1,1'-Bicyclopentyl

Other names:	Bicyclopentyl
	Cyclopentane, cyclopentyl-
	Cyclopentylcyclopentane
	Dicyclopentyl
Inchi:	InChI=1S/C10H18/c1-2-6-9(5-1)10-7-3-4-8-10/h9-10H,1-8H2
InchiKey:	MAWOHFOSAIXURX-UHFFFAOYSA-N
Formula:	C10H18
SMILES:	C1CCC(C2CCCC2)C1
Mol. weight [g/mol]:	138.25
CAS:	1636-39-1

Physical Properties

Property code	Value	Unit	Source
chl	-6205.80	kJ/mol	NIST Webbook
chl	-6332.00 ± 3.00	kJ/mol	NIST Webbook
chl	-6328.26 ± 0.84	kJ/mol	NIST Webbook
gf	106.42	kJ/mol	Joback Method
hf	-128.77	kJ/mol	Joback Method
hfl	-179.30 ± 1.00	kJ/mol	NIST Webbook
hfus	13.40	kJ/mol	High-energy components of "designer gasoline and designer diesel fuel" I. Heat capacities, enthalpy increments, vapor pressures, critical properties, and derived thermodynamic functions for bicyclopentyl between the T=(10 and 600) K
hvap	50.40 ± 0.10	kJ/mol	NIST Webbook
log10ws	-3.31		Crippen Method
logp	3.367		Crippen Method
mcvol	130.040	ml/mol	McGowan Method
pc	3025.61	kPa	Joback Method
rinpol	1087.00		NIST Webbook
rinpol	1071.80		NIST Webbook
rinpol	1071.80		NIST Webbook
rinpol	1077.60		NIST Webbook
rinpol	1086.00		NIST Webbook
rinpol	1130.00		NIST Webbook

rinpol	1077.60		NIST Webbook
rinpol	1113.00		NIST Webbook
rinpol	1080.90		NIST Webbook
rinpol	1080.90		NIST Webbook
tb	462.00 ± 3.00	K	NIST Webbook
tb	463.60 ± 0.20	K	NIST Webbook
tb	463.59 ± 0.30	K	NIST Webbook
tb	463.60 ± 0.30	K	NIST Webbook
tb	463.00 ± 3.00	K	NIST Webbook
tc	680.81	K	Joback Method
tf	237.62 ± 0.30	K	NIST Webbook
tf	237.79 ± 0.03	K	NIST Webbook
tf	237.80 ± 0.02	K	NIST Webbook
tf	237.78 ± 0.05	K	NIST Webbook
tf	237.73 ± 0.20	K	NIST Webbook
tf	237.80 ± 0.01	K	NIST Webbook
tf	237.73 ± 0.30	K	NIST Webbook
tf	237.78 ± 0.02	K	NIST Webbook
tf	240.00 ± 1.66	K	NIST Webbook
tf	237.79 ± 0.02	K	NIST Webbook
vc	0.477	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	286.16	J/mol×K	458.76	Joback Method
cpg	308.56	J/mol×K	495.77	Joback Method
cpg	329.59	J/mol×K	532.78	Joback Method
cpg	349.32	J/mol×K	569.78	Joback Method
cpg	367.80	J/mol×K	606.79	Joback Method
cpg	385.09	J/mol×K	643.80	Joback Method
cpg	401.24	J/mol×K	680.81	Joback Method
cpl	238.90	J/mol×K	298.15	NIST Webbook
cpl	229.70	J/mol×K	311.00	NIST Webbook
dvisc	0.0004040	Pa×s	458.76	Joback Method
dvisc	0.0046703	Pa×s	224.26	Joback Method
dvisc	0.0013547	Pa×s	302.43	Joback Method
dvisc	0.0009023	Pa×s	341.51	Joback Method
dvisc	0.0006533	Pa×s	380.59	Joback Method
dvisc	0.0005024	Pa×s	419.68	Joback Method
dvisc	0.0022946	Pa×s	263.34	Joback Method

hfust	13.40	kJ/mol	237.80	NIST Webbook
hvapt	44.10 ± 0.10	kJ/mol	446.50	NIST Webbook
hvapt	41.60 ± 0.10	kJ/mol	446.50	NIST Webbook
hvapt	38.90 ± 0.20	kJ/mol	446.50	NIST Webbook
hvapt	43.20	kJ/mol	371.50	NIST Webbook

Correlations

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/(T + C)
Coeff. A	1.61374e+01
Coeff. B	-5.80538e+03
Coeff. C	4.21280e+01
Temperature range (K), min.	324.15
Temperature range (K), max.	494.12

Sources

High-energy components of "designer gasoline and designer diesel fuel" I. Heat capacities, enthalpy increments, vapor pressures, critical properties, and derived thermodynamic functions for bicyclopentyl between the T=(10 and 600) K:	https://www.doi.org/10.1016/j.jct.2004.04.003
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=C1636391&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

Legend

chl:	Standard liquid enthalpy of combustion
cpg:	Ideal gas heat capacity
cpl:	Liquid phase heat capacity
dvisc:	Dynamic viscosity
gf:	Standard Gibbs free energy of formation
hf:	Enthalpy of formation at standard conditions

hfl:	Liquid phase enthalpy of formation at standard conditions
hfus:	Enthalpy of fusion at standard conditions
hfust:	Enthalpy of fusion at a given temperature
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
tc:	Critical Temperature
tf:	Normal melting (fusion) point
vc:	Critical Volume