Phenanthrene, 9,10-dimethyl-

Other names: 9,10-Dimethylphenanthrene
9,10-Phenanthraquinodimethane
Inchi: InChI=1S/C16H14/c1-11-12(2)14-8-4-6-10-16(14)15-9-5-3-7-13(11)15/h3-10H,1-2H3
InchiKey: JUEORGSHIXFSSI-UHFFFAOYSA-N
Formula: C16H14
SMILES: Cc1c(C)c2ccccc2c2ccccc12
Mol. weight [g/mol]: 206.28
CAS: 604-83-1

Physical Properties

Property code	Value	Unit	Source
chs	-8344.60	kJ/mol	NIST Webbook
gf	380.66	kJ/mol	Joback Method
hf	167.00	kJ/mol	NIST Webbook
hfus	24.11	kJ/mol	Joback Method
hsub	119.50	kJ/mol	NIST Webbook
hvap	58.75	kJ/mol	Joback Method
ie	8.01 ± 0.05	eV	NIST Webbook
log10ws	-6.03		Crippen Method
logp	4.610		Crippen Method
mcvol	173.620	ml/mol	McGowan Method
pc	2555.92	kPa	Joback Method
rinpol	348.52		NIST Webbook
rinpol	347.90		NIST Webbook
tb	645.06	K	Joback Method
tc	889.67	K	Joback Method
tf	399.46	K	Joback Method
vc	0.667	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	429.69	J/mol×K	645.06	Joback Method
cpg	445.30	J/mol×K	685.83	Joback Method

cpg	459.74	J/mol×K	726.60	Joback Method
cpg	473.15	J/mol×K	767.36	Joback Method
cpg	485.63	J/mol×K	808.13	Joback Method
cpg	497.31	J/mol×K	848.90	Joback Method
cpg	508.31	J/mol×K	889.67	Joback Method
dvisc	0.0012344	Pa×s	399.46	Joback Method
dvisc	0.0009553	Pa×s	440.39	Joback Method
dvisc	0.0007722	Pa×s	481.33	Joback Method
dvisc	0.0006454	Pa×s	522.26	Joback Method
dvisc	0.0005537	Pa×s	563.19	Joback Method
dvisc	0.0004850	Pa×s	604.13	Joback Method
dvisc	0.0004320	Pa×s	645.06	Joback Method

Correlations

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/(T + C)
Coeff. A	1.37543e+01
Coeff. B	-4.78678e+03
Coeff. C	-1.19348e+02
Temperature range (K), min.	474.80
Temperature range (K), max.	686.31

Sources

NIST Webbook: http://webbook.nist.gov/cgi/cbook.cgi?ID=C604831&Units=SI

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

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

Legend

chs: Standard solid enthalpy of combustion

cpg:	Ideal gas heat capacity
dvisc:	Dynamic viscosity
gf:	Standard Gibbs free energy of formation
hf:	Enthalpy of formation at standard conditions
hfus:	Enthalpy of fusion at standard conditions
hsub:	Enthalpy of sublimation at standard conditions
hvap:	Enthalpy of vaporization at standard conditions
ie:	Ionization energy
log10ws:	Log10 of Water solubility in mol/l
logp:	Octanol/Water partition coefficient
mcvol:	McGowan's characteristic volume
pc:	Critical Pressure
pvap:	Vapor pressure
rinpol:	Non-polar retention indices
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tf:	Normal melting (fusion) point
vc:	Critical Volume