

Oleic Acid

Other names:

(Z)-9-Octadecanoic acid
(Z)-9-octadecenoic acid
(Z)-Octadec-9-enoic acid
.DELTA.9-cis-octadecenoic acid
.DELTA.9-cis-oleic acid
9-(Z)-octadecenoic acid
9-Octadecenoic acid (9Z)-
9-Octadecenoic acid (Z)-
9-Octadecenoic acid, cis-
9-cis-octadecenoic acid
9-octadecenoic acid, (Z)-
Century cd fatty acid
D 100
Elaic acid
Elaidoic acid
Emersol 205
Emersol 210
Emersol 211
Emersol 213
Emersol 220 White Oleic Acid
Emersol 221 Low Titer White Oleic Acid
Emersol 6313 NF
Emersol 6321
Extraolein 90
Glycon RO
Glycon WO
Groco 2
Groco 4
Groco 5l
Groco 6
Hy-phi 1055
Hy-phi 1088
Hy-phi 2066
Hy-phi 2088
Hy-phi 2102
Industrene 105
Industrene 205
Industrene 206
K 52
L'Acide oleique

Metaupon
Oelsauere
Oleine 7503
Oleinic acid
Pamolyn
Pamolyn 100
Priolene 6906
Tego-oleic 130
Vopcolene 27
Wecoline OO
Wochem no. 320
Z-9-Octadecenoic acid
cis-.DELTA.9-octadecenoic acid
cis-9-Octadecenoic Acid
cis-Octadec-9-enoic acid
cis-Oleic Acid
cis-«DELTA»9-Octadecenoate
cis-«DELTA»9-octadecenoic acid
cis-Â«DELTAÂ»9-Octadecenoate
cis-Â«DELTAÂ»9-octadecenoic acid
lunac O-CA
neo-Fat 90-04
neo-Fat 92-04
priolene 6907
«DELTA»9-cis-Oleic acid
Â«DELTAÂ»9-cis-Oleic acid

Inchi: InChI=1S/C18H34O2/c1-2-3-4-5-6-7-8-9-10-11-12-13-14-15-16-17-18(19)20/h9-10H,2-8,
InchiKey: ZQPPMHVWECSIRJ-KTKRTIGZSA-N
Formula: C18H34O2
SMILES: CCCCCCCCC=CCCCCCCCC(=O)O
Mol. weight [g/mol]: 282.46
CAS: 112-80-1

Physical Properties

Property code	Value	Unit	Source
chl	-11160.70	kJ/mol	NIST Webbook
gf	-84.84	kJ/mol	Joback Method
hf	-562.44	kJ/mol	Joback Method
hfl	-764.80	kJ/mol	NIST Webbook

hfus	48.26	kJ/mol	Joback Method
hvap	79.05	kJ/mol	Joback Method
log10ws	-6.31		Crippen Method
logp	6.109		Crippen Method
mcvol	267.620	ml/mol	McGowan Method
pc	1332.96	kPa	Joback Method
rinpol	2161.00		NIST Webbook
rinpol	2131.00		NIST Webbook
rinpol	2140.00		NIST Webbook
rinpol	2140.00		NIST Webbook
rinpol	2171.00		NIST Webbook
rinpol	2115.00		NIST Webbook
rinpol	2097.00		NIST Webbook
rinpol	2102.00		NIST Webbook
rinpol	2175.00		NIST Webbook
rinpol	2141.00		NIST Webbook
rinpol	2137.00		NIST Webbook
rinpol	2152.00		NIST Webbook
rinpol	2141.00		NIST Webbook
rinpol	2147.00		NIST Webbook
rinpol	2152.00		NIST Webbook
rinpol	2113.00		NIST Webbook
rinpol	2146.10		NIST Webbook
rinpol	2130.00		NIST Webbook
rinpol	2175.00		NIST Webbook
rinpol	2175.00		NIST Webbook
rinpol	2131.00		NIST Webbook
rinpol	2141.00		NIST Webbook
rinpol	2147.00		NIST Webbook
rinpol	2147.00		NIST Webbook
rinpol	2116.00		NIST Webbook
rinpol	2146.00		NIST Webbook
rinpol	2090.00		NIST Webbook
rinpol	2155.00		NIST Webbook
rinpol	2180.00		NIST Webbook
rinpol	2115.00		NIST Webbook
rinpol	2115.00		NIST Webbook
rinpol	2110.00		NIST Webbook
rinpol	2161.00		NIST Webbook
rinpol	2112.00		NIST Webbook
rinpol	2115.00		NIST Webbook
rinpol	2131.00		NIST Webbook
rinpol	2152.00		NIST Webbook
rinpol	2175.00		NIST Webbook

rinpol	2120.00		NIST Webbook
rinpol	2173.00		NIST Webbook
rinpol	2161.00		NIST Webbook
rinpol	2098.00		NIST Webbook
rinpol	2112.00		NIST Webbook
rinpol	2146.00		NIST Webbook
rinpol	2141.00		NIST Webbook
rinpol	2180.00		NIST Webbook
rinpol	2155.00		NIST Webbook
ripol	3157.00		NIST Webbook
ripol	3157.00		NIST Webbook
ripol	3172.00		NIST Webbook
ripol	3184.00		NIST Webbook
ripol	3173.00		NIST Webbook
ripol	3172.00		NIST Webbook
ripol	3142.00		NIST Webbook
ripol	3184.00		NIST Webbook
ripol	3200.00		NIST Webbook
ripol	3157.00		NIST Webbook
ripol	3150.00		NIST Webbook
tb	761.45	K	Joback Method
tc	937.21	K	Joback Method
tf	289.45 ± 0.30	K	NIST Webbook
tf	289.45 ± 0.50	K	NIST Webbook
tf	286.70	K	Solid-Liquid Equilibria in Fatty Acid/Triglycerol Systems
vc	1.048	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	899.26	J/mol×K	937.21	Joback Method
cpg	827.83	J/mol×K	790.74	Joback Method
cpg	843.52	J/mol×K	820.04	Joback Method
cpg	858.48	J/mol×K	849.33	Joback Method
cpg	872.72	J/mol×K	878.62	Joback Method
cpg	886.31	J/mol×K	907.92	Joback Method
cpg	811.35	J/mol×K	761.45	Joback Method
dvisc	0.0023727	Pa×s	398.29	Joback Method
dvisc	0.0006419	Pa×s	458.82	Joback Method
dvisc	0.0002355	Pa×s	519.34	Joback Method

dvisc	0.0001065	Pa×s	579.87	Joback Method
dvisc	0.0000560	Pa×s	640.40	Joback Method
dvisc	0.0000210	Pa×s	761.45	Joback Method
dvisc	0.0000329	Pa×s	700.92	Joback Method
hfust	39.60	kJ/mol	286.50	NIST Webbook
hfust	39.60	kJ/mol	286.50	NIST Webbook
hvapt	132.60	kJ/mol	298.15	Vaporization, Sublimation and Fusion Enthalpies of Some Saturated and Unsaturated Long Chain Fatty Acids by Correlation Gas Chromatography
hvapt	83.80	kJ/mol	537.00	NIST Webbook
pvap	1.33	kPa	496.70	Vapor pressure data for fatty acids obtained using an adaptation of the DSC technique
pvap	2.67	kPa	513.10	Vapor pressure data for fatty acids obtained using an adaptation of the DSC technique
pvap	4.00	kPa	524.70	Vapor pressure data for fatty acids obtained using an adaptation of the DSC technique
pvap	5.33	kPa	532.10	Vapor pressure data for fatty acids obtained using an adaptation of the DSC technique
pvap	6.67	kPa	538.80	Vapor pressure data for fatty acids obtained using an adaptation of the DSC technique
pvap	8.00	kPa	543.80	Vapor pressure data for fatty acids obtained using an adaptation of the DSC technique
pvap	9.33	kPa	547.40	Vapor pressure data for fatty acids obtained using an adaptation of the DSC technique

Pressure Dependent Properties

Property code	Value	Unit	Pressure [kPa]	Source
tbrp	467.70	K	0.10	NIST Webbook

Correlations

Information	Value
Property code	pvap
Equation	$\ln(P_{vp}) = A + B/(T + C)$
Coeff. A	1.52924e+01
Coeff. B	-5.81882e+03
Coeff. C	-1.25923e+02
Temperature range (K), min.	514.15
Temperature range (K), max.	709.15

Sources

High-Pressure Phase Equilibria of the Ternary System Oleic Acid + Squalene
NIST Webbook:

Solid-Liquid Equilibria in Fatty Acid/Triglycerol Systems: Vapor Liquid Equilibrium of Carbon Dioxide + Ethyl Acetate + Oleic Acid Mixtures at High Pressures:

The Yaws Handbook of Vapor Pressure: Crippen Method:

Hydrogen solubility in triolein, and propane solubility in oleic acid for second generation biofuels by Gaschromatography oxygenation reaction: (R, R, R, 1, 2-Mesopropylidene Glycerol (Solketal) + Oleic Acid Systems at High Pressure

Physical properties of systems of interest to the edible oil industry: Viscosities of Fatty Mixtures

Experimental Data and Prediction: Liquid-Liquid Equilibrium for Ternary Systems Containing Water, Oleic Acid, and Olefins at Subcritical and Supercritical Conditions

Enthalpies of Some Saturated and Unsaturated Long Chain Fatty Acids obtained using a Combination of the DSC and Method:

<https://www.doi.org/10.1021/je060459u>

<http://webbook.nist.gov/cgi/cbook.cgi?ID=C112801&Units=SI>

<https://www.doi.org/10.1021/je101092j>

<https://www.doi.org/10.1021/acs.jced.7b00163>

https://en.wikipedia.org/wiki/Joback_method

<https://www.sciencedirect.com/book/9780128029992/the-yaws-handbook-of-vapor-pressure>

https://www.chemeo.com/doc/models/crippen_log10ws

<https://www.doi.org/10.1016/j.fluid.2013.11.006>

<https://www.doi.org/10.1021/je401051d>

<http://pubs.acs.org/doi/abs/10.1021/ci990307l>

<https://www.doi.org/10.1016/j.jct.2017.06.012>

<https://www.doi.org/10.1021/je700293s>

<https://www.doi.org/10.1021/je501174y>

<https://www.doi.org/10.1021/je5009729>

<https://www.doi.org/10.1016/j.tca.2012.07.034>

<http://link.springer.com/article/10.1007/BF02311772>

Solubility of Squalene and Fatty Acids
in Carbon Dioxide at Supercritical
Conditions. Binary and ternary dilution
activity coefficients for organic solutes
in supercritical carbon dioxide
primary and non-polar organic liquid
phase equilibria in 1-octanol, oleic acid,
and n-heptane mixtures:

<https://www.doi.org/10.1021/acs.jced.7b00620>

<https://www.doi.org/10.1016/j.jct.2012.12.009>

<https://www.doi.org/10.1016/j.fluid.2009.06.013>

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
hfust:	Enthalpy of fusion at a given temperature
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
rinpol:	Non-polar retention indices
ripol:	Polar retention indices
tb:	Normal Boiling Point Temperature
tbrp:	Boiling point at reduced pressure
tc:	Critical Temperature
tf:	Normal melting (fusion) point
vc:	Critical Volume

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