Sorbitol

Other names:

(-)-Sorbitol
Cholaxine
Cystosol
D-(-)-Sorbitol
D-1,2,3,4,5,6-hexanehexol
D-Glucitol
D-Sorbol
D-sorbitol
Diakarmon
Esasorb
Glucarine
Glucitol
Glucitol, D-
Gulitol
Hexahydric alcohol
Karion
Karion, instant
L-Gulitol
Liponic 70-NC
Multitol
Neosorb
Nivitin
Resulax
Sionit
Sionit K
Sionite
Sionon
Siosan
Sorbex M
Sorbex R
Sorbex Rp
Sorbex S
Sorbex X
Sorbicolan
Sorbilande
Sorbilax
Sorbit
Sorbit D
Sorbit DP
Sorbite

	Sorbitol F
	Sorbitol FP
	Sorbitol syrup C
	Sorbitol, (d)
	Sorbitur
	Sorbo
	Sorbol
	Sorbostyl
	Sorvilande
	d-Sorbit
	d-Sorbite
Inchi:	InChI=1S/C6H14O6/c7-1-3(9)5(11)6(12)4(10)2-8/h3-12H,1-2H2/t3-,4+,5-,6-/m1/s1
InchiKey:	FBPFZTCFMRRESA-JGWLITMVSA-N
Formula:	C6H14O6
SMILES:	OCC(O)C(O)C(O)C(O)CO
Mol. weight [g/mol]:	182.17
CAS:	50-70-4

Physical Properties

Property code	Value	Unit	Source
chs	-3009.40 ± 1.40	kJ/mol	NIST Webbook
gf	-831.04	kJ/mol	Joback Method
hf	-1101.67	kJ/mol	Joback Method
hfs	-1353.70 ± 1.40	kJ/mol	NIST Webbook
hfus	21.73	kJ/mol	Joback Method
hsub	186.00	kJ/mol	NIST Webbook
hvap	127.47	kJ/mol	Joback Method
log10ws	1.09		Aqueous Solubility Prediction Method
log10ws	1.09		Estimated Solubility Method
logp	-3.585		Crippen Method
mcvol	130.620	ml/mol	McGowan Method
pc	6830.13	kPa	Joback Method
tb	888.00	K	Joback Method
tc	1092.90	K	Joback Method
tf	361.25 ± 0.50	K	NIST Webbook
tf	367.45 ± 1.00	K	NIST Webbook
tf	371.85 ± 0.50	K	NIST Webbook
tf	366.50 ± 0.60	K	NIST Webbook

tf	371.70	K	Solubility data and modeling for sugar alcohols in ionic liquids
tf	371.70	K	Solid-liquid phase equilibria in binary mixtures of functionalized ionic liquids with sugar alcohols: New experimental data and modelling
tf	434.05	K	Aqueous Solubility Prediction Method
tf	372.85	K	Artificial neural networks as a supporting tool for compatibility study based on thermogravimetric data
vc	0.462	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	456.45	J/mol×K	1092.90	Joback Method
cpg	451.78	J/mol×K	1058.75	Joback Method
cpg	446.82	J/mol×K	1024.60	Joback Method
cpg	441.54	J/mol×K	990.45	Joback Method
cpg	435.91	J/mol×K	956.30	Joback Method
cpg	429.90	J/mol×K	922.15	Joback Method
cpg	423.48	J/mol×K	888.00	Joback Method
cps	241.43	J/mol×K	298.15	NIST Webbook
dvisc	5.1362493e-08	Pa×s	746.10	Joback Method
dvisc	0.0000003	Pa×s	675.15	Joback Method
dvisc	0.0005812	Pa×s	462.30	Joback Method
dvisc	4.5232902e-09	Pa×s	888.00	Joback Method
dvisc	0.0000222	Pa×s	533.25	Joback Method
dvisc	0.0000018	Pa×s	604.20	Joback Method
dvisc	1.3716255e-08	Pa×s	817.05	Joback Method
hfust	30.20	kJ/mol	366.50	NIST Webbook
hfust	30.35	kJ/mol	235.00	NIST Webbook
hfust	30.20	kJ/mol	366.50	NIST Webbook
hvapt	132.40 ± 2.00	kJ/mol	479.00	NIST Webbook
pvap	65.00	kPa	623.15	Vapor Pressures and Evaporation Studies of Sugars and Sugar Alcohols

pvap	30.00	kPa	598.15	Vapor Pressures and Evaporation Studies of Sugars and Sugar Alcohols
pvap	12.30	kPa	573.15	Vapor Pressures and Evaporation Studies of Sugars and Sugar Alcohols
pvap	4.49	kPa	548.15	Vapor Pressures and Evaporation Studies of Sugars and Sugar Alcohols
pvap	1.31	kPa	523.15	Vapor Pressures and Evaporation Studies of Sugars and Sugar Alcohols
sfust	82.50	J/mol×K	366.50	NIST Webbook

Sources

Artificial neural networks as a supporting tool for compatibility study based on thermogravimetric data:	https://www.doi.org/10.1016/j.tca.2017.12.015
Solubility data and modeling for sugar alcohols in ionic liquids:	https://www.doi.org/10.1016/j.jct.2014.04.021
Estimated Solubility Method:	http://pubs.acs.org/doi/suppl/10.1021/ci034243x/suppl_file/ci034243xsi20040112_053635.txt
Volumetric, viscometric and 1H NMR spectroscopic studies in (polyhydroxy solute + CTAB + H2O) ternary solutions:	https://www.doi.org/10.1016/j.jct.2017.04.001
NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C50704&Units=SI
Apparent molar volumes and apparent molar heat capacities of aqueous	https://www.doi.org/10.1016/j.jct.2006.08.009
Joback Method:	https://en.wikipedia.org/wiki/Joback_method
Enthalpies of Dilution of	https://www.doi.org/10.1021/je1007394
Aqueous Solubility Prediction Method:	http://onschallenge.wikispaces.com/file/view/AqueousDataset002.xlsx/351826032/AqueousDa
Extraction of caffeine using aqueous two-phase systems containing ionic	https://www.doi.org/10.1016/j.fluid.2019.112287
Vapor Pressures and Evaporation Studies of Sugars and Sugar Alcohols:	https://www.doi.org/10.1021/je800070y
Densities and Viscosities of Sugar Alcohols in Vitamin B6 Aqueous	https://www.doi.org/10.1021/acs.jced.5b00114
McGowan Method:	http://link.springer.com/article/10.1007/BF02311772
Properties of Sugar, Polyol, and Polysaccharide Water-Ethanol	https://www.doi.org/10.1021/je700190m
Viscosity and Density of the	https://www.doi.org/10.1021/je0503608
Evaluation of the vapor pressure of	https://www.doi.org/10.1016/j.fluid.2016.01.048
Gupta Method:	http://pubs.acs.org/doi/abs/10.1021/ci990307l
Solid-liquid phase equilibria in binary mixtures of functionalized ionic liquids	https://www.doi.org/10.1016/j.fluid.2015.06.002
Investigation on Temperature Dependent Volumetric and Acoustical Properties of	https://www.doi.org/10.1021/acs.jced.7b00501
Densities and Viscosities of Sugar	https://www.doi.org/10.1021/je9010486
Efficient separation of curcumin using	https://www.doi.org/10.1016/j.fluid.2019.06.015
Influence of NH4Br on Solvation Behavior of Polyhydroxy Solutes in	https://www.doi.org/10.1021/je500886a

Solubility of xylitol and sorbitol in ionic liquids - Experimental data and modelling.	https://www.doi.org/10.1016/j.jct.2012.05.020
Modulation in physico-chemical characteristics of some polyhydroxy solutes in presence of L-glycine: Volumetric and NMR spectroscopic approach.	https://www.doi.org/10.1016/j.fluid.2015.05.043
Osmotic properties of carbohydrate aqueous solutions: Densities and Viscosities of Polyhydroxy Solutes in Aqueous Tetraethylammonium Bromide Solutions at Different Temperatures: Volumetric and viscometric study of amino acids in aqueous sorbitol solution at different temperatures: Partitioning of diuron in a novel aqueous two-phase system based on polyols and tetrahydrofuran: Modulation of molecular interactions of homologous series of amino acids with (sorbitol + glycine betaine) mixture compared to individual osmolytes: Thermodynamic analysis:	https://www.doi.org/10.1016/j.fluid.2016.02.030 https://www.doi.org/10.1021/acs.jced.5b00940 https://www.doi.org/10.1016/j.jct.2015.10.002 https://www.doi.org/10.1016/j.fluid.2016.08.012 https://www.doi.org/10.1016/j.jct.2019.05.016
Density of Mixtures Containing Sugars and Ionic Liquids: Experimental Data and PC-SAFT Modeling	https://www.doi.org/10.1021/je500079y

Legend

chs:	Standard solid enthalpy of combustion
cpg:	Ideal gas heat capacity
cps:	Solid phase heat capacity
dvisc:	Dynamic viscosity
gf:	Standard Gibbs free energy of formation
hf:	Enthalpy of formation at standard conditions
hfs:	Solid phase enthalpy of formation at standard conditions
hfus:	Enthalpy of fusion at standard conditions
hfust:	Enthalpy of fusion at a given temperature
hsub:	Enthalpy of sublimation 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
sfust:	Entropy of fusion at a given temperature
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tf:	Normal melting (fusion) point
vc:	Critical Volume