L-Glutamine

Other names:	(S)-2,5-Diamino-5-oxopentanoic acid .gamma.-glutamine 2-Aminoglutaramic acid Cebrogen Glumin Glumin (amino acid) Glutamic acid 5-amide Glutamic acid amide Glutamine L-(+)-glutamine L-2-Aminoglutaramidic acid L-Glutamic acid «gamma»-amide L-Glutamic acid Â«gammaÂ»-amide L-Glutamid L-Glutamide L-glutamic acid .gamma.-amide Levoglutamid Levoglutamide Miglu-P NSC 27421 Pentanoic acid, 2,5-diamino-5-oxo-, (S)- Saforis Stimulina glutamine, L- «gamma»-Glutamine Â«gammaÂ»-Glutamine
Inchi:	InChI=1S/C5H10N2O3/c6-3(5(9)10)1-2-4(7)8/h3H,1-2,6H2,(H2,7,8)(H,9,10)/t3-/m1/s1
InchiKey:	ZDXPYRJPNDTMRX-GSVOUGTGSA-N
Formula:	C5H10N2O3
SMILES:	NC(=O)CCC(N)C(=O)O
Mol. weight [g/mol]:	146.14
CAS:	56-85-9

Physical Properties

Property code	Value	Unit	Source
affp	937.80	kJ/mol	NIST Webbook

basg	900.00	kJ/mol	NIST Webbook
chs	-2570.30 ± 0.63	kJ/mol	NIST Webbook
gf	-272.98	kJ/mol	Joback Method
hf	-461.62	kJ/mol	Joback Method
hfus	29.00	kJ/mol	THE STANDARD ENTHALPIES OF FORMATION OF L-ASPARAGINE AND L-a-GLUTAMINE
hvap	77.79	kJ/mol	Joback Method
log10ws	-0.55		Aqueous Solubility Prediction Method
logp	-1.336		Crippen Method
mcvol	110.280	ml/mol	McGowan Method
pc	5422.51	kPa	Joback Method
ss	195.06	J/mol×K	NIST Webbook
tb	658.34	K	Joback Method
tc	861.60	K	Joback Method
tf	458.31	K	Joback Method
vc	0.399	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	289.78	J/mol×K	658.34	Joback Method
cpg	297.34	J/mol×K	692.22	Joback Method
cpg	304.44	J/mol×K	726.09	Joback Method
cpg	311.09	J/mol×K	759.97	Joback Method
cpg	317.30	J/mol×K	793.85	Joback Method
cpg	323.09	J/mol×K	827.72	Joback Method
cpg	328.46	J/mol×K	861.60	Joback Method
cps	184.18	J/mol×K	298.15	NIST Webbook

Sources

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Crippen Method:	http://pubs.acs.org/doi/abs/10.1021/ci990307l
Intermolecular/interionic interactions in L-isoleucine, L-proline, and L-glutamine in mixed solvents of ethanol + water (solute + solute) and (solute + solvent)	https://www.doi.org/10.1016/j.jct.2006.03.009
Solubility measurements and apparent molar volumes of L-asparagine and L-glutamine in aqueous solutions at 298.15 K	https://www.doi.org/10.1016/j.tca.2013.02.007
Volumetric and acoustic interactions of L-asparagine and L-glutamine in aqueous-D-mannose solutions at temperatures from (293.15 to 318.15) K:	https://www.doi.org/10.1016/j.jct.2015.11.014

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Solubility of Proteinogenic Amino Acids in Aqueous Ethanol and Ethanol+Water Mixtures at 293.2, 303.2, and 313.2 K:	https://www.doi.org/10.1021/acs.jced.7b00486
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Volumetric and viscometric behaviour of amino acids in aqueous metal electrolytes solutions at 308K:	https://www.doi.org/10.1016/j.fluid.2007.01.043
Transfer Partial Molar Volumes of L-Alanine/L-Glutamine/Glycylglycine from Water to 0.512 mol/kg Aqueous KNO3/K2SO4 Solutions at (298.15 to 328.15) K:	https://www.doi.org/10.1021/je300083m
THE STANDARD ENTHALPIES OF FORMATION OF L-ASPARAGINE AND L-GLUTAMINE:	https://www.doi.org/10.1016/j.tca.2009.08.017
McGowan Method:	http://link.springer.com/article/10.1007/BF02311772
Modeling solubility and acid-base properties of some polar side chain amino acids in NaCl and (CH3)4NCl aqueous solutions at different ionic strengths and temperatures:	https://www.doi.org/10.1016/j.fluid.2017.11.030

Legend

affp:	Proton affinity
basg:	Gas basicity
chs:	Standard solid enthalpy of combustion
cpg:	Ideal gas heat capacity
cps:	Solid phase heat capacity
gf:	Standard Gibbs free energy of formation
hf:	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
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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