9-Octadecenoic acid, 12-hydroxy-, methyl ester, [R-(Z)]-

Other names: 12-Hydroxy-9-octadecenoic acid methyl ester
9-octadecenoic acid, 12-hydroxy-, [R]-, methyl ester
Flexricin P-1
Methyl ricinolate
Ricinoleic acid methyl ester
[R]-methyl 12-hydroxy-9-octadecenoate
methyl ricinoleate

Inchi: InChI=1S/C19H36O3/c1-3-4-5-12-15-18(20)16-13-10-8-6-7-9-11-14-17-19(21)22-2/h10,1

InchiKey: XKGDWZQXVZSXAO-GFBZKKKVSA-N

Formula: C19H36O3

SMILES: CCCCCCC(O)CC=CCCCCCCCC(=O)OC

Mol. weight [g/mol]: 312.49

CAS: 141-24-2

Physical Properties

Property code	Value	Unit	Source
cpl	696.53	J/mol×K	Energies of combustion and standard molar enthalpies of formation of ricinoleic acid and methyl ricinoleate
gf	-183.86	kJ/mol	Joback Method
hf	-720.58	kJ/mol	Joback Method
hfus	48.52	kJ/mol	Joback Method
hvap	83.29	kJ/mol	Joback Method
log10ws	-5.87		Crippen Method
logp	5.168		Crippen Method
mcvol	287.580	ml/mol	McGowan Method
pc	1236.35	kPa	Joback Method
tb	806.31	K	Joback Method
tc	988.85	K	Joback Method
tf	416.79	K	Joback Method
vc	1.117	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	964.47	J/mol×K	928.00	Joback Method
cpg	934.70	J/mol×K	867.16	Joback Method
cpg	918.57	J/mol×K	836.73	Joback Method
cpg	901.55	J/mol×K	806.31	Joback Method
cpg	978.17	J/mol×K	958.43	Joback Method
cpg	991.13	J/mol×K	988.85	Joback Method
cpg	949.99	J/mol×K	897.58	Joback Method
dvisc	0.0003895	Pa×s	481.71	Joback Method
dvisc	0.0001383	Pa×s	546.63	Joback Method
dvisc	0.0000611	Pa×s	611.55	Joback Method
dvisc	0.0000316	Pa×s	676.47	Joback Method
dvisc	0.0000184	Pa×s	741.39	Joback Method
dvisc	0.0000116	Pa×s	806.31	Joback Method
dvisc	0.0015155	Pa×s	416.79	Joback Method
hvapt	89.30	kJ/mol	498.00	NIST Webbook
rhol	857.50	kg/m3	383.23	Measurements and Correlations of the Density, Viscosity, and Vapor Pressure for Methyl Ricinoleate
rhol	865.80	kg/m3	373.26	Measurements and Correlations of the Density, Viscosity, and Vapor Pressure for Methyl Ricinoleate
rhol	875.00	kg/m3	363.38	Measurements and Correlations of the Density, Viscosity, and Vapor Pressure for Methyl Ricinoleate
rhol	883.30	kg/m3	353.06	Measurements and Correlations of the Density, Viscosity, and Vapor Pressure for Methyl Ricinoleate

rhol	895.80	kg/m3	343.32	Measurements and Correlations of the Density, Viscosity, and Vapor Pressure for Methyl Ricinoleate
rhol	904.00	kg/m3	333.25	Measurements and Correlations of the Density, Viscosity, and Vapor Pressure for Methyl Ricinoleate
rhol	910.30	kg/m3	323.05	Measurements and Correlations of the Density, Viscosity, and Vapor Pressure for Methyl Ricinoleate
rhol	916.70	kg/m3	313.33	Measurements and Correlations of the Density, Viscosity, and Vapor Pressure for Methyl Ricinoleate
rhol	921.20	kg/m3	303.17	Measurements and Correlations of the Density, Viscosity, and Vapor Pressure for Methyl Ricinoleate
rhol	928.50	kg/m3	293.16	Measurements and Correlations of the Density, Viscosity, and Vapor Pressure for Methyl Ricinoleate

Sources

Measurements and Correlations of the Density, Viscosity, and Vapor Pressure for Methyl Ricinoleate:	https://www.doi.org/10.1021/acs.jced.5b00545
Joback Method:	https://en.wikipedia.org/wiki/Joback_method
McGowan Method:	http://link.springer.com/article/10.1007/BF02311772
NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C141242&Units=SI
Crippen Method:	http://pubs.acs.org/doi/abs/10.1021/ci990307l
Crippen Method:	https://www.chemeo.com/doc/models/crippen_log10ws
Energies of combustion and standard molar enthalpies of formation of ricinoleic acid and methyl ricinoleate:	https://www.doi.org/10.1016/j.jct.2012.02.006

Legend

cpg:	Ideal gas heat capacity
cpl:	Liquid phase heat capacity
dvisc:	Dynamic viscosity
gf:	Standard Gibbs free energy of formation
hf:	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
rhol:	Liquid Density
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tf:	Normal melting (fusion) point
vc:	Critical Volume