

Butane, 2-ethoxy-2-methyl-

Other names:	1,1-dimethylpropyl ethyl ether 2-Ethoxy-2-methylbutane 2-Ethyl-2-ethoxypropane Ethyl 1,1-dimethylpropyl ether Ethyl tert-amyl ether Ethyl tert-pentyl ether ether, 1,1-dimethylpropyl ethyl
Inchi:	InChI=1S/C7H16O/c1-5-7(3,4)8-6-2/h5-6H2,1-4H3
InchiKey:	KFRVYYGHSPLXSZ-UHFFFAOYSA-N
Formula:	C7H16O
SMILES:	CCOC(C)(C)CC
Mol. weight [g/mol]:	116.20
CAS:	919-94-8

Physical Properties

Property code	Value	Unit	Source
gf	-94.10	kJ/mol	Joback Method
hf	-328.78	kJ/mol	Joback Method
hfl	-379.80 ± 1.40	kJ/mol	NIST Webbook
hfus	7.66	kJ/mol	Joback Method
hvap	38.20 ± 0.20	kJ/mol	NIST Webbook
hvap	39.20 ± 0.40	kJ/mol	NIST Webbook
log10ws	-1.95		Crippen Method
logp	2.212		Crippen Method
mcvol	115.360	ml/mol	McGowan Method
pc	2805.41	kPa	Joback Method
rinpol	721.00		NIST Webbook
rinpol	730.00		NIST Webbook
rinpol	726.00		NIST Webbook
tb	374.57	K	Isobaric vapor liquid equilibria for systems composed by 2-ethoxy-2-methylbutane, methanol or ethanol and water at 101.32 kPa
tb	375.20	K	NIST Webbook
tc	553.95	K	Joback Method
tf	193.30	K	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	289.71	J/mol×K	553.95	Joback Method
cpg	232.48	J/mol×K	407.95	Joback Method
cpg	244.93	J/mol×K	437.15	Joback Method
cpg	256.86	J/mol×K	466.35	Joback Method
cpg	268.29	J/mol×K	495.55	Joback Method
cpg	279.24	J/mol×K	524.75	Joback Method
cpg	219.51	J/mol×K	378.75	Joback Method
cpl	243.00	J/mol×K	298.00	NIST Webbook
dvisc	0.0003458	Pa×s	347.84	Joback Method
dvisc	0.0005023	Pa×s	316.93	Joback Method
dvisc	0.0007911	Pa×s	286.02	Joback Method
dvisc	0.0013910	Pa×s	255.12	Joback Method
dvisc	0.0028572	Pa×s	224.21	Joback Method
dvisc	0.0002529	Pa×s	378.75	Joback Method
dvisc	0.0073885	Pa×s	193.30	Joback Method
hvapt	35.70	kJ/mol	346.00	NIST Webbook
hvapt	35.60	kJ/mol	347.00	NIST Webbook
pvap	3.21	kPa	287.20	Determination of Ambient Temperature Vapor Pressures and Vaporization Enthalpies of Branched Ethers
pvap	5.27	kPa	296.20	Determination of Ambient Temperature Vapor Pressures and Vaporization Enthalpies of Branched Ethers
pvap	6.13	kPa	299.20	Determination of Ambient Temperature Vapor Pressures and Vaporization Enthalpies of Branched Ethers

pvap	7.19	kPa	302.20	Determination of Ambient Temperature Vapor Pressures and Vaporization Enthalpies of Branched Ethers
pvap	98.94	kPa	373.71	Vapor Liquid Equilibrium, Excess Molar Enthalpies, and Excess Molar Volumes of Binary Mixtures Containing 2-Ethoxy-2-methylpropane or 2-Ethoxy-2-methylbutane and Acetonitrile or Propanenitrile
pvap	83.80	kPa	368.16	Vapor Liquid Equilibrium, Excess Molar Enthalpies, and Excess Molar Volumes of Binary Mixtures Containing 2-Ethoxy-2-methylpropane or 2-Ethoxy-2-methylbutane and Acetonitrile or Propanenitrile
pvap	81.79	kPa	367.36	Vapor Liquid Equilibrium, Excess Molar Enthalpies, and Excess Molar Volumes of Binary Mixtures Containing 2-Ethoxy-2-methylpropane or 2-Ethoxy-2-methylbutane and Acetonitrile or Propanenitrile
pvap	2.67	kPa	284.20	Determination of Ambient Temperature Vapor Pressures and Vaporization Enthalpies of Branched Ethers

pvap	74.90	kPa	364.42	Vapor Liquid Equilibrium, Excess Molar Enthalpies, and Excess Molar Volumes of Binary Mixtures Containing 2-Ethoxy-2-methylpropane or 2-Ethoxy-2-methylbutane and Acetonitrile or Propanenitrile
pvap	69.66	kPa	362.13	Vapor Liquid Equilibrium, Excess Molar Enthalpies, and Excess Molar Volumes of Binary Mixtures Containing 2-Ethoxy-2-methylpropane or 2-Ethoxy-2-methylbutane and Acetonitrile or Propanenitrile
pvap	65.08	kPa	359.96	Vapor Liquid Equilibrium, Excess Molar Enthalpies, and Excess Molar Volumes of Binary Mixtures Containing 2-Ethoxy-2-methylpropane or 2-Ethoxy-2-methylbutane and Acetonitrile or Propanenitrile
pvap	59.91	kPa	357.39	Vapor Liquid Equilibrium, Excess Molar Enthalpies, and Excess Molar Volumes of Binary Mixtures Containing 2-Ethoxy-2-methylpropane or 2-Ethoxy-2-methylbutane and Acetonitrile or Propanenitrile
pvap	55.54	kPa	355.12	Vapor Liquid Equilibrium, Excess Molar Enthalpies, and Excess Molar Volumes of Binary Mixtures Containing 2-Ethoxy-2-methylpropane or 2-Ethoxy-2-methylbutane and Acetonitrile or Propanenitrile

pvap	49.52	kPa	351.71	Vapor Liquid Equilibrium, Excess Molar Enthalpies, and Excess Molar Volumes of Binary Mixtures Containing 2-Ethoxy-2-methylpropane or 2-Ethoxy-2-methylbutane and Acetonitrile or Propanenitrile
pvap	45.43	kPa	349.21	Vapor Liquid Equilibrium, Excess Molar Enthalpies, and Excess Molar Volumes of Binary Mixtures Containing 2-Ethoxy-2-methylpropane or 2-Ethoxy-2-methylbutane and Acetonitrile or Propanenitrile
pvap	40.29	kPa	345.82	Vapor Liquid Equilibrium, Excess Molar Enthalpies, and Excess Molar Volumes of Binary Mixtures Containing 2-Ethoxy-2-methylpropane or 2-Ethoxy-2-methylbutane and Acetonitrile or Propanenitrile
pvap	37.59	kPa	343.83	Vapor Liquid Equilibrium, Excess Molar Enthalpies, and Excess Molar Volumes of Binary Mixtures Containing 2-Ethoxy-2-methylpropane or 2-Ethoxy-2-methylbutane and Acetonitrile or Propanenitrile

pvap	23.98	kPa	331.83	Vapor Liquid Equilibrium, Excess Molar Enthalpies, and Excess Molar Volumes of Binary Mixtures Containing 2-Ethoxy-2-methylpropane or 2-Ethoxy-2-methylbutane and Acetonitrile or Propanenitrile
pvap	17.73	kPa	324.31	Vapor Liquid Equilibrium, Excess Molar Enthalpies, and Excess Molar Volumes of Binary Mixtures Containing 2-Ethoxy-2-methylpropane or 2-Ethoxy-2-methylbutane and Acetonitrile or Propanenitrile
pvap	36.56	kPa	343.12	Vapor Liquid Equilibrium, Excess Molar Enthalpies, and Excess Molar Volumes of Binary Mixtures Containing 2-Ethoxy-2-methylpropane or 2-Ethoxy-2-methylbutane and Acetonitrile or Propanenitrile
pvap	71.73	kPa	363.10	Vapor Liquid Equilibrium, Excess Molar Enthalpies, and Excess Molar Volumes of Binary Mixtures Containing 2-Ethoxy-2-methylpropane or 2-Ethoxy-2-methylbutane and Acetonitrile or Propanenitrile
pvap	4.44	kPa	293.20	Determination of Ambient Temperature Vapor Pressures and Vaporization Enthalpies of Branched Ethers

pvap	3.74	kPa	290.20	Determination of Ambient Temperature Vapor Pressures and Vaporization Enthalpies of Branched Ethers	
pvap	2.34	kPa	282.20	Determination of Ambient Temperature Vapor Pressures and Vaporization Enthalpies of Branched Ethers	
pvap	2.06	kPa	280.20	Determination of Ambient Temperature Vapor Pressures and Vaporization Enthalpies of Branched Ethers	
pvap	1.82	kPa	278.20	Determination of Ambient Temperature Vapor Pressures and Vaporization Enthalpies of Branched Ethers	
pvap	1.61	kPa	276.20	Determination of Ambient Temperature Vapor Pressures and Vaporization Enthalpies of Branched Ethers	
pvap	1.41	kPa	274.20	Determination of Ambient Temperature Vapor Pressures and Vaporization Enthalpies of Branched Ethers	
pvap	79.62	kPa	366.44	Vapor Liquid Equilibrium, Excess Molar Enthalpies, and Excess Molar Volumes of Binary Mixtures Containing 2-Ethoxy-2-methylpropane or 2-Ethoxy-2-methylbutane and Acetonitrile or Propanenitrile	

rfi	1.38858	298.15	Vapor Liquid Equilibria, Excess Enthalpy, and Excess Volume of Binary Mixtures Containing an Alcohol (1-Butanol, 2-Butanol, or 2-Methyl-2-butanol) and 2-Ethoxy-2-methylbutane
rfi	1.38857	298.15	Experimental Determination of Liquid-Liquid Equilibrium Using Ionic Liquids: tert-Amyl Ethyl Ether + Ethanol + 1-Octyl-3-Methylimidazolium Chloride System at 298.15 K

Correlations

Information	Value
Property code	pvap
Equation	$\ln(P_{vp}) = A + B/(T + C)$
Coeff. A	1.53048e+01
Coeff. B	-3.52566e+03
Coeff. C	-4.52800e+01
Temperature range (K), min.	280.06
Temperature range (K), max.	398.08

Sources

Vapor Liquid Equilibrium, Excess Molar Enthalpies, and Excess Molar Volumes of Binary Mixtures Containing 2-Ethoxy-2-methylpropane or 2-Ethoxy-2-methylbutane and Acetonitrile or Propanenitrile: Vapor Liquid Equilibria, Excess Enthalpy, and Excess Volume of Binary Mixtures Containing tert-Butyl Alcohol and Ethers: 2-Methyl-2-butanol and 2-Ethoxy-2-methylbutane: Isoobaric vapor liquid equilibria for systems composed by methyl-2-butanol, methyl-2-pentanol or ethanol and water at 0.102 MPa

<https://www.doi.org/10.1021/je301238f>
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<https://www.doi.org/10.1021/je0255980>
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<https://www.doi.org/10.1016/j.fluid.2005.04.003>
<https://www.doi.org/10.1016/j.fluid.2006.02.022>

Experimental Determination of Liquid-Liquid Equilibrium Using Ionic Liquids: Liquid-Liquid Equilibrium for Ethanol Systems of Methylcyclohexane-Chloride and Chloride-Tert-butyl ether (IPTBE) and di-sec-butyl ether (DSBE) with water and for ternary systems with methanol or ethanol: Chippen Method:

<https://www.doi.org/10.1021/je0302147>
<https://www.doi.org/10.1016/j.fluid.2007.04.018>
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<http://webbook.nist.gov/cgi/cbook.cgi?ID=C919948&Units=SI>
<http://pubs.acs.org/doi/abs/10.1021/ci990307l>

Thermochemistry of Branched Ethers: Experimental Study of Chemical Equilibrium in the phase equilibrium system of binary mixtures of ethers and N-methyl-2-pyrrolidinone and ethers at atmospheric pressure:

<https://www.doi.org/10.1021/je034172y>
<https://www.doi.org/10.1016/j.fluid.2004.11.006>

Legend

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
hvap:	Enthalpy of vaporization at standard conditions
hvapt:	Enthalpy of vaporization at a given temperature
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
rinpol:	Non-polar retention indices
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tf:	Normal melting (fusion) point
vc:	Critical Volume

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