

2.1.10 Saturated Monoesters, C₁₉ - C₂₈

Ethyl heptadecanoate

[14010-23-2]

C₁₉H₃₈O₂

MW = 298.51

338

Table 1. Fit with estimated *B* coefficient for 2 accepted points. Deviation $\sigma_w = 0.150$.

Coefficient	$\rho = A + BT$
<i>A</i>	1070.12
<i>B</i>	-0.720

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.
303.15	851.7 ± 1.0	-0.15	1950-mum/phi
308.15	848.4 ± 1.0	0.15	1950-mum/phi

Table 3. Recommended values.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$
293.15	859.0 ± 1.0
298.15	855.4 ± 1.0
310.00	846.9 ± 0.9

Heptyl dodecanoate

[42231-73-2]

C₁₉H₃₈O₂

MW = 298.51

339

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.
288.15	862.5 ± 1.0	1937-rog/dvo

Hexyl tridecanoate

[75850-88-3]

C₁₉H₃₈O₂

MW = 298.51

340

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	853.4 ± 1.0	1963-sch/mar

Methyl octadecanoate

[112-61-8]

C₁₉H₃₈O₂

MW = 298.51

341

Table 1. Coefficients of the polynomial expansion equation. Standard deviations (see introduction): $\sigma_{c,w} = 4.7886 \cdot 10^{-1}$ (combined temperature ranges, weighted), $\sigma_{c,uw} = 1.4808 \cdot 10^{-1}$ (combined temperature ranges, unweighted).

Coefficient	T = 310.95 to 513.15 K $\rho = A + BT + CT^2 + DT^3 + \dots$
A	$1.05861 \cdot 10^3$
B	$-6.23457 \cdot 10^{-1}$
C	$-1.37007 \cdot 10^{-4}$

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

$\frac{T}{K}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{cal}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref. (Symbol in Fig. 1)	$\frac{T}{K}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{cal}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref. (Symbol in Fig. 1)
310.95	852.40 ± 1.00	0.91	1948-bon/alt(O)	403.15	785.00 ± 1.00	0.01	1950-boe/ned(V)
333.15	836.30 ± 1.00	0.61	1948-bon/alt(O)	453.15	748.00 ± 1.00	0.05	1950-boe/ned(V)
372.05	807.90 ± 1.00	0.22	1948-bon/alt(O)	513.15	702.00 ± 1.50	-0.60	1950-boe/ned(V)
313.15	849.80 ± 1.00	-0.13	1949-hos/ste(Δ)	348.15	824.40 ± 0.60	-0.54	1952-gro/feu(□)
323.15	843.00 ± 1.00	0.17	1950-boe/ned(V)	313.15	849.60 ± 0.50	-0.33	1964-gou/vlu(◆)
353.15	821.00 ± 1.00	-0.34	1950-boe/ned(V)				

¹⁾ Not included in Fig. 1.

Further references: [1960-ale/von].

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

$\frac{T}{K}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{K}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{K}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$
310.00	852.17 ± 0.98	390.00	794.62 ± 0.94	470.00	735.32 ± 1.27
320.00	845.07 ± 0.97	400.00	787.30 ± 0.94	480.00	727.78 ± 1.44
330.00	837.94 ± 0.97	410.00	779.96 ± 0.93	490.00	720.22 ± 1.65
340.00	830.79 ± 0.97	420.00	772.59 ± 0.94	500.00	712.63 ± 1.91
350.00	823.61 ± 0.97	430.00	765.19 ± 0.95	510.00	705.01 ± 2.21
360.00	816.40 ± 0.96	440.00	757.76 ± 0.99	520.00	697.36 ± 2.56
370.00	809.17 ± 0.96	450.00	750.31 ± 1.05		
380.00	801.91 ± 0.95	460.00	742.82 ± 1.14		

cont.

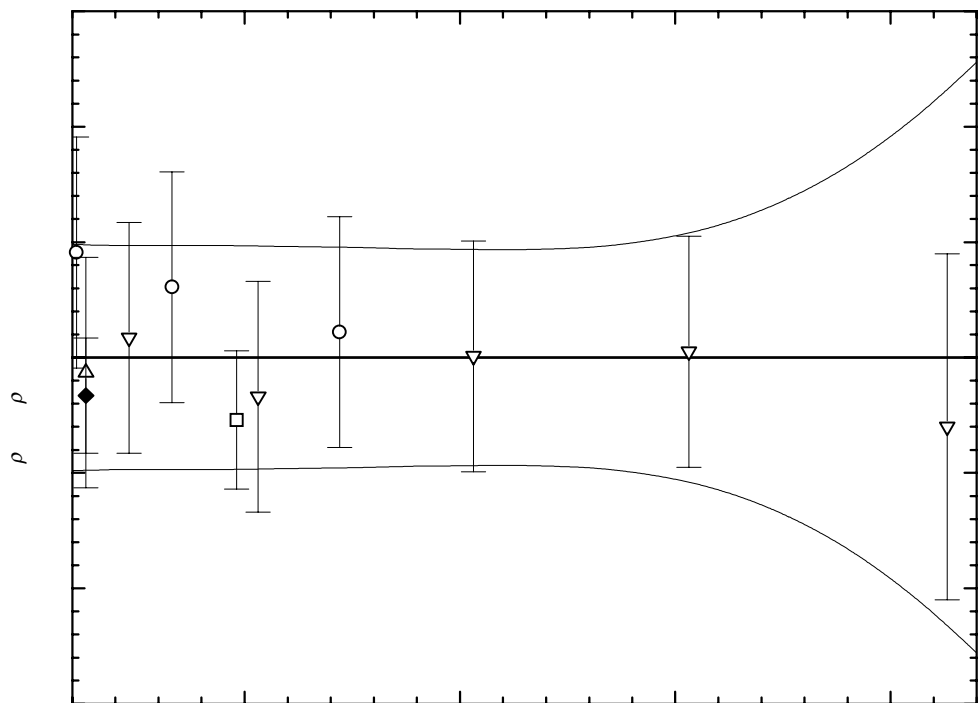


Fig. 1. The symbols show the deviation of the calculated from the experimental values from Table 2. The curves above and below the zero line indicate the calculated error region of the recommended values given in Table 3. The error bars represent the experimental errors. (Error bars smaller than the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

1-Methylethyl hexadecanoate [142-91-6] C₁₉H₃₈O₂ MW = 298.51 342

Table 1. Fit with estimated *B* coefficient for 3 accepted points. Deviation $\sigma_w = 0.129$.

Coefficient	$\rho = A + BT$
<i>A</i>	1070.65
<i>B</i>	-0.740

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.
310.95	840.4 ± 1.0	-0.15	1948-bon/alt
333.15	824.1 ± 1.0	-0.02	1948-bon/alt
372.05	795.5 ± 1.0	0.17	1948-bon/alt

cont.

1-Methylethyl hexadecanoate (cont.)

Table 3. Recommended values.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$
310.00	841.3 ± 1.1	340.00	819.1 ± 0.9	370.00	796.9 ± 1.1
320.00	833.9 ± 1.0	350.00	811.7 ± 0.9	380.00	789.5 ± 1.2
330.00	826.5 ± 0.9	360.00	804.3 ± 1.0		

1-Methylheptyl undecanoate

[55193-98-1]

C₁₉H₃₈O₂

MW = 298.51

343

Table 1. Fit with estimated *B* coefficient for 4 accepted points. Deviation σ_{w} = 0.869.

Coefficient	$\rho = A + BT$
<i>A</i>	1082.50
<i>B</i>	-0.780

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.
292.15	853.8 ± 1.0	-0.83	1914-pic/ken-1
323.15	831.2 ± 1.0	0.76	1914-pic/ken-1
352.15	808.8 ± 1.0	0.97	1914-pic/ken-1
416.15	757.0 ± 1.0	-0.90	1914-pic/ken-1

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	856.3 ± 1.7	330.00	825.1 ± 1.3	380.00	786.1 ± 1.4
293.15	853.8 ± 1.6	340.00	817.3 ± 1.3	390.00	778.3 ± 1.5
298.15	849.9 ± 1.6	350.00	809.5 ± 1.2	400.00	770.5 ± 1.7
310.00	840.7 ± 1.4	360.00	801.7 ± 1.3	410.00	762.7 ± 1.8
320.00	832.9 ± 1.4	370.00	793.9 ± 1.3	420.00	754.9 ± 1.9

1-Methylhexyl dodecanoate

[55194-06-4]

C₁₉H₃₈O₂

MW = 298.51

344

Table 1. Fit with estimated *B* coefficient for 4 accepted points. Deviation σ_{w} = 0.914.

Coefficient	$\rho = A + BT$
<i>A</i>	1052.74
<i>B</i>	-0.680

cont.

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

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{calc}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
290.15	854.5 ± 1.0	-0.94	1914-pic/ken-1
320.15	835.6 ± 1.0	0.56	1914-pic/ken-1
355.15	810.4 ± 1.0	-0.84	1914-pic/ken-1
403.15	779.8 ± 1.0	1.20	1914-pic/ken-1

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	855.5 ± 1.7	330.00	828.3 ± 1.3	380.00	794.3 ± 1.5
293.15	853.4 ± 1.6	340.00	821.5 ± 1.3	390.00	787.5 ± 1.6
298.15	850.0 ± 1.6	350.00	814.7 ± 1.3	400.00	780.7 ± 1.7
310.00	841.9 ± 1.4	360.00	807.9 ± 1.3	410.00	773.9 ± 1.9
320.00	835.1 ± 1.4	370.00	801.1 ± 1.4		

Propyl hexadecanoate [2239-78-3] C₁₉H₃₈O₂ MW = 298.51 345

Table 1. Fit with estimated *B* coefficient for 5 accepted points. Deviation $\sigma_w = 0.475$.

Coefficient	$\rho = A + BT$
<i>A</i>	1069.26
<i>B</i>	-0.720

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.
292.25	857.9 ± 1.0	-0.94	1919-eyk
352.85	815.5 ± 1.0	0.29	1919-eyk
310.95	845.5 ± 1.0	0.12	1948-bon/alt
333.15	829.7 ± 1.0	0.31	1948-bon/alt
372.05	801.6 ± 1.0	0.22	1948-bon/alt

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	860.5 ± 1.3	320.00	838.9 ± 1.0	360.00	810.1 ± 1.2
293.15	858.2 ± 1.3	330.00	831.7 ± 1.0	370.00	802.9 ± 1.3
298.15	854.6 ± 1.2	340.00	824.5 ± 1.0	380.00	795.7 ± 1.4
310.00	846.1 ± 1.1	350.00	817.3 ± 1.1		

Tridecyl hexanoate [500028-05-7] C₁₉H₃₈O₂ MW = 298.51 346

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	855.0 ± 0.8	1943-hob/par

Decyl decanoate [1654-86-0] C₂₀H₄₀O₂ MW = 312.54 347

Table 1. Experimental values with uncertainties.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
293.15	858.6 ± 1.0	1927-tal
293.15	858.6 ± 1.0	1932-kom/tal

Ethyl octadecanoate [111-61-5] C₂₀H₄₀O₂ MW = 312.54 348

Table 1. Coefficients of the polynomial expansion equation. Standard deviations (see introduction): $\sigma_{\text{c,w}} = 1.5589 \cdot 10^{-1}$ (combined temperature ranges, weighted), $\sigma_{\text{c,uw}} = 7.2843 \cdot 10^{-2}$ (combined temperature ranges, unweighted).

Coefficient	T = 308.10 to 513.15 K $\rho = A + BT + CT^2 + DT^3 + \dots$
A	$1.05617 \cdot 10^3$
B	$-6.35323 \cdot 10^{-1}$
C	$-1.24853 \cdot 10^{-4}$

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

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{cal}}}{\text{kg} \cdot \text{m}^{-3}}$	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)
323.15	838.00 ± 1.00	0.17	1950-boe/ned(○)	308.10	848.70 ± 0.60	0.13	1955-shi/bon(□)
353.15	816.00 ± 1.00	-0.23	1950-boe/ned(○)	323.10	837.80 ± 0.60	-0.06	1955-shi/bon(□)
403.15	780.00 ± 1.00	0.25	1950-boe/ned(○)	338.10	827.00 ± 0.60	-0.09	1955-shi/bon(□)
453.15	743.00 ± 1.00	0.37	1950-boe/ned(○)	353.10	816.10 ± 0.60	-0.17	1955-shi/bon(□)
513.15	697.00 ± 1.00	-0.28	1950-boe/ned(○)	368.10	805.30 ± 0.60	-0.09	1955-shi/bon(□)

¹⁾ Not included in Fig. 1.

Further references: [1938-bak/smy, 1945-pha/gok, 1952-gro/feu, 1971-che/shv].

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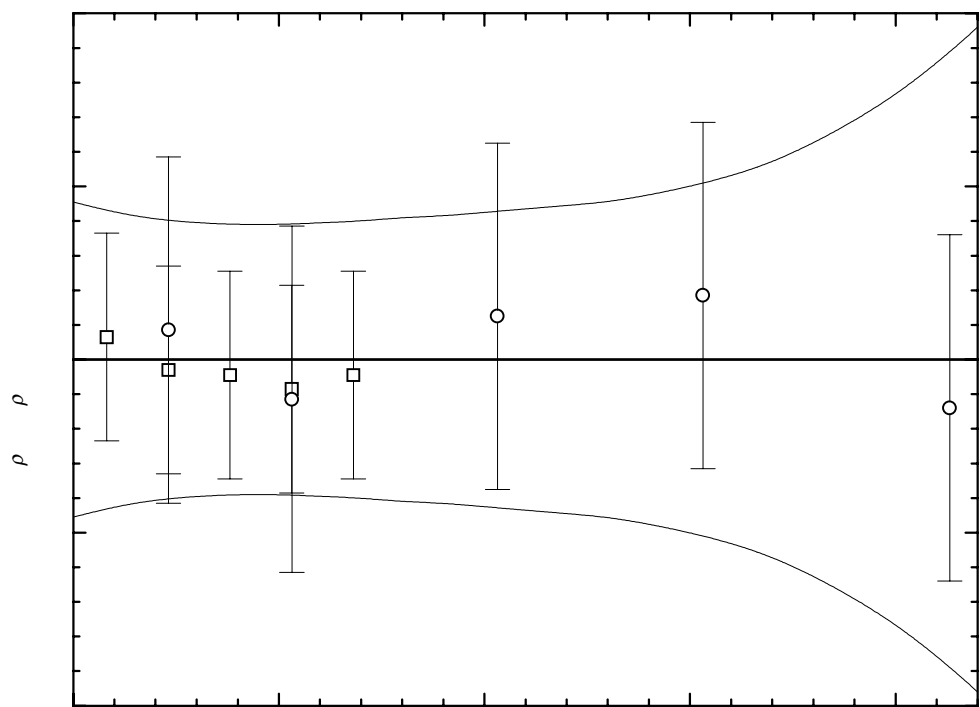


Fig. 1. The symbols show the deviation of the calculated from the experimental values from Table 2. The curves above and below the zero line indicate the calculated error region of the recommended values given in Table 3. The error bars represent the experimental errors. (Error bars smaller than the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

$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho \pm \sigma_{\text{fit}}}{\text{kg} \cdot \text{m}^{-3}}$
300.00	854.33 ± 0.91	380.00	796.72 ± 0.82	460.00	737.50 ± 1.06
310.00	847.22 ± 0.85	390.00	789.40 ± 0.83	470.00	729.99 ± 1.14
320.00	840.08 ± 0.81	400.00	782.06 ± 0.85	480.00	722.45 ± 1.25
330.00	832.92 ± 0.79	410.00	774.70 ± 0.87	490.00	714.88 ± 1.38
340.00	825.73 ± 0.78	420.00	767.31 ± 0.89	500.00	707.29 ± 1.53
350.00	818.51 ± 0.78	430.00	759.89 ± 0.91	510.00	699.68 ± 1.71
360.00	811.27 ± 0.79	440.00	752.45 ± 0.95	520.00	692.04 ± 1.92
370.00	804.01 ± 0.80	450.00	744.99 ± 1.00		

Heptyl tridecanoate

[42231-84-5]

C₂₀H₄₀O₂

MW = 312.54

349

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	851.1 ± 1.0	1963-sch/mar

Methyl nonadecanoate

[1731-94-8]

C₂₀H₄₀O₂

MW = 312.54

350

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.
313.15	849.3 ± 0.7	1964-gou/vlu

1-Methyldecyl nonanoate

[55193-84-5]

C₂₀H₄₀O₂

MW = 312.54

351

Table 1. Fit with estimated *B* coefficient for 4 accepted points. Deviation $\sigma_w = 0.896$.

Coefficient	$\rho = A + BT$
<i>A</i>	1072.83
<i>B</i>	-0.740

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.
291.15	857.0 ± 1.0	-0.38	1914-pic/ken-1
329.15	830.8 ± 1.0	1.54	1914-pic/ken-1
366.15	801.3 ± 1.0	-0.58	1914-pic/ken-1
398.15	777.6 ± 1.0	-0.60	1914-pic/ken-1

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	858.2 ± 1.7	330.00	828.6 ± 1.3	370.00	799.0 ± 1.4
293.15	855.9 ± 1.7	340.00	821.2 ± 1.3	380.00	791.6 ± 1.4
298.15	852.2 ± 1.6	350.00	813.8 ± 1.3	390.00	784.2 ± 1.5
310.00	843.4 ± 1.5	360.00	806.4 ± 1.3	400.00	776.8 ± 1.7
320.00	836.0 ± 1.4				

1-Methylheptyl dodecanoate

[55194-07-5]

C₂₀H₄₀O₂

MW = 312.54

352

Table 1. Fit with estimated *B* coefficient for 4 accepted points. Deviation $\sigma_w = 0.901$.

Coefficient	$\rho = A + BT$
<i>A</i>	1067.03
<i>B</i>	-0.720

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.
289.65	858.5 ± 1.0	0.02	1914-pic/ken-1
326.15	833.3 ± 1.0	1.10	1914-pic/ken-1
361.15	805.6 ± 1.0	-1.40	1914-pic/ken-1
405.15	775.6 ± 1.0	0.28	1914-pic/ken-1

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	865.4 ± 1.8	320.00	836.6 ± 1.4	370.00	800.6 ± 1.4
290.00	858.2 ± 1.7	330.00	829.4 ± 1.3	380.00	793.4 ± 1.4
293.15	856.0 ± 1.6	340.00	822.2 ± 1.3	390.00	786.2 ± 1.6
298.15	852.4 ± 1.6	350.00	815.0 ± 1.3	400.00	779.0 ± 1.7
310.00	843.8 ± 1.5	360.00	807.8 ± 1.3	410.00	771.8 ± 1.8

1-Methylpentyl tetradecanoate [55194-42-8] C₂₀H₄₀O₂ MW = 312.54 353

Table 1. Fit with estimated *B* coefficient for 4 accepted points. Deviation $\sigma_w = 0.684$.

Coefficient	$\rho = A + BT$
<i>A</i>	1079.40
<i>B</i>	-0.760

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.
295.15	854.3 ± 1.0	-0.79	1914-pic/ken-1
316.15	839.6 ± 1.0	0.47	1914-pic/ken-1
364.15	802.1 ± 1.0	-0.55	1914-pic/ken-1
394.15	780.7 ± 1.0	0.85	1914-pic/ken-1

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	859.0 ± 1.5	330.00	828.6 ± 1.2	370.00	798.2 ± 1.3
293.15	856.6 ± 1.5	340.00	821.0 ± 1.1	380.00	790.6 ± 1.4
298.15	852.8 ± 1.4	350.00	813.4 ± 1.1	390.00	783.0 ± 1.5
310.00	843.8 ± 1.3	360.00	805.8 ± 1.2	400.00	775.4 ± 1.6
320.00	836.2 ± 1.2				

1-Methylpropyl hexadecanoate

[500003-55-4]

C₂₀H₄₀O₂

MW = 312.54

354

Table 1. Fit with estimated *B* coefficient for 4 accepted points. Deviation σ_w = 1.081.

Coefficient	$\rho = A + BT$
<i>A</i>	1077.57
<i>B</i>	-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.
285.65	862.2 ± 1.0	-1.14	1914-pic/ken-1
322.15	837.6 ± 1.0	1.64	1914-pic/ken-1
365.15	804.0 ± 1.0	0.29	1914-pic/ken-1
400.65	776.3 ± 1.0	-0.79	1914-pic/ken-1

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	867.6 ± 1.9	320.00	837.6 ± 1.5	370.00	800.1 ± 1.5
290.00	860.1 ± 1.8	330.00	830.1 ± 1.4	380.00	792.6 ± 1.6
293.15	857.7 ± 1.7	340.00	822.6 ± 1.4	390.00	785.1 ± 1.7
298.15	854.0 ± 1.7	350.00	815.1 ± 1.4	400.00	777.6 ± 1.8
310.00	845.1 ± 1.6	360.00	807.6 ± 1.4	410.00	770.1 ± 1.9

2-Methylpropyl hexadecanoate

[110-34-9]

C₂₀H₄₀O₂

MW = 312.54

355

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	852.2 ± 1.0	1953-hag/dec

Octadecyl ethanoate

[822-23-1]

C₂₀H₄₀O₂

MW = 312.54

356

Table 1. Fit with estimated *B* coefficient for 2 accepted points. Deviation σ_w = 0.300.

Coefficient	$\rho = A + BT$
<i>A</i>	1069.57
<i>B</i>	-0.720

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.
303.15	851.0 ± 2.0	-0.30	1952-mcg/cur
333.15	830.0 ± 2.0	0.30	1952-mcg/cur

cont.

Table 3. Recommended values.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$
293.15	858.5 ± 2.1
298.15	854.9 ± 2.0
310.00	846.4 ± 1.8
320.00	839.2 ± 1.8
330.00	832.0 ± 1.9
340.00	824.8 ± 2.0

Tetradecyl hexanoate

[500028-06-8]

C₂₀H₄₀O₂

MW = 312.54

357

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	854.3 ± 0.8	1943-hob/par

Ethyl 10-methyloctadecanoate

[55334-35-5]

C₂₁H₄₂O₂

MW = 326.56

358

Table 1. Fit with estimated *B* coefficient for 4 accepted points. Deviation σ_w = 0.592.

Coefficient	$\rho = A + BT$
<i>A</i>	1072.97
<i>B</i>	-0.720

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	862.0 ± 2.0	0.10	1948-pro/cas
298.15	858.0 ± 2.0	-0.30	1948-pro/cas
303.15	854.0 ± 2.0	-0.70	1948-pro/cas
308.15	852.0 ± 2.0	0.90	1948-pro/cas

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	864.2 ± 2.0
293.15	861.9 ± 1.9
298.15	858.3 ± 1.9
310.00	849.8 ± 1.9

Heptyl tetradecanoate

[500036-01-1]

C₂₁H₄₂O₂

MW = 326.56

359

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.
288.15	861.3 ± 1.0	1937-rog/dvo

Hexadecyl pentanoate

[125164-54-7]

C₂₁H₄₂O₂

MW = 326.56

360

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	852.0 ± 3.0	1864-dol

Methyl eicosanoate

[1120-28-1]

C₂₁H₄₂O₂

MW = 326.56

361

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.
313.15	848.8 ± 0.7	1964-gou/vlu

1-Methylethyl octadecanoate

[112-10-7]

C₂₁H₄₂O₂

MW = 326.56

362

Table 1. Fit with estimated *B* coefficient for 3 accepted points. Deviation σ_w = 0.123.

Coefficient	$\rho = A + BT$
<i>A</i>	1064.31
<i>B</i>	-0.720

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.
310.95	840.3 ± 1.0	-0.13	1948-bon/alt
333.15	824.4 ± 1.0	-0.04	1948-bon/alt
372.05	796.6 ± 1.0	0.17	1948-bon/alt

Table 3. Recommended values.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$
310.00	841.1 ± 1.1	340.00	819.5 ± 0.9	370.00	797.9 ± 1.1
320.00	833.9 ± 1.0	350.00	812.3 ± 0.9	380.00	790.7 ± 1.2
330.00	826.7 ± 0.9	360.00	805.1 ± 1.0		

1-Methylhexyl tetradecanoate

[55194-43-9]

C₂₁H₄₂O₂

MW = 326.56

363

Table 1. Fit with estimated *B* coefficient for 4 accepted points. Deviation σ_w = 0.900.

Coefficient	$\rho = A + BT$
<i>A</i>	1064.53
<i>B</i>	-0.720

cont.

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

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{calc}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
290.15	855.1 ± 1.0	-0.53	1914-pic/ken-1
320.15	835.5 ± 1.0	1.47	1914-pic/ken-1
358.15	806.6 ± 1.0	-0.07	1914-pic/ken-1
407.15	770.5 ± 1.0	-0.89	1914-pic/ken-1

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	855.7 ± 1.7	330.00	826.9 ± 1.3	380.00	790.9 ± 1.5
293.15	853.5 ± 1.6	340.00	819.7 ± 1.3	390.00	783.7 ± 1.6
298.15	849.9 ± 1.6	350.00	812.5 ± 1.3	400.00	776.5 ± 1.7
310.00	841.3 ± 1.4	360.00	805.3 ± 1.3	410.00	769.3 ± 1.8
320.00	834.1 ± 1.4	370.00	798.1 ± 1.4		

1-Methyloctyl dodecanoate [55194-29-1] C₂₁H₄₂O₂ MW = 326.56 364

Table 1. Fit with estimated *B* coefficient for 4 accepted points. Deviation σ_w = 0.837.

Coefficient	$\rho = A + BT$
<i>A</i>	1066.40
<i>B</i>	-0.720

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.
289.15	858.0 ± 1.0	-0.22	1914-pic/ken-1
326.15	832.9 ± 1.0	1.32	1914-pic/ken-1
364.15	804.1 ± 1.0	-0.12	1914-pic/ken-1
400.15	777.3 ± 1.0	-1.00	1914-pic/ken-1

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	864.8 ± 1.8	320.00	836.0 ± 1.3	370.00	800.0 ± 1.3
290.00	857.6 ± 1.6	330.00	828.8 ± 1.3	380.00	792.8 ± 1.4
293.15	855.3 ± 1.6	340.00	821.6 ± 1.2	390.00	785.6 ± 1.5
298.15	851.7 ± 1.5	350.00	814.4 ± 1.2	400.00	778.4 ± 1.6
310.00	843.2 ± 1.4	360.00	807.2 ± 1.3	410.00	771.2 ± 1.8

Octyl tridecanoate

[42231-85-6]

C₂₁H₄₂O₂

MW = 326.56

365

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	851.9 ± 1.0	1963-sch/mar

Pentadecyl hexanoate

[500028-07-9]

C₂₁H₄₂O₂

MW = 326.56

366

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	853.6 ± 0.8	1943-hob/par

Propyl octadecanoate

[3634-92-2]

C₂₁H₄₂O₂

MW = 326.56

367

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.
308.80	841.50 ± 2.0	1919-eyk
353.35	815.70 ± 2.0	1919-eyk
310.95	854.20 ± 2.0	1948-bon/alt
333.15	829.60 ± 2.0	1948-bon/alt
372.05	802.10 ± 2.0	1948-bon/alt

1-Methyldecyl undecanoate

[55194-01-9]

C₂₂H₄₄O₂

MW = 340.59

368

Table 1. Fit with estimated *B* coefficient for 4 accepted points. Deviation σ_w = 0.967.

Coefficient	$\rho = A + BT$
<i>A</i>	1079.71
<i>B</i>	-0.760

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

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{calc}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
290.15	858.4 ± 1.0	-0.80	1914-pic/ken-1
328.15	830.9 ± 1.0	0.58	1914-pic/ken-1
363.15	805.0 ± 1.0	1.28	1914-pic/ken-1
399.15	775.3 ± 1.0	-1.06	1914-pic/ken-1

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	859.3 ± 1.7	330.00	828.9 ± 1.4	370.00	798.5 ± 1.4
293.15	856.9 ± 1.7	340.00	821.3 ± 1.3	380.00	790.9 ± 1.5
298.15	853.1 ± 1.6	350.00	813.7 ± 1.3	390.00	783.3 ± 1.6
310.00	844.1 ± 1.5	360.00	806.1 ± 1.4	400.00	775.7 ± 1.7
320.00	836.5 ± 1.4				

1-Methylheptyl tetradecanoate

[55194-44-0]

C₂₂H₄₄O₂

MW = 340.59

369

Table 1. Fit with estimated *B* coefficient for 4 accepted points. Deviation $\sigma_{\text{w}} = 0.604$.

Coefficient	$\rho = A + BT$
<i>A</i>	1071.13
<i>B</i>	-0.740

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

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{calc}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
290.15	856.2 ± 1.0	-0.22	1914-pic/ken-1
329.15	827.4 ± 1.0	-0.16	1914-pic/ken-1
363.15	803.4 ± 1.0	1.00	1914-pic/ken-1
415.15	763.3 ± 1.0	-0.62	1914-pic/ken-1

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	856.5 ± 1.6	330.00	826.9 ± 1.1	380.00	789.9 ± 1.2
293.15	854.2 ± 1.6	340.00	819.5 ± 1.1	390.00	782.5 ± 1.4
298.15	850.5 ± 1.5	350.00	812.1 ± 1.1	400.00	775.1 ± 1.5
310.00	841.7 ± 1.3	360.00	804.7 ± 1.1	410.00	767.7 ± 1.6
320.00	834.3 ± 1.2	370.00	797.3 ± 1.2	420.00	760.3 ± 1.8

1-Methylnonyl dodecanoate

[55194-30-4]

C₂₂H₄₄O₂

MW = 340.59

370

Table 1. Fit with estimated *B* coefficient for 4 accepted points. Deviation $\sigma_{\text{w}} = 0.925$.

Coefficient	$\rho = A + BT$
<i>A</i>	1077.09
<i>B</i>	-0.750

cont.

1-Methylnonyl dodecanoate (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	859.8 ± 1.0	-1.18	1914-pic/ken-1
318.15	839.5 ± 1.0	1.02	1914-pic/ken-1
357.15	810.0 ± 1.0	0.77	1914-pic/ken-1
401.15	775.6 ± 1.0	-0.63	1914-pic/ken-1

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	867.1 ± 1.8	320.00	837.1 ± 1.4	370.00	799.6 ± 1.4
290.00	859.6 ± 1.6	330.00	829.6 ± 1.3	380.00	792.1 ± 1.5
293.15	857.2 ± 1.6	340.00	822.1 ± 1.3	390.00	784.6 ± 1.6
298.15	853.5 ± 1.5	350.00	814.6 ± 1.3	400.00	777.1 ± 1.7
310.00	844.6 ± 1.4	360.00	807.1 ± 1.3	410.00	769.6 ± 1.9

1-Methylpentyl hexadecanoate [55194-91-7] C₂₂H₄₄O₂ MW = 340.59 371

Table 1. Fit with estimated *B* coefficient for 4 accepted points. Deviation σ_w = 0.635.

Coefficient	$\rho = A + BT$
<i>A</i>	1066.19
<i>B</i>	-0.725

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.
299.15	849.2 ± 1.0	-0.11	1914-pic/ken-1
325.15	831.4 ± 1.0	0.94	1914-pic/ken-1
364.15	802.2 ± 1.0	0.02	1914-pic/ken-1
395.65	778.5 ± 1.0	-0.85	1914-pic/ken-1

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	855.9 ± 1.6	330.00	826.9 ± 1.1	370.00	797.9 ± 1.2
293.15	853.7 ± 1.5	340.00	819.7 ± 1.1	380.00	790.7 ± 1.3
298.15	850.0 ± 1.5	350.00	812.4 ± 1.1	390.00	783.4 ± 1.4
310.00	841.4 ± 1.3	360.00	805.2 ± 1.1	400.00	776.2 ± 1.5
320.00	834.2 ± 1.2				

1-Methylpropyl octadecanoate

[55195-02-3]

C₂₂H₄₄O₂

MW = 340.59

372

Table 1. Fit with estimated *B* coefficient for 4 accepted points. Deviation $\sigma_w = 0.818$.

Coefficient	$\rho = A + BT$
<i>A</i>	1080.12
<i>B</i>	-0.760

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.
302.15	849.8 ± 1.0	-0.69	1914-pic/ken-1
330.65	829.3 ± 1.0	0.47	1914-pic/ken-1
360.15	807.5 ± 1.0	1.09	1914-pic/ken-1
389.65	783.1 ± 1.0	-0.89	1914-pic/ken-1

Table 3. Recommended values.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$
293.15	857.3 ± 1.6	330.00	829.3 ± 1.3	370.00	798.9 ± 1.3
298.15	853.5 ± 1.5	340.00	821.7 ± 1.2	380.00	791.3 ± 1.4
310.00	844.5 ± 1.4	350.00	814.1 ± 1.2	390.00	783.7 ± 1.5
320.00	836.9 ± 1.3	360.00	806.5 ± 1.2		

2-Methylpropyl octadecanoate

[646-13-9]

C₂₂H₄₄O₂

MW = 340.59

373

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	851.9 ± 1.0	1953-hag/dec

Heptyl hexadecanoate

[26718-83-2]

C₂₃H₄₆O₂

MW = 354.62

374

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.
288.15	863.4 ± 1.0	1937-rog/dvo

1-Methyldecyl dodecanoate

[55194-31-5]

C₂₃H₄₆O₂

MW = 354.62

375

Table 1. Fit with estimated *B* coefficient for 4 accepted points. Deviation $\sigma_w = 0.794$.

Coefficient	$\rho = A + BT$
<i>A</i>	1073.26
<i>B</i>	-0.740

cont.

1-Methyldecyl dodecanoate (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.
289.15	858.5 ± 1.0	-0.78	1914-pic/ken-1
325.15	833.6 ± 1.0	0.96	1914-pic/ken-1
364.15	804.4 ± 1.0	0.62	1914-pic/ken-1
399.15	777.1 ± 1.0	-0.78	1914-pic/ken-1

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	866.1 ± 1.8	320.00	836.5 ± 1.3	370.00	799.5 ± 1.3
290.00	858.7 ± 1.6	330.00	829.1 ± 1.2	380.00	792.1 ± 1.4
293.15	856.3 ± 1.6	340.00	821.7 ± 1.2	390.00	784.7 ± 1.5
298.15	852.6 ± 1.5	350.00	814.3 ± 1.2	400.00	777.3 ± 1.6
310.00	843.9 ± 1.4	360.00	806.9 ± 1.2		

1-Methylhexyl hexadecanoate

[55194-87-1]

C₂₃H₄₆O₂

MW = 354.62

376

Table 1. Fit with estimated *B* coefficient for 2 accepted points. Deviation σ_w = 0.450.

Coefficient	$\rho = A + BT$
<i>A</i>	1069.12
<i>B</i>	-0.720

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.
323.15	836.0 ± 1.0	-0.45	1914-pic/ken-1
368.15	804.5 ± 1.0	0.45	1914-pic/ken-1

Table 3. Recommended values.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$
320.00	838.7 ± 1.4
330.00	831.5 ± 1.2
340.00	824.3 ± 1.0
350.00	817.1 ± 1.0
360.00	809.9 ± 1.2
370.00	802.7 ± 1.4

1-Methylheptyl hexadecanoate

[55194-81-5]

C₂₄H₄₈O₂

MW = 368.64

377

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.
318.15	837.2 ± 3.0	1914-pic/ken-1
366.15	808.8 ± 3.0	1914-pic/ken-1
407.15	784.1 ± 3.0	1914-pic/ken-1

1-Methylpentyl octadecanoate

[55194-89-3]

C₂₄H₄₈O₂

MW = 368.64

378

Table 1. Fit with estimated *B* coefficient for 4 accepted points. Deviation σ_w = 1.135.

Coefficient	$\rho = A + BT$
<i>A</i>	1084.37
<i>B</i>	-0.760

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.
304.65	851.4 ± 1.0	-1.43	1914-pic/ken-1
325.15	839.0 ± 1.0	1.75	1914-pic/ken-1
361.65	809.4 ± 1.0	-0.11	1914-pic/ken-1
396.15	783.1 ± 1.0	-0.19	1914-pic/ken-1

Table 3. Recommended values.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$
293.15	861.6 ± 1.8	330.00	833.6 ± 1.5	370.00	803.2 ± 1.5
298.15	857.8 ± 1.7	340.00	826.0 ± 1.5	380.00	795.6 ± 1.6
310.00	848.8 ± 1.6	350.00	818.4 ± 1.4	390.00	788.0 ± 1.7
320.00	841.2 ± 1.5	360.00	810.8 ± 1.5	400.00	780.4 ± 1.8

1-Methylundecyl dodecanoate

[55194-32-6]

C₂₄H₄₈O₂

MW = 368.64

379

Table 1. Fit with estimated *B* coefficient for 4 accepted points. Deviation σ_w = 0.329.

Coefficient	$\rho = A + BT$
<i>A</i>	1068.71
<i>B</i>	-0.720

cont.

1-Methylundecyl dodecanoate (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.
289.15	860.4 ± 1.0	-0.12	1914-pic/ken-1
323.15	836.6 ± 1.0	0.56	1914-pic/ken-1
364.15	806.4 ± 1.0	-0.12	1914-pic/ken-1
400.15	780.3 ± 1.0	-0.30	1914-pic/ken-1

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	867.1 ± 1.6	320.00	838.3 ± 1.1	370.00	802.3 ± 1.1
290.00	859.9 ± 1.4	330.00	831.1 ± 1.0	380.00	795.1 ± 1.2
293.15	857.6 ± 1.4	340.00	823.9 ± 1.0	390.00	787.9 ± 1.3
298.15	854.0 ± 1.3	350.00	816.7 ± 1.0	400.00	780.7 ± 1.5
310.00	845.5 ± 1.2	360.00	809.5 ± 1.0	410.00	773.5 ± 1.6

1-Methyldecyl tetradecanoate

[55194-47-3]

C₂₅H₅₀O₂

MW = 382.67

380

Table 1. Fit with estimated *B* coefficient for 4 accepted points. Deviation $\sigma_w = 0.658$.

Coefficient	$\rho = A + BT$
<i>A</i>	1072.56
<i>B</i>	-0.740

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.
287.15	859.3 ± 1.0	-0.77	1914-pic/ken-1
325.15	832.9 ± 1.0	0.95	1914-pic/ken-1
362.15	804.8 ± 1.0	0.23	1914-pic/ken-1
398.15	777.5 ± 1.0	-0.43	1914-pic/ken-1

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	865.4 ± 1.7	320.00	835.8 ± 1.2	370.00	798.8 ± 1.2
290.00	858.0 ± 1.5	330.00	828.4 ± 1.1	380.00	791.4 ± 1.3
293.15	855.6 ± 1.5	340.00	821.0 ± 1.1	390.00	784.0 ± 1.5
298.15	851.9 ± 1.4	350.00	813.6 ± 1.1	400.00	776.6 ± 1.6
310.00	843.2 ± 1.3	360.00	806.2 ± 1.2		

1-Methyldodecyl dodecanoate

[55194-33-7]

C₂₅H₅₀O₂

MW = 382.67

381

Table 1. Fit with estimated *B* coefficient for 4 accepted points. Deviation $\sigma_w = 0.745$.

Coefficient	$\rho = A + BT$
<i>A</i>	1060.20
<i>B</i>	-0.700

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

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{\rho_{\text{exp}} - \rho_{\text{calc}}}{\text{kg} \cdot \text{m}^{-3}}$	Ref.
283.15	861.6 ± 1.0	-0.40	1914-pic/ken-1
323.15	834.5 ± 1.0	0.50	1914-pic/ken-1
362.15	807.6 ± 1.0	0.90	1914-pic/ken-1
397.15	781.2 ± 1.0	-1.00	1914-pic/ken-1

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	864.2 ± 1.7	320.00	836.2 ± 1.2	370.00	801.2 ± 1.3
290.00	857.2 ± 1.6	330.00	829.2 ± 1.2	380.00	794.2 ± 1.4
293.15	855.0 ± 1.5	340.00	822.2 ± 1.2	390.00	787.2 ± 1.5
298.15	851.5 ± 1.5	350.00	815.2 ± 1.2	400.00	780.2 ± 1.7
310.00	843.2 ± 1.3	360.00	808.2 ± 1.2		

1-Methylhexyl octadecanoate

[55194-85-9]

C₂₅H₅₀O₂

MW = 382.67

382

Table 1. Fit with estimated *B* coefficient for 3 accepted points. Deviation $\sigma_w = 0.896$.

Coefficient	$\rho = A + BT$
<i>A</i>	1069.44
<i>B</i>	-0.725

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.
308.15	845.4 ± 1.0	-0.63	1914-pic/ken-1
336.15	827.0 ± 1.0	1.27	1914-pic/ken-1
372.15	799.0 ± 1.0	-0.63	1914-pic/ken-1

cont.

1-Methylhexyl octadecanoate (cont.)

Table 3. Recommended values.

$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$	$\frac{T}{\text{K}}$	$\frac{\rho_{\text{exp}} \pm 2\sigma_{\text{est}}}{\text{kg} \cdot \text{m}^{-3}}$
293.15	856.9 ± 1.6	330.00	830.2 ± 1.3	360.00	808.4 ± 1.3
298.15	853.3 ± 1.5	340.00	822.9 ± 1.3	370.00	801.2 ± 1.4
310.00	844.7 ± 1.4	350.00	815.7 ± 1.3	380.00	793.9 ± 1.5
320.00	837.4 ± 1.3				

1-Methylheptyl octadecanoate

[500003-57-6]

C₂₈H₅₆O₂

MW = 424.75

383

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.
311.15	841.0 ± 3.0	1914-pic/ken-1
356.15	812.9 ± 3.0	1914-pic/ken-1
406.15	784.0 ± 3.0	1914-pic/ken-1

Decyl octadecanoate

[32509-55-0]

C₂₈H₅₆O₂

MW = 424.75

384

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.
353.15	842.3 ± 0.8	1952-mcg/cur