Galactose

Other names:	(+)-galactose
	D(+)-galactose
	D-(+)-galactose
	D-galactose
	Galactose, D-
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-/m0/s1
InchiKey:	GZCGUPFRVQAUEE-KCDKBNATSA-N
Formula:	C6H12O6
SMILES:	O=CC(O)C(O)C(O)C(O)CO
Mol. weight [g/mol]:	180.16
CAS:	26566-61-0

Physical Properties

Property code	Value	Unit	Source
hfus	19.93	kJ/mol	Joback Method
hvap	116.94	kJ/mol	Cheméo Relay (1.0)
log10ws	0.76		Cheméo Relay (1.0)
logp	-3.379		Crippen Method
mcvol	126.320	ml/mol	McGowan Method
tb	622.14	K	Cheméo Relay (1.0)
tf	390.56	K	Cheméo Relay (1.0)

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	390.04	J/mol×K	844.48	Joback Method
cpg	419.64	J/mol×K	1034.02	Joback Method
cpg	415.49	J/mol×K	1002.43	Joback Method
cpg	411.06	J/mol×K	970.84	Joback Method
cpg	406.32	J/mol×K	939.25	Joback Method
cpg	401.25	J/mol×K	907.66	Joback Method
cpg	395.83	J/mol×K	876.07	Joback Method

cps	235.60	J/mol×K	323.15	Temperature dependence of the heat capacities in the solid state of 18 mono-, di-, and poly-saccharides
cps	222.30	J/mol×K	308.15	Temperature dependence of the heat capacities in the solid state of 18 mono-, di-, and poly-saccharides
cps	242.80	J/mol×K	333.15	Temperature dependence of the heat capacities in the solid state of 18 mono-, di-, and poly-saccharides
cps	247.00	J/mol×K	338.15	Temperature dependence of the heat capacities in the solid state of 18 mono-, di-, and poly-saccharides
cps	251.20	J/mol×K	343.15	Temperature dependence of the heat capacities in the solid state of 18 mono-, di-, and poly-saccharides
cps	254.70	J/mol×K	348.15	Temperature dependence of the heat capacities in the solid state of 18 mono-, di-, and poly-saccharides
cps	257.50	J/mol×K	353.15	Temperature dependence of the heat capacities in the solid state of 18 mono-, di-, and poly-saccharides
cps	265.10	J/mol×K	358.15	Temperature dependence of the heat capacities in the solid state of 18 mono-, di-, and poly-saccharides
cps	203.30	J/mol×K	288.15	Temperature dependence of the heat capacities in the solid state of 18 mono-, di-, and poly-saccharides

cps	229.40	J/mol×K	318.15	Temperature dependence of the heat capacities in the solid state of 18 mono-, di-, and poly-saccharides
cps	227.10	J/mol×K	313.15	Temperature dependence of the heat capacities in the solid state of 18 mono-, di-, and poly-saccharides
cps	236.80	J/mol×K	328.15	Temperature dependence of the heat capacities in the solid state of 18 mono-, di-, and poly-saccharides
cps	217.50	J/mol×K	303.15	Temperature dependence of the heat capacities in the solid state of 18 mono-, di-, and poly-saccharides
cps	213.70	J/mol×K	298.15	Temperature dependence of the heat capacities in the solid state of 18 mono-, di-, and poly-saccharides
cps	210.70	J/mol×K	293.15	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

Volumetric and Viscometric Studies on Saccharide-Disodium Tetraborate (Borax) Interactions in Aqueous Solutions: https://www.doi.org/10.1021/je400264a

McGowan Method:	http://link.springer.com/article/10.1007/BF02311772
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
Investigations to explore interactions in (polyhydroxy solute + L-ascorbic acid + H2O) solutions at different temperatures: Calorimetric and viscometric approach:	https://www.doi.org/10.1016/j.jct.2016.07.020
Solubility of glucose, xylose, fructose and galactose in ionic liquids: Experimental and theoretical studies using a continuum solvation model:	https://www.doi.org/10.1016/j.fluid.2015.03.020
Chemeo Relay (1.0, beta):	
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
Viscosity of Multicomponent Solutions of Simple and Complex Sugars in Water:	https://www.doi.org/10.1021/je700062x
Conductivity in MnSO4-saccharide-water solutions at 298.15 K:	https://www.doi.org/10.1016/j.fluid.2013.05.006
Studies on the Interactions of Saccharides and Methyl Glycosides with Lithium Chloride in Aqueous Solutions at (288.15 to 308.15) K:	https://www.doi.org/10.1021/je5001523
Relative Permittivities for the Galactose + Glycine + Water Solution from (278.15 to 313.15) K:	https://www.doi.org/10.1021/je900333c
Volumetric and Viscosity Properties of Monosaccharides in Aqueous Amino Acid Solutions at 298.15 K:	https://www.doi.org/10.1021/je050412t
NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C26566610&Units=SI
Conductivities of 1-alkyl-3-methylimidazolium chloride ionic liquids in monosaccharide + water solutions at 298.15 K:	https://www.doi.org/10.1016/j.fluid.2011.11.028
Solubility of monosaccharides in ionic liquids - Experimental data and modeling:	https://www.doi.org/10.1016/j.fluid.2011.10.011
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
Densities and Viscosities of Polyhydroxy Solutes in Aqueous Tetraethylammonium Bromide Solutions at Different Temperatures:	https://www.doi.org/10.1021/acs.jced.5b00940
Joback Method:	https://en.wikipedia.org/wiki/Joback_method
Selective interactions of 18-crown-6 with d-glucose and d-galactose in aqueous solutions: Titration calorimetry, densimetry, viscosimetry:	https://www.doi.org/10.1016/j.tca.2005.05.002
Osmotic properties of carbohydrate aqueous solutions:	https://www.doi.org/10.1016/j.fluid.2016.02.030
Crippen Method:	http://pubs.acs.org/doi/abs/10.1021/ci990307l
Physicochemical Behavior of Some Amino Acids/Glycylglycine in Aqueous D-Galactose Solutions at Different Temperatures:	https://www.doi.org/10.1007/s10765-010-0742-8
Effect of fruit and milk sugars on solute-solvent interactions of diphenhydramine hydrochloride drug in aqueous solutions in viewpoint of volumetric and transport properties:	https://www.doi.org/10.1016/j.jct.2017.12.013
Measurement and Correlation of Liquid Liquid Equilibria for the Ternary Systems of Water + d-Fructose + 1-Butanol, Water + d-Glucose + 1-Butanol, and Water + (d-Galactose + 1-Butanol) at (288.2, 298.2, 308.2 and 318.2) K:	https://www.doi.org/10.1021/acs.jced.7b00302
Volumetric properties and volumetric interaction parameters for the [illegible] systems at T = 298.15 K:	https://www.doi.org/10.1016/j.jct.2004.04.010
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
Solubilities of Protocatechuic Aldehyde, Caffeic Acid, d-Galactose, and d-Raffinose Pentahydrate in Ethanol-Water Solutions:	https://www.doi.org/10.1021/je300323g
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
Chemeo Relay (1.0):	
Measurements and Correlation of Water Activity in Aqueous Solutions Containing Diphenhydramine Hydrochloride Drug, (D+)-Galactose, (D-)-Fructose, (D+)-Lactose, and Sucrose at 298.15 K:	https://www.doi.org/10.1021/acs.jced.9b00694
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
Thermochemical behavior of 18-crown-6 in aqueous solutions of some monosaccharides:	https://www.doi.org/10.1016/j.tca.2006.02.011
Crippen Method:	https://www.chemeo.com/doc/models/crippen_log10ws

Legend

cpg:	Ideal gas heat capacity
cps:	Solid phase heat capacity
dvisc:	Dynamic viscosity
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
tb:	Normal Boiling Point Temperature
tf:	Normal melting (fusion) point