2-Norbornene

Other names:	2-Norbornylene
	3,6-Endomethylenecyclohexene
	8,9,10-trinor-2-bornene
	8,9,10-trinorborn-2-ene
	Bicyclo[2.2.1]-2-heptene
	Bicyclo[2.2.1]hept-2-ene
	Bicyclo[2.2.1]heptene
	NSC 120425
	Norbornene
	Norbornylene
	Norcamphene
	Norfenchene
Inchi:	InChI=1S/C7H10/c1-2-7-4-3-6(1)5-7/h1-2,6-7H,3-5H2
InchiKey:	JFNLZVQOOSMTJK-UHFFFAOYSA-N
Formula:	C7H10
SMILES:	C1=CC2CCC1C2
Mol. weight [g/mol]:	94.15
CAS:	498-66-8

Physical Properties

Property code	Value	Unit	Source
affp	836.50	kJ/mol	NIST Webbook
basg	804.00	kJ/mol	NIST Webbook
chl	-4213.00 ± 2.00	kJ/mol	NIST Webbook
chs	-4225.10 ± 1.30	kJ/mol	NIST Webbook
chs	-4237.20 ± 3.20	kJ/mol	NIST Webbook
chs	-4228.20 ± 2.00	kJ/mol	NIST Webbook
gf	147.42	kJ/mol	Joback Method
hf	89.50	kJ/mol	NIST Webbook
hf	82.60 ± 2.10	kJ/mol	NIST Webbook
hf	80.10 ± 1.50	kJ/mol	NIST Webbook
hf	88.40 ± 2.70	kJ/mol	NIST Webbook
hf	63.30 ± 1.80	kJ/mol	NIST Webbook
hf	121.00	kJ/mol	NIST Webbook
hf	90.60 ± 3.40	kJ/mol	NIST Webbook
hf	85.40	kJ/mol	NIST Webbook
hfl	29.70 ± 1.70	kJ/mol	NIST Webbook

hfs	41.40 ± 1.40	kJ/mol	NIST Webbook
hfs	44.40 ± 2.00	kJ/mol	NIST Webbook
hfs	53.50 ± 3.20	kJ/mol	NIST Webbook
hfus	9.28	kJ/mol	Joback Method
hsub	37.10	kJ/mol	NIST Webbook
hsub	38.20 ± 0.20	kJ/mol	NIST Webbook
hsub	38.70 ± 0.54	kJ/mol	NIST Webbook
hsub	38.20	kJ/mol	NIST Webbook
hsub	37.84 ± 0.14	kJ/mol	NIST Webbook
hsub	37.80 ± 0.14	kJ/mol	NIST Webbook
hsub	37.80 ± 0.90	kJ/mol	NIST Webbook
hsub	38.70 ± 0.50	kJ/mol	NIST Webbook
hsub	37.70 ± 0.90	kJ/mol	NIST Webbook
hsub	38.70	kJ/mol	NIST Webbook
hvap	33.60	kJ/mol	NIST Webbook
hvap	33.60 ± 0.08	kJ/mol	NIST Webbook
hvap	35.10 ± 0.20	kJ/mol	NIST Webbook
ie	8.95 ± 0.15	eV	NIST Webbook
ie	8.60	eV	NIST Webbook
ie	8.81 ± 0.02	eV	NIST Webbook
ie	8.97	eV	NIST Webbook
ie	8.83	eV	NIST Webbook
ie	8.95	eV	NIST Webbook
ie	8.97	eV	NIST Webbook
ie	8.97	eV	NIST Webbook
ie	8.97	eV	NIST Webbook
ie	8.80 ± 0.01	eV	NIST Webbook
ie	8.95	eV	NIST Webbook
ie	8.97	eV	NIST Webbook
ie	9.20	eV	NIST Webbook
ie	9.05	eV	NIST Webbook
ie	8.82	eV	NIST Webbook
ie	9.00 ± 0.10	eV	NIST Webbook
log10ws	-1.91		Crippen Method
logp	1.973		Crippen Method
mcvol	83.470	ml/mol	McGowan Method
pc	4860.00 ± 250.00	kPa	NIST Webbook
rhoc	299.50 ± 14.12	kg/m3	NIST Webbook
rinpol	721.20		NIST Webbook
rinpol	720.00		NIST Webbook
rinpol	715.00		NIST Webbook
rinpol	710.00		NIST Webbook
rinpol	704.00		NIST Webbook
rinpol	706.70		NIST Webbook

rinpol	699.00		NIST Webbook
rinpol	716.00		NIST Webbook
rinpol	727.00		NIST Webbook
rinpol	731.00		NIST Webbook
rinpol	726.00		NIST Webbook
rinpol	726.00		NIST Webbook
rinpol	731.00		NIST Webbook
rinpol	735.20		NIST Webbook
rinpol	741.10		NIST Webbook
rinpol	699.00		NIST Webbook
rinpol	714.60		NIST Webbook
tb	369.20	K	NIST Webbook
tb	368.87 ± 0.30	K	NIST Webbook
tc	590.00 ± 2.00	K	NIST Webbook
tf	319.00 ± 0.10	K	NIST Webbook
tf	318.90 ± 0.20	K	NIST Webbook
tf	317.30 ± 0.30	K	NIST Webbook
tt	319.50 ± 1.00	K	NIST Webbook
vc	0.320	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	223.52	J/mol×K	581.59	Joback Method
cpg	213.06	J/mol×K	547.41	Joback Method
cpg	201.82	J/mol×K	513.22	Joback Method
cpg	189.74	J/mol×K	479.03	Joback Method
cpg	176.76	J/mol×K	444.84	Joback Method
cpg	162.81	J/mol×K	410.66	Joback Method
cpg	147.84	J/mol×K	376.47	Joback Method
cps	129.90	J/mol×K	297.00	NIST Webbook
cps	129.90	J/mol×K	298.15	NIST Webbook
dvisc	0.0004471	Pa×s	230.89	Joback Method
dvisc	0.0004352	Pa×s	260.00	Joback Method
dvisc	0.0004260	Pa×s	289.12	Joback Method
dvisc	0.0004186	Pa×s	318.24	Joback Method
dvisc	0.0004125	Pa×s	347.35	Joback Method
dvisc	0.0004629	Pa×s	201.77	Joback Method
dvisc	0.0004074	Pa×s	376.47	Joback Method
hfust	4.27	kJ/mol	130.30	NIST Webbook
hfust	3.48	kJ/mol	319.50	NIST Webbook

hfust	3.48	kJ/mol	319.50	NIST Webbook
hvapt	34.30	kJ/mol	325.50	NIST Webbook
hvapt	30.80 ± 0.30	kJ/mol	372.00	NIST Webbook
hvapt	33.00 ± 0.20	kJ/mol	372.00	NIST Webbook
sfust	10.89	J/mol×K	319.50	NIST Webbook
sfust	32.77	J/mol×K	130.30	NIST Webbook

Pressure Dependent Properties

Property code	Value	Unit	Pressure [kPa]	Source
tbrp	368.50 ± 1.50	K	98.70	NIST Webbook

Correlations

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/(T + C)
Coeff. A	1.39662e+01
Coeff. B	-3.11661e+03
Coeff. C	-3.52470e+01
Temperature range (K), min.	263.09
Temperature range (K), max.	395.35

Sources

Crippen Method:	https://www.chemeo.com/doc/models/crippen_log10ws
Solubility of ethylene in toluene, norbornene, and toluene + norbornene mixture:	https://www.doi.org/10.1016/j.fluid.2013.01.023
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=C498668&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

affp:	Proton affinity
basg:	Gas basicity
chl:	Standard liquid enthalpy of combustion
chs:	Standard solid enthalpy of combustion
cpg:	Ideal gas heat capacity
cps:	Solid 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
hfs:	Solid phase enthalpy of formation at standard conditions
hfus:	Enthalpy of fusion at standard conditions
hfust:	Enthalpy of fusion at a given temperature
hsub:	Enthalpy of sublimation at standard conditions
hvap:	Enthalpy of vaporization at standard conditions
hvapt:	Enthalpy of vaporization at a given temperature
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
rhoc:	Critical density
rinpol:	Non-polar retention indices
sfust:	Entropy of fusion at a given temperature
tb:	Normal Boiling Point Temperature
tbrp:	Boiling point at reduced pressure
tc:	Critical Temperature
tf:	Normal melting (fusion) point
tt:	Triple Point Temperature
vc:	Critical Volume