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
	NH2CH2COOH
	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	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
basg	852.20	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	-527.50 ± 0.50	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
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	9.30	eV	NIST Webbook
ie	9.21 ± 0.05	eV	NIST Webbook
ie	8.80	eV	NIST Webbook
ie	10.00	eV	NIST Webbook
ie	8.90	eV	NIST Webbook
ie	9.25 ± 0.10	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	103.51	J/mol×K	NIST Webbook
ss	109.20	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	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	126.92	J/mol×K	558.56	Joback Method
cpg	138.19	J/mol×K	653.39	Joback Method
cpg	134.62	J/mol×K	621.78	Joback Method
cpg	130.87	J/mol×K	590.17	Joback Method

cpg	113.87	J/mol×K	463.74	Joback Method
cpg	118.43	J/mol×K	495.35	Joback Method
cpg	122.78	J/mol×K	526.96	Joback Method
cps	100.50	J/mol×K	299.50	NIST Webbook
cps	95.10	J/mol×K	298.00	NIST Webbook
cps	99.30	J/mol×K	298.15	NIST Webbook
cps	99.20	J/mol×K	298.15	NIST Webbook
cps	95.00	J/mol×K	298.00	NIST Webbook
hsubt	131.00 ± 2.00	kJ/mol	414.50	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

Correlations

Information	Value
Property code	pvap
Equation	ln(Pvp) = 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

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Volumetric and viscosity properties of glycine in ionic liquid + water solutions at 298.15	https://www.doi.org/10.1016/j.jct.2018.09.036
Aqueous Solubility Prediction Method:	http://onschallenge.wikispaces.com/file/view/AqueousDataset002.xlsx/351826032/AqueousDa
Vapor Pressure Osmometry, Volumetry, and Compressibility Properties for Solutions of Several Imidazolium Based Ionic Liquids in (Glycine + Water) Solutions,	https://www.doi.org/10.1021/acs.jced.7b00297
Study of Interactions between Amino Acids and Zinc Chloride in Aqueous Solutions ... Measurements at T) (288.15 to 318.15)	https://www.doi.org/10.1021/je8001464
Densities and viscosities of amino acid + xylitol + water solutions at 293.15 K less than T/K greater than 323.15:	https://www.doi.org/10.1021/acs.jced.6b00766
Effect of dipotassium hydrogen phosphate on thermodynamic properties of glycine and L-alanine in aqueous solutions at different temperatures:	https://www.doi.org/10.1016/j.jct.2012.04.020
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Interaction of some hydrophobic amino acids, peptides, and protein with aqueous 3-chloro-1-propanol: Biophysical studies.	https://www.doi.org/10.1016/j.jct.2010.11.015
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Investigation on solute-solvent interactions of glycine, L-alanine and L-valine in aqueous tetraethylammonium iodide solutions at different temperatures with reference to volumetric and acoustic measurements.	https://www.doi.org/10.1016/j.jct.2015.08.009
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Viscometric study of glycine, L-alanine, glycylglycine in aqueous tetra-n-alkylammonium bromide solutions at 298.15 K:	https://www.doi.org/10.1016/j.jct.2004.07.006
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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