Silicon tetrafluoride

Other names:	SiF4
	Silane, tetrafluoro-
	Silicon fluoride
	Silicon fluoride (SiF4)
	Tetrafluorosilane
	UN 1859
Inchi:	InChI=1S/F4Si/c1-5(2,3)4
InchiKey:	ABTOQLMXBSRXSM-UHFFFAOYSA-N
Formula:	F4Si
SMILES:	F[Si](F)(F)F
Mol. weight [g/mol]:	104.08
CAS:	7783-61-1

Physical Properties

Property code	Value	Unit	Source
affp	492.00 ± 8.40	kJ/mol	NIST Webbook
affp	492.90 ± 8.40	kJ/mol	NIST Webbook
affp	502.90	kJ/mol	NIST Webbook
basg	465.70 ± 8.40	kJ/mol	NIST Webbook
basg	476.60	kJ/mol	NIST Webbook
basg	466.50 ± 8.40	kJ/mol	NIST Webbook
ep	21.00	J/mol×K	NIST Webbook
ep	21.00	J/mol×K	NIST Webbook
hf	-1615.00 ± 0.80	kJ/mol	NIST Webbook
hfpi	-134.00 ± 7.10	kJ/mol	NIST Webbook
ie	15.92	eV	NIST Webbook
ie	15.81 ± 0.02	eV	NIST Webbook
ie	16.40	eV	NIST Webbook
ie	16.50	eV	NIST Webbook
ie	16.45	eV	NIST Webbook
ie	15.70	eV	NIST Webbook
ie	15.00 ± 1.00	eV	NIST Webbook
ie	15.19	eV	NIST Webbook
ie	15.29 ± 0.08	eV	NIST Webbook
ie	15.24 ± 0.14	eV	NIST Webbook
ie	15.70 ± 0.10	eV	NIST Webbook
ie	16.46 ± 0.04	eV	NIST Webbook

log10ws	0.97		Crippen Method
logp	1.300		Crippen Method
pc	3714.57 ± 5.06	kPa	NIST Webbook
sgb	282.76 ± 0.50	J/mol×K	NIST Webbook
tb	187.00	K	NIST Webbook
tc	259.00 ± 0.02	K	NIST Webbook

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
hsubt	25.80	kJ/mol	165.50	NIST Webbook

Correlations

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/(T + C)
Coeff. A	1.34694e+01
Coeff. B	-1.05775e+03
Coeff. C	-5.79400e+01
Temperature range (K), min.	117.15
Temperature range (K), max.	259.00

Datasets

Kinematic viscosity, m2/s

Temperature, K - Gas	Pressure, kPa - Gas	Kinematic viscosity, m2/s - Gas
215.00	198.15	0.0000011
215.00	283.66	0.0000007
215.00	378.50	0.0000005
215.00	461.43	0.0000004
215.00	551.52	0.0000004

215.00	649.39	0.0000003
215.00	746.64	0.0000003
230.00	271.49	0.0000009
230.00	424.62	0.0000006
230.00	578.31	0.0000004
230.00	742.99	0.0000003
230.00	897.83	0.0000002
230.00	1088.35	0.0000003
230.00	1250.99	0.0000002
245.00	248.32	0.0000011
245.00	393.67	0.0000007
245.00	542.46	0.0000005
245.00	703.75	0.0000004
245.00	873.41	0.0000003
245.00	1034.47	0.0000002
245.00	1220.05	0.0000002
245.00	1434.33	0.0000002
245.00	1599.80	0.0000002
245.00	1777.83	0.0000001
245.00	1958.48	0.0000001
260.00	206.14	0.0000013
260.00	410.06	0.0000007
260.00	617.98	0.0000005
260.00	830.76	0.0000004
260.00	1047.12	0.0000003
260.00	1252.04	0.0000002
260.00	1498.23	0.0000002
260.00	1794.29	0.0000002
260.00	2026.63	0.0000001
260.00	2282.25	0.0000001
260.00	2541.67	0.0000001
274.58	524.86	0.0000006
274.58	642.96	0.0000005
274.58	744.26	0.0000004
274.58	845.26	0.0000004
274.58	947.16	0.0000003
274.58	1048.29	0.0000003
274.58	1150.31	0.0000003
274.58	1252.18	0.0000003
274.58	1353.82	0.0000002
274.58	1454.61	0.0000002
274.58	1556.05	0.0000002
274.58	1657.90	0.0000002
274.58	1764.42	0.0000002

274.58	1878.13	0.0000002
274.58	1998.50	0.0000002
274.58	2141.86	0.0000002
274.58	2244.21	0.0000001
274.58	2354.11	0.0000001
274.58	2474.02	0.0000001
274.58	2776.62	0.0000001
274.58	2951.29	0.0000001
300.00	386.04	0.0000011
300.00	581.57	0.0000007
300.00	775.29	0.0000005
300.00	975.51	0.0000004
300.00	1173.93	0.0000003
300.00	1443.44	0.0000003
300.00	1648.68	0.0000002
300.00	1872.11	0.0000002
300.00	2157.89	0.0000002
300.00	2526.14	0.0000002
324.96	582.54	0.0000009
324.96	731.36	0.0000006
324.96	1070.79	0.0000004
324.96	1257.38	0.0000004
324.96	1487.57	0.0000003
324.96	1769.00	0.0000003
324.96	1936.20	0.0000002
324.96	2114.40	0.0000002
324.96	2322.23	0.0000002
324.96	2540.96	0.0000002

Reference *https://www.doi.org/10.1016/j.jct.2007.07.002*

Sources

NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C7783611&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
Kinematic viscosity and speed of sound in gaseous CO, CO2, SiF4, SF6, C4F8, and NH3 from 220 K to 375 K and pressures up to 3.4 MPa:	https://www.doi.org/10.1016/j.jct.2007.07.002

Legend

affp:	Proton affinity
basg:	Gas basicity
ep:	Protonation entropy at 298K
hf:	Enthalpy of formation at standard conditions
hfpi:	Enthalpy of formation of positive ion at standard conditions
hsubt:	Enthalpy of sublimation at a given temperature
ie:	Ionization energy
kvisc:	Kinematic viscosity
log10ws:	Log10 of Water solubility in mol/l
logp:	Octanol/Water partition coefficient
pc:	Critical Pressure
pvap:	Vapor pressure
sgb:	Molar entropy at standard conditions (1 bar)
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature

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