

3,6,9,12-TETRAOXATETRADECANE-1,14-DIOL

Other names:	2-[2-[2-[2-(2-Hydroxyethoxy)ethoxy]ethoxy]ethoxy]ethanol HO[CH2CH2O]5H Pentaglycol pentaethylene glycol
Inchi:	InChI=1S/C10H22O6/c11-1-3-13-5-7-15-9-10-16-8-6-14-4-2-12/h11-12H,1-10H2
InchiKey:	JLFNLZLINWHATN-UHFFFAOYSA-N
Formula:	C10H22O6
SMILES:	OCCOCCOCCOCCOCCO
Mol. weight [g/mol]:	238.28

Physical Properties

Property code	Value	Unit	Source
hf	-1050.45	kJ/mol	Cheméo Relay (1.0)
hfus	34.58	kJ/mol	Joback Method
hvap	97.06	kJ/mol	Cheméo Relay (1.0)
ie	9.78	eV	Cheméo Relay (1.0)
log10ws	0.36		Cheméo Relay (1.0)
logp	-0.963		Crippen Method
mcvol	186.980	ml/mol	McGowan Method
pc	2351.92	kPa	Joback Method
rinpol	1792.00		NIST Webbook
rinpol	1797.40		NIST Webbook
tb	615.07	K	Cheméo Relay (1.0)
tc	751.00 ± 20.00	K	NIST Webbook
tc	751.00 ± 20.00	K	NIST Webbook
tc	842.00	K	Critical temperatures and pressures of ethylene glycols
tf	264.45 ± 0.70	K	NIST Webbook
tt	275.50	K	Heat Capacity and Phase Behavior of Selected Oligo(ethylene glycol)s

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
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cpg	610.04	J/mol×K	866.21	Joback Method
cpg	547.05	J/mol×K	702.24	Joback Method
cpg	570.14	J/mol×K	756.90	Joback Method
cpg	580.92	J/mol×K	784.22	Joback Method
cpg	591.17	J/mol×K	811.55	Joback Method
cpg	600.88	J/mol×K	838.88	Joback Method
cpg	558.85	J/mol×K	729.57	Joback Method
cpl	515.50	J/mol×K	298.00	NIST Webbook
dvisc	0.0000416	Pa×s	557.63	Joback Method
dvisc	0.0001001	Pa×s	509.43	Joback Method
dvisc	0.0010746	Pa×s	413.02	Joback Method
dvisc	0.0000199	Pa×s	605.83	Joback Method
dvisc	0.0000106	Pa×s	654.04	Joback Method
dvisc	0.0000061	Pa×s	702.24	Joback Method
dvisc	0.0002898	Pa×s	461.22	Joback Method

Datasets

Mass density, kg/m3

Temperature, K - Liquid	Pressure, kPa - Liquid	Mass density, kg/m3 - Liquid
283.16	100.00	1133.5
283.16	1000.00	1134.0
283.16	2000.00	1134.5
283.16	5000.00	1135.8
283.16	7000.00	1136.7
283.16	10000.00	1137.9
283.16	12000.00	1138.9
283.16	16000.00	1140.7
283.16	20000.00	1142.5
283.16	25000.00	1144.6
283.16	30000.00	1146.6
283.16	35000.00	1148.6
283.16	40000.00	1150.5
283.16	45000.00	1152.4
283.16	50000.00	1154.4
283.16	55000.00	1156.2
283.16	60000.00	1158.2

283.16	65000.00	1160.1
283.16	70000.00	1161.8
283.16	75000.00	1163.6
283.16	80000.00	1165.3
283.16	85000.00	1167.0
283.16	90000.00	1168.6
283.16	95000.00	1170.3
293.16	100.00	1125.5
293.16	1000.00	1126.0
293.16	2000.00	1126.4
293.16	5000.00	1127.9
293.16	7000.00	1128.9
293.16	10000.00	1130.2
293.16	12000.00	1131.1
293.16	16000.00	1132.9
293.16	20000.00	1134.6
293.16	25000.00	1136.5
293.16	30000.00	1138.7
293.16	35000.00	1140.8
293.16	40000.00	1143.0
293.16	45000.00	1145.0
293.16	50000.00	1146.8
293.16	55000.00	1148.8
293.16	60000.00	1150.7
293.16	65000.00	1152.6
293.16	70000.00	1154.5
293.16	75000.00	1156.2
293.16	80000.00	1158.0
293.16	85000.00	1159.7
293.16	90000.00	1161.4
293.16	95000.00	1163.3
303.15	100.00	1117.0
303.15	1000.00	1117.5
303.15	2000.00	1118.0
303.15	5000.00	1119.8
303.15	7000.00	1120.8
303.15	10000.00	1122.1
303.15	12000.00	1123.1
303.15	16000.00	1125.0
303.15	20000.00	1126.8
303.15	25000.00	1128.3
303.15	30000.00	1131.0
303.15	35000.00	1133.2
303.15	40000.00	1135.4

303.15	45000.00	1137.4
303.15	50000.00	1139.5
303.15	55000.00	1141.4
303.15	60000.00	1143.2
303.15	65000.00	1145.1
303.15	70000.00	1147.1
303.15	75000.00	1148.9
303.15	80000.00	1150.8
303.15	85000.00	1152.8
303.15	90000.00	1154.6
303.15	95000.00	1156.4
313.16	100.00	1109.3
313.16	1000.00	1109.8
313.16	2000.00	1110.3
313.16	5000.00	1111.9
313.16	7000.00	1112.9
313.16	10000.00	1114.4
313.16	12000.00	1115.3
313.16	16000.00	1117.2
313.16	20000.00	1119.1
313.16	25000.00	1121.2
313.16	30000.00	1123.5
313.16	35000.00	1125.5
313.16	40000.00	1127.8
313.16	45000.00	1129.9
313.16	50000.00	1131.9
313.16	55000.00	1134.0
313.16	60000.00	1136.1
313.16	65000.00	1138.1
313.16	70000.00	1140.1
313.16	75000.00	1141.9
313.16	80000.00	1143.8
313.16	85000.00	1145.7
313.16	90000.00	1147.5
313.16	95000.00	1149.4
323.15	100.00	1101.1
323.15	1000.00	1101.5
323.15	2000.00	1102.1
323.15	5000.00	1103.7
323.15	7000.00	1104.7
323.15	10000.00	1106.2
323.15	12000.00	1107.2
323.15	16000.00	1109.1
323.15	20000.00	1111.1

323.15	25000.00	1113.6
323.15	30000.00	1115.7
323.15	35000.00	1118.1
323.15	40000.00	1120.4
323.15	45000.00	1122.7
323.15	50000.00	1124.9
323.15	55000.00	1126.6
323.15	60000.00	1128.6
323.15	65000.00	1130.8
323.15	70000.00	1132.7
323.15	75000.00	1134.5
323.15	80000.00	1136.5
323.15	85000.00	1138.6
323.15	90000.00	1140.4
323.15	95000.00	1142.4
333.15	100.00	1092.9
333.15	1000.00	1093.5
333.15	2000.00	1094.0
333.15	5000.00	1095.7
333.15	7000.00	1096.8
333.15	10000.00	1098.3
333.15	12000.00	1099.3
333.15	16000.00	1101.4
333.15	20000.00	1103.3
333.15	25000.00	1105.8
333.15	30000.00	1108.1
333.15	35000.00	1110.4
333.15	40000.00	1112.8
333.15	45000.00	1115.1
333.15	50000.00	1117.1
333.15	55000.00	1119.4
333.15	60000.00	1121.3
333.15	65000.00	1123.4
333.15	70000.00	1125.6
333.15	75000.00	1127.7
333.15	80000.00	1129.8
333.15	85000.00	1131.8
333.15	90000.00	1133.6
333.15	95000.00	1135.6
343.16	100.00	1084.9
343.16	1000.00	1085.4
343.16	2000.00	1086.3
343.16	5000.00	1087.8
343.16	7000.00	1088.8

343.16	10000.00	1090.6
343.16	12000.00	1091.6
343.16	16000.00	1093.7
343.16	20000.00	1095.8
343.16	25000.00	1097.9
343.16	30000.00	1100.4
343.16	35000.00	1102.5
343.16	40000.00	1104.8
343.16	45000.00	1107.0
343.16	50000.00	1109.8
343.16	55000.00	1112.2
343.16	60000.00	1114.4
343.16	65000.00	1116.7
343.16	70000.00	1118.3
343.16	75000.00	1120.9
343.16	80000.00	1122.9
343.16	85000.00	1124.9
343.16	90000.00	1126.9
343.16	95000.00	1129.0
353.16	100.00	1076.7
353.16	1000.00	1077.3
353.16	2000.00	1077.9
353.16	5000.00	1079.7
353.16	7000.00	1080.8
353.16	10000.00	1082.6
353.16	12000.00	1083.6
353.16	16000.00	1085.8
353.16	20000.00	1088.0
353.16	25000.00	1090.6
353.16	30000.00	1093.2
353.16	35000.00	1095.8
353.16	40000.00	1098.1
353.16	45000.00	1100.5
353.16	50000.00	1102.5
353.16	55000.00	1104.8
353.16	60000.00	1107.2
353.16	65000.00	1109.6
353.16	70000.00	1111.6
353.16	75000.00	1113.8
353.16	80000.00	1115.9
353.16	85000.00	1118.2
353.16	90000.00	1119.9
353.16	95000.00	1122.1
363.16	100.00	1068.6

363.16	1000.00	1069.2
363.16	2000.00	1069.9
363.16	5000.00	1071.6
363.16	7000.00	1072.9
363.16	10000.00	1074.5
363.16	12000.00	1075.7
363.16	16000.00	1077.9
363.16	20000.00	1080.2
363.16	25000.00	1082.9
363.16	30000.00	1085.6
363.16	35000.00	1088.0
363.16	40000.00	1090.5
363.16	45000.00	1092.9
363.16	50000.00	1095.4
363.16	55000.00	1097.7
363.16	60000.00	1100.3
363.16	65000.00	1102.5
363.16	70000.00	1104.7
363.16	75000.00	1106.8
363.16	80000.00	1109.0
363.16	85000.00	1111.2
363.16	90000.00	1113.2
363.16	95000.00	1115.3

Reference

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Sources

Cheméo Relay (1.0, beta):

New measurements and modeling of
high pressure thermodynamic
properties of glycols:

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Joback Method:

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

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ethylene glycols:
Heat Capacity and Phase Behavior of
Selected Oligo(ethylene glycol)s:
McGowan Method:

<https://www.doi.org/10.1016/j.fluid.2018.05.011>

<https://www.doi.org/10.1021/acs.jced.9b00140>

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

Crippen Method:

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

Crippen Method:

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

Legend

cpg:	Ideal gas heat capacity
cpl:	Liquid phase heat capacity
dvisc:	Dynamic viscosity
hf:	Enthalpy of formation at standard conditions
hfus:	Enthalpy of fusion at standard conditions
hvap:	Enthalpy of vaporization at standard conditions
ie:	Ionization energy
log10ws:	Log10 of Water solubility in mol/l
logp:	Octanol/Water partition coefficient
mcvol:	McGowan's characteristic volume
pc:	Critical Pressure
rho:	Liquid Density
rinpol:	Non-polar retention indices
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tf:	Normal melting (fusion) point
tt:	Triple Point Temperature

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