L-Arabinose

Other names:	(+)-arabinose
	(3R,4S,5S)-tetrahydro-2H-pyran-2,3,4,5-tetraol
	Arabinose(L)
	L-(+)-Arabinose
	L-Arabinopyranose
Inchi:	InChI=1S/C5H10O5/c6-1-3(8)5(10)4(9)2-7/h1,3-5,7-10H,2H2/t3-,4-,5+/m0/s1
InchiKey:	PYMYPHUHKUWMLA-VAYJURFESA-N
Formula:	C5H10O5
SMILES:	O=CC(O)C(O)C(O)CO
Mol. weight [g/mol]:	150.13
CAS:	87-72-9

Physical Properties

Property code	Value	Unit	Source
gf	-662.90	kJ/mol	Joback Method
hf	-856.87	kJ/mol	Joback Method
hfus	16.78	kJ/mol	Joback Method
hvap	99.00	kJ/mol	Joback Method
log10ws	0.39		Estimated Solubility Method
log10ws	0.39		Aqueous Solubility Prediction 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
cps	184.00	J/mol×K	303.00	NIST Webbook
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

Joback Method: https://en.wikipedia.org/wiki/Joback_method

Aqueous Solubility Prediction Method: http://onschallenge.wikispaces.com/file/view/AqueousDataset002.xlsx/351826032/AqueousDa

McGowan Method: http://link.springer.com/article/10.1007/BF02311772

Physicochemical study of solute-solute and solute-solvent interactions of l-phenylalanine in (water + arabinose/glucose/sucrose) solutions at different temperatures: https://www.doi.org/10.1016/j.jct.2013.09.008

Salting-out effect of carbohydrates on the surface active ionic liquid 1-decyl-3-methylimidazolium bromide in aqueous solutions: https://www.doi.org/10.1016/j.jct.2017.08.027

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

Extractions of Alkaloids Codeine and Caffeine with [Bmim]BF4/Carbohydrate Aqueous Biphasic Systems as a Novel Class of Liquid-Liquid Extraction Systems: https://www.doi.org/10.1021/acs.jced.8b00678

Evaluation of the effect of ionic liquids as salting-out agents on the solubility of carbohydrates in aqueous solutions: https://www.doi.org/10.1016/j.fluid.2017.12.006

NIST Webbook: http://webbook.nist.gov/cgi/cbook.cgi?ID=C87729&Units=SI

A quasi-ternary wet residue method applied to solid-liquid equilibrium systems: https://www.doi.org/10.1016/j.fluid.2017.10.014

Probing solute solute and solute solvent interactions in (l-arginine + d-xylose/l-arabinose + water) solutions at different temperatures by using volumetric and viscometric methods: https://www.doi.org/10.1016/j.jct.2013.04.001

Osmotic properties of carbohydrate aqueous solutions: https://www.doi.org/10.1016/j.fluid.2016.02.030

Estimated Solubility Method: http://pubs.acs.org/doi/suppl/10.1021/ci034243x/suppl_file/ci034243xsi20040112_053635.txt

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: http://pubs.acs.org/doi/abs/10.1021/ci990307l

Legend

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
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