

Naphthalene, decahydro-

Other names:	Bicyclo[4.4.0]decane Cis-decahydronaphthalene Dec Decahydronaphthalene Decalin Decaline Decanhydronaphthalene Dekalin Dekalina NSC 406139 Naphthalane Naphthan Naphthane Perhydronaphthalene UN 1147
Inchi:	InChI=1S/C10H18/c1-2-6-10-8-4-3-7-9(10)5-1/h9-10H,1-8H2
InchiKey:	NNBZCPXTIHBJL-UHFFFAOYSA-N
Formula:	C10H18
SMILES:	C1CCC2CCCCC2C1
Mol. weight [g/mol]:	138.25
CAS:	91-17-8

Physical Properties

Property code	Value	Unit	Source
chl	-6226.52	kJ/mol	NIST Webbook
gf	106.42	kJ/mol	Joback Method
hf	-128.77	kJ/mol	Joback Method
hfus	9.53	kJ/mol	Joback Method
hvap	38.37	kJ/mol	Joback Method
ie	9.14	eV	NIST Webbook
ie	9.35	eV	NIST Webbook
log10ws	-5.19		Estimated Solubility Method
logp	3.367		Crippen Method
mvol	130.040	ml/mol	McGowan Method
pc	2080.00 ± 151.99	kPa	NIST Webbook
rmpol	1063.00		NIST Webbook

rmpol	1055.00		NIST Webbook
rmpol	1066.00		NIST Webbook
rmpol	1087.00		NIST Webbook
rmpol	1064.00		NIST Webbook
rmpol	1043.00		NIST Webbook
rmpol	173.01		NIST Webbook
rmpol	1054.00		NIST Webbook
rmpol	1055.00		NIST Webbook
rmpol	1089.00		NIST Webbook
rmpol	173.01		NIST Webbook
rmpol	1042.00		NIST Webbook
rmpol	1089.00		NIST Webbook
rmpol	1056.00		NIST Webbook
rmpol	1054.00		NIST Webbook
rmpol	173.31		NIST Webbook
sl	265.01	J/molxK	NIST Webbook
tb	465.00 ± 5.00	K	NIST Webbook
tb	445.00 ± 10.00	K	NIST Webbook
tb	461.00 ± 6.00	K	NIST Webbook
tb	464.25	K	Excess volumes, densities, speeds of sound and viscosities for the binary systems of diisopropyl ether with hydrocarbons at 303.15K
tb	463.20	K	NIST Webbook
tb	465.00 ± 2.00	K	NIST Webbook
tc	645.00 ± 2.00	K	NIST Webbook
tf	149.00 ± 2.50	K	NIST Webbook
vc	0.477	m ³ /kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	308.56	J/molxK	495.77	Joback Method
cpg	329.59	J/molxK	532.78	Joback Method
cpg	349.32	J/molxK	569.78	Joback Method
cpg	367.80	J/molxK	606.79	Joback Method
cpg	385.09	J/molxK	643.80	Joback Method
cpg	401.24	J/molxK	680.81	Joback Method
cpg	286.16	J/molxK	458.76	Joback Method
cpl	233.51	J/molxK	298.00	NIST Webbook
cpl	232.00	J/molxK	298.15	NIST Webbook

cpl	219.20	J/molxK	311.00	NIST Webbook
cpl	220.06	J/molxK	298.15	NIST Webbook
cpl	232.20	J/molxK	298.15	NIST Webbook
cpl	232.20	J/molxK	298.15	NIST Webbook
cpl	232.08	J/molxK	298.15	NIST Webbook
cpl	251.00	J/molxK	313.00	NIST Webbook
dvisc	0.0006533	Paxs	380.59	Joback Method
dvisc	0.0009023	Paxs	341.51	Joback Method
dvisc	0.0004040	Paxs	458.76	Joback Method
dvisc	0.0013547	Paxs	302.43	Joback Method
dvisc	0.0022946	Paxs	263.34	Joback Method
dvisc	0.0005024	Paxs	419.68	Joback Method
dvisc	0.0046703	Paxs	224.26	Joback Method
hfust	2.21	kJ/mol	230.10	NIST Webbook
hfust	14.41	kJ/mol	242.78	NIST Webbook
rho1	826.61	kg/m3	363.15	Density, Viscosity, Surface Tension, and Refractive Index for Binary Mixtures of 1,3-Dimethyladamantane with Four C10 Alkanes
rho1	841.87	kg/m3	343.15	Density, Viscosity, Surface Tension, and Refractive Index for Binary Mixtures of 1,3-Dimethyladamantane with Four C10 Alkanes
rho1	849.45	kg/m3	333.15	Density, Viscosity, Surface Tension, and Refractive Index for Binary Mixtures of 1,3-Dimethyladamantane with Four C10 Alkanes
rho1	857.01	kg/m3	323.15	Density, Viscosity, Surface Tension, and Refractive Index for Binary Mixtures of 1,3-Dimethyladamantane with Four C10 Alkanes

rho1	865.43	kg/m3	313.15	Density, Viscosity, Surface Tension, and Refractive Index for Binary Mixtures of 1,3-Dimethyladamantane with Four C10 Alkanes
rho1	872.96	kg/m3	303.15	Density, Viscosity, Surface Tension, and Refractive Index for Binary Mixtures of 1,3-Dimethyladamantane with Four C10 Alkanes
rho1	876.72	kg/m3	298.15	Density, Viscosity, Surface Tension, and Refractive Index for Binary Mixtures of 1,3-Dimethyladamantane with Four C10 Alkanes
rho1	880.46	kg/m3	293.15	Density, Viscosity, Surface Tension, and Refractive Index for Binary Mixtures of 1,3-Dimethyladamantane with Four C10 Alkanes
rho1	834.26	kg/m3	353.15	Density, Viscosity, Surface Tension, and Refractive Index for Binary Mixtures of 1,3-Dimethyladamantane with Four C10 Alkanes
sfust	59.37	J/molxK	242.78	NIST Webbook
sfust	9.60	J/molxK	230.10	NIST Webbook

Sources

Joback Method:

https://en.wikipedia.org/wiki/Joback_method

McGowan Method:

<http://link.springer.com/article/10.1007/BF02311772>

Measurement and correlation of phase equilibria for (water + aromatic hydrocarbon) binary mixtures at T = (573 to 623) K using microfluidic mixing: Experimental solubility data of various n-alkane waxes: effects of alkane chain length, alkane odd versus even carbon number structures, and solvent chemistry on solubility:

<https://www.doi.org/10.1016/j.jct.2012.03.001>

http://pubs.acs.org/doi/suppl/10.1021/ci034243x/suppl_file/ci034243xsi20040112_053635.txt

<https://www.doi.org/10.1016/j.fluid.2004.10.021>

