

Thionyl fluoride

Other names:	Fluorure de thionyle OSF2 SOF2 Sulfur difluoride monoxide Sulfur difluoride oxide Sulfurous oxyfluoride Thionyl difluoride
Inchi:	InChI=1S/F2OS/c1-4(2)3
InchiKey:	LSJNBGSOIVSBBR-UHFFFAOYSA-N
Formula:	F2OS
SMILES:	O=S(F)F
Mol. weight [g/mol]:	86.06
CAS:	7783-42-8

Physical Properties

Property code	Value	Unit	Source
gf	-658.21	kJ/mol	Joback Method
hf	-641.29	kJ/mol	Joback Method
hfus	9.67	kJ/mol	Joback Method
hvap	26.69	kJ/mol	Joback Method
ie	12.30	eV	NIST Webbook
ie	12.70	eV	NIST Webbook
ie	12.19	eV	NIST Webbook
ie	12.58	eV	NIST Webbook
ie	12.60	eV	NIST Webbook
ie	12.25	eV	NIST Webbook
ie	12.58	eV	NIST Webbook
ie	12.58 ± 0.10	eV	NIST Webbook
ie	12.25 ± 0.05	eV	NIST Webbook
log10ws	-0.15		Crippen Method
logp	0.504		Crippen Method
mvol	36.620	ml/mol	McGowan Method
pc	6696.65	kPa	Joback Method
tb	232.50 ± 2.50	K	NIST Webbook
tc	407.76	K	Joback Method
tf	127.42	K	Joback Method
vc	0.162	m ³ /kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	54.21	J/mol×K	256.22	Joback Method
cpg	55.61	J/mol×K	281.48	Joback Method
cpg	57.01	J/mol×K	306.73	Joback Method
cpg	58.41	J/mol×K	331.99	Joback Method
cpg	59.81	J/mol×K	357.25	Joback Method
cpg	61.20	J/mol×K	382.50	Joback Method
cpg	62.59	J/mol×K	407.76	Joback Method
hvapt	23.70	kJ/mol	208.50	NIST Webbook

Correlations

Information	Value
Property code	pvap
Equation	$\ln(P_{vp}) = A + B/(T + C)$
Coeff. A	1.24542e+01
Coeff. B	-1.31083e+03
Coeff. C	-6.20600e+01
Temperature range (K), min.	174.42
Temperature range (K), max.	229.35

Sources

NIST Webbook:

<http://webbook.nist.gov/cgi/cbook.cgi?ID=C7783428&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/ci9903071>

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
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

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