Benzene, tetradecyl-

Other names:	1-Phenyltetradecane
	Phenyl-n-tetradecane
	Tetradecane, 1-phenyl-
	Tetradecylbenzene
	n-Tetradecylbenzene
Inchi:	InChI=1S/C20H34/c1-2-3-4-5-6-7-8-9-10-11-12-14-17-20-18-15-13-16-19-20/h13,15-16,1
InchiKey:	JZALLXAUNPOCEU-UHFFFAOYSA-N
Formula:	C20H34
SMILES:	CCCCCCCCCCCCCCc1ccccc1
Mol. weight [g/mol]:	274.48
CAS:	1459-10-5

Physical Properties

Property code	Value	Unit	Source
gf	229.93	kJ/mol	Joback Method
hf	-219.60	kJ/mol	Joback Method
hfus	41.60	kJ/mol	Joback Method
hvap	99.60	kJ/mol	NIST Webbook
log10ws	-7.30		Crippen Method
logp	6.930		Crippen Method
mcvol	268.900	ml/mol	McGowan Method
pc	1269.16	kPa	Joback Method
rinpol	2089.90		NIST Webbook
rinpol	2056.00		NIST Webbook
rinpol	2082.00		NIST Webbook
tb	683.68	K	Joback Method
tc	866.75	K	Joback Method
tf	282.83 ± 0.07	K	NIST Webbook
tf	281.80 ± 2.00	K	NIST Webbook
vc	1.048	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source

cpg	767.08	J/mol×K	683.68	Joback Method
cpg	787.33	J/mol×K	714.19	Joback Method
cpg	806.54	J/mol×K	744.70	Joback Method
cpg	824.76	J/mol×K	775.22	Joback Method
cpg	842.03	J/mol×K	805.73	Joback Method
cpg	858.40	J/mol×K	836.24	Joback Method
cpg	873.91	J/mol×K	866.75	Joback Method
dvisc	0.0025512	Pa×s	341.58	Joback Method
dvisc	0.0010039	Pa×s	398.60	Joback Method
dvisc	0.0004989	Pa×s	455.61	Joback Method
dvisc	0.0002897	Pa×s	512.63	Joback Method
dvisc	0.0001875	Pa×s	569.65	Joback Method
dvisc	0.0001314	Pa×s	626.66	Joback Method
dvisc	0.0000977	Pa×s	683.68	Joback Method
hvapt	74.50	kJ/mol	575.00	NIST Webbook

Pressure Dependent Properties

Property code	Value	Unit	Pressure [kPa]	Source
tbrp	468.50 ± 0.50	K	1.00	NIST Webbook
tfp	289.10	K	100.00	Solid-Liquid Equilibria under High Pressure of Nine Pure n-Alkylbenzenes
tfp	293.70	K	20500.00	Solid-Liquid Equilibria under High Pressure of Nine Pure n-Alkylbenzenes
tfp	297.80	K	40000.00	Solid-Liquid Equilibria under High Pressure of Nine Pure n-Alkylbenzenes
tfp	302.00	K	60300.00	Solid-Liquid Equilibria under High Pressure of Nine Pure n-Alkylbenzenes
tfp	306.00	K	80400.00	Solid-Liquid Equilibria under High Pressure of Nine Pure n-Alkylbenzenes

tfp	309.70	K	99700.00	Solid-Liquid Equilibria under High Pressure of Nine Pure n-Alkylbenzenes

Correlations

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/(T + C)
Coeff. A	1.59552e+01
Coeff. B	-6.05791e+03
Coeff. C	-9.12600e+01
Temperature range (K), min.	477.91
Temperature range (K), max.	660.41

Sources

Crippen Method:	https://www.chemeo.com/doc/models/crippen_log10ws
Solid-Liquid Equilibria under High Pressure of Nine Pure n-Alkylbenzenes:	https://www.doi.org/10.1021/je700529y
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=C1459105&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

Legend

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
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
rinpol:	Non-polar retention indices
tb:	Normal Boiling Point Temperature
tbrp:	Boiling point at reduced pressure
tc:	Critical Temperature
tf:	Normal melting (fusion) point
tfp:	Melting point
vc:	Critical Volume