diethyl sulfoxide

Other names:	1,1'-sulfinylbis(ethane)
	1,1'-sulfinylbisethane
	diethyl sulphoxide
	ethyl sulfoxide
Inchi:	InChI=1S/C4H10OS/c1-3-6(5)4-2/h3-4H2,1-2H3
InchiKey:	CCAFPWNGIUBUSD-UHFFFAOYSA-N
Formula:	C4H10OS
SMILES:	CCS(=O)CC
Mol. weight [g/mol]:	106.19

Physical Properties

Property code	Value	Unit	Source
gf	-234.91	kJ/mol	Joback Method
hf	-331.63	kJ/mol	Joback Method
hfus	13.87	kJ/mol	Joback Method
hvap	37.22	kJ/mol	Joback Method
log10ws	-0.13		Crippen Method
logp	0.775		Crippen Method
mcvol	89.440	ml/mol	McGowan Method
pc	4351.13	kPa	Joback Method
tb	349.20	K	Joback Method
tc	525.53	K	Joback Method
tf	171.32	K	Joback Method
vc	0.349	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	179.75	J/mol×K	466.75	Joback Method
cpg	163.91	J/mol×K	407.98	Joback Method
cpg	155.60	J/mol×K	378.59	Joback Method
cpg	147.03	J/mol×K	349.20	Joback Method
cpg	187.27	J/mol×K	496.14	Joback Method
cpg	194.52	J/mol×K	525.53	Joback Method

cpg	171.96	J/mol×K	437.36	Joback Method
pvap	0.04 ± 0.00	kPa	308.15	Vapor Pressures of Pure Diethyl Sulfoxide from (298.15 to 318.15) K and Vapor-Liquid Equilibria of Binary Mixtures of Diethyl Sulfoxide with Water
pvap	0.02 ± 0.00	kPa	298.15	Vapor Pressures of Pure Diethyl Sulfoxide from (298.15 to 318.15) K and Vapor-Liquid Equilibria of Binary Mixtures of Diethyl Sulfoxide with Water
pvap	0.07 ± 0.00	kPa	313.15	Vapor Pressures of Pure Diethyl Sulfoxide from (298.15 to 318.15) K and Vapor-Liquid Equilibria of Binary Mixtures of Diethyl Sulfoxide with Water
pvap	0.09 ± 0.00	kPa	318.15	Vapor Pressures of Pure Diethyl Sulfoxide from (298.15 to 318.15) K and Vapor-Liquid Equilibria of Binary Mixtures of Diethyl Sulfoxide with Water
pvap	0.03 ± 0.00	kPa	303.15	Vapor Pressures of Pure Diethyl Sulfoxide from (298.15 to 318.15) K and Vapor-Liquid Equilibria of Binary Mixtures of Diethyl Sulfoxide with Water
rfi	1.46800 ± 0.00050		298.15	Surface Tension and Refractive Index of Dialkylsulfoxide + Water Mixtures at Several Temperatures

rfi	1.46600 ± 0.00050		303.15	Surface Tension and Refractive Index of Dialkylsulfoxide + Water Mixtures at Several Temperatures	
rfi	1.46400 ± 0.00050		308.15	Surface Tension and Refractive Index of Dialkylsulfoxide + Water Mixtures at Several Temperatures	
rhol	1001.40	kg/m3	308.15	Volumetric properties of aqueous solutions of diethylsulfoxide at temperatures from 298.15 K to 343.15 K	
rhol	997.00	kg/m3	313.15	Volumetric properties of aqueous solutions of diethylsulfoxide at temperatures from 298.15 K to 343.15 K	
rhol	992.60	kg/m3	318.15	Volumetric properties of aqueous solutions of diethylsulfoxide at temperatures from 298.15 K to 343.15 K	
rhol	988.20	kg/m3	323.15	Volumetric properties of aqueous solutions of diethylsulfoxide at temperatures from 298.15 K to 343.15 K	
rhol	983.90	kg/m3	328.15	Volumetric properties of aqueous solutions of diethylsulfoxide at temperatures from 298.15 K to 343.15 K	
rhol	979.50	kg/m3	333.15	Volumetric properties of aqueous solutions of diethylsulfoxide at temperatures from 298.15 K to 343.15 K	

rhol	975.10	kg/m3	338.15	Volumetric properties of aqueous solutions of diethylsulfoxide at temperatures from 298.15 K to 343.15 K
rhol	970.60	kg/m3	343.15	Volumetric properties of aqueous solutions of diethylsulfoxide at temperatures from 298.15 K to 343.15 K
rhol	1009.51	kg/m3	298.15	Surface and bulk behavior of (dialkylsulfoxides + carbon tetrachloride) mixtures
rhol	1005.14	kg/m3	303.15	Surface and bulk behavior of (dialkylsulfoxides + carbon tetrachloride) mixtures
rhol	1000.77	kg/m3	308.15	Surface and bulk behavior of (dialkylsulfoxides + carbon tetrachloride) mixtures
rhol	1010.20	kg/m3	298.15	Volumetric properties of aqueous solutions of diethylsulfoxide at temperatures from 298.15 K to 343.15 K
rhol	1005.80	kg/m3	303.15	Volumetric properties of aqueous solutions of diethylsulfoxide at temperatures from 298.15 K to 343.15 K
rhol	996.40	kg/m3	313.15	Surface and bulk behavior of (dialkylsulfoxides + carbon tetrachloride) mixtures
srf	0.03 ± 0.00	N/m	328.15	Surface Tension and Refractive Index of Dialkylsulfoxide + Water Mixtures at Several Temperatures

srf	0.03 ± 0.00	N/m	323.15	Surface Tension and Refractive Index of Dialkylsulfoxide + Water Mixtures at Several Temperatures	
srf	0.03 ± 0.00	N/m	318.15	Surface Tension and Refractive Index of Dialkylsulfoxide + Water Mixtures at Several Temperatures	
srf	0.03 ± 0.00	N/m	313.15	Surface Tension and Refractive Index of Dialkylsulfoxide + Water Mixtures at Several Temperatures	
srf	0.03 ± 0.00	N/m	308.15	Surface Tension and Refractive Index of Dialkylsulfoxide + Water Mixtures at Several Temperatures	
srf	0.03 ± 0.00	N/m	303.15	Surface Tension and Refractive Index of Dialkylsulfoxide + Water Mixtures at Several Temperatures	
srf	0.03 ± 0.00	N/m	298.15	Surface Tension and Refractive Index of Dialkylsulfoxide + Water Mixtures at Several Temperatures	
srf	0.03	N/m	313.15	Surface and bulk behavior of (dialkylsulfoxides + carbon tetrachloride) mixtures	
srf	0.03	N/m	308.15	Surface and bulk behavior of (dialkylsulfoxides + carbon tetrachloride) mixtures	
srf	0.03	N/m	303.15	Surface and bulk behavior of (dialkylsulfoxides + carbon tetrachloride) mixtures	

srf	0.03	N/m	298.15	Surface and bulk behavior of (dialkylsulfoxides + carbon tetrachloride) mixtures

Sources

Vapor Pressures of Pure Diethyl Sulfoxide from (298.15 to 318.15) K and Vapor–Liquid Equilibria of Binary Mixtures of Diethyl Sulfoxide with Water:	https://www.doi.org/10.1021/je034278t
Surface Tension and Refractive Index of Dialkylsulfoxide + Water Mixtures at Several Temperatures:	https://www.doi.org/10.1021/je7001013
Joback Method:	https://en.wikipedia.org/wiki/Joback_method
McGowan Method:	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
Volumetric properties of aqueous solutions of diethylsulfoxide at temperatures from 298.15 K to 343.15 K:	https://www.doi.org/10.1016/j.jct.2004.11.017
Surface and bulk behavior of (dialkylsulfoxides + carbon tetrachloride) mixtures:	https://www.doi.org/10.1016/j.jct.2009.06.021

Legend

cpg:	Ideal gas heat capacity
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
log10ws:	Log10 of Water solubility in mol/l
logp:	Octanol/Water partition coefficient
mcvol:	McGowan's characteristic volume
pc:	Critical Pressure
pvap:	Vapor pressure
rfi:	Refractive Index
rhol:	Liquid Density
srf:	Surface Tension
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tf:	Normal melting (fusion) point
vc:	Critical Volume

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