2-Pentene, (Z)-

Other names:	(Z)-2-PENTENE
	(Z)-pent-2-ene
	2-(Z)-C5H10
	2-CIS-PENTENE
	CIS-2-PENTENE
	Pentene-2, cis-
	cis-Pentene
	cis-Pentene-2
	cis-«beta»-Amylene
	cis-Â«betaÂ»-Amylene
Inchi:	InChI=1S/C5H10/c1-3-5-4-2/h3,5H,4H2,1-2H3/b5-3-
InchiKey:	QMMOXUPEWRXHJS-HYXAFXHYSA-N
Formula:	C5H10
SMILES:	CC=CCC
Mol. weight [g/mol]:	70.13
CAS:	627-20-3

Physical Properties

Property code	Value	Unit	Source
af	0.2510		KDB
ap	291.450	K	KDB
chl	-3343.21 ± 0.54	kJ/mol	NIST Webbook
chl	-3336.70 ± 0.30	kJ/mol	NIST Webbook
gf	71.89	kJ/mol	KDB
hcg	3342.47	kJ/mol	KDB
hcn	3122.394	kJ/mol	KDB
hf	-28.09	kJ/mol	KDB
hfl	-53.49 ± 0.62	kJ/mol	NIST Webbook
hfl	-53.35 ± 0.42	kJ/mol	NIST Webbook
hfl	-55.80 ± 1.00	kJ/mol	NIST Webbook
hfl	-60.00 ± 0.30	kJ/mol	NIST Webbook
hfus	8.91	kJ/mol	Joback Method
hvap	26.80	kJ/mol	NIST Webbook
ie	9.04 ± 0.01	eV	NIST Webbook
ie	9.11	eV	NIST Webbook
ie	9.01 ± 0.03	eV	NIST Webbook
ie	8.94 ± 0.02	eV	NIST Webbook

ie	9.23 ± 0.02	eV	NIST Webbook
ie	9.22 ± 0.01	eV	NIST Webbook
ie	9.04 ± 0.02	eV	NIST Webbook
log10ws	-1.77		Crippen Method
logp	1.973		Crippen Method
mcvol	77.010	ml/mol	McGowan Method
pc	3690.00	kPa	KDB
pc	3690.00 ± 100.00	kPa	NIST Webbook
rinpol	514.70		NIST Webbook
rinpol	502.00		NIST Webbook
rinpol	507.00		NIST Webbook
rinpol	514.40		NIST Webbook
rinpol	519.40		NIST Webbook
rinpol	505.30		NIST Webbook
rinpol	515.30		NIST Webbook
rinpol	504.60		NIST Webbook
rinpol	505.00		NIST Webbook
rinpol	501.00		NIST Webbook
rinpol	515.00		NIST Webbook
rinpol	515.00		NIST Webbook
rinpol	514.00		NIST Webbook
rinpol	504.80		NIST Webbook
rinpol	518.90		NIST Webbook
rinpol	512.40		NIST Webbook
rinpol	505.00		NIST Webbook
rinpol	505.20		NIST Webbook
rinpol	515.00		NIST Webbook
rinpol	515.00		NIST Webbook
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rinpol	515.00		NIST Webbook
rinpol	515.00		NIST Webbook
rinpol	514.00		NIST Webbook
rinpol	514.00		NIST Webbook
rinpol	519.40		NIST Webbook
rinpol	519.30		NIST Webbook
rinpol	519.10		NIST Webbook
rinpol	519.10		NIST Webbook
rinpol	518.90		NIST Webbook
rinpol	518.90		NIST Webbook
rinpol	515.00		NIST Webbook
rinpol	514.50		NIST Webbook
rinpol	514.60		NIST Webbook
rinpol	514.60		NIST Webbook

rinpol	510.00	NIST Webbook
rinpol	514.80	NIST Webbook
rinpol	514.90	NIST Webbook
rinpol	512.10	NIST Webbook
rinpol	516.20	NIST Webbook
rinpol	514.40	NIST Webbook
rinpol	512.70	NIST Webbook
rinpol	511.10	NIST Webbook
rinpol	509.40	NIST Webbook
rinpol	514.00	NIST Webbook
rinpol	505.00	NIST Webbook
rinpol	505.70	NIST Webbook
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rinpol	514.00		NIST Webbook
rinpol	515.00		NIST Webbook
rinpol	511.00		NIST Webbook
rinpol	505.00		NIST Webbook
rinpol	515.30		NIST Webbook
rinpol	512.00		NIST Webbook
rinpol	514.70		NIST Webbook
sl	258.80	J/mol×K	NIST Webbook
sl	258.61	J/mol×K	NIST Webbook
tb	310.00 ± 0.50	K	NIST Webbook
tb	309.90 ± 3.00	K	NIST Webbook
tb	309.55 ± 0.20	K	NIST Webbook
tb	309.55 ± 0.50	K	NIST Webbook
tb	309.15 ± 0.50	K	NIST Webbook
tb	309.55 ± 0.10	K	NIST Webbook
tb	311.00 ± 0.40	K	NIST Webbook
tb	309.35 ± 0.50	K	NIST Webbook
tb	309.70 ± 0.10	K	NIST Webbook
tb	309.54 ± 0.20	K	NIST Webbook
tb	310.10	K	NIST Webbook
tb	310.15 ± 0.30	K	NIST Webbook
tb	304.35 ± 5.00	K	NIST Webbook
tb	310.15 ± 0.30	K	NIST Webbook
tb	309.80 ± 0.30	K	NIST Webbook
tb	309.65 ± 1.50	K	NIST Webbook
tb	310.14 ± 0.60	K	NIST Webbook
tb	309.15 ± 2.00	K	NIST Webbook
tb	309.78 ± 0.60	K	NIST Webbook
tb	309.65 ± 2.00	K	NIST Webbook
tb	310.08	K	KDB
tb	310.09 ± 0.10	K	NIST Webbook

tb	310.15 ± 0.60	K	NIST Webbook
tb	309.78 ± 0.50	K	NIST Webbook
tb	309.70 ± 0.60	K	NIST Webbook
tb	310.03 ± 0.20	K	NIST Webbook
tc	475.00	K	KDB
tc	475.00 ± 1.00	K	NIST Webbook
tf	121.70	K	KDB
tf	120.67 ± 0.50	K	NIST Webbook
tf	121.74 ± 0.05	K	NIST Webbook
tf	120.59 ± 0.10	K	NIST Webbook
tf	121.77 ± 0.10	K	NIST Webbook
tf	121.78 ± 0.04	K	NIST Webbook
tt	121.80 ± 0.02	K	NIST Webbook
tt	121.78 ± 0.02	K	NIST Webbook
vc	0.295	m3/kmol	KDB
zc	0.2760920		KDB
zra	0.27		KDB

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	137.80	J/mol×K	403.93	Joback Method
cpg	121.16	J/mol×K	346.62	Joback Method
cpg	129.66	J/mol×K	375.27	Joback Method
cpg	160.11	J/mol×K	489.90	Joback Method
cpg	153.01	J/mol×K	461.24	Joback Method
cpg	145.57	J/mol×K	432.58	Joback Method
cpg	112.28	J/mol×K	317.96	Joback Method
cpl	151.71	J/mol×K	298.15	NIST Webbook
cpl	151.80	J/mol×K	298.15	NIST Webbook
dvisc	0.0006855	Pa×s	200.01	Joback Method
dvisc	0.0002894	Pa×s	258.98	Joback Method
dvisc	0.0002146	Pa×s	288.47	Joback Method
dvisc	0.0001682	Pa×s	317.96	Joback Method
dvisc	0.0004214	Pa×s	229.50	Joback Method
dvisc	0.0033409	Pa×s	141.03	Joback Method
dvisc	0.0013197	Pa×s	170.52	Joback Method
hfust	7.11	kJ/mol	121.78	NIST Webbook
hfust	7.11	kJ/mol	121.80	NIST Webbook
hfust	7.11	kJ/mol	121.80	NIST Webbook
hvapt	28.10	kJ/mol	307.50	NIST Webbook

hvapt	29.80	kJ/mol	276.00	NIST Webbook
hvapt	26.11	kJ/mol	309.30	KDB
rfi	1.37980		298.15	KDB
rhol	656.00	kg/m3	293.00	KDB
sfust	58.39	J/mol×K	121.80	NIST Webbook
sfust	58.40	J/mol×K	121.78	NIST Webbook
srf	0.02	N/m	298.20	KDB

Correlations

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/(T + C)
Coeff. A	1.42502e+01
Coeff. B	-2.67753e+03
Coeff. C	-3.18120e+01
Temperature range (K), min.	223.58
Temperature range (K), max.	331.36

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/T + C*ln(T) + D*T^2
Coeff. A	7.47715e+01
Coeff. B	-5.60709e+03
Coeff. C	-9.23326e+00
Coeff. D	9.51948e-06
Temperature range (K), min.	121.75
Temperature range (K), max.	475.93

Sources

Crippen Method: https://www.chemeo.com/doc/models/crippen_log10ws

Joback Method: https://en.wikipedia.org/wiki/Joback_method

KDB: https://www.cheric.org/research/kdb/hcprop/showprop.php?cmpid=191

McGowan Method: http://link.springer.com/article/10.1007/BF02311772

NIST Webbook: http://webbook.nist.gov/cgi/cbook.cgi?ID=C627203&Units=SI

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

KDB Vapor Pressure Data: https://www.cheric.org/research/kdb/hcprop/showprop.php?cmpid=191

Crippen Method: http://pubs.acs.org/doi/abs/10.1021/ci990307l

Legend

af:	Acentric Factor
ap:	Aniline Point
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
hcg:	Heat of Combustion, Gross form
hcn:	Heat of Combustion, Net Form
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
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
rfi:	Refractive Index
rhol:	Liquid Density
rinpol:	Non-polar retention indices
sfust:	Entropy of fusion at a given temperature
sl:	Liquid phase molar entropy at standard conditions
srf:	Surface Tension
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tf:	Normal melting (fusion) point
tt:	Triple Point Temperature
vc:	Critical Volume
zc:	Critical Compressibility
zra:	Rackett Parameter