

# D-malic acid

<b>Other names:</b>	(r)-Hydroxybutanedioic acid l-hydroxysuccinic acid l-malic acid
<b>Inchi:</b>	InChI=1S/C4H6O5/c5-2(4(8)9)1-3(6)7/h2,5H,1H2,(H,6,7)(H,8,9)/t2-/m0/s1
<b>InchiKey:</b>	BJEPYKJPYRNKOW-REOHCLBHSA-N
<b>Formula:</b>	C4H6O5
<b>SMILES:</b>	O=C(O)CC(O)C(=O)O
<b>Mol. weight [g/mol]:</b>	134.09
<b>CAS:</b>	636-61-3

## Physical Properties

Property code	Value	Unit	Source
chs	-1325.90 ± 0.59	kJ/mol	NIST Webbook
gf	-687.94	kJ/mol	Joback Method
hf	-813.02	kJ/mol	Joback Method
hfs	-1105.70 ± 0.63	kJ/mol	NIST Webbook
hfus	18.05	kJ/mol	Joback Method
hvap	87.64	kJ/mol	Joback Method
log10ws	0.93		Crippen Method
logp	-1.093		Crippen Method
mcvol	87.970	ml/mol	McGowan Method
pc	7037.97	kPa	Joback Method
tb	674.76	K	Joback Method
tc	849.14	K	Joback Method
tf	372.65	K	Measurement and correlation solubility and mixing properties of L-malic acid in pure and mixture organic solvents
vc	0.323	m <sup>3</sup> /kmol	Joback Method

## Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	246.21	J/mol×K	849.14	Joback Method

cpg	242.84	J/molxK	820.08	Joback Method
cpg	239.25	J/molxK	791.02	Joback Method
cpg	235.42	J/molxK	761.95	Joback Method
cpg	231.36	J/molxK	732.89	Joback Method
cpg	227.04	J/molxK	703.82	Joback Method
cpg	222.47	J/molxK	674.76	Joback Method
dvisc	0.0048344	Paxs	402.16	Joback Method
dvisc	0.0000080	Paxs	674.76	Joback Method
dvisc	0.0000158	Paxs	629.33	Joback Method
dvisc	0.0000348	Paxs	583.89	Joback Method
dvisc	0.0000874	Paxs	538.46	Joback Method
dvisc	0.0002602	Paxs	493.03	Joback Method
dvisc	0.0009670	Paxs	447.59	Joback Method
hfust	23.01	kJ/mol	376.00	NIST Webbook

## Sources

<b>NIST Webbook:</b>	<a href="http://webbook.nist.gov/cgi/cbook.cgi?ID=C636613&amp;Units=SI">http://webbook.nist.gov/cgi/cbook.cgi?ID=C636613&amp;Units=SI</a>
<b>Crippen Method:</b>	<a href="http://pubs.acs.org/doi/abs/10.1021/ci9903071">http://pubs.acs.org/doi/abs/10.1021/ci9903071</a>
<b>Crippen Method:</b>	<a href="https://www.chemeo.com/doc/models/crippen_log10ws">https://www.chemeo.com/doc/models/crippen_log10ws</a>
<b>Measurement and correlation solubility and mixing properties of L-malic acid in pure and binary organic solvents:</b>	<a href="https://www.doi.org/10.1016/j.fluid.2013.10.011">https://www.doi.org/10.1016/j.fluid.2013.10.011</a>
<b>Joback Method:</b>	<a href="https://en.wikipedia.org/wiki/Joback_method">https://en.wikipedia.org/wiki/Joback_method</a>
<b>McGowan Method:</b>	<a href="http://link.springer.com/article/10.1007/BF02311772">http://link.springer.com/article/10.1007/BF02311772</a>

## Legend

<b>chs:</b>	Standard solid enthalpy of combustion
<b>cpg:</b>	Ideal gas heat capacity
<b>dvisc:</b>	Dynamic viscosity
<b>gf:</b>	Standard Gibbs free energy of formation
<b>hf:</b>	Enthalpy of formation at standard conditions
<b>hfs:</b>	Solid phase enthalpy of formation at standard conditions
<b>hfus:</b>	Enthalpy of fusion at standard conditions
<b>hfust:</b>	Enthalpy of fusion at a given temperature
<b>hvap:</b>	Enthalpy of vaporization at standard conditions
<b>log10ws:</b>	Log10 of Water solubility in mol/l
<b>logp:</b>	Octanol/Water partition coefficient
<b>mcvol:</b>	McGowan's characteristic volume

<b>pc:</b>	Critical Pressure
<b>tb:</b>	Normal Boiling Point Temperature
<b>tc:</b>	Critical Temperature
<b>tf:</b>	Normal melting (fusion) point
<b>vc:</b>	Critical Volume

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