Decanoic acid, nonadecafluoro-

Other names:	2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-Nonadecafluorodecanoic acid
	Decanoic acid, 2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-nonadecafluoro-
	Ndfda
	Nonadecafluoro-n-decanoic acid
	Nonadecafluorodecanoic acid
	PFDA
	Perfluoro-n-decanoic acid
	Perfluorodecanoic acid
Inchi:	InChI=1S/C10HF19O2/c11-2(12,1(30)31)3(13,14)4(15,16)5(17,18)6(19,20)7(21,22)8(23,
InchiKey:	PCIUEQPBYFRTEM-UHFFFAOYSA-N
Formula:	C10HF19O2
SMILES:	O=C(O)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]:	514.08
CAS:	335-76-2

Physical Properties

Property code	Value	Unit	Source
gf	-3908.25	kJ/mol	Joback Method
hf	-4319.38	kJ/mol	Joback Method
hfus	19.14	kJ/mol	Joback Method
hvap	34.09	kJ/mol	Joback Method
log10ws	-6.28		Crippen Method
logp	5.716		Crippen Method
mcvol	192.830	ml/mol	McGowan Method
pc	1364.66	kPa	Joback Method
tb	531.31	K	Joback Method
tc	658.40	K	Joback Method
tf	346.20	K	Joback Method
vc	0.864	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	637.04	J/mol×K	658.40	Joback Method

cpg	630.57	J/mol×K	637.22	Joback Method
cpg	623.43	J/mol×K	616.04	Joback Method
cpg	615.58	J/mol×K	594.86	Joback Method
cpg	606.96	J/mol×K	573.67	Joback Method
cpg	597.54	J/mol×K	552.49	Joback Method
cpg	587.25	J/mol×K	531.31	Joback Method
pvap	99.97	kPa	492.03	Vapor Pressures of Perfluorooctanoic, -nonanoic, -decanoic, -undecanoic, and -dodecanoic Acids
pvap	62.05	kPa	476.08	Vapor Pressures of Perfluorooctanoic, -nonanoic, -decanoic, -undecanoic, and -dodecanoic Acids
pvap	37.23	kPa	460.65	Vapor Pressures of Perfluorooctanoic, -nonanoic, -decanoic, -undecanoic, and -dodecanoic Acids
pvap	22.77	kPa	447.12	Vapor Pressures of Perfluorooctanoic, -nonanoic, -decanoic, -undecanoic, and -dodecanoic Acids
pvap	15.18	kPa	436.83	Vapor Pressures of Perfluorooctanoic, -nonanoic, -decanoic, -undecanoic, and -dodecanoic Acids
pvap	9.33	kPa	425.35	Vapor Pressures of Perfluorooctanoic, -nonanoic, -decanoic, -undecanoic, and -dodecanoic Acids

pvap	5.54	kPa	414.08	Vapor Pressures of Perfluorooctanoic, -nonanoic, -decanoic, -undecanoic, and -dodecanoic Acids
pvap	3.75	kPa	406.24	Vapor Pressures of Perfluorooctanoic, -nonanoic, -decanoic, -undecanoic, and -dodecanoic Acids
pvap	3.13	kPa	402.71	Vapor Pressures of Perfluorooctanoic, -nonanoic, -decanoic, -undecanoic, and -dodecanoic Acids

Pressure Dependent Properties

Property code	Value	Unit	Pressure [kPa]	Source
tbrp	403.00	K	4.00	NIST Webbook
tbrp	491.20	K	98.70	NIST Webbook

Sources

Vapor Pressures of Perfluorooctanoic, -nonanoic, -decanoic, -undecanoic, and -dodecanoic Acids:	https://www.doi.org/10.1021/je050070r
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=C335762&Units=SI
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
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
tbrp:	Boiling point at reduced pressure
tc:	Critical Temperature
tf:	Normal melting (fusion) point
vc:	Critical Volume