decane, docosafluoro-

Other names: Perfluorodecane
Inchi: InChI=1S/C10F22/c11-1(12,3(15,16)5(19,20)7(23,24)9(27,28)29)2(13,14)4(17,18)6(21,22
InchiKey: BPHQIXJDBIHMLT-UHFFFAOYSA-N
Formula: C10F22
SMILES: FC(F)(F)C(F)(F)C(F)(F)C(F)(F)C(F)(F)C(F)(F)C(F)(F)C(F)(F)C(F)(F)C(F)(F)C(F)(F)F
Mol. weight [g/mol]: 538.07
CAS: 307-45-9

Physical Properties

Property code	Value	Unit	Source
gf	-4224.10	kJ/mol	Joback Method
hf	-4651.65	kJ/mol	Joback Method
hfus	15.28	kJ/mol	Joback Method
hvap	6.92	kJ/mol	Joback Method
log10ws	-7.85		Crippen Method
logp	7.193		Crippen Method
mcvol	190.700	ml/mol	McGowan Method
pc	1450.00	kPa	KDB
tb	417.40	K	KDB
tc	542.00	K	KDB
tc	542.40 ± 0.50	K	NIST Webbook
tf	239.64	K	Joback Method
vc	0.881	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	498.89	J/mol×K	379.84	Joback Method
cpg	513.97	J/mol×K	396.93	Joback Method
cpg	528.19	J/mol×K	414.01	Joback Method
cpg	541.59	J/mol×K	431.10	Joback Method
cpg	554.18	J/mol×K	448.19	Joback Method
cpg	566.00	J/mol×K	465.27	Joback Method
cpg	577.08	J/mol×K	482.36	Joback Method

hvapt	34.00	kJ/mol	473.50	NIST Webbook

Correlations

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/(T + C)
Coeff. A	1.53628e+01
Coeff. B	-3.86990e+03
Coeff. C	-5.71730e+01
Temperature range (K), min.	313.88
Temperature range (K), max.	442.19

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/T + C*ln(T) + D*T^2
Coeff. A	-3.70245e+01
Coeff. B	-1.26791e+03
Coeff. C	7.51107e+00
Coeff. D	-2.20567e-06
Temperature range (K), min.	405.15
Temperature range (K), max.	535.15

Sources

Joback Method:	https://en.wikipedia.org/wiki/Joback_method
KDB:	https://www.cheric.org/files/research/kdb/mol/mol1650.mol
McGowan Method:	http://link.springer.com/article/10.1007/BF02311772
NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C307459&Units=SI
The Yaws Handbook of Vapor Pressure:	https://www.sciencedirect.com/book/9780128029992/the-yaws-handbook-of-vapor-pressure
KDB Vapor Pressure Data:	https://www.cheric.org/research/kdb/hcprop/showprop.php?cmpid=1650
Crippen Method:	http://pubs.acs.org/doi/abs/10.1021/ci990307l
Crippen Method:	https://www.chemeo.com/doc/models/crippen_log10ws

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
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
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tf:	Normal melting (fusion) point
vc:	Critical Volume