Sulfur tetrafluoride

Other names:	SF4
	Sulfur fluoride
	Sulfur fluoride (SF4)
	Sulfur fluoride (SF4), (T-4)-
	Tetrafluorosulfurane
	UN 2418
	sulphur tetrafluoride
Inchi:	InChI=1S/F4S/c1-5(2,3)4
InchiKey:	QHMQWEPBXSHHLH-UHFFFAOYSA-N
Formula:	F4S
SMILES:	FS(F)(F)F
Mol. weight [g/mol]:	108.06
CAS:	7783-60-0

Physical Properties

Property code	Value	Unit	Source
ea	1.26 ± 0.10	eV	NIST Webbook
ea	1.50 ± 0.20	eV	NIST Webbook
ea	1.50 ± 0.20	eV	NIST Webbook
ea	2.35 ± 0.10	eV	NIST Webbook
ea	0.78 ± 0.20	eV	NIST Webbook
gf	-901.76	kJ/mol	Joback Method
hf	-897.52	kJ/mol	Joback Method
hfus	8.84	kJ/mol	Joback Method
hvap	19.44	kJ/mol	Joback Method
ie	12.30	eV	NIST Webbook
ie	12.80 ± 0.10	eV	NIST Webbook
ie	12.08 ± 0.10	eV	NIST Webbook
ie	11.69 ± 0.06	eV	NIST Webbook
ie	12.28 ± 0.03	eV	NIST Webbook
ie	12.00 ± 0.30	eV	NIST Webbook
ie	12.03 ± 0.05	eV	NIST Webbook
log10ws	-2.20		Crippen Method
logp	2.329		Crippen Method
mcvol	38.590	ml/mol	McGowan Method
pc	4634.00	kPa	Joback Method
tb	266.66	K	Joback Method

tc	364.10 ± 1.00	K	NIST Webbook
tf	152.00 ± 1.50	K	NIST Webbook
vc	0.179	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	72.84	J/mol×K	368.77	Joback Method
cpg	74.18	J/mol×K	394.30	Joback Method
cpg	69.74	J/mol×K	266.66	Joback Method
cpg	70.13	J/mol×K	292.19	Joback Method
cpg	70.80	J/mol×K	317.72	Joback Method
cpg	71.71	J/mol×K	343.25	Joback Method
cpg	75.70	J/mol×K	419.83	Joback Method
hvapt	21.10	kJ/mol	210.00	NIST Webbook
hvapt	24.60	kJ/mol	192.00	NIST Webbook

Correlations

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/(T + C)
Coeff. A	1.41547e+01
Coeff. B	-2.03279e+03
Coeff. C	-1.95400e+01
Temperature range (K), min.	173.15
Temperature range (K), max.	232.70

Sources

NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C7783600&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
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

Legend

cpg:	Ideal gas heat capacity
ea:	Electron affinity
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
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