(Z)-5-Decene

Other names: (Z)-5-C10H20
5-Decene, (Z)-
cis-5-Decene
Inchi: InChI=1S/C10H20/c1-3-5-7-9-10-8-6-4-2/h9-10H,3-8H2,1-2H3/b10-9-
InchiKey: UURSXESKOOOTOV-KTKRTIGZSA-N
Formula: C10H20
SMILES: CCCCC=CCCCC
Mol. weight [g/mol]: 140.27
CAS: 7433-78-5

Physical Properties

Property code	Value	Unit	Source
gf	113.54	kJ/mol	Joback Method
hf	-132.51	kJ/mol	Joback Method
hfus	21.86	kJ/mol	Joback Method
hvap	37.81	kJ/mol	Joback Method
ie	8.77 ± 0.01	eV	NIST Webbook
ie	8.77 ± 0.01	eV	NIST Webbook
ie	8.94 ± 0.01	eV	NIST Webbook
log10ws	-3.86		Crippen Method
logp	3.923		Crippen Method
mcvol	147.460	ml/mol	McGowan Method
pc	2212.45	kPa	Joback Method
rinpol	982.00		NIST Webbook
rinpol	982.00		NIST Webbook
rinpol	982.00		NIST Webbook
rinpol	990.00		NIST Webbook
rinpol	991.00		NIST Webbook
rinpol	992.00		NIST Webbook
rinpol	992.00		NIST Webbook
rinpol	982.10		NIST Webbook
rinpol	982.00		NIST Webbook
rinpol	981.00		NIST Webbook
rinpol	991.60		NIST Webbook
rinpol	992.40		NIST Webbook
rinpol	982.10		NIST Webbook
rinpol	981.00		NIST Webbook

rinpol	990.00		NIST Webbook
rinpol	982.00		NIST Webbook
ripol	1042.00		NIST Webbook
ripol	1041.90		NIST Webbook
ripol	1047.70		NIST Webbook
ripol	1047.00		NIST Webbook
ripol	1041.90		NIST Webbook
ripol	1047.70		NIST Webbook
ripol	1047.00		NIST Webbook
ripol	1047.00		NIST Webbook
ripol	1047.00		NIST Webbook
ripol	1042.00		NIST Webbook
ripol	1043.00		NIST Webbook
ripol	1042.00		NIST Webbook
ripol	1044.00		NIST Webbook
ripol	1048.00		NIST Webbook
tb	432.36	K	Joback Method
tc	602.58	K	Joback Method
tf	160.00 ± 2.00	K	NIST Webbook
tf	162.00 ± 1.00	K	NIST Webbook
tf	161.00 ± 2.00	K	NIST Webbook
tf	161.15 ± 1.50	K	NIST Webbook
vc	0.576	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	300.30	J/mol×K	432.36	Joback Method
cpg	315.26	J/mol×K	460.73	Joback Method
cpg	329.59	J/mol×K	489.10	Joback Method
cpg	343.32	J/mol×K	517.47	Joback Method
cpg	356.46	J/mol×K	545.84	Joback Method
cpg	369.04	J/mol×K	574.21	Joback Method
cpg	381.07	J/mol×K	602.58	Joback Method
dvisc	0.0057907	Pa×s	197.38	Joback Method
dvisc	0.0020667	Pa×s	236.54	Joback Method
dvisc	0.0009884	Pa×s	275.71	Joback Method
dvisc	0.0005679	Pa×s	314.87	Joback Method
dvisc	0.0003689	Pa×s	354.03	Joback Method
dvisc	0.0002611	Pa×s	393.20	Joback Method
dvisc	0.0001968	Pa×s	432.36	Joback Method

hvapt	42.90	kJ/mol	420.00	NIST Webbook

Correlations

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/(T + C)
Coeff. A	1.54578e+01
Coeff. B	-4.06859e+03
Coeff. C	-6.46240e+01
Temperature range (K), min.	332.82
Temperature range (K), max.	465.62

Sources

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=C7433785&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

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

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
ripol:	Polar retention indices
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tf:	Normal melting (fusion) point
vc:	Critical Volume