

2-Methyl-1-butanol

Other names:	1-butanol, 2-methyl-
Inchi:	InChI=1S/C5H12O/c1-3-5(2)4-6/h5-6H,3-4H2,1-2H3
InchiKey:	QPRQEDXDYOZYLA-UHFFFAOYSA-N
Formula:	C5H12O
SMILES:	CCC(C)CO
Mol. weight [g/mol]:	88.15
CAS:	137-32-6

Physical Properties

Property code	Value	Unit	Source
gf	-148.04	kJ/mol	Joback Method
hf	-304.04	kJ/mol	Joback Method
hfus	9.27	kJ/mol	Joback Method
hvap	43.02	kJ/mol	Joback Method
log10ws	-0.47		Aqueous Solubility Prediction Method
logp	1.025		Crippen Method
mcvol	87.180	ml/mol	McGowan Method
pc	3916.03	kPa	Joback Method
tb	402.45	K	Vapor-Liquid Equilibrium of the Ethanol + 2-Methyl-1-butanol System
tb	401.93	K	Vapor-Liquid Equilibrium of Binary Mixtures Containing Ethyl Acetate + 2-Methyl-1-propanol and Ethyl Acetate + 2-Methyl-1-butanol at 101.3 kPa
tb	401.93	K	Vapor-Liquid Equilibria at 101.3 kPa for Binary Mixtures Containing 2-Methyl-1-propanol + 2-Methyl-1-butanol, 2-Methyl-1-propanol + 3-Methyl-1-butanol, and 2-Methyl-1-propanol + 1-Pentanol
tb	401.27	K	Isobaric Vapor Liquid Equilibria for the Binary and Ternary Systems of 2-Methyl-1-butanol, 2-Methyl-butanol Acetate, and Dimethylformamide (DMF) at 101.3 kPa

tc	570.76	K	Joback Method
tf	191.93	K	Joback Method
tt	118.00	K	Heat Capacities in the Solid and in the Liquid Phase of Isomeric Pentanols
vc	0.329	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	216.94	J/molxK	570.76	Joback Method
cpg	202.42	J/molxK	515.68	Joback Method
cpg	194.72	J/molxK	488.15	Joback Method
cpg	186.73	J/molxK	460.61	Joback Method
cpg	178.43	J/molxK	433.08	Joback Method
cpg	169.82	J/molxK	405.54	Joback Method
cpg	209.82	J/molxK	543.22	Joback Method
dvisc	0.0379452	Paxs	227.53	Joback Method
dvisc	0.0026559	Paxs	298.74	Joback Method
dvisc	0.0010745	Paxs	334.34	Joback Method
dvisc	0.0083860	Paxs	263.13	Joback Method
dvisc	0.0005174	Paxs	369.94	Joback Method
dvisc	0.3005917	Paxs	191.93	Joback Method
dvisc	0.0002833	Paxs	405.54	Joback Method
kvisc	0.0000047	m2/s	303.15	Density, Viscosity, Excess Molar Volume, and Viscosity Deviation of Three Amyl Alcohols + Ethanol Binary Mixtures from 293.15 to 323.15 K
kvisc	0.0000041	m2/s	308.15	Density, Viscosity, Excess Molar Volume, and Viscosity Deviation of Three Amyl Alcohols + Ethanol Binary Mixtures from 293.15 to 323.15 K

kvisc	0.0000053	m2/s	298.15	Density, Viscosity, Excess Molar Volume, and Viscosity Deviation of Three Amyl Alcohols + Ethanol Binary Mixtures from 293.15 to 323.15 K
kvisc	0.0000035	m2/s	313.15	Density, Viscosity, Excess Molar Volume, and Viscosity Deviation of Three Amyl Alcohols + Ethanol Binary Mixtures from 293.15 to 323.15 K
kvisc	0.0000027	m2/s	323.15	Density, Viscosity, Excess Molar Volume, and Viscosity Deviation of Three Amyl Alcohols + Ethanol Binary Mixtures from 293.15 to 323.15 K
kvisc	0.0000031	m2/s	318.15	Density, Viscosity, Excess Molar Volume, and Viscosity Deviation of Three Amyl Alcohols + Ethanol Binary Mixtures from 293.15 to 323.15 K
kvisc	0.0000061	m2/s	293.15	Density, Viscosity, Excess Molar Volume, and Viscosity Deviation of Three Amyl Alcohols + Ethanol Binary Mixtures from 293.15 to 323.15 K
pvap	32.00	kPa	371.74	Vapor pressure of selected aliphatic alcohols by ebulliometry. Part 2

pvap	50.00	kPa	382.75	Effect of addition of calcium chloride on vapor pressure of 2-methyl-1-butanol
pvap	63.30	kPa	388.95	Effect of addition of calcium chloride on vapor pressure of 2-methyl-1-butanol
pvap	70.00	kPa	391.65	Effect of addition of calcium chloride on vapor pressure of 2-methyl-1-butanol
pvap	76.60	kPa	394.15	Effect of addition of calcium chloride on vapor pressure of 2-methyl-1-butanol
pvap	56.60	kPa	385.65	Effect of addition of calcium chloride on vapor pressure of 2-methyl-1-butanol
pvap	83.30	kPa	396.65	Effect of addition of calcium chloride on vapor pressure of 2-methyl-1-butanol
pvap	9.33	kPa	345.51	Vapor pressure of selected aliphatic alcohols by ebulliometry. Part 2
pvap	12.00	kPa	350.44	Vapor pressure of selected aliphatic alcohols by ebulliometry. Part 2
pvap	14.66	kPa	354.51	Vapor pressure of selected aliphatic alcohols by ebulliometry. Part 2
pvap	17.33	kPa	358.02	Vapor pressure of selected aliphatic alcohols by ebulliometry. Part 2
pvap	20.66	kPa	361.80	Vapor pressure of selected aliphatic alcohols by ebulliometry. Part 2
pvap	24.00	kPa	365.12	Vapor pressure of selected aliphatic alcohols by ebulliometry. Part 2

pvap	28.00	kPa	368.62	Vapor pressure of selected aliphatic alcohols by ebulliometry. Part 2
pvap	90.00	kPa	398.85	Effect of addition of calcium chloride on vapor pressure of 2-methyl-1-butanol
pvap	36.00	kPa	374.56	Vapor pressure of selected aliphatic alcohols by ebulliometry. Part 2
pvap	40.00	kPa	377.13	Vapor pressure of selected aliphatic alcohols by ebulliometry. Part 2
pvap	44.00	kPa	379.50	Vapor pressure of selected aliphatic alcohols by ebulliometry. Part 2
pvap	48.66	kPa	382.05	Vapor pressure of selected aliphatic alcohols by ebulliometry. Part 2
pvap	53.33	kPa	384.41	Vapor pressure of selected aliphatic alcohols by ebulliometry. Part 2
pvap	58.66	kPa	386.92	Vapor pressure of selected aliphatic alcohols by ebulliometry. Part 2
pvap	63.99	kPa	389.23	Vapor pressure of selected aliphatic alcohols by ebulliometry. Part 2
pvap	69.33	kPa	391.40	Vapor pressure of selected aliphatic alcohols by ebulliometry. Part 2
pvap	74.66	kPa	393.43	Vapor pressure of selected aliphatic alcohols by ebulliometry. Part 2
pvap	79.99	kPa	395.35	Vapor pressure of selected aliphatic alcohols by ebulliometry. Part 2

pvap	85.33	kPa	397.17	Vapor pressure of selected aliphatic alcohols by ebulliometry. Part 2
pvap	90.66	kPa	398.90	Vapor pressure of selected aliphatic alcohols by ebulliometry. Part 2
pvap	97.33	kPa	400.96	Vapor pressure of selected aliphatic alcohols by ebulliometry. Part 2
pvap	16.70	kPa	357.85	Vapor-Liquid Equilibrium of the Ethanol + 2-Methyl-1-butanol System
pvap	23.30	kPa	364.85	Vapor-Liquid Equilibrium of the Ethanol + 2-Methyl-1-butanol System
pvap	30.00	kPa	370.45	Vapor-Liquid Equilibrium of the Ethanol + 2-Methyl-1-butanol System
pvap	33.30	kPa	372.95	Vapor-Liquid Equilibrium of the Ethanol + 2-Methyl-1-butanol System
pvap	43.30	kPa	379.05	Effect of addition of calcium chloride on vapor pressure of 2-methyl-1-butanol
pvap	43.30	kPa	379.05	Vapor-Liquid Equilibrium of the Ethanol + 2-Methyl-1-butanol System
pvap	50.00	kPa	382.75	Vapor-Liquid Equilibrium of the Ethanol + 2-Methyl-1-butanol System
pvap	56.60	kPa	385.65	Vapor-Liquid Equilibrium of the Ethanol + 2-Methyl-1-butanol System
pvap	63.30	kPa	388.95	Vapor-Liquid Equilibrium of the Ethanol + 2-Methyl-1-butanol System

pvap	66.60	kPa	390.35	Vapor-Liquid Equilibrium of the Ethanol + 2-Methyl-1-butanol System
pvap	70.00	kPa	391.65	Vapor-Liquid Equilibrium of the Ethanol + 2-Methyl-1-butanol System
pvap	76.60	kPa	394.15	Vapor-Liquid Equilibrium of the Ethanol + 2-Methyl-1-butanol System
pvap	96.60	kPa	401.05	Effect of addition of calcium chloride on vapor pressure of 2-methyl-1-butanol
pvap	90.00	kPa	398.85	Vapor-Liquid Equilibrium of the Ethanol + 2-Methyl-1-butanol System
pvap	96.60	kPa	401.05	Vapor-Liquid Equilibrium of the Ethanol + 2-Methyl-1-butanol System
pvap	101.30	kPa	402.45	Vapor-Liquid Equilibrium of the Ethanol + 2-Methyl-1-butanol System
pvap	23.30	kPa	364.85	Effect of addition of calcium chloride on vapor pressure of 2-methyl-1-butanol
pvap	30.00	kPa	370.45	Effect of addition of calcium chloride on vapor pressure of 2-methyl-1-butanol
pvap	33.30	kPa	373.05	Effect of addition of calcium chloride on vapor pressure of 2-methyl-1-butanol
pvap	36.70	kPa	375.15	Effect of addition of calcium chloride on vapor pressure of 2-methyl-1-butanol
pvap	83.30	kPa	396.65	Vapor-Liquid Equilibrium of the Ethanol + 2-Methyl-1-butanol System

pvap	36.70	kPa	375.15	Vapor-Liquid Equilibrium of the Ethanol + 2-Methyl-1-butanol System
rfi	1.40860		298.15	Study of the Effects of Temperature and Pressure on the Thermodynamic and Acoustic Properties of 2-Methyl-1-butanol at Temperatures from 293K to 318K and Pressures up to 100MPa
rfi	1.40840		298.15	Bubble-Temperature Measurements on Some Binary Mixtures Formed by Tetrahydrofuran or Amyl Alcohol with Hydrocarbons, Chlorohydrocarbons, or Butanols at (94.6 or 95.8) kPa
rfi	1.40872		298.15	Density, Refractive Index, Speed of Sound at 298.15 K, and Vapor-Liquid Equilibria at 101.3 kPa for Binary Mixtures of Propanol + 2-Methyl-1-butanol and Propanol + 3-Methyl-1-butanol
rfi	1.40872		298.15	Density, Refractive Index, Speed of Sound at 298.15 K, and Vapor-Liquid Equilibria at 101.3 kPa for Binary Mixtures of Methanol + 2-Methyl-1-butanol and Ethanol + 2-Methyl-1-butanol

rfi	1.40950		293.15	Isobaric Vapor - Liquid Equilibria for the Ternary System of 2-Methyl-1-butanol, 3-Methyl-1-butanol, and Ethylene Glycol at 101.3 kPa
rhoI	796.39	kg/m3	323.15	Densities and Viscosities for Binary Liquid Mixtures of Biodiesel + 1-Pentanol, 2-Pentanol, or 2-Methyl-1-Butanol from (288.15 to 338.15) K at 0.1 MPa
rhoI	812.12	kg/m3	303.15	Densities and Viscosities for Binary Liquid Mixtures of Pentanol Isomers from (288.15 to 328.15) K at 0.1 MPa
rhoI	808.29	kg/m3	308.15	Densities and Viscosities for Binary Liquid Mixtures of Pentanol Isomers from (288.15 to 328.15) K at 0.1 MPa
rhoI	814.83	kg/m3	298.15	Vapor Liquid Equilibrium for 2-Methyl-1-butanol + Ethylbenzene + Xylene Isomers at 101.33 kPa
rhoI	804.41	kg/m3	313.15	Densities and Viscosities for Binary Liquid Mixtures of Pentanol Isomers from (288.15 to 328.15) K at 0.1 MPa
rhoI	800.47	kg/m3	318.15	Densities and Viscosities for Binary Liquid Mixtures of Pentanol Isomers from (288.15 to 328.15) K at 0.1 MPa

rhoI	796.47	kg/m3	323.15	Densities and Viscosities for Binary Liquid Mixtures of Pentanol Isomers from (288.15 to 328.15) K at 0.1 MPa
rhoI	814.98	kg/m3	298.15	Excess molar enthalpies of the binary systems: (Dibutyl ether + isomers of pentanol) at T = (298.15 and 308.15) K
rhoI	807.63	kg/m3	308.15	Excess molar enthalpies of the binary systems: (Dibutyl ether + isomers of pentanol) at T = (298.15 and 308.15) K
rhoI	823.02	kg/m3	288.15	Densities and Viscosities for Binary Liquid Mixtures of Biodiesel + 1-Pentanol, 2-Pentanol, or 2-Methyl-1-Butanol from (288.15 to 338.15) K at 0.1 MPa
rhoI	819.56	kg/m3	293.15	Densities and Viscosities for Binary Liquid Mixtures of Biodiesel + 1-Pentanol, 2-Pentanol, or 2-Methyl-1-Butanol from (288.15 to 338.15) K at 0.1 MPa
rhoI	815.82	kg/m3	298.15	Densities and Viscosities for Binary Liquid Mixtures of Biodiesel + 1-Pentanol, 2-Pentanol, or 2-Methyl-1-Butanol from (288.15 to 338.15) K at 0.1 MPa

rhoI	819.64	kg/m3	293.15	Densities and Viscosities for Binary Liquid Mixtures of Pentanol Isomers from (288.15 to 328.15) K at 0.1 MPa
rhoI	808.20	kg/m3	308.15	Densities and Viscosities for Binary Liquid Mixtures of Biodiesel + 1-Pentanol, 2-Pentanol, or 2-Methyl-1-Butanol from (288.15 to 338.15) K at 0.1 MPa
rhoI	804.33	kg/m3	313.15	Densities and Viscosities for Binary Liquid Mixtures of Biodiesel + 1-Pentanol, 2-Pentanol, or 2-Methyl-1-Butanol from (288.15 to 338.15) K at 0.1 MPa
rhoI	800.39	kg/m3	318.15	Densities and Viscosities for Binary Liquid Mixtures of Biodiesel + 1-Pentanol, 2-Pentanol, or 2-Methyl-1-Butanol from (288.15 to 338.15) K at 0.1 MPa
rhoI	792.41	kg/m3	328.15	Densities and Viscosities for Binary Liquid Mixtures of Pentanol Isomers from (288.15 to 328.15) K at 0.1 MPa
rhoI	792.34	kg/m3	328.15	Densities and Viscosities for Binary Liquid Mixtures of Biodiesel + 1-Pentanol, 2-Pentanol, or 2-Methyl-1-Butanol from (288.15 to 338.15) K at 0.1 MPa

rhoI	788.20	kg/m3	333.15	Densities and Viscosities for Binary Liquid Mixtures of Biodiesel + 1-Pentanol, 2-Pentanol, or 2-Methyl-1-Butanol from (288.15 to 338.15) K at 0.1 MPa
rhoI	783.84	kg/m3	338.15	Densities and Viscosities for Binary Liquid Mixtures of Biodiesel + 1-Pentanol, 2-Pentanol, or 2-Methyl-1-Butanol from (288.15 to 338.15) K at 0.1 MPa
rhoI	823.35	kg/m3	288.15	Densities and Viscosities for Binary Liquid Mixtures of Pentanol Isomers from (288.15 to 328.15) K at 0.1 MPa
rhoI	812.03	kg/m3	303.15	Densities and Viscosities for Binary Liquid Mixtures of Biodiesel + 1-Pentanol, 2-Pentanol, or 2-Methyl-1-Butanol from (288.15 to 338.15) K at 0.1 MPa
rhoI	815.85	kg/m3	298.15	Densities and Viscosities for Binary Liquid Mixtures of Pentanol Isomers from (288.15 to 328.15) K at 0.1 MPa
srf	0.02	N/m	298.15	Surface Tensions of Three Amyl Alcohol + Ethanol Binary Mixtures from (293.15 to 323.15) K
srf	0.02	N/m	303.15	Surface Tensions of Three Amyl Alcohol + Ethanol Binary Mixtures from (293.15 to 323.15) K

srf	0.02	N/m	308.15	Surface Tensions of Three Amyl Alcohol + Ethanol Binary Mixtures from (293.15 to 323.15) K
srf	0.02	N/m	313.15	Surface Tensions of Three Amyl Alcohol + Ethanol Binary Mixtures from (293.15 to 323.15) K
srf	0.02	N/m	318.15	Surface Tensions of Three Amyl Alcohol + Ethanol Binary Mixtures from (293.15 to 323.15) K
srf	0.02	N/m	323.15	Surface Tensions of Three Amyl Alcohol + Ethanol Binary Mixtures from (293.15 to 323.15) K
srf	0.02	N/m	293.15	Surface Tensions of Three Amyl Alcohol + Ethanol Binary Mixtures from (293.15 to 323.15) K

Correlations

Information	Value
Property code	pvap
Equation	$\ln(P_{vp}) = A + B/(T + C)$
Coeff. A	1.43135e+01
Coeff. B	-2.78286e+03
Coeff. C	-1.14962e+02
Temperature range (K), min.	313.37
Temperature range (K), max.	424.10

Information	Value
Property code	pvap
Equation	$\ln(P_{vp}) = A + B/T + C \cdot \ln(T) + D \cdot T^2$
Coeff. A	2.88019e+02
Coeff. B	-1.78736e+04
Coeff. C	-4.06446e+01
Coeff. D	2.96397e-05

Temperature range (K), min.	203.00
Temperature range (K), max.	565.00

Isothermal vapor liquid equilibria for
 different binary mixtures involved in
 vapor-liquid equilibrium for
 2-Methyl-1-butanol + Ethylbenzene +
 Pentanes and Viscosities for Binary
 Liquid Mixtures of Pentanol Isomers
 From 220.15 to 320.15 K at the Binary
 systems: (Dibutyl ether + isomers of
 pentanol) at 101.325 kPa and 308.15 K:
 on vapor pressure of
 2-methyl-1-butanol
 Pressure:
 Henry's law constants and infinite
 dilution activity coefficients of propane,
 Vapor-liquid Equilibrium of the Ethanol
 2-Methyl-1-butanol System and
 K₁₂ Pure (n) and 2-methyl-1-butanol,
 3-butanone in 2-methyl-1-butanol,
 Properties of Butanol and
 Surface Tensions of Three Amyl
 1-Methyl-1-butanol
 Alcohol + Ethanol Binary Mixtures from
 NIST Webbook (5) K:

<https://www.doi.org/10.1021/je301220s>

<https://www.doi.org/10.1016/j.jct.2015.03.021>

<https://www.doi.org/10.1021/je0340147>

<https://www.sciencedirect.com/book/9780128029992/the-yaws-handbook-of-vapor-pressure>

<https://www.doi.org/10.1021/je049723e>

<https://www.doi.org/10.1021/je010272x>

<https://www.cheric.org/research/kdb/hcprop/showprop.php?cmpid=828>

<https://www.doi.org/10.1021/je200793z>

<http://webbook.nist.gov/cgi/cbook.cgi?ID=B6001118&Units=SI>

<https://www.doi.org/10.1021/ie060411a>

<https://www.doi.org/10.1021/ie0502142>

<https://www.doi.org/10.1016/j.ijct.2018.10.023>

<https://www.doi.org/10.1021/je030141r>

<https://www.doi.org/10.1021/ie901063s>

<http://onschallenge.wikispaces.com/file/view/AqueousDataset002.xlsx/351826032/AqueousDataset002.xlsx>

<https://www.doi.org/10.1021/ie0201727>

<https://www.doi.org/10.1021/ie3012925>

<https://www.doi.org/10.1021/ie0500330>

<https://www.cheric.org/research/kdb/hcpron/showpron.php?cmid=828>

<https://www.doi.org/10.1016/j.fluid.2010.06.020>

<http://pubs.acs.org/doi/abs/10.1021/ci990307l>

<https://www.doi.org/10.1007/s10765-009-0607-1>

<https://www.doi.org/10.1021/ie060399s>

<https://www.doi.org/10.1021/ie050416v>

<https://www.doi.org/10.1021/acs.iced.7b00996>

<https://www.doi.org/10.1021/jo030216r>

<http://link.springer.com/article/10.1007/BF03311772>

<https://www.doi.org/10.1031/jc050430u>

<https://www.doi.org/10.1031/ie0008365>

<https://www.doi.org/10.1031/jc500331a>

<https://www.doi.org/10.1031/jc030175z>

<https://www.doi.org/10.1021/jc060238c>

<https://www.doi.org/10.1016/j.fluid.2011.03.018>

https://en.wikipedia.org/wiki/Leback_method

Heat Capacities in the Solid and in the Liquid Phase of Isomeric Pentanols: Density, Refractive Index, Speed of Sound at 298.15 K, and Vapor-Liquid Mutual Diffusion Coefficients of Mixtures of Propanol-*n*, heptane and 2-methyl-1-butanol + 1-methylcyclohexane Binary Mixtures Formed by Tertiary Alcohol and Alkanes of Similar Activity Coefficients of Hydrocarbons, or Ethanol + Small Olefins and Their Properties of Branched Pentanols in Water: Measurements of the Binary Alcohol + Acetonitrile Solvent Mixtures and Vapor-Liquid Equilibria for the Binary and Ternary Systems of Density, Refractive Index, Speed of Sound at 298.15 K, and Vapor-Liquid Mutual Diffusion Coefficient Data for Binary Mixtures of Methanol + 2-methyl-1-butanol and selected aliphatic alcohols by ebulliometry. Part 2 : Cylindrical Method.

Study of the Effects of Temperature and Pressure on the Thermodynamic Equilibrium of Methylpropanol + Calcium Chloride System on Vapor-Liquid Equilibrium and Phase Diagrams Using Monte Carlo Simulation and Calculation of Three-Phase and Critical Point of Binary Liquid Mixtures of Propanol-15 K: Isothermal and Pentanol, Equilibria for the Tertiary System from (288.15 to 350.00 K) and 101.3 kPa: 3-Methyl-1-butanol, and Ethylene Glycol at 101.3 kPa: Vapor-Liquid Equilibrium of Binary Mixtures Containing Ethyl Acetate + Isomeric Vapor-Liquid and Ethyl Acetate + 2-Methylbutanol at 101.3 kPa: Isomeric Vapor-Liquid Equilibrium of Binary Systems of Propyl Acetate + 2-Methylbutanol, 2-Pentanol Mixtures + Hexanone Dissolved in Alcohol + Pentanol-Liquid-Liquid Equilibrium at 288.2 K for Binary Mixtures Containing 2-Methylpropanol, anion and temperature on the liquid-liquid Equilibrium of binary pentanols-water system-1-butanol, and 2-Methyl-1-propanol + 1-Pentanol:

Legend

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and 4-Methylpentan-2-ol but 208.15 and 208.15 K. 1-pentanol 3-pentanol

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