

## 2.2.3 Chloroalkanes, C<sub>5</sub> - C<sub>6</sub>

**1,1,1,5-Tetrachloropentane** [2467-10-9] C<sub>5</sub>H<sub>8</sub>Cl<sub>4</sub> MW = 209.93 245

**Table 1.** Fit with estimated B coefficient for 2 accepted points. Deviation  $\sigma_w = 0.240$ .

Coefficient	$\rho = A + BT$
A	1639.57
B	-1.000

**Table 2.** Experimental values with uncertainties and deviation from calculated values.

$\frac{T}{K}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{calc}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
298.15	1341.60 $\pm$ 1.50	0.18	1948-joy/han
293.15	1346.10 $\pm$ 2.00	-0.32	1963-kos/vas

**Table 3.** Recommended values.

$\frac{T}{K}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$
290.00	1349.6 $\pm$ 1.7
293.15	1346.4 $\pm$ 1.6
298.15	1341.4 $\pm$ 1.6

**1,2,3-Trichloro-2-methylbutane** [62521-69-1] C<sub>5</sub>H<sub>9</sub>Cl<sub>3</sub> MW = 175.48 246

**Table 1.** Experimental value with uncertainty.

$\frac{T}{K}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
291.15	1248.20 $\pm$ 2.00	1938-tis

**1,2,3-Trichloro-3-methylbutane** [76397-23-4] C<sub>5</sub>H<sub>9</sub>Cl<sub>3</sub> MW = 175.48 247

**Table 1.** Experimental value with uncertainty.

$\frac{T}{K}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
293.15	1264.10 $\pm$ 1.50	1949-ult

**2,2,3-Trichloro-3-methylbutane** [98070-91-8] C<sub>5</sub>H<sub>9</sub>Cl<sub>3</sub> MW = 175.48 248

**Table 1.** Experimental value with uncertainty.

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ kg · m <sup>-3</sup>	Ref.
288.15	1215.00 ± 5.00	1897-bro

**1,1,1-Trichloropentane** [3922-27-8] C<sub>5</sub>H<sub>9</sub>Cl<sub>3</sub> MW = 175.48 249

**Table 1.** Experimental values with uncertainties.

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ kg · m <sup>-3</sup>	Ref.
298.15	1184.30 ± 2.00	1950-har/for
293.15	1187.10 ± 1.00	1959-fre/bel
293.15	1182.30 ± 2.00	1971-abr/ili

**1,1,5-Trichloropentane** [13059-14-8] C<sub>5</sub>H<sub>9</sub>Cl<sub>3</sub> MW = 175.48 250

**Table 1.** Experimental values with uncertainties.

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ kg · m <sup>-3</sup>	Ref.
293.15	1243.80 ± 2.00	1955-nes/zak
293.15	1243.80 ± 2.00	1955-nes/zak-1
293.15	1243.80 ± 2.00	1956-nes/fre-1

**1,1-Dichloro-3-methylbutane** [625-66-1] C<sub>5</sub>H<sub>10</sub>Cl<sub>2</sub> MW = 141.04 251

**Table 1.** Experimental value with uncertainty.

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ kg · m <sup>-3</sup>	Ref.
293.15	1047.30 ± 0.50	1954-pom/foo

**1,2-Dichloro-3-methylbutane** [600-10-2] C<sub>5</sub>H<sub>10</sub>Cl<sub>2</sub> MW = 141.04 252

**Table 1.** Experimental values with uncertainties.

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ kg · m <sup>-3</sup>	Ref.
293.15	1080.50 ± 3.00	1957-ogl
293.15	1086.40 ± 2.00	1961-okh/bre

**1,3-Dichloro-2-methylbutane** [23010-07-3] C<sub>5</sub>H<sub>10</sub>Cl<sub>2</sub> MW = 141.04 253

**Table 1.** Experimental value with uncertainty.

$T$	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$	Ref.
K	kg · m <sup>-3</sup>	
293.15	1093.81 ± 1.00	1958-far/spe

**1,3-Dichloro-3-methylbutane** [624-96-4] C<sub>5</sub>H<sub>10</sub>Cl<sub>2</sub> MW = 141.04 254

**Table 1.** Experimental values with uncertainties.

$T$	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$	Ref.
K	kg · m <sup>-3</sup>	
293.15	1075.80 ± 5.00	1952-sch/wes
293.15	1114.46 ± 0.50	1958-far/spe

**1,4-Dichloro-2-methylbutane** [623-34-7] C<sub>5</sub>H<sub>10</sub>Cl<sub>2</sub> MW = 141.04 255

**Table 1.** Experimental value with uncertainty.

$T$	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$	Ref.
K	kg · m <sup>-3</sup>	
294.15	1103.00 ± 3.00	1926-von/jos

**1,2-Dichloropentane** [1674-33-5] C<sub>5</sub>H<sub>10</sub>Cl<sub>2</sub> MW = 141.04 256

**Table 1.** Experimental values with uncertainties.

$T$	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$	Ref.
K	kg · m <sup>-3</sup>	
298.15	1073.50 ± 3.00	1929-koe/mce
298.15	1074.10 ± 3.00	1929-koe/mce
293.15	1087.20 ± 1.50	1937-tis/shc
298.15	1082.00 ± 2.00	1956-goe/mcc

**1,3-Dichloropentane** [30122-12-4] C<sub>5</sub>H<sub>10</sub>Cl<sub>2</sub> MW = 141.04 257

**Table 1.** Experimental value with uncertainty.

$T$	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$	Ref.
K	kg · m <sup>-3</sup>	
293.15	1083.40 ± 1.50	1941-has/huf

**1,4-Dichloropentane****[626-92-6]****C<sub>5</sub>H<sub>10</sub>Cl<sub>2</sub>****MW = 141.04****258****Table 1.** Experimental and recommended values with uncertainties.

$\frac{T}{K}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.	$\frac{T}{K}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
293.15	1102.80 ± 4.00	1941-has/huf <sup>1)</sup>	293.15	1073.10 ± 2.00	1958-sha
293.15	1077.90 ± 3.00	1956-shu/bel-1 <sup>1)</sup>	293.15	1073.90 ± 2.00	1959-shu/bel-1
293.15	1073.10 ± 2.00	1956-shu/bel-3	293.15	1073.40 ± 2.00	Recommended

<sup>1)</sup> Not included in calculation of recommended value.**1,5-Dichloropentane****[628-76-2]****C<sub>5</sub>H<sub>10</sub>Cl<sub>2</sub>****MW = 141.04****259****Table 1.** Coefficients of the polynomial expansion equation. Standard deviations (see introduction):

$\sigma_{\text{c,w}} = 9.0112 \cdot 10^{-1}$  (combined temperature ranges, weighted),  $\sigma_{\text{c,uw}} = 3.7522 \cdot 10^{-1}$  (combined temperature ranges, unweighted).

Coefficient	$T = 293.15 \text{ to } 358.15 \text{ K}$ $\rho = A + BT + CT^2 + DT^3 + \dots$
A	$1.38769 \cdot 10^3$
B	$-9.79375 \cdot 10^{-1}$

**Table 2.** Experimental values with uncertainties and deviation from calculated values.

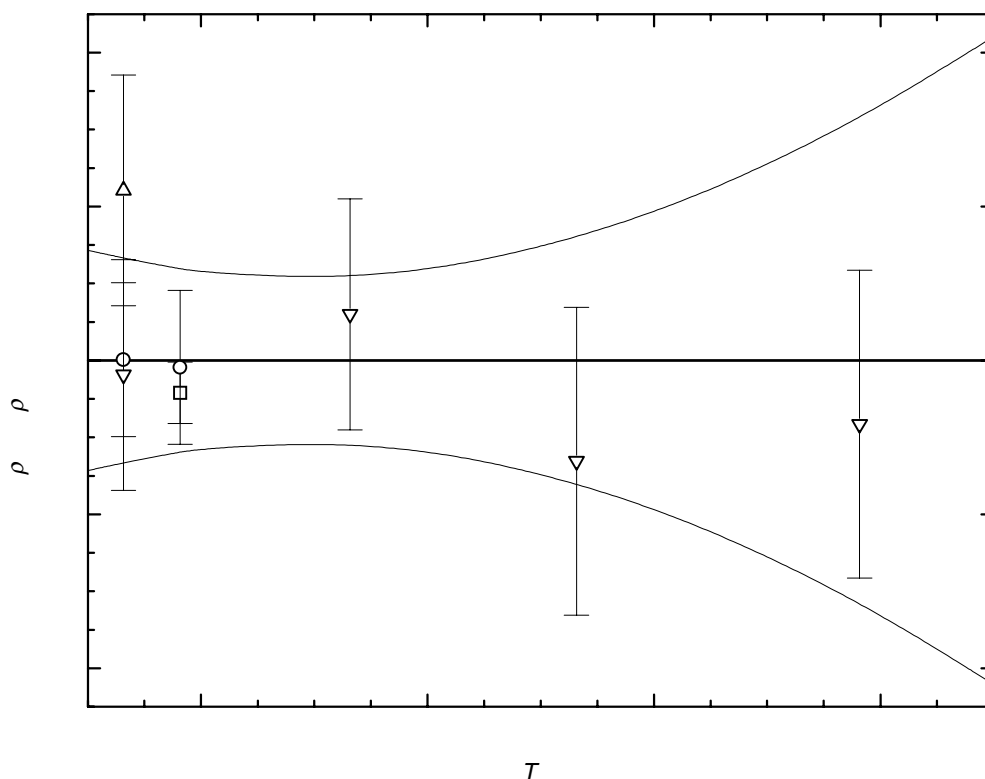
$\frac{T}{K}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{calc}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref. (Symbol in Fig. 1)	$\frac{T}{K}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{calc}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref. (Symbol in Fig. 1)
293.15	1102.80 ± 1.50	2.21	1941-has/huf(Δ)	313.15	1081.60 ± 1.50	0.60	1960-grz/jef-1(∇)
293.15	1100.60 ± 1.00	0.01	1950-mum/phi(○)	333.15	1060.10 ± 2.00	-1.31	1960-grz/jef-1(∇)
298.15	1095.60 ± 1.00	-0.09	1950-mum/phi(○)	358.15	1036.10 ± 2.00	-0.83	1960-grz/jef-1(∇)
293.15	1100.40 ± 1.50	-0.19	1960-grz/jef-1(∇)	298.15	1095.27 ± 0.40	-0.42	1993-bla/ort-1(□)

**Further references:** [1916-zap, 1933-ser, 1955-mos, 1955-str/man].**Table 3.** Recommended values (fit to the reliable experimental values according to the equations

$$\rho = A + BT + CT^2 + DT^3 + \dots \text{ or } \rho = [1 + 1.75(1 - T/T_c)^{1/3} + 0.75(1 - T/T_c)][\rho_c + A(T_c - T) + B(T_c - T)^2 + C(T_c - T)^3 + D(T_c - T)^4].$$

$\frac{T}{K}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{K}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{K}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$
290.00	1103.67 ± 1.43	310.00	1084.08 ± 1.06	350.00	1044.91 ± 2.53
293.15	1100.59 ± 1.33	320.00	1074.29 ± 1.16	360.00	1035.11 ± 3.29
298.15	1095.69 ± 1.19	330.00	1064.50 ± 1.46	370.00	1025.32 ± 4.21
300.00	1093.88 ± 1.15	340.00	1054.70 ± 1.91		

cont.



**Fig. 1.** The symbols show the deviation of the calculated from the experimental values from Table 2. The curves above and below the zero line indicate the calculated error region of the recommended values given in Table 3. The error bars represent the experimental errors. (Error bars smaller than the symbols are omitted for clarity of the figure.)

### 2,2-Dichloropentane

[34887-14-4]



MW = 141.04

260

**Table 1.** Experimental values with uncertainties.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
293.15	1040.00 ± 3.00	1923-bou
293.15	1040.00 ± 3.00	1925-bou

### 2,3-Dichloropentane

[600-11-3]



MW = 141.04

261

**Table 1.** Experimental values with uncertainties.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
293.15	1080.00 ± 20.00	1937-tis/shc
293.15	1086.00 ± 5.00	1937-tis/shc
298.15	1076.00 ± 3.00	1956-goe/mcc
298.15	1075.00 ± 3.00	1956-goe/mcc
293.15	1071.00 ± 2.00	1959-van

**Erythro-2,3-Dichloropentane** [19489-99-7] C<sub>5</sub>H<sub>10</sub>Cl<sub>2</sub> MW = 141.04 262

**Table 1.** Experimental value with uncertainty.

$\frac{T}{K}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
293.15	1078.90 ± 0.50	1951-hof/gre

**2,4-Dichloropentane** [625-67-2] C<sub>5</sub>H<sub>10</sub>Cl<sub>2</sub> MW = 141.04 263

**Table 1.** Experimental value with uncertainty.

$\frac{T}{K}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
291.15	1063.00 ± 3.00	1912-par

**3,3-Dichloropentane** [21571-91-5] C<sub>5</sub>H<sub>10</sub>Cl<sub>2</sub> MW = 141.04 264

**Table 1.** Experimental value with uncertainty.

$\frac{T}{K}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
293.15	1053.00 ± 6.00	1925-bou-1

**1-Chloro-2,2-dimethylpropane** [753-89-9] C<sub>5</sub>H<sub>11</sub>Cl MW = 106.60 265

**Table 1.** Experimental and recommended values with uncertainties.

$\frac{T}{K}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
273.15	893.52 ± 3.00	1912-kar <sup>1)</sup>
293.15	875.49 ± 3.00	1912-kar <sup>1)</sup>
293.15	866.00 ± 1.00	1933-whi/fle-1
293.15	865.90 ± 1.00	1954-som/bla
293.15	866.00 ± 1.00	Recommended

<sup>1)</sup> Not included in calculation of recommended value.

**1-Chloro-2-methylbutane** [616-13-7] C<sub>5</sub>H<sub>11</sub>Cl MW = 106.60 266

**Table 1.** Coefficients of the polynomial expansion equation. Standard deviations (see introduction):

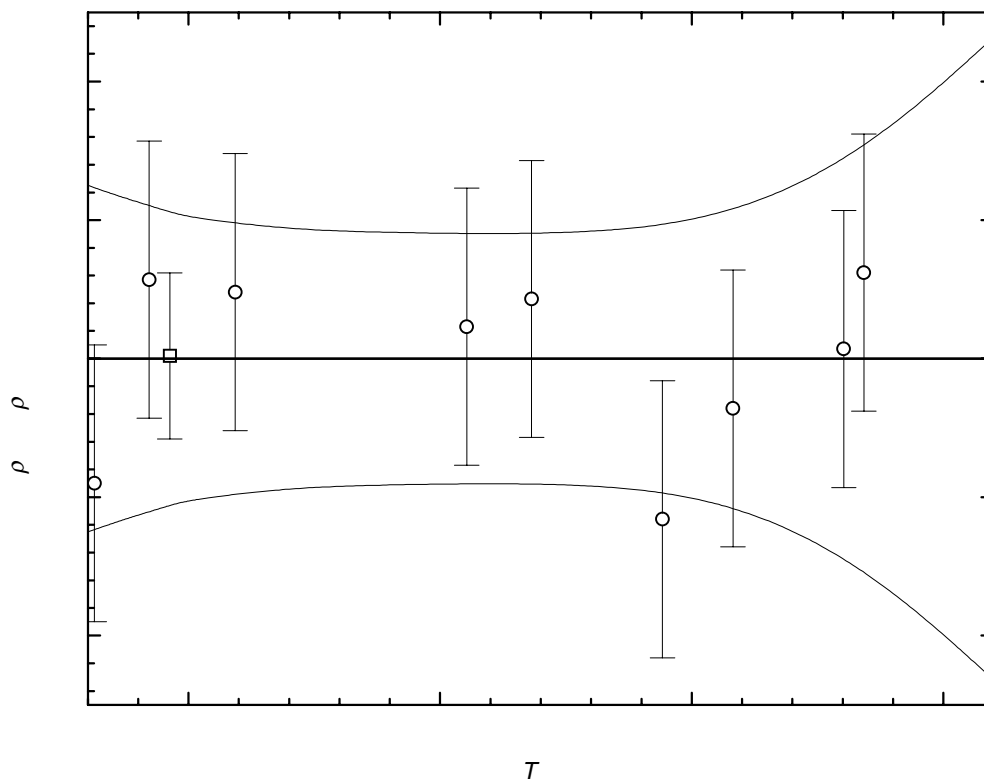
$\sigma_{\text{c,w}} = 5.6912 \cdot 10^{-1}$  (combined temperature ranges, weighted),  $\sigma_{\text{c,uw}} = 2.0779 \cdot 10^{-1}$  (combined temperature ranges, unweighted).

Coefficient	$T = 290.65 \text{ to } 367.10 \text{ K}$ $\rho = A + BT + CT^2 + DT^3 + \dots$
A	$1.06967 \cdot 10^3$
B	$-3.57554 \cdot 10^{-1}$
C	$-9.90910 \cdot 10^{-4}$

cont.

**Table 2.** Experimental values with uncertainties and deviation from calculated values.

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ kg·m <sup>-3</sup>	$\rho_{\text{exp}} - \rho_{\text{calc}}$ kg·m <sup>-3</sup>	Ref. (Symbol in Fig. 1)	$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ kg·m <sup>-3</sup>	$\rho_{\text{exp}} - \rho_{\text{calc}}$ kg·m <sup>-3</sup>	Ref. (Symbol in Fig. 1)
290.65	881.14 ± 1.00	-0.90	1908-har/sik(○)	347.10	825.02 ± 1.00	-1.16	1908-har/sik(○)
296.10	877.49 ± 1.00	0.57	1908-har/sik(○)	354.10	818.45 ± 1.00	-0.36	1908-har/sik(○)
304.65	869.25 ± 1.00	0.48	1908-har/sik(○)	365.10	807.11 ± 1.00	0.07	1908-har/sik(○)
314.10	864.94 ± 1.00	5.34	1908-har/sik <sup>1)</sup>	367.10	805.49 ± 1.00	0.62	1908-har/sik(○)
327.65	846.37 ± 1.00	0.23	1908-har/sik(○)	298.15	875.00 ± 0.60	0.02	1956-wib/hut(□)
334.10	840.03 ± 1.00	0.43	1908-har/sik(○)				

<sup>1)</sup> Not included in Fig. 1.**Further references:** [1893-tis-1, 1906-gle, 1913-mck/clo, 1936-lev/rot-2, 1937-bra, 1938-whi/ole-1].**Fig. 1.** The symbols show the deviation of the calculated from the experimental values from Table 2. The curves above and below the zero line indicate the calculated error region of the recommended values given in Table 3. The error bars represent the experimental errors. (Error bars smaller than the symbols are omitted for clarity of the figure.)

cont.

**1-Chloro-2-methylbutane** (cont.)**Table 3.** Recommended values (fit to the reliable experimental values according to the equations

$$\rho = A + BT + CT^2 + DT^3 + \dots \text{ or } \rho = [1 + 1.75(1 - T/T_c)^{1/3} + 0.75(1 - T/T_c)][\rho_c + A(T_c - T) + B(T_c - T)^2 + C(T_c - T)^3 + D(T_c - T)^4]$$

$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$
290.00	882.64 ± 1.25	310.00	863.60 ± 0.93	350.00	823.14 ± 0.98
293.15	879.70 ± 1.17	320.00	853.78 ± 0.91	360.00	812.53 ± 1.21
298.15	874.98 ± 1.06	330.00	843.77 ± 0.90	370.00	801.72 ± 1.66
300.00	873.22 ± 1.02	340.00	833.55 ± 0.91	380.00	790.71 ± 2.32

**(S)-(+)-1-Chloro-2-methylbutane****[40560-29-0]****C<sub>5</sub>H<sub>11</sub>Cl****MW = 106.60****267****Table 1.** Experimental and recommended values with uncertainties.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
293.15	885.20 ± 0.60	1938-whi/ole-1
293.15	885.70 ± 0.50	1959-pin/lar
293.15	885.5 ± 0.50	Recommended

**1-Chloro-3-methylbutane****[107-84-6]****C<sub>5</sub>H<sub>11</sub>Cl****MW = 106.60****268****Table 1.** Coefficients of the polynomial expansion equation. Standard deviations (see introduction):

$\sigma_{c,w} = 1.3511$  (combined temperature ranges, weighted),  $\sigma_{c,uw} = 3.4402 \cdot 10^{-1}$  (combined temperature ranges, unweighted).

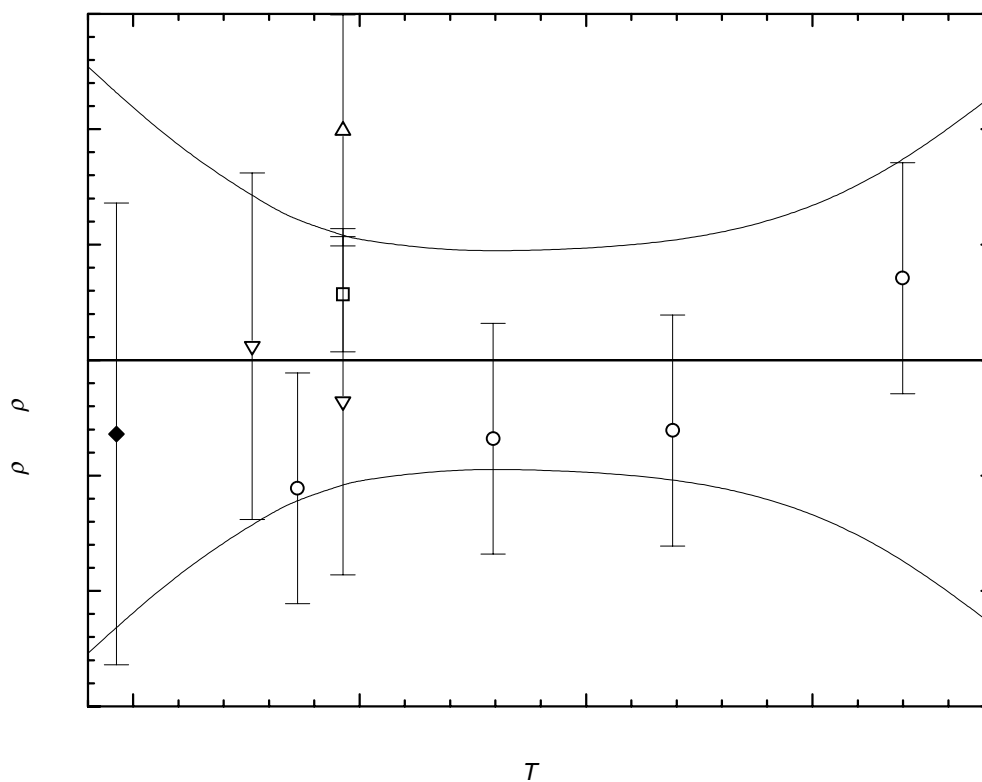
Coefficient	$T = 273.15 \text{ to } 359.95 \text{ K}$ $\rho = A + BT + CT^2 + DT^3 + \dots$
<i>A</i>	$1.06125 \cdot 10^3$
<i>B</i>	$-3.03266 \cdot 10^{-1}$
<i>C</i>	$-1.14078 \cdot 10^{-3}$

**Table 2.** Experimental values with uncertainties and deviation from calculated values.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{calc}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref. (Symbol in Fig. 1)	$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{calc}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref. (Symbol in Fig. 1)
273.15	892.66 ± 2.00	-0.64	1876-bal(◆)	293.15	873.20 ± 1.00	-1.11	1943-vog(○)
288.15	879.27 ± 1.50	0.12	1885-per-1(▽)	314.75	852.10 ± 1.00	-0.68	1943-vog(○)
298.15	869.07 ± 1.50	-0.36	1885-per-1(▽)	334.55	831.50 ± 1.00	-0.61	1943-vog(○)
298.15	871.42 ± 1.00	1.99	1939-ros/bib(Δ)	359.95	805.00 ± 1.00	0.71	1943-vog(○)
298.15	870.00 ± 0.50	0.57	1942-tra/was(□)				

**Further references:** [1855-kop-2, 1886-sch, 1920-har/cla, 1940-was/kei].

cont.



**Fig. 1.** The symbols show the deviation of the calculated from the experimental values from Table 2. The curves above and below the zero line indicate the calculated error region of the recommended values given in Table 3. The error bars represent the experimental errors. (Error bars smaller than the symbols are omitted for clarity of the figure.)

**Table 3.** Recommended values (fit to the reliable experimental values according to the equations  $\rho = A + BT + CT^2 + DT^3 + \dots$  or  $\rho = [1 + 1.75(1 - T/T_c)^{1/3} + 0.75(1 - T/T_c)][\rho_c + A(T_c - T) + B(T_c - T)^2 + C(T_c - T)^3 + D(T_c - T)^4]$ ).

$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$
270.00	$896.21 \pm 2.54$	300.00	$867.60 \pm 1.04$	350.00	$815.36 \pm 1.31$
280.00	$886.90 \pm 1.83$	310.00	$857.61 \pm 0.94$	360.00	$804.23 \pm 1.71$
290.00	$877.36 \pm 1.33$	320.00	$847.39 \pm 0.95$	370.00	$792.87 \pm 2.30$
293.15	$874.31 \pm 1.21$	330.00	$836.94 \pm 0.99$		
298.15	$869.43 \pm 1.08$	340.00	$826.27 \pm 1.09$		

**2-Chloro-2-methylbutane****[594-36-5]****C<sub>5</sub>H<sub>11</sub>Cl****MW = 106.60****269**

**Table 1.** Coefficients of the polynomial expansion equation. Standard deviations (see introduction):  $\sigma_{c,w} = 1.3103$  (combined temperature ranges, weighted),  $\sigma_{c,uw} = 3.1665 \cdot 10^{-1}$  (combined temperature ranges, unweighted).

Coefficient	$T = 286.65 \text{ to } 334.75 \text{ K}$ $\rho = A + BT + CT^2 + DT^3 + \dots$
<i>A</i>	$1.16430 \cdot 10^3$
<i>B</i>	-1.02273

**Table 2.** Experimental values with uncertainties and deviation from calculated values.

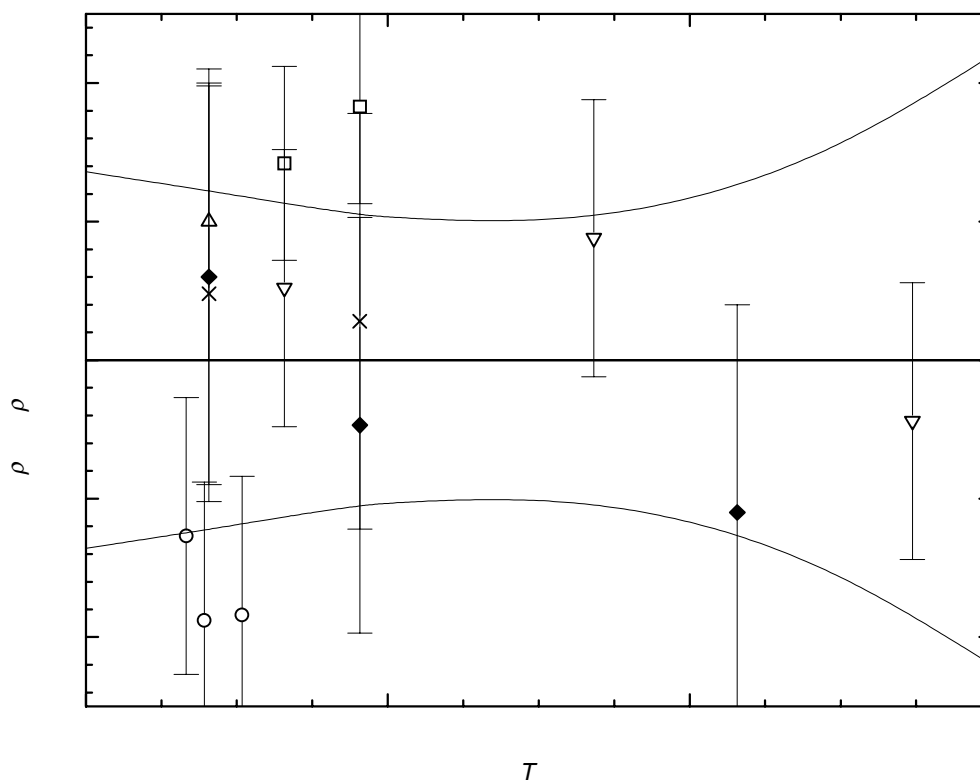
$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{st}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{calc}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref. (Symbol in Fig. 1)	$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{st}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{calc}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref. (Symbol in Fig. 1)
288.15	$870.08 \pm 1.50$	0.48	1885-per-1(×)	298.15	$858.90 \pm 1.50$	-0.47	1939-qua/owe(◆)
298.15	$859.65 \pm 1.50$	0.28	1885-per-1(×)	323.15	$832.70 \pm 1.50$	-1.10	1939-qua/owe(◆)
286.65	$869.86 \pm 1.00$	-1.27	1894-jah/mol(○)	293.15	$865.00 \pm 1.00$	0.52	1943-vog(▽)
287.85	$868.02 \pm 1.00$	-1.88	1894-jah/mol(○)	313.65	$844.40 \pm 1.00$	0.88	1943-vog(▽)
290.35	$865.51 \pm 1.00$	-1.84	1894-jah/mol(○)	334.75	$821.50 \pm 1.00$	-0.44	1943-vog(▽)
288.15	$870.60 \pm 1.00$	1.00	1897-bro(Δ)	293.15	$865.90 \pm 0.70$	1.42	1950-mum/phi(□)
288.15	$870.20 \pm 1.50$	0.60	1939-qua/owe(◆)	298.15	$861.20 \pm 0.70$	1.83	1950-mum/phi(□)

**Further references:** [1878-wis, 1951-lev/fai, 1957-pet/sus].

**Table 3.** Recommended values (fit to the reliable experimental values according to the equations  $\rho = A + BT + CT^2 + DT^3 + \dots$  or  $\rho = [1 + 1.75(1 - T/T_c)^{1/3} + 0.75(1 - T/T_c)][\rho_c + A(T_c - T) + B(T_c - T)^2 + C(T_c - T)^3 + D(T_c - T)^4]$ ).

$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$
280.00	$877.93 \pm 1.36$	298.15	$859.37 \pm 1.05$	320.00	$837.02 \pm 1.13$
290.00	$867.71 \pm 1.19$	300.00	$857.48 \pm 1.03$	330.00	$826.80 \pm 1.52$
293.15	$864.48 \pm 1.13$	310.00	$847.25 \pm 0.98$	340.00	$816.57 \pm 2.20$

cont.



**Fig. 1.** The symbols show the deviation of the calculated from the experimental values from Table 2. The curves above and below the zero line indicate the calculated error region of the recommended values given in Table 3. The error bars represent the experimental errors. (Error bars smaller than the symbols are omitted for clarity of the figure.)

### 1-Chloropentane

[543-59-9]

C<sub>5</sub>H<sub>11</sub>Cl

MW = 106.60

270

**Table 1.** Coefficients of the polynomial expansion equation. Standard deviations (see introduction):

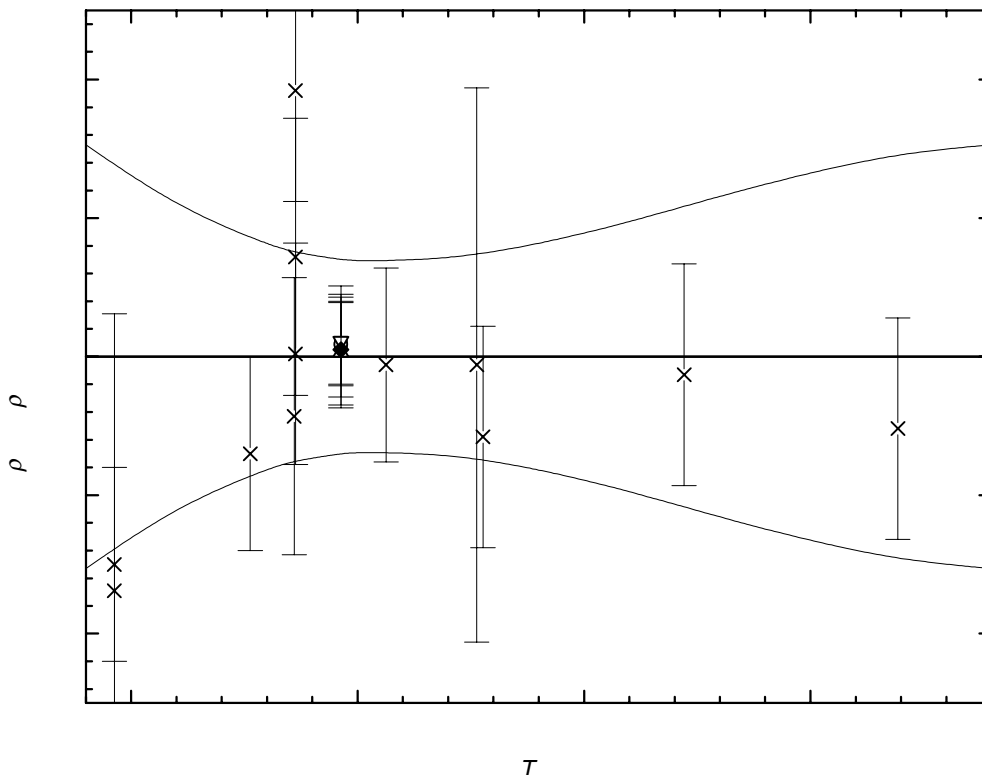
$\sigma_{c,w} = 1.3078$  (combined temperature ranges, weighted),  $\sigma_{c,uw} = 2.3906 \cdot 10^{-1}$  (combined temperature ranges, unweighted).

Coefficient	$T = 273.15 \text{ to } 359.65 \text{ K}$ $\rho = A + BT + CT^2 + DT^3 + \dots$
$A$	$1.18650 \cdot 10^3$
$B$	$-1.03846$

cont.

**1-Chloropentane** (cont.)**Table 2.** Experimental values with uncertainties and deviation from calculated values.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{calc}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref. (Symbol in Fig. 1)	$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{calc}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref. (Symbol in Fig. 1)
273.15	901.16 ± 2.00	-1.69	1871-lie/ros-3(×)	293.15	884.00 ± 0.80	1.92	1950-mum/phi(×)
293.15	881.91 ± 2.00	-0.17	1871-lie/ros-3 <sup>1)</sup>	298.15	879.50 ± 0.80	2.61	1950-mum/phi(×)
313.15	861.25 ± 2.00	-0.06	1871-lie/ros-3(×)	298.15	876.98 ± 0.30	0.09	1969-cou/her(○)
273.15	901.35 ± 0.70	-1.50	1929-sim(×)	298.15	877.00 ± 0.40	0.11	1971-her/cou(∇)
288.15	886.57 ± 0.70	-0.70	1929-sim(×)	298.15	876.97 ± 0.00	0.08	1972-her/cou <sup>1)</sup>
303.15	871.63 ± 0.70	-0.06	1929-sim(×)	293.00	881.80 ± 1.00	-0.43	1975-str/sun(×)
293.15	882.80 ± 1.00	0.72	1938-ghi/kar-2(×)	298.00	877.80 ± 1.00	0.76	1975-str/sun <sup>1)</sup>
293.15	882.10 ± 0.80	0.02	1943-vog(×)	298.15	876.99 ± 0.30	0.10	1986-pau/kru(□)
313.85	860.00 ± 0.80	-0.58	1943-vog(×)	298.15	876.92 ± 0.40	0.03	1987-ort/mat(Δ)
336.05	837.40 ± 0.80	-0.13	1943-vog(×)	298.15	876.94 ± 0.40	0.05	2001-kov/aim(◆)
359.65	812.50 ± 0.80	-0.52	1943-vog(×)				

<sup>1)</sup> Not included in Fig. 1.**Further references:** [1848-pie-1, 1879-ram, 1894-jah/mol, 1912-kar, 1928-ros/mar, 1933-bri, 1933-ran, 1937-gro/sug, 1937-rin/say].**Fig. 1.** The symbols show the deviation of the calculated from the experimental values from Table 2. The curves above and below the zero line indicate the calculated error region of the recommended values given in Table 3. The error bars represent the experimental errors. (Error bars smaller than the symbols are omitted for clarity of the figure.)

cont.

**Table 3.** Recommended values (fit to the reliable experimental values according to the equations  $\rho = A + BT + CT^2 + DT^3 + \dots$  or  $\rho = [1 + 1.75(1 - T/T_c)^{1/3} + 0.75(1 - T/T_c)][\rho_c + A(T_c - T) + B(T_c - T)^2 + C(T_c - T)^3 + D(T_c - T)^4]$ ).

$\frac{T}{K}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{K}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{K}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$
270.00	906.12 ± 1.53	300.00	874.97 ± 0.69	350.00	823.04 ± 1.33
280.00	895.73 ± 1.08	310.00	864.58 ± 0.70	360.00	812.66 ± 1.47
290.00	885.35 ± 0.81	320.00	854.20 ± 0.81	370.00	802.27 ± 1.53
293.15	882.08 ± 0.75	330.00	843.81 ± 0.97		
298.15	876.89 ± 0.70	340.00	833.43 ± 1.16		

**2-Chloropentane****[625-29-6]****C<sub>5</sub>H<sub>11</sub>Cl****MW = 106.60****271**

**Table 1.** Experimental and recommended values with uncertainties.

$\frac{T}{K}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.	$\frac{T}{K}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
273.15	912.00 ± 6.00	1875-wag/say-1 <sup>1)</sup>	334.95	830.80 ± 2.00	1943-vog <sup>1)</sup>
294.15	891.00 ± 6.00	1875-wag/say-1 <sup>1)</sup>	293.15	869.10 ± 0.80	1946-bra
293.15	869.50 ± 0.60	1938-whi/kar-1	298.15	866.00 ± 2.00	1956-goe/mcc <sup>1)</sup>
293.15	870.20 ± 0.60	1943-bra	293.15	867.80 ± 1.50	1969-kar/and <sup>1)</sup>
293.15	873.20 ± 2.00	1943-vog <sup>1)</sup>	293.15	869.7 ± 0.60	Recommended
313.95	851.40 ± 2.00	1943-vog <sup>1)</sup>			

<sup>1)</sup> Not included in calculation of recommended value.

**(S)-(+)-2-Chloropentane****[29882-57-3]****C<sub>5</sub>H<sub>11</sub>Cl****MW = 106.60****272**

**Table 1.** Experimental value with uncertainty.

$\frac{T}{K}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
293.15	870.20 ± 0.50	1943-bra

**3-Chloropentane****[616-20-6]****C<sub>5</sub>H<sub>11</sub>Cl****MW = 106.60****273**

**Table 1.** Experimental and recommended values with uncertainties.

$\frac{T}{K}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.	$\frac{T}{K}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
273.15	916.00 ± 6.00	1875-wag/say-1 <sup>1)</sup>	293.15	872.30 ± 2.00	1943-vog <sup>1)</sup>
294.15	895.00 ± 6.00	1875-wag/say-1 <sup>1)</sup>	315.55	832.70 ± 2.00	1943-vog <sup>1)</sup>
287.65	896.70 ± 2.00	1926-gri/ono <sup>1)</sup>	298.15	884.00 ± 2.00	1956-goe/mcc <sup>1)</sup>
298.15	868.13 ± 2.00	1934-und/gal <sup>1)</sup>	293.15	880.40 ± 1.50	1969-kar/and
293.15	879.50 ± 0.60	1938-whi/kar-1	293.15	879.6 ± 0.70	Recommended

<sup>1)</sup> Not included in calculation of recommended value.

**1,1,2,2-Tetrachlorohexane** [116632-01-0] C<sub>6</sub>H<sub>10</sub>Cl<sub>4</sub> MW = 223.96 274

**Table 1.** Experimental value with uncertainty.

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ kg · m <sup>-3</sup>	Ref.
298.15	1309.60 ± 2.00	1940-hen/wel

**1,1,2-Trichloro-3,3-dimethylbutane** [34887-07-5] C<sub>6</sub>H<sub>11</sub>Cl<sub>3</sub> MW = 189.51 275

**Table 1.** Experimental value with uncertainty.

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ kg · m <sup>-3</sup>	Ref.
293.15	1207.80 ± 1.50	1948-sch-3

**1,1-Dichloro-3,3-dimethylbutane** [6130-96-7] C<sub>6</sub>H<sub>12</sub>Cl<sub>2</sub> MW = 155.07 276

**Table 1.** Experimental and recommended values with uncertainties.

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ kg · m <sup>-3</sup>	Ref.
293.15	1026.20 ± 1.50	1946-sch
293.15	1027.20 ± 0.50	1954-pom/foo
293.15	1027.10 ± 0.50	Recommended

**1,4-Dichloro-2,2-dimethylbutane** [500060-44-6] C<sub>6</sub>H<sub>12</sub>Cl<sub>2</sub> MW = 155.07 277

**Table 1.** Experimental value with uncertainty.

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ kg · m <sup>-3</sup>	Ref.
293.15	1068.30 ± 1.50	1952-sch/wes

**1,3-Dichloro-2,3-dimethylbutane** [24443-14-9] C<sub>6</sub>H<sub>12</sub>Cl<sub>2</sub> MW = 155.07 278

**Table 1.** Fit with estimated B coefficient for 3 accepted points. Deviation  $\sigma_w = 0.236$ .

Coefficient	$\rho = A + BT$
A	1392.30
B	-1.100

cont.

**Table 2.** Experimental values with uncertainties and deviation from calculated values.

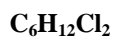
$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{calc}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
293.15	1070.00 ± 2.00	0.17	1953-hat/jou
298.15	1064.00 ± 2.00	-0.33	1953-hat/jou
303.15	1059.00 ± 2.00	0.17	1953-hat/jou

**Table 3.** Recommended values.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$
290.00	1073.3 ± 2.0
293.15	1069.8 ± 1.9
298.15	1064.3 ± 1.8
310.00	1051.3 ± 2.2

**1,2-Dichlorohexane**

[2162-92-7]



MW = 155.07

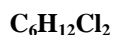
279

**Table 1.** Experimental value with uncertainty.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
293.15	1080.00 ± 3.00	1953-nek

**1,5-Dichlorohexane**

[54305-90-7]



MW = 155.07

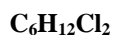
280

**Table 1.** Experimental value with uncertainty.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
293.15	1108.60 ± 3.00	1953-nek

**1,6-Dichlorohexane**

[2163-00-0]



MW = 155.07

281

**Table 1.** Experimental and recommended values with uncertainties.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.	$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
298.15	1072.40 ± 3.00	1951-hub	298.15	1064.65 ± 0.40	1993-bla/ort-1
293.15	1066.00 ± 3.00	1953-nek	298.15	1064.12 ± 0.50	1995-com/fra-1
298.15	1064.39 ± 0.30	1985-lai/gro	298.15	1064.40 ± 0.30	Recommended

<sup>1)</sup> Not included in calculation of recommended value.

**2,2-Dichlorohexane**

[42131-89-5]



MW = 155.07

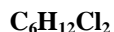
282

**Table 1.** Experimental value with uncertainty.

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ kg · m <sup>-3</sup>	Ref.
298.15	1015.00 ± 1.50	1940-hen/wel

**(R\*,R\*)-2,3-Dichlorohexane**

[57732-06-6]



MW = 155.07

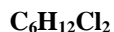
283

**Table 1.** Experimental value with uncertainty.

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ kg · m <sup>-3</sup>	Ref.
293.15	1017.50 ± 0.60	1951-hof/gre

**(R\*,S\*)-2,3-Dichlorohexane**

[57732-05-5]



MW = 155.07

284

**Table 1.** Experimental value with uncertainty.

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ kg · m <sup>-3</sup>	Ref.
293.15	1052.20 ± 0.60	1951-hof/gre

**2,5-dichlorohexane**

[13275-18-8]



MW = 155.07

285

**Table 1.** Fit with estimated B coefficient for 3 accepted points. Deviation  $\sigma_w = 0.943$ .

Coefficient	$\rho = A + BT$
A	1358.81
B	-1.060

**Table 2.** Experimental values with uncertainties and deviation from calculated values.

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ kg · m <sup>-3</sup>	$\rho_{\text{exp}} - \rho_{\text{calc}}$ kg · m <sup>-3</sup>	Ref.
273.15	1068.60 ± 2.00	-0.67	1930-cor-1
298.15	1044.10 ± 2.00	1.33	1930-cor-1
293.15	1047.40 ± 2.00	-0.67	1951-whi/dea

**Table 3.** Recommended values.

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ kg · m <sup>-3</sup>
270.00	1072.6 ± 2.3
280.00	1062.0 ± 2.1
290.00	1051.4 ± 2.0
293.15	1048.1 ± 2.0
298.15	1042.8 ± 2.1

**Meso-2,5-Dichlorohexane** [500060-42-4] C<sub>6</sub>H<sub>12</sub>Cl<sub>2</sub> MW = 155.07 286

**Table 1.** Experimental values with uncertainties.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
298.15	1045.90 ± 3.00	1930-cor-1
293.15	1048.80 ± 2.00	1951-whi/dea

**3,4-Dichlorohexane** [133267-25-1] C<sub>6</sub>H<sub>12</sub>Cl<sub>2</sub> MW = 155.07 287

**Table 1.** Experimental values with uncertainties.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
293.15	1053.20 ± 3.00	1939-spi/tin-1
293.15	1061.70 ± 0.60	1951-hof/gre

**Meso-3,4-Dichlorohexane** [19117-19-2] C<sub>6</sub>H<sub>12</sub>Cl<sub>2</sub> MW = 155.07 288

**Table 1.** Experimental value with uncertainty.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
293.15	1058.90 ± 0.80	1951-hof/gre

**dl-3,4-Dichlorohexane** [19117-20-5] C<sub>6</sub>H<sub>12</sub>Cl<sub>2</sub> MW = 155.07 289

**Table 1.** Experimental value with uncertainty.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
293.15	1061.70 ± 0.60	1951-hof/gre

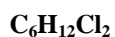
**1,1-Dichloro-3-methylpentane** [57070-67-4] C<sub>6</sub>H<sub>12</sub>Cl<sub>2</sub> MW = 155.07 290

**Table 1.** Experimental value with uncertainty.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
293.15	1037.30 ± 0.50	1954-pom/foo

**2,4-Dichloro-2-methylpentane**

[33484-86-5]



MW = 155.07

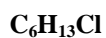
291

**Table 1.** Experimental value with uncertainty.

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ kg · m <sup>-3</sup>	Ref.
293.14	1036.00 ± 1.50	1952-sch/wes

**1-Chloro-2,3-dimethylbutane**

[600-06-6]



MW = 120.62

292

**Table 1.** Fit with estimated B coefficient for 3 accepted points. Deviation  $\sigma_w = 1.165$ .

Coefficient	$\rho = A + BT$
A	1179.79
B	-1.000

**Table 2.** Experimental values with uncertainties and deviation from calculated values.

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ kg · m <sup>-3</sup>	$\rho_{\text{exp}} - \rho_{\text{calc}}$ kg · m <sup>-3</sup>	Ref.
287.15	893.50 ± 3.00	0.86	1867-sch
295.15	885.40 ± 3.00	0.78	1867-sch
307.15	871.00 ± 3.00	-1.65	1867-sch

**Table 3.** Recommended values.

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ kg · m <sup>-3</sup>
280.00	899.8 ± 3.4
290.00	889.8 ± 3.0
293.15	886.6 ± 2.9
298.15	881.6 ± 2.9
310.00	869.8 ± 3.2

**1-Chloro-3,3-dimethylbutane**

[2855-08-5]



MW = 120.62

293

**Table 1.** Experimental and recommended values with uncertainties.

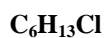
$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ kg · m <sup>-3</sup>	Ref.
293.15	868.90 ± 1.00	1942-eny
293.15	867.00 ± 1.00	1945-sch
293.15	868.00 ± 1.20	Recommended

**2-Chloro-2,3-dimethylbutane****[594-57-0]****MW = 120.62****294****Table 1.** Experimental values with uncertainties.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
273.15	$899.10 \pm 2.00$	1873-fri/sil-1
298.15	$874.90 \pm 2.00$	1873-fri/sil-1
273.15	$896.40 \pm 3.00$	1879-pav
292.15	$877.00 \pm 3.00$	1879-pav
293.15	$875.80 \pm 0.70$	1952-lev/tan

**2-Chloro-3,3-dimethylbutane****[5750-00-5]****MW = 120.62****295****Table 1.** Experimental values with uncertainties.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
293.15	$876.70 \pm 3.00$	1938-whi/ber
303.15	$879.40 \pm 1.50$	1961-hat/wei
293.15	$884.30 \pm 0.70$	1961-hat/wei

**1-Chloro-2-ethylbutane****[4737-41-1]****MW = 120.62****296****Table 1.** Experimental values with uncertainties.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
296.65	$884.50 \pm 20.00$	1931-fou/mat
300.15	$892.00 \pm 3.00$	1931-lev/mar-5
293.15	$891.40 \pm 2.00$	1938-whi/kar

**1-Chlorohexane****[544-10-5]****MW = 120.62****297****Table 1.** Coefficients of the polynomial expansion equation. Standard deviations (see introduction):

$\sigma_{\text{c,w}} = 5.9579 \cdot 10^{-1}$  (combined temperature ranges, weighted),  $\sigma_{\text{c,uw}} = 1.4564 \cdot 10^{-1}$  (combined temperature ranges, unweighted).

Coefficient	$T = 293.15 \text{ to } 359.85 \text{ K}$ $\rho = A + BT + CT^2 + DT^3 + \dots$
<i>A</i>	$1.09271 \cdot 10^3$
<i>B</i>	$-5.77602 \cdot 10^{-1}$
<i>C</i>	$-5.28346 \cdot 10^{-4}$

cont.

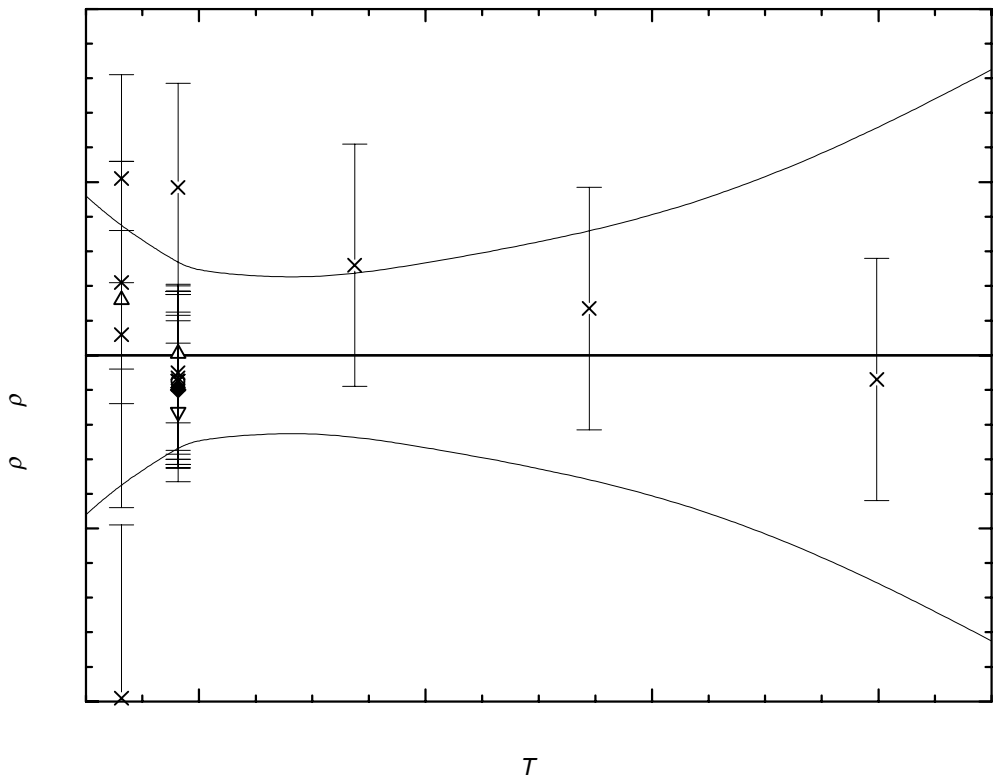
1-Chlorohexane (cont.)

**Table 2.** Experimental values with uncertainties and deviation from calculated values.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{calc}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref. (Symbol in Fig. 1)	$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{calc}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref. (Symbol in Fig. 1)
293.15	878.40 ± 0.70	0.42	1943-vog(X)	298.15	873.35 ± 0.00	-0.18	1972-her/cou <sup>1)</sup>
313.75	860.00 ± 0.70	0.52	1943-vog(X)	298.15	873.40 ± 0.50	-0.13	1987-com/cre(X)
334.45	840.70 ± 0.70	0.27	1943-vog(X)	298.15	873.33 ± 0.40	-0.20	1987-ort/mat(◆)
359.85	816.30 ± 0.70	-0.14	1943-vog(X)	293.15	878.30 ± 0.40	0.32	1988-pau/kru-1(Δ)
293.15	879.00 ± 0.60	1.02	1950-mum/phi(X)	298.15	873.54 ± 0.40	0.01	1988-pau/kru-1(Δ)
298.15	874.50 ± 0.60	0.97	1950-mum/phi(X)	298.15	873.40 ± 0.50	-0.13	1994-tar/jun(X)
293.15	876.00 ± 1.00	-1.98	1953-gal(X)	298.15	873.20 ± 0.40	-0.33	1995-pet/gas(V)
293.15	878.10 ± 1.00	0.12	1953-nek(X)	298.15	873.38 ± 0.50	-0.15	1999-san/bal-2(X)
293.15	878.10 ± 0.00	0.12	1953-nek-1 <sup>1)</sup>	298.15	873.43 ± 0.50	-0.10	2001-kov/aim(X)
298.15	873.36 ± 0.40	-0.17	1969-cou/her(□)	298.15	873.38 ± 0.50	-0.15	2002-mat/bal(X)
298.15	873.38 ± 0.40	-0.15	1971-her/cou(O)				

<sup>1)</sup> Not included in Fig. 1.

**Further references:** [1905-hen, 1929-cla/str].



**Fig. 1.** The symbols show the deviation of the calculated from the experimental values from Table 2. The curves above and below the zero line indicate the calculated error region of the recommended values given in Table 3. The error bars represent the experimental errors. (Error bars smaller than the symbols are omitted for clarity of the figure.)

cont.

**Table 3.** Recommended values (fit to the reliable experimental values according to the equations  $\rho = A + BT + CT^2 + DT^3 + \dots$  or  $\rho = [1 + 1.75(1 - T/T_c)^{1/3} + 0.75(1 - T/T_c)][\rho_c + A(T_c - T) + B(T_c - T)^2 + C(T_c - T)^3 + D(T_c - T)^4]$ ).

$\frac{T}{K}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{K}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{K}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$
290.00	880.77 ± 0.92	310.00	862.88 ± 0.43	350.00	825.83 ± 1.02
293.15	877.98 ± 0.74	320.00	853.77 ± 0.53	360.00	816.30 ± 1.31
298.15	873.53 ± 0.53	330.00	844.56 ± 0.65	370.00	806.67 ± 1.65
300.00	871.88 ± 0.48	340.00	835.25 ± 0.80		

**2-Chlorohexane**

[638-28-8]

C<sub>6</sub>H<sub>13</sub>Cl

MW = 120.62

298

**Table 1.** Experimental and recommended values with uncertainties.

$\frac{T}{K}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.	$\frac{T}{K}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
287.15	876.20 ± 3.00	1908-zel/prz	293.15	873.20 ± 2.00	1953-nek
294.15	869.40 ± 3.00	1908-zel/prz	293.15	873.00 ± 2.00	1953-nek-1
293.15	872.00 ± 1.00	1953-gal	293.15	872.4 ± 1.00	Recommended

<sup>1)</sup> Not included in calculation of recommended value.

**3-Chlorohexane**

[2346-81-8]

C<sub>6</sub>H<sub>13</sub>Cl

MW = 120.62

299

**Table 1.** Experimental values with uncertainties.

$\frac{T}{K}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
297.15	871.00 ± 3.00	1936-lag/sha
293.15	868.50 ± 2.00	1939-spi/tin-1

**1-Chloro-3-methylpentane**

[62016-93-7]

C<sub>6</sub>H<sub>13</sub>Cl

MW = 120.62

300

**Table 1.** Experimental value with uncertainty.

$\frac{T}{K}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
300.15	892.00 ± 5.00	1931-lev/mar-5

**2-Chloro-2-methylpentane****[4325-48-8]****C<sub>6</sub>H<sub>13</sub>Cl****MW = 120.62****301****Table 1.** Experimental and recommended values with uncertainties.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
288.15	867.80 ± 2.00	1910-sch-4
288.15	867.80 ± 2.00	1937-naz-1
293.15	863.00 ± 1.00	1938-ghi/joh
293.15	861.00 ± 1.00	1952-lev/tan
293.15	862.00 ± 1.20	Recommended

<sup>1)</sup> Not included in calculation of recommended value.**2-Chloro-4-methylpentane****[25346-32-1]****C<sub>6</sub>H<sub>13</sub>Cl****MW = 120.62****302****Table 1.** Experimental value with uncertainty.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
293.15	861.00 ± 2.00	1938-ghi/joh

**3-Chloro-3-methylpentane****[918-84-3]****C<sub>6</sub>H<sub>13</sub>Cl****MW = 120.62****303****Table 1.** Experimental value with uncertainty.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
293.15	883.90 ± 1.00	1956-sok/fed