L-Tryptophan

Other names:
(+)-tryptophan
(-)-Tryptophan
(R)-.alpha.-amino-3-indolepropionic acid
(R)-tryptophan
(S)-Tryptophan
(S)-«alpha»-Amino-1H-indole-3-propanoic acid
1H-Indole-3-alanine
1H-Indole-3-alanine, (S)-
1H-Indole-3-propanoic acid, «alpha»-amino-, (S)-
2-Amino-3-indolylpropanoic acid
3-Indol-3-ylalanine
ALPHA-AMINOINDOLE-3-PROPIONIC ACID
Alanine, 3-indol-3-yl-
D-tryptophan
EH 121
Indole-3-alanine
Indole-3-propionic acid, «alpha»-amino-
L-(-)-Tryptophan
L-.alpha.-amino-3-indolepropionic acid
L-2-amino-3-indolepropanoic acid
L-Alanine, 3-(1H-indol-3-yl)-
L-Trp
L-Tryptofan
L-Tryptophane
L-«alpha»-amino-3-indolepropionic acid
L-«alpha»-aminoindole-3-propionic acid
L-«beta»-3-indolylalanine
NCI-C01729
NSC 13119
Pacitron
Propionic acid, 2-amino-3-indol-3-yl-
Trp
Tryptophan
Tryptophan, L-
Tryptophane
propanoic acid, 2-amino-3-indole-, L-
«alpha»'-Amino-3-indolepropionic acid
«alpha»-Aminoindole-3-propionic acid

Inchi: InChI=1S/C11H12N2O2/c12-9(11(14)15)5-7-6-13-10-4-2-1-3-8(7)10/h1-4,6,9,13H,5,12H

InchiKey: QIVBCDIJIAJPQS-SECBINFHSA-N

Formula: C11H12N2O2
SMILES: NC(Cc1c[nH]c2ccccc12)C(=O)O
Mol. weight [g/mol]: 204.23
CAS: 73-22-3

Physical Properties

Property code	Value	Unit	Source
affp	948.90	kJ/mol	NIST Webbook
affp	927.20	kJ/mol	NIST Webbook
affp	945.60	kJ/mol	NIST Webbook
basg	915.00	kJ/mol	NIST Webbook
chs	-5628.32 ± 0.84	kJ/mol	NIST Webbook
log10ws	-2.36		Crippen Method
logp	0.640		Crippen Method
mcvol	154.330	ml/mol	McGowan Method
ss	251.04	J/mol×K	NIST Webbook

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cps	238.15	J/mol×K	298.15	NIST Webbook
hvapt	184.40	kJ/mol	450.15	Enthalpy of sublimation of natural aromatic amino acids determined by Knudsen's effusion mass spectrometric method
rhos	1080.00	kg/m3	298.15	Thermodynamic properties of L-tryptophan

Sources

Viscosities of L-Histidine/L-Glutamic Acid/L-Tryptophan/Glycylglycine+2 M Aqueous KCl/KNO3 Solutions at T =(298.15 to 323.15)K: https://www.doi.org/10.1007/s10765-011-0996-9

Crippen Method:	http://pubs.acs.org/doi/abs/10.1021/ci990307l
NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C73223&Units=SI
Saturated Solubility and Thermodynamic Evaluation of l-Tryptophan in Eight Pure Solvents and Three Groups of Binary Mixed Solvents by the Gravimetric Method at T = 278.15-333.15 K:	https://www.doi.org/10.1021/acs.jced.9b00562
McGowan Method:	http://link.springer.com/article/10.1007/BF02311772
KDB:	https://www.cheric.org/research/kdb/hcprop/showprop.php?cmpid=1490
Enthalpy of sublimation of natural aromatic amino acids determined by Knudsen's effusion mass spectrometric method:	https://www.doi.org/10.1016/j.jct.2014.02.003
Thermodynamic properties of L-tryptophan:	https://www.doi.org/10.1016/j.jct.2016.09.041
Ultrasonic Velocities and Densities of l-Histidine or l-Glutamic Acid or l-Tryptophan or Glycylglycine + 2 mol*L-1 Aqueous KCl or KNO3 Solutions from (298.15 to 323.15) K:	https://www.doi.org/10.1021/je900199j
Crippen Method:	https://www.chemeo.com/doc/models/crippen_log10ws
Solubility of d-Tryptophan and l-Tyrosine in Several Organic Solvents: Determination and Solvent Effect:	https://www.doi.org/10.1021/acs.jced.9b00258
Experimental solubility evaluation and thermodynamic analysis of biologically active D-tryptophan in aqueous mixtures of N,N-dimethylformamide and several alcohols:	https://www.doi.org/10.1016/j.jct.2018.08.018
Solubility of the Proteinogenic α-Amino Acids in Water, Ethanol, and Ethanol–Water Mixtures:	https://www.doi.org/10.1021/acs.jced.7b00486
Determination of the crystallization thermodynamics and kinetics of L-tryptophan in alcohols + water binary solvent mixtures:	https://www.doi.org/10.1016/j.fluid.2011.09.028
Temperature of Maximum Density for Binary Aqueous Solutions of Five Amino Acids:	https://www.doi.org/10.1021/acs.jced.9b00752
Study of the interactions of PAMAM-NH2 G4 dendrimer with selected natural amino acids in aqueous solutions:	https://www.doi.org/10.1016/j.jct.2013.10.022

Legend

affp:	Proton affinity
basg:	Gas basicity
chs:	Standard solid enthalpy of combustion
cps:	Solid phase heat capacity
hvapt:	Enthalpy of vaporization at a given temperature
log10ws:	Log10 of Water solubility in mol/l
logp:	Octanol/Water partition coefficient
mcvol:	McGowan's characteristic volume
rhos:	Solid Density
ss:	Solid phase molar entropy at standard conditions