

3.1.2 Saturated Monoethers, C₇ - C₉

Butyl 1-methylethyl ether

[1860-27-1]

C₇H₁₆O

MW = 116.2

534

Table 1. Fit with estimated *B* coefficient for 3 accepted points. Deviation $\sigma_w = 0.047$.

Coefficient	$\rho = A + BT$
<i>A</i>	1029.18
<i>B</i>	-0.950

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	759.4 ± 2.0	3.97	1931-hen-2 ¹⁾
298.15	754.0 ± 2.0	8.07	1961-how/bro ¹⁾
288.15	755.4 ± 0.5	-0.03	1985-oba/ood
298.15	746.0 ± 0.5	0.07	1985-oba/ood
308.15	736.4 ± 0.5	-0.03	1985-oba/ood

¹⁾ Not included in calculation of linear coefficients.

Table 3. Recommended values.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$
280.00	763.2 ± 0.8
290.00	753.7 ± 0.4
293.15	750.7 ± 0.3
298.15	745.9 ± 0.3
310.00	734.7 ± 0.5

Butyl propyl ether

[3073-92-5]

C₇H₁₆O

MW = 116.2

535

Table 1. Fit with estimated *B* coefficient for 4 accepted points. Deviation $\sigma_w = 0.290$.

Coefficient	$\rho = A + BT$
<i>A</i>	1031.33
<i>B</i>	-0.930

cont.

Butyl propyl ether (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.
298.15	753.1 ± 1.0	-0.95	1950-spu/zei
288.15	763.3 ± 0.5	-0.05	1985-oba/ood
298.15	754.2 ± 0.5	0.15	1985-oba/ood
308.15	744.9 ± 0.5	0.15	1985-oba/ood

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	770.9 ± 1.0
290.00	761.6 ± 0.7
293.15	758.7 ± 0.7
298.15	754.1 ± 0.6
310.00	743.0 ± 0.8

1,1-Dimethylethyl 1-methylethyl ether

[17348-59-3]

C₇H₁₆O

MW = 116.2

536

Table 1. Fit with estimated *B* coefficient for 6 accepted points. Deviation σ_w = 0.210.

Coefficient	$\rho = A + BT$
<i>A</i>	1028.58
<i>B</i>	-0.980

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.
298.15	736.5 ± 0.6	0.11	3219-nor/rig	288.15	746.0 ± 0.5	-0.19	1985-oba/ood
293.15	742.0 ± 1.0	0.71	1936-eva/edl	298.15	736.2 ± 0.5	-0.19	1985-oba/ood
293.15	741.4 ± 0.5	0.11	1947-ols/hip	308.15	726.6 ± 0.5	0.01	1985-oba/ood

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	754.2 ± 0.9
290.00	744.4 ± 0.6
293.15	741.3 ± 0.6
298.15	736.4 ± 0.6
310.00	724.8 ± 0.8

1,1-Dimethylethyl propyl ether

[29072-93-3]

C₇H₁₆O

MW = 116.2

537

Table 1. Fit with estimated *B* coefficient for 4 accepted points. Deviation $\sigma_w = 0.251$.

Coefficient	$\rho = A + BT$
<i>A</i>	1035.89
<i>B</i>	-0.970

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	747.2 ± 0.6	0.51	1932-nor/rig
288.15	756.2 ± 0.5	-0.19	1985-oba/ood
298.15	746.6 ± 0.5	-0.09	1985-oba/ood
308.15	736.9 ± 0.5	-0.09	1985-oba/ood

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	764.3 ± 0.9
290.00	754.6 ± 0.6
293.15	751.5 ± 0.6
298.15	746.7 ± 0.5
310.00	735.2 ± 0.7

1,1-Dimethylpropyl ethyl ether

[919-94-8]

C₇H₁₆O

MW = 116.2

538

Table 1. Fit with estimated *B* coefficient for 5 accepted points. Deviation $\sigma_w = 0.709$.

Coefficient	$\rho = A + BT$
<i>A</i>	1066.77
<i>B</i>	-1.020

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	761.8 ± 0.5	-0.86	1994-ste/chi-2
323.15	737.7 ± 0.5	0.54	1994-ste/chi-2
348.15	712.6 ± 0.5	0.94	1994-ste/chi-2
373.15	686.3 ± 0.5	0.14	1994-ste/chi-2
388.15	670.1 ± 0.5	-0.76	1994-ste/chi-2

cont.

1,1-Dimethylpropyl ethyl ether (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	771.0 ± 1.9	320.00	740.4 ± 1.1	360.00	699.6 ± 0.9
293.15	767.8 ± 1.8	330.00	730.2 ± 1.0	370.00	689.4 ± 1.1
298.15	762.7 ± 1.7	340.00	720.0 ± 0.9	380.00	679.2 ± 1.3
310.00	750.6 ± 1.4	350.00	709.8 ± 0.8	390.00	669.0 ± 1.6

2,2-Dimethylpropyl ethyl ether

[17348-57-1]

C₇H₁₆O

MW = 116.2

539

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	737.0 ± 1.0	1939-whi/wit-1

Ethyl 3-methylbutyl ether

[628-04-6]

C₇H₁₆O

MW = 116.2

540

Table 1. Fit with estimated *B* coefficient for 3 accepted points. Deviation $\sigma_w = 0.082$.

Coefficient	$\rho = A + BT$
<i>A</i>	1032.26
<i>B</i>	-0.940

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	761.3 ± 0.5	-0.10	1985-oba/ood
298.15	752.1 ± 0.5	0.10	1985-oba/ood
308.15	742.6 ± 0.5	0.00	1985-oba/ood

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	769.1 ± 0.7
290.00	759.7 ± 0.5
293.15	756.7 ± 0.5
298.15	752.0 ± 0.5
310.00	740.9 ± 0.6

Ethyl pentyl ether

[17952-11-3]

C₇H₁₆O

MW = 116.2

541

Table 1. Fit with estimated *B* coefficient for 7 accepted points. Deviation $\sigma_w = 0.460$.

Coefficient	$\rho = A + BT$
<i>A</i>	1025.49
<i>B</i>	-0.900

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	762.2 ± 0.6	0.55	1948-vog-8	288.15	765.9 ± 0.5	-0.25	1985-oba/ood
314.55	742.8 ± 0.6	0.41	1948-vog-8	298.15	757.2 ± 0.5	0.05	1985-oba/ood
333.65	726.0 ± 0.8	0.80	1948-vog-8	308.15	747.7 ± 0.5	-0.45	1985-oba/ood
358.65	701.9 ± 0.8	-0.80	1948-vog-8				

Table 3. Recommended values.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$
280.00	773.5 ± 1.3	310.00	746.5 ± 0.7	340.00	719.5 ± 1.5
290.00	764.5 ± 1.0	320.00	737.5 ± 0.9	350.00	710.5 ± 1.9
293.15	761.7 ± 0.9	330.00	728.5 ± 1.2	360.00	701.5 ± 2.2
298.15	757.2 ± 0.8				

Hexyl methyl ether

[4747-07-3]

C₇H₁₆O

MW = 116.2

542

Table 1. Fit with estimated *B* coefficient for 7 accepted points. Deviation $\sigma_w = 0.923$.

Coefficient	$\rho = A + BT$
<i>A</i>	1035.02
<i>B</i>	-0.900

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.
292.15	789.7 ± 2.0	17.62	1928-les ¹⁾	293.15	769.4 ± 2.0	-1.78	1967-tur/por ¹⁾
293.15	772.2 ± 1.0	1.02	1948-vog-8	288.15	774.9 ± 0.5	-0.78	1985-oba/ood
314.75	753.2 ± 1.0	1.46	1948-vog-8	298.15	766.3 ± 0.5	-0.38	1985-oba/ood
334.85	735.6 ± 1.0	1.95	1948-vog-8	308.15	757.3 ± 0.5	-0.38	1985-oba/ood
359.85	712.9 ± 1.0	1.75	1948-vog-8				

¹⁾ Not included in calculation of linear coefficients.

cont.

Hexyl methyl ether (cont.)

Table 3. Recommended values.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$
280.00	783.0 ± 1.5	310.00	756.0 ± 1.1	340.00	729.0 ± 1.8
290.00	774.0 ± 1.2	320.00	747.0 ± 1.2	350.00	720.0 ± 2.1
293.15	771.2 ± 1.2	330.00	738.0 ± 1.5	360.00	711.0 ± 2.4
298.15	766.7 ± 1.1				

1-Methylethyl 1-methylpropyl ether [18641-81-1] C₇H₁₆O MW = 116.2 543

Table 1. Fit with estimated *B* coefficient for 3 accepted points. Deviation σ_w = 0.047.

Coefficient	$\rho = A + BT$
<i>A</i>	1022.78
<i>B</i>	-0.950

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	749.0 ± 0.5	-0.03	1985-oba/ood
298.15	739.6 ± 0.5	0.07	1985-oba/ood
308.15	730.0 ± 0.5	-0.03	1985-oba/ood

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	756.8 ± 0.9
290.00	747.3 ± 0.6
293.15	744.3 ± 0.5
298.15	739.5 ± 0.4
310.00	728.3 ± 0.7

1-Methylethyl 2-methylpropyl ether [78448-33-6] C₇H₁₆O MW = 116.2 544

Table 1. Fit with estimated *B* coefficient for 3 accepted points. Deviation σ_w = 0.047.

Coefficient	$\rho = A + BT$
<i>A</i>	1024.14
<i>B</i>	-0.970

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.
288.15	744.6 ± 0.5	-0.03	1985-oba/ood
298.15	734.9 ± 0.5	-0.03	1985-oba/ood
308.15	725.3 ± 0.5	0.07	1985-oba/ood

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	752.5 ± 0.9
290.00	742.8 ± 0.6
293.15	739.8 ± 0.5
298.15	734.9 ± 0.4
310.00	723.4 ± 0.7

1-Methylpropyl propyl ether

[61962-23-0]

C₇H₁₆O

MW = 116.2

545

Table 1. Fit with estimated *B* coefficient for 3 accepted points. Deviation σ_w = 0.047.

Coefficient	$\rho = A + BT$
<i>A</i>	1030.29
<i>B</i>	-0.940

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	759.4 ± 0.5	-0.03	1985-oba/ood
298.15	750.1 ± 0.5	0.07	1985-oba/ood
308.15	740.6 ± 0.5	-0.03	1985-oba/ood

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	767.1 ± 0.9
290.00	757.7 ± 0.6
293.15	754.7 ± 0.5
298.15	750.0 ± 0.4
310.00	738.9 ± 0.7

2-Methylpropyl propyl ether

[15268-49-2]

C₇H₁₆O

MW = 116.2

546

Table 1. Fit with estimated *B* coefficient for 3 accepted points. Deviation σ_w = 0.094.

Coefficient	$\rho = A + BT$
<i>A</i>	1027.18
<i>B</i>	-0.950

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	753.3 ± 0.5	-0.13	1985-oba/ood
298.15	744.0 ± 0.5	0.07	1985-oba/ood
308.15	734.5 ± 0.5	0.07	1985-oba/ood

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	761.2 ± 0.9
290.00	751.7 ± 0.6
293.15	748.7 ± 0.5
298.15	743.9 ± 0.5
310.00	732.7 ± 0.7

Bis(1,1-dimethylethyl) ether

[6163-66-2]

C₈H₁₈O

MW = 130.23

547

Table 1. Fit with estimated *B* coefficient for 5 accepted points. Deviation σ_w = 0.057.

Coefficient	$\rho = A + BT$
<i>A</i>	1029.06
<i>B</i>	-0.910

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	765.8 ± 2.0	3.51	1941-eri/ash ¹⁾	288.15	766.9 ± 0.5	0.06	1985-oba/ood
298.15	760.4 ± 2.0	2.66	1953-gal/wol ¹⁾	298.15	757.8 ± 0.5	0.06	1985-oba/ood
293.15	762.2 ± 0.6	-0.09	1961-smu/bon	308.15	748.7 ± 0.5	0.06	1985-oba/ood
293.15	766.0 ± 2.0	3.71	1968-vor/zha ¹⁾	298.15	757.7 ± 0.3	-0.04	1996-ste/chi-1
293.15	764.2 ± 2.0	1.91	1980-nav/zil ¹⁾				

¹⁾ Not included in calculation of linear coefficients.

cont.

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	774.3 ± 0.7
290.00	765.2 ± 0.4
293.15	762.3 ± 0.3
298.15	757.7 ± 0.2
310.00	747.0 ± 0.6

Bis(1-methylpropyl) ether

[6863-58-7]

C₈H₁₈O

MW = 130.23

548

Table 1. Fit with estimated *B* coefficient for 4 accepted points. Deviation $\sigma_{\text{w}} = 0.173$.

Coefficient	$\rho = A + BT$
<i>A</i>	1027.09
<i>B</i>	-0.900

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.
294.15	756.0 ± 2.0	-6.36	1875-kes ¹⁾	288.15	767.5 ± 0.5	-0.26	1985-oba/ood
290.15	761.0 ± 2.0	-4.96	1924-sen ¹⁾	298.15	758.8 ± 0.5	0.04	1985-oba/ood
298.15	759.0 ± 0.6	0.24	1935-dra/vei	308.15	749.8 ± 0.5	0.04	1985-oba/ood

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	775.1 ± 0.8
290.00	766.1 ± 0.5
293.15	763.3 ± 0.4
298.15	758.8 ± 0.4
310.00	748.1 ± 0.6

Bis(2-methylpropyl) ether

[628-55-7]

C₈H₁₈O

MW = 130.23

549

Table 1. Fit with estimated *B* coefficient for 3 accepted points. Deviation $\sigma_{\text{w}} = 0.047$.

Coefficient	$\rho = A + BT$
<i>A</i>	1013.47
<i>B</i>	-0.900

cont.

Bis(2-methylpropyl) ether (cont.)

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.
288.15	754.1 ± 0.5	-0.03	1985-oba/ood
298.15	745.2 ± 0.5	0.07	1985-oba/ood
308.15	736.1 ± 0.5	-0.03	1985-oba/ood

Table 3. Recommended values.

T K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ kg · m ⁻³
280.00	761.5 ± 0.9
290.00	752.5 ± 0.6
293.15	749.6 ± 0.5
298.15	745.1 ± 0.4
310.00	734.5 ± 0.7

Butyl 1,1-dimethylethyl ether

[1000-63-1]

C₈H₁₈O

MW = 130.23

550

Table 1. Fit with estimated *B* coefficient for 4 accepted points. Deviation $\sigma_w = 0.069$.

Coefficient	$\rho = A + BT$
<i>A</i>	1026.48
<i>B</i>	-0.900

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.
298.15	758.0 ± 0.8	-0.15	1932-nor/rig
288.15	767.2 ± 0.5	0.05	1985-oba/ood
298.15	758.1 ± 0.5	-0.05	1985-oba/ood
308.15	749.2 ± 0.5	0.05	1985-oba/ood

Table 3. Recommended values.

T K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ kg · m ⁻³
280.00	774.5 ± 0.9
290.00	765.5 ± 0.6
293.15	762.6 ± 0.6
298.15	758.1 ± 0.5
310.00	747.5 ± 0.7

Butyl 1-methylpropyl ether

[999-65-5]

C₈H₁₈O

MW = 130.23

551

Table 1. Fit with estimated *B* coefficient for 3 accepted points. Deviation $\sigma_w = 0.082$.

Coefficient	$\rho = A + BT$
<i>A</i>	1017.51
<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.
288.15	769.6 ± 0.5	-0.10	1985-oba/ood
298.15	761.1 ± 0.5	0.00	1985-oba/ood
308.15	752.6 ± 0.5	0.10	1985-oba/ood

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	776.7 ± 0.9
290.00	768.1 ± 0.6
293.15	765.4 ± 0.5
298.15	761.1 ± 0.5
310.00	750.9 ± 0.7

Butyl 2-methylpropyl ether

[17071-47-5]

C₈H₁₈O

MW = 130.23

552

Table 1. Fit with estimated *B* coefficient for 3 accepted points. Deviation $\sigma_w = 0.125$.

Coefficient	$\rho = A + BT$
<i>A</i>	1023.50
<i>B</i>	-0.900

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	764.0 ± 0.5	-0.17	1985-oba/ood
298.15	755.2 ± 0.5	0.03	1985-oba/ood
308.15	746.3 ± 0.5	0.13	1985-oba/ood

cont.

Butyl 2-methylpropyl ether (cont.)

Table 3. Recommended values.

T K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ kg · m ⁻³
280.00	771.5 ± 0.9
290.00	762.5 ± 0.6
293.15	759.7 ± 0.5
298.15	755.2 ± 0.5
310.00	744.5 ± 0.7

Dibutyl ether

[142-96-1]

C₈H₁₈O

MW = 130.23

553

Table 1. Coefficients of the polynomial expansion equation. Standard deviations (see introduction): $\sigma_{\text{c,w}} = 9.3162 \cdot 10^{-1}$ (combined temperature ranges, weighted), $\sigma_{\text{c,uw}} = 1.9818 \cdot 10^{-1}$ (combined temperature ranges, unweighted).

Coefficient	T = 273.15 to 384.05 K $\rho = A + BT + CT^2 + DT^3 + \dots$
A	$1.01110 \cdot 10^3$
B	$-7.99136 \cdot 10^{-1}$
C	$-9.90275 \cdot 10^{-5}$

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

T K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ kg · m ⁻³	$\rho_{\text{exp}} - \rho_{\text{cal}}$ kg · m ⁻³	Ref. (Symbol in Fig. 1)	T K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ kg · m ⁻³	$\rho_{\text{exp}} - \rho_{\text{calc}}$ kg · m ⁻³	Ref. (Symbol in Fig. 1)
273.15	786.50 ± 1.00	1.08	1888-dob(×)	293.15	770.40 ± 0.60	2.08	1948-vog-8 ¹⁾
294.05	769.20 ± 1.00	1.65	1888-dob ¹⁾	313.95	751.20 ± 0.60	0.75	1948-vog-8 ¹⁾
315.35	751.10 ± 1.00	1.86	1888-dob ¹⁾	333.35	734.20 ± 0.80	0.50	1948-vog-8(×)
338.35	731.30 ± 1.00	1.93	1888-dob(×)	358.85	711.70 ± 0.80	0.13	1948-vog-8(×)
351.55	719.40 ± 1.00	1.48	1888-dob(×)	298.15	763.74 ± 0.20	-0.29	1972-mar/mur(∇)
370.55	702.20 ± 1.00	0.82	1888-dob(×)	288.15	772.50 ± 0.30	-0.10	1985-oba/ood(◆)
384.05	689.60 ± 1.00	0.02	1888-dob(×)	298.15	764.20 ± 0.30	0.17	1985-oba/ood ¹⁾
273.15	785.36 ± 0.50	-0.06	1930-tim/hen(×)	308.15	755.10 ± 0.30	-0.34	1985-oba/ood(◆)
288.15	772.54 ± 0.50	-0.06	1930-tim/hen(×)	298.15	764.25 ± 0.20	0.22	1986-pau/kru(○)
303.15	759.76 ± 0.50	0.02	1930-tim/hen ¹⁾	303.15	760.00 ± 0.40	0.26	1992-lee/wei ¹⁾
273.15	784.23 ± 0.60	-1.19	1932-bin/spo(×)	313.15	752.20 ± 0.40	1.07	1992-lee/wei(×)
283.15	775.55 ± 0.60	-1.33	1932-bin/spo(×)	323.15	743.20 ± 0.40	0.69	1992-lee/wei(×)
293.15	768.39 ± 0.60	0.07	1932-bin/spo ¹⁾	298.15	764.10 ± 0.20	0.07	1994-ben/car(Δ)
303.15	758.55 ± 0.60	-1.19	1932-bin/spo ¹⁾	293.15	768.38 ± 0.20	0.06	1994-sen(□)
313.15	749.93 ± 0.60	-1.20	1932-bin/spo ¹⁾	298.15	764.06 ± 0.20	0.03	1994-sen(□)
333.15	732.03 ± 0.60	-1.84	1932-bin/spo(×)	303.15	759.76 ± 0.20	0.02	1994-sen(□)
353.15	714.08 ± 0.60	-2.45	1932-bin/spo(×)	313.15	750.94 ± 0.20	-0.19	1994-sen(□)
373.15	695.18 ± 0.60	-3.93	1932-bin/spo ¹⁾	328.15	737.95 ± 0.20	-0.25	1994-sen(□)

¹⁾ Not included in Fig. 1.

cont.

Further references: [1873-lie/ros, 1888-dob-1, 1923-pop, 1928-ben/phi-1, 1942-sny/gil, 1948-laz, 1949-dre/mar, 1950-spu/zei, 1951-kus/koi-1, 1953-ano-5, 1954-fri/pic, 1957-new, 1958-ano-3, 1959-gra/cla, 1959-pap/pag, 1961-ano-1, 1967-kar/bys, 1968-ano, 1969-cid/pol, 1972-mar/rat, 1990-bar/paz, 1992-acr/ten-1, 1992-acr/ten-5, 1992-acr/ten-6, 1992-acr/ten-7, 1992-acr/ten-8].

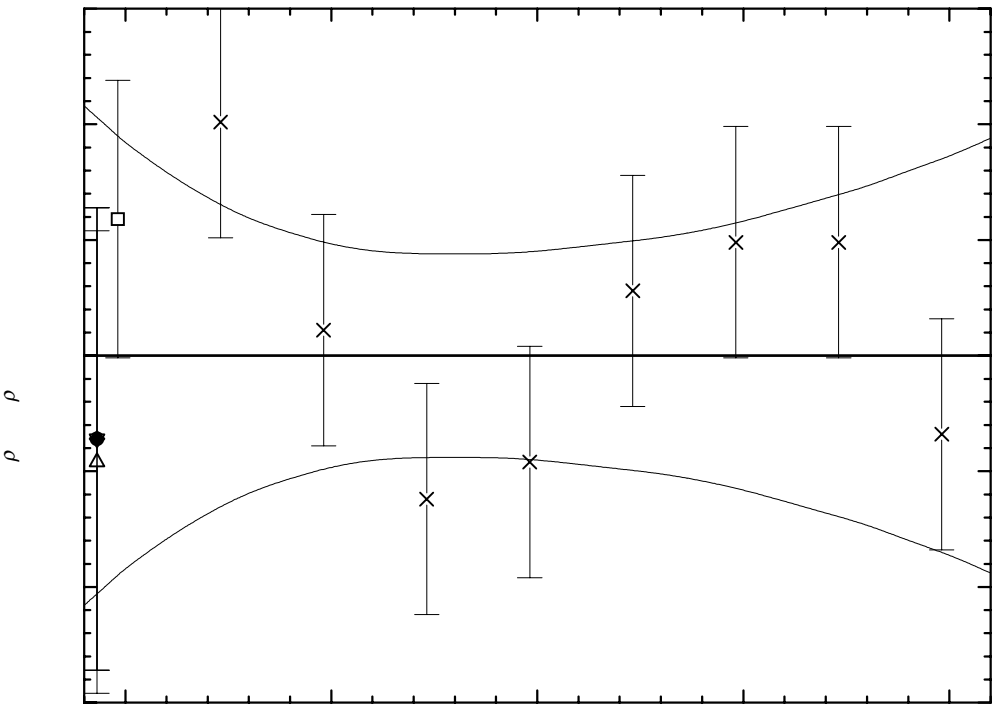


Fig. 1. The symbols show the deviation of the calculated from the experimental values from Table 2. The curves above and below the zero line indicate the calculated error region of the recommended values given in Table 3. The error bars represent the experimental errors. (Error bars smaller than the 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	788.11 ± 0.83	300.00	762.44 ± 0.30	350.00	719.27 ± 0.77
280.00	779.57 ± 0.56	310.00	753.85 ± 0.29	360.00	710.57 ± 0.98
290.00	771.02 ± 0.38	320.00	745.23 ± 0.34	370.00	701.86 ± 1.21
293.15	768.32 ± 0.35	330.00	736.60 ± 0.44	380.00	693.12 ± 1.45
298.15	764.03 ± 0.31	340.00	727.94 ± 0.59	390.00	684.37 ± 1.70

1,1-Dimethylethyl 1-methylpropyl ether

[32970-45-9]

C₈H₁₈O

MW = 130.23

554

Table 1. Fit with estimated *B* coefficient for 3 accepted points. Deviation $\sigma_w = 0.216$.

Coefficient	$\rho = A + BT$
<i>A</i>	1040.24
<i>B</i>	-0.950

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	766.2 ± 0.5	-0.30	1985-oba/ood
298.15	757.1 ± 0.5	0.10	1985-oba/ood
308.15	747.7 ± 0.5	0.20	1985-oba/ood

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	774.2 ± 0.9
290.00	764.7 ± 0.6
293.15	761.8 ± 0.5
298.15	757.0 ± 0.5
310.00	745.7 ± 0.7

1,1-Dimethylethyl 2-methylpropyl ether

[33021-02-2]

C₈H₁₈O

MW = 130.23

555

Table 1. Fit with estimated *B* coefficient for 4 accepted points. Deviation $\sigma_w = 0.532$.

Coefficient	$\rho = A + BT$
<i>A</i>	1043.06
<i>B</i>	-0.990

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

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{calc}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
293.15	751.6 ± 1.0	-1.25	1936-eva/edl
293.15	755.0 ± 2.0	2.15	1957-dan/ger ¹⁾
288.15	757.4 ± 0.5	-0.40	1985-oba/ood
298.15	748.0 ± 0.5	0.10	1985-oba/ood
308.15	738.6 ± 0.5	0.60	1985-oba/ood

¹⁾ Not included in calculation of linear coefficients.

cont.

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	765.9 ± 1.0
290.00	756.0 ± 0.8
293.15	752.8 ± 0.7
298.15	747.9 ± 0.7
310.00	736.2 ± 0.9

Ethyl hexyl ether

[5756-43-4]

C₈H₁₈O

MW = 130.23

556

Table 1. Fit with estimated *B* coefficient for 7 accepted points. Deviation $\sigma_{\text{w}} = 0.501$.

Coefficient	$\rho = A + BT$
<i>A</i>	1027.88
<i>B</i>	-0.870

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	772.2 ± 0.6	-0.63	1948-vog-8	288.15	777.7 ± 0.5	0.52	1985-oba/ood
314.35	754.1 ± 0.6	-0.29	1948-vog-8	298.15	768.2 ± 0.5	-0.28	1985-oba/ood
334.25	737.3 ± 0.8	0.22	1948-vog-8	308.15	760.4 ± 0.5	0.62	1985-oba/ood
360.15	713.8 ± 0.8	-0.74	1948-vog-8				

Table 3. Recommended values.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$
280.00	784.3 ± 1.3	310.00	758.2 ± 0.8	350.00	723.4 ± 1.9
290.00	775.6 ± 1.0	320.00	749.5 ± 0.9	360.00	714.7 ± 2.2
293.15	772.8 ± 0.9	330.00	740.8 ± 1.2	370.00	706.0 ± 2.6
298.15	768.5 ± 0.8	340.00	732.1 ± 1.5		

Ethyl 1-methylpentyl ether

[25246-72-4]

C₈H₁₈O

MW = 130.23

557

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	770.0 ± 1.0	1958-sho/kul

Heptyl methyl ether

[629-32-3]

C₈H₁₈O

MW = 130.23

558

Table 1. Coefficients of the polynomial expansion equation. Standard deviations (see introduction): $\sigma_{c,w} = 3.6781 \cdot 10^{-1}$ (combined temperature ranges, weighted), $\sigma_{c,uw} = 1.1559 \cdot 10^{-1}$ (combined temperature ranges, unweighted).

Coefficient	T = 273.15 to 315.05 K $\rho = A + BT + CT^2 + DT^3 + \dots$
A	$1.01860 \cdot 10^{-3}$
B	$-8.15602 \cdot 10^{-1}$

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

$\frac{T}{K}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{calc}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref. (Symbol in Fig. 1)	$\frac{T}{K}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{calc}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref. (Symbol in Fig. 1)
273.15	795.20 ± 1.00	-0.62	1888-dob(Δ)	273.15	795.30 ± 1.00	-0.52	1888-dob-1(\bigcirc)
286.25	785.20 ± 1.00	0.06	1888-dob(Δ)	293.15	779.70 ± 0.60	0.19	1973-mir/tsv(\square)
297.05	776.90 ± 1.00	0.57	1888-dob(Δ)	288.15	783.80 ± 0.40	0.21	1985-oba/ood(∇)
305.25	769.80 ± 1.00	0.16	1888-dob(Δ)	298.15	775.60 ± 0.40	0.17	1985-oba/ood(∇)
315.05	761.70 ± 1.00	0.05	1888-dob(Δ)	308.15	767.00 ± 0.40	-0.28	1985-oba/ood(∇)

¹⁾ Not included in Fig. 1.

Further references: [1937-rog/dvo-1].

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	798.39 ± 1.24	293.15	779.51 ± 0.63	310.00	765.77 ± 0.90
280.00	790.23 ± 0.85	298.15	775.43 ± 0.65	320.00	757.61 ± 1.30
290.00	782.08 ± 0.65	300.00	773.92 ± 0.67	330.00	749.45 ± 1.88

cont.

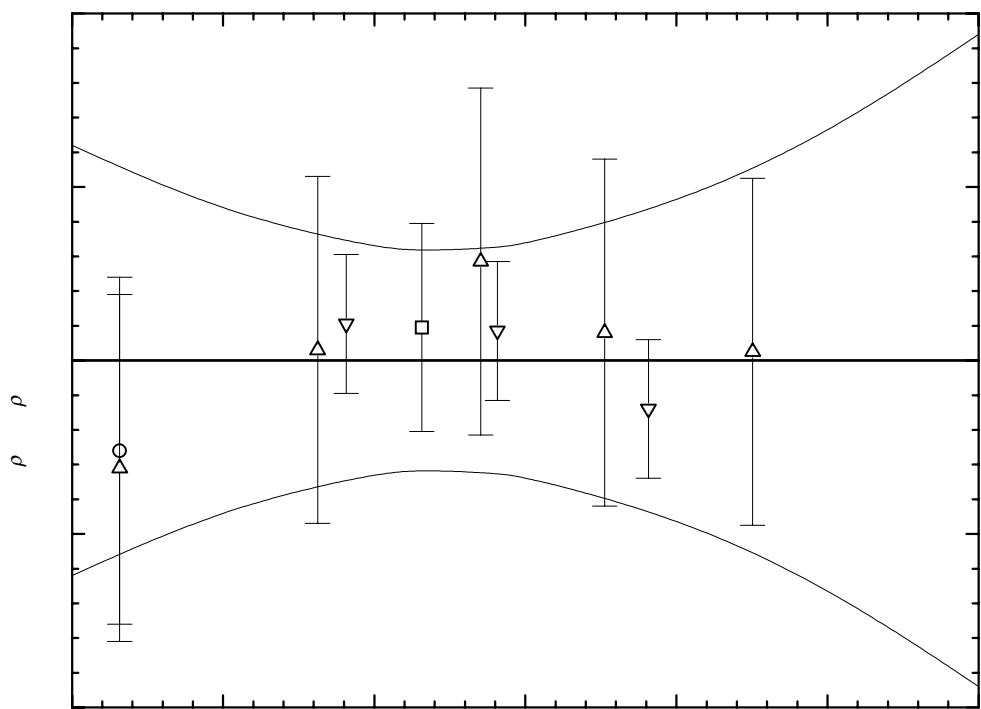


Fig. 1. The symbols show the deviation of the calculated from the experimental values from Table 2. The curves above and below the zero line indicate the calculated error region of the recommended values given in Table 3. The error bars represent the experimental errors. (Error bars smaller than the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

3-Methylbutyl 1-methylethyl ether [92096-99-6] C₈H₁₈O MW = 130.23 559

Table 1. Fit with estimated *B* coefficient for 3 accepted points. Deviation $\sigma_w = 0.082$.

Coefficient	$\rho = A + BT$
<i>A</i>	1025.72
<i>B</i>	-0.910

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.
288.15	763.4 ± 0.5	-0.10	1985-oba/ood
298.15	754.5 ± 0.5	0.10	1985-oba/ood
308.15	745.3 ± 0.5	-0.00	1985-oba/ood

cont.

3-Methylbutyl 1-methylethyl ether (cont.)

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	770.9 ± 0.9
290.00	761.8 ± 0.6
293.15	759.0 ± 0.5
298.15	754.4 ± 0.5
310.00	743.6 ± 0.7

3-Methylbutyl propyl ether

[17071-48-6]

C₈H₁₈O

MW = 130.23

560

Table 1. Fit with estimated *B* coefficient for 3 accepted points. Deviation σ_w = 0.141.

Coefficient	$\rho = A + BT$
<i>A</i>	1025.35
<i>B</i>	-0.890

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	768.7 ± 0.5	-0.20	1985-oba/ood
298.15	760.1 ± 0.5	0.10	1985-oba/ood
308.15	751.2 ± 0.5	0.10	1985-oba/ood

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	776.2 ± 1.0
290.00	767.3 ± 0.6
293.15	764.4 ± 0.5
298.15	760.0 ± 0.5
310.00	749.5 ± 0.8

1-Methylethyl pentyl ether

[5756-37-6]

C₈H₁₈O

MW = 130.23

561

Table 1. Fit with estimated *B* coefficient for 3 accepted points. Deviation σ_w = 0.216.

Coefficient	$\rho = A + BT$
<i>A</i>	1021.87
<i>B</i>	-0.880

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.
288.15	768.1 ± 0.5	-0.20	1985-oba/ood
298.15	759.8 ± 0.5	0.30	1985-oba/ood
308.15	750.6 ± 0.5	-0.10	1985-oba/ood

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	775.5 ± 0.9
290.00	766.7 ± 0.6
293.15	763.9 ± 0.5
298.15	759.5 ± 0.5
310.00	749.1 ± 0.7

1-Methylpropyl 2-methylpropyl ether [92097-00-2] C₈H₁₈O MW = 130.23 562

Table 1. Fit with estimated *B* coefficient for 3 accepted points. Deviation σ_w = 0.047.

Coefficient	$\rho = A + BT$
<i>A</i>	1019.17
<i>B</i>	-0.900

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	759.8 ± 0.5	-0.03	1985-oba/ood
298.15	750.8 ± 0.5	-0.03	1985-oba/ood
308.15	741.9 ± 0.5	0.07	1985-oba/ood

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	767.2 ± 0.9
290.00	758.2 ± 0.6
293.15	755.3 ± 0.5
298.15	750.8 ± 0.4
310.00	740.2 ± 0.7

Pentyl propyl ether

[18641-82-2]

C₈H₁₈O

MW = 130.23

563

Table 1. Fit with estimated *B* coefficient for 3 accepted points. Deviation $\sigma_w = 0.141$.

Coefficient	$\rho = A + BT$
<i>A</i>	1033.44
<i>B</i>	-0.900

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	774.0 ± 0.5	-0.10	1985-oba/ood
298.15	765.3 ± 0.5	0.20	1985-oba/ood
308.15	756.0 ± 0.5	-0.10	1985-oba/ood

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	781.4 ± 0.9
290.00	772.4 ± 0.6
293.15	769.6 ± 0.5
298.15	765.1 ± 0.5
310.00	754.4 ± 0.7

Butyl 3-methylbutyl ether

[17071-52-2]

C₉H₂₀O

MW = 144.26

564

Table 1. Fit with estimated *B* coefficient for 3 accepted points. Deviation $\sigma_w = 0.047$.

Coefficient	$\rho = A + BT$
<i>A</i>	1012.12
<i>B</i>	-0.820

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	775.8 ± 0.5	-0.03	1985-oba/ood
298.15	767.6 ± 0.5	-0.03	1985-oba/ood
308.15	759.5 ± 0.5	0.07	1985-oba/ood

cont.

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	782.5 ± 0.9
290.00	774.3 ± 0.6
293.15	771.7 ± 0.5
298.15	767.6 ± 0.4
310.00	757.9 ± 0.7

Butyl pentyl ether

[18636-66-3]

C₉H₂₀O

MW = 144.26

565

Table 1. Fit with estimated *B* coefficient for 3 accepted points. Deviation $\sigma_{\text{w}} = 0.309$.

Coefficient	$\rho = A + BT$
<i>A</i>	1022.71
<i>B</i>	-0.840

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	780.4 ± 0.5	-0.27	1985-oba/ood
298.15	772.7 ± 0.5	0.43	1985-oba/ood
308.15	763.7 ± 0.5	-0.17	1985-oba/ood

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	787.5 ± 0.9
290.00	779.1 ± 0.6
293.15	776.5 ± 0.6
298.15	772.3 ± 0.5
310.00	762.3 ± 0.7

1,1-Dimethylethyl 3-methylbutyl ether

[92097-05-7]

C₉H₂₀O

MW = 144.26

566

Table 1. Fit with estimated *B* coefficient for 4 accepted points. Deviation $\sigma_{\text{w}} = 0.083$.

Coefficient	$\rho = A + BT$
<i>A</i>	1024.08
<i>B</i>	-0.880

cont.

1,1-Dimethylethyl 3-methylbutyl ether (cont.)

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.
293.15	766.2 ± 1.0	0.09	1936-eva/edl
288.15	770.5 ± 0.5	-0.01	1985-oba/ood
298.15	761.6 ± 0.5	-0.11	1985-oba/ood
308.15	753.0 ± 0.5	0.09	1985-oba/ood

Table 3. Recommended values.

T K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ kg · m ⁻³
280.00	777.7 ± 0.9
290.00	768.9 ± 0.6
293.15	766.1 ± 0.6
298.15	761.7 ± 0.6
310.00	751.3 ± 0.7

1,1-Dimethylethyl pentyl ether

[10100-95-5]

C₉H₂₀O

MW = 144.26

567

Table 1. Fit with estimated *B* coefficient for 3 accepted points. Deviation σ_w = 0.047.

Coefficient	$\rho = A + BT$
<i>A</i>	1025.82
<i>B</i>	-0.870

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.
288.15	775.1 ± 0.5	-0.03	1985-oba/ood
298.15	766.4 ± 0.5	-0.03	1985-oba/ood
308.15	757.8 ± 0.5	0.07	1985-oba/ood

Table 3. Recommended values.

T K	$\rho_{\text{exp}} \pm 2\sigma_{\text{est}}$ kg · m ⁻³
280.00	782.2 ± 0.9
290.00	773.5 ± 0.6
293.15	770.8 ± 0.5
298.15	766.4 ± 0.4
310.00	756.1 ± 0.7

1,3-Dimethyl-1-ethylbutyl methyl ether

[500003-61-2]

C₉H₂₀O

MW = 144.26

568

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	809.0 ± 2.0	1953-doe/zei

1,5-Dimethylhexyl methyl ether

[63387-25-7]

C₉H₂₀O

MW = 144.26

569

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	806.0 ± 2.0	1952-doe/you

3,5-Dimethylhexyl methyl ether

[500003-58-7]

C₉H₂₀O

MW = 144.26

570

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	796.0 ± 1.0	1943-naz/ter

Ethyl heptyl ether

[1969-43-3]

C₉H₂₀O

MW = 144.26

571

Table 1. Coefficients of the polynomial expansion equation. Standard deviations (see introduction): $\sigma_{\text{c,w}} = 1.5462 \cdot 10^{-1}$ (combined temperature ranges, weighted), $\sigma_{\text{c,uw}} = 8.2890 \cdot 10^{-2}$ (combined temperature ranges, unweighted).

Coefficient	T = 288.15 to 405.15 K $\rho = A + BT + CT^2 + DT^3 + \dots$
A	$-6.71767 \cdot 10^{-1}$
B	$-2.42801 \cdot 10^{-4}$

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	794.80 ± 1.00	-0.90	1888-dob ¹⁾	369.15	716.50 ± 1.00	0.26	1888-dob(○)
289.05	782.50 ± 1.00	-0.35	1888-dob(○)	383.05	704.40 ± 2.00	0.03	1888-dob(○)
304.25	770.50 ± 1.00	0.05	1888-dob(○)	405.15	684.80 ± 2.00	-0.49	1888-dob(○)
317.35	759.70 ± 1.00	0.03	1888-dob(○)	288.15	783.80 ± 0.40	0.22	1985-oba/ood(□)
337.45	743.00 ± 1.00	0.02	1888-dob(○)	298.15	775.30 ± 0.40	-0.14	1985-oba/ood(□)
351.15	731.90 ± 1.00	0.42	1888-dob(○)	308.15	767.20 ± 0.40	-0.05	1985-oba/ood(□)

¹⁾ Not included in Fig. 1.

Further references: [1877-cro, 1877-cro-1, 1961-var/zha].

cont.

Ethyl heptyl ether (cont.)

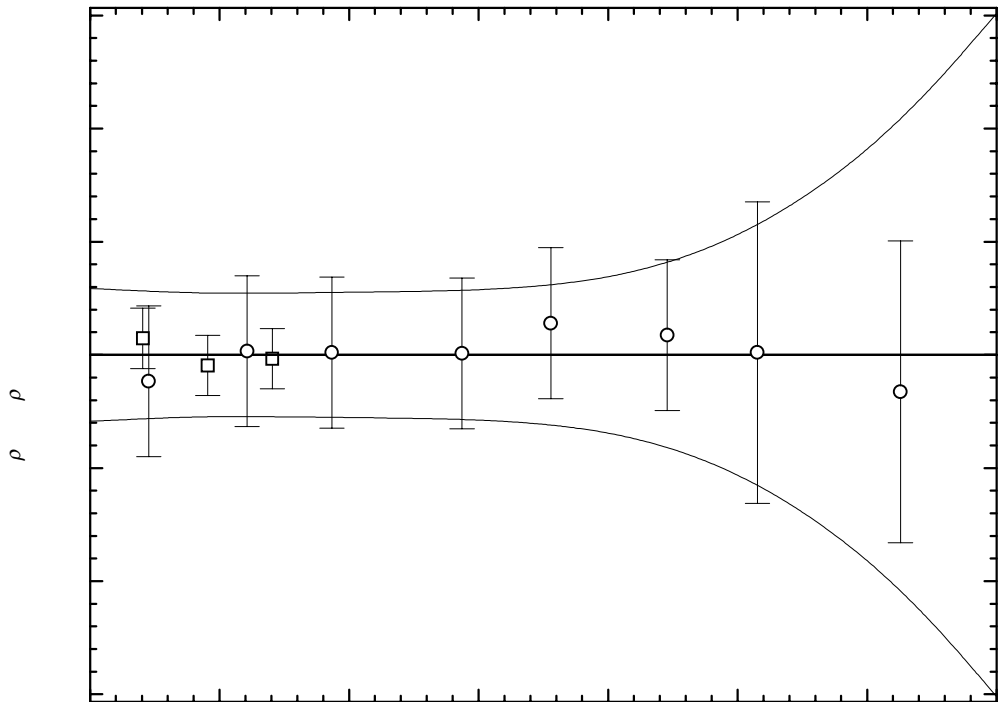


Fig. 1. The symbols show the deviation of the calculated from the experimental values from Table 2. The curves above and below the zero line indicate the calculated error region of the recommended values given in Table 3. The error bars represent the experimental errors. (Error bars smaller than the 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 $\rho = [1 + 1.75(1 - T/T_c)^{1/3} + 0.75(1 - T/T_c)][\rho_c + A(T_c - T) + B(T_c - T)^2 + C(T_c - T)^3 + D(T_c - T)^4]$).

$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$
280.00	790.18 ± 0.88	320.00	757.48 ± 0.83	380.00	706.98 ± 1.57
290.00	782.08 ± 0.84	330.00	749.19 ± 0.84	390.00	698.39 ± 2.06
293.15	779.52 ± 0.83	340.00	740.84 ± 0.86	400.00	689.76 ± 2.70
298.15	775.44 ± 0.82	350.00	732.45 ± 0.91	410.00	681.07 ± 3.52
300.00	773.93 ± 0.82	360.00	724.01 ± 1.02	420.00	672.34 ± 4.53
310.00	765.73 ± 0.82	370.00	715.52 ± 1.23		

Ethyl 1-methylhexyl ether [67931-48-0] C₉H₂₀O MW = 144.26 572

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	783.0 ± 1.0	1937-wat/dek

Hexyl 1-methylethyl ether [18636-65-2] C₉H₂₀O MW = 144.26 573

Table 1. Fit with estimated *B* coefficient for 3 accepted points. Deviation σ_w = 0.141.

Coefficient	$\rho = A + BT$
<i>A</i>	1018.05
<i>B</i>	-0.840

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	775.9 ± 0.5	-0.10	1985-oba/ood
298.15	767.8 ± 0.5	0.20	1985-oba/ood
308.15	759.1 ± 0.5	-0.10	1985-oba/ood

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	782.8 ± 0.9
290.00	774.4 ± 0.6
293.15	771.8 ± 0.5
298.15	767.6 ± 0.5
310.00	757.6 ± 0.7

Hexyl propyl ether [53685-78-2] C₉H₂₀O MW = 144.26 574

Table 1. Fit with estimated *B* coefficient for 3 accepted points. Deviation σ_w = 0.082.

Coefficient	$\rho = A + BT$
<i>A</i>	1023.45
<i>B</i>	-0.840

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	781.3 ± 0.5	-0.10	1985-oba/ood
298.15	773.0 ± 0.5	0.00	1985-oba/ood
308.15	764.7 ± 0.5	0.10	1985-oba/ood

cont.

Hexyl propyl ether (cont.)

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	788.2 ± 0.9
290.00	779.8 ± 0.6
293.15	777.2 ± 0.5
298.15	773.0 ± 0.5
310.00	763.0 ± 0.7

Methyl 1-methylheptyl ether [1541-09-9] C₉H₂₀O MW = 144.26 575

Table 1. Fit with estimated B coefficient for 5 accepted points. Deviation σ_w = 0.499.

Coefficient	$\rho = A + BT$
A	1055.52
B	-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.
292.15	807.6 ± 1.0	0.41	1923-ken/mcn	372.55	739.1 ± 1.0	0.25	1923-ken/mcn
316.55	787.0 ± 1.0	0.55	1923-ken/mcn	298.15	780.6 ± 5.0	-21.49	1951-let/sch ¹⁾
335.15	770.0 ± 1.0	-0.64	1923-ken/mcn	298.15	793.0 ± 2.0	-9.09	1952-doe/you ¹⁾
354.55	753.6 ± 1.0	-0.55	1923-ken/mcn				

¹⁾ Not included in calculation of linear coefficients.

Table 3. Recommended values.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$
290.00	809.0 ± 1.2	320.00	783.5 ± 0.9	360.00	749.5 ± 1.0
293.15	806.3 ± 1.2	330.00	775.0 ± 0.8	370.00	741.0 ± 1.1
298.15	802.1 ± 1.1	340.00	766.5 ± 0.8	380.00	732.5 ± 1.2
310.00	792.0 ± 0.9	350.00	758.0 ± 0.9		

Methyl octyl ether [929-56-6] C₉H₂₀O MW = 144.26 576

Table 1. Coefficients of the polynomial expansion equation. Standard deviations (see introduction): σ_{c,w} = 7.8849 · 10⁻¹ (combined temperature ranges, weighted), σ_{c,uw} = 2.7094 · 10⁻¹ (combined temperature ranges, unweighted).

Coefficient	T = 273.15 to 336.95 K $\rho = A + BT + CT^2 + DT^3 + \dots$
A	1.73008 · 10 ⁻¹
B	-1.58042 · 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)
273.15	801.30 ± 1.00	0.74	1888-dob(Δ)	273.15	801.40 ± 1.00	0.84	1888-dob-1(○)
290.85	787.40 ± 1.00	-0.45	1888-dob(Δ)	293.15	784.50 ± 1.00	-1.63	1953-dev/pan(□)
301.15	779.30 ± 1.00	-0.70	1888-dob(Δ)	288.15	790.00 ± 0.40	0.15	1985-oba/ood(∇)
313.45	769.60 ± 1.00	-0.58	1888-dob(Δ)	298.15	783.00 ± 0.40	0.68	1985-oba/ood(∇)
336.95	750.70 ± 1.00	0.61	1888-dob(Δ)	308.15	774.80 ± 0.40	0.33	1985-oba/ood(∇)

¹⁾ Not included in Fig. 1.

Further references: [1903-bou/bla-3, 1904-bou/bla-1, 1949-set/kur].

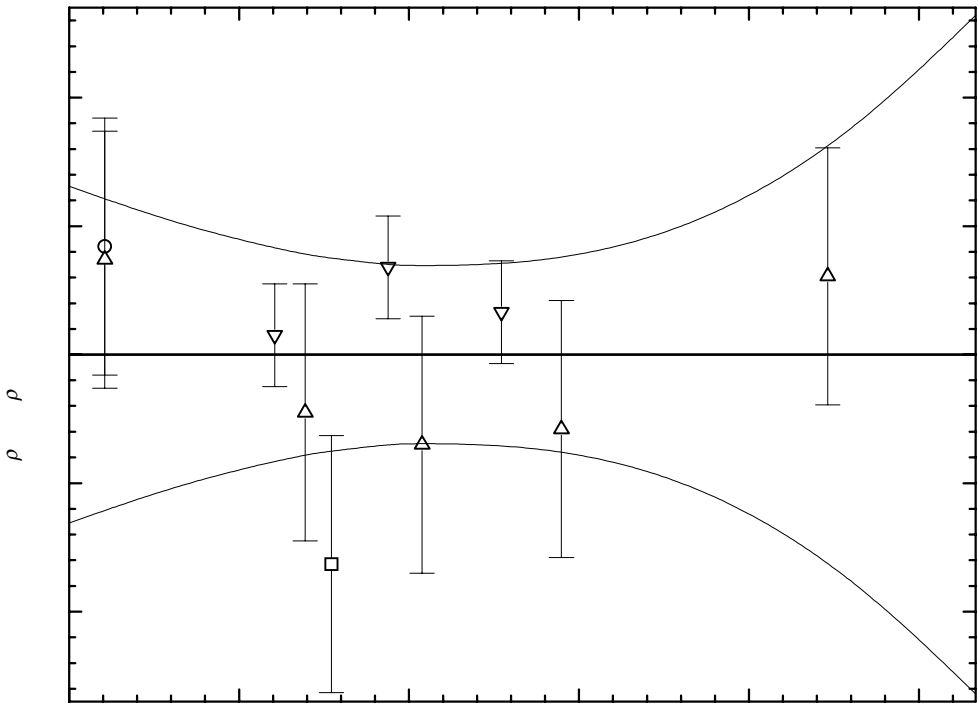


Fig. 1. The symbols show the deviation of the calculated from the experimental values from Table 2. The curves above and below the zero line indicate the calculated error region of the recommended values given in Table 3. The error bars represent the experimental errors. (Error bars smaller than the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

cont.

Methyl octyl ether (cont.)

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

$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$
270.00	802.72 ± 1.31	298.15	782.32 ± 0.70	330.00	756.21 ± 1.20
280.00	795.76 ± 1.00	300.00	780.89 ± 0.69	340.00	747.35 ± 1.79
290.00	788.48 ± 0.79	310.00	772.98 ± 0.70	350.00	738.18 ± 2.64
293.15	786.13 ± 0.75	320.00	764.75 ± 0.85		

3-Methylbutyl 1-methylpropyl ether

[92097-04-6]

C₉H₂₀O

MW = 144.26

577

Table 1. Fit with estimated *B* coefficient for 3 accepted points. Deviation $\sigma_w = 0.000$.

Coefficient	$\rho = A + BT$
<i>A</i>	1020.71
<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.
288.15	772.9 ± 0.5	0.00	1985-oba/ood
298.15	764.3 ± 0.5	0.00	1985-oba/ood
308.15	755.7 ± 0.5	0.00	1985-oba/ood

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	779.9 ± 1.0
290.00	771.3 ± 0.6
293.15	768.6 ± 0.5
298.15	764.3 ± 0.4
310.00	754.1 ± 0.7

3-Methylbutyl 2-methylpropyl ether

[92097-02-4]

C₉H₂₀O

MW = 144.26

578

Table 1. Fit with estimated *B* coefficient for 3 accepted points. Deviation $\sigma_w = 0.082$.

Coefficient	$\rho = A + BT$
<i>A</i>	1009.85
<i>B</i>	-0.840

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.
288.15	767.7 ± 0.5	-0.10	1985-oba/ood
298.15	759.4 ± 0.5	-0.00	1985-oba/ood
308.15	751.1 ± 0.5	0.10	1985-oba/ood

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	774.6 ± 0.9
290.00	766.2 ± 0.6
293.15	763.6 ± 0.5
298.15	759.4 ± 0.5
310.00	749.4 ± 0.7

1-Methylpropyl pentyl ether

[92097-03-5]

C₉H₂₀O

MW = 144.26

579

Table 1. Fit with estimated *B* coefficient for 3 accepted points. Deviation σ_w = 0.047.

Coefficient	$\rho = A + BT$
<i>A</i>	1019.21
<i>B</i>	-0.840

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	777.2 ± 0.5	0.03	1985-oba/ood
298.15	768.7 ± 0.5	-0.07	1985-oba/ood
308.15	760.4 ± 0.5	0.03	1985-oba/ood

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	784.0 ± 0.9
290.00	775.6 ± 0.6
293.15	773.0 ± 0.5
298.15	768.8 ± 0.4
310.00	758.8 ± 0.7

2-Methylpropyl pentyl ether

[92097-01-3]

C₉H₂₀O

MW = 144.26

580

Table 1. Fit with estimated *B* coefficient for 3 accepted points. Deviation $\sigma_w = 0.047$.

Coefficient	$\rho = A + BT$
<i>A</i>	1018.96
<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.
288.15	774.0 ± 0.5	-0.03	1985-oba/ood
298.15	765.6 ± 0.5	0.07	1985-oba/ood
308.15	757.0 ± 0.5	-0.03	1985-oba/ood

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	781.0 ± 0.9
290.00	772.5 ± 0.6
293.15	769.8 ± 0.5
298.15	765.5 ± 0.4
310.00	755.5 ± 0.7