

# 9-Hexadecenoic acid, methyl ester, (Z)-

**Other names:**

Methyl Z-9-hexadecenoate  
Methyl cis-hexadec-9-enoate  
Methyl palmitoleinate  
Palmitoleic acid, methyl ester  
cis-9-hexadecenoic acid, methyl ester  
methyl (Z)-9-hexadecenoate  
methyl (Z)-hexadec-9-enoate  
methyl cis-9-hexadecenoate  
methyl palmitoleate  
methyl palmitoleate  
palmitolic acid, methyl ester

**Inchi:** InChI=1S/C17H32O2/c1-3-4-5-6-7-8-9-10-11-12-13-14-15-16-17(18)19-2/h8-9H,3-7,10-1**InchiKey:** IZFGRAGOVZCUIB-HJWRWDBZSA-N**Formula:** C17H32O2**SMILES:** CCCCCCC=CCCCCCCC(=O)OC**Mol. weight [g/mol]:** 268.43**CAS:** 1120-25-8

## Physical Properties

Property code	Value	Unit	Source
chl	-10547.90 ± 1.50	kJ/mol	NIST Webbook
gf	-61.44	kJ/mol	Joback Method
hf	-521.79	kJ/mol	Joback Method
hfl	-674.29	kJ/mol	NIST Webbook
hfus	42.77	kJ/mol	Joback Method
hvap	96.40 ± 0.70	kJ/mol	NIST Webbook
log10ws	-5.65		Crippen Method
logp	5.417		Crippen Method
mcvol	253.530	ml/mol	McGowan Method
pc	1320.39	kPa	Joback Method
rinpol	1881.00		NIST Webbook
rinpol	1911.70		NIST Webbook
rinpol	1879.00		NIST Webbook
rinpol	1895.00		NIST Webbook
rinpol	1890.00		NIST Webbook
rinpol	1885.86		NIST Webbook
rinpol	1886.00		NIST Webbook

rinpol	1889.00		NIST Webbook
rinpol	1884.00		NIST Webbook
rinpol	1884.00		NIST Webbook
rinpol	1912.00		NIST Webbook
rinpol	1896.00		NIST Webbook
rinpol	1932.00		NIST Webbook
rinpol	1888.00		NIST Webbook
rinpol	1882.00		NIST Webbook
rinpol	1889.00		NIST Webbook
ripol	2236.00		NIST Webbook
ripol	2237.00		NIST Webbook
ripol	2245.00		NIST Webbook
ripol	2242.00		NIST Webbook
ripol	2277.00		NIST Webbook
ripol	2225.00		NIST Webbook
ripol	2225.00		NIST Webbook
tb	668.81	K	Joback Method
tc	841.03	K	Joback Method
tf	348.43	K	Joback Method
vc	0.992	m <sup>3</sup> /kmol	Joback Method

## Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	806.79	J/molxK	841.03	Joback Method
cpg	777.84	J/molxK	783.62	Joback Method
cpg	762.28	J/molxK	754.92	Joback Method
cpg	745.96	J/molxK	726.22	Joback Method
cpg	728.86	J/molxK	697.51	Joback Method
cpg	710.95	J/molxK	668.81	Joback Method
cpg	792.67	J/molxK	812.33	Joback Method
dvisc	0.0015945	Paxs	343.15	Densities and Viscosities of Minority Fatty Acid Methyl and Ethyl Esters Present in Biodiesel
dvisc	0.0024218	Paxs	318.15	Densities and Viscosities of Minority Fatty Acid Methyl and Ethyl Esters Present in Biodiesel

dvisc	0.0021751	Paxs	323.15	Densities and Viscosities of Minority Fatty Acid Methyl and Ethyl Esters Present in Biodiesel
dvisc	0.0020304	Paxs	328.15	Densities and Viscosities of Minority Fatty Acid Methyl and Ethyl Esters Present in Biodiesel
dvisc	0.0018697	Paxs	333.15	Densities and Viscosities of Minority Fatty Acid Methyl and Ethyl Esters Present in Biodiesel
dvisc	0.0017275	Paxs	338.15	Densities and Viscosities of Minority Fatty Acid Methyl and Ethyl Esters Present in Biodiesel
dvisc	0.0026162	Paxs	313.15	Densities and Viscosities of Minority Fatty Acid Methyl and Ethyl Esters Present in Biodiesel
dvisc	0.0014822	Paxs	348.15	Densities and Viscosities of Minority Fatty Acid Methyl and Ethyl Esters Present in Biodiesel
dvisc	0.0013656	Paxs	353.15	Densities and Viscosities of Minority Fatty Acid Methyl and Ethyl Esters Present in Biodiesel
dvisc	0.0012898	Paxs	358.15	Densities and Viscosities of Minority Fatty Acid Methyl and Ethyl Esters Present in Biodiesel
dvisc	0.0012070	Paxs	363.15	Densities and Viscosities of Minority Fatty Acid Methyl and Ethyl Esters Present in Biodiesel

dvisc	0.0029430	Paxs	308.15	Densities and Viscosities of Minority Fatty Acid Methyl and Ethyl Esters Present in Biodiesel
dvisc	0.0032886	Paxs	303.15	Densities and Viscosities of Minority Fatty Acid Methyl and Ethyl Esters Present in Biodiesel
dvisc	0.0036471	Paxs	298.15	Densities and Viscosities of Minority Fatty Acid Methyl and Ethyl Esters Present in Biodiesel
dvisc	0.0041075	Paxs	293.15	Densities and Viscosities of Minority Fatty Acid Methyl and Ethyl Esters Present in Biodiesel
dvisc	0.0046617	Paxs	288.15	Densities and Viscosities of Minority Fatty Acid Methyl and Ethyl Esters Present in Biodiesel
dvisc	0.0053667	Paxs	283.15	Densities and Viscosities of Minority Fatty Acid Methyl and Ethyl Esters Present in Biodiesel
dvisc	0.0061685	Paxs	278.15	Densities and Viscosities of Minority Fatty Acid Methyl and Ethyl Esters Present in Biodiesel
hvapt	96.40	kJ/mol	298.15	the vaporization enthalpies and vapor pressures of a series of unstaured fatty acid methyl esters by correlation gas chromatography

# Pressure Dependent Properties

Property code	Value	Unit	Pressure [kPa]	Source
tbrp	454.70	K	0.10	NIST Webbook

## Sources

Joback Method:	<a href="https://en.wikipedia.org/wiki/Joback_method">https://en.wikipedia.org/wiki/Joback_method</a>
McGowan Method:	<a href="http://link.springer.com/article/10.1007/BF02311772">http://link.springer.com/article/10.1007/BF02311772</a>
NIST Webbook:	<a href="http://webbook.nist.gov/cgi/cbook.cgi?ID=C1120258&amp;Units=SI">http://webbook.nist.gov/cgi/cbook.cgi?ID=C1120258&amp;Units=SI</a>
Crippen Method:	<a href="http://pubs.acs.org/doi/abs/10.1021/ci9903071">http://pubs.acs.org/doi/abs/10.1021/ci9903071</a>
Crippen Method:	<a href="https://www.chemeo.com/doc/models/crippen_log10ws">https://www.chemeo.com/doc/models/crippen_log10ws</a>
the vaporization enthalpies and vapor pressures of a series of unstaured fatty acids and Viscosities of Minority Esters from Methyl and Ethyl Esters Present in Biodiesel:	<a href="https://www.doi.org/10.1016/j.tca.2007.02.008">https://www.doi.org/10.1016/j.tca.2007.02.008</a> <a href="https://www.doi.org/10.1021/je1012235">https://www.doi.org/10.1021/je1012235</a>

## 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
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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