

2. Tabulated Data on Density - Phenols

2.1 Phenols, C₆ - C₁₀

Phenol [108-95-2] C₆H₆O MW = 94.11 1

Table 1. Coefficients of the polynomial expansion equation. Standard deviations (see introduction):
 $\sigma_{c,w} = 3.3837 \cdot 10^{-1}$ (combined temperature ranges, weighted), $\sigma_{c,uw} = 6.4099 \cdot 10^{-2}$ (combined temperature ranges, unweighted).

Coefficient	T = 298.00 to 423.15 K $\rho = A + BT + CT^2 + DT^3 + \dots$
A	$1.28717 \cdot 10^3$
B	$-6.01811 \cdot 10^{-1}$
C	$-4.09922 \cdot 10^{-4}$

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)
<i>crystal</i>				370.65	1007.30 ± 0.30	-0.49	1932-ber/vei(◆)
78.15	1211.0 ± 4.0		1930-bil/fis-1	370.65	1007.30 ± 0.30	-0.49	1932-ber/vei(◆)
194.15	1163.0 ± 4.0		1930-bil/fis-1	383.15	996.40 ± 0.30	-0.00	1932-ber/vei(◆)
252.15	1141.0 ± 3.0		1930-bil/fis-1	323.15	1049.90 ± 0.50	0.02	1932-bue/woo ¹⁾
289.15	1123.0 ± 3.0		1930-bil/fis-1	343.15	1032.80 ± 0.50	0.41	1932-bue/woo(×)
298.15	1132.0 ± 3.0		1960-and/bid	363.15	1015.00 ± 0.50	0.44	1932-bue/woo(×)
313.15	1132.0 ± 3.0		1960-col	393.15	988.50 ± 0.50	1.30	1932-bue/woo(×)
<i>liquid</i>				423.15	958.80 ± 0.50	-0.31	1932-bue/woo(×)
313.78	1058.00 ± 1.00	0.03	1901-fri ¹⁾	318.15	1054.43 ± 0.30	0.22	1937-tim/hen(∇)
323.44	1049.70 ± 1.00	0.07	1901-fri ¹⁾	323.15	1050.18 ± 0.30	0.30	1937-tim/hen(∇)
333.63	1040.00 ± 1.00	-0.76	1901-fri ¹⁾	328.15	1046.01 ± 0.30	0.47	1937-tim/hen(∇)
343.76	1032.10 ± 1.00	0.25	1901-fri ¹⁾	301.15	1068.50 ± 0.30	-0.25	1965-bad/gha(□)
353.22	1023.30 ± 1.00	-0.15	1901-fri(×)	303.15	1066.90 ± 0.30	-0.16	1965-bad/gha(□)
313.15	1057.91 ± 0.60	-0.60	1916-mor/egl ¹⁾	305.15	1065.10 ± 0.30	-0.25	1965-bad/gha(□)
318.15	1053.63 ± 0.60	-0.58	1916-mor/egl ¹⁾	307.15	1063.40 ± 0.30	-0.25	1965-bad/gha(□)
323.15	1049.33 ± 0.60	-0.55	1916-mor/egl ¹⁾	309.15	1061.70 ± 0.30	-0.24	1965-bad/gha(□)
328.15	1045.05 ± 0.60	-0.49	1916-mor/egl ¹⁾	311.15	1060.20 ± 0.30	-0.03	1965-bad/gha(□)
333.15	1040.74 ± 0.60	-0.44	1916-mor/egl(×)	313.15	1058.40 ± 0.30	-0.11	1965-bad/gha(□)
339.15	1035.29 ± 0.60	-0.62	1916-mor/egl(×)	315.15	1056.70 ± 0.30	-0.09	1965-bad/gha(□)
350.15	1026.00 ± 0.30	-0.18	1932-ber/vei(◆)	317.15	1054.90 ± 0.30	-0.17	1965-bad/gha(□)
350.65	1026.00 ± 0.30	0.26	1932-ber/vei(◆)	319.15	1053.20 ± 0.30	-0.15	1965-bad/gha(□)

¹⁾ Not included in Fig. 1.

cont.

Phenol (cont.)**Table 2.** (cont.)

$\frac{T}{K}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{calc}}}{\text{kg} \cdot \text{m}^{-3}}$	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)
321.15	1051.50 ± 0.30	-0.12	1965-bad/gha(□)	303.00	1067.60 ± 0.40	0.42	1984-irw/joh(×)
323.15	1049.70 ± 0.30	-0.18	1965-bad/gha(□)	308.00	1063.30 ± 0.40	0.38	1984-irw/joh(×)
325.15	1048.00 ± 0.30	-0.15	1965-bad/gha(□)	313.00	1058.90 ± 0.40	0.26	1984-irw/joh ¹⁾
341.15	1034.20 ± 0.40	0.05	1969-bru/gub(×)	318.00	1054.50 ± 0.40	0.16	1984-irw/joh ¹⁾
323.15	1049.92 ± 0.30	0.04	1975-koh/lie(×)	318.15	1054.20 ± 0.30	-0.01	1989-cep/gon(Δ)
298.00	1072.00 ± 0.40	0.58	1984-irw/joh(×)	318.15	1054.20 ± 0.30	-0.01	1989-cep/gon-1(O)

¹⁾ Not included in Fig. 1.

Further references: [1884-gla, 1888-pin, 1893-eyk, 1896-per, 1898-kah, 1905-bol/guy, 1907-bec-1, 1910-tho, 1911-eis, 1912-blo, 1913-bir/nik, 1913-tho/mus, 1914-wor, 1916-bra, 1917-jae, 1918-daw/mou, 1920-sch, 1921-ken/and, 1927-woo, 1928-ric/rob, 1932-how, 1944-par/wei, 1949-dre/mar, 1953-bru/gay, 1953-kir/oth, 1953-sta/mue, 1954-lut, 1955-ter/geb, 1956-ano-1, 1957-kar, 1958-ano-3, 1961-fri/pic, 1967-sum/tho, 1968-ano, 1981-mis, 1982-gme].

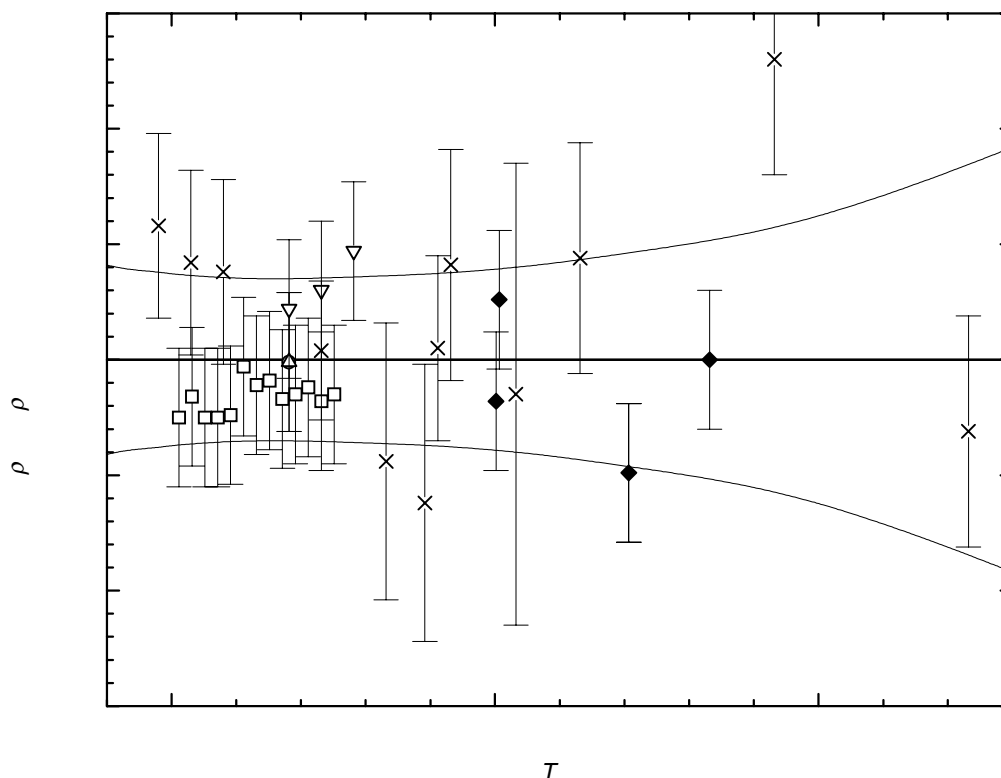


Fig. 1. The symbols show the deviation of the calculated from the experimental values from Table 2. The curves above and below the zero line indicate the calculated error region of the recommended values given in Table 3. The error bars represent the experimental errors. (Error bars smaller than the 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	1078.17 ± 0.41	330.00	1043.93 ± 0.36	390.00	990.11 ± 0.55
293.15	1075.52 ± 0.39	340.00	1035.16 ± 0.37	400.00	980.85 ± 0.62
298.15	1071.30 ± 0.38	350.00	1026.32 ± 0.39	410.00	971.52 ± 0.71
300.00	1069.73 ± 0.37	360.00	1017.39 ± 0.42	420.00	962.10 ± 0.81
310.00	1061.21 ± 0.35	370.00	1008.38 ± 0.46	430.00	952.59 ± 0.92
320.00	1052.61 ± 0.35	380.00	999.29 ± 0.50		

2-Methylphenol

[95-48-7]

C₇H₈O

MW = 108.14

2

Table 1. Coefficients of the polynomial expansion equation. Standard deviations (see introduction): $\sigma_{c,w} = 1.0795$ (combined temperature ranges, weighted), $\sigma_{c,uw} = 1.9557 \cdot 10^{-1}$ (combined temperature ranges, unweighted).

Coefficient	T = 273.15 to 459.25 K $\rho = A + BT + CT^2 + DT^3 + \dots$
A	$1.28704 \cdot 10^3$
B	$-7.60478 \cdot 10^{-1}$
C	$-1.91441 \cdot 10^{-4}$

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)
<i>crystal</i>				351.75	996.40 ± 0.60	0.55	1905-bol/guy(O)
298.15	1135.0 ± 3.0		1960-and/bid	380.75	970.40 ± 0.60	0.67	1905-bol/guy(O)
<i>liquid</i>				423.15	929.60 ± 0.60	-1.36	1905-bol/guy(O)
293.15	1046.50 ± 1.00	-1.15	1884-gla(X)	293.15	1048.20 ± 1.00	0.55	1908-ric/mat-1(X)
338.75	1007.20 ± 1.00	-0.26	1888-pin(X)	318.50	1027.00 ± 1.00	1.59	1910-tho(X)
352.75	995.50 ± 1.00	0.54	1888-pin(X)	273.15	1065.40 ± 0.60	0.37	1916-bra(□)
371.75	979.10 ± 1.00	1.23	1888-pin(X)	293.15	1048.20 ± 1.00	0.55	1912-ric/stu(X)
385.35	967.00 ± 1.00	1.44	1888-pin(X)	283.15	1056.80 ± 0.60	0.44	1916-bra(□)
405.95	948.10 ± 1.00	1.33	1888-pin(X)	293.15	1048.30 ± 0.60	0.65	1916-bra(□)
415.55	939.10 ± 1.00	1.14	1888-pin(X)	303.15	1039.90 ± 0.60	0.99	1916-bra(□)
430.25	925.00 ± 1.00	0.60	1888-pin(X)	313.15	1031.20 ± 0.60	1.08	1916-bra(□)
459.25	896.30 ± 1.00	-1.11	1888-pin(X)	333.15	1013.70 ± 0.60	1.26	1916-bra(□)
298.85	1043.20 ± 0.60	0.53	1905-bol/guy(O)	353.15	996.30 ± 0.00	1.70	1916-bra ¹⁾
314.55	1029.20 ± 0.60	0.31	1905-bol/guy(O)	363.15	983.40 ± 1.00	-2.22	1935-bra/fel(X)
328.15	1017.40 ± 0.60	0.53	1905-bol/guy(O)	314.15	1027.34 ± 0.50	-1.90	1949-dre/mar(X)
329.95	1016.20 ± 0.60	0.92	1905-bol/guy(O)	319.15	1022.98 ± 0.50	-1.85	1949-dre/mar(X)

¹⁾ Not included in Fig. 1.

cont.

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

$\frac{T}{K}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{calc}}}{\text{kg} \cdot \text{m}^{-3}}$	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)
318.15	1024.00 ± 1.00	-1.72	1953-bru/gay(×)	373.15	977.00 ± 0.60	0.39	1953-sta/mue(Δ)
298.15	1046.00 ± 3.00	2.72	1953-sta/mue ¹⁾	423.15	933.20 ± 3.00	2.24	1953-sta/mue ¹⁾
313.15	1028.00 ± 0.60	-2.12	1953-sta/mue(Δ)	293.15	1048.20 ± 0.60	0.55	1955-ter/geb(∇)
323.15	1019.80 ± 0.60	-1.50	1953-sta/mue(Δ)	293.15	1046.50 ± 1.00	-1.15	1956-ano-1(×)
348.15	998.30 ± 0.60	-0.77	1953-sta/mue(Δ)	293.15	1046.60 ± 1.00	-1.05	1957-kar(◆)

¹⁾ Not included in Fig. 1.

Further references: [1893-eyk, 1896-per, 1898-kah, 1917-fox/bar, 1917-jae-1, 1918-daw/mou, 1918-fox/bar, 1921-ken/bea, 1925-per, 1928-ric/rob, 1929-sch, 1943-wei, 1944-par/wei, 1954-lut, 1956-neg/sae].

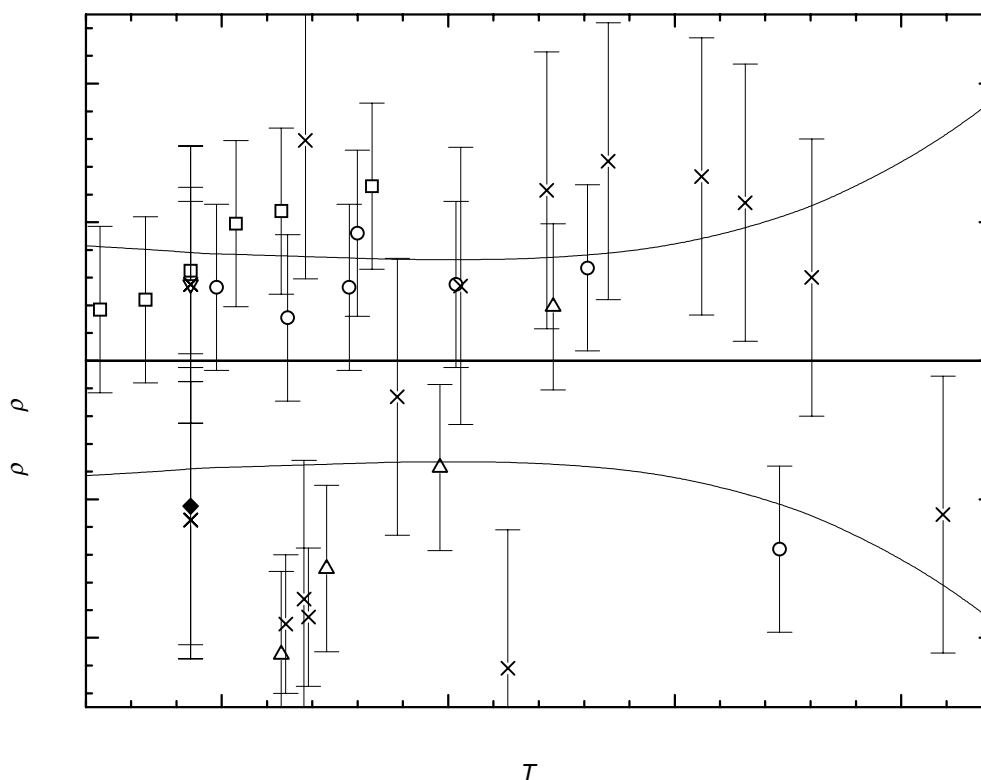


Fig. 1. The symbols show the deviation of the calculated from the experimental values from Table 2. The curves above and below the zero line indicate the calculated error region of the recommended values given in Table 3. The error bars represent the experimental errors. (Error bars smaller than the 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	1067.75 ± 0.83	330.00	1015.23 ± 0.74	410.00	943.06 ± 0.91
280.00	1059.10 ± 0.81	340.00	1006.35 ± 0.73	420.00	933.87 ± 1.00
290.00	1050.40 ± 0.79	350.00	997.42 ± 0.73	430.00	924.64 ± 1.11
293.15	1047.65 ± 0.78	360.00	988.46 ± 0.73	440.00	915.37 ± 1.26
298.15	1043.28 ± 0.77	370.00	979.45 ± 0.74	450.00	906.06 ± 1.43
300.00	1041.67 ± 0.77	380.00	970.41 ± 0.76	460.00	896.71 ± 1.63
310.00	1032.89 ± 0.76	390.00	961.33 ± 0.79	470.00	887.32 ± 1.87
320.00	1024.08 ± 0.75	400.00	952.22 ± 0.84		

3-Methylphenol

[108-39-4]

C₇H₈O

MW = 108.14

3

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

$\sigma_{c,w} = 7.1627 \cdot 10^{-1}$ (combined temperature ranges, weighted), $\sigma_{c,uw} = 1.6007 \cdot 10^{-1}$ (combined temperature ranges, unweighted).

Coefficient	T = 273.15 to 467.25 K $\rho = A + BT + CT^2 + DT^3 + \dots$
A	$1.24098 \cdot 10^3$
B	$-6.13909 \cdot 10^{-1}$
C	$-3.13908 \cdot 10^{-4}$

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)
273.15	1049.70 ± 2.00	-0.17	1888-pin ¹⁾	371.55	970.10 ± 0.70	0.55	1905-bol/guy(X)
338.25	999.20 ± 2.00	1.79	1888-pin ¹⁾	371.85	969.80 ± 0.60	0.50	1905-bol/guy(X)
351.95	988.50 ± 2.00	2.46	1888-pin ¹⁾	424.15	923.10 ± 0.70	-1.02	1905-bol/guy(X)
370.65	972.60 ± 2.00	2.29	1888-pin ¹⁾	426.25	921.10 ± 0.60	-1.17	1905-bol/guy(X)
384.25	962.00 ± 2.00	3.26	1888-pin ¹⁾	282.65	1041.87 ± 0.50	-0.51	1911-sch(X)
404.95	944.00 ± 2.00	3.09	1888-pin(X)	306.25	1023.93 ± 0.50	0.40	1911-sch ¹⁾
414.85	936.00 ± 2.00	3.72	1888-pin ¹⁾	326.95	1007.15 ± 0.50	0.44	1911-sch(X)
429.65	922.70 ± 2.00	3.43	1888-pin ¹⁾	273.15	1049.30 ± 0.50	-0.57	1916-bra(X)
458.35	895.90 ± 2.00	2.25	1888-pin(X)	283.15	1041.30 ± 0.50	-0.69	1916-bra(X)
467.25	887.30 ± 2.00	1.70	1888-pin(X)	293.15	1033.30 ± 0.50	-0.74	1916-bra ¹⁾
282.15	1042.50 ± 0.60	-0.28	1905-bol/guy ¹⁾	303.15	1025.30 ± 0.50	-0.73	1916-bra ¹⁾
287.45	1038.40 ± 0.70	-0.18	1905-bol/guy ¹⁾	313.15	1017.30 ± 0.50	-0.66	1916-bra(X)
327.85	1006.03 ± 0.70	0.06	1905-bol/guy(X)	333.15	1001.50 ± 0.50	-0.12	1916-bra(X)
328.55	1006.00 ± 0.60	0.60	1905-bol/guy(X)	273.15	1049.30 ± 0.50	-0.57	1916-bra-1(X)

¹⁾ Not included in Fig. 1.

cont.

3-Methylphenol (cont.)**Table 2.** (cont.)

$\frac{T}{K}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{calc}}}{\text{kg} \cdot \text{m}^{-3}}$	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)
283.15	1041.30 ± 0.50	-0.69	1916-bra-1(×)	298.15	1030.11 ± 0.30	0.07	1976-sol/kat(□)
293.15	1033.30 ± 0.50	-0.74	1916-bra-1 ¹⁾	298.00	1029.90 ± 0.40	-0.26	1984-irw/joh ¹⁾
303.15	1025.30 ± 0.50	-0.73	1916-bra-1 ¹⁾	303.00	1026.00 ± 0.40	-0.15	1984-irw/joh ¹⁾
363.15	977.10 ± 0.60	0.45	1935-bra/fel(×)	308.00	1022.10 ± 0.40	-0.02	1984-irw/joh(×)
273.15	1049.95 ± 0.30	0.08	1937-tim/hen(Δ)	313.00	1018.10 ± 0.40	0.02	1984-irw/joh(×)
288.15	1038.00 ± 0.30	-0.02	1937-tim/hen(Δ)	318.00	1014.10 ± 0.40	0.08	1984-irw/joh(×)
303.15	1025.95 ± 0.30	-0.08	1937-tim/hen(Δ)	298.15	1027.50 ± 0.40	-2.54	1986-osh/han ¹⁾
293.15	1034.07 ± 0.30	0.03	1960-and/bid(∇)	318.15	1011.50 ± 0.40	-2.40	1986-osh/han(×)
303.15	1026.25 ± 0.30	0.22	1960-and/bid(∇)	358.15	979.50 ± 0.40	-1.35	1986-osh/han(×)
288.15	1038.00 ± 0.60	-0.02	1968-bel/erg ¹⁾	333.15	1002.10 ± 0.50	0.48	1997-cha/lee(×)
323.15	1010.00 ± 0.60	0.18	1968-bel/erg(×)	373.15	968.20 ± 0.50	0.00	1997-cha/lee(×)
363.15	977.00 ± 0.60	0.35	1968-bel/erg(×)	393.15	950.90 ± 0.50	-0.21	1997-cha/lee(×)
288.65	1037.99 ± 0.30	0.36	1968-bru/kai(○)	413.15	932.60 ± 0.50	-1.17	1997-cha/lee(×)

¹⁾ Not included in Fig. 1.

Further references: [1884-gla, 1889-per, 1890-gar, 1893-eyk, 1896-per, 1898-kah, 1902-guy/mal-1, 1907-hew/win, 1908-ric/mat, 1908-tsa, 1910-sch-7, 1910-tho, 1912-ric/stu, 1913-bir/nik, 1914-kre/mei, 1914-kre/mei-1, 1917-fox/bar, 1918-daw/mou, 1918-fox/bar, 1921-ken/bea, 1923-kro-1, 1924-bus, 1924-bus-1, 1925-heb, 1928-ric/rob, 1929-sch, 1931-dar, 1934-car/jon, 1936-roz, 1936-tre/spe, 1943-wei, 1944-par/wei, 1951-tsc/kri, 1953-mul-3, 1953-sta/mue, 1954-lut, 1955-ter/geb, 1956-ano-1, 1956-moo/sty, 1956-neg/sae, 1957-kar, 1964-kat/cha-1, 1968-bor, 1989-cep/gon, 1989-cep/gon-1, 1990-cab/bel].

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	1052.35 ± 0.60	330.00	1004.21 ± 0.50	410.00	936.51 ± 0.82
280.00	1044.48 ± 0.58	340.00	995.97 ± 0.48	420.00	927.77 ± 1.02
290.00	1036.55 ± 0.56	350.00	987.66 ± 0.47	430.00	918.96 ± 1.28
293.15	1034.04 ± 0.55	360.00	979.29 ± 0.46	440.00	910.09 ± 1.59
298.15	1030.04 ± 0.54	370.00	970.86 ± 0.47	450.00	901.16 ± 1.98
300.00	1028.56 ± 0.54	380.00	962.37 ± 0.51	460.00	892.16 ± 2.44
310.00	1020.51 ± 0.52	390.00	953.81 ± 0.57	470.00	883.11 ± 2.98
320.00	1012.39 ± 0.51	400.00	945.20 ± 0.67	480.00	873.98 ± 3.61

cont.

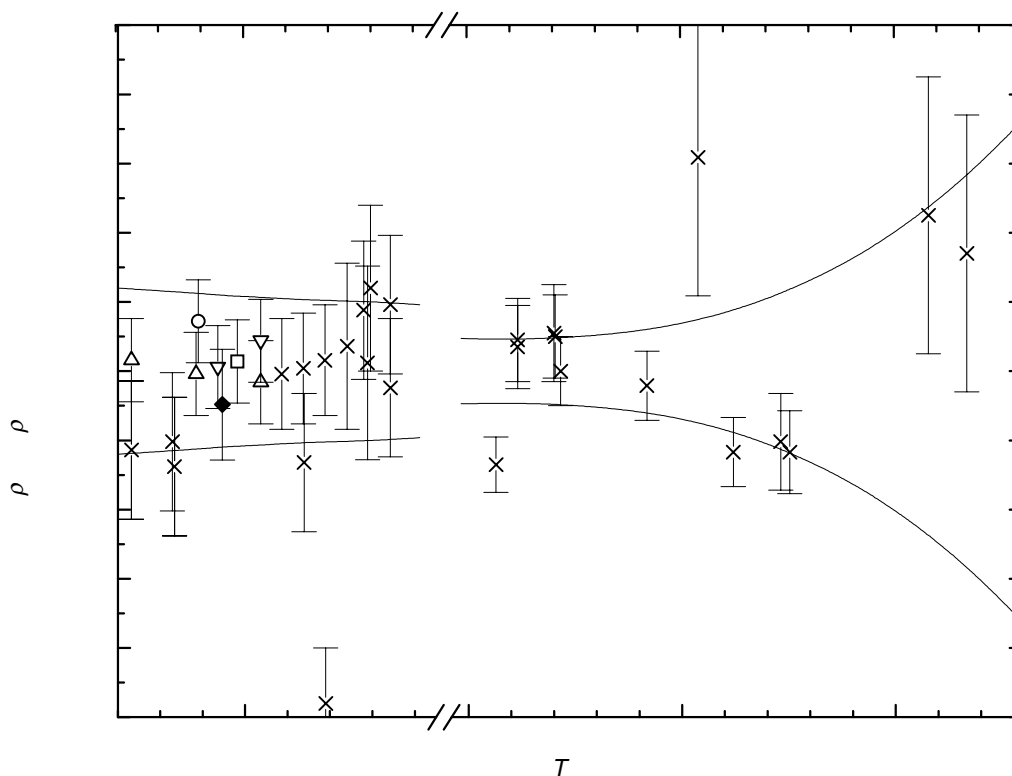


Fig. 1. The symbols show the deviation of the calculated from the experimental values from Table 2. The curves above and below the zero line indicate the calculated error region of the recommended values given in Table 3. The error bars represent the experimental errors. (Error bars smaller than the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

4-Methylphenol

[106-44-5]

C₇H₈O

MW = 108.14

4

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

$\sigma_{c,w} = 5.2481 \cdot 10^{-1}$ (combined temperature ranges, weighted), $\sigma_{c,uw} = 9.8115 \cdot 10^{-2}$ (combined temperature ranges, unweighted).

Coefficient	T = 273.15 to 433.15 K
	$\rho = A + BT + CT^2 + DT^3 + \dots$
A	$1.24073 \cdot 10^3$
B	$-6.33924 \cdot 10^{-1}$
C	$-2.44218 \cdot 10^{-4}$

cont.

4-Methylphenol (cont.)**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)
<i>crystal</i>				383.15	960.40 ± 0.50	-1.59	1916-bra(×)
298.15	1154.0 ± 3.0		1960-and/bid	298.75	1030.00 ± 1.00	0.45	1917-jae-1 ¹⁾
<i>liquid</i>				314.15	1018.00 ± 1.00	0.51	1917-jae-1(×)
338.75	997.80 ± 2.00	-0.17	1888-pin(×)	353.15	986.00 ± 1.00	-0.41	1943-wei(×)
352.45	987.20 ± 2.00	0.23	1888-pin ¹⁾	393.15	954.00 ± 1.00	0.24	1943-wei(×)
371.55	971.90 ± 2.00	0.41	1888-pin(×)	433.15	921.00 ± 1.00	0.67	1943-wei(×)
384.85	960.10 ± 2.00	-0.50	1888-pin(×)	353.15	986.00 ± 1.00	-0.41	1944-par/wei(×)
405.75	942.60 ± 2.00	-0.71	1888-pin(×)	393.15	954.00 ± 1.00	0.24	1944-par/wei(×)
415.35	934.50 ± 2.00	-0.80	1888-pin(×)	433.15	921.00 ± 1.00	0.67	1944-par/wei(×)
429.85	920.80 ± 2.00	-2.32	1888-pin ¹⁾	314.15	1017.88 ± 0.60	0.39	1949-dre/mar(∇)
458.65	894.30 ± 2.00	-4.31	1888-pin ¹⁾	319.15	1014.01 ± 0.60	0.47	1949-dre/mar(∇)
288.15	1038.01 ± 0.60	0.22	1896-per(○)	293.15	1034.70 ± 0.60	0.79	1950-ano-5(□)
293.15	1034.31 ± 0.60	0.40	1896-per(○)	298.15	1029.50 ± 0.60	-0.52	1950-ano-5(□)
298.15	1030.56 ± 0.60	0.54	1896-per(○)	308.15	1022.50 ± 0.60	0.30	1950-ano-5(□)
273.15	1048.70 ± 0.50	-0.66	1916-bra(×)	308.15	1022.50 ± 1.00	0.30	1953-sta/mue(×)
283.15	1041.20 ± 0.50	-0.46	1916-bra(×)	323.15	1010.20 ± 1.00	-0.18	1953-sta/mue(×)
293.15	1033.50 ± 0.50	-0.41	1916-bra(×)	373.15	969.80 ± 1.00	-0.38	1953-sta/mue(×)
303.15	1025.70 ± 0.50	-0.42	1916-bra(×)	423.15	929.20 ± 1.00	0.44	1953-sta/mue(×)
313.15	1017.70 ± 0.50	-0.57	1916-bra(×)	404.15	942.00 ± 2.00	-2.64	1954-lut ¹⁾
333.15	1002.60 ± 0.50	0.16	1916-bra(×)	293.15	1034.00 ± 0.60	0.09	1955-ter/geb(Δ)
353.15	986.80 ± 0.50	0.39	1916-bra(×)	303.15	1027.07 ± 0.80	0.95	1981-mis(◆)

¹⁾ Not included in Fig. 1.

Further references: [1893-eyk, 1908-ric/mat, 1910-tho, 1917-fox/bar, 1918-daw/mou, 1918-fox/bar, 1921-ken/bea, 1928-ric/rob, 1929-sch, 1956-neg/sae, 1957-kar].

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	1051.77 ± 0.85	320.00	1012.87 ± 0.87	390.00	956.36 ± 1.27
280.00	1044.09 ± 0.83	330.00	1004.94 ± 0.91	400.00	948.09 ± 1.34
290.00	1036.36 ± 0.82	340.00	996.97 ± 0.96	410.00	939.77 ± 1.41
293.15	1033.91 ± 0.82	350.00	988.94 ± 1.02	420.00	931.41 ± 1.49
298.15	1030.02 ± 0.82	360.00	980.87 ± 1.08	430.00	922.99 ± 1.58
300.00	1028.58 ± 0.82	370.00	972.75 ± 1.15	440.00	914.53 ± 1.68
310.00	1020.75 ± 0.84	380.00	964.58 ± 1.21		

cont.

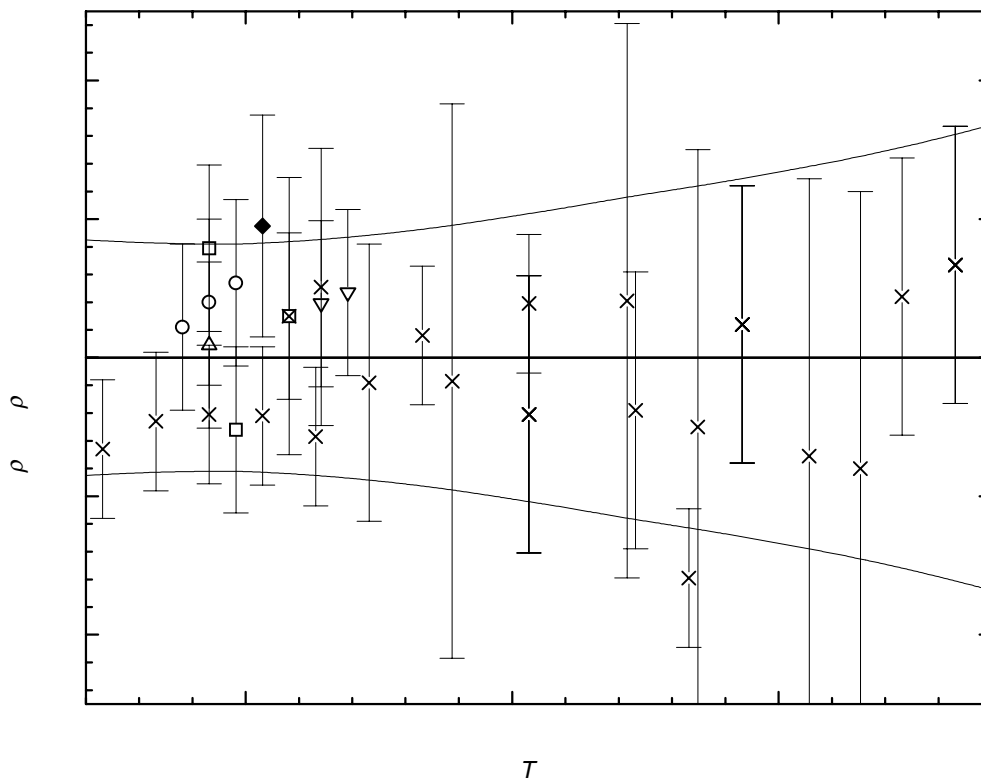


Fig. 1. The symbols show the deviation of the calculated from the experimental values from Table 2. The curves above and below the zero line indicate the calculated error region of the recommended values given in Table 3. The error bars represent the experimental errors. (Error bars smaller than the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

2,3-Dimethylphenol

[526-75-0]

C₈H₁₀O

MW = 122.17

5

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.
<i>crystal</i>		
298.15	1164.0 ± 0.6	1960-and/bid

2,4-Dimethylphenol

[105-67-9]

**MW = 122.17****6****Table 1.** Fit with estimated *B* coefficient for 7 accepted points. Deviation $\sigma_w = 0.334$.

Coefficient	$\rho = A + BT$
<i>A</i>	1263.14
<i>B</i>	-0.830

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.	$\frac{T}{K}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{calc}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
273.15	1036.2 ± 1.0	-0.22	1878-jac-1	273.15	1036.0 ± 1.0	-0.42	1956-ano-21
273.15	1036.2 ± 1.0	-0.22	1927-pal/dub	273.15	1036.0 ± 1.0	-0.42	1957-kar
287.15	1027.6 ± 2.0	2.80	1927-pal/dub ¹⁾	293.15	1020.1 ± 0.6	0.32	1960-and/bid
283.15	983.7 ± 3.0	-44.42	1944-par/wei ¹⁾	303.15	1011.8 ± 0.6	0.31	1960-and/bid
293.15	931.5 ± 3.0	-88.32	1944-par/wei ¹⁾	277.15	1024.9 ± 2.0	-8.20	1961-kar/com ¹⁾
273.15	1036.0 ± 1.0	-0.42	1955-ter/geb				

¹⁾ Not included in calculation of linear coefficients.**Table 3.** Recommended values.

$\frac{T}{K}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$
270.00	1039.0 ± 1.7
280.00	1030.7 ± 0.9
290.00	1022.4 ± 0.7
293.15	1019.8 ± 0.9
298.15	1015.7 ± 1.3
310.00	1005.8 ± 2.4

2,5-Dimethylphenol

[95-87-4]

**MW = 122.17****7****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.
<i>crystal</i>		
298.15	1189.0 ± 3.0	1960-and/bid
<i>liquid</i>		
293.15	1026.0 ± 1.0	1956-ano-21
293.15	1026.0 ± 1.0	1957-kar

3,4-Dimethylphenol**[95-65-8]****C₈H₁₀O****MW = 122.17****8****Table 1.** Coefficients of the polynomial expansion equation. Standard deviations (see introduction):
 $\sigma_{c,w} = 8.7775 \cdot 10^{-1}$ (combined temperature ranges, weighted), $\sigma_{c,uw} = 1.9132 \cdot 10^{-1}$ (combined temperature ranges, unweighted).

Coefficient	T = 290.15 to 448.15 K $\rho = A + BT + CT^2 + DT^3 + \dots$
A	$1.10594 \cdot 10^3$
B	$-1.62667 \cdot 10^{-3}$
C	$-9.86700 \cdot 10^{-4}$

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)
		<i>crystal</i>		373.15	967.00 ± 1.00	-0.94	1953-sta/mue(□)
300.75	1064.0 ± 3.0		1944-par/wei	398.15	948.00 ± 1.00	-0.87	1953-sta/mue(□)
298.15	1138.0 ± 3.0		1960-and/bid	423.15	928.00 ± 1.00	-0.57	1953-sta/mue(□)
		<i>liquid</i>		448.15	908.00 ± 1.00	0.96	1953-sta/mue(□)
290.15	1022.00 ± 2.00	-0.40	1916-smi/bok(×)	353.15	983.00 ± 1.00	0.69	1955-dre(○)
348.15	987.00 ± 2.00	1.23	1916-smi/bok(×)	393.15	952.00 ± 1.00	-0.78	1955-dre(○)
373.15	967.00 ± 2.00	-0.94	1916-smi/bok(×)	433.15	921.00 ± 1.00	0.89	1955-dre(○)
353.15	983.00 ± 1.00	0.69	1944-par/wei(◆)	290.15	1022.00 ± 1.00	-0.40	1955-kru/rae(Δ)
393.15	952.00 ± 1.00	-0.78	1944-par/wei(◆)	290.15	1023.00 ± 1.00	0.60	1955-ter/geb(▽)
433.15	920.00 ± 1.00	-0.11	1944-par/wei(◆)	290.15	1022.00 ± 0.60	-0.40	1956-ano-1(×)
290.15	1022.00 ± 1.00	-0.40	1953-sta/mue(□)	348.15	987.00 ± 0.60	1.23	1956-ano-1(×)
348.15	987.00 ± 1.00	1.23	1953-sta/mue(□)	373.15	967.00 ± 0.60	-0.94	1956-ano-1(×)

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	1022.48 ± 1.83	340.00	991.32 ± 1.30	410.00	939.40 ± 0.98
293.15	1020.66 ± 1.77	350.00	984.50 ± 1.20	420.00	931.20 ± 1.05
298.15	1017.74 ± 1.72	360.00	977.47 ± 1.13	430.00	922.80 ± 1.17
300.00	1016.64 ± 1.70	370.00	970.25 ± 1.07	440.00	914.19 ± 1.35
310.00	1010.61 ± 1.60	380.00	962.84 ± 1.01	450.00	905.40 ± 1.60
320.00	1004.38 ± 1.50	390.00	955.22 ± 0.97	460.00	896.40 ± 1.92
330.00	997.95 ± 1.40	400.00	947.41 ± 0.96		

cont.

3,4-Dimethylphenol (cont.)

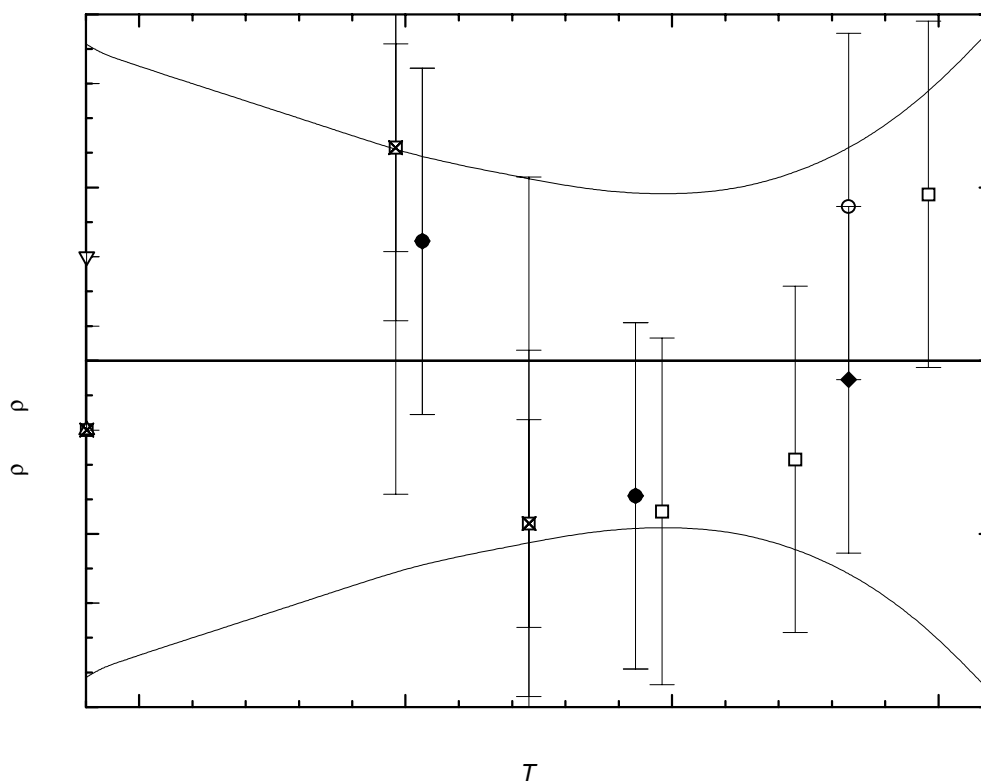


Fig. 1. The symbols show the deviation of the calculated from the experimental values from Table 2. The curves above and below the zero line indicate the calculated error region of the recommended values given in Table 3. The error bars represent the experimental errors. (Error bars smaller than the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

3,5-Dimethylphenol

[108-68-9]

C₈H₁₀O

MW = 122.17

9

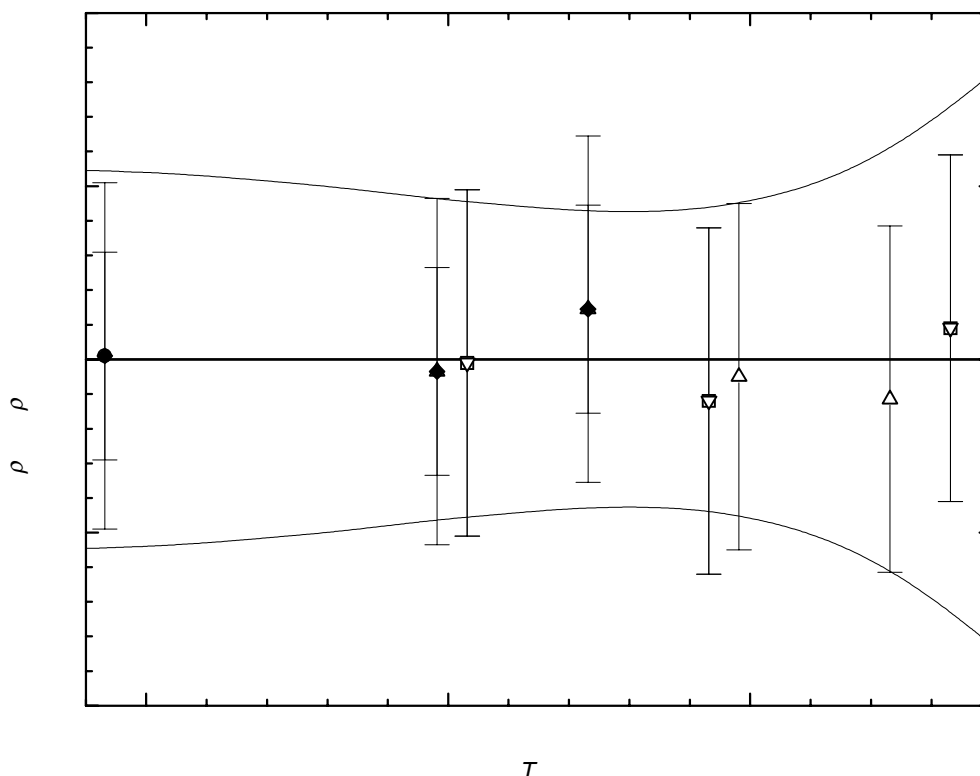
Table 1. Coefficients of the polynomial expansion equation. Standard deviations (see introduction): $\sigma_{c,w} = 1.4815 \cdot 10^{-1}$ (combined temperature ranges, weighted), $\sigma_{c,uw} = 5.0340 \cdot 10^{-2}$ (combined temperature ranges, unweighted).

Coefficient	T = 293.15 to 433.15 K
	$\rho = A + BT + CT^2 + DT^3 + \dots$
A	$1.22948 \cdot 10^3$
B	$-6.69334 \cdot 10^{-1}$
C	$-2.01174 \cdot 10^{-4}$

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)
<i>crystal</i>				398.15	931.00 ± 1.00	-0.10	1953-sta/mue(Δ)
300.75	1008.0 ± 3.0		1944-par/wei	423.15	910.00 ± 1.00	-0.23	1953-sta/mue(Δ)
293.15	1016.0 ± 3.0		1953-sta/mue	448.15	890.00 ± 1.00	0.88	1953-sta/mue ¹⁾
298.15	1115.0 ± 3.0		1960-and/bid	353.15	968.00 ± 1.00	-0.02	1955-dre(□)
<i>liquid</i>				393.15	935.00 ± 1.00	-0.24	1955-dre(□)
353.15	968.00 ± 1.00	-0.02	1944-par/wei(∇)	433.15	902.00 ± 1.00	0.18	1955-dre(□)
393.15	935.00 ± 1.00	-0.24	1944-par/wei(∇)	293.15	1016.00 ± 1.00	0.02	1955-ter/geb(○)
433.15	902.00 ± 1.00	0.18	1944-par/wei(∇)	293.15	1016.00 ± 0.60	0.02	1956-ano-1(◆)
348.15	972.00 ± 1.00	-0.07	1953-sta/mue(Δ)	348.15	972.00 ± 0.60	-0.07	1956-ano-1(◆)
373.15	952.00 ± 1.00	0.29	1953-sta/mue(Δ)	373.15	952.00 ± 0.60	0.29	1956-ano-1(◆)

¹⁾ Not included in Fig. 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.

3,5-Dimethylphenol (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	1018.46 ± 1.09	330.00	986.70 ± 1.00	390.00	937.84 ± 0.86
293.15	1015.98 ± 1.09	340.00	978.65 ± 0.96	400.00	929.56 ± 0.91
298.15	1012.04 ± 1.08	350.00	970.57 ± 0.92	410.00	921.24 ± 1.00
300.00	1010.58 ± 1.08	360.00	962.45 ± 0.89	420.00	912.88 ± 1.15
310.00	1002.66 ± 1.06	370.00	954.29 ± 0.86	430.00	904.47 ± 1.37
320.00	994.70 ± 1.03	380.00	946.09 ± 0.85	440.00	896.03 ± 1.65

2-Ethylphenol**[90-00-6]****C₈H₁₀O****MW = 122.17****10****Table 1.** Fit with estimated *B* coefficient for 4 accepted points. Deviation $\sigma_w = 0.271$.

Coefficient	$\rho = A + BT$
<i>A</i>	1271.08
<i>B</i>	-0.860

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.
273.15	1037.1 ± 2.0	0.93	1894-beh/cho	293.15	1018.9 ± 1.0	-0.12	1963-bid/han
291.15	1037.0 ± 4.0	16.31	1955-ter/geb ¹⁾	298.15	1014.6 ± 1.0	-0.08	1963-bid/han
291.15	1037.0 ± 4.0	16.31	1957-kar ¹⁾	303.15	1010.3 ± 1.0	-0.04	1963-bid/han

¹⁾ Not included in calculation of linear coefficients.**Table 3.** Recommended values.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$
270.00	1038.9 ± 2.7
280.00	1030.3 ± 1.8
290.00	1021.7 ± 1.0
293.15	1019.0 ± 0.9
298.15	1014.7 ± 0.8
310.00	1004.5 ± 1.6

3-Ethylphenol

[620-17-7]

**MW = 122.17****11****Table 1.** Fit with estimated *B* coefficient for 4 accepted points. Deviation $\sigma_w = 0.423$.

Coefficient	$\rho = A + BT$
<i>A</i>	1234.06
<i>B</i>	-0.760

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.	$\frac{T}{K}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{calc}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
273.15	1025.0 ± 2.0	-1.46	1894-beh/cho	293.15	1011.4 ± 1.0	0.17	1963-bid/han
293.15	1025.0 ± 6.0	13.74	1955-jag/kat ¹⁾	303.15	1003.7 ± 1.0	0.08	1963-bid/han
293.15	1025.0 ± 6.0	13.74	1957-kar ¹⁾	298.15	1007.6 ± 1.0	0.12	1963-bid/han

¹⁾ Not included in calculation of linear coefficients.**Table 3.** Recommended values.

$\frac{T}{K}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$
270.00	1028.9 ± 2.8
280.00	1021.3 ± 1.8
290.00	1013.7 ± 1.1
293.15	1011.3 ± 0.9
298.15	1007.5 ± 0.9
310.00	998.5 ± 1.6

4-Ethylphenol

[123-07-9]

**MW = 122.17****12****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.
298.15	1054.0 ± 3.0	1963-bid/han ¹⁾	293.15	1011.0 ± 2.0	1955-ter/geb
293.15	1012.0 ± 2.0	1937-nie/nie	293.15	1012.0 ± 2.0	1957-kar
293.15	1011.0 ± 2.0	1953-sta/mue	293.15	1011.7 ± 2.0	Recommended

¹⁾ Not included in calculation of recommended value.**2-Ethyl-4-methylphenol**

[3855-26-3]

**MW = 136.19****13****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	994.9 ± 2.0	1937-nie/nie

4-Ethyl-2-methylphenol [2219-73-0] C₉H₁₂O MW = 136.19 14

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.
293.15	994.4 ± 2.0	1937-nie/nie
293.15	979.6 ± 3.0	1957-kar ¹⁾
293.15	994.4 ± 2.0	Recommended

¹⁾ Not included in calculation of recommended value.

4-Ethyl-3-methylphenol [1123-94-0] C₉H₁₂O MW = 136.19 15

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	995.6 ± 2.0	1937-nie/nie

5-Ethyl-2-methylphenol [1687-65-6] C₉H₁₂O MW = 136.19 16

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.
288.15	996.7 ± 1.0	1957-kar

2-(1-Methylethyl)phenol [88-69-7] C₉H₁₂O MW = 136.19 17

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	1012.0 ± 2.0	1931-nie/nat	277.15	1012.0 ± 3.0	1957-kar ¹⁾
298.15	992.9 ± 3.0	1933-sow/hin ¹⁾	298.15	990.8 ± 3.0	1967-ber-1 ¹⁾
293.15	1012.0 ± 2.0	1934-smi-1	293.15	1012.7 ± 2.0	1960-she/kus
293.15	1014.2 ± 2.0	1945-tam/tsu	293.15	1012.7 ± 2.0	Recommended

¹⁾ Not included in calculation of recommended value.

3-(1-Methylethyl)phenol [618-45-1] C₉H₁₂O MW = 136.19 18

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.
298.15	984.4 ± 0.5	1967-ber

4-(1-Methylethyl)phenol [99-89-8] C₉H₁₂O MW = 136.19 19

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.
338.15	955.6 ± 3.0	1967-ber-1 ¹⁾
293.15	990.0 ± 4.0	1934 -smi-1 ¹⁾
293.15	1015.7 ± 2.0	1957-kar
293.15	1015.7 ± 2.0	Recommended

¹⁾ Not included in calculation of recommended value.

2-Propylphenol [644-35-9] C₉H₁₂O MW = 136.19 20

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	998.8 ± 3.0	1937-tsu/naz ¹⁾
299.85	1015.0 ± 2.0	1953-sta/mue
299.85	1015.0 ± 2.0	Recommended

¹⁾ Not included in calculation of recommended value.

4-Propylphenol [645-56-7] C₉H₁₂O MW = 136.19 21

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	1009.0 ± 2.0	1953-sta/mue
293.15	1009.0 ± 2.0	1955-ter/geb
293.15	1009.0 ± 2.0	1957-kar
293.15	1009.0 ± 2.0	Recommended

2,3,6-Trimethylphenol [2416-94-6] C₉H₁₂O MW = 136.19 22

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

Coefficient	$\rho = A + BT$
<i>A</i>	1276.63
<i>B</i>	-0.900

cont.

2,3,6-Trimethylphenol (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.
338.15	972.3 ± 0.4	-0.00	1988-bag/gur
343.15	967.8 ± 0.4	-0.00	1988-bag/gur

Table 3. Recommended values.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$
330.00	979.6 ± 0.6
340.00	970.6 ± 0.4
350.00	961.6 ± 0.6

2-Butylphenol

[3180-09-4]

C₁₀H₁₄O

MW = 150.22

23

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.
293.15	975.0 ± 2.0	1928-rea/mul	293.15	975.0 ± 2.0	1953-sta/mue
296.15	977.4 ± 3.0	1930-san/gir ¹⁾	293.15	975.0 ± 2.0	1957-kar
295.15	973.0 ± 3.0	1934-smi-2 ¹⁾	293.15	982.0 ± 3.0	1958-gol/sch ¹⁾
296.15	969.6 ± 3.0	1937-tsu/naz ¹⁾	293.15	975.0 ± 2.0	Recommended

¹⁾ Not included in calculation of recommended value.**3-Butylphenol**

[4074-43-5]

C₁₀H₁₄O

MW = 150.22

24

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	974.0 ± 2.0	1928-rea/mul
293.15	974.0 ± 2.0	1953-sta/mue
293.15	974.0 ± 2.0	1957-kar
293.15	974.0 ± 2.0	Recommended

4-Butylphenol

[1638-22-8]

C₁₀H₁₄O

MW = 150.22

25

Table 1. Fit with estimated B coefficient for 7 accepted points. Deviation $\sigma_w = 0.856$.

Coefficient	$\rho = A + BT$
A	1212.05
B	-0.800

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

T K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ kg · m ⁻³	$\rho_{\text{exp}} - \rho_{\text{calc}}$ kg · m ⁻³	Ref.	T K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ kg · m ⁻³	$\rho_{\text{exp}} - \rho_{\text{calc}}$ kg · m ⁻³	Ref.
293.15	978.0 ± 2.0	0.47	1928-rea/mul	297.15	972.9 ± 2.0	-1.43	1938-tsu/tam
295.15	976.0 ± 2.0	0.07	1934-smi-2	293.15	978.0 ± 2.0	0.47	1953-sta/mue
293.15	976.4 ± 2.0	-1.13	1937-nie/nie	293.15	978.0 ± 2.0	0.47	1957-kar
298.15	974.6 ± 2.0	1.07	1937-tsu/naz				

Table 3. Recommended values.

T K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ kg · m ⁻³
290.00	980.0 ± 2.0
293.15	977.5 ± 2.0
298.15	973.5 ± 2.0

2,4-Diethylphenol

[936-89-0]

C₁₀H₁₄O

MW = 150.22

26

Table 1. Fit with estimated B coefficient for 4 accepted points. Deviation $\sigma_w = 0.083$.

Coefficient	$\rho = A + BT$
A	1238.95
B	-0.880

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

T K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ kg · m ⁻³	$\rho_{\text{exp}} - \rho_{\text{calc}}$ kg · m ⁻³	Ref.
273.15	998.6 ± 2.0	0.02	1927-cop/rei
298.15	976.5 ± 2.0	-0.08	1927-cop/rei
298.15	976.5 ± 2.0	-0.08	1957-kar
293.15	981.1 ± 2.0	0.12	1957-sam/kho

cont.

2,4-Diethylphenol (cont.)**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	1001.3 \pm 2.7
280.00	992.5 \pm 2.1
290.00	983.7 \pm 1.8
293.15	981.0 \pm 1.8
298.15	976.6 \pm 1.9

2-(1,1-Dimethylethyl)phenol

[88-18-6]

C₁₀H₁₄O

MW = 150.22

27

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	978.3 \pm 1.0	1949-har-1
293.15	982.0 \pm 2.0	1957-kol/nap-0
293.15	979.0 \pm 1.7	Recommended

2-Methyl-4-(1-methylethyl)phenol

[1740-97-2]

C₁₀H₁₄O

MW = 150.22

28

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.
298.15	973.6 \pm 2.0	1933-sow/hin

2-Methyl-5-(1-methylethyl)phenol

[499-75-2]

C₁₀H₁₄O

MW = 150.22

29

Table 1. Fit with estimated *B* coefficient for 10 accepted points. Deviation $\sigma_w = 0.497$.

Coefficient	$\rho = A + BT$
<i>A</i>	1225.38
<i>B</i>	-0.850

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.
294.55	975.0 \pm 2.0	-0.01	1893-eyk	278.15	988.7 \pm 1.0	-0.25	1953-sta/mue
288.15	980.0 \pm 2.0	-0.45	1935-gar/pro	283.15	984.6 \pm 1.0	-0.10	1953-sta/mue
293.15	977.2 \pm 2.0	1.00	1939-dzi	288.15	980.2 \pm 1.0	-0.25	1953-sta/mue

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.
293.15	976.1 ± 1.0	-0.10	1953-sta/mue	298.15	975.1 ± 3.0	3.15	1955-car/eas ¹⁾
298.15	971.8 ± 1.0	-0.15	1953-sta/mue	293.15	977.2 ± 1.0	1.00	1957-kar
288.65	979.0 ± 2.0	-1.03	1954-mor				

¹⁾ Not included in calculation of linear coefficients.**Table 3.** Recommended values.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$
270.00	995.9 ± 2.3
280.00	987.4 ± 1.6
290.00	978.9 ± 1.2
293.15	976.2 ± 1.3
298.15	972.0 ± 1.5

2-Methyl-6-(1-methylethyl)phenol

[3228-04-4]

C₁₀H₁₄O

MW = 150.22

30

Table 1. Fit with estimated *B* coefficient for 2 accepted points. Deviation $\sigma_w = 0.130$.

Coefficient	$\rho = A + BT$
<i>A</i>	1217.05
<i>B</i>	-0.800

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.
273.15	998.4 ± 2.0	-0.13	1910-gui
288.35	986.5 ± 2.0	0.13	1910-gui

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	1001.1 ± 2.1
280.00	993.1 ± 1.8
290.00	985.1 ± 2.0

4-Methyl-2-(1-methylethyl)phenol [4427-56-9] C₁₀H₁₄O MW = 150.22 31

Table 1. Fit with estimated B coefficient for 4 accepted points. Deviation $\sigma_w = 0.836$.

Coefficient	$\rho = A + BT$
A	1208.10
B	-0.780

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

T K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ kg · m ⁻³	$\rho_{\text{exp}} - \rho_{\text{calc}}$ kg · m ⁻³	Ref.
273.15	995.4 ± 2.0	0.36	1910-gui
290.95	981.7 ± 2.0	0.54	1910-gui
298.15	974.1 ± 2.0	-1.44	1933-sow/hin
290.95	981.7 ± 2.0	0.54	1957-kar

Table 3. Recommended values.

T K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ kg · m ⁻³
270.00	997.5 ± 2.7
280.00	989.7 ± 2.1
290.00	981.9 ± 2.0
293.15	979.4 ± 2.0
298.15	975.5 ± 2.2

5-Methyl-2-(1-methylethyl)phenol [89-83-8] C₁₀H₁₄O MW = 150 32

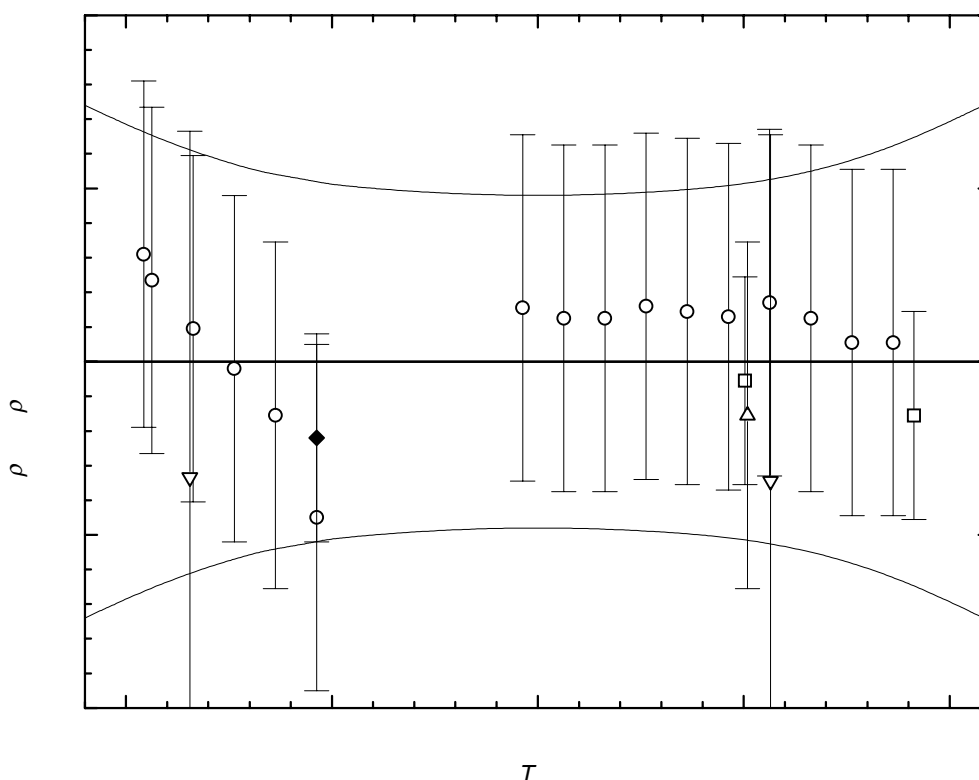
Table 1. Coefficients of the polynomial expansion equation. Standard deviations (see introduction): $\sigma_{c,w} = 3.8402 \cdot 10^{-1}$ (combined temperature ranges, weighted), $\sigma_{c,uw} = 8.9885 \cdot 10^{-2}$ (combined temperature ranges, unweighted).

Coefficient	$T = 277.15 \text{ to } 370.65 \text{ K}$ $\rho = A + BT + CT^2 + DT^3 + \dots$
A	$1.17472 \cdot 10^3$
B	$-5.90955 \cdot 10^{-1}$
C	$-3.17176 \cdot 10^{-4}$

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)
<i>crystal</i>				298.15	969.44 ± 1.00	-0.90	1896-per(O)
293.15	1016.0 ± 3.0		1963-ber/per	328.15	946.90 ± 1.00	0.25	1896-per(O)
<i>liquid</i>				333.15	942.89 ± 1.00	0.25	1896-per(O)
297.55	968.93 ± 1.00	-1.87	1892-per-1 ¹⁾	338.15	938.95 ± 1.00	0.32	1896-per(O)
323.15	950.95 ± 1.00	0.31	1896-per(O)	343.15	934.88 ± 1.00	0.29	1896-per(O)
350.45	928.36 ± 1.00	-0.31	1892-per-1(Δ)	348.15	930.80 ± 1.00	0.26	1896-per(O)
282.75	981.60 ± 2.00	-0.67	1893-eyk(∇)	353.15	926.81 ± 1.00	0.34	1896-per(O)
353.25	925.70 ± 2.00	-0.69	1893-eyk(∇)	358.15	922.64 ± 1.00	0.25	1896-per(O)
277.15	987.20 ± 1.00	0.62	1896-per(O)	363.15	918.40 ± 1.00	0.11	1896-per(O)
278.15	986.28 ± 1.00	0.47	1896-per(O)	368.15	914.29 ± 1.00	0.11	1896-per(O)
283.15	982.16 ± 1.00	0.19	1896-per(O)	350.15	928.80 ± 0.60	-0.11	1932-ber/vei(\square)
288.15	978.07 ± 1.00	-0.04	1896-per(O)	370.65	911.80 ± 0.60	-0.31	1932-ber/vei(\square)
293.15	973.92 ± 1.00	-0.31	1896-per(O)	298.15	969.90 ± 0.60	-0.44	1963-ber/per(\blacklozenge)

¹⁾ Not included in Fig. 1.**Further references:** [1917-jae].**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.

5-Methyl-2-(1-methylethyl)phenol (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	992.04 ± 1.48	300.00	968.89 ± 1.02	350.00	929.04 ± 1.02
280.00	984.39 ± 1.26	310.00	961.05 ± 0.98	360.00	920.87 ± 1.11
290.00	976.67 ± 1.11	320.00	953.14 ± 0.96	370.00	912.65 ± 1.27
293.15	974.23 ± 1.08	330.00	945.17 ± 0.96	380.00	904.36 ± 1.50
298.15	970.34 ± 1.04	340.00	937.13 ± 0.98		

1-(1-Methylpropyl)phenol

[89-72-5]

C₁₀H₁₄O

MW = 150.22

33

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	988.9 ± 2.0	1937-tsu/naz	293.15	975.0 ± 3.0	1953-sta/mue ¹⁾
293.15	987.2 ± 2.0	1950-kuc/tsu	293.15	987.6 ± 2.0	1960-she/kus
298.15	980.4 ± 3.0	1952-haw/cra ¹⁾	293.15	987.9 ± 2.0	Recommended

¹⁾ Not included in calculation of recommended value.**4-(1-Methylpropyl)phenol**

[99-71-8]

C₁₀H₁₄O

MW = 150.22

34

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.
294.15	986.0 ± 3.0	1933-smi ¹⁾	293.15	984.2 ± 2.0	1957-kar
293.15	986.5 ± 2.0	1937-tsu/naz	293.15	978.7 ± 3.0	1960-she/kus ¹⁾
293.15	984.2 ± 2.0	1950-kuc/tsu	293.15	985.0 ± 2.0	Recommended
298.15	969.0 ± 3.0	1953-sta/mue ¹⁾			

¹⁾ Not included in calculation of recommended value.**4-(2-Methylpropyl)phenol**

[4167-74-2]

C₁₀H₁₄O

MW = 150.22

35

Table 1. Fit with estimated *B* coefficient for 3 accepted points. Deviation $\sigma_w = 0.731$.

Coefficient	$\rho = A + BT$
<i>A</i>	1201.71
<i>B</i>	-0.760

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.
386.75	908.1 ± 2.0	0.32	1893-eyk
293.15	979.6 ± 2.0	0.69	1937-nie/nie
293.15	977.9 ± 2.0	-1.01	1953-sta/mue

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	981.3 ± 2.6
293.15	978.9 ± 2.5
298.15	975.1 ± 2.3
310.00	966.1 ± 2.1
320.00	958.5 ± 1.9
330.00	950.9 ± 2.0
340.00	943.3 ± 2.1
350.00	935.7 ± 2.3
360.00	928.1 ± 2.6
370.00	920.5 ± 3.0
380.00	912.9 ± 3.4
390.00	905.3 ± 3.8

2-Methyl-3-propylphenol

[66142-78-7]

C₁₀H₁₄O

MW = 150.22

36

Table 1. Fit with estimated B coefficient for 6 accepted points. Deviation $\sigma_w = 0.051$.

Coefficient	$\rho = A + BT$
A	1196.26
B	-0.750

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.
277.15	988.4 ± 1.0	-0.00	1896-per	288.15	980.1 ± 1.0	-0.08	1896-per
278.15	987.7 ± 1.0	0.03	1896-per	293.15	976.4 ± 1.0	0.02	1896-per
283.15	983.9 ± 1.0	-0.04	1896-per	298.15	972.7 ± 1.0	0.08	1896-per

cont.

2-Methyl-3-propylphenol (cont.)**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	993.8 \pm 1.2
280.00	986.3 \pm 0.9
290.00	978.8 \pm 0.9
293.15	976.4 \pm 1.0
298.15	972.7 \pm 1.1