Ethene, fluoro-

Other names:	1-Fluoroethylene
	C2H3F
	Ethylene, fluoro-
	FC 1141
	FLUOROETHENE
	FLUOROETHYLENE
	Monofluoroethene
	Monofluoroethylene
	Vinyl fluoride
Inchi:	InChI=1S/C2H3F/c1-2-3/h2H,1H2
InchiKey:	XUCNUKMRBVNAPB-UHFFFAOYSA-N
Formula:	C2H3F
SMILES:	C=CF
Mol. weight [g/mol]:	46.04
CAS:	75-02-5

Physical Properties

Property code	Value	Unit	Source
af	0.1570		KDB
affp	729.00	kJ/mol	NIST Webbook
basg	700.10	kJ/mol	NIST Webbook
chg	-1256.00 ± 2.00	kJ/mol	NIST Webbook
dm	1.40	debye	KDB
gf	-141.01	kJ/mol	Joback Method
hf	-136.00	kJ/mol	NIST Webbook
hf	-117.20	kJ/mol	KDB
hfus	2.74	kJ/mol	Joback Method
hvap	18.56	kJ/mol	Joback Method
ie	10.36 ± 0.01	eV	NIST Webbook
ie	10.36	eV	NIST Webbook
ie	10.36 ± 0.01	eV	NIST Webbook
ie	10.37	eV	NIST Webbook
ie	10.35 ± 0.01	eV	NIST Webbook
ie	10.37	eV	NIST Webbook
ie	10.36 ± 0.02	eV	NIST Webbook
ie	10.37	eV	NIST Webbook
ie	10.63 ± 0.02	eV	NIST Webbook

ie	10.56 ± 0.02	eV	NIST Webbook
ie	10.30	eV	NIST Webbook
ie	10.37 ± 0.02	eV	NIST Webbook
log10ws	-0.86		Crippen Method
logp	1.099		Crippen Method
mcvol	36.510	ml/mol	McGowan Method
pc	5240.00	kPa	KDB
rinpol	230.00		NIST Webbook
tb	201.00	K	KDB
tb	201.00	K	NIST Webbook
tc	327.90	K	KDB
tf	112.60	K	KDB
vc	0.144	m3/kmol	KDB
zc	0.2767680		KDB

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	42.19	J/mol×K	241.11	Joback Method
cpg	45.42	J/mol×K	266.07	Joback Method
cpg	48.54	J/mol×K	291.04	Joback Method
cpg	51.53	J/mol×K	316.00	Joback Method
cpg	54.41	J/mol×K	340.97	Joback Method
cpg	57.19	J/mol×K	365.93	Joback Method
cpg	59.85	J/mol×K	390.89	Joback Method
hvapt	16.61	kJ/mol	201.00	KDB
hvapt	16.60	kJ/mol	162.50	NIST Webbook
rhol	681.00	kg/m3	263.00	KDB

Correlations

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/(T + C)
Coeff. A	1.46646e+01
Coeff. B	-1.97369e+03
Coeff. C	-4.53900e+00
Temperature range (K), min.	141.82

Temperature range (K), max.	327.80

Sources

KDB:	https://www.cheric.org/files/research/kdb/mol/mol1732.mol
The Yaws Handbook of Vapor Pressure:	https://www.sciencedirect.com/book/9780128029992/the-yaws-handbook-of-vapor-pressure
Phase behavior of vinyl fluoride in room-temperature ionic liquids [emim][Tf2N], [bmim][N(CN)2], [bmpy][BF4], [bmim][HFPS] and [omim][TFES]:	https://www.doi.org/10.1016/j.fluid.2011.11.030
Crippen Method:	https://www.chemeo.com/doc/models/crippen_log10ws
NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C75025&Units=SI
Crippen Method:	http://pubs.acs.org/doi/abs/10.1021/ci990307l
Joback Method:	https://en.wikipedia.org/wiki/Joback_method
McGowan Method:	http://link.springer.com/article/10.1007/BF02311772
Thermodynamic measurement and modeling of vinyl fluoride solubility in aqueous lithium bis(trifluoromethylsulfonyl)imide Li+Tf2N- + H2O solutions:	https://www.doi.org/10.1016/j.fluid.2017.03.032

Legend

af:	Acentric Factor
affp:	Proton affinity
basg:	Gas basicity
chg:	Standard gas enthalpy of combustion
cpg:	Ideal gas heat capacity
dm:	Dipole Moment
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
rhol:	Liquid Density
rinpol:	Non-polar retention indices
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tf:	Normal melting (fusion) point

vc: Critical Volume

zc: Critical Compressibility