2-Pentene, (E)-

Other names:	(E)-2-PENTENE
	2-(E)-C5H10
	2-Pentene, trans-
	2-TRANS-PENTENE
	Pentene-2, trans-
	TRANS-2-PENTENE
	trans-pent-2-ene
	trans-«beta»-Amylene
	trans-Â«betaÂ»-Amylene
Inchi:	InChI=1S/C5H10/c1-3-5-4-2/h3,5H,4H2,1-2H3/b5-3+
InchiKey:	QMMOXUPEWRXHJS-HWKANZROSA-N
Formula:	C5H10
SMILES:	CC=CCC
Mol. weight [g/mol]:	70.13
CAS:	646-04-8

Physical Properties

Property code	Value	Unit	Source
af	0.2590		KDB
ap	291.450	K	KDB
chl	-3335.90 ± 0.42	kJ/mol	NIST Webbook
chl	-3338.71 ± 0.70	kJ/mol	NIST Webbook
gf	69.96	kJ/mol	KDB
hcg	3338.04	kJ/mol	KDB
hcn	3118.000	kJ/mol	KDB
hf	-33.10 ± 1.30	kJ/mol	NIST Webbook
hf	-32.10	kJ/mol	NIST Webbook
hf	-31.78	kJ/mol	KDB
hf	-32.90 ± 1.00	kJ/mol	NIST Webbook
hf	-31.40 ± 0.50	kJ/mol	NIST Webbook
hf	-31.80	kJ/mol	NIST Webbook
hf	-34.00 ± 0.50	kJ/mol	NIST Webbook
hf	-31.20 ± 0.80	kJ/mol	NIST Webbook
hfl	-57.98 ± 0.76	kJ/mol	NIST Webbook
hfl	-59.70 ± 1.00	kJ/mol	NIST Webbook
hfl	-60.80 ± 0.40	kJ/mol	NIST Webbook
hfl	-58.24 ± 0.42	kJ/mol	NIST Webbook

hfus	8.91	kJ/mol	Joback Method
hvap	26.70	kJ/mol	NIST Webbook
ie	8.92	eV	NIST Webbook
ie	9.32 ± 0.03	eV	NIST Webbook
ie	9.06	eV	NIST Webbook
ie	9.04 ± 0.02	eV	NIST Webbook
ie	9.23 ± 0.01	eV	NIST Webbook
ie	9.04 ± 0.01	eV	NIST Webbook
ie	9.04 ± 0.01	eV	NIST Webbook
log10ws	-1.77		Crippen Method
logp	1.973		Crippen Method
mcvol	77.010	ml/mol	McGowan Method
pc	3520.00	kPa	KDB
rinpol	501.00		NIST Webbook
rinpol	507.00		NIST Webbook
rinpol	506.00		NIST Webbook
rinpol	511.30		NIST Webbook
rinpol	511.10		NIST Webbook
rinpol	510.80		NIST Webbook
rinpol	510.50		NIST Webbook
rinpol	510.20		NIST Webbook
rinpol	509.90		NIST Webbook
rinpol	507.00		NIST Webbook
rinpol	507.00		NIST Webbook
rinpol	505.90		NIST Webbook
rinpol	505.80		NIST Webbook
rinpol	505.80		NIST Webbook
rinpol	505.80		NIST Webbook
rinpol	505.80		NIST Webbook
rinpol	516.70		NIST Webbook
rinpol	511.20		NIST Webbook
rinpol	508.40		NIST Webbook
rinpol	506.20		NIST Webbook
rinpol	504.20		NIST Webbook
rinpol	502.00		NIST Webbook
rinpol	507.00		NIST Webbook
rinpol	499.50		NIST Webbook
rinpol	499.00		NIST Webbook
rinpol	500.00		NIST Webbook
rinpol	500.00		NIST Webbook
rinpol	500.00		NIST Webbook
rinpol	500.00		NIST Webbook
rinpol	500.00		NIST Webbook
rinpol	501.00		NIST Webbook

rinpol	507.00	NIST Webbook
rinpol	500.00	NIST Webbook
rinpol	502.00	NIST Webbook
rinpol	500.00	NIST Webbook
rinpol	503.00	NIST Webbook
rinpol	516.00	NIST Webbook
rinpol	504.00	NIST Webbook
rinpol	510.80	NIST Webbook
rinpol	510.00	NIST Webbook
rinpol	506.60	NIST Webbook
rinpol	509.00	NIST Webbook
rinpol	504.91	NIST Webbook
rinpol	505.09	NIST Webbook
rinpol	505.00	NIST Webbook
rinpol	510.00	NIST Webbook
rinpol	500.70	NIST Webbook
rinpol	500.00	NIST Webbook
rinpol	503.00	NIST Webbook
rinpol	518.00	NIST Webbook
rinpol	509.00	NIST Webbook
rinpol	507.00	NIST Webbook
rinpol	505.00	NIST Webbook
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rinpol	505.00	NIST Webbook
rinpol	512.00	NIST Webbook
rinpol	500.00	NIST Webbook
rinpol	510.00	NIST Webbook
rinpol	506.60	NIST Webbook
rinpol	507.60	NIST Webbook
rinpol	506.00	NIST Webbook
rinpol	500.00	NIST Webbook
rinpol	507.00	NIST Webbook

rinpol	511.10		NIST Webbook
rinpol	505.80		NIST Webbook
rinpol	506.20		NIST Webbook
rinpol	507.00		NIST Webbook
rinpol	508.00		NIST Webbook
rinpol	507.00		NIST Webbook
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rinpol	500.20		NIST Webbook
rinpol	506.80		NIST Webbook
rinpol	507.00		NIST Webbook
rinpol	500.20		NIST Webbook
rinpol	506.00		NIST Webbook
rinpol	507.00		NIST Webbook
rinpol	507.00		NIST Webbook
rinpol	500.00		NIST Webbook
rinpol	500.70		NIST Webbook
rinpol	507.60		NIST Webbook
rinpol	499.00		NIST Webbook
rinpol	505.90		NIST Webbook
ripol	551.00		NIST Webbook
ripol	565.00		NIST Webbook
sl	256.60	J/mol×K	NIST Webbook
sl	256.52	J/mol×K	NIST Webbook
tb	309.50 ± 0.20	K	NIST Webbook
tb	309.40 ± 0.40	K	NIST Webbook
tb	309.55 ± 0.30	K	NIST Webbook
tb	309.00 ± 0.40	K	NIST Webbook
tb	309.30 ± 0.40	K	NIST Webbook
tb	309.45 ± 0.15	K	NIST Webbook
tb	309.54 ± 0.15	K	NIST Webbook
tb	309.00 ± 0.50	K	NIST Webbook
tb	309.40 ± 0.50	K	NIST Webbook
tb	309.50 ± 0.20	K	NIST Webbook
tb	309.74 ± 0.60	K	NIST Webbook
tb	309.51 ± 0.20	K	NIST Webbook
tb	309.50 ± 0.15	K	NIST Webbook
tb	309.35 ± 0.40	K	NIST Webbook
tb	309.00 ± 0.40	K	NIST Webbook
tb	309.50	K	NIST Webbook
tb	310.00	K	NIST Webbook
tb	309.40 ± 0.20	K	NIST Webbook
tb	309.51 ± 0.15	K	NIST Webbook
tb	309.49	K	KDB

tb	308.95 ± 0.30	K	NIST Webbook
tb	309.45 ± 0.60	K	NIST Webbook
tc	471.00	K	KDB
tf	132.89 ± 0.30	K	NIST Webbook
tf	132.90 ± 0.01	K	NIST Webbook
tf	123.90 ± 2.00	K	NIST Webbook
tf	132.89 ± 0.30	K	NIST Webbook
tf	132.90 ± 0.01	K	NIST Webbook
tf	132.89 ± 2.00	K	NIST Webbook
tf	132.89 ± 0.20	K	NIST Webbook
tf	132.90	K	KDB
tf	131.90 ± 1.00	K	NIST Webbook
tf	132.90 ± 0.04	K	NIST Webbook
tf	132.90 ± 0.06	K	NIST Webbook
tf	132.91 ± 0.03	K	NIST Webbook
tt	132.95 ± 0.60	K	NIST Webbook
tt	132.95 ± 0.02	K	NIST Webbook
tt	132.93 ± 0.02	K	NIST Webbook
vc	0.295	m3/kmol	Joback Method
zra	0.27		KDB

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
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	137.80	J/mol×K	403.93	Joback Method
cpg	112.28	J/mol×K	317.96	Joback Method
cpg	121.16	J/mol×K	346.62	Joback Method
cpl	156.98	J/mol×K	298.15	NIST Webbook
cpl	157.00	J/mol×K	298.15	NIST Webbook
dvisc	0.0001682	Pa×s	317.96	Joback Method
dvisc	0.0002146	Pa×s	288.47	Joback Method
dvisc	0.0002894	Pa×s	258.98	Joback Method
dvisc	0.0004214	Pa×s	229.50	Joback Method
dvisc	0.0033409	Pa×s	141.03	Joback Method
dvisc	0.0006855	Pa×s	200.01	Joback Method
dvisc	0.0013197	Pa×s	170.52	Joback Method
hfust	8.35	kJ/mol	132.93	NIST Webbook

hfust	8.35	kJ/mol	132.95	NIST Webbook
hfust	8.35	kJ/mol	133.00	NIST Webbook
hfust	8.35	kJ/mol	133.00	NIST Webbook
hvapt	28.80	kJ/mol	296.00	NIST Webbook
hvapt	28.00	kJ/mol	307.50	NIST Webbook
hvapt	26.07	kJ/mol	309.50	KDB
rfi	1.37610		298.15	KDB
rhol	649.00	kg/m3	293.00	KDB
sfust	62.83	J/mol×K	132.93	NIST Webbook
sfust	62.81	J/mol×K	132.95	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	1.42324e+01
Coeff. B	-2.67642e+03
Coeff. C	-3.10150e+01
Temperature range (K), min.	222.94
Temperature range (K), max.	331.03

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/T + C*ln(T) + D*T^2
Coeff. A	6.66647e+01
Coeff. B	-5.30654e+03
Coeff. C	-7.95545e+00
Coeff. D	7.74821e-06
Temperature range (K), min.	132.89
Temperature range (K), max.	475.37

Sources

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

NIST Webbook: http://webbook.nist.gov/cgi/cbook.cgi?ID=C646048&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=192
Crippen Method:	http://pubs.acs.org/doi/abs/10.1021/ci990307l
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=192

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
ripol:	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
zra:	Rackett Parameter