L-Lactic acid

Other names:	(+)-Lactic acid
	(S)-(+)-Lactic acid
	(S)-2-Hydroxypropionic acid
	(S)-2-hydroxypropanoic acid
	(S)-Lactic acid
	Espiritin
	L-(+)-Lactic acid
	L-2-hydroxypropanoic acid
	Lactic acid, L-
	PH 90
	PURAC
	Paralactic acid
	Propanoic acid, 2-hydroxy-, (2S)-
	Sarcolactic acid
	Tisulac
	propanoic acid, 2-hydroxy-, (S)-
Inchi:	InChI=1S/C3H6O3/c1-2(4)3(5)6/h2,4H,1H3,(H,5,6)/t2-/m1/s1
InchiKey:	JVTAAEKCZFNVCJ-UWTATZPHSA-N
Formula:	C3H6O3
SMILES:	CC(O)C(=O)O
Mol. weight [g/mol]:	90.08
CAS:	79-33-4

Physical Properties

Property code	Value	Unit	Source
chs	-1343.98 ± 0.46	kJ/mol	NIST Webbook
gf	-430.62	kJ/mol	Joback Method
hf	-527.57	kJ/mol	Joback Method
hfs	-694.08	kJ/mol	NIST Webbook
hfus	9.78	kJ/mol	Joback Method
hvap	61.99	kJ/mol	Joback Method
log10ws	0.45		Crippen Method
logp	-0.548		Crippen Method
mcvol	66.440	ml/mol	McGowan Method
pc	6389.77	kPa	Joback Method
ripol	2159.00		NIST Webbook
tb	505.83	K	Joback Method

tc	677.91	K	Joback Method
tf	280.14	K	Joback Method
vc	0.241	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	142.95	J/mol×K	505.83	Joback Method
cpg	165.34	J/mol×K	649.23	Joback Method
cpg	161.26	J/mol×K	620.55	Joback Method
cpg	156.99	J/mol×K	591.87	Joback Method
cpg	152.52	J/mol×K	563.19	Joback Method
cpg	147.84	J/mol×K	534.51	Joback Method
cpg	169.22	J/mol×K	677.91	Joback Method
dvisc	0.0001047	Pa×s	505.83	Joback Method
dvisc	0.0002078	Pa×s	468.22	Joback Method
dvisc	0.0004648	Pa×s	430.60	Joback Method
dvisc	0.0012133	Pa×s	392.99	Joback Method
dvisc	0.0038800	Pa×s	355.37	Joback Method
dvisc	0.0163392	Pa×s	317.75	Joback Method
dvisc	0.1012311	Pa×s	280.14	Joback Method

Pressure Dependent Properties

Property code	Value	Unit	Pressure [kPa]	Source
tbrp	392.20	K	1.60	NIST Webbook

Sources

NIST Webbook: http://webbook.nist.gov/cgi/cbook.cgi?ID=C79334&Units=SI

Crippen Method: https://www.chemeo.com/doc/models/crippen_log10ws

Influence of 1-alkyl-3-methylimidazolium based ionic liquids on the thermodynamic and transport properties of L(+) lactic acid in aqueous solutions of polyethylene glycol): https://www.doi.org/10.1016/j.fluid.2017.02.019

Effect of some imidazolium based ionic liquids on the electrical conductivity of Joback Method in aqueous solutions of glycol): https://www.doi.org/10.1016/j.fluid.2017.08.003

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

Liquid-Liquid Equilibria of Lactic Acid/Water Solutions in Tri-iso-octylamine/Dodecane/1-Dodecanol at 306.1, 310.1, and 316.1 K. Experimental Data and Prediction: https://www.doi.org/10.1021/acs.jced.8b00794

Surface Tension of Aqueous Solutions of Small-Chain Amino and Organic Acids:	https://www.doi.org/10.1021/acs.jced.9b00026
Crippen Method:	http://pubs.acs.org/doi/abs/10.1021/ci990307l
Low transition temperature mixtures (LTTMs) as novel entrainers in extractive distillation:	https://www.doi.org/10.1016/j.fluid.2014.10.044
Isopropanol dehydration via extractive distillation using low transition temperature mixtures as entrainers:	https://www.doi.org/10.1016/j.jct.2015.02.003
Influence of temperature, water content and type of organic acid on the formation, stability and properties of functional natural deep eutectic solvents:	https://www.doi.org/10.1016/j.fluid.2019.01.025
McGowan Method:	http://link.springer.com/article/10.1007/BF02311772

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
ripol:	Polar retention indices
tb:	Normal Boiling Point Temperature
tbrp:	Boiling point at reduced pressure
tc:	Critical Temperature
tf:	Normal melting (fusion) point
vc:	Critical Volume