.754	−813.847	−321.867	−272.145	10.935
	1400.00	83.036	525.267	460.227	−130.696	91.056	−866.070	−322.196	−268.309	10.011
	1500.00	83.052	530.997	464.756	−122.391	99.361	−918.886	−322.585	−264.446	9.209
	1600.00	83.065	536.357	469.066	−114.085	107.667	−972.257	−323.045	−260.556	8.506
	1700.00	83.076	541.393	473.173	−105.778	115.974	−1026.147	−323.587	−256.634	7.885
	1800.00	83.086	546.142	477.097	−97.470	124.282	−1080.526	−324.222	−252.678	7.333
	1900.00	83.094	550.635	480.850	−89.161	132.591	−1135.367	−324.960	−248.683	6.837
	2000.00	83.102	554.897	484.447	−80.851	140.901	−1190.645	−325.811	−244.647	6.390

References

Phase	H / S	C_p
GAS	Ja1	Ja1

ZrI4 ZIRCONIUM TETRAIODIDE 598.842

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	127.798	260.287	260.287	−488.691	0.000	−566.295	−488.691	−485.451	85.049
	300.00	127.877	261.077	260.289	−488.455	0.236	−566.778	−488.703	−485.431	84.521
	400.00	131.014	298.338	265.348	−475.495	13.196	−594.830	−521.580	−483.112	63.088
	500.00	133.019	327.801	274.994	−462.288	26.403	−626.188	−607.385	−465.252	48.605
	600.00	134.579	352.195	285.886	−448.906	39.785	−660.223	−604.196	−437.124	38.055
	700.00	135.928	373.044	296.884	−435.379	53.312	−696.510	−600.961	−409.534	30.560
	772.00	136.827	386.395	304.619	−425.560	63.131	−723.857	−598.614	−389.962	26.385

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	NSPT= 705.6, MPT= 772.

598.842 ZIRCONIUM TETRAIODIDE (GAS) **ZrI4[g]**

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	104.576	446.542	446.542	−362.334	0.000	−495.471	−362.334	−414.626	72.641
	300.00	104.619	447.189	446.544	−362.140	0.194	−496.297	−362.389	−414.951	72.249
	400.00	106.113	477.522	450.670	−351.593	10.741	−542.602	−397.678	−430.883	56.268
	500.00	106.807	501.283	458.502	−340.943	21.391	−591.585	−486.041	−430.649	44.990
	600.00	107.185	520.793	467.306	−330.242	32.092	−642.718	−485.533	−419.620	36.531
	700.00	107.415	537.334	476.159	−319.511	42.823	−695.645	−485.093	−408.670	30.495
	800.00	107.565	551.688	484.722	−308.762	53.572	−750.112	−484.737	−397.778	25.972
	900.00	107.670	564.364	492.881	−298.000	64.334	−805.927	−484.484	−386.924	22.456
	1000.00	107.745	575.712	500.607	−287.229	75.105	−862.941	−484.344	−376.093	19.645
	1100.00	107.802	585.984	507.909	−276.451	85.883	−921.033	−484.327	−365.269	17.345
	1200.00	107.847	595.366	514.811	−265.669	96.665	−980.108	−488.149	−354.221	15.419
	1300.00	107.882	604.000	521.344	−254.882	107.452	−1040.082	−487.846	−343.072	13.785
	1400.00	107.911	611.996	527.537	−244.093	118.241	−1100.886	−487.595	−331.946	12.385
	1500.00	107.935	619.442	533.419	−233.300	129.034	−1162.463	−487.407	−320.835	11.172
	1600.00	107.955	626.408	539.015	−222.506	139.828	−1224.759	−487.291	−309.734	10.112
	1700.00	107.972	632.953	544.351	−211.709	150.625	−1287.730	−487.260	−298.638	9.176
	1800.00	107.988	639.125	549.446	−200.911	161.423	−1351.337	−487.323	−287.542	8.344
	1900.00	108.001	644.964	554.321	−190.112	172.222	−1415.544	−487.493	−276.439	7.600
	2000.00	108.013	650.504	558.993	−179.311	183.023	−1480.320	−487.778	−265.324	6.930

References

Phase	H / S	C_p
GAS	Ja1	Ja1

ZrN ZIRCONIUM NITRIDE 105.231

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	40.443	38.869	38.869	−365.263	0.000	−376.852	−365.263	−336.699	58.988
	300.00	40.555	39.120	38.870	−365.188	0.075	−376.924	−365.262	−336.522	58.594
	400.00	44.756	51.434	40.521	−360.898	4.365	−381.471	−364.989	−326.973	42.698
	500.00	47.078	61.691	43.759	−356.297	8.966	−387.142	−364.483	−317.525	33.172
	600.00	48.661	70.422	47.493	−351.506	13.757	−393.759	−363.875	−308.189	26.830
	700.00	49.894	78.018	51.323	−346.576	18.687	−401.189	−363.232	−298.959	22.309
	800.00	50.941	84.751	55.088	−341.533	23.730	−409.334	−362.593	−289.821	18.923
	900.00	51.880	90.806	58.726	−336.391	28.872	−418.117	−361.988	−280.761	16.295
	1000.00	52.752	96.317	62.214	−331.159	34.104	−427.477	−361.432	−271.767	14.196
	1100.00	53.580	101.384	65.548	−325.842	39.421	−437.365	−360.935	−262.825	12.481
	1200.00	54.378	106.081	68.732	−320.444	44.819	−447.741	−364.213	−253.704	11.043
	1300.00	55.154	110.464	71.775	−314.968	50.295	−458.571	−363.302	−244.531	9.825
	1400.00	55.916	114.579	74.687	−309.414	55.849	−469.825	−362.376	−235.430	8.784
	1500.00	56.666	118.463	77.477	−303.785	61.478	−481.479	−361.444	−226.395	7.884
	1600.00	57.408	122.144	80.155	−298.081	67.182	−493.511	−360.517	−217.422	7.098
	1700.00	58.143	125.646	82.729	−292.303	72.960	−505.902	−359.603	−208.506	6.407
	1800.00	58.873	128.990	85.207	−286.453	78.810	−518.635	−358.712	−199.644	5.794
	1900.00	59.598	132.193	87.596	−280.529	84.734	−531.695	−357.854	−190.830	5.246
	2000.00	60.321	135.268	89.903	−274.533	90.730	−545.069	−357.039	−182.061	4.755
	2100.00	61.040	138.229	92.134	−268.465	96.798	−558.745	−356.277	−173.331	4.311
	2200.00	61.758	141.085	94.295	−262.325	102.938	−572.712	−376.900	−163.890	3.891
	2300.00	62.473	143.846	96.390	−256.114	109.149	−586.959	−376.689	−154.213	3.502
	2400.00	63.187	146.520	98.423	−249.830	115.433	−601.478	−376.413	−144.545	3.146
	2500.00	63.900	149.114	100.399	−243.476	121.787	−616.260	−376.071	−134.891	2.818
	2600.00	64.612	151.634	102.321	−237.050	128.213	−631.298	−375.663	−125.252	2.516
	2700.00	65.322	154.086	104.193	−230.554	134.709	−646.585	−375.188	−115.629	2.237
	2800.00	66.032	156.474	106.018	−223.986	141.277	−662.113	−374.646	−106.026	1.978
	2900.00	66.741	158.803	107.798	−217.347	147.916	−677.877	−374.038	−96.443	1.737
	3000.00	67.450	161.078	109.536	−210.638	154.625	−693.872	−373.362	−86.882	1.513
	3100.00	68.158	163.301	111.235	−203.857	161.406	−710.091	−372.619	−77.344	1.303
	3200.00	68.865	165.476	112.896	−197.006	168.257	−726.531	−371.808	−67.832	1.107
	3225.00	69.042	166.013	113.306	−195.282	169.981	−730.674	−371.595	−65.458	1.060
			20.887		67.362					
LIQ	3225.00	58.576	186.900	113.306	−127.920	237.343	−730.674	−304.233	−65.458	1.060
	3300.00	58.576	188.247	114.994	−123.527	241.736	−744.742	−304.372	−59.904	0.948
	3400.00	58.576	189.996	117.174	−117.670	247.593	−763.655	−304.561	−52.493	0.806
	3500.00	58.576	191.694	119.279	−111.812	253.451	−782.740	−304.752	−45.076	0.673

References

Phase	H / S	C_p
SOL	Ja1	Ku1,Ja1
LIQ	Ja1	Ja1

107.223 ZIRCONIUM MONOXIDE (GAS) **ZrO[g]**

Phase	T	C_p	S	-(G-H298)/T	H	H-H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[-]
GAS	298.15	30.856	227.426	227.426	58.576	0.000	-9.231	58.576	32.940	-5.771
	300.00	30.873	227.617	227.427	58.633	0.057	-9.652	58.559	32.781	-5.708
	400.00	32.437	236.703	228.655	61.795	3.219	-32.886	57.676	24.323	-3.176
	500.00	33.766	244.091	231.026	65.109	6.533	-56.937	56.836	16.082	-1.680
	600.00	34.894	250.347	233.738	68.542	9.966	-81.667	55.998	8.010	-0.697
	700.00	36.157	255.818	236.509	72.092	13.516	-106.980	55.155	0.079	-0.006
	800.00	37.706	260.743	239.235	75.783	17.207	-132.812	54.328	-7.733	0.505
	900.00	39.550	265.288	241.880	79.643	21.067	-159.116	53.538	-15.442	0.896
	1000.00	41.620	269.561	244.437	83.700	25.124	-185.861	52.808	-23.067	1.205
	1100.00	43.800	273.630	246.907	87.971	29.395	-213.022	52.153	-30.622	1.454
	1200.00	45.946	277.534	249.298	92.459	33.883	-240.581	47.864	-37.899	1.650
	1300.00	47.866	281.288	251.615	97.151	38.575	-268.523	47.896	-45.047	1.810
	1400.00	49.515	284.898	253.864	102.023	43.447	-296.834	48.051	-52.201	1.948
	1500.00	50.797	288.360	256.049	107.042	48.466	-325.498	48.286	-59.370	2.067
	1600.00	51.704	291.669	258.173	112.170	53.594	-354.501	48.553	-66.556	2.173
	1700.00	52.267	294.822	260.237	117.371	58.795	-383.827	48.808	-73.758	2.266
	1800.00	52.532	297.819	262.242	122.613	64.037	-413.460	49.006	-80.974	2.350
	1900.00	52.552	300.660	264.190	127.869	69.293	-443.385	49.112	-88.198	2.425
	2000.00	52.376	303.352	266.082	133.117	74.541	-473.587	49.091	-95.425	2.492
	2100.00	52.054	305.900	267.918	138.340	79.764	-504.051	48.918	-102.647	2.553
	2200.00	51.631	308.312	269.699	143.525	84.949	-534.763	27.245	-109.112	2.591
	2300.00	51.146	310.597	271.428	148.664	90.088	-565.709	26.285	-115.289	2.618
	2400.00	50.639	312.763	273.106	153.753	95.177	-596.878	25.264	-121.422	2.643
	2500.00	50.143	314.820	274.734	158.792	100.216	-628.258	24.182	-127.512	2.664

References

Phase	H / S	C_p
GAS	Ja1	Ja1

ZrO2 ZIRCONIUM DIOXIDE 123.223

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL−A	298.15	56.052	50.359	50.359	−1097.463	0.000	−1112.477	−1097.463	−1039.724	182.155
	300.00	56.261	50.706	50.360	−1097.359	0.104	−1112.571	−1097.460	−1039.366	180.970
	400.00	63.848	68.071	52.676	−1091.305	6.158	−1118.533	−1096.937	−1020.063	133.207
	500.00	67.764	82.778	57.266	−1084.707	12.756	−1126.096	−1096.022	−1000.946	104.568
	600.00	70.235	95.366	62.592	−1077.799	19.664	−1135.018	−1094.965	−982.029	85.493
	700.00	72.025	106.333	68.075	−1070.682	26.781	−1145.115	−1093.868	−963.293	71.882
	800.00	73.450	116.047	73.475	−1063.406	34.057	−1156.243	−1092.779	−944.714	61.683
	900.00	74.664	124.770	78.698	−1055.999	41.464	−1168.292	−1091.725	−926.269	53.759
	1000.00	75.747	132.693	83.708	−1048.477	48.986	−1181.171	−1090.721	−907.940	47.426
	1100.00	76.744	139.960	88.496	−1040.852	56.611	−1194.808	−1089.777	−889.708	42.249
	1200.00	77.683	146.678	93.068	−1033.131	64.332	−1209.144	−1092.606	−871.337	37.928
	1300.00	78.580	152.932	97.435	−1025.317	72.146	−1224.129	−1091.244	−852.953	34.272
	1400.00	79.448	158.787	101.610	−1017.415	80.048	−1239.718	−1089.866	−834.675	31.142
	1478.00	80.109	163.113	104.743	−1011.193	86.270	−1252.273	−1088.788	−820.487	28.997
			4.020		5.941					
SOL−B	1478.00	74.475	167.132	104.743	−1005.252	92.211	−1252.273	−1082.847	−820.487	28.997
	1500.00	74.475	168.233	105.666	−1003.613	93.850	−1255.962	−1082.669	−816.583	28.436
	1600.00	74.475	173.039	109.728	−996.166	101.297	−1273.028	−1081.915	−798.869	26.080
	1700.00	74.475	177.554	113.587	−988.718	108.745	−1290.560	−1081.260	−781.199	24.003
	1800.00	74.475	181.811	117.260	−981.271	116.192	−1308.530	−1080.714	−763.564	22.158
	1900.00	74.475	185.838	120.764	−973.823	123.640	−1326.915	−1080.287	−745.957	20.508
	2000.00	74.475	189.658	124.114	−966.376	131.087	−1345.691	−1079.989	−728.369	19.023
	2100.00	74.475	193.291	127.322	−958.928	138.535	−1364.840	−1079.830	−710.793	17.680
	2200.00	74.475	196.756	130.400	−951.481	145.982	−1384.344	−1101.144	−692.475	16.441
	2300.00	74.475	200.067	133.358	−944.033	153.430	−1404.186	−1101.711	−673.886	15.304
	2400.00	74.475	203.236	136.204	−936.585	160.878	−1424.352	−1102.301	−655.273	14.262
	2500.00	74.475	206.276	138.946	−929.138	168.325	−1444.829	−1102.912	−636.634	13.302
	2600.00	74.475	209.197	141.593	−921.690	175.773	−1465.604	−1103.545	−617.970	12.415
	2700.00	74.475	212.008	144.149	−914.243	183.220	−1486.665	−1104.198	−599.282	11.594
	2800.00	74.475	214.717	146.621	−906.795	190.668	−1508.002	−1104.873	−580.569	10.831
	2900.00	74.475	217.330	149.014	−899.348	198.115	−1529.605	−1105.567	−561.832	10.120
	2950.00	74.475	218.603	150.183	−895.624	201.839	−1540.503	−1105.921	−552.454	9.782
			29.501		87.027					
LIQ	2950.00	87.864	248.104	150.183	−808.597	288.866	−1540.503	−1018.894	−552.454	9.782
	3000.00	87.864	249.581	151.828	−804.204	293.259	−1552.946	−1018.584	−544.551	9.481
	3100.00	87.864	252.462	155.028	−795.418	302.045	−1578.049	−1017.977	−528.760	8.910
	3200.00	87.864	255.251	158.116	−786.631	310.832	−1603.435	−1017.388	−512.988	8.374
	3300.00	87.864	257.955	161.101	−777.845	319.618	−1629.096	−1016.817	−497.234	7.871

References

Phase	H / S	C_p	Remarks
SOL−A	Ja1	Ja1	
SOL−B	Ja1	Ja1	
LIQ	Ja1	Ja1	Ja1 BPT= 4544., L= 624.3 kJ

123.223 ZIRCONIUM DIOXIDE (GAS) **ZrO2[g]**

Phase	T	C_p	S	$-(G-H298)/T$	H	H–H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[–]
GAS	298.15	46.073	273.751	273.751	–286.186	0.000	–367.805	–286.186	–295.052	51.692
	300.00	46.133	274.037	273.752	–286.101	0.085	–368.312	–286.202	–295.107	51.383
	400.00	49.400	287.767	275.602	–281.320	4.866	–396.427	–286.952	–297.957	38.909
	500.00	51.804	299.066	279.198	–276.252	9.934	–425.785	–287.567	–300.635	31.407
	600.00	53.410	308.663	283.329	–270.986	15.200	–456.184	–288.152	–303.194	26.395
	700.00	54.502	316.983	287.556	–265.587	20.599	–487.475	–288.773	–305.653	22.808
	800.00	55.269	324.314	291.702	–260.096	26.090	–519.547	–289.469	–308.017	20.111
	900.00	55.825	330.857	295.695	–254.540	31.646	–552.312	–290.266	–310.289	18.009
	1000.00	56.240	336.762	299.512	–248.936	37.250	–585.698	–291.180	–312.466	16.322
	1100.00	56.557	342.137	303.146	–243.295	42.891	–619.646	–292.220	–314.546	14.937
	1200.00	56.805	347.070	306.604	–237.627	48.559	–654.110	–297.102	–316.303	13.768
	1300.00	57.001	351.624	309.894	–231.936	54.250	–689.048	–297.863	–317.873	12.772
	1400.00	57.160	355.855	313.027	–226.228	59.958	–724.424	–298.679	–319.382	11.916
	1500.00	57.290	359.803	316.016	–220.505	65.681	–760.209	–299.561	–320.830	11.172
	1600.00	57.397	363.504	318.869	–214.771	71.415	–796.377	–300.520	–322.217	10.519
	1700.00	57.487	366.986	321.598	–209.026	77.160	–832.903	–301.569	–323.542	9.941
	1800.00	57.563	370.274	324.212	–203.274	82.912	–869.767	–302.717	–324.801	9.425
	1900.00	57.628	373.388	326.719	–197.514	88.672	–906.952	–303.978	–325.994	8.962
	2000.00	57.683	376.346	329.127	–191.748	94.438	–944.440	–305.362	–327.118	8.543
	2100.00	57.731	379.161	331.443	–185.978	100.208	–982.216	–306.880	–328.169	8.163
	2200.00	57.773	381.848	333.674	–180.202	105.984	–1020.268	–329.866	–328.399	7.797
	2300.00	57.810	384.417	335.824	–174.423	111.763	–1058.582	–332.102	–328.282	7.456
	2400.00	57.842	386.878	337.901	–168.641	117.545	–1097.148	–334.356	–328.068	7.140
	2500.00	57.870	389.240	339.907	–162.855	123.331	–1135.954	–336.629	–327.759	6.848
	2600.00	57.895	391.510	341.849	–157.067	129.119	–1174.993	–338.921	–327.359	6.577
	2700.00	57.918	393.695	343.729	–151.276	134.910	–1214.254	–341.232	–326.871	6.324
	2800.00	57.938	395.802	345.551	–145.483	140.703	–1253.729	–343.561	–326.296	6.087
	2900.00	57.956	397.836	347.319	–139.688	146.498	–1293.411	–345.908	–325.638	5.865
	3000.00	57.972	399.801	349.036	–133.892	152.294	–1333.294	–348.272	–324.899	5.657
	3100.00	57.987	401.702	350.704	–128.094	158.092	–1373.369	–350.654	–324.081	5.461
	3200.00	58.000	403.543	352.327	–122.295	163.891	–1413.632	–353.052	–323.185	5.275
	3300.00	58.012	405.328	353.906	–116.494	169.692	–1454.076	–355.466	–322.215	5.100
	3400.00	58.023	407.060	355.444	–110.692	175.494	–1494.696	–357.896	–321.171	4.934
	3500.00	58.033	408.742	356.943	–104.890	181.296	–1535.487	–360.342	–320.055	4.777

References

Phase	H / S	C_p
GAS	Ja1	Ja1

ZrSiO4 ZIRCONIUM ORTHOSILICATE 183.307

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
		[J / (K mol)]			[kJ / mol]					[−]
SOL	298.15	98.740	84.027	84.027	−2023.801	0.000	−2048.854	−2023.801	−1909.325	334.506
	300.00	99.035	84.639	84.029	−2023.618	0.183	−2049.010	−2023.810	−1908.614	332.319
	400.00	114.637	115.333	88.108	−2012.911	10.890	−2059.044	−2023.727	−1870.196	244.223
	500.00	125.978	142.215	96.299	−2000.843	22.958	−2071.950	−2022.681	−1831.919	191.379
	600.00	133.616	165.903	105.966	−1987.839	35.962	−2087.381	−2021.064	−1793.912	156.174
	700.00	138.877	186.919	116.059	−1974.198	49.603	−2105.042	−2019.147	−1756.202	131.049
	800.00	142.613	205.721	126.112	−1960.114	63.687	−2124.691	−2017.094	−1718.777	112.225
	900.00	145.323	222.683	135.916	−1945.710	78.091	−2146.125	−2015.010	−1681.613	97.598
	1000.00	147.298	238.102	145.375	−1931.074	92.727	−2169.176	−2012.963	−1644.679	85.909
	1100.00	148.710	252.212	154.455	−1916.269	107.532	−2193.702	−2011.004	−1607.947	76.355
	1200.00	149.663	265.195	163.150	−1901.347	122.454	−2219.581	−2012.880	−1571.166	68.391
	1300.00	150.216	277.199	171.467	−1886.350	137.451	−2246.708	−2010.660	−1534.447	61.655
	1400.00	150.400	288.340	179.422	−1871.316	152.485	−2274.992	−2008.547	−1497.895	55.887
	1500.00	150.624	298.732	187.034	−1856.254	167.547	−2304.352	−2006.555	−1461.490	50.894
	1600.00	150.624	308.453	194.322	−1841.191	182.610	−2334.716	−2004.720	−1425.213	46.528
	1700.00	150.624	317.585	201.307	−1826.129	197.672	−2366.023	−2053.225	−1388.599	42.666
	1800.00	150.624	326.194	208.008	−1811.066	212.735	−2398.216	−2051.500	−1349.554	39.163
	1900.00	150.624	334.338	214.445	−1796.004	227.797	−2431.246	−2049.917	−1310.601	36.031
	2000.00	150.624	342.064	220.634	−1780.942	242.859	−2465.069	−2048.486	−1271.727	33.214

References

Phase	H / S	C_p	Remarks	
SOL	Ja1	Ja1	Ja1	DPT= 1811. (ZrO2 + SiO2)

123.290 ZIRCONIUM MONOSULFIDE (GAS) **ZrS**[g]

Phase	T	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f
	[K]	[J / (K mol)]			[kJ / mol]					[−]
GAS	298.15	33.996	246.965	246.965	309.616	0.000	235.983	309.616	257.130	−45.048
	300.00	34.007	247.176	246.966	309.679	0.063	235.526	309.590	256.804	−44.714
	400.00	34.603	257.041	248.307	313.109	3.493	210.293	305.880	239.518	−31.278
	500.00	35.198	264.826	250.859	316.599	6.983	184.187	302.843	223.256	−23.323
	600.00	35.793	271.296	253.741	320.149	10.533	157.372	300.125	207.601	−18.073
	700.00	36.389	276.858	256.655	323.758	14.142	129.957	297.659	192.376	−14.355
	800.00	36.984	281.756	259.493	327.427	17.811	102.022	295.118	177.507	−11.590
	900.00	36.783	286.085	262.211	331.102	21.486	73.626	239.640	164.119	−9.525
	1000.00	36.840	289.963	264.796	334.783	25.167	44.820	238.430	155.792	−8.138
	1100.00	36.897	293.477	267.246	338.470	28.854	15.645	237.103	147.592	−7.009
	1200.00	36.954	296.690	269.568	342.163	32.547	−13.865	231.945	139.739	−6.083
	1300.00	37.011	299.650	271.770	345.861	36.245	−43.684	230.921	132.096	−5.308
	1400.00	37.068	302.395	273.860	349.565	39.949	−73.788	229.855	124.534	−4.646
	1500.00	37.125	304.955	275.849	353.275	43.659	−104.157	228.737	117.050	−4.076
	1600.00	37.182	307.352	277.744	356.990	47.374	−134.774	227.557	109.642	−3.579
	1700.00	37.238	309.608	279.552	360.711	51.095	−165.623	226.305	102.310	−3.144
	1800.00	37.295	311.738	281.282	364.438	54.822	−196.691	224.970	95.054	−2.758
	1900.00	37.352	313.756	282.938	368.170	58.554	−227.967	223.540	87.875	−2.416
	2000.00	37.409	315.674	284.528	371.908	62.292	−259.439	222.007	80.774	−2.110

References

Phase	H / S	C_p
GAS	Mi1	Mi1

ZrS2 ZIRCONIUM DISULFIDE 155.356

Phase	T [K]	C_p J / (K mol)	S J / (K mol)	−(G−H298)/T J / (K mol)	H kJ / mol	H−H298 kJ / mol	G kJ / mol	ΔH_f kJ / mol	ΔG_f kJ / mol	log K_f [−]
SOL	298.15	68.757	78.241	78.241	−577.392	0.000	−600.719	−577.392	−570.016	99.864
	300.00	68.785	78.666	78.242	−577.265	0.127	−600.865	−577.396	−569.970	99.241
	400.00	70.291	98.661	80.958	−570.311	7.081	−609.775	−582.164	−567.273	74.078
	500.00	71.797	114.508	86.137	−563.207	14.185	−620.460	−585.489	−563.210	58.838
	600.00	73.304	127.731	91.997	−555.951	21.441	−632.590	−588.076	−558.493	48.621
	700.00	74.810	139.144	97.935	−548.546	28.846	−645.946	−590.056	−553.403	41.295
	800.00	76.316	149.232	103.728	−540.989	36.403	−660.375	−592.069	−548.033	35.783
	900.00	77.822	158.307	109.297	−533.283	44.109	−675.759	−699.722	−540.097	31.346
	1000.00	79.329	166.585	114.618	−525.425	51.967	−692.010	−698.591	−522.422	27.289
	1100.00	80.835	174.216	119.693	−517.417	59.975	−709.055	−697.439	−504.860	23.974
	1200.00	82.341	181.314	124.536	−509.258	68.134	−726.835	−699.979	−487.183	21.207
	1300.00	83.847	187.965	129.162	−500.949	76.443	−745.303	−698.246	−469.520	18.866
	1400.00	85.354	194.233	133.588	−492.489	84.903	−764.415	−696.415	−451.993	16.864
	1500.00	86.860	200.174	137.831	−483.878	93.514	−784.138	−694.495	−434.601	15.134
	1600.00	88.366	205.827	141.905	−475.117	102.275	−804.441	−692.497	−417.340	13.625
	1700.00	89.872	211.230	145.826	−466.205	111.187	−825.295	−690.431	−400.205	12.297
	1800.00	91.379	216.409	149.604	−457.142	120.250	−846.679	−688.308	−383.194	11.120
	1823.00	91.725	217.572	150.454	−455.036	122.356	−851.670	−687.812	−379.299	10.868

References

Phase	H / S	C_p	Remarks	
SOL	Mi1	e	Mi1	MPT= 1823.

0.00054858

ELECTRON (GAS)

e−[g]

Phase	T [K]	C_p	S	−(G−H298)/T	H	H−H298	G	ΔH_f	ΔG_f	log K_f [−]
		[J / (K mol)]			[kJ / mol]					
GAS	298.15	20.786	20.979	20.979	0.000	0.000	−6.255	0.000	0.000	0.000
	300.00	20.786	21.108	20.980	0.038	0.038	−6.294	0.000	0.000	0.000
	400.00	20.786	27.088	21.795	2.117	2.117	−8.718	0.000	0.000	0.000
	500.00	20.786	31.726	23.335	4.196	4.196	−11.667	0.000	0.000	0.000
	600.00	20.786	35.516	25.058	6.274	6.274	−15.035	0.000	0.000	0.000
	700.00	20.786	38.720	26.787	8.353	8.353	−18.751	0.000	0.000	0.000
	800.00	20.786	41.495	28.456	10.432	10.432	−22.765	0.000	0.000	0.000
	900.00	20.786	43.944	30.044	12.510	12.510	−27.039	0.000	0.000	0.000
	1000.00	20.786	46.134	31.545	14.589	14.589	−31.545	0.000	0.000	0.000
	1100.00	20.786	48.115	32.963	16.667	16.667	−36.259	0.000	0.000	0.000
	1200.00	20.786	49.923	34.302	18.746	18.746	−41.162	0.000	0.000	0.000
	1300.00	20.786	51.587	35.568	20.825	20.825	−46.239	0.000	0.000	0.000
	1400.00	20.786	53.128	36.768	22.903	22.903	−51.476	0.000	0.000	0.000
	1500.00	20.786	54.562	37.907	24.982	24.982	−56.861	0.000	0.000	0.000
	1600.00	20.786	55.903	38.990	27.060	27.060	−62.385	0.000	0.000	0.000
	1700.00	20.786	57.163	40.023	29.139	29.139	−68.039	0.000	0.000	0.000
	1800.00	20.786	58.351	41.008	31.218	31.218	−73.815	0.000	0.000	0.000
	1900.00	20.786	59.475	41.951	33.296	33.296	−79.707	0.000	0.000	0.000
	2000.00	20.786	60.542	42.854	35.375	35.375	−85.708	0.000	0.000	0.000
	2100.00	20.786	61.556	43.721	37.453	37.453	−91.813	0.000	0.000	0.000
	2200.00	20.786	62.523	44.554	39.532	39.532	−98.018	0.000	0.000	0.000
	2300.00	20.786	63.447	45.355	41.611	41.611	−104.317	0.000	0.000	0.000
	2400.00	20.786	64.331	46.127	43.689	43.689	−110.706	0.000	0.000	0.000
	2500.00	20.786	65.180	46.873	45.768	45.768	−117.182	0.000	0.000	0.000
	2600.00	20.786	65.995	47.593	47.847	47.847	−123.741	0.000	0.000	0.000
	2700.00	20.786	66.780	48.289	49.925	49.925	−130.380	0.000	0.000	0.000
	2800.00	20.786	67.535	48.963	52.004	52.004	−137.096	0.000	0.000	0.000
	2900.00	20.786	68.265	49.616	54.082	54.082	−143.886	0.000	0.000	0.000
	3000.00	20.786	68.970	50.249	56.161	56.161	−150.748	0.000	0.000	0.000

References

Phase	H / S	C_p	Remarks	
GAS	Ja1	Ja1	Ja1	Ar= 0.00054858