1-Pentene

Other names:	1-C5H10
	1-Pentene 95
	PENT-1-ENE
	PENTENE-1
	PROPYLETHYLENE
	«alpha»-n-Amylene
	Â«alphaÂ»-n-Amylene
Inchi:	InChI=1S/C5H10/c1-3-5-4-2/h3H,1,4-5H2,2H3
InchiKey:	YWAKXRMUMFPDSH-UHFFFAOYSA-N
Formula:	C5H10
SMILES:	C=CCCC
Mol. weight [g/mol]:	70.13
CAS:	109-67-1

Physical Properties

Property code	Value	Unit	Source
af	0.2330		KDB
aigt	548.15	K	KDB
ap	292.150	K	KDB
chl	-3349.72 ± 0.58	kJ/mol	NIST Webbook
dm	0.40	debye	KDB
fll	1.40	% in Air	KDB
flu	8.70	% in Air	KDB
fpc	255.37	K	KDB
fpo	222.04	K	KDB
gf	79.17	kJ/mol	KDB
hcg	3350.05	kJ/mol	KDB
hcn	3130.009	kJ/mol	KDB
hf	-20.93	kJ/mol	KDB
hfus	7.43	kJ/mol	Joback Method
hvap	25.50	kJ/mol	NIST Webbook
hvap	25.50 ± 0.10	kJ/mol	NIST Webbook
hvap	29.82	kJ/mol	NIST Webbook
ie	9.50 ± 0.02	eV	NIST Webbook
ie	9.50 ± 0.02	eV	NIST Webbook
ie	9.54 ± 0.02	eV	NIST Webbook
ie	9.48	eV	NIST Webbook

ie	9.52 ± 0.00	eV	NIST Webbook
ie	9.52 ± 0.02	eV	NIST Webbook
ie	9.42 ± 0.02	eV	NIST Webbook
ie	9.52 ± 0.05	eV	NIST Webbook
ie	9.50	eV	NIST Webbook
ie	9.49 ± 0.03	eV	NIST Webbook
ie	9.68 ± 0.01	eV	NIST Webbook
ie	9.82 ± 0.06	eV	NIST Webbook
log10ws	-2.68		Estimated Solubility Method
log10ws	-2.68		Aqueous Solubility Prediction Method
logp	1.973		Crippen Method
mcvol	77.010	ml/mol	McGowan Method
nfpaf	%!d(float64=4)		KDB
nfpah	%!d(float64=1)		KDB
pc	3560.00	kPa	KDB
pc	3551.00 ± 3.44	kPa	NIST Webbook
pc	3550.00 ± 20.00	kPa	NIST Webbook
pc	3560.00 ± 50.00	kPa	NIST Webbook
rhoc	234.95 ± 3.51	kg/m3	NIST Webbook
rhoc	232.84 ± 2.10	kg/m3	NIST Webbook
rinpol	488.00		NIST Webbook
rinpol	482.00		NIST Webbook
rinpol	482.00		NIST Webbook
rinpol	486.80		NIST Webbook
rinpol	482.50		NIST Webbook
rinpol	482.00		NIST Webbook
rinpol	482.00		NIST Webbook
rinpol	481.07		NIST Webbook
rinpol	491.00		NIST Webbook
rinpol	482.00		NIST Webbook
rinpol	481.00		NIST Webbook
rinpol	481.00		NIST Webbook
rinpol	483.00		NIST Webbook
rinpol	483.00		NIST Webbook
rinpol	490.00		NIST Webbook
rinpol	483.00		NIST Webbook
rinpol	479.00		NIST Webbook
rinpol	485.00		NIST Webbook
rinpol	491.00		NIST Webbook
rinpol	491.00		NIST Webbook
rinpol	486.50		NIST Webbook
rinpol	487.00		NIST Webbook
rinpol	483.39		NIST Webbook

rinpol	483.67	NIST Webbook
rinpol	483.00	NIST Webbook
rinpol	478.00	NIST Webbook
rinpol	481.30	NIST Webbook
rinpol	482.00	NIST Webbook
rinpol	492.00	NIST Webbook
rinpol	482.00	NIST Webbook
rinpol	500.00	NIST Webbook
rinpol	488.00	NIST Webbook
rinpol	489.00	NIST Webbook
rinpol	491.00	NIST Webbook
rinpol	492.00	NIST Webbook
rinpol	481.60	NIST Webbook
rinpol	488.00	NIST Webbook
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rinpol	484.00	NIST Webbook
rinpol	488.00	NIST Webbook
rinpol	492.00	NIST Webbook
rinpol	488.00	NIST Webbook
rinpol	491.00	NIST Webbook

rinpol	489.00		NIST Webbook
rinpol	488.80		NIST Webbook
rinpol	480.00		NIST Webbook
rinpol	483.00		NIST Webbook
rinpol	485.00		NIST Webbook
rinpol	481.10		NIST Webbook
rinpol	489.00		NIST Webbook
rinpol	482.00		NIST Webbook
rinpol	481.60		NIST Webbook
rinpol	486.00		NIST Webbook
rinpol	492.00		NIST Webbook
rinpol	489.00		NIST Webbook
rinpol	489.00		NIST Webbook
rinpol	496.00		NIST Webbook
rinpol	488.80		NIST Webbook
rinpol	481.30		NIST Webbook
rinpol	489.00		NIST Webbook
rinpol	492.00		NIST Webbook
rinpol	495.00		NIST Webbook
ripol	523.00		NIST Webbook
ripol	532.00		NIST Webbook
ripol	534.00		NIST Webbook
sl	262.55	J/mol×K	NIST Webbook
sl	262.60	J/mol×K	NIST Webbook
sl	262.60	J/mol×K	NIST Webbook
tb	303.11	K	KDB
tc	464.80	K	KDB
tc	464.70	K	NIST Webbook
tc	465.10 ± 0.30	K	NIST Webbook
tc	463.77 ± 0.20	K	NIST Webbook
tc	464.74 ± 0.03	K	NIST Webbook
tc	466.59	K	Vapor Pressures and Vapor Liquid Critical Properties of Four Pentene Isomers
tc	464.80 ± 0.50	K	NIST Webbook
tf	107.88 ± 0.10	K	NIST Webbook
tf	107.78 ± 0.20	K	NIST Webbook
tf	108.08	K	Aqueous Solubility Prediction Method
tf	107.90	K	KDB
tf	107.75 ± 0.20	K	NIST Webbook
tt	108.01 ± 0.00	K	NIST Webbook
tt	107.79 ± 0.00	K	NIST Webbook
tt	5.80 ± 0.01	K	NIST Webbook
tt	107.90 ± 0.50	K	NIST Webbook

vc	0.298	m3/kmol	NIST Webbook
vc	0.298	m3/kmol	KDB
zc	0.2748820		KDB
zra	0.27		KDB

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	139.08 ± 0.42	J/mol×K	402.32	NIST Webbook
cpg	126.15 ± 0.38	J/mol×K	357.51	NIST Webbook
cpg	148.41 ± 0.45	J/mol×K	436.01	NIST Webbook
cpg	157.69 ± 0.47	J/mol×K	471.08	NIST Webbook
cpg	112.34 ± 0.33	J/mol×K	311.09	NIST Webbook
cpl	154.00	J/mol×K	298.15	NIST Webbook
cpl	154.87	J/mol×K	298.15	NIST Webbook
cpl	154.30	J/mol×K	294.00	NIST Webbook
cpl	155.31	J/mol×K	298.15	NIST Webbook
dvisc	0.0001949	Pa×s	310.48	Joback Method
dvisc	0.0002442	Pa×s	282.79	Joback Method
dvisc	0.0004525	Pa×s	227.42	Joback Method
dvisc	0.0007001	Pa×s	199.73	Joback Method
dvisc	0.0012467	Pa×s	172.04	Joback Method
dvisc	0.0027701	Pa×s	144.35	Joback Method
dvisc	0.0003215	Pa×s	255.10	Joback Method
hfust	5.94	kJ/mol	108.02	NIST Webbook
hfust	5.81	kJ/mol	107.90	NIST Webbook
hfust	5.81	kJ/mol	107.90	NIST Webbook
hfust	5.81	kJ/mol	107.90	NIST Webbook
hfust	5.88	kJ/mol	107.80	NIST Webbook
hfust	5.81	kJ/mol	107.90	NIST Webbook
hvapt	25.70	kJ/mol	340.50	NIST Webbook
hvapt	25.20	kJ/mol	305.80	KDB
hvapt	25.20	kJ/mol	303.10	NIST Webbook
hvapt	29.10	kJ/mol	264.50	NIST Webbook
hvapt	26.20 ± 0.10	kJ/mol	284.00	NIST Webbook
hvapt	26.70	kJ/mol	295.00	NIST Webbook
hvapt	26.90	kJ/mol	303.50	NIST Webbook
hvapt	25.20 ± 0.10	kJ/mol	303.00	NIST Webbook
hvapt	26.30	kJ/mol	290.50	NIST Webbook
rfi	1.36835		298.15	KDB
rhol	640.00	kg/m3	293.00	KDB

sfust	53.82	J/mol×K	107.90	NIST Webbook
sfust	54.97	J/mol×K	108.02	NIST Webbook
sfust	54.56	J/mol×K	107.80	NIST Webbook
sfust	53.82	J/mol×K	107.90	NIST Webbook
sfust	55.00	J/mol×K	107.90	NIST Webbook
srf	0.02	N/m	298.20	KDB
tcondl	0.11	W/m×K	294.04	Thermal Conductivity and Thermal Diffusivity of Twenty-Nine Liquids: Alkenes, Cyclic (Alkanes, Alkenes, Alkadienes, Aromatics), and Deuterated Hydrocarbons
tcondl	0.13	W/m×K	257.36	Thermal Conductivity and Thermal Diffusivity of Twenty-Nine Liquids: Alkenes, Cyclic (Alkanes, Alkenes, Alkadienes, Aromatics), and Deuterated Hydrocarbons
tcondl	0.13	W/m×K	257.67	Thermal Conductivity and Thermal Diffusivity of Twenty-Nine Liquids: Alkenes, Cyclic (Alkanes, Alkenes, Alkadienes, Aromatics), and Deuterated Hydrocarbons
tcondl	0.11	W/m×K	301.07	Thermal Conductivity and Thermal Diffusivity of Twenty-Nine Liquids: Alkenes, Cyclic (Alkanes, Alkenes, Alkadienes, Aromatics), and Deuterated Hydrocarbons

tcondl	0.13	W/m×K	257.93	Thermal Conductivity and Thermal Diffusivity of Twenty-Nine Liquids: Alkenes, Cyclic (Alkanes, Alkenes, Alkadienes, Aromatics), and Deuterated Hydrocarbons	
tcondl	0.12	W/m×K	276.82	Thermal Conductivity and Thermal Diffusivity of Twenty-Nine Liquids: Alkenes, Cyclic (Alkanes, Alkenes, Alkadienes, Aromatics), and Deuterated Hydrocarbons	
tcondl	0.11	W/m×K	301.75	Thermal Conductivity and Thermal Diffusivity of Twenty-Nine Liquids: Alkenes, Cyclic (Alkanes, Alkenes, Alkadienes, Aromatics), and Deuterated Hydrocarbons	
tcondl	0.11	W/m×K	301.46	Thermal Conductivity and Thermal Diffusivity of Twenty-Nine Liquids: Alkenes, Cyclic (Alkanes, Alkenes, Alkadienes, Aromatics), and Deuterated Hydrocarbons	
tcondl	0.12	W/m×K	277.07	Thermal Conductivity and Thermal Diffusivity of Twenty-Nine Liquids: Alkenes, Cyclic (Alkanes, Alkenes, Alkadienes, Aromatics), and Deuterated Hydrocarbons	

tcondl	0.11	W/m×K	294.66	Thermal Conductivity and Thermal Diffusivity of Twenty-Nine Liquids: Alkenes, Cyclic (Alkanes, Alkenes, Alkadienes, Aromatics), and Deuterated Hydrocarbons
tcondl	0.11	W/m×K	294.42	Thermal Conductivity and Thermal Diffusivity of Twenty-Nine Liquids: Alkenes, Cyclic (Alkanes, Alkenes, Alkadienes, Aromatics), and Deuterated Hydrocarbons
tcondl	0.12	W/m×K	276.47	Thermal Conductivity and Thermal Diffusivity of Twenty-Nine Liquids: Alkenes, Cyclic (Alkanes, Alkenes, Alkadienes, Aromatics), and Deuterated Hydrocarbons

Correlations

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/(T + C)
Coeff. A	1.40675e+01
Coeff. B	-2.58895e+03
Coeff. C	-3.00140e+01
Temperature range (K), min.	217.89
Temperature range (K), max.	325.69

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/T + C*ln(T) + D*T^2

Coeff. A	8.33214e+01
Coeff. B	-5.67565e+03
Coeff. C	-1.07068e+01
Coeff. D	1.31421e-05
Temperature range (K), min.	110.00
Temperature range (K), max.	464.78

Datasets

Mass density, kg/m3

Temperature, K - Liquid	Pressure, kPa - Liquid	Mass density, kg/m3 - Liquid
283.48	100.00	650.3
283.48	500.00	650.8
283.48	1000.00	651.6
283.48	3000.00	654.0
283.49	5000.00	656.3
283.49	10000.00	661.8
283.49	15000.00	666.9
283.49	20000.00	671.7
283.49	25000.00	676.2
283.49	30000.00	680.4
283.49	35000.00	684.5
283.49	40000.00	688.4
283.49	45000.00	692.1
283.49	50000.00	695.7
283.49	55000.00	699.1
283.49	60000.00	702.5
283.48	70000.00	708.8
283.48	80000.00	714.8
283.49	90000.00	720.4
283.49	100000.00	725.7
293.42	100.00	640.1
293.42	500.00	640.7
293.42	1000.00	641.4
293.42	3000.00	644.0
293.42	5000.00	646.5
293.42	10000.00	652.4
293.43	15000.00	657.9

293.43	20000.00	663.0
293.43	25000.00	667.8
293.44	30000.00	672.3
293.43	35000.00	676.7
293.42	40000.00	680.8
293.43	45000.00	684.7
293.43	50000.00	688.4
293.42	55000.00	692.0
293.42	60000.00	695.5
293.42	70000.00	702.2
293.42	80000.00	708.3
293.42	90000.00	714.1
293.42	100000.00	719.6
303.33	100.00	629.8
303.33	1000.00	631.1
303.33	3000.00	634.0
303.34	5000.00	636.7
303.34	10000.00	643.1
303.34	15000.00	649.0
303.34	20000.00	654.5
303.34	25000.00	659.6
303.34	30000.00	664.4
303.33	35000.00	668.9
303.34	40000.00	673.2
303.34	45000.00	677.3
303.34	50000.00	681.2
303.35	55000.00	685.0
303.35	60000.00	688.6
303.35	70000.00	695.6
303.34	80000.00	702.0
303.34	90000.00	707.9
303.35	100000.00	713.6
313.27	500.00	620.4
313.28	1000.00	621.3
313.27	3000.00	624.5
313.27	5000.00	627.5
313.27	10000.00	634.4
313.28	15000.00	640.8
313.28	20000.00	646.7
313.28	25000.00	652.1
313.28	30000.00	657.2
313.29	35000.00	661.9
313.29	40000.00	666.6
313.28	45000.00	670.8

313.28	50000.00	674.9
313.29	55000.00	678.8
313.29	60000.00	682.6
313.28	70000.00	689.9
313.29	80000.00	696.4
313.29	90000.00	702.6
313.29	100000.00	708.4
323.18	500.00	608.6
323.18	1000.00	609.3
323.18	3000.00	612.8
323.18	5000.00	616.1
323.19	10000.00	623.7
323.19	15000.00	630.6
323.19	20000.00	636.9
323.19	25000.00	642.7
323.19	30000.00	648.1
323.19	35000.00	653.1
323.19	40000.00	657.9
323.19	45000.00	662.4
323.19	50000.00	666.7
323.19	55000.00	670.8
323.19	60000.00	674.7
323.19	70000.00	682.2
323.19	80000.00	689.1
323.19	90000.00	695.4
323.19	100000.00	701.5
333.04	500.00	597.2
333.04	1000.00	598.1
333.04	3000.00	601.9
333.04	5000.00	605.6
333.04	10000.00	613.9
333.05	15000.00	621.4
333.05	20000.00	628.1
333.05	25000.00	634.3
333.05	30000.00	640.0
333.05	35000.00	645.3
333.05	40000.00	650.4
333.05	45000.00	655.1
333.05	50000.00	659.6
333.05	55000.00	663.9
333.05	60000.00	668.0
333.05	70000.00	675.8
333.06	80000.00	683.0
333.06	90000.00	689.6

333.05	100000.00	695.8
342.94	500.00	585.8
342.94	1000.00	586.8
342.95	3000.00	591.2
342.95	5000.00	595.3
342.95	10000.00	604.4
342.96	15000.00	612.5
342.96	20000.00	619.8
342.96	25000.00	626.3
342.96	30000.00	632.4
342.96	35000.00	638.1
342.96	40000.00	643.4
342.96	45000.00	648.4
342.96	50000.00	653.0
342.96	55000.00	657.5
342.96	60000.00	661.8
342.95	70000.00	669.9
342.95	80000.00	677.2
342.94	90000.00	684.0
342.95	100000.00	690.4
352.82	500.00	574.2
352.82	1000.00	575.6
352.82	3000.00	580.5
352.82	5000.00	585.1
352.82	10000.00	595.2
352.83	15000.00	603.9
352.83	20000.00	611.7
352.83	25000.00	618.7
352.83	30000.00	625.2
352.83	35000.00	631.2
352.83	40000.00	636.7
352.83	45000.00	641.9
352.83	50000.00	646.9
352.83	55000.00	651.5
352.84	60000.00	655.9
352.83	70000.00	664.3
352.83	80000.00	671.9
352.83	90000.00	679.0
352.83	100000.00	685.6
362.67	500.00	560.5
362.67	1000.00	561.8
362.67	3000.00	567.4
362.68	5000.00	572.6
362.68	10000.00	583.8

362.68	15000.00	593.3
362.68	20000.00	601.7
362.68	25000.00	609.2
362.68	30000.00	616.1
362.68	35000.00	622.4
362.68	40000.00	628.2
362.68	45000.00	633.7
362.68	50000.00	638.9
362.68	55000.00	643.7
362.68	60000.00	648.3
362.68	70000.00	657.1
362.67	80000.00	664.9
362.68	90000.00	672.2
362.67	100000.00	679.0
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Legend

af:	Acentric Factor
aigt:	Autoignition Temperature
ap:	Aniline Point
chl:	Standard liquid enthalpy of combustion
cpg:	Ideal gas heat capacity
cpl:	Liquid phase heat capacity
dm:	Dipole Moment
dvisc:	Dynamic viscosity
fll:	Lower Flammability Limit
flu:	Upper Flammability Limit
fpc:	Flash Point (Closed Cup Method)
fpo:	Flash Point (Open Cup Method)
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
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
nfpaf:	NFPA Fire Rating
nfpah:	NFPA Health Rating
pc:	Critical Pressure
pvap:	Vapor pressure
rfi:	Refractive Index
rhoc:	Critical density
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
tcondl:	Liquid thermal conductivity
tf:	Normal melting (fusion) point
tt:	Triple Point Temperature
vc:	Critical Volume
zc:	Critical Compressibility
zra:	Rackett Parameter