Sulfuric Acid

Other names:	Acide sulfurique
	Acido solforico
	BOV
	Battery acid
	Dihydrogen sulfate
	Dipping acid
	Electrolyte acid
	H2SO4
	HYDROGEN SULFATE
	Matting acid
	Mattling acid
	Nordhausen acid
	O2S(OH)2
	Oil of vitriol
	SULPHURIC ACID
	Schwefelsaeureloesungen
	Spirit of alum
	Spirit of vitriol
	Vitriol brown oil
	Vitriol, oil of
	Zwavelzuuroplossingen
Inchi:	InChI=1S/H2O4S/c1-5(2,3)4/h(H2,1,2,3,4)
InchiKey:	QAOWNCQODCNURD-UHFFFAOYSA-N
Formula:	H2O4S
SMILES:	O=S(=O)(O)O
Mol. weight [g/mol]:	98.08
CAS:	7664-93-9

Physical Properties

Property code	Value	Unit	Source
affp	699.40	kJ/mol	NIST Webbook
basg	680.00	kJ/mol	NIST Webbook
basg	666.90	kJ/mol	NIST Webbook
basg	683.00 ± 5.00	kJ/mol	NIST Webbook
ep	4.90	J/mol×K	NIST Webbook
gf	-793.06	kJ/mol	Joback Method

hf	-801.14	kJ/mol	Joback Method
hfpi	500.00 ± 20.00	kJ/mol	NIST Webbook
hfus	15.31	kJ/mol	Joback Method
hvap	67.59	kJ/mol	Joback Method
ie	12.40 ± 0.05	eV	NIST Webbook
log10ws	0.72		Crippen Method
logp	-0.653		Crippen Method
mcvol	50.690	ml/mol	McGowan Method
pc	12942.62	kPa	Joback Method
tb	431.54	K	Joback Method
tc	590.76	K	Joback Method
tf	249.96	K	Joback Method
vc	0.200	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	93.11	J/mol×K	431.54	Joback Method
cpg	95.72	J/mol×K	458.08	Joback Method
cpg	98.26	J/mol×K	484.61	Joback Method
cpg	100.73	J/mol×K	511.15	Joback Method
cpg	103.13	J/mol×K	537.68	Joback Method
cpg	105.43	J/mol×K	564.22	Joback Method
cpg	107.65	J/mol×K	590.76	Joback Method

Correlations

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/(T + C)
Coeff. A	1.70628e+01
Coeff. B	-6.85442e+03
Coeff. C	-5.92000e+01
Temperature range (K), min.	298.15
Temperature range (K), max.	610.00

Sources

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Crippen Method:	http://pubs.acs.org/doi/abs/10.1021/ci990307l

Legend

affp:	Proton affinity
basg:	Gas basicity
cpg:	Ideal gas heat capacity
ep:	Protonation entropy at 298K
gf:	Standard Gibbs free energy of formation
hf:	Enthalpy of formation at standard conditions
hfpi:	Enthalpy of formation of positive ion 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
pvap:	Vapor pressure
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tf:	Normal melting (fusion) point
vc:	Critical Volume