Ethane, 1,2-diethoxy-

Other names:	1,2-DIETHOXYETHANE
	1,2-ethanediol, diethyl ether
	2-Ethoxyethyl ethyl ether
	3,6-Dioxaoctane
	Diethyl cellosolve
	Diethylether ethylenglykolu
	ETHYL GLYME
	Ethylene glycol diethyl ether
	Glyme-1
	Hisolve EME
	UN 1153
	ethylene glycol, diethyl ether
Inchi:	InChI=1S/C6H14O2/c1-3-7-5-6-8-4-2/h3-6H2,1-2H3
InchiKey:	LZDKZFUFMNSQCJ-UHFFFAOYSA-N
Formula:	C6H14O2
SMILES:	CCOCCOCC
Mol. weight [g/mol]:	118.17
CAS:	629-14-1

Physical Properties

Property code	Value	Unit	Source
chl	-3910.43 ± 0.92	kJ/mol	NIST Webbook
chl	-3908.40 ± 0.60	kJ/mol	NIST Webbook
gf	-210.36	kJ/mol	Joback Method
hf	-408.23 ± 0.97	kJ/mol	NIST Webbook
hf	-410.30	kJ/mol	NIST Webbook
hfl	-451.43 ± 0.93	kJ/mol	NIST Webbook
hfl	-453.50 ± 0.60	kJ/mol	NIST Webbook
hfus	13.67	kJ/mol	Joback Method
hvap	43.20 ± 0.04	kJ/mol	NIST Webbook
hvap	43.27	kJ/mol	NIST Webbook
hvap	43.20 ± 0.12	kJ/mol	NIST Webbook
hvap	43.20 ± 0.10	kJ/mol	NIST Webbook
hvap	43.20	kJ/mol	NIST Webbook
log10ws	-0.77		Aqueous Solubility Prediction Method

log10ws	-0.77		Estimated Solubility Method
logp	1.059		Crippen Method
mcvol	107.140	ml/mol	McGowan Method
pc	2992.59	kPa	Joback Method
rinpol	754.40		NIST Webbook
rinpol	787.00		NIST Webbook
rinpol	754.40		NIST Webbook
rinpol	744.80		NIST Webbook
rinpol	773.00		NIST Webbook
rinpol	771.00		NIST Webbook
rinpol	787.00		NIST Webbook
rinpol	787.00		NIST Webbook
tb	381.52	K	Joback Method
tc	546.82	K	Joback Method
tf	199.15	K	NIST Webbook
vc	0.407	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	204.67	J/mol×K	381.52	Joback Method
cpg	224.32	J/mol×K	436.62	Joback Method
cpg	233.82	J/mol×K	464.17	Joback Method
cpg	243.09	J/mol×K	491.72	Joback Method
cpg	252.13	J/mol×K	519.27	Joback Method
cpg	260.92	J/mol×K	546.82	Joback Method
cpg	214.60	J/mol×K	409.07	Joback Method
cpl	262.90	J/mol×K	323.15	Thermophysical properties of dimethyl sulfoxide + cyclic and linear ethers at 308.15K Application of an extended cell model
cpl	264.59	J/mol×K	312.57	Liquid Densities, Kinematic Viscosities, and Heat Capacities of Some Alkylene glycol Dialkyl Ethers

cpl	265.54	J/mol×K	322.47	Liquid Densities, Kinematic Viscosities, and Heat Capacities of Some Alkylene glycol Dialkyl Ethers	
cpl	268.37	J/mol×K	332.37	Liquid Densities, Kinematic Viscosities, and Heat Capacities of Some Alkylene glycol Dialkyl Ethers	
cpl	270.86	J/mol×K	342.27	Liquid Densities, Kinematic Viscosities, and Heat Capacities of Some Alkylene glycol Dialkyl Ethers	
cpl	273.57	J/mol×K	352.18	Liquid Densities, Kinematic Viscosities, and Heat Capacities of Some Alkylene glycol Dialkyl Ethers	
cpl	261.20	J/mol×K	318.15	Thermophysical properties of dimethyl sulfoxide + cyclic and linear ethers at 308.15K Application of an extended cell model	
cpl	280.31	J/mol×K	371.98	Liquid Densities, Kinematic Viscosities, and Heat Capacities of Some Alkylene glycol Dialkyl Ethers	
cpl	283.03	J/mol×K	381.88	Liquid Densities, Kinematic Viscosities, and Heat Capacities of Some Alkylene glycol Dialkyl Ethers	
cpl	286.22	J/mol×K	391.78	Liquid Densities, Kinematic Viscosities, and Heat Capacities of Some Alkylene glycol Dialkyl Ethers	

cpl	289.88	J/mol×K	401.68	Liquid Densities, Kinematic Viscosities, and Heat Capacities of Some Alkylene glycol Dialkyl Ethers	
cpl	293.43	J/mol×K	411.58	Liquid Densities, Kinematic Viscosities, and Heat Capacities of Some Alkylene glycol Dialkyl Ethers	
cpl	296.97	J/mol×K	421.48	Liquid Densities, Kinematic Viscosities, and Heat Capacities of Some Alkylene glycol Dialkyl Ethers	
cpl	259.50	J/mol×K	313.15	Thermophysical properties of dimethyl sulfoxide + cyclic and linear ethers at 308.15K Application of an extended cell model	
cpl	259.40	J/mol×K	298.15	NIST Webbook	
cpl	258.70	J/mol×K	308.15	Thermophysical properties of dimethyl sulfoxide + cyclic and linear ethers at 308.15K Application of an extended cell model	
cpl	257.90	J/mol×K	303.15	Thermophysical properties of dimethyl sulfoxide + cyclic and linear ethers at 308.15K Application of an extended cell model	
cpl	257.50	J/mol×K	298.15	Thermophysical properties of dimethyl sulfoxide + cyclic and linear ethers at 308.15K Application of an extended cell model	

cpl	255.30	J/mol×K	293.15	Thermophysical properties of dimethyl sulfoxide + cyclic and linear ethers at 308.15K Application of an extended cell model
cpl	276.17	J/mol×K	362.08	Liquid Densities, Kinematic Viscosities, and Heat Capacities of Some Alkylene glycol Dialkyl Ethers
cpl	261.08	J/mol×K	298.15	NIST Webbook
cpl	254.50	J/mol×K	288.15	Thermophysical properties of dimethyl sulfoxide + cyclic and linear ethers at 308.15K Application of an extended cell model
dvisc	0.0002032	Pa×s	381.52	Joback Method
dvisc	0.0005017	Pa×s	291.68	Joback Method
dvisc	0.0007784	Pa×s	261.73	Joback Method
dvisc	0.0013528	Pa×s	231.79	Joback Method
dvisc	0.0027699	Pa×s	201.84	Joback Method
dvisc	0.0003510	Pa×s	321.63	Joback Method
dvisc	0.0002609	Pa×s	351.57	Joback Method
hvapt	36.28	kJ/mol	392.50	NIST Webbook
hvapt	37.90	kJ/mol	316.00	NIST Webbook
hvapt	39.30	kJ/mol	360.50	NIST Webbook
rhol	826.22	kg/m3	308.50	Excess Molar Enthalpies and Hydrogen Bonding in Binary Mixtures Containing Ethers and Benzyl Alcohol at 308.15 K and Atmospheric Pressure

Correlations

Information	Value
Property code	pvap

Equation	ln(Pvp) = A + B/(T + C)
Coeff. A	1.63266e+01
Coeff. B	-4.01967e+03
Coeff. C	-5.06820e+01
Temperature range (K), min.	301.30
Temperature range (K), max.	415.60

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/T + C*ln(T) + D*T^2
Coeff. A	1.39789e+02
Coeff. B	-1.01431e+04
Coeff. C	-1.86755e+01
Coeff. D	1.41020e-05
Temperature range (K), min.	339.15
Temperature range (K), max.	383.15

Sources

KDB Vapor Pressure Data:	https://www.cheric.org/research/kdb/hcprop/showprop.php?cmpid=1018
Crippen Method:	http://pubs.acs.org/doi/abs/10.1021/ci990307l
Solubilities of Terephthalic Acid, Phthalic Acid, and Isophthalic Acid in Tetrahydrofuran, Cyclohexanone, 1,2-Diethoxyethane, and Acetophenone:	https://www.doi.org/10.1021/je9001976
Joback Method:	https://en.wikipedia.org/wiki/Joback_method
Aqueous Solubility Prediction Method:	http://onschallenge.wikispaces.com/file/view/AqueousDataset002.xlsx/351826032/AqueousDa
McGowan Method:	http://link.springer.com/article/10.1007/BF02311772
Estimated Solubility Method:	http://pubs.acs.org/doi/suppl/10.1021/ci034243x/suppl_file/ci034243xsi20040112_053635.txt
The Yaws Handbook of Vapor Pressure:	https://www.sciencedirect.com/book/9780128029992/the-yaws-handbook-of-vapor-pressure
Thermophysical properties of dimethyl sulfoxide + cyclic and linear ethers at 308.15K Application of an extended cell model:	https://www.doi.org/10.1016/j.tca.2006.05.010
NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C629141&Units=SI
Excess Molar Enthalpies and Hydrogen Bonding in Binary Mixtures Containing Ethers and Benzyl Alcohol at 308.15 K and Atmospheric Pressure:	https://www.doi.org/10.1021/je0504212
KDB:	https://www.cheric.org/files/research/kdb/mol/mol1018.mol
Liquid Densities, Kinematic Viscosities, and Heat Capacities of Some Alkylene glycol Dialkyl Ethers:	https://www.doi.org/10.1021/je025606c

Legend

chl:	Standard liquid enthalpy of combustion
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
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
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tf:	Normal melting (fusion) point
vc:	Critical Volume

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