Ethene, tetrafluoro-

Other names:	1,1,2,2,-TETRAFLUOROETHYLENE
	1,1,2,2-Tetrafluoroethylene
	C2F4
	Ethene, 1,1,2,2-tetrafluoro-
	Ethylene, tetrafluoro-
	Fluoroplast 4
	PERFLUOROETHENE
	Perfluoroethylene
	TFE
	Tetrafluorethene
	Tetrafluorethylene
	Tetrafluoroethene
	Tetrafluoroethylene
Inchi:	InChI=1S/C2F4/c3-1(4)2(5)6
InchiKey:	BFKJFAAPBSQJPD-UHFFFAOYSA-N
Formula:	C2F4
SMILES:	FC(F)=C(F)F
Mol. weight [g/mol]:	100.02
CAS:	116-14-3

Physical Properties

Property code	Value	Unit	Source
af	0.2230		KDB
gf	-624.10	kJ/mol	KDB
hf	-659.00	kJ/mol	KDB
hf	-661.00 ± 3.00	kJ/mol	NIST Webbook
hf	-661.00 ± 3.00	kJ/mol	NIST Webbook
hf	-686.00	kJ/mol	NIST Webbook
hf	-678.00 ± 4.00	kJ/mol	NIST Webbook
hfus	10.84	kJ/mol	Joback Method
hvap	16.90	kJ/mol	Joback Method
ie	10.56 ± 0.02	eV	NIST Webbook
ie	10.69 ± 0.02	eV	NIST Webbook
ie	10.12	eV	NIST Webbook
ie	10.52	eV	NIST Webbook
ie	10.12 ± 0.01	eV	NIST Webbook
ie	10.11	eV	NIST Webbook

ie	10.10	eV	NIST Webbook
ie	10.32	eV	NIST Webbook
ie	10.14	eV	NIST Webbook
ie	10.14 ± 0.02	eV	NIST Webbook
ie	10.11 ± 0.01	eV	NIST Webbook
ie	10.14 ± 0.07	eV	NIST Webbook
log10ws	-1.91		Crippen Method
logp	1.991		Crippen Method
mcvol	41.820	ml/mol	McGowan Method
pc	3940.00	kPa	KDB
rhoc	584.29	kg/m3	NIST Webbook
rinpol	177.00		NIST Webbook
rinpol	177.00		NIST Webbook
sl	184.23	J/mol×K	NIST Webbook
tb	199.00 ± 3.00	K	NIST Webbook
tb	196.80	K	NIST Webbook
tb	197.20	K	KDB
tb	196.70 ± 0.50	K	NIST Webbook
tc	307.40	K	NIST Webbook
tc	306.50	K	KDB
tf	130.65 ± 0.50	K	NIST Webbook
tf	130.60	K	KDB
tt	142.00 ± 0.02	K	NIST Webbook
vc	0.172	m3/kmol	KDB
zc	0.2659240		KDB

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	72.85	J/mol×K	313.95	Joback Method
cpg	75.85	J/mol×K	336.55	Joback Method
cpg	78.69	J/mol×K	359.15	Joback Method
cpg	62.87	J/mol×K	246.16	Joback Method
cpg	66.37	J/mol×K	268.76	Joback Method
cpg	69.69	J/mol×K	291.35	Joback Method
cpg	81.38	J/mol×K	381.74	Joback Method
cpl	112.77	J/mol×K	200.00	NIST Webbook
hfust	7.71	kJ/mol	142.00	NIST Webbook
hfust	7.71	kJ/mol	142.00	NIST Webbook
hfust	7.71	kJ/mol	142.00	NIST Webbook
hvapt	16.80	kJ/mol	235.00	NIST Webbook

hvapt	16.60	kJ/mol	289.50	NIST Webbook
hvapt	18.60	kJ/mol	175.00	NIST Webbook
hvapt	16.82	kJ/mol	196.90	KDB
hvapt	16.82	kJ/mol	197.53	NIST Webbook
pvap	2340.00	kPa	283.19	Isothermal Vapor Liquid Equilibrium Data for the 1,1,2,2-Tetrafluoroethene + 1,1,2,3,3,3-Hexafluoroprop-1-ene Binary System: Measurement and Modeling from (248 to 283) K
pvap	1367.00	kPa	263.18	Isothermal Vapor Liquid Equilibrium Data for the 1,1,2,2-Tetrafluoroethene + 1,1,2,3,3,3-Hexafluoroprop-1-ene Binary System: Measurement and Modeling from (248 to 283) K
pvap	1804.00	kPa	273.14	Isothermal Vapor Liquid Equilibrium Data for the 1,1,2,2-Tetrafluoroethene + 1,1,2,3,3,3-Hexafluoroprop-1-ene Binary System: Measurement and Modeling from (248 to 283) K
pvap	864.00	kPa	248.20	Isothermal Vapor Liquid Equilibrium Data for the 1,1,2,2-Tetrafluoroethene + 1,1,2,2,3,3,4,4-Octafluorocyclobutane Binary System: Measurement and Modeling from (248 to 283) K

pvap	866.00	kPa	248.30	Isothermal Vapor Liquid Equilibrium Data for the 1,1,2,2-Tetrafluoroethene + 1,1,2,2,3,3,4,4-Octafluorocyclobutane Binary System: Measurement and Modeling from (248 to 283) K
pvap	1017.00	kPa	253.34	Isothermal Vapor Liquid Equilibrium Data for the 1,1,2,2-Tetrafluoroethene + 1,1,2,2,3,3,4,4-Octafluorocyclobutane Binary System: Measurement and Modeling from (248 to 283) K
pvap	1357.00	kPa	263.00	Isothermal Vapor Liquid Equilibrium Data for the 1,1,2,2-Tetrafluoroethene + 1,1,2,2,3,3,4,4-Octafluorocyclobutane Binary System: Measurement and Modeling from (248 to 283) K
pvap	1367.00	kPa	263.18	Isothermal Vapor Liquid Equilibrium Data for the 1,1,2,2-Tetrafluoroethene + 1,1,2,2,3,3,4,4-Octafluorocyclobutane Binary System: Measurement and Modeling from (248 to 283) K
pvap	1804.00	kPa	273.14	Isothermal Vapor Liquid Equilibrium Data for the 1,1,2,2-Tetrafluoroethene + 1,1,2,2,3,3,4,4-Octafluorocyclobutane Binary System: Measurement and Modeling from (248 to 283) K

pvap	2330.00	kPa	282.90	Isothermal Vapor Liquid Equilibrium Data for the 1,1,2,2-Tetrafluoroethene + 1,1,2,2,3,3,4,4-Octafluorocyclobutane Binary System: Measurement and Modeling from (248 to 283) K
pvap	2340.00	kPa	283.19	Isothermal Vapor Liquid Equilibrium Data for the 1,1,2,2-Tetrafluoroethene + 1,1,2,2,3,3,4,4-Octafluorocyclobutane Binary System: Measurement and Modeling from (248 to 283) K
pvap	864.00	kPa	248.20	Isothermal Vapor Liquid Equilibrium Data for the 1,1,2,2-Tetrafluoroethene + 1,1,2,3,3,3-Hexafluoroprop-1-ene Binary System: Measurement and Modeling from (248 to 283) K
pvap	1017.00	kPa	253.34	Isothermal Vapor Liquid Equilibrium Data for the 1,1,2,2-Tetrafluoroethene + 1,1,2,3,3,3-Hexafluoroprop-1-ene Binary System: Measurement and Modeling from (248 to 283) K
rhol	1519.01	kg/m3	197.00	KDB
sfust	54.33	J/mol×K	142.00	NIST Webbook
svapt	85.16	J/mol×K	197.53	NIST Webbook

Correlations

Information	Value
Property code	pvap

Equation	ln(Pvp) = A + B/(T + C)
Coeff. A	1.42064e+01
Coeff. B	-1.65104e+03
Coeff. C	-2.46530e+01
Temperature range (K), min.	140.85
Temperature range (K), max.	306.45

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/T + C*ln(T) + D*T^2
Coeff. A	6.63730e+01
Coeff. B	-3.47659e+03
Coeff. C	-8.50650e+00
Coeff. D	2.07884e-05
Temperature range (K), min.	142.00
Temperature range (K), max.	306.45

Sources

The Yaws Handbook of Vapor Pressure:	https://www.sciencedirect.com/book/9780128029992/the-yaws-handbook-of-vapor-pressure
KDB:	https://www.cheric.org/files/research/kdb/mol/mol1716.mol
Isothermal Vapor Liquid Equilibrium Data for the 1,1,2,2-Tetrafluoroethene + 1,1,2,2,3,3,4,4-Octafluorocyclobutane Binary System: Measurement and Modeling from (248 to 283) K:	https://www.doi.org/10.1021/je300217x
NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C116143&Units=SI
Crippen Method:	http://pubs.acs.org/doi/abs/10.1021/ci990307l
McGowan Method:	http://link.springer.com/article/10.1007/BF02311772
Isothermal Vapor Liquid Equilibrium Data for the 1,1,2,2-Tetrafluoroethene + 1,1,2,3,3,3-Hexafluoroprop-1-ene Binary System: Measurement and Modeling from (248 to 283) K:	https://www.doi.org/10.1021/je400828j
KDB Vapor Pressure Data:	https://www.cheric.org/research/kdb/hcprop/showprop.php?cmpid=1716
Joback Method:	https://en.wikipedia.org/wiki/Joback_method
Crippen Method:	https://www.chemeo.com/doc/models/crippen_log10ws

Legend

af:	Acentric Factor
cpg:	Ideal gas heat capacity
cpl:	Liquid phase heat capacity
gf:	Standard Gibbs free energy of formation
hf:	Enthalpy of formation at standard conditions

hfus:	Enthalpy of fusion at standard conditions
hfust:	Enthalpy of fusion at a given temperature
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
rhoc:	Critical density
rhol:	Liquid Density
rinpol:	Non-polar retention indices
sfust:	Entropy of fusion at a given temperature
sl:	Liquid phase molar entropy at standard conditions
svapt:	Entropy of vaporization at a given temperature
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tf:	Normal melting (fusion) point
tt:	Triple Point Temperature
vc:	Critical Volume
zc:	Critical Compressibility