

Vitamin C

Other names:

(+)-Ascorbic acid
(R)-5-((R)-1,2-dihydroxyethyl)-3,4-dihydroxyfuran-2(5H)-one
(R)-5-((S)-1,2-dihydroxyethyl)-3,4-dihydroxyfuran-2(5H)-one
3-Keto-L-gulofuranolactone
3-Oxo-L-gulofuranolactone
Adenex
Allercorb
Antiscorbic vitamin
Antiscorbutic vitamin
Arco-Cee
Ascoltin
Ascor-B.I.D.
Ascorb
Ascorbajen
Ascorbate
Ascorbic Acid
Ascorbicab
Ascorbicap
Ascorbin
Ascorbutina
Ascorell
Ascorin
Ascorteal
Ascorvit
C-Level
C-Long
C-Quin
C-Span
C-Vimin
Cantan
Cantaxin
Catavin C
Ce lent
Ce-Mi-Lin
Ce-Vi-Sol
Cebicure
Cebid
Cebion
Cebione
Cecon

Cee-Caps TD
Cee-Vite
Cegiolan
Ceglion
Ceklin
Celaskon
Celin
Cemagyl
Cemill
Cenetone
Cenolate
Cereon
Cergona
Cescorbat
Cetamid
Cetane
Cetane-Caps TC
Cetane-Caps TD
Cetebe
Cetemican
Cevalin
Cevatine
Cevex
Cevi-Bid
Cevimin
Cevital
Cevitamic acid
Cevitamin
Cevitan
Cevitex
Cewin
Ciamin
Cinal
Cipca
Citrisorb
Colascor
Concemin
D-isoascorbic acid
Davitamon C
Dora-C-500
Duosorb
E 300
Hicee

Hybrin
IDO-C
Juvamine
Kyselina askorbova
L-(+)-Ascorbic Acid
L-3-Ketothreo-hexuronic acid lactone
L-Ascorbic acid
L-Lyxascorbic acid
L-Xyloascorbic acid
L-threo-Ascorbic acid
L-threo-Hex-2-enonic acid, «gamma»-lactone
L-threo-Hex-2-enonic acid, Â«gammaÂ»-lactone
Laroscobine
Lemasorb
Liqui-Cee
Meri-C
NCI-C54808
NSC 33832
Natrasorb
Planavit C
Proscorbin
Redoxon
Ribena
Roscorbic
Rovimix C
Scorbacid
Scorbu-C
Secorbate
Testascorbic
Vasc
Vicalat
Vicin
Vicomin C
Viforcit
Viscorin
Viscorin 100M
Vitace
Vitacee
Vitacimin
Vitacin
Vitamisin
Vitasorbol
Xitix

Xyloascorbic acid, L-

Inchi: InChI=1S/C6H8O6/c7-1-2(8)5-3(9)4(10)6(11)12-5/h2,5,7-10H,1H2
InchiKey: CIWBSHSKHKDKBQ-UHFFFAOYSA-N
Formula: C6H8O6
SMILES: O=C1OC(C(O)CO)C(O)=C1O
Mol. weight [g/mol]: 176.12
CAS: 50-81-7

Physical Properties

Property code	Value	Unit	Source
chs	-2344.10 ± 0.90	kJ/mol	NIST Webbook
chs	-2339.80 ± 0.96	kJ/mol	NIST Webbook
gf	-711.54	kJ/mol	Joback Method
hf	-955.75	kJ/mol	Joback Method
hfs	-1160.30 ± 0.90	kJ/mol	NIST Webbook
hfs	-1164.60 ± 1.00	kJ/mol	NIST Webbook
hfus	25.99	kJ/mol	Joback Method
hvap	105.91	kJ/mol	Joback Method
log10ws	0.28		Aqueous and cosolvent solubility data for drug-like organic compounds
log10ws	-0.81		Aqueous Solubility Prediction Method
logp	-1.407		Crippen Method
mvol	111.160	ml/mol	McGowan Method
pc	6875.52	kPa	Joback Method
tb	824.13	K	Joback Method
tc	1015.37	K	Joback Method
tf	463.95	K	DSC study and phase diagrams calculation of binary systems of paracetamol
tf	441.65	K	Aqueous Solubility Prediction Method
tf	461.00 ± 5.00	K	NIST Webbook
tf	464.00 ± 2.00	K	NIST Webbook
vc	0.397	m ³ /kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	341.41	J/molxK	824.13	Joback Method
cpg	347.39	J/molxK	856.00	Joback Method
cpg	352.92	J/molxK	887.88	Joback Method
cpg	357.99	J/molxK	919.75	Joback Method
cpg	362.59	J/molxK	951.63	Joback Method
cpg	366.71	J/molxK	983.50	Joback Method
cpg	370.36	J/molxK	1015.37	Joback Method

Sources

Solubility of Vitamin C in Water, Ethanol, Propan-1-ol, Water + Ethanol, and Water and Propan-1-ol at various temperatures in binary liquid mixtures: Experimental study on equilibrium and solubility of L-ascorbic acid at low partial pressures: density, viscosity and conformation of ascorbic acid and sodium ascorbate in aqueous solutions at temperatures of 270.15, 293.15, and 323.15 K in L-ascorbic Acid Aqueous Solutions at T = (293.15 to 323.15) K: DSC study and phase diagrams calculation of binary systems of parabenol-L-(+)-ascorbic acid in water, ethanol, methanol, propan-2-ol, acetone, and isopropanol: Volumetric and viscometric studies of binary systems in L-ascorbic acid: Measurements and correlation to the solid solubility of Antioxidants and Ascorbic Acid and Calcium L-Ascorbate Dihydrate in Supercritical Carbon Dioxide: Thermodynamic properties of ascorbic acid (vitamin C) and ascorbic acid hydrochloride (vitamin C HCl): Interactions in aqueous solutions: ascorbic acid + polyols: Ascorbic acid in the Colloidal and Supramolecular Systems of Anionic, Cationic and Zwitterionic Surfactants: Conductivity, Volumetric, Viscometric, and Fluorescence Study: Partial molar volumes and viscosity B-coefficients of arginine in aqueous solutions and its effect on the solubility of drugs like progesterone compounds: Volumetric and viscometric studies on L-ascorbic acid, nicotinic acid, and sodium hydrochloride in aqueous solutions: Aqueous Solubility Prediction Method hydrochloride in water at temperatures (288.15 to 318.15) K and at atmospheric pressure:

<https://www.doi.org/10.1021/je900687y>

<https://www.doi.org/10.1016/j.jct.2018.02.005>

<https://www.doi.org/10.1016/j.fluid.2011.02.017>

<https://www.doi.org/10.1016/j.jct.2013.08.016>

<https://www.doi.org/10.1021/je400395u>

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

<https://www.doi.org/10.1016/j.tca.2012.09.024>

<https://www.doi.org/10.1021/je800056h>

<https://www.doi.org/10.1016/j.jct.2013.11.002>

<https://www.doi.org/10.1021/je400369n>

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

<https://www.doi.org/10.1016/j.tca.2013.08.007>

<https://www.doi.org/10.1016/j.jct.2007.04.009>

<https://www.doi.org/10.1016/j.jct.2016.07.020>

<https://www.doi.org/10.1021/je400667c>

<http://link.springer.com/article/10.1007/BF02311772>

<http://webbook.nist.gov/cgi/cbook.cgi?ID=C50817&Units=SI>

<https://www.doi.org/10.1016/j.jct.2004.07.030>

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2751500/>

<https://www.doi.org/10.1016/j.tca.2012.10.017>

<http://onschallenge.wikispaces.com/file/view/AqueousDataset002.xlsx/351826032/AqueousDa>

Legend

- chs: Standard solid enthalpy of combustion
- cpg: Ideal gas heat capacity
- 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

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