d-Mannose

Other names:	Carubinose
	D-(+)-mannose (mixture of anomers)
	Mannose
	Mannose, d-
	Seminose
	d(+)-Mannose
Inchi:	InChI=1S/C6H12O6/c7-1-3(9)5(11)6(12)4(10)2-8/h1,3-6,8-12H,2H2/t3-,4-,5-,6-/m1/s1
InchiKey:	GZCGUPFRVQAUEE-KVTDHHQDSA-N
Formula:	C6H12O6
SMILES:	O=CC(O)C(O)C(O)C(O)CO
Mol. weight [g/mol]:	180.16
CAS:	3458-28-4

Physical Properties

Property code	Value	Unit	Source
chs	-2812.67 ± 0.93	kJ/mol	NIST Webbook
chs	-2813.00 ± 3.40	kJ/mol	NIST Webbook
gf	-793.74	kJ/mol	Joback Method
hf	-1035.02	kJ/mol	Joback Method
hfs	-1263.40 ± 1.20	kJ/mol	NIST Webbook
hfus	19.93	kJ/mol	Joback Method
hvap	117.51	kJ/mol	Joback Method
log10ws	1.62		Crippen Method
logp	-3.379		Crippen Method
mcvol	126.320	ml/mol	McGowan Method
pc	6631.37	kPa	Joback Method
tb	844.48	K	Joback Method
tc	1034.02	K	Joback Method
tf	443.48	K	Joback Method
vc	0.460	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source

cpg	390.04	J/mol×K	844.48	Joback Method
cpg	395.83	J/mol×K	876.07	Joback Method
cpg	401.25	J/mol×K	907.66	Joback Method
cpg	406.32	J/mol×K	939.25	Joback Method
cpg	411.06	J/mol×K	970.84	Joback Method
cpg	415.49	J/mol×K	1002.43	Joback Method
cpg	419.64	J/mol×K	1034.02	Joback Method
cps	214.20	J/mol×K	300.00	NIST Webbook
cps	200.70	J/mol×K	293.15	Temperature dependence of the heat capacities in the solid state of 18 mono-, di-, and poly-saccharides
cps	206.60	J/mol×K	298.15	Temperature dependence of the heat capacities in the solid state of 18 mono-, di-, and poly-saccharides
cps	215.00	J/mol×K	303.15	Temperature dependence of the heat capacities in the solid state of 18 mono-, di-, and poly-saccharides
cps	223.30	J/mol×K	308.15	Temperature dependence of the heat capacities in the solid state of 18 mono-, di-, and poly-saccharides
cps	228.20	J/mol×K	313.15	Temperature dependence of the heat capacities in the solid state of 18 mono-, di-, and poly-saccharides
cps	231.60	J/mol×K	318.15	Temperature dependence of the heat capacities in the solid state of 18 mono-, di-, and poly-saccharides
cps	234.50	J/mol×K	323.15	Temperature dependence of the heat capacities in the solid state of 18 mono-, di-, and poly-saccharides

cps	188.70	J/mol×K	288.15	Temperature dependence of the heat capacities in the solid state of 18 mono-, di-, and poly-saccharides
cps	242.10	J/mol×K	333.15	Temperature dependence of the heat capacities in the solid state of 18 mono-, di-, and poly-saccharides
cps	245.20	J/mol×K	338.15	Temperature dependence of the heat capacities in the solid state of 18 mono-, di-, and poly-saccharides
cps	249.00	J/mol×K	343.15	Temperature dependence of the heat capacities in the solid state of 18 mono-, di-, and poly-saccharides
cps	252.40	J/mol×K	348.15	Temperature dependence of the heat capacities in the solid state of 18 mono-, di-, and poly-saccharides
cps	254.10	J/mol×K	353.15	Temperature dependence of the heat capacities in the solid state of 18 mono-, di-, and poly-saccharides
cps	260.20	J/mol×K	358.15	Temperature dependence of the heat capacities in the solid state of 18 mono-, di-, and poly-saccharides
cps	216.00	J/mol×K	303.00	NIST Webbook
cps	236.50	J/mol×K	328.15	Temperature dependence of the heat capacities in the solid state of 18 mono-, di-, and poly-saccharides
dvisc	0.0017994	Pa×s	443.48	Joback Method
dvisc	0.0000991	Pa×s	510.31	Joback Method
dvisc	0.0000107	Pa×s	577.15	Joback Method
dvisc	0.0000018	Pa×s	643.98	Joback Method

dvisc	0.0000004	Pa×s	710.81	Joback Method
dvisc	0.0000001	Pa×s	777.65	Joback Method
dvisc	4.8974616e-08	Pa×s	844.48	Joback Method

Sources

Crippen Method:	https://www.chemeo.com/doc/models/crippen_log10ws
Studies on volumetric properties of some saccharides in aqueous potassium chloride solutions over temperature range (288.15 to 318.15) K:	https://www.doi.org/10.1016/j.jct.2008.11.009
Solubility of Xylose, Mannose, Maltose Monohydrate, and Trehalose Dihydrate in Ethanol-Water Solutions:	https://www.doi.org/10.1021/je300885g
Modulation in physicochemical 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
Physicochemical study of (solute + solute) and (solute + solvent) interactions of L-asparagine and L-glutamine in aqueous-D-mannose solutions at temperatures from (293.15 to 318.15) K:	https://www.doi.org/10.1016/j.jct.2015.11.014
McGowan Method:	http://link.springer.com/article/10.1007/BF02311772
Joback Method:	https://en.wikipedia.org/wiki/Joback_method
Influence of NH4Br on Solvation Behavior of Polyhydroxy Solutes in Aqueous Solutions at Different Temperatures and Atmospheric Pressure:	https://www.doi.org/10.1021/je500886a
Rheological and time-domain 1H NMR relaxation studies of some polyhydroxy solutes in presence of L-glycine:	https://www.doi.org/10.1016/j.jct.2016.04.006
Volumetric and Viscometric Studies on Saccharide-Disodium Tetraborate (Borax) Interactions in Aqueous Solutions:	https://www.doi.org/10.1021/je400264a
Viscometric studies on saccharides in aqueous magnesium chloride solutions at T = (288.15 to 318.15) K:	https://www.doi.org/10.1016/j.jct.2012.02.016
Infinite Dilution Binary Diffusion Coefficients for Six Sugars at 0.1 MPa and Temperatures from (273.2 to 353.2) K:	https://www.doi.org/10.1021/je0601816
Viscosities of Some Saccharides in Aqueous Solutions of Phosphate-Based Inorganic Salts:	https://www.doi.org/10.1021/acs.jced.5b00845
NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C3458284&Units=SI
Temperature dependence of the heat capacities in the solid state of 18 mono-, di-, and poly-saccharides:	https://www.doi.org/10.1016/j.jct.2008.08.007
Novel phase diagrams of aqueous two-phase systems based on tetrahydrofuran + carbohydrates + water: Equilibrium data and partitioning experiments:	https://www.doi.org/10.1016/j.fluid.2016.11.001
Salting-out effect of carbohydrates on the surface active ionic liquid 1-dodecyl-3-methylimidazolium bromide aqueous solutions:	https://www.doi.org/10.1016/j.jct.2017.08.027
Osmotic properties of carbohydrate aqueous solutions:	https://www.doi.org/10.1016/j.fluid.2016.02.030
Effect of sodium acetate on the volumetric behaviour of some mono-, di-, and tri-saccharides in aqueous solutions over temperature range (288.15 to 318.15) K:	https://www.doi.org/10.1016/j.jct.2009.07.015
Physicochemical study of solute-solute and solute-solvent interactions of glycine, L-alanine and L-valine in aqueous-D-mannose solutions at temperatures from 293.15 K to 328.15 K:	https://www.doi.org/10.1016/j.jct.2016.03.012
Studies on the interactions of Saccharides and Methyl Glycosides with Guanidine Hydrochloride in Aqueous Solutions at (288.15 to 318.15) K:	https://www.doi.org/10.1021/je5001523
Crippen Method:	http://pubs.acs.org/doi/abs/10.1021/ci990307l

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
hvap:	Enthalpy of vaporization at standard conditions
log10ws:	Log10 of Water solubility in mol/l
logp:	Octanol/Water partition coefficient
mcvol:	McGowan's characteristic volume
pc:	Critical Pressure
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tf:	Normal melting (fusion) point
vc:	Critical Volume