

1,1-Dichloro-1-fluoroethane

Other names:	Dichlorofluoroethane Ethane, 1,1-dichloro-1-fluoro- Freon 141 Freon 141b Genetron 141b HCFC-141b R 141b R-141b freon R141b
Inchi:	InChI=1S/C2H3Cl2F/c1-2(3,4)5/h1H3
InchiKey:	FRCHKSNAZZFGCA-UHFFFAOYSA-N
Formula:	C2H3Cl2F
SMILES:	CC(F)(Cl)Cl
Mol. weight [g/mol]:	116.95
CAS:	1717-00-6

Physical Properties

Property code	Value	Unit	Source
gf	-249.87	kJ/mol	Joback Method
hf	-320.95	kJ/mol	Joback Method
hfus	5.00	kJ/mol	Joback Method
hvap	26.70	kJ/mol	Joback Method
log10ws	-1.92		Crippen Method
logp	2.107		Crippen Method
mcvol	65.290	ml/mol	McGowan Method
pc	4194.00 ± 5.00	kPa	NIST Webbook
rhoc	485.58 ± 2.34	kg/m ³	NIST Webbook
rhoc	460.78 ± 8.19	kg/m ³	NIST Webbook
rinpol	541.00		NIST Webbook
tb	304.90 ± 0.50	K	NIST Webbook
tb	305.15 ± 0.40	K	NIST Webbook
tb	305.20	K	NIST Webbook
tb	305.00	K	NIST Webbook
tc	477.50 ± 0.50	K	NIST Webbook
tc	477.30 ± 0.50	K	NIST Webbook
tf	169.65 ± 0.50	K	NIST Webbook
vc	0.253	m ³ /kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	108.51	J/mol×K	438.62	Joback Method
cpg	112.40	J/mol×K	469.26	Joback Method
cpg	89.56	J/mol×K	316.06	Joback Method
cpg	94.85	J/mol×K	346.70	Joback Method
cpg	99.76	J/mol×K	377.34	Joback Method
cpg	104.31	J/mol×K	407.98	Joback Method
cpg	115.98	J/mol×K	499.90	Joback Method
hvapt	28.70	kJ/mol	350.00	NIST Webbook
hvapt	27.80	kJ/mol	291.00	NIST Webbook

Correlations

Information	Value
Property code	pvap
Equation	$\ln(P_{vp}) = A + B/(T + C)$
Coeff. A	1.43302e+01
Coeff. B	-2.64732e+03
Coeff. C	-3.24150e+01
Temperature range (K), min.	220.94
Temperature range (K), max.	477.50

Sources

Crippen Method:	http://pubs.acs.org/doi/abs/10.1021/ci990307l
Crippen Method:	https://www.chemeo.com/doc/models/crippen_log10ws
Bubble-Point Measurements of Eight Binary Mixtures for Organic Rankine Cycle Applications:	https://www.doi.org/10.1021/je400251s
Joback Method:	https://en.wikipedia.org/wiki/Joback_method
McGowan Method:	http://link.springer.com/article/10.1007/BF02311772
NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C1717006&Units=SI
The Yaws Handbook of Vapor Pressure:	https://www.sciencedirect.com/book/9780128029992/the-yaws-handbook-of-vapor-pressure

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
hvac:	Enthalpy of vaporization at standard conditions
hvapt:	Enthalpy of vaporization at a given temperature
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
rinpol:	Non-polar retention indices
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tf:	Normal melting (fusion) point
vc:	Critical Volume

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