

## 2.4 Iodoalkanes

**Tetraiodomethane** [507-25-5] **CI<sub>4</sub>** MW = 519.63 435

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

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ kg · m <sup>-3</sup>	Ref.
<i>crystal</i>		
293.15	4320.00 ± 10.00	1874-gus
273.15	4500.00 ± 10.00	1913-lan

**Triiodomethane** [75-47-8] **CHI<sub>3</sub>** MW = 393.73 436

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

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ kg · m <sup>-3</sup>	Ref.
<i>crystal</i>		
290.15	4004.00 ± 50.00	1897-bey
290.15	4195.50 ± 4.00	1905-dew
85.15	4445.90 ± 4.00	1905-dew
194.15	4349.00 ± 2.00	1932-bil/sap
78.15	4491.00 ± 3.00	1932-bil/sap

**Diiodomethane** [75-11-6] **CH<sub>2</sub>I<sub>2</sub>** MW = 267.84 437

**Table 1.** Coefficients of the polynomial expansion equation. Standard deviations (see introduction):  $\sigma_{\text{c,w}} = 7.9151 \cdot 10^{-1}$  (combined temperature ranges, weighted),  $\sigma_{\text{c,uw}} = 2.8288 \cdot 10^{-1}$  (combined temperature ranges, unweighted).

Coefficient	$T = 288.15 \text{ to } 373.15 \text{ K}$ $\rho = A + BT + CT^2 + DT^3 + \dots$
<i>A</i>	$4.07649 \cdot 10^3$
<i>B</i>	-2.57803

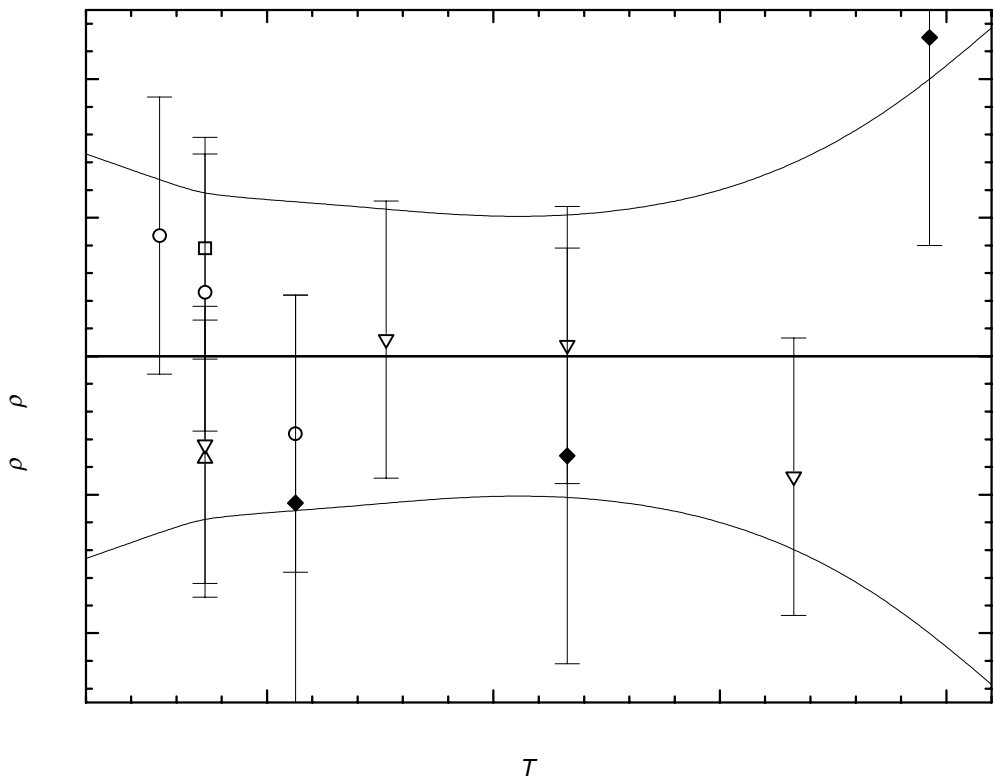
cont.

Diiodomethane (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)
<i>crystal</i>				303.15	$3293.90 \pm 1.50$	-1.06	1954-gri/car(◆)
83.15	$3760.0 \pm 10.0$		1952-lev/wil	333.15	$3216.90 \pm 1.50$	-0.72	1954-gri/car(◆)
<i>liquid</i>				373.15	$3116.80 \pm 1.50$	2.30	1954-gri/car(◆)
293.15	$3321.52 \pm 0.80$	0.78	1928-har-2(□)	293.15	$3320.10 \pm 1.00$	-0.64	1960-grz/jef-1(∇)
288.15	$3334.50 \pm 1.00$	0.87	1932-tim/hen(○)	313.15	$3269.30 \pm 1.00$	0.12	1960-grz/jef-1(∇)
293.15	$3321.20 \pm 1.00$	0.46	1932-tim/hen(○)	333.15	$3217.70 \pm 1.00$	0.08	1960-grz/jef-1(∇)
303.15	$3294.40 \pm 1.00$	-0.56	1932-tim/hen(○)	358.15	$3152.30 \pm 1.00$	-0.87	1960-grz/jef-1(∇)
293.15	$3320.00 \pm 1.00$	-0.74	1937-ste(Δ)				

**Further references:** [1884-gla, 1891-gla, 1892-per-1, 1896-per, 1908-pat/tho, 1930-smy/rog-1, 1932-bil/sap, 1948-vog-5, 1952-lev/wil, 1957-urr/eis, 1968-sch/cle, 1981-kor/kov].



**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

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

$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$
280.00	3354.64 $\pm$ 1.46	310.00	3277.30 $\pm$ 1.08	360.00	3148.40 $\pm$ 1.43
290.00	3328.86 $\pm$ 1.23	320.00	3251.52 $\pm$ 1.02	370.00	3122.62 $\pm$ 1.82
293.15	3320.74 $\pm$ 1.17	330.00	3225.74 $\pm$ 1.00	380.00	3096.84 $\pm$ 2.37
298.15	3307.85 $\pm$ 1.14	340.00	3199.96 $\pm$ 1.05		
300.00	3303.08 $\pm$ 1.13	350.00	3174.18 $\pm$ 1.18		

**Iodomethane**

[74-88-4]

**CH<sub>3</sub>I****MW = 141.94****438****Table 1.** Coefficients of the polynomial expansion equation. Standard deviations (see introduction):

$\sigma_{c,w} = 6.3684 \cdot 10^{-1}$  (combined temperature ranges, weighted),  $\sigma_{c,uw} = 2.4550 \cdot 10^{-1}$  (combined temperature ranges, unweighted).

Coefficient	$T = 253.15 \text{ to } 313.15 \text{ K}$ $\rho = A + BT + CT^2 + DT^3 + \dots$
<i>A</i>	$3.11746 \cdot 10^3$
<i>B</i>	-2.85842

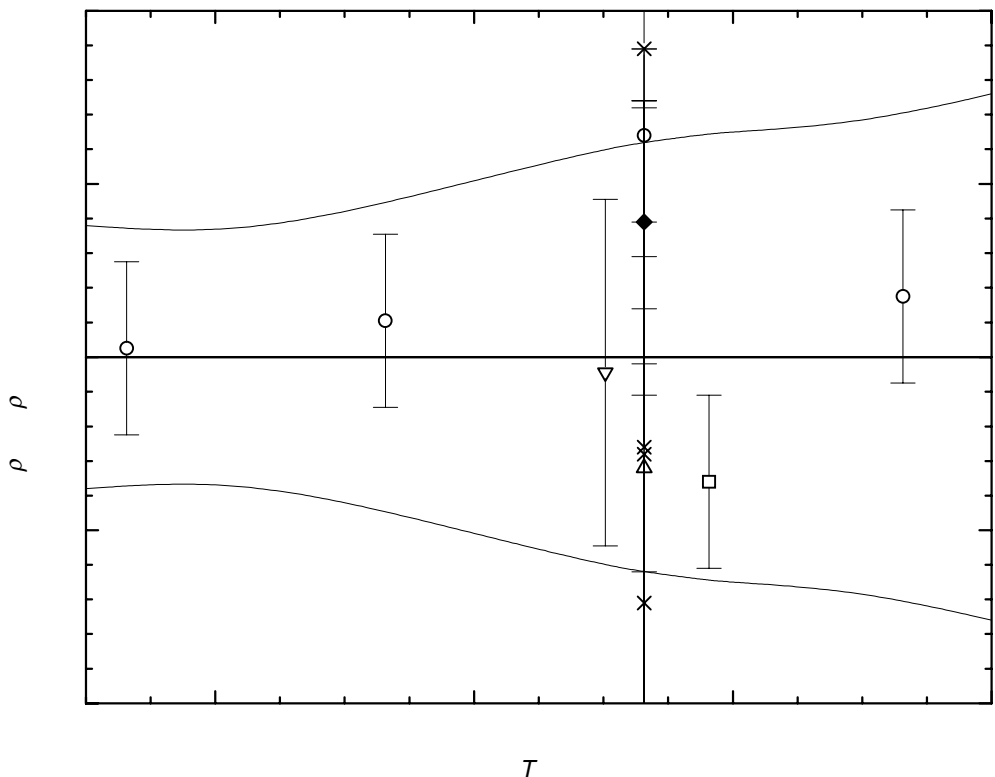
**Table 2.** Experimental values with uncertainties and deviation from calculated values.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{calc}}}{\text{kg} \cdot \text{m}^{-3}}$	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)
<i>crystal</i>				293.15	2281.30 $\pm$ 1.50	1.78	1944-sel/kem(×)
173.15	2770.0 $\pm$ 8.0		1930-mor/low	290.15	2288.00 $\pm$ 1.00	-0.09	1946-dep(∇)
183.15	2756.0 $\pm$ 8.0		1930-mor/low	298.15	2264.50 $\pm$ 0.50	-0.72	1957-moe/mis(□)
193.15	2744.0 $\pm$ 8.0		1930-mor/low	293.15	2280.30 $\pm$ 1.00	0.78	1962-zaa/kol(◆)
203.15	2730.0 $\pm$ 8.0		1930-mor/low	293.15	2278.88 $\pm$ 0.60	-0.64	1972-bou/aim(Δ)
<i>liquid</i>				253.15	2393.90 $\pm$ 0.50	0.05	1978-kum/iwa(○)
293.15	2278.96 $\pm$ 2.00	-0.56	1908-pat/tho(×)	273.15	2336.90 $\pm$ 0.50	0.21	1978-kum/iwa(○)
293.15	2279.00 $\pm$ 2.00	-0.52	1937-ste(×)	293.15	2280.80 $\pm$ 0.50	1.28	1978-kum/iwa(○)
293.15	2278.10 $\pm$ 2.00	-1.42	1938-cow/par(×)	313.15	2222.70 $\pm$ 0.50	0.35	1978-kum/iwa(○)
293.15	2279.00 $\pm$ 2.00	-0.52	1939-han-l(×)				

**Further references:** [1885-per, 1888-dob-1, 1890-gar, 1891-gla, 1913-cot/mou, 1913-rob/acr, 1914-kar, 1930-mor/low, 1932-bil/sap, 1934-tim/del, 1937-gro/sug, 1940-mor/yag, 1941-aud/gos, 1943-vog].

cont.

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

$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$
250.00	$2402.86 \pm 0.76$	290.00	$2288.52 \pm 1.20$	310.00	$2231.35 \pm 1.35$
260.00	$2374.27 \pm 0.71$	293.15	$2279.52 \pm 1.24$	320.00	$2202.77 \pm 1.52$
270.00	$2345.69 \pm 0.83$	298.15	$2265.22 \pm 1.29$		
280.00	$2317.11 \pm 1.02$	300.00	$2259.94 \pm 1.30$		

1,2-Diiodoethane [624-73-7] C<sub>2</sub>H<sub>4</sub>I<sub>2</sub> MW = 281.86 439

**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.
283.15	$2132.00 \pm 3.00$	1909-jae

**Iodoethane****[75-03-6]****MW = 155.97****440**

**Table 1.** Coefficients of the polynomial expansion equation. Standard deviations (see introduction):  $\sigma_{c,w} = 4.4235 \cdot 10^{-1}$  (combined temperature ranges, weighted),  $\sigma_{c,uw} = 1.2287 \cdot 10^{-1}$  (combined temperature ranges, unweighted).

Coefficient	$T = 273.15 \text{ to } 345.65 \text{ K}$ $\rho = A + BT + CT^2 + DT^3 + \dots$
<i>A</i>	$2.57962 \cdot 10^3$
<i>B</i>	-2.11225
<i>C</i>	$-2.90344 \cdot 10^{-4}$

**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	$1979.20 \pm 2.00$	-1.79	1888-dob-1 <sup>1)</sup>	293.15	$1935.80 \pm 1.00$	0.34	1938-cow/par(×)
345.65	$1815.20 \pm 2.00$	0.37	1888-dob-1(×)	293.15	$1935.70 \pm 1.00$	0.24	1941-aud/gos(◆)
298.15	$1924.40 \pm 0.00$	0.36	1896-lin <sup>1)</sup>	293.15	$1936.10 \pm 2.00$	0.64	1943-vog <sup>1)</sup>
298.15	$1924.41 \pm 1.00$	0.37	1896-lin(×)	314.05	$1888.30 \pm 2.00$	0.67	1943-vog <sup>1)</sup>
298.15	$1924.46 \pm 0.00$	0.42	1896-lin-1 <sup>1)</sup>	334.65	$1839.40 \pm 2.00$	-0.84	1943-vog(×)
284.15	$1956.52 \pm 0.60$	0.54	1896-per(∇)	283.15	$1957.80 \pm 0.50$	-0.46	1949-lag/mcm(□)
288.15	$1947.34 \pm 0.60$	0.47	1896-per(∇)	293.15	$1935.70 \pm 0.50$	0.24	1949-lag/mcm(□)
337.45	$1834.10 \pm 0.60$	0.32	1896-per(∇)	303.15	$1912.20 \pm 0.50$	-0.41	1949-lag/mcm(□)
273.15	$1980.60 \pm 0.50$	-0.39	1928-tim/mar(Δ)	313.15	$1889.60 \pm 0.50$	-0.09	1949-lag/mcm(□)
288.15	$1947.02 \pm 0.50$	0.15	1928-tim/mar(Δ)	323.15	$1866.10 \pm 0.50$	-0.62	1949-lag/mcm(□)
303.15	$1913.21 \pm 0.50$	0.60	1928-tim/mar(Δ)	298.15	$1923.20 \pm 0.50$	-0.84	1955-fle/sau(○)

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

**Further references:** [1871-lin, 1884-gla, 1886-sch, 1890-gar, 1891-gla, 1898-kah, 1899-cot/rog, 1908-pat/tho, 1908-ric/mat, 1910-daw, 1910-hub, 1911-sch, 1912-kor, 1914-kar, 1914-tyr, 1917-jae-1, 1919-eyk, 1926-mat, 1928-nor/pre, 1929-pre, 1929-smy/eng-1, 1929-smy/sto, 1937-gro/sug, 1940-mor/yag, 1942-sim/smi, 1945-fre/tre, 1947-wat/ott, 1948-lag/eva].

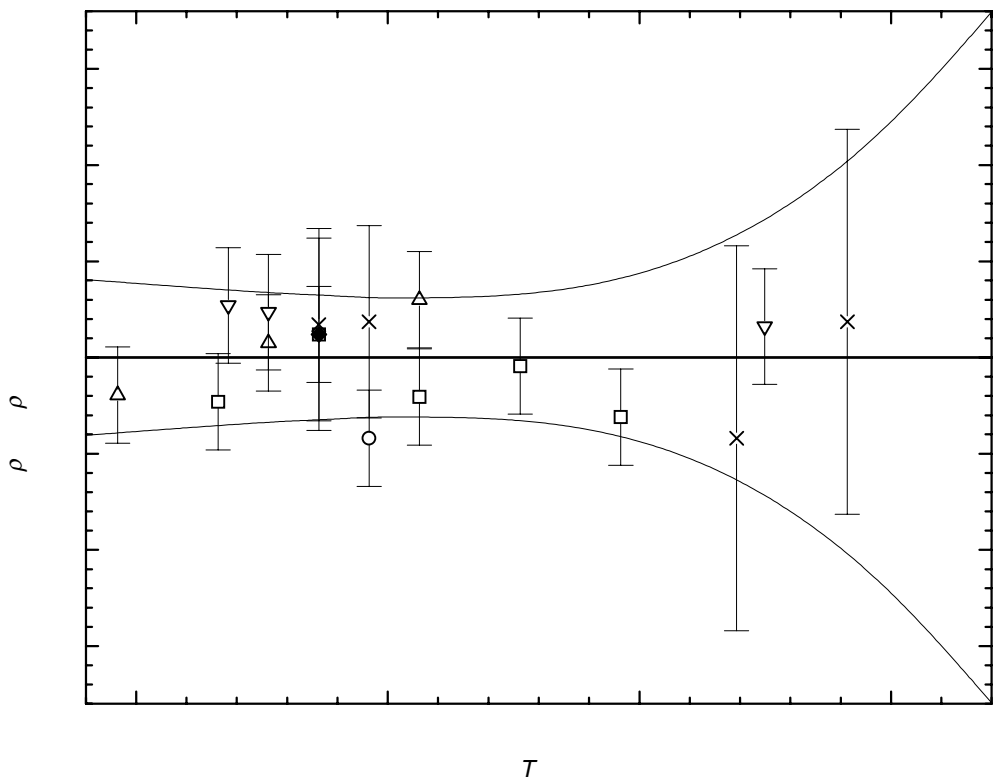
**Table 3.** Recommended values (fit to the reliable experimental values according to the equations

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

$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$
270.00	$1988.14 \pm 0.81$	298.15	$1924.04 \pm 0.62$	330.00	$1850.96 \pm 1.01$
280.00	$1965.42 \pm 0.73$	300.00	$1919.81 \pm 0.62$	340.00	$1827.89 \pm 1.55$
290.00	$1942.65 \pm 0.66$	310.00	$1896.92 \pm 0.62$	350.00	$1804.76 \pm 2.39$
293.15	$1935.46 \pm 0.65$	320.00	$1873.97 \pm 0.72$	360.00	$1781.58 \pm 3.59$

cont.

Iodoethane (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.)

1,3-Diiodopropane [627-31-6] C<sub>3</sub>H<sub>6</sub>I<sub>2</sub> MW = 295.89 441

**Table 1.** Coefficients of the polynomial expansion equation. Standard deviations (see introduction):  $\sigma_{c,w} = 5.1957 \cdot 10^{-1}$  (combined temperature ranges, weighted),  $\sigma_{c,uw} = 2.5978 \cdot 10^{-1}$  (combined temperature ranges, unweighted).

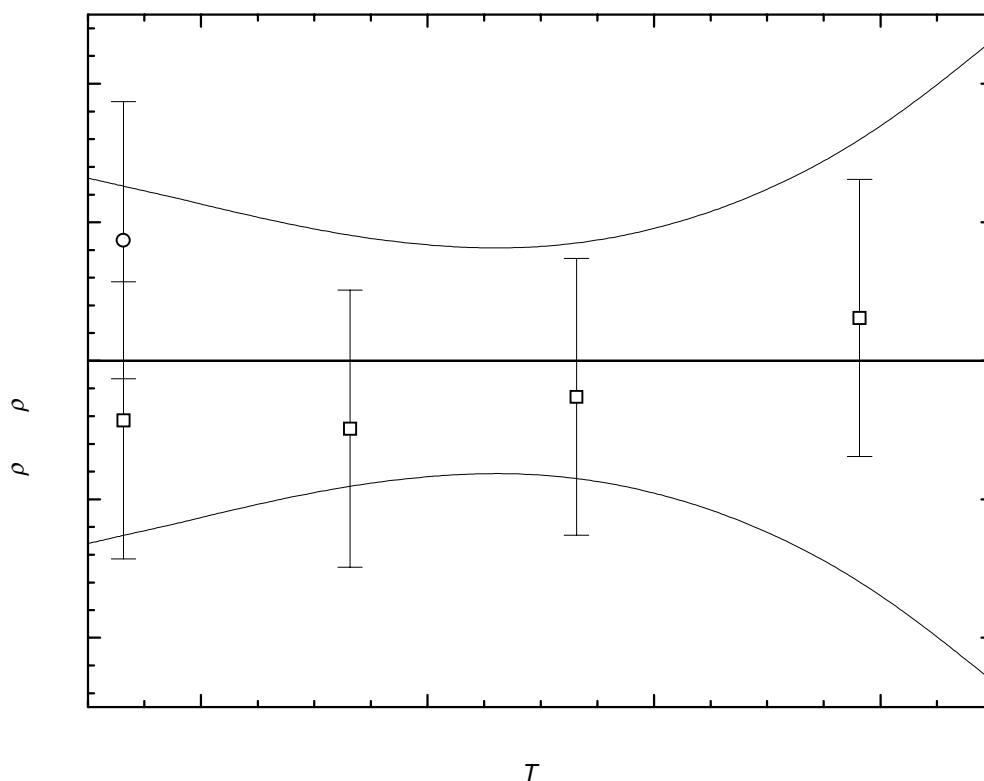
Coefficient	$T = 293.15 \text{ to } 358.15 \text{ K}$
	$\rho = A + BT + CT^2 + DT^3 + \dots$
A	$3.13360 \cdot 10^3$
B	-1.90677

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	$2575.50 \pm 1.00$	0.87	1948-vog( $\circ$ )	333.15	$2498.10 \pm 1.00$	-0.26	1960-grz/jef-1( $\square$ )
293.15	$2574.20 \pm 1.00$	-0.43	1960-grz/jef-1( $\square$ )	358.15	$2451.00 \pm 1.00$	0.31	1960-grz/jef-1( $\square$ )
313.15	$2536.00 \pm 1.00$	-0.49	1960-grz/jef-1( $\square$ )				

**Further references:** [1887-per, 1891-gla, 1961-lic/tri].



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**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	$2580.64 \pm 1.32$	310.00	$2542.50 \pm 0.94$	350.00	$2466.23 \pm 1.21$
293.15	$2574.63 \pm 1.26$	320.00	$2523.43 \pm 0.82$	360.00	$2447.16 \pm 1.66$
298.15	$2565.10 \pm 1.17$	330.00	$2504.36 \pm 0.80$	370.00	$2428.09 \pm 2.32$
300.00	$2561.57 \pm 1.13$	340.00	$2485.30 \pm 0.93$		

**1-Iodopropane****[107-08-4]****C<sub>3</sub>H<sub>7</sub>I****MW = 169.99****442**

**Table 1.** Coefficients of the polynomial expansion equation. Standard deviations (see introduction):  $\sigma_{c,w} = 7.9553 \cdot 10^{-1}$  (combined temperature ranges, weighted),  $\sigma_{c,uw} = 1.8038 \cdot 10^{-1}$  (combined temperature ranges, unweighted).

Coefficient	$T = 273.15 \text{ to } 375.78 \text{ K}$ $\rho = A + BT + CT^2 + DT^3 + \dots$
<i>A</i>	$2.26657 \cdot 10^3$
<i>B</i>	-1.64975
<i>C</i>	$-4.21264 \cdot 10^{-4}$

**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)
335.52	$1667.01 \pm 2.00$	1.39	1877-bro(×)	293.15	$1747.00 \pm 2.00$	0.26	1890-gar(Δ)
346.66	$1644.90 \pm 2.00$	0.86	1877-bro(×)	273.15	$1784.40 \pm 2.00$	-0.11	1914-kar(▽)
355.10	$1628.05 \pm 2.00$	0.43	1877-bro(×)	288.15	$1756.40 \pm 2.00$	0.19	1914-kar(▽)
361.99	$1614.43 \pm 2.00$	0.26	1877-bro(×)	293.15	$1747.10 \pm 2.00$	0.36	1914-kar(▽)
367.85	$1602.47 \pm 2.00$	-0.23	1877-bro(×)	293.15	$1745.80 \pm 1.00$	-0.94	1942-aud/gos(□)
372.98	$1592.18 \pm 2.00$	-0.46	1877-bro(×)	293.15	$1743.40 \pm 2.00$	-3.34	1943-vog <sup>1)</sup>
375.78	$1586.67 \pm 2.00$	-0.47	1877-bro(×)	315.25	$1703.60 \pm 2.00$	-1.02	1943-vog(◆)
293.05	$1746.60 \pm 2.00$	-0.33	1882-zan(○)	333.15	$1669.30 \pm 2.00$	-0.90	1943-vog(◆)
283.15	$1766.76 \pm 2.00$	1.09	1885-per(×)	358.55	$1619.80 \pm 2.00$	-1.09	1943-vog(◆)
288.15	$1756.92 \pm 2.00$	0.71	1885-per(×)				

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

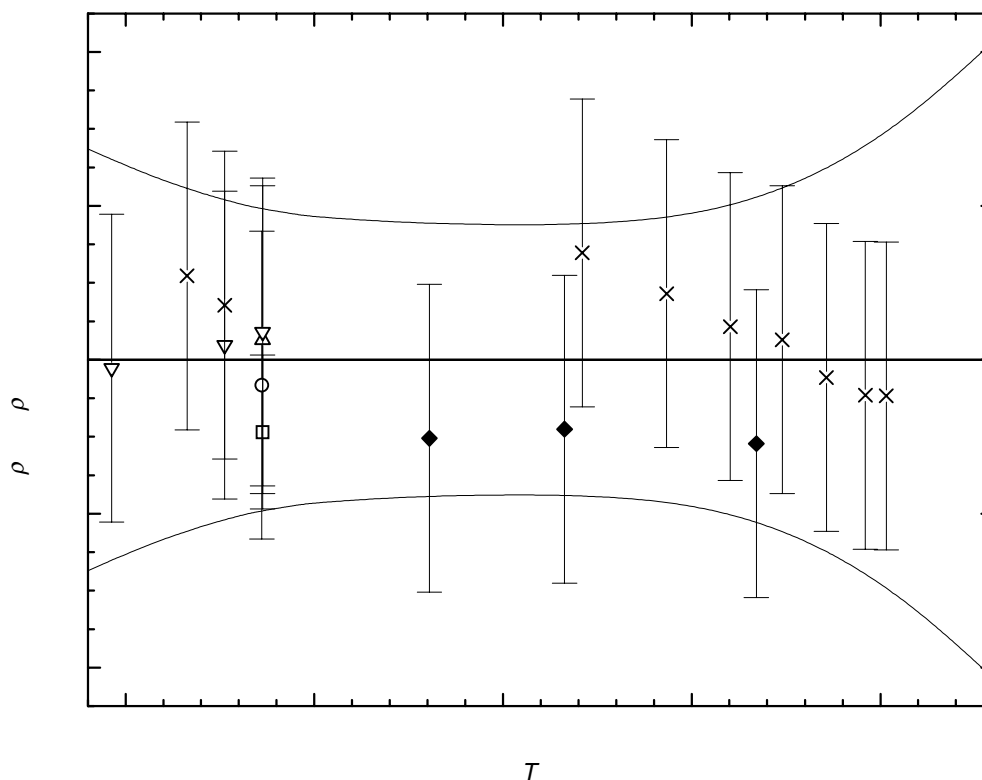
**Further references:** [1871-lin, 1871-ros, 1880-bru-1, 1884-gla, 1888-dob-1, 1933-bri, 1934-tim/del, 1937-gro/sug, 1938-cow/par, 1942-sim/smi].

**Table 3.** Recommended values (fit to the reliable experimental values according to the equations

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

$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$
270.00	$1790.42 \pm 2.74$	300.00	$1733.73 \pm 1.86$	350.00	$1637.55 \pm 1.88$
280.00	$1771.61 \pm 2.31$	310.00	$1714.66 \pm 1.79$	360.00	$1618.06 \pm 2.13$
290.00	$1752.71 \pm 2.02$	320.00	$1695.51 \pm 1.76$	370.00	$1598.49 \pm 2.57$
293.15	$1746.74 \pm 1.96$	330.00	$1676.27 \pm 1.75$	380.00	$1578.83 \pm 3.24$
298.15	$1737.25 \pm 1.88$	340.00	$1656.95 \pm 1.78$	390.00	$1559.09 \pm 4.14$

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-Iodopropane

[75-30-9]

$\text{C}_3\text{H}_7\text{I}$

MW = 169.99

443

**Table 1.** Coefficients of the polynomial expansion equation. Standard deviations (see introduction):  $\sigma_{c,w} = 6.8951 \cdot 10^{-1}$  (combined temperature ranges, weighted),  $\sigma_{c,uw} = 3.1587 \cdot 10^{-1}$  (combined temperature ranges, unweighted).

Coefficient	$T = 273.15 \text{ to } 363.00 \text{ K}$
	$\rho = A + BT + CT^2 + DT^3 + \dots$
$A$	$2.16326 \cdot 10^3$
$B$	$-1.22062$
$C$	$-1.17883 \cdot 10^{-3}$

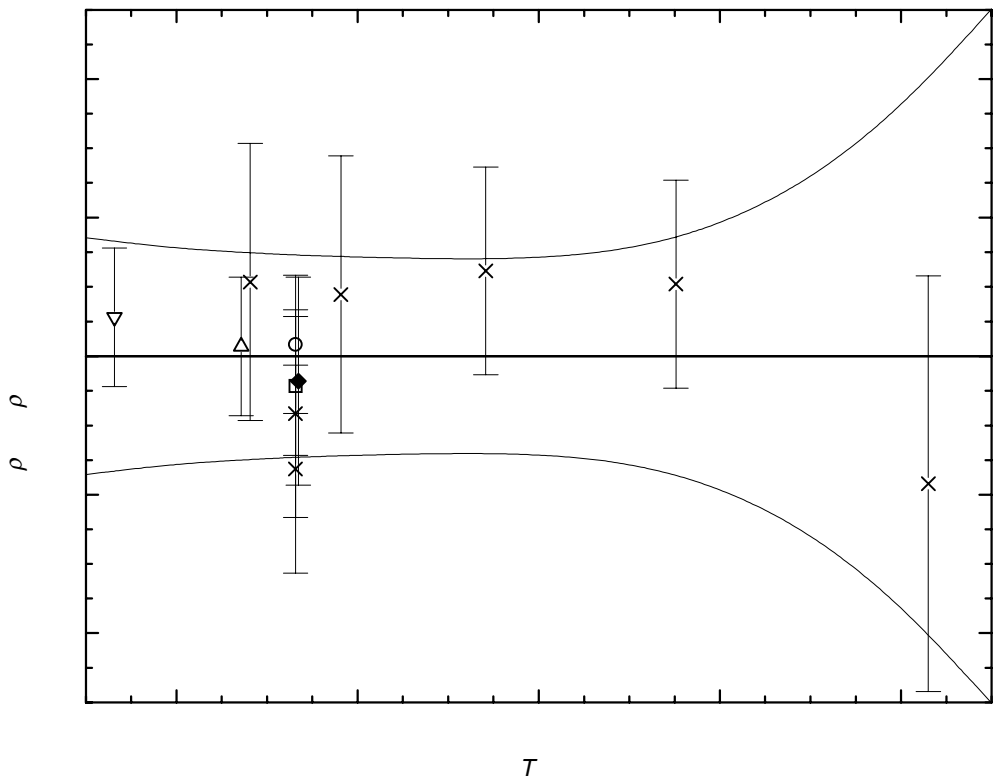
cont.

2-Iodopropane (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	$1703.30 \pm 1.50$	-0.83	1880-bru-1(×)	293.15	$1703.70 \pm 1.00$	-0.43	1938-cow/par(□)
293.45	$1703.20 \pm 1.50$	-0.36	1882-zan(◆)	293.15	$1704.30 \pm 1.00$	0.17	1942-aud/gos(O)
287.15	$1715.70 \pm 1.00$	0.14	1884-gla(Δ)	363.00	$1563.00 \pm 3.00$	-1.84	1942-sim/smi(×)
288.15	$1714.73 \pm 2.00$	1.07	1885-per(×)	293.15	$1702.50 \pm 1.50$	-1.63	1943-vog(×)
298.15	$1695.43 \pm 2.00$	0.89	1885-per(×)	314.15	$1664.70 \pm 1.50$	1.23	1943-vog(×)
273.15	$1742.46 \pm 1.00$	0.56	1934-tim/del(V)	335.15	$1622.80 \pm 1.50$	1.04	1943-vog(×)

**Further references:** [1872-lin-4].



**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

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

$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$
270.00	1747.76 $\pm$ 1.71	300.00	1690.98 $\pm$ 1.43	350.00	1591.64 $\pm$ 2.54
280.00	1729.07 $\pm$ 1.55	310.00	1671.58 $\pm$ 1.40	360.00	1571.06 $\pm$ 3.57
290.00	1710.14 $\pm$ 1.48	320.00	1651.95 $\pm$ 1.41	370.00	1550.25 $\pm$ 5.01
293.15	1704.13 $\pm$ 1.46	330.00	1632.08 $\pm$ 1.53		
298.15	1694.54 $\pm$ 1.44	340.00	1611.98 $\pm$ 1.88		

**1,4-Diiodobutane**

[628-21-7]

C4H8I2

MW = 309.92

444

**Table 1.** Fit with estimated B coefficient for 4 accepted points. Deviation  $\sigma_w = 0.043$ .

Coefficient	$\rho = A + BT$
A	2856.43
B	-1.700

**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.	$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{calc}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
291.15	2307.00 $\pm$ 10.00	-54.47	1905-ham <sup>1)</sup>	333.15	2290.00 $\pm$ 2.00	-0.07	1960-grz/jef-1
293.15	2300.00 $\pm$ 20.00	-58.07	1950-sto/sch <sup>1)</sup>	358.15	2247.60 $\pm$ 2.00	0.02	1960-grz/jef-1
293.15	2358.10 $\pm$ 2.00	0.03	1960-grz/jef-1	291.15	2341.00 $\pm$ 4.00	-20.47	1961-lic/tri <sup>1)</sup>
313.15	2324.10 $\pm$ 2.00	0.02	1960-grz/jef-1				

<sup>1)</sup> Not included in calculation of linear coefficients.**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	2363.4 $\pm$ 3.6
293.15	2358.1 $\pm$ 3.3
298.15	2349.6 $\pm$ 2.8
310.00	2329.4 $\pm$ 1.8
320.00	2312.4 $\pm$ 1.1
330.00	2295.4 $\pm$ 1.2
340.00	2278.4 $\pm$ 1.9
350.00	2261.4 $\pm$ 2.8
360.00	2244.4 $\pm$ 3.7

**1-Iodobutane****[542-69-8]****MW = 184.02****445****Table 1.** Coefficients of the polynomial expansion equation. Standard deviations (see introduction):

$\sigma_{c,w} = 1.4363$  (combined temperature ranges, weighted),  $\sigma_{c,uw} = 1.9923 \cdot 10^{-1}$  (combined temperature ranges, unweighted).

Coefficient	$T = 193.15 \text{ to } 353.15 \text{ K}$ $\rho = A + BT + CT^2 + DT^3 + \dots$
<i>A</i>	$2.11437 \cdot 10^3$
<i>B</i>	-1.70261

**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)	$\frac{T}{K}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{ca}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref. (Symbol in Fig. 1)
293.15	$1616.60 \pm 1.50$	1.35	1880-bru-1(◆)	288.15	$1623.63 \pm 1.00$	-0.13	1934-tim/del(Δ)
193.15	$1784.20 \pm 2.00$	-1.31	1930-smy/rog-1(×)	303.15	$1598.87 \pm 1.00$	0.65	1934-tim/del(Δ)
213.15	$1750.50 \pm 2.00$	-0.96	1930-smy/rog-1(×)	293.15	$1616.00 \pm 2.00$	0.75	1937-gro/sug(×)
233.15	$1716.80 \pm 2.00$	-0.60	1930-smy/rog-1(×)	293.15	$1615.60 \pm 2.00$	0.35	1938-cow/par(×)
253.15	$1683.20 \pm 2.00$	-0.15	1930-smy/rog-1(×)	293.15	$1616.00 \pm 2.00$	0.75	1940-mor/yag(×)
273.15	$1649.50 \pm 2.00$	0.20	1930-smy/rog-1(×)	293.15	$1613.70 \pm 1.00$	-1.55	1942-aud/gos(○)
293.15	$1615.80 \pm 2.00$	0.55	1930-smy/rog-1(×)	293.15	$1614.40 \pm 1.00$	-0.85	1948-lag/eva(∇)
313.15	$1582.40 \pm 2.00$	1.20	1930-smy/rog-1(×)	293.15	$1614.40 \pm 0.40$	-0.85	1949-lag/mcm(□)
333.15	$1548.50 \pm 2.00$	1.36	1930-smy/rog-1(×)	303.15	$1597.30 \pm 0.40$	-0.92	1949-lag/mcm(□)
353.15	$1514.40 \pm 2.00$	1.31	1930-smy/rog-1(×)	313.15	$1580.50 \pm 0.40$	-0.70	1949-lag/mcm(□)
273.15	$1648.30 \pm 1.00$	-1.00	1934-tim/del(Δ)	323.15	$1564.70 \pm 0.40$	0.53	1949-lag/mcm(□)

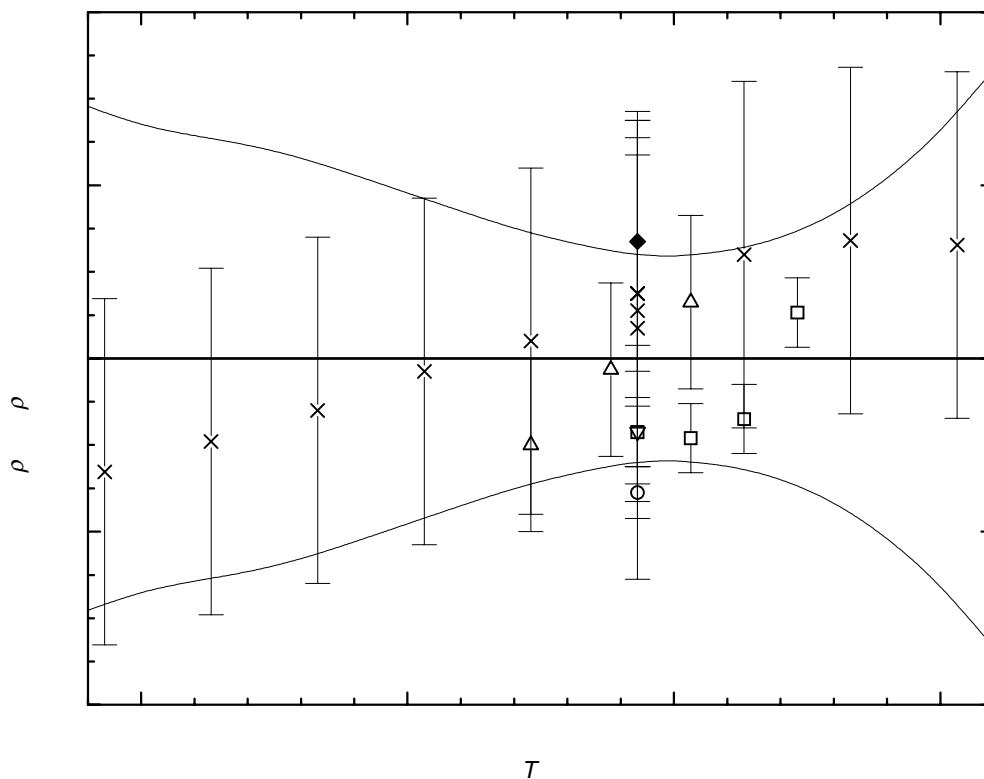
**Further references:** [1871-lie/ros, 1888-dob-1, 1926-mat, 1933-bri, 1943-vog, 1950-sto/she].

**Table 3.** Recommended values (fit to the reliable experimental values according to the equations

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

$\frac{T}{K}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{K}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{K}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$
190.00	$1790.87 \pm 2.91$	260.00	$1671.69 \pm 1.70$	310.00	$1586.56 \pm 1.23$
200.00	$1773.85 \pm 2.69$	270.00	$1654.66 \pm 1.50$	320.00	$1569.53 \pm 1.38$
210.00	$1756.82 \pm 2.57$	280.00	$1637.64 \pm 1.34$	330.00	$1552.51 \pm 1.65$
220.00	$1739.79 \pm 2.47$	290.00	$1620.61 \pm 1.22$	340.00	$1535.48 \pm 2.06$
230.00	$1722.77 \pm 2.32$	293.15	$1615.25 \pm 1.20$	350.00	$1518.45 \pm 2.61$
240.00	$1705.74 \pm 2.12$	298.15	$1606.73 \pm 1.18$	360.00	$1501.43 \pm 3.34$
250.00	$1688.72 \pm 1.91$	300.00	$1603.58 \pm 1.18$		

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-Iodobutane

[513-48-4]

C4H9I

MW = 184.02

446

**Table 1.** Fit with estimated B coefficient for 10 accepted points. Deviation  $\sigma_w = 1.426$ .

Coefficient	$\rho = A + BT$
A	2065.45
B	-1.600

**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.	$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{calc}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
293.15	$1632.0 \pm 6.00$	35.59	1864-del-2 <sup>1)</sup>	293.15	$1595.2 \pm 2.00$	-1.21	1869-lie
273.15	$1604.0 \pm 6.00$	-24.41	1864-del-2 <sup>1)</sup>	303.15	$1578.7 \pm 2.00$	-1.71	1869-lie
273.15	$1626.3 \pm 2.00$	-2.11	1869-lie	273.15	$1630.5 \pm 2.00$	2.14	1934-tim/del
283.15	$1611.1 \pm 2.00$	-1.31	1869-lie	303.15	$1581.0 \pm 2.00$	0.58	1934-tim/del

<sup>1)</sup> Not included in calculation of linear coefficients.

(cont.)

**2-Iodobutane** (cont.)**Table 2.** (cont.)

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{calc}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.	$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{calc}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
288.15	$1605.80 \pm 2.00$	1.43	1934-tim/del	313.25	$1559.50 \pm 3.00$	-4.75	1943-vog <sup>1)</sup>
298.15	$1589.00 \pm 2.00$	0.59	1936-lev/rot-2	333.25	$1526.60 \pm 3.00$	-5.65	1943-vog <sup>1)</sup>
293.15	$1598.40 \pm 2.00$	1.99	1942-aud/gos	359.65	$1483.80 \pm 3.00$	-6.21	1943-vog <sup>1)</sup>
293.15	$1592.00 \pm 3.00$	-4.41	1943-vog <sup>1)</sup>	293.15	$1596.20 \pm 1.50$	-0.21	1948-kor/pat

**Table 3.** Recommended values.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$
270.00	$1633.5 \pm 2.7$
280.00	$1617.5 \pm 2.1$
290.00	$1601.5 \pm 1.8$
293.15	$1596.4 \pm 1.8$
298.15	$1588.4 \pm 2.0$
310.00	$1569.5 \pm 2.7$

***l*-2-Iodobutane**

[500014-47-1]

**C<sub>4</sub>H<sub>9</sub>I****MW = 184.02****447****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.
290.15	$1597.00 \pm 2.00$	1911-pic/ken-1
293.15	$1595.90 \pm 1.00$	1948-kor/pat

**1-Iodo-2-methylpropane**

[513-38-2]

**C<sub>4</sub>H<sub>9</sub>I****MW = 184.02****448****Table 1.** Coefficients of the polynomial expansion equation. Standard deviations (see introduction):

$\sigma_{\text{c,w}} = 7.0861 \cdot 10^{-1}$  (combined temperature ranges, weighted),  $\sigma_{\text{c,uw}} = 2.9233 \cdot 10^{-1}$  (combined temperature ranges, unweighted).

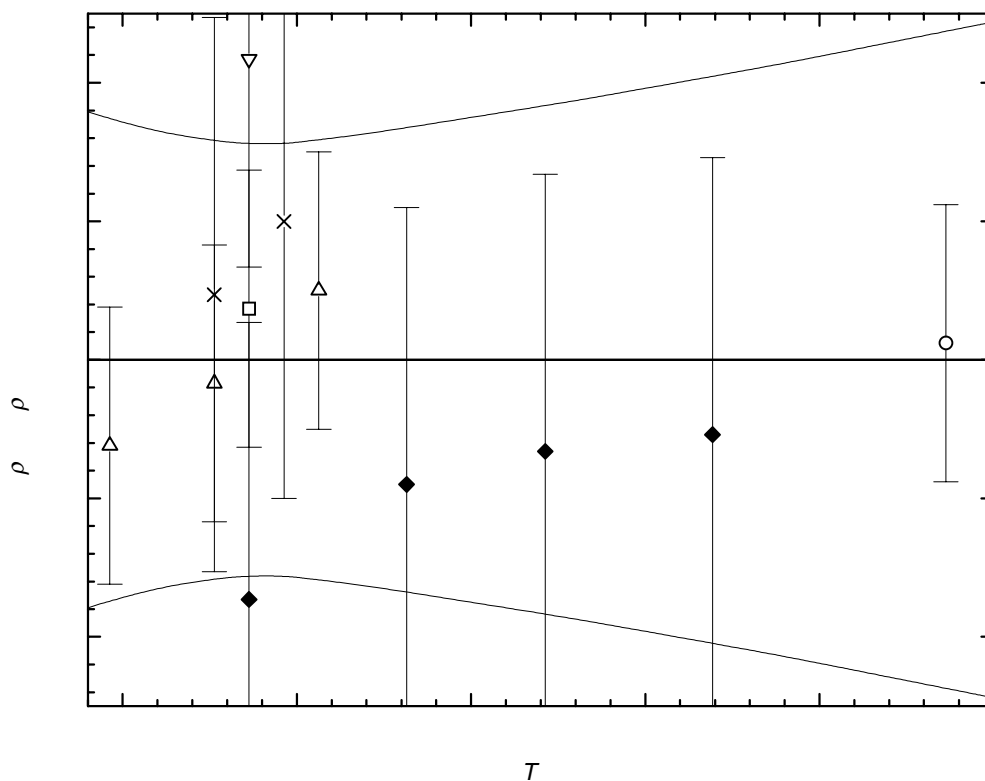
Coefficient	$T = 273.15 \text{ to } 393.15 \text{ K}$ $\rho = A + BT + CT^2 + DT^3 + \dots$
<i>A</i>	$2.10195 \cdot 10^3$
<i>B</i>	-1.70056

cont.

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

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ $\text{kg} \cdot \text{m}^{-3}$	$\rho_{\text{exp}} - \rho_{\text{calc}}$ $\text{kg} \cdot \text{m}^{-3}$	Ref. (Symbol in Fig. 1)	$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ $\text{kg} \cdot \text{m}^{-3}$	$\rho_{\text{exp}} - \rho_{\text{calc}}$ $\text{kg} \cdot \text{m}^{-3}$	Ref. (Symbol in Fig. 1)
293.15	$1605.60 \pm 1.50$	2.17	1880-bru-1(▽)	303.15	$1586.93 \pm 1.00$	0.50	1934-tim/del(Δ)
288.15	$1612.40 \pm 2.00$	0.47	1885-per(×)	293.15	$1603.80 \pm 1.00$	0.37	1942-aud/gos(□)
298.15	$1595.93 \pm 2.00$	1.00	1885-per(×)	293.15	$1601.70 \pm 2.00$	-1.73	1943-vog(◆)
393.15	$1433.50 \pm 1.00$	0.12	1886-sch(○)	315.75	$1564.10 \pm 2.00$	-0.90	1943-vog(◆)
273.15	$1636.82 \pm 1.00$	-0.62	1934-tim/del(Δ)	335.65	$1530.50 \pm 2.00$	-0.66	1943-vog(◆)
288.15	$1611.76 \pm 1.00$	-0.17	1934-tim/del(Δ)	359.65	$1489.80 \pm 2.00$	-0.54	1943-vog(◆)

**Further references:** [1871-lin, 1878-bra, 1884-gla, 1891-gla, 1927-arb-2].



**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-Iodo-2-methylpropane** (cont.)**Table 3.** Recommended values (fit to the reliable experimental values according to the equations

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

$\frac{T}{K}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{K}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{K}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$
270.00	1642.80 ± 1.79	310.00	1574.78 ± 1.63	370.00	1472.74 ± 2.14
280.00	1625.79 ± 1.64	320.00	1557.77 ± 1.71	380.00	1455.74 ± 2.24
290.00	1608.79 ± 1.57	330.00	1540.77 ± 1.79	390.00	1438.73 ± 2.34
293.15	1603.43 ± 1.56	340.00	1523.76 ± 1.87	400.00	1421.73 ± 2.44
298.15	1594.93 ± 1.56	350.00	1506.76 ± 1.96		
300.00	1591.78 ± 1.57	360.00	1489.75 ± 2.05		

**2-Iodo-2-methylpropane**

[558-17-8]

**C<sub>4</sub>H<sub>9</sub>I****MW = 184.02****449****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.
273.15	1571.00 ± 3.00	1883-puc
323.15	1484.00 ± 3.00	1883-puc
326.15	1479.00 ± 3.00	1883-puc
293.15	1544.50 ± 1.00	1942-aud/gos

**1,5-Diiodopentane**

[628-77-3]

**C<sub>5</sub>H<sub>10</sub>I<sub>2</sub>****MW = 323.94****450****Table 1.** Fit with estimated B coefficient for 4 accepted points. Deviation  $\sigma_w = 0.704$ .

Coefficient	$\rho = A + BT$
A	2617.68
B	-1.490

**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.
291.15	2194.00 ± 6.00	10.13	1905-ham <sup>1)</sup>
293.15	2182.00 ± 1.00	1.11	1960-grz/jef-1
313.15	2150.90 ± 1.00	-0.19	1960-grz/jef-1
333.15	2121.20 ± 1.00	-0.09	1960-grz/jef-1
358.15	2083.20 ± 1.00	-0.84	1960-grz/jef-1

<sup>1)</sup> Not included in calculation of linear coefficients.

cont.

**Table 3.** Recommended values.

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ $\text{kg} \cdot \text{m}^{-3}$
290.00	$2185.6 \pm 2.0$
293.15	$2180.9 \pm 1.9$
298.15	$2173.4 \pm 1.7$
310.00	$2155.8 \pm 1.2$
320.00	$2140.9 \pm 1.0$
330.00	$2126.0 \pm 1.0$
340.00	$2111.1 \pm 1.3$
350.00	$2096.2 \pm 1.6$
360.00	$2081.3 \pm 2.0$

**2,4-Diiodopentane**

[66719-29-7]



MW = 323.94

451

**Table 1.** Fit with estimated B coefficient for 3 accepted points. Deviation  $\sigma_w = 0.255$ .

Coefficient	$\rho = A + BT$
A	2015.44
B	-1.490

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

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ $\text{kg} \cdot \text{m}^{-3}$	$\rho_{\text{exp}} - \rho_{\text{calc}}$ $\text{kg} \cdot \text{m}^{-3}$	Ref.
273.15	$1608.20 \pm 2.00$	-0.25	1914-dem/pin
288.15	$1586.00 \pm 2.00$	-0.10	1914-dem/pin
293.15	$1579.00 \pm 2.00$	0.35	1914-dem/pin

**Table 3.** Recommended values.

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ $\text{kg} \cdot \text{m}^{-3}$
270.00	$1613.1 \pm 2.1$
280.00	$1598.2 \pm 1.8$
290.00	$1583.3 \pm 1.8$
293.15	$1578.7 \pm 1.9$
298.15	$1571.2 \pm 2.0$

**1-Iodo-2,2-dimethylpropane** [15501-33-4]  $\text{C}_5\text{H}_{11}\text{I}$  MW = 198.05 452

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

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ $\text{kg} \cdot \text{m}^{-3}$	Ref.
286.15	$1531.70 \pm 3.00$	1905-mey
299.15	$1463.00 \pm 3.00$	1905-mey
293.15	$1494.00 \pm 2.00$	1939-whi/wit

**1-Iodo-2-methylbutane** [25267-30-5]  $\text{C}_5\text{H}_{11}\text{I}$  MW = 198.05 453

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

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ $\text{kg} \cdot \text{m}^{-3}$	Ref.	$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ $\text{kg} \cdot \text{m}^{-3}$	Ref.
288.15	$1523.00 \pm 3.00$	1904-kla/sau <sup>1)</sup>	298.15	$1513.00 \pm 3.00$	1936-lev/rot-2 <sup>1)</sup>
285.15	$1528.00 \pm 3.00$	1904-kla/sau <sup>1)</sup>	293.15	$1522.00 \pm 2.00$	1938-whi/ole-1
293.15	$1524.00 \pm 2.00$	1904-mar-1	293.15	$1523.30 \pm 2.10$	Recommended

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

***d*-1-Iodo-2-methylbutane** [500045-25-0]  $\text{C}_5\text{H}_{11}\text{I}$  MW = 198.05 454

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

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ $\text{kg} \cdot \text{m}^{-3}$	Ref.
293.15	$1525.30 \pm 2.00$	1937-bra

**1-Iodo-3-methylbutane** [541-28-6]  $\text{C}_5\text{H}_{11}\text{I}$  MW = 198.05 455

**Table 1.** Coefficients of the polynomial expansion equation. Standard deviations (see introduction):  $\sigma_{\text{c,w}} = 6.6270 \cdot 10^{-1}$  (combined temperature ranges, weighted),  $\sigma_{\text{c,uw}} = 2.9358 \cdot 10^{-1}$  (combined temperature ranges, unweighted).

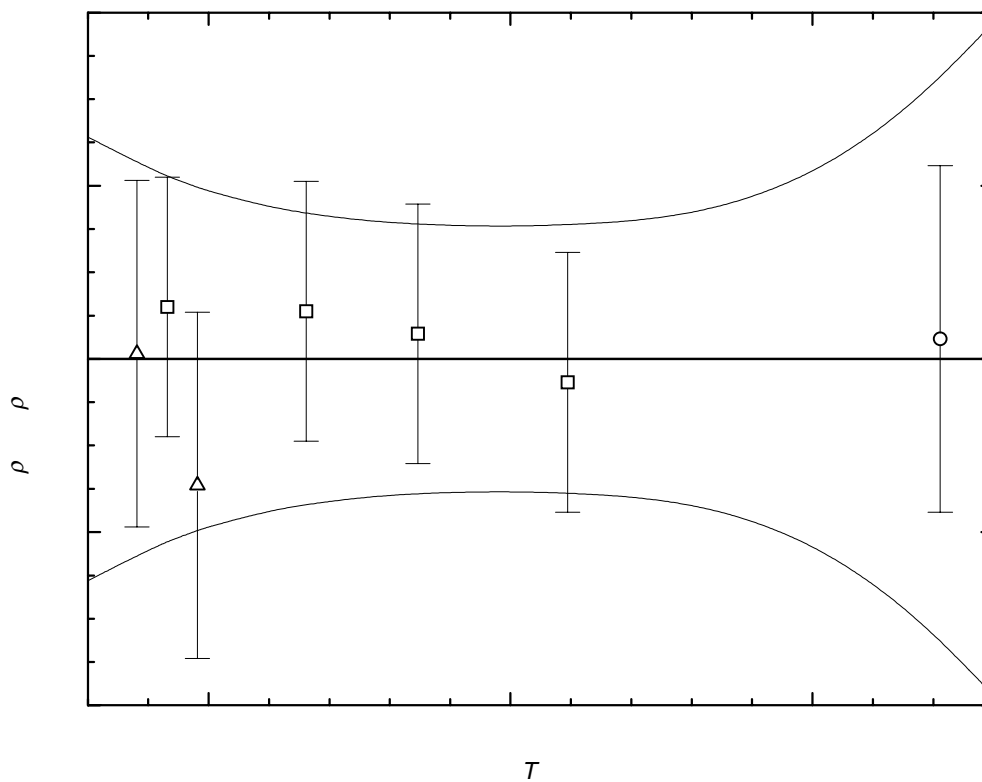
Coefficient	$T = 288.15 \text{ to } 421.15 \text{ K}$ $\rho = A + BT + CT^2 + DT^3 + \dots$
<i>A</i>	$1.78865 \cdot 10^3$
<i>B</i>	$-6.13164 \cdot 10^{-1}$
<i>C</i>	$-1.24513 \cdot 10^{-3}$

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)
288.15	$1508.64 \pm 2.00$	0.06	1885-per( $\Delta$ )	316.15	$1470.90 \pm 1.50$	0.55	1943-vog( $\square$ )
298.15	$1493.69 \pm 2.00$	-1.46	1885-per( $\Delta$ )	334.65	$1444.30 \pm 1.50$	0.29	1943-vog( $\square$ )
421.15	$1309.80 \pm 2.00$	0.23	1886-sch( $\circ$ )	359.45	$1407.10 \pm 1.50$	-0.27	1943-vog( $\square$ )
293.15	$1502.50 \pm 1.50$	0.60	1943-vog( $\square$ )				

**Further references:** [1855-kop-2, 1911-dob].



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

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

$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$
280.00	1519.35 $\pm$ 2.56	320.00	1464.94 $\pm$ 1.64	380.00	1375.85 $\pm$ 1.68
290.00	1506.12 $\pm$ 2.21	330.00	1450.71 $\pm$ 1.57	390.00	1360.13 $\pm$ 1.86
293.15	1501.90 $\pm$ 2.11	340.00	1436.24 $\pm$ 1.54	400.00	1344.16 $\pm$ 2.15
298.15	1495.15 $\pm$ 1.98	350.00	1421.51 $\pm$ 1.53	410.00	1327.95 $\pm$ 2.58
300.00	1492.64 $\pm$ 1.94	360.00	1406.54 $\pm$ 1.55	420.00	1311.48 $\pm$ 3.16
310.00	1478.91 $\pm$ 1.75	370.00	1391.32 $\pm$ 1.59	430.00	1294.76 $\pm$ 3.89

**2-Iodo-2-methylbutane**

[594-38-7]

 $\text{C}_5\text{H}_{11}\text{I}$ 

MW = 198.05

456

**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	1524.00 $\pm$ 2.00	1878-wis
291.65	1471.00 $\pm$ 6.00	1911-dob
293.15	1493.70 $\pm$ 1.00	1942-aud/gos

**2-Iodo-3-methylbutane**

[18295-27-7]

 $\text{C}_5\text{H}_{11}\text{I}$ 

MW = 198.05

457

**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	1524.00 $\pm$ 2.00	1904-mar-1

**1-Iodopentane**

[628-17-1]

 $\text{C}_5\text{H}_{11}\text{I}$ 

MW = 198.05

458

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

$\sigma_{\text{c,w}} = 1.6830$  (combined temperature ranges, weighted),  $\sigma_{\text{c,uw}} = 5.7590 \cdot 10^{-1}$  (combined temperature ranges, unweighted).

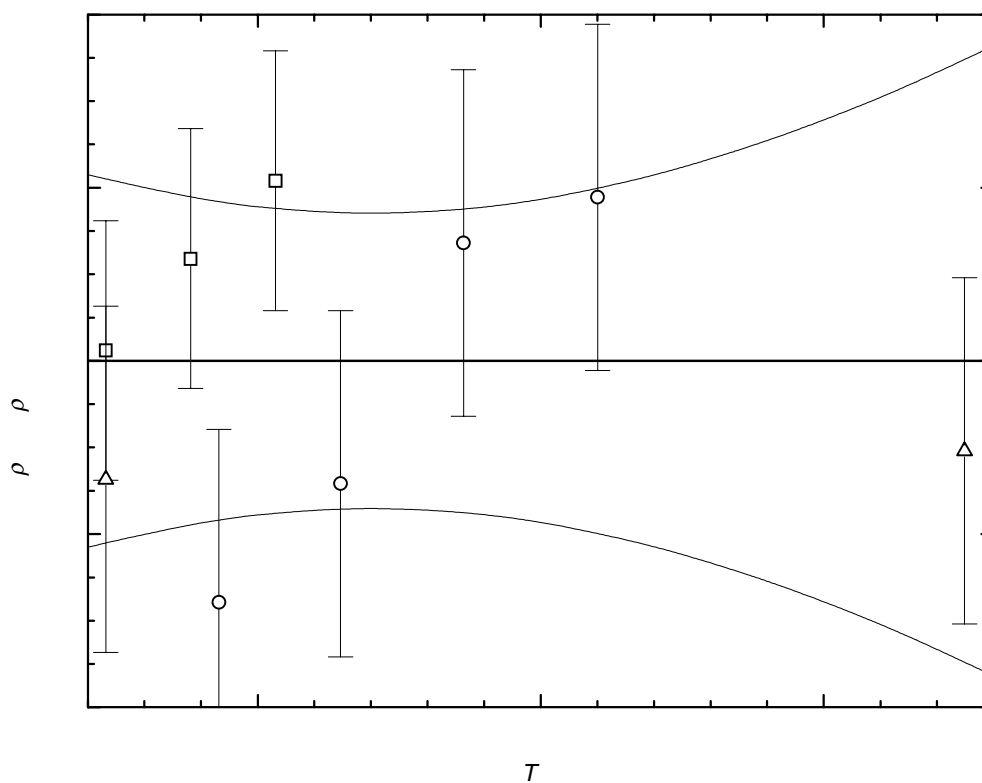
Coefficient	$T = 273.15 \text{ to } 424.85 \text{ K}$ $\rho = A + BT + CT^2 + DT^3 + \dots$
A	$1.96317 \cdot 10^3$
B	-1.52884

cont.

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

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ $\text{kg} \cdot \text{m}^{-3}$	$\rho_{\text{exp}} - \rho_{\text{calc}}$ $\text{kg} \cdot \text{m}^{-3}$	Ref. (Symbol in Fig. 1)	$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ $\text{kg} \cdot \text{m}^{-3}$	$\rho_{\text{exp}} - \rho_{\text{calc}}$ $\text{kg} \cdot \text{m}^{-3}$	Ref. (Symbol in Fig. 1)
273.15	$1544.20 \pm 2.00$	-1.37	1888-dob-1( $\Delta$ )	293.15	$1512.20 \pm 2.00$	-2.79	1943-vog( $\circ$ )
424.85	$1312.60 \pm 2.00$	-1.04	1888-dob-1( $\Delta$ )	314.65	$1480.70 \pm 2.00$	-1.42	1943-vog( $\circ$ )
273.15	$1545.69 \pm 1.50$	0.12	1929-sim( $\square$ )	336.35	$1450.30 \pm 2.00$	1.36	1943-vog( $\circ$ )
288.15	$1523.81 \pm 1.50$	1.18	1929-sim( $\square$ )	360.05	$1414.60 \pm 2.00$	1.89	1943-vog( $\circ$ )
303.15	$1501.78 \pm 1.50$	2.08	1929-sim( $\square$ )				

**Further references:** [1871-lie/ros-3, 1884-gla, 1933-bri, 1938-cow/par, 1942-aud/gos].



**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-Iodopentane (cont.)****Table 3.** Recommended values (fit to the reliable experimental values according to the equations

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

$\frac{T}{K}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{K}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{K}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$
270.00	1550.38 $\pm$ 2.15	320.00	1473.94 $\pm$ 1.70	390.00	1366.92 $\pm$ 2.54
280.00	1535.09 $\pm$ 2.00	330.00	1458.65 $\pm$ 1.72	400.00	1351.63 $\pm$ 2.78
290.00	1519.81 $\pm$ 1.87	340.00	1443.36 $\pm$ 1.77	410.00	1336.35 $\pm$ 3.04
293.15	1514.99 $\pm$ 1.84	350.00	1428.08 $\pm$ 1.86	420.00	1321.06 $\pm$ 3.33
298.15	1507.35 $\pm$ 1.79	360.00	1412.79 $\pm$ 1.99	430.00	1305.77 $\pm$ 3.64
300.00	1504.52 $\pm$ 1.78	370.00	1397.50 $\pm$ 2.14		
310.00	1489.23 $\pm$ 1.72	380.00	1382.21 $\pm$ 2.33		

**2-Iodopentane****[637-97-8]****C<sub>5</sub>H<sub>11</sub>I****MW = 198.05****459****Table 2.** 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	1537.00 $\pm$ 3.00	1868-wur <sup>1)</sup>	293.15	1509.60 $\pm$ 3.00	1943-vog <sup>1)</sup>
284.15	1521.90 $\pm$ 3.00	1868-wur <sup>1)</sup>	314.65	1478.50 $\pm$ 3.00	1943-vog <sup>1)</sup>
293.15	1510.00 $\pm$ 3.00	1875-wag/say-1 <sup>1)</sup>	333.65	1450.30 $\pm$ 3.00	1943-vog <sup>1)</sup>
273.15	1539.00 $\pm$ 3.00	1875-wag/say-1 <sup>1)</sup>	359.95	1411.40 $\pm$ 3.00	1943-vog <sup>1)</sup>
293.15	1479.20 $\pm$ 8.00	1884-gla <sup>1)</sup>	293.15	1499.50 $\pm$ 2.00	1946-bra
290.15	1506.70 $\pm$ 3.00	1911-pic/ken <sup>1)</sup>	293.15	1500.90 $\pm$ 2.20	Recommended
293.15	1502.00 $\pm$ 2.00	1942-aud/gos			

<sup>1)</sup> Not included in calculation of recommended value.**(S)-2-Iodopentane****[29882-59-5]****C<sub>5</sub>H<sub>11</sub>I****MW = 198.05****460****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.
20.00	1501.30 $\pm$ 0.50	1943-bra

**3-Iodopentane****[1809-05-8]****C<sub>5</sub>H<sub>11</sub>I****MW = 198.05****461****Table 1.** Fit with estimated B coefficient for 5 accepted points. Deviation  $\sigma_w = 1.218$ .

Coefficient	$\rho = A + BT$
A	1952.70
B	-1.500

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.	$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{calc}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
293.15	$1501.00 \pm 4.00$	-11.98	1875-wag/say-1 <sup>1)</sup>	293.15	$1510.60 \pm 3.00$	-2.38	1943-vog
289.15	$1505.00 \pm 4.00$	-13.98	1875-wag/say-1 <sup>1)</sup>	314.65	$1480.90 \pm 3.00$	0.17	1943-vog
293.15	$1501.00 \pm 4.00$	-11.98	1875-wag/say-1 <sup>1)</sup>	335.55	$1450.40 \pm 3.00$	1.02	1943-vog
293.15	$1517.60 \pm 4.00$	4.62	1916-ros-1 <sup>1)</sup>	359.65	$1414.80 \pm 3.00$	1.57	1943-vog
293.15	$1512.80 \pm 2.00$	-0.18	1942-aud/gos				

<sup>1)</sup> Not included in calculation of linear coefficients.**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	$1517.7 \pm 2.5$
293.15	$1513.0 \pm 2.4$
298.15	$1505.5 \pm 2.2$
310.00	$1487.7 \pm 1.9$
320.00	$1472.7 \pm 1.9$
330.00	$1457.7 \pm 2.2$
340.00	$1442.7 \pm 2.6$
350.00	$1427.7 \pm 3.1$
360.00	$1412.7 \pm 3.7$

**1,6-Diiodohexane****[629-09-4]****MW = 337.97****462****Table 1.** Fit with estimated B coefficient for 5 accepted points. Deviation  $\sigma_w = 0.490$ .

Coefficient	$\rho = A + BT$
<i>A</i>	2479.62
<i>B</i>	-1.500

**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.
298.15	$2033.00 \pm 4.00$	0.60	1950-boe/ned
323.15	$1995.00 \pm 4.00$	0.10	1950-boe/ned
353.15	$1950.00 \pm 4.00$	0.10	1950-boe/ned
403.15	$1875.00 \pm 4.00$	0.10	1950-boe/ned
453.15	$1799.00 \pm 4.00$	-0.90	1950-boe/ned

cont.

**1,6-Diiodohexane** (cont.)**Table 3.** Recommended values.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$
290.00	2044.6 $\pm$ 5.2	350.00	1954.6 $\pm$ 3.7	420.00	1849.6 $\pm$ 4.5
293.15	2039.9 $\pm$ 5.1	360.00	1939.6 $\pm$ 3.6	430.00	1834.6 $\pm$ 4.8
298.15	2032.4 $\pm$ 5.0	370.00	1924.6 $\pm$ 3.6	440.00	1819.6 $\pm$ 5.2
310.00	2014.6 $\pm$ 4.6	380.00	1909.6 $\pm$ 3.7	450.00	1804.6 $\pm$ 5.5
320.00	1999.6 $\pm$ 4.3	390.00	1894.6 $\pm$ 3.8	460.00	1789.6 $\pm$ 5.9
330.00	1984.6 $\pm$ 4.0	400.00	1879.6 $\pm$ 4.0		
340.00	1969.6 $\pm$ 3.8	410.00	1864.6 $\pm$ 4.2		

**2-Iodo-2,3-dimethylbutane**

[594-59-2]

 $\text{C}_6\text{H}_{13}\text{I}$ 

MW = 212.07

463

**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	1448.00 $\pm$ 1.00	1950-sto/she

**1-Iodo-2-ethylbutane**

[24346-54-1]

 $\text{C}_6\text{H}_{13}\text{I}$ 

MW = 212.07

464

**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.
296.15	1440.00 $\pm$ 1.00	1931-fou/mat

**1-Iodohexane**

[638-45-9]

 $\text{C}_6\text{H}_{13}\text{I}$ 

MW = 212.07

465

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

$\sigma_{\text{c,w}} = 1.1761$  (combined temperature ranges, weighted),  $\sigma_{\text{c,uw}} = 5.8803 \cdot 10^{-1}$  (combined temperature ranges, unweighted).

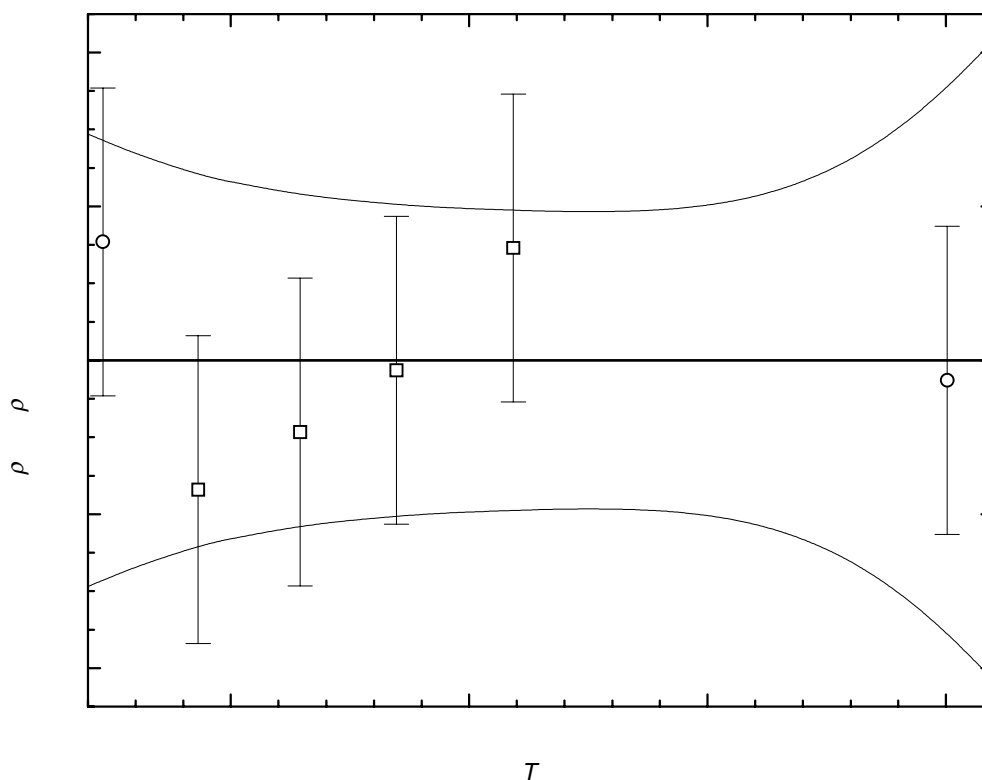
Coefficient	$T = 273.15 \text{ to } 450.25 \text{ K}$ $\rho = A + BT + CT^2 + DT^3 + \dots$
A	$1.76850 \cdot 10^3$
B	$-9.40786 \cdot 10^{-1}$
C	$-6.32158 \cdot 10^{-4}$

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	$1465.90 \pm 2.00$	1.54	1888-dob-1(○)	314.55	$1409.10 \pm 2.00$	-0.93	1943-vog(□)
450.25	$1216.50 \pm 2.00$	-0.26	1888-dob-1(○)	334.75	$1382.60 \pm 2.00$	-0.13	1943-vog(□)
293.15	$1436.70 \pm 2.00$	-1.68	1943-vog(□)	359.25	$1350.40 \pm 2.00$	1.46	1943-vog(□)

**Further references:** [1872-fra/zin, 1877-lie/jan, 1911-dob, 1913-dio, 1942-aud/gos].



**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-Iodohexane** (cont.)**Table 3.** Recommended values (fit to the reliable experimental values according to the equations

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

$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$
270.00	1468.40 $\pm$ 2.94	330.00	1389.20 $\pm$ 2.05	410.00	1276.51 $\pm$ 2.12
280.00	1455.52 $\pm$ 2.68	340.00	1375.56 $\pm$ 2.00	420.00	1261.86 $\pm$ 2.31
290.00	1442.51 $\pm$ 2.48	350.00	1361.79 $\pm$ 1.97	430.00	1247.08 $\pm$ 2.60
293.15	1438.38 $\pm$ 2.42	360.00	1347.89 $\pm$ 1.95	440.00	1232.17 $\pm$ 3.00
298.15	1431.81 $\pm$ 2.34	370.00	1333.87 $\pm$ 1.93	450.00	1217.13 $\pm$ 3.52
300.00	1429.37 $\pm$ 2.32	380.00	1319.72 $\pm$ 1.93	460.00	1201.97 $\pm$ 4.16
310.00	1416.11 $\pm$ 2.20	390.00	1305.44 $\pm$ 1.95		
320.00	1402.72 $\pm$ 2.11	400.00	1291.04 $\pm$ 2.01		

**2-Iodohexane**

[18589-27-0]

C6H13I

MW = 212.07

466

**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	1419.30 $\pm$ 8.00	1884-gla
288.15	1425.66 $\pm$ 2.00	1885-per

**1-Iodo-2-methylpentane**

[31294-94-7]

C6H13I

MW = 212.07

467

**Table 1.** Fit with estimated B coefficient for 2 accepted points. Deviation  $\sigma_w = 0.000$ .

Coefficient	$\rho = A + BT$
A	1829.96
B	-1.320

**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.
288.15	1449.6 $\pm$ 2.00	-0.00	1909-prz
293.15	1443.0 $\pm$ 2.00	-0.00	1909-prz

**Table 3.** Recommended values.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$
280.00	1460.4 $\pm$ 2.1
290.00	1447.2 $\pm$ 1.8
293.15	1443.0 $\pm$ 1.8
298.15	1436.4 $\pm$ 1.9

**1-Iodo-3-methylpentane** [24346-53-0]  $\text{C}_6\text{H}_{13}\text{I}$  MW = 212.07 468

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

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ $\text{kg} \cdot \text{m}^{-3}$	Ref.
298.15	$1393.40 \pm 2.00$	1936-lev/rot-4

**1-Iodo-4-methylpentane** [6196-80-1]  $\text{C}_6\text{H}_{13}\text{I}$  MW = 212.07 469

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

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ $\text{kg} \cdot \text{m}^{-3}$	Ref.
293.15	$1428.30 \pm 2.00$	1915-lon

**1-Iodoheptane** [4282-40-0]  $\text{C}_7\text{H}_{15}\text{I}$  MW = 226.10 470

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

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ $\text{kg} \cdot \text{m}^{-3}$	Ref.	$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ $\text{kg} \cdot \text{m}^{-3}$	Ref.
289.15	$1346.00 \pm 2.50$	1877-cro <sup>1)</sup>	288.15	$1385.06 \pm 2.00$	1931-def <sup>1)</sup>
289.15	$1346.00 \pm 2.50$	1877-cro-1 <sup>1)</sup>	303.15	$1366.74 \pm 2.00$	1931-def <sup>1)</sup>
273.15	$1400.60 \pm 2.00$	1888-dob-1 <sup>1)</sup>	293.15	$1379.20 \pm 1.00$	1942-aud/gos
476.95	$1134.20 \pm 3.00$	1888-dob-1 <sup>1)</sup>	293.15	$1373.40 \pm 2.00$	1943-vog <sup>1)</sup>
295.15	$1373.60 \pm 1.50$	1930-err/she <sup>1)</sup>	314.15	$1348.70 \pm 2.00$	1943-vog <sup>1)</sup>
293.15	$1377.40 \pm 1.00$	1930-she	334.25	$1324.80 \pm 2.00$	1943-vog <sup>1)</sup>
288.15	$1387.00 \pm 1.50$	1930-she <sup>1)</sup>	358.85	$1294.30 \pm 2.00$	1943-vog <sup>1)</sup>
273.15	$1403.36 \pm 2.00$	1931-def <sup>1)</sup>	293.15	$1378.3 \pm 1.0$	Recommended

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

**3-Iodoheptane** [31294-92-5]  $\text{C}_7\text{H}_{15}\text{I}$  MW = 226.10 471

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

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ $\text{kg} \cdot \text{m}^{-3}$	Ref.
295.15	$1365.60 \pm 1.00$	1930-err/she

**1-Iodo-2-methylhexane** [624-21-5]  $\text{C}_7\text{H}_{15}\text{I}$  MW = 226.10 472

**Table 1.** Fit with estimated B coefficient for 2 accepted points. Deviation  $\sigma_w = 0.000$ .

Coefficient	$\rho = A + BT$
A	1689.87
B	-1.100

cont.

**1-Iodo-2-methylhexane** (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.
290.15	$1370.70 \pm 2.00$	0.00	1908-zel/prz
294.15	$1366.30 \pm 2.00$	0.00	1908-zel/prz

**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	$1370.9 \pm 1.8$
293.15	$1367.4 \pm 1.8$
298.15	$1361.9 \pm 1.9$

**1-Iodoctane**

[629-27-6]

 $\text{C}_8\text{H}_{17}\text{I}$ 

MW = 240.13

473

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

$\sigma_{\text{c,w}} = 2.5024$  (combined temperature ranges, weighted),  $\sigma_{\text{c,uw}} = 4.9695 \cdot 10^{-1}$  (combined temperature ranges, unweighted).

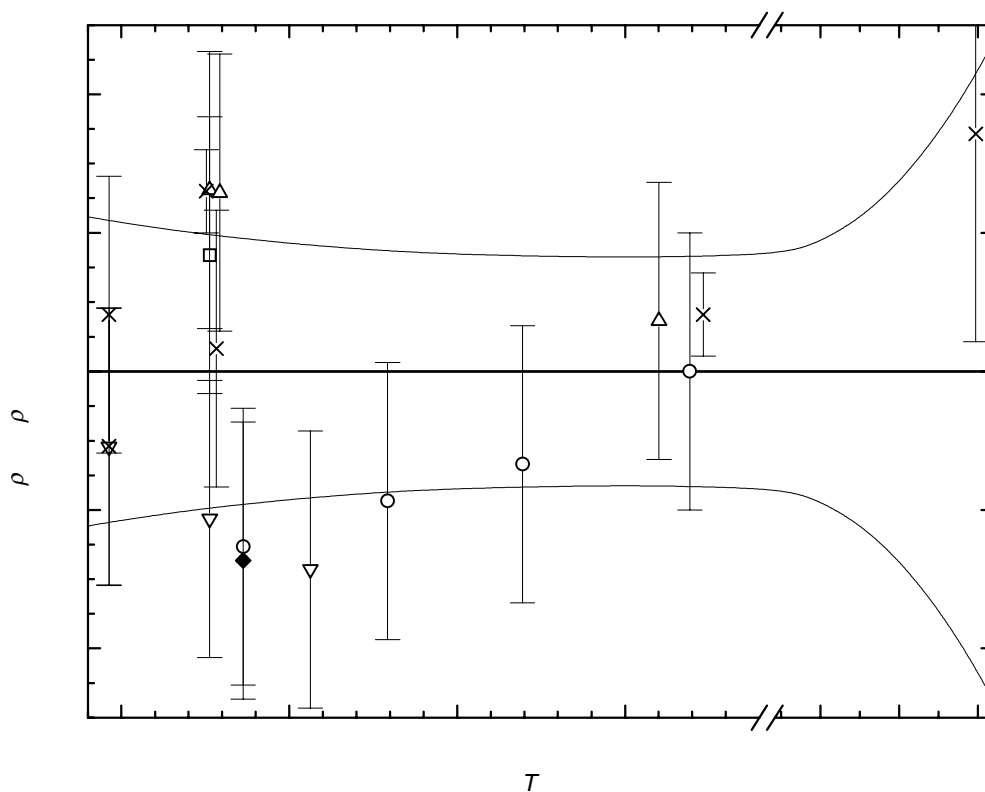
Coefficient	$T = 273.15 \text{ to } 498.65 \text{ K}$ $\rho = A + BT + CT^2 + DT^3 + \dots$
<i>A</i>	$1.59309 \cdot 10^3$
<i>B</i>	$-6.67281 \cdot 10^{-1}$
<i>C</i>	$-7.59199 \cdot 10^{-4}$

**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)
288.15	$1339.46 \pm 2.00$	1.68	1885-per(□)	355.05	$1261.20 \pm 2.00$	0.73	1896-per(Δ)
273.15	$1355.00 \pm 2.00$	0.82	1886-kra(×)	273.15	$1353.09 \pm 2.00$	-1.09	1931-def(∇)
289.15	$1337.00 \pm 2.00$	0.33	1886-kra(×)	288.15	$1335.65 \pm 2.00$	-2.13	1931-def(∇)
273.15	$1353.10 \pm 2.00$	-1.08	1888-dob-1(×)	303.15	$1318.17 \pm 2.00$	-2.86	1931-def(∇)
498.65	$1075.00 \pm 3.00$	3.43	1888-dob-1(×)	293.15	$1329.50 \pm 2.00$	-2.73	1942-aud/gos(◆)
287.65	$1340.93 \pm 0.60$	2.60	1892-per-1(×)	293.15	$1329.70 \pm 2.00$	-2.53	1943-vog(○)
361.65	$1253.29 \pm 0.60$	0.82	1892-per-1(×)	314.65	$1306.10 \pm 2.00$	-1.87	1943-vog(○)
288.15	$1340.40 \pm 2.00$	2.62	1896-per(Δ)	334.75	$1283.30 \pm 2.00$	-1.34	1943-vog(○)
289.65	$1338.70 \pm 2.00$	2.58	1896-per(Δ)	359.65	$1254.90 \pm 2.00$	0.00	1943-vog(○)

Further references: [1911-dob].

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	$1357.58 \pm 2.23$	340.00	$1278.45 \pm 1.66$	430.00	$1165.78 \pm 2.32$
280.00	$1346.73 \pm 2.07$	350.00	$1266.54 \pm 1.65$	440.00	$1152.50 \pm 2.52$
290.00	$1335.73 \pm 1.95$	360.00	$1254.48 \pm 1.66$	450.00	$1139.07 \pm 2.75$
293.15	$1332.23 \pm 1.92$	370.00	$1242.26 \pm 1.69$	460.00	$1125.49 \pm 3.01$
298.15	$1326.65 \pm 1.87$	380.00	$1229.89 \pm 1.74$	470.00	$1111.76 \pm 3.30$
300.00	$1324.58 \pm 1.85$	390.00	$1217.38 \pm 1.80$	480.00	$1097.87 \pm 3.62$
310.00	$1313.27 \pm 1.77$	400.00	$1204.70 \pm 1.89$	490.00	$1083.84 \pm 3.97$
320.00	$1301.82 \pm 1.71$	410.00	$1191.88 \pm 2.01$	500.00	$1069.65 \pm 4.35$
330.00	$1290.21 \pm 1.68$	420.00	$1178.91 \pm 2.15$	510.00	$1055.31 \pm 4.76$

**2-Iodooctane**

[557-36-8]



MW = 240.13

474

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

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ $\text{kg} \cdot \text{m}^{-3}$	Ref.
299.15	$1316.40 \pm 1.00$	1955-ber/sch
300.15	$1315.70 \pm 1.00$	1955-ber/sch

**1-Iodononane**

[4282-42-2]



MW = 254.15

475

**Table 1.** Fit with estimated B coefficient for 2 accepted points. Deviation  $\sigma_w = 0.100$ .

Coefficient	$\rho = A + BT$
A	1605.57
B	-1.100

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

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ $\text{kg} \cdot \text{m}^{-3}$	$\rho_{\text{exp}} - \rho_{\text{calc}}$ $\text{kg} \cdot \text{m}^{-3}$	Ref.
273.15	$1305.20 \pm 2.00$	0.10	1886-kra
289.15	$1287.40 \pm 2.00$	-0.10	1886-kra

**Table 3.** Recommended values.

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ $\text{kg} \cdot \text{m}^{-3}$
270.00	$1308.6 \pm 2.1$
280.00	$1297.6 \pm 1.8$
290.00	$1286.6 \pm 2.0$

**1-Iododecane**

[2050-77-3]



MW = 268.18

476

**Table 1.** Fit with estimated B coefficient for 4 accepted points. Deviation  $\sigma_w = 0.309$ .

Coefficient	$\rho = A + BT$
A	1561.29
B	-1.040

cont.

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

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ $\text{kg} \cdot \text{m}^{-3}$	$\rho_{\text{exp}} - \rho_{\text{calc}}$ $\text{kg} \cdot \text{m}^{-3}$	Ref.
273.15	$1276.80 \pm 2.00$	-0.41	1886-kra
289.15	$1259.90 \pm 2.00$	-0.67	1886-kra
293.15	$1256.40 \pm 1.00$	-0.01	1927-tal
293.15	$1256.70 \pm 1.00$	0.29	1932-kom/tal

**Table 3.** Recommended values.

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ $\text{kg} \cdot \text{m}^{-3}$
270.00	$1280.5 \pm 2.5$
280.00	$1270.1 \pm 1.7$
290.00	$1259.7 \pm 1.4$
293.15	$1256.4 \pm 1.4$
298.15	$1251.2 \pm 1.6$

**2-Iododecane**

[64154-08-1]

 $\text{C}_{10}\text{H}_{21}\text{I}$ 

MW = 268.18

477

**Table 1.** Fit with estimated B coefficient for 4 accepted points. Deviation  $\sigma_w = 0.100$ .

Coefficient	$\rho = A + BT$
A	1551.38
B	-1.040

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

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ $\text{kg} \cdot \text{m}^{-3}$	$\rho_{\text{exp}} - \rho_{\text{calc}}$ $\text{kg} \cdot \text{m}^{-3}$	Ref.
293.15	$1246.60 \pm 2.00$	0.10	1948-pro/cas
298.15	$1241.20 \pm 2.00$	-0.10	1948-pro/cas
303.15	$1236.20 \pm 2.00$	0.10	1948-pro/cas
308.15	$1230.80 \pm 2.00$	-0.10	1948-pro/cas

**Table 3.** Recommended values.

$T$ K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ $\text{kg} \cdot \text{m}^{-3}$
290.00	$1249.8 \pm 1.9$
293.15	$1246.5 \pm 1.9$
298.15	$1241.3 \pm 1.8$
310.00	$1229.0 \pm 1.9$

**1-Iodododecane**

[4292-19-7]



MW = 296.23

478

**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	$1201.15 \pm 1.00$	1942-aud/gos

**1-Iodohexadecane**

[544-77-4]



MW = 352.34

479

**Table 1.** Coefficients of the polynomial expansion equation. Standard deviations (see introduction):  $\sigma_{\text{c,w}} = 5.6727 \cdot 10^{-1}$  (combined temperature ranges, weighted),  $\sigma_{\text{c,uw}} = 1.8559 \cdot 10^{-1}$  (combined temperature ranges, unweighted).

Coefficient	$T = 291.55 \text{ to } 411.25 \text{ K}$ $\rho = A + BT + CT^2 + DT^3 + \dots$
A	$1.30091 \cdot 10^3$
B	$-3.59827 \cdot 10^{-1}$
C	$-8.07875 \cdot 10^{-4}$

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

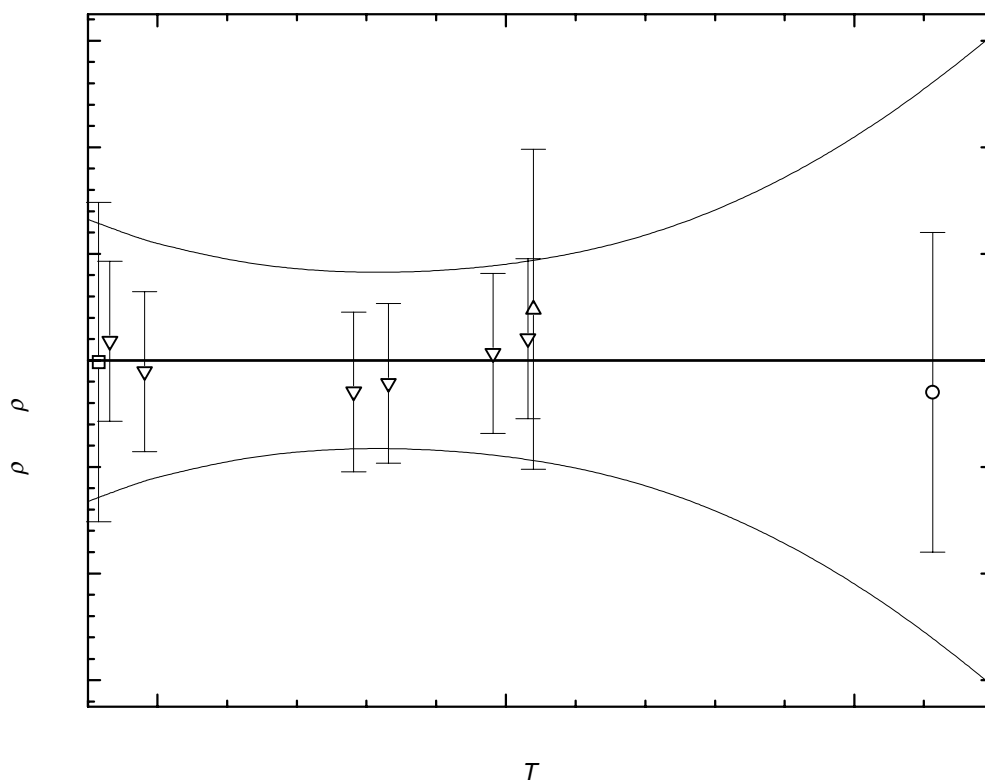
$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{calc}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref. (Symbol in Fig. 1)	$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{calc}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref. (Symbol in Fig. 1)
353.95	$1073.30 \pm 3.00$	0.96	1893-eyk( $\Delta$ )	328.15	$1095.25 \pm 1.50$	-0.59	1931-del(V)
411.25	$1015.70 \pm 3.00$	-0.60	1895-eyk( $\circ$ )	333.15	$1090.94 \pm 1.50$	-0.43	1931-del(V)
291.55	$1127.30 \pm 3.00$	-0.03	1919-eyk( $\square$ )	348.15	$1077.84 \pm 1.50$	0.13	1931-del(V)
293.15	$1126.36 \pm 1.50$	0.36	1931-del(V)	353.15	$1073.49 \pm 1.50$	0.41	1931-del(V)
298.15	$1121.60 \pm 1.50$	-0.21	1931-del(V)				

**Further references:** [1895-eyk, 1911-dob, 1942-aud/gos].**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	$1128.62 \pm 2.65$	330.00	$1094.19 \pm 1.64$	390.00	$1037.70 \pm 3.41$
293.15	$1126.00 \pm 2.49$	340.00	$1085.18 \pm 1.67$	400.00	$1027.72 \pm 4.17$
298.15	$1121.81 \pm 2.26$	350.00	$1076.01 \pm 1.79$	410.00	$1017.58 \pm 5.07$
300.00	$1120.25 \pm 2.19$	360.00	$1066.67 \pm 2.00$	420.00	$1007.27 \pm 6.12$
310.00	$1111.73 \pm 1.88$	370.00	$1057.18 \pm 2.33$		
320.00	$1103.04 \pm 1.70$	380.00	$1047.52 \pm 2.80$		

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.)