d-Arabinose

Other names: D-(-)-arabinose
Inchi: InChI=1S/C5H10O5/c6-1-3(8)5(10)4(9)2-7/h1,3-5,7-10H,2H2/t3-,4-,5+/m1/s1
InchiKey: PYMYPHUHKUWMLA-WDCZJNDASA-N
Formula: C5H10O5
SMILES: O=CC(O)C(O)C(O)CO
Mol. weight [g/mol]: 150.13
CAS: 10323-20-3

Physical Properties

Property code	Value	Unit	Source
chs	-2336.20	kJ/mol	NIST Webbook
chs	-2338.80 ± 1.60	kJ/mol	NIST Webbook
gf	-662.90	kJ/mol	Joback Method
hf	-856.87	kJ/mol	Joback Method
hfs	-1057.90 ± 1.60	kJ/mol	NIST Webbook
hfus	16.78	kJ/mol	Joback Method
hvap	99.00	kJ/mol	Joback Method
log10ws	1.41		Crippen Method
logp	-2.740		Crippen Method
mcvol	106.360	ml/mol	McGowan Method
pc	6588.38	kPa	Joback Method
tb	729.86	K	Joback Method
tc	900.63	K	Joback Method
tf	386.39	K	Joback Method
vc	0.391	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	303.13	J/mol×K	729.86	Joback Method
cpg	308.60	J/mol×K	758.32	Joback Method
cpg	313.78	J/mol×K	786.78	Joback Method
cpg	318.67	J/mol×K	815.24	Joback Method
cpg	323.29	J/mol×K	843.71	Joback Method

cpg	327.65	J/mol×K	872.17	Joback Method
cpg	331.77	J/mol×K	900.63	Joback Method
dvisc	0.0157042	Pa×s	386.39	Joback Method
dvisc	0.0010983	Pa×s	443.64	Joback Method
dvisc	0.0001411	Pa×s	500.88	Joback Method
dvisc	0.0000276	Pa×s	558.12	Joback Method
dvisc	0.0000073	Pa×s	615.37	Joback Method
dvisc	0.0000024	Pa×s	672.62	Joback Method
dvisc	0.0000010	Pa×s	729.86	Joback Method

Sources

Crippen Method:	http://pubs.acs.org/doi/abs/10.1021/ci990307l
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
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
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
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
NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C10323203&Units=SI
Volumetric properties and volumetric interaction parameters for the CsCl–monosaccharide (D-galactose, D-xylose and D-arabinose)-water systems at T = 298.15 K:	https://www.doi.org/10.1016/j.jct.2004.04.010
Crippen Method:	https://www.chemeo.com/doc/models/crippen_log10ws
Densities and Viscosities of Polyhydroxy Solutes in Aqueous Tetraethylammonium Bromide Solutions at Different Temperatures:	https://www.doi.org/10.1021/acs.jced.5b00940
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
Joback Method:	https://en.wikipedia.org/wiki/Joback_method
Studies on the Interactions of Saccharides and Methyl Glycosides with Lithium Chloride in Aqueous Solutions at (288.15 to 318.15) K:	https://www.doi.org/10.1021/je5001523
Infinite Dilution Binary Diffusion Coefficients for Six Sugars at 0.1 MPa and Temperatures from (278.2 to 333.2) K:	https://www.doi.org/10.1021/je0601816
Volumetric 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

Legend

chs:	Standard solid enthalpy of combustion
cpg:	Ideal gas 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