trans-Perfluorodecalin

Inchi: InChI=1S/C10F18/c11-1-2(12,5(17,18)9(25,26)7(21,22)3(1,13)14)6(19,20)10(27,28)8(23
InchiKey: UWEYRJFJVCLAGH-IJWZVTFUSA-N
Formula: C10F18
SMILES: FC1(F)C(F)(F)C(F)(F)C2(F)C(F)(F)C(F)(F)C(F)(F)C(F)(F)C(F)(F)C2(F)C1(F)F
Mol. weight [g/mol]: 462.08
CAS: 60433-12-7

Physical Properties

Property code	Value	Unit	Source
chl	-3466.70 ± 3.90	kJ/mol	NIST Webbook
gf	-3516.74	kJ/mol	Joback Method
hf	-3644.50 ± 3.90	kJ/mol	NIST Webbook
hfl	-3689.90 ± 3.90	kJ/mol	NIST Webbook
hfus	10.55	kJ/mol	Joback Method
hvap	45.90 ± 0.60	kJ/mol	NIST Webbook
hvap	45.40 ± 0.10	kJ/mol	NIST Webbook
hvap	45.40 ± 0.08	kJ/mol	NIST Webbook
hvap	45.40 ± 0.10	kJ/mol	NIST Webbook
log10ws	-6.24		Crippen Method
logp	5.513		Crippen Method
mcvol	161.900	ml/mol	McGowan Method
pc	1676.91	kPa	Joback Method
sl	517.10	J/mol×K	NIST Webbook
tb	410.66	K	Joback Method
tc	541.15	K	Joback Method
tf	439.96	K	Joback Method
tt	294.61 ± 0.01	K	NIST Webbook
vc	0.773	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	465.83	J/mol×K	454.16	Joback Method
cpg	478.31	J/mol×K	475.90	Joback Method

cpg	489.27	J/mol×K	497.65	Joback Method
cpg	498.89	J/mol×K	519.40	Joback Method
cpg	435.55	J/mol×K	410.66	Joback Method
cpg	451.64	J/mol×K	432.41	Joback Method
cpg	507.37	J/mol×K	541.15	Joback Method
cpl	446.80	J/mol×K	298.15	NIST Webbook
hfust	17.96	kJ/mol	294.61	NIST Webbook
hfust	17.96	kJ/mol	294.60	NIST Webbook
hvapt	43.30	kJ/mol	366.00	NIST Webbook
sfust	61.09	J/mol×K	294.61	NIST Webbook

Correlations

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/(T + C)
Coeff. A	1.37219e+01
Coeff. B	-3.08882e+03
Coeff. C	-7.53520e+01
Temperature range (K), min.	305.27
Temperature range (K), max.	442.61

Sources

Crippen Method: http://pubs.acs.org/doi/abs/10.1021/ci990307l

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

NIST Webbook: http://webbook.nist.gov/cgi/cbook.cgi?ID=C60433127&Units=SI

The Yaws Handbook of Vapor Pressure: https://www.sciencedirect.com/book/9780128029992/the-yaws-handbook-of-vapor-pressure

Legend

chl: Standard liquid enthalpy of combustion

cpg: Ideal gas heat capacity

cpl: Liquid phase heat capacity

gf:	Standard Gibbs free energy of formation
hf:	Enthalpy of formation at standard conditions
hfl:	Liquid phase 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
log10ws:	Log10 of Water solubility in mol/l
logp:	Octanol/Water partition coefficient
mcvol:	McGowan's characteristic volume
pc:	Critical Pressure
pvap:	Vapor pressure
sfust:	Entropy of fusion at a given temperature
sl:	Liquid phase molar entropy at standard conditions
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tf:	Normal melting (fusion) point
tt:	Triple Point Temperature
vc:	Critical Volume