

Glycine

Other names:	2-Aminoacetic acid Acetic acid, amino- Aciport Aminoacetic acid Aminoethanoic acid Amitone Athenon Glicoamin Gly Glycine, free base Glycine, non-medical Glycocoll Glycolixir Glycosthene Gyn-hydralin Hampshire glycine NH ₂ CH ₂ COOH NSC 25936 Padil
Inchi:	InChI=1S/C2H5NO2/c3-1-2(4)5/h1,3H2,(H,4,5)
InchiKey:	DHMQDGOQFOQNFH-UHFFFAOYSA-N
Formula:	C ₂ H ₅ NO ₂
SMILES:	NCC(=O)O
Mol. weight [g/mol]:	75.07
CAS:	56-40-6

Physical Properties

Property code	Value	Unit	Source
affp	886.30 ± 3.10	kJ/mol	NIST Webbook
affp	886.50	kJ/mol	NIST Webbook
affp	883.10 ± 1.90	kJ/mol	NIST Webbook
basg	851.10 ± 1.90	kJ/mol	NIST Webbook
basg	852.20	kJ/mol	NIST Webbook
basg	855.40 ± 3.60	kJ/mol	NIST Webbook
basg	856.00 ± 3.00	kJ/mol	NIST Webbook
ep	2.00 ± 6.00	J/mol×K	NIST Webbook
gf	-233.33	kJ/mol	Joback Method

hf	-390.50 ± 4.60		kJ/mol	NIST Webbook
hfs	-528.52 ± 0.42		kJ/mol	NIST Webbook
hfs	-537.20		kJ/mol	NIST Webbook
hfs	-528.61		kJ/mol	NIST Webbook
hfs	-527.50 ± 0.50		kJ/mol	NIST Webbook
hfus	11.82		kJ/mol	Joback Method
hsub	138.10 ± 4.60		kJ/mol	NIST Webbook
hsub	138.10 ± 4.60		kJ/mol	NIST Webbook
hvap	54.11		kJ/mol	Joback Method
ie	8.80		eV	NIST Webbook
ie	10.00		eV	NIST Webbook
ie	9.30		eV	NIST Webbook
ie	9.25 ± 0.10		eV	NIST Webbook
ie	8.90		eV	NIST Webbook
ie	9.21 ± 0.05		eV	NIST Webbook
log10ws	0.52			Aqueous Solubility Prediction Method
logp	-0.970			Crippen Method
mvol	56.460		ml/mol	McGowan Method
pc	6967.65		kPa	Joback Method
ss	109.20		J/mol×K	NIST Webbook
ss	103.51		J/mol×K	NIST Webbook
tb	463.74		K	Joback Method
tc	653.39		K	Joback Method
tf	530.49		K	Solubility of alpha-glycine in water with additives at a temperature range of (293.15 - 343.15) K: Experimental data and results of thermodynamic modeling
tf	527.85		K	Artificial neural networks as a supporting tool for compatibility study based on thermogravimetric data
vc	0.202		m ³ /kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	126.92	J/mol×K	558.56	Joback Method
cpg	122.78	J/mol×K	526.96	Joback Method
cpg	118.43	J/mol×K	495.35	Joback Method
cpg	113.87	J/mol×K	463.74	Joback Method

cpg	138.19	J/molxK	653.39	Joback Method
cpg	134.62	J/molxK	621.78	Joback Method
cpg	130.87	J/molxK	590.17	Joback Method
cps	95.00	J/molxK	298.00	NIST Webbook
cps	100.50	J/molxK	299.50	NIST Webbook
cps	99.20	J/molxK	298.15	NIST Webbook
cps	99.30	J/molxK	298.15	NIST Webbook
cps	95.10	J/molxK	298.00	NIST Webbook
hsubt	136.40 ± 4.00	kJ/mol	462.00	NIST Webbook
hsubt	136.00 ± 0.40	kJ/mol	455.00	NIST Webbook
hsubt	137.00 ± 2.00	kJ/mol	419.50	NIST Webbook
hsubt	131.00 ± 2.00	kJ/mol	414.50	NIST Webbook

Correlations

Information	Value
Property code	pvap
Equation	$\ln(P_{vp}) = A + B/T + C \cdot \ln(T) + D \cdot T^2$
Coeff. A	6.23648e+03
Coeff. B	-3.25024e+05
Coeff. C	-9.21946e+02
Coeff. D	5.92592e-04
Temperature range (K), min.	452.15
Temperature range (K), max.	470.15

Sources

Effects of clustering structure on volumetric properties of amino acids in aqueous solutions. <https://www.doi.org/10.1016/j.jct.2012.01.015>

Ammonium Chloride and Viscosity B-Coefficients of Some Amino Acids in Aqueous Solutions. <https://www.doi.org/10.1021/je7001418>

Aqueous Sorbitol and Viscosity of Amino Acids in Aqueous Sorbitol Solutions at Different Temperatures. <https://www.doi.org/10.1016/j.jct.2015.10.002>

Volumetric and Viscometric Studies of Amino Acids in Vitamin B6 Aqueous Solutions. <https://www.doi.org/10.1021/je500975a>

Volumetric Properties of Amino Acids in Aqueous Solutions of Ammonium Based Interactions. <https://www.doi.org/10.1016/j.fluid.2014.11.016>

Interactions of Amino Acids and Peptides with the Drug Pentoxifylline in Aqueous Solution at Various Temperatures. <https://www.doi.org/10.1016/j.jct.2012.05.009>

Volumetric and Viscometric Studies of Amino Acids in Mannitol Solutions. <https://www.doi.org/10.1021/je501178z>

Solubility Properties of Glycine and L-serine in Aqueous Solutions of Y-D-glucopyranoside. <https://www.doi.org/10.1016/j.jct.2016.07.046>

Y-D-glucopyranoside and Hydrogen L-serine, L-alanine and L-proline in aqueous solutions. <https://www.doi.org/10.1016/j.jct.2016.03.045>

Thermodynamic Properties of the Glycine-Alcohol-Water-H2O System: Heat Capacity in Aqueous Amino Acid Solutions, with and without KCl, at 298.15 K: <https://www.doi.org/10.1021/acs.jced.7b00549>

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Volumetric, ultrasonic, and viscometric behaviour of glycine, DL-alanine, and investigation of solute-solvent interactions of amino acids in aqueous and initial dilution binary Diffusion coefficients of several amino acids in water at different temperatures with reference to the Stokes-Einstein equation. Taylor, R. S., and 308.15) K: viscosities of Some Amino Acids with Aqueous Solutions of Potassium Iodide at Various Temperatures: Thermodynamic Properties of Aqueous Solutions of Glycine, L-Alanine, and L-Leucine in Aqueous Solutions of Amino Acid Solutions of Different Temperatures: Thermodynamic Properties of Aqueous Solutions of Glycine, L-Alanine, and L-Leucine in Aqueous Solutions of Potassium Iodide under the Influence of Aqueous Amino Acids from Water to Aqueous Solutions of KBr Metal Nitrates: https://www.doi.org/10.1016/j.jct.2008.09.008 https://www.doi.org/10.1016/j.jct.2015.08.009 https://www.doi.org/10.1021/je060149b https://www.doi.org/10.1021/je300455e https://www.doi.org/10.1021/acs.jced.5b00198 https://www.doi.org/10.1016/j.fluid.2013.03.030 https://www.doi.org/10.1016/j.jct.2016.03.040 https://www.doi.org/10.1021/je049927v https://www.doi.org/10.1021/je034168m https://www.doi.org/10.1016/j.jct.2013.11.002 https://www.doi.org/10.1016/j.jct.2015.07.038 https://www.doi.org/10.1021/acs.jced.8b00349 https://www.doi.org/10.1021/je050296u https://www.cheric.org/research/kdb/hcprop/showprop.php?cmpid=1459 https://www.doi.org/10.1016/j.fluid.2006.10.012 https://www.doi.org/10.1016/j.jct.2015.11.015 https://www.doi.org/10.1016/j.fluid.2013.09.013 https://www.doi.org/10.1016/j.jct.2006.11.014 https://www.doi.org/10.1016/j.jct.2014.10.014 https://www.doi.org/10.1021/je5007899 https://www.doi.org/10.1016/j.jct.2013.09.009 https://www.doi.org/10.1021/je100909b https://www.doi.org/10.1007/s10765-010-0742-8 https://www.doi.org/10.1021/je400415r https://www.doi.org/10.1021/acs.jced.7b00647 https://www.doi.org/10.1016/j.fluid.2017.05.019 https://www.doi.org/10.1016/j.jct.2012.04.020 https://www.doi.org/10.1016/j.jct.2010.08.021 https://www.doi.org/10.1021/je500647a https://www.doi.org/10.1021/je5003797 https://www.doi.org/10.1016/j.jct.2011.09.017 https://www.doi.org/10.1021/je900882r https://www.doi.org/10.1016/j.jct.2013.01.023 https://www.doi.org/10.1021/acs.jced.8b00236 https://www.doi.org/10.1016/j.jct.2004.07.006 https://www.doi.org/10.1021/acs.jced.6b00766 https://www.doi.org/10.1016/j.jct.2003.11.001 https://www.doi.org/10.1016/j.jct.2005.04.011 https://www.doi.org/10.1021/acs.jced.8b00644 https://en.wikipedia.org/wiki/Joback_method https://www.doi.org/10.1021/je1003466 https://www.doi.org/10.1016/j.jct.2017.02.024 https://www.doi.org/10.1016/j.jct.2017.08.010

Effect of NaBr, KCl, KBr, and MgCl₂ on Viscosities of Aqueous Glycine and Alanine Solutions
Standard Solvation Behavior of Some Biologically Active Compounds in Aqueous Solution
Interaction of an Anticancer Drug, ampicillin with glycine and its derivatives analyzed by a thermodynamic and group contribution relations with Arrhenius Solubility Prediction Method: temperatures.

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Ammonium based ionic liquids act as compatible solvents for glycine
Solubility effect in polypropylene glycol-amino acid aqueous solutions revealed by vapor pressure

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solute-solvent interactions of Raffinose in aqueous solutions of D-serine, D-threonine, L-histidine, glycine and L-cysteine at different NaCl and NaNO₃ concentrations at temperatures ranging from 298.15 K to 318.15 K: a density of solubility tool for compatibility study

Viscosities of Glycine, Alanine, and L-Valine in (0.2, 0.4, 0.6, and 0.8) mol*kg⁻¹ Volumetric Properties of Some Amino Acids in Aqueous Solutions

Effect of Cyclohexanone on the Solubility of Amino Acids in Water at Different Temperatures

Physicochemical study of some amino acids and cyclohexanone in aqueous solution at 298.15 K

¹H NMR relaxation studies of some polyhydroxy alcohols in aqueous solutions with additives at a temperature range of 298.15 K to 318.15 K

Densities and Speeds of Sound Data for Aqueous Solutions of Glycine, Alanine, and L-Valine at 298.15 K

Thermodynamic Properties of N-methyl-2-pyrrolidone and N-methyl-2-pyrrolidone in Aqueous Solutions at Different Temperatures

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Thermodynamic Properties of N-methyl-2-pyrrolidone and N-methyl-2-pyrrolidone in Aqueous Solutions at Different Temperatures

Legend

affp:	Proton affinity
basg:	Gas basicity
cpg:	Ideal gas heat capacity
cps:	Solid phase heat capacity
ep:	Protonation entropy at 298K
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
hsub:	Enthalpy of sublimation at standard conditions
hsubt:	Enthalpy of sublimation at a given temperature
hvap:	Enthalpy of vaporization at standard conditions
ie:	Ionization energy
log10ws:	Log10 of Water solubility in mol/l
logp:	Octanol/Water partition coefficient
mcvol:	McGowan's characteristic volume
pc:	Critical Pressure
pvap:	Vapor pressure
ss:	Solid phase molar entropy at standard conditions
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tf:	Normal melting (fusion) point
vc:	Critical Volume

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