9-Octadecenoic acid (Z)-, methyl ester

Other names:	(Z)-9-Methyl octadecenoate
	(Z)-9-OCTADECENOIC ACID METHYL ESTER
	(Z)-9-octadecenoic acid, methyl ester
	9-Octadecenoic acid (9Z)-, methyl ester
	9-octadecenoic acid, methyl ester (Z)
	ADJ 100
	CIS-9-OCTADECENOIC ACID
	Edenor Me 90/95V
	Edenor MeTiO5
	Emerest 2801
	Emery 2301
	Emery oleic acid ester 2301
	Emery, oleic acid ester
	Esterol 112
	Exceparl M-OL
	Kemester 205
	METHYL ESTER
	METHYL OLEATE
	Methyl (9z)-9-octadecenoate
	Methyl (Z)-9-octadecenoate
	Methyl (Z)-9-oleate
	Methyl 9-octadecenoate, cis-
	Methyl cis-9-octadecenoate
	Methyl-cis-oleate
	Nissan Unister M 182A
	OLEIC ACID
	Oleic acid, methyl ester
	Oleic acid, methyl ester, cis-
	Phytorob 926-67
	Priolube 1400
	Priolube 1403
	Unister M 182A
	Witconol 2301
	cis-9-Octadecenoic acid, methyl ester
	cis-9-Octyldecenoic acid, methyl ester
	cis-methyl oleate
Inchi:	InChI=1S/C19H36O2/c1-3-4-5-6-7-8-9-10-11-12-13-14-15-16-17-18-19(20)21-2/h10-11H
InchiKey:	QYDYPVFESGNLHU-KHPPLWFESA-N
Formula:	C19H36O2
SMILES:	CCCCCCCCC=CCCCCCCCC(=O)OC

Mol. weight [g/mol]: 296.49
CAS: 112-62-9

Physical Properties

Property code	Value	Unit	Source
chl	-11887.00 ± 12.00	kJ/mol	NIST Webbook
chl	-11832.40 ± 1.50	kJ/mol	NIST Webbook
gf	-44.60	kJ/mol	Joback Method
hf	-563.07	kJ/mol	Joback Method
hfl	-727.64	kJ/mol	NIST Webbook
hfus	47.95	kJ/mol	Joback Method
hvap	67.00	kJ/mol	Joback Method
log10ws	-6.49		Crippen Method
logp	6.197		Crippen Method
mcvol	281.710	ml/mol	McGowan Method
pc	1153.78	kPa	Joback Method
rinpol	2082.00		NIST Webbook
rinpol	357.70		NIST Webbook
rinpol	2086.00		NIST Webbook
rinpol	2086.00		NIST Webbook
rinpol	2081.00		NIST Webbook
rinpol	2105.00		NIST Webbook
rinpol	2062.00		NIST Webbook
rinpol	2084.00		NIST Webbook
rinpol	2102.00		NIST Webbook
rinpol	2085.00		NIST Webbook
rinpol	2101.00		NIST Webbook
rinpol	2083.00		NIST Webbook
rinpol	2082.00		NIST Webbook
rinpol	2079.00		NIST Webbook
rinpol	2080.00		NIST Webbook
rinpol	2078.00		NIST Webbook
rinpol	2045.00		NIST Webbook
rinpol	2100.00		NIST Webbook
rinpol	2086.00		NIST Webbook
rinpol	2087.00		NIST Webbook
rinpol	2085.00		NIST Webbook
rinpol	2081.00		NIST Webbook
rinpol	2085.00		NIST Webbook
rinpol	2098.10		NIST Webbook

rinpol	2074.70	NIST Webbook
rinpol	2072.00	NIST Webbook
rinpol	2085.00	NIST Webbook
rinpol	2081.00	NIST Webbook
rinpol	2081.00	NIST Webbook
rinpol	2104.00	NIST Webbook
rinpol	2086.00	NIST Webbook
rinpol	2085.00	NIST Webbook
rinpol	2086.00	NIST Webbook
rinpol	2082.00	NIST Webbook
rinpol	2103.00	NIST Webbook
rinpol	2087.00	NIST Webbook
rinpol	2077.00	NIST Webbook
rinpol	2082.00	NIST Webbook
rinpol	2079.00	NIST Webbook
rinpol	2082.49	NIST Webbook
rinpol	2079.00	NIST Webbook
rinpol	2076.00	NIST Webbook
rinpol	2078.92	NIST Webbook
rinpol	2073.44	NIST Webbook
rinpol	2071.63	NIST Webbook
rinpol	2086.34	NIST Webbook
rinpol	2072.42	NIST Webbook
rinpol	2077.28	NIST Webbook
rinpol	2072.14	NIST Webbook
rinpol	2108.90	NIST Webbook
rinpol	2087.00	NIST Webbook
rinpol	2085.00	NIST Webbook
rinpol	2106.00	NIST Webbook
rinpol	2084.00	NIST Webbook
rinpol	2095.00	NIST Webbook
rinpol	2074.00	NIST Webbook
rinpol	2098.10	NIST Webbook
rinpol	2106.00	NIST Webbook
rinpol	2085.00	NIST Webbook
rinpol	2081.00	NIST Webbook
rinpol	2080.00	NIST Webbook
ripol	2426.00	NIST Webbook
ripol	2472.00	NIST Webbook
ripol	2433.00	NIST Webbook
ripol	2439.00	NIST Webbook
ripol	2472.00	NIST Webbook
ripol	2476.00	NIST Webbook
ripol	2452.00	NIST Webbook

ripol	2439.00		NIST Webbook
ripol	2434.00		NIST Webbook
ripol	2433.00		NIST Webbook
ripol	2426.00		NIST Webbook
ripol	2424.00		NIST Webbook
ripol	2429.00		NIST Webbook
ripol	2455.00		NIST Webbook
ripol	2439.00		NIST Webbook
ripol	2435.00		NIST Webbook
ripol	2436.00		NIST Webbook
ripol	2434.00		NIST Webbook
ripol	2403.00		NIST Webbook
ripol	2400.00		NIST Webbook
tb	714.57	K	Joback Method
tc	777.00	K	Vapor-liquid critical point measurements of fifteen compounds by the pulse-heating method
tf	370.97	K	Joback Method
vc	1.103	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	826.19	J/mol×K	714.57	Joback Method
cpg	844.92	J/mol×K	743.44	Joback Method
cpg	862.78	J/mol×K	772.30	Joback Method
cpg	879.80	J/mol×K	801.17	Joback Method
cpg	896.00	J/mol×K	830.04	Joback Method
cpg	911.43	J/mol×K	858.90	Joback Method
cpg	926.09	J/mol×K	887.77	Joback Method
dvisc	0.0020540	Pa×s	343.15	Group Contribution Model for Predicting Viscosity of Fatty Compounds
dvisc	0.0074518	Pa×s	288.15	Densities and Viscosities of Fatty Acid Methyl and Ethyl Esters
dvisc	0.0064499	Pa×s	293.15	Densities and Viscosities of Fatty Acid Methyl and Ethyl Esters

dvisc	0.0056336	Pa×s	298.15	Densities and Viscosities of Fatty Acid Methyl and Ethyl Esters
dvisc	0.0049612	Pa×s	303.15	Densities and Viscosities of Fatty Acid Methyl and Ethyl Esters
dvisc	0.0044012	Pa×s	308.15	Densities and Viscosities of Fatty Acid Methyl and Ethyl Esters
dvisc	0.0039303	Pa×s	313.15	Densities and Viscosities of Fatty Acid Methyl and Ethyl Esters
dvisc	0.0035306	Pa×s	318.15	Densities and Viscosities of Fatty Acid Methyl and Ethyl Esters
dvisc	0.0031892	Pa×s	323.15	Densities and Viscosities of Fatty Acid Methyl and Ethyl Esters
dvisc	0.0028944	Pa×s	328.15	Densities and Viscosities of Fatty Acid Methyl and Ethyl Esters
dvisc	0.0026377	Pa×s	333.15	Densities and Viscosities of Fatty Acid Methyl and Ethyl Esters
dvisc	0.0024160	Pa×s	338.15	Densities and Viscosities of Fatty Acid Methyl and Ethyl Esters
dvisc	0.0022216	Pa×s	343.15	Densities and Viscosities of Fatty Acid Methyl and Ethyl Esters
dvisc	0.0020499	Pa×s	348.15	Densities and Viscosities of Fatty Acid Methyl and Ethyl Esters
dvisc	0.0018974	Pa×s	353.15	Densities and Viscosities of Fatty Acid Methyl and Ethyl Esters
dvisc	0.0063700	Pa×s	293.15	Group Contribution Model for Predicting Viscosity of Fatty Compounds
dvisc	0.0049220	Pa×s	303.15	Group Contribution Model for Predicting Viscosity of Fatty Compounds

dvisc	0.0039390	Pa×s	313.15	Group Contribution Model for Predicting Viscosity of Fatty Compounds
dvisc	0.0086987	Pa×s	283.15	Densities and Viscosities of Fatty Acid Methyl and Ethyl Esters
dvisc	0.0024720	Pa×s	333.15	Group Contribution Model for Predicting Viscosity of Fatty Compounds
dvisc	0.0030970	Pa×s	323.15	Group Contribution Model for Predicting Viscosity of Fatty Compounds
hvapt	106.20	kJ/mol	298.15	the vaporization enthaplies and vapor pressures of a series of unstaurated fatty acid methyl esters by correlation gas chromatography
hvapt	77.20	kJ/mol	498.00	NIST Webbook
hvapt	77.20	kJ/mol	498.00	NIST Webbook
hvapt	86.30	kJ/mol	425.00	NIST Webbook
hvapt	83.00	kJ/mol	457.00	NIST Webbook
hvapt	84.39	kJ/mol	293.00	NIST Webbook
hvapt	86.70	kJ/mol	429.50	NIST Webbook
pvap	2.80e-05	kPa	323.15	The Use of Antioxidants to Improve Vapor Pressure Measurements on Compounds with Oxidative Instability: Methyl Oleate with tert-Butylhydroquinone
pvap	8.13e-06	kPa	313.15	The Use of Antioxidants to Improve Vapor Pressure Measurements on Compounds with Oxidative Instability: Methyl Oleate with tert-Butylhydroquinone

pvap	3.06e-05	kPa	323.15	The Use of Antioxidants to Improve Vapor Pressure Measurements on Compounds with Oxidative Instability: Methyl Oleate with tert-Butylhydroquinone
pvap	9.19e-05	kPa	333.15	The Use of Antioxidants to Improve Vapor Pressure Measurements on Compounds with Oxidative Instability: Methyl Oleate with tert-Butylhydroquinone
pvap	2.83e-05	kPa	323.15	The Use of Antioxidants to Improve Vapor Pressure Measurements on Compounds with Oxidative Instability: Methyl Oleate with tert-Butylhydroquinone
pvap	1.99e-06	kPa	303.15	The Use of Antioxidants to Improve Vapor Pressure Measurements on Compounds with Oxidative Instability: Methyl Oleate with tert-Butylhydroquinone
pvap	3.09e-05	kPa	323.15	The Use of Antioxidants to Improve Vapor Pressure Measurements on Compounds with Oxidative Instability: Methyl Oleate with tert-Butylhydroquinone
pvap	2.42e-04	kPa	343.15	The Use of Antioxidants to Improve Vapor Pressure Measurements on Compounds with Oxidative Instability: Methyl Oleate with tert-Butylhydroquinone

pvap	2.83e-05	kPa	323.15	The Use of Antioxidants to Improve Vapor Pressure Measurements on Compounds with Oxidative Instability: Methyl Oleate with tert-Butylhydroquinone
speedsl	1250.00	m/s	338.15	Density and Speed of Sound Measurements on Five Fatty Acid Methyl Esters at 83 kPa and Temperatures from (278.15 to 338.15) K
speedsl	1425.00	m/s	288.15	Density and Speed of Sound Measurements on Five Fatty Acid Methyl Esters at 83 kPa and Temperatures from (278.15 to 338.15) K
speedsl	1389.00	m/s	298.15	Density and Speed of Sound Measurements on Five Fatty Acid Methyl Esters at 83 kPa and Temperatures from (278.15 to 338.15) K
speedsl	1353.00	m/s	308.15	Density and Speed of Sound Measurements on Five Fatty Acid Methyl Esters at 83 kPa and Temperatures from (278.15 to 338.15) K
speedsl	1318.00	m/s	318.15	Density and Speed of Sound Measurements on Five Fatty Acid Methyl Esters at 83 kPa and Temperatures from (278.15 to 338.15) K

speedsl	1284.00	m/s	328.15	Density and Speed of Sound Measurements on Five Fatty Acid Methyl Esters at 83 kPa and Temperatures from (278.15 to 338.15) K
speedsl	1462.00	m/s	278.15	Density and Speed of Sound Measurements on Five Fatty Acid Methyl Esters at 83 kPa and Temperatures from (278.15 to 338.15) K

Pressure Dependent Properties

Property code	Value	Unit	Pressure [kPa]	Source
tbrp	491.70	K	2.70	NIST Webbook

Correlations

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/(T + C)
Coeff. A	1.42421e+01
Coeff. B	-5.28740e+03
Coeff. C	-1.01816e+02
Temperature range (K), min.	480.72
Temperature range (K), max.	693.87

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/T + C*ln(T) + D*T^2
Coeff. A	1.94662e+02
Coeff. B	-1.98622e+04
Coeff. C	-2.50644e+01

Coeff. D	8.34958e-06
Temperature range (K), min.	293.05
Temperature range (K), max.	764.00

Datasets

Mass density, kg/m3

Temperature, K - Liquid	Pressure, kPa - Liquid	Mass density, kg/m3 - Liquid
270.00	490.00	892.3
270.00	990.00	892.6
270.00	1990.00	893.2
270.00	2990.00	893.7
270.00	3990.00	894.3
270.00	4990.00	894.8
270.00	9990.00	897.4
270.00	19990.00	902.4
270.00	29990.00	907.1
270.00	39990.00	911.7
270.00	49830.00	915.9
290.00	490.00	877.7
290.00	1000.00	878.0
290.00	2000.00	878.6
290.00	3000.00	879.2
290.00	3990.00	879.8
290.00	4990.00	880.4
290.00	10000.00	883.3
290.00	19990.00	888.7
290.00	29990.00	893.8
290.00	39990.00	898.7
290.00	49960.00	903.4
310.00	490.00	863.3
310.00	990.00	863.6
310.00	2000.00	864.3
310.00	3000.00	865.0
310.00	4000.00	865.6
310.00	5000.00	866.2
310.00	9990.00	869.3
310.00	20000.00	875.3

310.00	29990.00	880.8
310.00	39990.00	886.1
310.00	49990.00	891.1
330.00	500.00	849.0
330.00	1000.00	849.3
330.00	2000.00	850.1
330.00	3000.00	850.8
330.00	3990.00	851.5
330.00	4990.00	852.2
330.00	10000.00	855.6
330.00	19990.00	862.0
330.00	29990.00	868.0
330.00	39990.00	873.6
330.00	49990.00	878.9
350.00	500.00	834.6
350.00	990.00	835.0
350.00	2000.00	835.8
350.00	2990.00	836.6
350.00	3990.00	837.3
350.00	5000.00	838.1
350.00	9990.00	841.8
350.00	20000.00	848.8
350.00	30000.00	855.3
350.00	40000.00	861.3
350.00	49980.00	867.0
370.00	500.00	820.1
370.00	990.00	820.6
370.00	1990.00	821.4
370.00	2990.00	822.3
370.00	3990.00	823.2
370.00	5010.00	824.0
370.00	10000.00	828.1
370.00	20010.00	835.7
370.00	29990.00	842.6
370.00	39990.00	849.1
370.00	49970.00	855.1
390.00	490.00	805.7
390.00	990.00	806.2
390.00	2000.00	807.1
390.00	3000.00	808.1
390.00	3990.00	809.0
390.00	5000.00	810.0
390.00	10000.00	814.5
390.00	19990.00	822.7

390.00	29980.00	830.2
390.00	40000.00	837.2
390.00	49990.00	843.6
410.00	490.00	791.0
410.00	990.00	791.6
410.00	2000.00	792.7
410.00	3000.00	793.7
410.00	3990.00	794.8
410.00	5000.00	795.8
410.00	10000.00	800.8
410.00	20000.00	809.8
410.00	30000.00	817.9
410.00	39990.00	825.3
410.00	50000.00	832.2
430.00	500.00	776.2
430.00	1000.00	776.8
430.00	1990.00	778.0
430.00	3000.00	779.2
430.00	3990.00	780.3
430.00	4990.00	781.5
430.00	9990.00	786.9
430.00	19990.00	796.7
430.00	29990.00	805.5
430.00	39990.00	813.5
430.00	49990.00	820.8
450.00	490.00	761.2
450.00	1000.00	761.9
450.00	1990.00	763.2
450.00	2990.00	764.5
450.00	3990.00	765.8
450.00	5000.00	767.1
450.00	10000.00	773.1
450.00	20000.00	783.9
450.00	29990.00	793.3
450.00	39990.00	801.9
450.00	50010.00	809.7
470.00	490.00	746.3
470.00	990.00	747.0
470.00	2000.00	748.6
470.00	2990.00	750.0
470.00	3990.00	751.5
470.00	5010.00	752.9
470.00	10000.00	759.5
470.00	19990.00	771.2

470.00	29990.00	781.5
470.00	39990.00	790.6
470.00	49970.00	798.8

Reference *https://www.doi.org/10.1021/je2008582*

Speed of sound, m/s

Pressure, kPa - Liquid	Temperature, K - Liquid	Speed of sound, m/s - Liquid
101.30	283.15	1443.2
101.30	363.15	1170.9
101.30	303.15	1370.5
101.30	383.15	1108.9
101.30	323.15	1301.9
101.30	393.15	1078.5
101.30	343.15	1235.8
10000.00	283.15	1486.1
10000.00	363.15	1228.2
10000.00	303.15	1416.8
10000.00	383.15	1170.4
10000.00	323.15	1352.1
10000.00	393.15	1142.4
10000.00	343.15	1289.0
20000.00	363.15	1280.6
20000.00	283.15	1526.5
20000.00	303.15	1460.0
20000.00	383.15	1226.5
20000.00	323.15	1397.7
20000.00	393.15	1200.0
20000.00	343.15	1338.1
30000.00	363.15	1329.3
30000.00	303.15	1502.0
30000.00	283.15	1564.5
30000.00	383.15	1277.8
30000.00	323.15	1441.1
30000.00	393.15	1252.0
30000.00	343.15	1383.7
40000.00	303.15	1540.9
40000.00	383.15	1324.6
40000.00	283.15	1600.5
40000.00	363.15	1374.0

40000.00	323.15	1482.3
40000.00	393.15	1299.9
40000.00	343.15	1426.0
50000.00	303.15	1578.3
50000.00	383.15	1367.4
50000.00	323.15	1521.2
50000.00	283.15	1634.5
50000.00	363.15	1414.4
50000.00	393.15	1343.8
50000.00	343.15	1466.7
60000.00	303.15	1613.7
60000.00	383.15	1407.7
60000.00	323.15	1558.5
60000.00	393.15	1384.5
60000.00	283.15	1668.6
60000.00	363.15	1454.6
60000.00	343.15	1505.4
70000.00	283.15	1701.0
70000.00	383.15	1446.1
70000.00	323.15	1593.5
70000.00	363.15	1492.2
70000.00	393.15	1423.6
70000.00	303.15	1647.0
70000.00	343.15	1542.2
80000.00	303.15	1678.8
80000.00	363.15	1527.5
80000.00	383.15	1481.7
80000.00	283.15	1732.7
80000.00	323.15	1627.2
80000.00	393.15	1460.2
80000.00	343.15	1575.4
90000.00	303.15	1709.5
90000.00	383.15	1516.9
90000.00	363.15	1563.5
90000.00	323.15	1659.3
90000.00	393.15	1495.7
90000.00	283.15	1762.7
90000.00	343.15	1609.4
100000.00	383.15	1550.2
100000.00	363.15	1597.2
100000.00	303.15	1739.7
100000.00	323.15	1690.2
100000.00	393.15	1529.7
100000.00	283.15	1790.8

100000.00	343.15	1641.6
110000.00	283.15	1819.3
110000.00	363.15	1629.1
110000.00	383.15	1583.4
110000.00	323.15	1719.3
110000.00	303.15	1768.5
110000.00	393.15	1562.8
110000.00	343.15	1672.6
120000.00	323.15	1747.7
120000.00	283.15	1846.0
120000.00	363.15	1659.3
120000.00	303.15	1796.4
120000.00	383.15	1615.8
120000.00	393.15	1593.9
120000.00	343.15	1701.9
130000.00	323.15	1775.4
130000.00	393.15	1624.5
130000.00	283.15	1872.5
130000.00	363.15	1687.5
130000.00	303.15	1821.2
130000.00	383.15	1645.9
130000.00	343.15	1729.9
140000.00	393.15	1654.6
140000.00	363.15	1715.4
140000.00	303.15	1848.1
140000.00	283.15	1897.8
140000.00	323.15	1801.6
140000.00	383.15	1674.2
140000.00	343.15	1757.3
150000.00	363.15	1741.8
150000.00	303.15	1874.2
150000.00	393.15	1683.0
150000.00	283.15	1923.3
150000.00	383.15	1701.5
150000.00	323.15	1827.1
150000.00	343.15	1783.8
160000.00	323.15	1853.0
160000.00	383.15	1729.4
160000.00	393.15	1710.3
160000.00	283.15	1947.8
160000.00	303.15	1899.0
160000.00	363.15	1766.9
160000.00	343.15	1809.7
170000.00	393.15	1736.2

170000.00	323.15	1878.4
170000.00	303.15	1923.1
170000.00	383.15	1755.3
170000.00	363.15	1793.1
170000.00	283.15	1971.2
170000.00	343.15	1834.3
180000.00	393.15	1761.2
180000.00	283.15	1994.3
180000.00	323.15	1902.6
180000.00	363.15	1817.7
180000.00	383.15	1781.4
180000.00	303.15	1947.0
180000.00	343.15	1859.7
190000.00	393.15	1785.3
190000.00	383.15	1805.7
190000.00	303.15	1970.3
190000.00	283.15	2016.8
190000.00	363.15	1841.2
190000.00	323.15	1925.8
190000.00	343.15	1883.4
200000.00	283.15	2036.4
200000.00	323.15	1949.2
200000.00	303.15	1992.7
200000.00	343.15	1905.8
200000.00	363.15	1864.9
200000.00	383.15	1828.3
200000.00	393.15	1809.7

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Legend

chl:	Standard liquid enthalpy of combustion
cpg:	Ideal gas heat capacity
dvisc:	Dynamic viscosity
gf:	Standard Gibbs free energy of formation
hf:	Enthalpy of formation at standard conditions
hfl:	Liquid phase enthalpy of formation at standard conditions
hfus:	Enthalpy of fusion at standard conditions
hvap:	Enthalpy of vaporization at standard conditions
hvapt:	Enthalpy of vaporization at a given temperature
log10ws:	Log10 of Water solubility in mol/l
logp:	Octanol/Water partition coefficient
mcvol:	McGowan's characteristic volume
pc:	Critical Pressure
pvap:	Vapor pressure
rhol:	Liquid Density
rinpol:	Non-polar retention indices
ripol:	Polar retention indices
speedsl:	Speed of sound in fluid
tb:	Normal Boiling Point Temperature
tbrp:	Boiling point at reduced pressure
tc:	Critical Temperature
tf:	Normal melting (fusion) point
vc:	Critical Volume