

Glycine

Other names:	2-Aminoacetic acid Acetic acid, amino- Aciport Aminoacetic acid Aminoethanoic acid Amitone Athenon Glicoamin Gly Glycine, free base Glycine, non-medical Glycocol 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:	C2H5NO2
SMILES:	NCC(=O)O
Mol. weight [g/mol]:	75.07
CAS:	56-40-6

Physical Properties

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

hf	-390.50 ± 4.60	kJ/mol	NIST Webbook
hfs	-528.61	kJ/mol	NIST Webbook
hfs	-537.20	kJ/mol	NIST Webbook
hfs	-528.52 ± 0.42	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	10.00	eV	NIST Webbook
ie	9.25 ± 0.10	eV	NIST Webbook
ie	9.30	eV	NIST Webbook
ie	9.21 ± 0.05	eV	NIST Webbook
ie	8.80	eV	NIST Webbook
ie	8.90	eV	NIST Webbook
log10ws	0.52		Aqueous Solubility Prediction Method
logp	-0.970		Crippen Method
mcvol	56.460	ml/mol	McGowan Method
pc	6967.65	kPa	Joback Method
ss	109.20	J/molxK	NIST Webbook
ss	103.51	J/molxK	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	m3/kmol	Joback Method

Temperature Dependent Properties

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

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

Correlations

Information	Value
Property code	pvap
Equation	$\ln(P_{vp}) = A + B/T + C*\ln(T) + D*T^2$
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

Solvation behavior of some amino acids in aqueous solutions of

Forster et al. dilution of glycine

Salminen and Lehto. Diffusion

kinetics of glycine and alanine in

aqueous solutions of NaCl and NaSCN at 25 °C and 0.1, 0.2, 0.4, 0.6, and 0.8 mol kg⁻¹

Aqueous Dipotassium Hydrogen phosphate-water solvent mixtures: experimental data and thermodynamic

Solvent-Solvent Interactions of Some

Amino Acids in Aqueous Solution

Investigation of the aggregation and

mutual association of NAC and NaDC

Measurement of aqueous biphasic

systems composed of mixtures of

amino acids with some ionic lipids by

gas-liquid chromatography and studies of

aqueous biphasic systems

Solubility Prediction Method:

<https://www.doi.org/10.1016/j.jct.2016.03.016>

<https://www.doi.org/10.1016/j.tca.2004.05.021>

<https://www.doi.org/10.1021/jc300673m>

<https://www.doi.org/10.1016/j.fluid.2013.09.013>

<https://www.doi.org/10.1021/acs.jced.7b00647>

<https://www.doi.org/10.1016/j.fluid.2015.03.012>

<https://www.doi.org/10.1021/jc0601053>

<https://www.doi.org/10.1016/j.jct.2013.09.009>

<https://www.doi.org/10.1021/jc100909b>

<https://www.doi.org/10.1016/j.fluid.2007.04.004>

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

Volumetric, compressibility and viscometric studies on sodium
Effect of some hydrophilic cationic amino
volumetric and viscometric properties of
amino acids in aqueous solutions as set
of anionic acids in liquid ([H₂Im]⁺)Br)
+ H₂O mixtures at 298.15 K:
solite-solvent interactions;
Density, sound speed and
Viscosity of Some Amino Acids with
N-methyl-2-pyrrolidone in water at different
temperatures and pressures:
Properties of the Solutions of Several
Carboxylic Acid-Based Ionic Amino Acids
in Water at Different Temperatures Range
from 273.15 to 303.15 K
Owing to its low molecular weight, hydrogen
phosphate on thermodynamic
properties of volumes and L-alanine in
aqueous solution in water, histidine,
serine, threonine, proline and glycine in water.
N-Alanine and L-alanine in formamide at
water-alcohol mixtures at 298.15 K drug
ampicillin with glycine and its
Derivatives Partially by Volumes and Heat
Capacities of Glycine-L-Alanine,
Histidine-Glutamic acid and Magnesium
provides with the data on proline in
polypropylene and polyethylene
glycerol mixtures and aqueous solutions:
Reversible vapor pressure of Amino Acids
from Water to Aqueous Solutions of
Alkali Metal Nitrates:
.alpha.-amino acids and glycol
Uptakes of proline and glutamine phen
alanine, L-alanine and proline analyzed
by ultraviolet and UV-vis spectroscopy
Amino piperazinium
tetrafluoroborate interactions of glycine,
L-alanine, and L-valine in aqueous
Study of the interactions of ionic
R-AMAN-NH₂-Glu and His with urea
aqueous and organic solvents of
glycine, alanine and
DL-amino acids in aqueous
Compressibilities and viscosities of
298.15 to 303.15 K in water and amino
Acids in Salted Organic and Aqueous
Effect of N-methyl-2-pyrrolidone on
steroid-ionic Liquid on the
Volumetric Behavior of Some Amino
with trialkyl ammonium bromides
Proteins in the mixtures of glycine,
Leu-Ala and L-valine in aqueous
Molecular dynamics of some amino
acids in aqueous solutions in the
temperature interval from 268.15 to 308.15 K:
solution at different temperatures; oxy
phenetic approach to sequences of
alpha-amino acids in aqueous
high-pressure studies by
physicochemical approach:
Volumetric Properties of Amino Acids
in Aqueous N-Methylformamide
Volumetric, refractive index and viscometric
behaviour of glycine, DL-alanine, and
Solubility of alpha-glycine in water with
additions at a temperature range of:
290.15–343.15 K Experimental data
and equations of state for amino acid
mixtures: Ultrasonic and viscometric
approaches and cyclohexanone in
aqueous chemical behavior of Some
Amino Acids/Glycylglycine in Aqueous
Solutions at Different Temperatures and Pressures
Permeabilities of Some Amino Acids in
Aqueous Tetramethylammonium Iodide
Solutions at 293.15 K, L-alanine and
Interactions of alpha-carbohydrates in Aqueous
Glycine-Histidine Solutions
Effect of Temperature on Viscosity of
the Amino Acid-Histidine Sodium salt in
aqueous media and other
separation tool for compatibility study
based on thermodynamic data:
containing model compounds of amino
acids and ionic salts at T = 298.15 K:

<https://www.doi.org/10.1016/j.tca.2015.02.014>
<https://www.doi.org/10.1016/j.jct.2011.12.020>
<https://www.doi.org/10.1016/j.fluid.2010.04.002>
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<https://www.doi.org/10.1016/j.jct.2006.08.010>
<https://www.doi.org/10.1016/j.tca.2014.06.028>
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<https://www.doi.org/10.1016/j.jct.2017.08.010>

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<https://www.cheric.org/research/kdb/hcprop/showprop.php?cmpid=1459>

<https://www.doi.org/10.1016/j.tca.2009.02.017>

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<https://www.doi.org/10.1016/j.ijct.2010.08.004>

<https://www.doi.org/10.1021/acs.jced.8b00644>

<https://www.doi.org/10.1021/je500324a>

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<https://www.doi.org/10.1016/j.ijct.2017.02.024>

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<https://www.doi.org/10.1016/j.ijct.2016.07.047>

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<https://www.doi.org/10.1016/j.ijct.2018.03.014>

<https://www.doi.org/10.1016/j.ijct.2013.01.023>

<https://www.doi.org/10.1016/j.tca.2016.05.013>

<https://www.doi.org/10.1016/j.fluid.2014.11.016>

<https://www.doi.org/10.1021/acs.iced.6b00766>

<https://www.doi.org/10.1021/ie050048y>

<https://www.doi.org/10.1016/j.ijct.2016.06.026>

<https://www.doi.org/10.1021/acs.iced.9b00295>

<https://www.doi.org/10.1016/j.ijct.2013.11.003>

<https://www.doi.org/10.1016/j.ijct.2014.10.014>

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<https://www.doi.org/10.1021/jc400415r>

<https://www.doi.org/10.1016/j.ijct.2013.08.018>

Crippen Method:

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

Thermophysical Properties of
Dicationic Ionic Liquids under the
Influence of Amino Acid:

<https://www.doi.org/10.1021/acs.jced.8b00349>

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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