

Chloridosulfuric acid

Other names:	Chlorosulfonic acid chlorosulphuric acid
Inchi:	InChI=1S/ClHO3S/c1-5(2,3)4/h(H,2,3,4)
InchiKey:	XTHPWXDJESJLNJ-UHFFFAOYSA-N
Formula:	ClHO3S
SMILES:	O=S(=O)(O)Cl
Mol. weight [g/mol]:	116.52
CAS:	7790-94-5

Physical Properties

Property code	Value	Unit	Source
gf	-668.17	kJ/mol	Joback Method
hf	-664.65	kJ/mol	Joback Method
hfus	15.42	kJ/mol	Joback Method
hvap	55.29	kJ/mol	Joback Method
log10ws	-0.11		Crippen Method
logp	0.028		Crippen Method
mcvol	57.060	ml/mol	McGowan Method
pc	9841.90	kPa	Joback Method
tb	376.79	K	Joback Method
tc	546.81	K	Joback Method
tf	219.06	K	Joback Method
vc	0.230	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	86.28	J/mol×K	376.79	Joback Method
cpg	88.63	J/mol×K	405.13	Joback Method
cpg	90.93	J/mol×K	433.46	Joback Method
cpg	93.17	J/mol×K	461.80	Joback Method
cpg	95.36	J/mol×K	490.14	Joback Method
cpg	97.48	J/mol×K	518.47	Joback Method
cpg	99.52	J/mol×K	546.81	Joback Method

Correlations

Information	Value
Property code	pvap
Equation	$\ln(P_{vp}) = A + B/(T + C)$
Coeff. A	1.51859e+01
Coeff. B	-4.02770e+03
Coeff. C	-4.58600e+01
Temperature range (K), min.	193.15
Temperature range (K), max.	700.00

Sources

Crippen Method:	https://www.chemeo.com/doc/models/crippen_log10ws
Joback Method:	https://en.wikipedia.org/wiki/Joback_method
McGowan Method:	http://link.springer.com/article/10.1007/BF02311772
NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C7790945&Units=SI
The Yaws Handbook of Vapor Pressure:	https://www.sciencedirect.com/book/9780128029992/the-yaws-handbook-of-vapor-pressure
Crippen Method:	http://pubs.acs.org/doi/abs/10.1021/ci990307l

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
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

tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tf:	Normal melting (fusion) point
vc:	Critical Volume

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