

Cyclopentanol

Other names:	CYCOLPENTYL ALCOHOL Cyclopentyl alcohol HYDROXYCYCLOPENTANE UN 2244
Inchi:	InChI=1S/C5H10O/c6-5-3-1-2-4-5/h5-6H,1-4H2
InchiKey:	XCIXKGXIYUWCLL-UHFFFAOYSA-N
Formula:	C5H10O
SMILES:	OC1CCCC1
Mol. weight [g/mol]:	86.13
CAS:	96-41-3

Physical Properties

Property code	Value	Unit	Source
affp	798.00 ± 6.00	kJ/mol	NIST Webbook
chl	-3096.50 ± 1.50	kJ/mol	NIST Webbook
chl	-3096.70 ± 1.70	kJ/mol	NIST Webbook
gf	-109.05	kJ/mol	Joback Method
hf	-242.90	kJ/mol	NIST Webbook
hf	-243.00	kJ/mol	NIST Webbook
hf	-242.60 ± 1.70	kJ/mol	NIST Webbook
hfl	-300.40 ± 1.00	kJ/mol	NIST Webbook
hfl	-300.00 ± 1.70	kJ/mol	NIST Webbook
hfl	-300.30 ± 0.20	kJ/mol	NIST Webbook
hfus	6.73	kJ/mol	Joback Method
hvap	57.63	kJ/mol	NIST Webbook
hvap	57.40	kJ/mol	NIST Webbook
hvap	57.49	kJ/mol	NIST Webbook
hvap	56.10	kJ/mol	NIST Webbook
hvap	57.10	kJ/mol	NIST Webbook
hvap	56.40	kJ/mol	NIST Webbook
hvap	57.50 ± 0.20	kJ/mol	NIST Webbook
hvap	57.50 ± 0.30	kJ/mol	NIST Webbook
ie	9.72	eV	NIST Webbook
ie	9.58 ± 0.06	eV	NIST Webbook
log10ws	-1.19		Crippen Method
logp	0.921		Crippen Method
mcvol	76.320	ml/mol	McGowan Method

pc	4900.00 ± 100.00	kPa	NIST Webbook
pc	4900.00	kPa	KDB
pc	4900.00 ± 100.00	kPa	NIST Webbook
rinpol	805.00		NIST Webbook
rinpol	802.00		NIST Webbook
rinpol	805.00		NIST Webbook
rinpol	792.00		NIST Webbook
rinpol	795.00		NIST Webbook
rinpol	774.00		NIST Webbook
rinpol	765.00		NIST Webbook
rinpol	792.00		NIST Webbook
rinpol	768.00		NIST Webbook
rinpol	781.00		NIST Webbook
rinpol	768.00		NIST Webbook
rinpol	782.00		NIST Webbook
rinpol	767.00		NIST Webbook
rinpol	768.00		NIST Webbook
rinpol	773.00		NIST Webbook
rinpol	765.00		NIST Webbook
rinpol	781.00		NIST Webbook
rinpol	774.00		NIST Webbook
rinpol	781.00		NIST Webbook
ripol	1283.00		NIST Webbook
ripol	1283.00		NIST Webbook
ripol	1327.00		NIST Webbook
ripol	1327.00		NIST Webbook
ripol	1323.00		NIST Webbook
ripol	1297.00		NIST Webbook
ripol	1300.00		NIST Webbook
ripol	1278.00		NIST Webbook
ripol	1298.00		NIST Webbook
ripol	1280.00		NIST Webbook
ripol	1300.00		NIST Webbook
ripol	1314.00		NIST Webbook
ripol	1314.00		NIST Webbook
ripol	1309.00		NIST Webbook
ripol	1323.00		NIST Webbook
ripol	1278.00		NIST Webbook
ripol	1281.00		NIST Webbook
ripol	1328.00		NIST Webbook
ripol	1300.00		NIST Webbook
ripol	1290.00		NIST Webbook
ripol	1303.00		NIST Webbook
ripol	1283.00		NIST Webbook

ripol	1289.00		NIST Webbook
ripol	1292.00		NIST Webbook
ripol	1289.00		NIST Webbook
ripol	1292.00		NIST Webbook
ripol	1323.00		NIST Webbook
ripol	1339.00		NIST Webbook
ripol	1297.00		NIST Webbook
sl	206.30	J/mol×K	NIST Webbook
tb	412.50	K	Solubility and tie-line data for ternary aqueous mixtures of cyclopentanol with organic solvents at T = 298.2 K: Experiments and NRTL model
tb	413.57	K	KDB
tb	413.38	K	A New Test System for Distillation Efficiency Experiments at Elevated Liquid Viscosities: Vapor-Liquid Equilibrium and Liquid Viscosity Data for Cyclopentanol + Cyclohexanol
tc	619.50	K	KDB
tc	619.50 ± 1.00	K	NIST Webbook
tc	620.00 ± 1.00	K	NIST Webbook
tf	253.00 ± 2.00	K	NIST Webbook
tf	254.15 ± 1.00	K	NIST Webbook
tf	254.00	K	KDB
tt	255.60 ± 0.30	K	NIST Webbook
tt	257.40 ± 0.20	K	NIST Webbook
tt	256.00 ± 0.50	K	NIST Webbook
vc	0.276	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	207.53	J/mol×K	610.59	Joback Method
cpg	199.16	J/mol×K	579.03	Joback Method
cpg	190.32	J/mol×K	547.48	Joback Method
cpg	181.00	J/mol×K	515.92	Joback Method
cpg	171.16	J/mol×K	484.37	Joback Method
cpg	149.90	J/mol×K	421.26	Joback Method
cpg	160.80	J/mol×K	452.81	Joback Method

cpl	160.70	J/mol×K	270.00	Heat capacities of selected cycloalcohols
cpl	160.70	J/mol×K	270.00	Heat capacities of selected cycloalcohols
cpl	164.20	J/mol×K	275.00	Heat capacities of selected cycloalcohols
cpl	164.20	J/mol×K	275.00	Heat capacities of selected cycloalcohols
cpl	167.80	J/mol×K	280.00	Heat capacities of selected cycloalcohols
cpl	167.90	J/mol×K	280.00	Heat capacities of selected cycloalcohols
cpl	171.60	J/mol×K	285.00	Heat capacities of selected cycloalcohols
cpl	171.70	J/mol×K	285.00	Heat capacities of selected cycloalcohols
cpl	175.70	J/mol×K	290.00	Heat capacities of selected cycloalcohols
cpl	175.90	J/mol×K	290.00	Heat capacities of selected cycloalcohols
cpl	180.00	J/mol×K	295.00	Heat capacities of selected cycloalcohols
cpl	180.10	J/mol×K	295.00	Heat capacities of selected cycloalcohols
cpl	184.30	J/mol×K	300.00	Heat capacities of selected cycloalcohols
cpl	184.40	J/mol×K	300.00	Heat capacities of selected cycloalcohols
cpl	188.60	J/mol×K	305.00	Heat capacities of selected cycloalcohols
cpl	188.70	J/mol×K	305.00	Heat capacities of selected cycloalcohols
cpl	193.00	J/mol×K	310.00	Heat capacities of selected cycloalcohols
cpl	157.60	J/mol×K	265.06	Heat capacities of selected cycloalcohols
cpl	197.40	J/mol×K	315.00	Heat capacities of selected cycloalcohols

cpl	197.60	J/mol×K	315.00	Heat capacities of selected cycloalcohols
cpl	201.80	J/mol×K	320.00	Heat capacities of selected cycloalcohols
cpl	157.60	J/mol×K	265.06	Heat capacities of selected cycloalcohols
cpl	206.20	J/mol×K	325.00	Heat capacities of selected cycloalcohols
cpl	206.40	J/mol×K	325.00	Heat capacities of selected cycloalcohols
cpl	210.50	J/mol×K	330.00	Heat capacities of selected cycloalcohols
cpl	210.70	J/mol×K	330.00	Heat capacities of selected cycloalcohols
cpl	215.00	J/mol×K	335.00	Heat capacities of selected cycloalcohols
cpl	215.10	J/mol×K	335.00	Heat capacities of selected cycloalcohols
cpl	219.50	J/mol×K	340.00	Heat capacities of selected cycloalcohols
cpl	219.50	J/mol×K	340.00	Heat capacities of selected cycloalcohols
cpl	223.80	J/mol×K	345.00	Heat capacities of selected cycloalcohols
cpl	223.70	J/mol×K	345.00	Heat capacities of selected cycloalcohols
cpl	228.10	J/mol×K	350.00	Heat capacities of selected cycloalcohols
cpl	228.00	J/mol×K	350.00	Heat capacities of selected cycloalcohols
cpl	193.10	J/mol×K	310.00	Heat capacities of selected cycloalcohols
cpl	232.00	J/mol×K	355.00	Heat capacities of selected cycloalcohols
cpl	234.10	J/mol×K	357.78	Heat capacities of selected cycloalcohols
cpl	181.57	J/mol×K	298.15	NIST Webbook
cpl	185.40	J/mol×K	298.00	NIST Webbook

cpl	181.57	J/mol×K	298.15	NIST Webbook
cpl	184.14	J/mol×K	298.15	NIST Webbook
cpl	202.00	J/mol×K	320.00	Heat capacities of selected cycloalcohols
cpl	232.00	J/mol×K	354.91	Heat capacities of selected cycloalcohols
dvisc	0.0003291	Pa×s	421.26	Joback Method
dvisc	0.0049874	Pa×s	285.64	Joback Method
dvisc	0.0020361	Pa×s	319.54	Joback Method
dvisc	0.0009871	Pa×s	353.45	Joback Method
dvisc	0.0005432	Pa×s	387.36	Joback Method
dvisc	0.0690807	Pa×s	217.83	Joback Method
dvisc	0.0155505	Pa×s	251.73	Joback Method
hfust	3.71	kJ/mol	202.80	NIST Webbook
hfust	1.54	kJ/mol	257.40	NIST Webbook
hfust	1.54	kJ/mol	257.40	NIST Webbook
hvapt	57.10	kJ/mol	296.50	NIST Webbook
hvapt	52.70	kJ/mol	391.50	NIST Webbook
pvap	0.74	kPa	311.04	Vapor Pressure and Its Temperature Dependence of 28 Organic Compounds: Cyclic Amines, Cyclic Ethers, and Cyclic and Open Chain Secondary Alcohols
pvap	0.55	kPa	306.93	Vapor Pressure and Its Temperature Dependence of 28 Organic Compounds: Cyclic Amines, Cyclic Ethers, and Cyclic and Open Chain Secondary Alcohols
pvap	0.47	kPa	304.53	Vapor Pressure and Its Temperature Dependence of 28 Organic Compounds: Cyclic Amines, Cyclic Ethers, and Cyclic and Open Chain Secondary Alcohols

pvap	0.93	kPa	314.30	Vapor Pressure and Its Temperature Dependence of 28 Organic Compounds: Cyclic Amines, Cyclic Ethers, and Cyclic and Open Chain Secondary Alcohols
pvap	0.22	kPa	294.55	Vapor Pressure and Its Temperature Dependence of 28 Organic Compounds: Cyclic Amines, Cyclic Ethers, and Cyclic and Open Chain Secondary Alcohols
pvap	0.20	kPa	293.47	Vapor Pressure and Its Temperature Dependence of 28 Organic Compounds: Cyclic Amines, Cyclic Ethers, and Cyclic and Open Chain Secondary Alcohols
pvap	0.15	kPa	289.76	Vapor Pressure and Its Temperature Dependence of 28 Organic Compounds: Cyclic Amines, Cyclic Ethers, and Cyclic and Open Chain Secondary Alcohols
pvap	0.09	kPa	284.15	Vapor Pressure and Its Temperature Dependence of 28 Organic Compounds: Cyclic Amines, Cyclic Ethers, and Cyclic and Open Chain Secondary Alcohols

pvap	0.08	kPa	281.97	Vapor Pressure and Its Temperature Dependence of 28 Organic Compounds: Cyclic Amines, Cyclic Ethers, and Cyclic and Open Chain Secondary Alcohols
pvap	0.06	kPa	279.84	Vapor Pressure and Its Temperature Dependence of 28 Organic Compounds: Cyclic Amines, Cyclic Ethers, and Cyclic and Open Chain Secondary Alcohols
pvap	0.14	kPa	289.03	Vapor Pressure and Its Temperature Dependence of 28 Organic Compounds: Cyclic Amines, Cyclic Ethers, and Cyclic and Open Chain Secondary Alcohols
pvap	0.31	kPa	298.87	Vapor Pressure and Its Temperature Dependence of 28 Organic Compounds: Cyclic Amines, Cyclic Ethers, and Cyclic and Open Chain Secondary Alcohols
pvap	0.29	kPa	298.19	Vapor Pressure and Its Temperature Dependence of 28 Organic Compounds: Cyclic Amines, Cyclic Ethers, and Cyclic and Open Chain Secondary Alcohols

rfi	1.45120		298.15	Molar heat capacities for (2-methyl-2-butanol + heptane) mixtures and cyclopentanol at temperatures from (284 to 353) K
rhoI	918.24	kg/m3	328.15	Density and Viscosity of Ternary Mixture of Cyclopentanol + exo-Tetrahydrodicyclopentadiene + 1,3-Dimethyladamantane
rhoI	913.89	kg/m3	333.15	Density and Viscosity of Ternary Mixture of Cyclopentanol + exo-Tetrahydrodicyclopentadiene + 1,3-Dimethyladamantane
rhoI	926.76	kg/m3	318.15	Density and Viscosity of Ternary Mixture of Cyclopentanol + exo-Tetrahydrodicyclopentadiene + 1,3-Dimethyladamantane
rhoI	930.92	kg/m3	313.15	Density and Viscosity of Ternary Mixture of Cyclopentanol + exo-Tetrahydrodicyclopentadiene + 1,3-Dimethyladamantane
rhoI	943.05	kg/m3	298.15	Densities and Viscosities for the Ternary System of Decalin + Methylcyclohexane + Cyclopentanol and Corresponding Binaries at T = 293.15 to 343.15 K
rhoI	935.03	kg/m3	308.15	Density and Viscosity of Ternary Mixture of Cyclopentanol + exo-Tetrahydrodicyclopentadiene + 1,3-Dimethyladamantane

rhoI	939.08	kg/m3	303.15	Density and Viscosity of Ternary Mixture of Cyclopentanol + exo-Tetrahydrodicyclopentadiene + 1,3-Dimethyladamantane
rhoI	943.08	kg/m3	298.15	Density and Viscosity of Ternary Mixture of Cyclopentanol + exo-Tetrahydrodicyclopentadiene + 1,3-Dimethyladamantane
rhoI	922.53	kg/m3	323.15	Density and Viscosity of Ternary Mixture of Cyclopentanol + exo-Tetrahydrodicyclopentadiene + 1,3-Dimethyladamantane
rhoI	947.04	kg/m3	293.15	Density and Viscosity of Ternary Mixture of Cyclopentanol + exo-Tetrahydrodicyclopentadiene + 1,3-Dimethyladamantane
rhoI	904.99	kg/m3	343.15	Densities and Viscosities for the Ternary System of Decalin + Methylcyclohexane + Cyclopentanol and Corresponding Binaries at T = 293.15 to 343.15 K
rhoI	909.48	kg/m3	338.15	Densities and Viscosities for the Ternary System of Decalin + Methylcyclohexane + Cyclopentanol and Corresponding Binaries at T = 293.15 to 343.15 K

rhoI	939.05	kg/m3	303.15	Densities and Viscosities for the Ternary System of Decalin + Methylcyclohexane + Cyclopentanol and Corresponding Binaries at T = 293.15 to 343.15 K
rhoI	913.89	kg/m3	333.15	Densities and Viscosities for the Ternary System of Decalin + Methylcyclohexane + Cyclopentanol and Corresponding Binaries at T = 293.15 to 343.15 K
rhoI	918.24	kg/m3	328.15	Densities and Viscosities for the Ternary System of Decalin + Methylcyclohexane + Cyclopentanol and Corresponding Binaries at T = 293.15 to 343.15 K
rhoI	922.53	kg/m3	323.15	Densities and Viscosities for the Ternary System of Decalin + Methylcyclohexane + Cyclopentanol and Corresponding Binaries at T = 293.15 to 343.15 K
rhoI	926.75	kg/m3	318.15	Densities and Viscosities for the Ternary System of Decalin + Methylcyclohexane + Cyclopentanol and Corresponding Binaries at T = 293.15 to 343.15 K

rhoI	930.91	kg/m3	313.15	Densities and Viscosities for the Ternary System of Decalin + Methylcyclohexane + Cyclopentanol and Corresponding Binaries at T = 293.15 to 343.15 K
rhoI	948.70	kg/m3	293.15	Correlation of Experimental Liquid Liquid Equilibrium Data for Ternary Systems Using NRTL and GMDH-Type Neural Network
rhoI	935.01	kg/m3	308.15	Densities and Viscosities for the Ternary System of Decalin + Methylcyclohexane + Cyclopentanol and Corresponding Binaries at T = 293.15 to 343.15 K
rhoI	946.99	kg/m3	293.15	Densities and Viscosities for the Ternary System of Decalin + Methylcyclohexane + Cyclopentanol and Corresponding Binaries at T = 293.15 to 343.15 K
sfust	18.28	J/mol×K	202.80	NIST Webbook
sfust	5.98	J/mol×K	257.40	NIST Webbook
speedsl	1435.11	m/s	298.15	Study of the Effects of Temperature and Pressure on the Thermodynamic and Acoustic Properties of Pentan-1-ol, 2-Methyl-2-butanol, and Cyclopentanol in the Pressure Range from (0.1 to 100) MPa and Temperature from (293 to 318) K

srf	0.03	N/m	298.15	Concentration Dependence of Surface Tension for Very Dilute Aqueous Solutions of Organic Non-Electrolytes
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Pressure Dependent Properties

Property code	Value	Unit	Pressure [kPa]	Source
tdp	403.40	K	71.47	Measurement and Correlation of Isobaric Vapor Liquid Equilibrium Data for Cyclopentyl Methyl Ether and Cyclopentanol
tdp	406.20	K	78.36	Measurement and Correlation of Isobaric Vapor Liquid Equilibrium Data for Cyclopentyl Methyl Ether and Cyclopentanol
tdp	408.60	K	85.50	Measurement and Correlation of Isobaric Vapor Liquid Equilibrium Data for Cyclopentyl Methyl Ether and Cyclopentanol
tdp	409.40	K	89.49	Measurement and Correlation of Isobaric Vapor Liquid Equilibrium Data for Cyclopentyl Methyl Ether and Cyclopentanol
tdp	413.60	K	102.00	Measurement and Correlation of Isobaric Vapor Liquid Equilibrium Data for Cyclopentyl Methyl Ether and Cyclopentanol

tbp	326.43	K	2.00	A New Test System for Distillation Efficiency Experiments at Elevated Liquid Viscosities: Vapor-Liquid Equilibrium and Liquid Viscosity Data for Cyclopentanol + Cyclohexanol
tbp	355.30	K	10.00	A New Test System for Distillation Efficiency Experiments at Elevated Liquid Viscosities: Vapor-Liquid Equilibrium and Liquid Viscosity Data for Cyclopentanol + Cyclohexanol
tbp	370.27	K	20.00	A New Test System for Distillation Efficiency Experiments at Elevated Liquid Viscosities: Vapor-Liquid Equilibrium and Liquid Viscosity Data for Cyclopentanol + Cyclohexanol
tbp	398.02	K	60.00	A New Test System for Distillation Efficiency Experiments at Elevated Liquid Viscosities: Vapor-Liquid Equilibrium and Liquid Viscosity Data for Cyclopentanol + Cyclohexanol

Correlations

Information	Value
Property code	pvap

Equation	$\ln(P_{vp}) = A + B/(T + C)$
Coeff. A	1.66115e+01
Coeff. B	-4.21086e+03
Coeff. C	-6.18960e+01
Temperature range (K), min.	319.85
Temperature range (K), max.	434.54

Information	Value
Property code	pvap
Equation	$\ln(P_{vp}) = A + B/T + C \cdot \ln(T) + D \cdot T^2$
Coeff. A	9.23026e+01
Coeff. B	-9.37555e+03
Coeff. C	-1.10220e+01
Coeff. D	8.05060e-06
Temperature range (K), min.	298.15
Temperature range (K), max.	414.15

Sources

KDB Vapor Pressure Data:

A New Test System for Distillation Efficiency Experiments at Elevated Pressures: Vapor-Liquid Equilibrium and Liquid Viscosity Data for Cyclopentanol + Cyclohexanol: Pressure.
McGowan Method:

Heat capacities of selected cycloalcohols:
Measurement and Correlation of Isobaric Vapor Liquid Equilibrium Data for Cyclopentanol + heptane and Cyclohexanol + heptane
Mixtures and Effects of Temperature and Pressure on the Thermodynamic and Acoustic Properties of Perfluorobutanol from an Aqueous Solution: Density and Viscosities for the Ternary System of Decalin (293 to 318) Methylcyclohexane-Hexylcyclopentanol and Cyclopentanol-Binaries at T = 293.15 to 343.15 K:

Density and Viscosity of Ternary Mixture of Cyclopentanol + 6,6,6-Tetrahydrodicyclopentadiene + 1,3-Dimethyladamantane:
Concentration Dependence of Surface Tension for Very Dilute Aqueous Solutions of Organic Non-Electrolytes:

Solubility and tie-line data for ternary aqueous mixtures of cyclopentanol with organic solvents at T = 298.2 K: Grinnon Method:
Experiments and NRTL model: High-Pressure Vapor-Liquid Equilibrium Data for (Carbon Dioxide + Cyclopentanol) Experimental Liquid-Liquid Equilibrium Data for Ternary Systems Using NRTL and GMDH-Type Neural Network:

<https://www.thermo.com/research/kdb/hcprop/showprop.php?cmpid=897>

<https://www.doi.org/10.1021/acs.jced.8b00929>

<http://webbook.nist.gov/cgi/cbook.cgi?ID=C96413&Units=SI>

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<https://www.thermo.com/files/research/kdb/mol/mol897.mol>

<https://www.doi.org/10.1021/je049955d>

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

<https://www.doi.org/10.1016/j.fluid.2014.07.011>

<http://pubs.acs.org/doi/abs/10.1021/ci990307I>

<https://www.doi.org/10.1021/je900305m>

<https://www.doi.org/10.1021/acs.jced.6b00985>

Legend

affp:	Proton affinity
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
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
rho:	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
speedsl:	Speed of sound in fluid
srf:	Surface Tension
tb:	Normal Boiling Point Temperature
tbp:	Boiling point at given pressure
tc:	Critical Temperature
tf:	Normal melting (fusion) point
tt:	Triple Point Temperature
vc:	Critical Volume

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