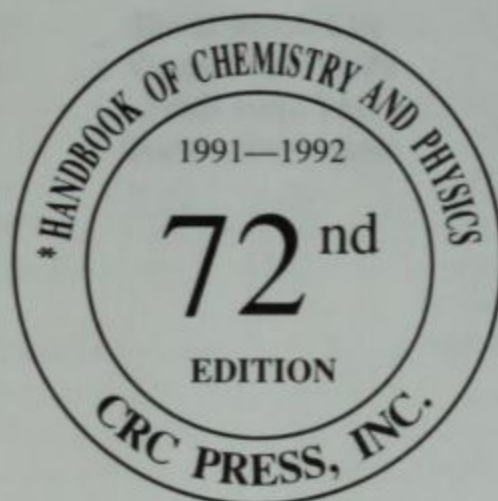


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PreOmics GmbH and Biognosys AG v. The Brigham and Women's Hospital, Inc.
IPR2024-01473

CRC Handbook of Chemistry and Physics

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Editor-in-Chief

David R. Lide, Ph.D.



CRC Press

Boca Raton Ann Arbor Boston

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Library of Congress Card No. 13-11056

PRINTED IN U.S.A.

ISBN-0-8493-0472-5

PROPERTIES OF COMMON AMINO ACIDS

This table gives selected properties of 20 α -amino acids commonly found in proteins. The structures of these amino acids are given in a separate table. The compounds are listed in alphabetical order by the three-letter symbols. Dissociation constants refer to aqueous solutions at 25° C.

M_r — Molecular weight

T_m — Melting point

pK_a — Negative of the logarithm of the dissociation constant for the α -COOH group

pK_b — Negative of the logarithm of the dissociation constant for the α -NH₃⁺ group

pK_s — Negative of the logarithm of the dissociation constant for any other group present in the molecule

pI — pH at the isoelectronic point

S — Solubility in water at 25° C in units of grams per kilogram of water

Symbol	Name	Mol. form.	M_r	$T_m/^\circ\text{C}$	pK_a	pK_b	pK_s	pI	S
Ala	Alanine	$\text{C}_3\text{H}_7\text{NO}_2$	89.09	297	2.34	9.69		6.00	167
Arg	Arginine	$\text{C}_6\text{H}_{14}\text{N}_4\text{O}_2$	174.20	238	2.17	9.04	12.48	10.76	181
Asn	Asparagine	$\text{C}_4\text{H}_8\text{N}_2\text{O}_3$	132.12	236	2.02	8.80		5.41	25
Asp	Aspartic acid	$\text{C}_4\text{H}_7\text{NO}_4$	133.10	270	1.88	9.60	3.65	2.77	5
Cys	Cysteine	$\text{C}_3\text{H}_7\text{NO}_2\text{S}$	121.15	178	1.96	10.28	8.18	5.07	
Gln	Glutamine	$\text{C}_5\text{H}_{10}\text{N}_2\text{O}_3$	146.15	185	2.17	9.13		5.65	42
Glu	Glutamic acid	$\text{C}_5\text{H}_9\text{NO}_4$	147.13	249	2.19	9.67	4.25	3.22	
Gly	Glycine	$\text{C}_2\text{H}_3\text{O}_2$	75.07	290	2.34	9.60		5.97	251
His	Histidine	$\text{C}_6\text{H}_9\text{N}_3\text{O}_2$	155.16	277	1.82	9.17	6.00	7.59	43
Ile	Isoleucine	$\text{C}_6\text{H}_{13}\text{NO}_2$	131.17	284	2.36	9.60		6.02	34
Leu	Leucine	$\text{C}_6\text{H}_{13}\text{NO}_2$	131.17	337	2.36	9.60		5.98	23
Lys	Lysine	$\text{C}_6\text{H}_{14}\text{N}_2\text{O}_2$	146.19	224—225	2.18	8.95	10.53	9.74	6
Met	Methionine	$\text{C}_5\text{H}_{11}\text{NO}_2\text{S}$	149.21	283	2.28	9.21		5.74	56
Phe	Phenylalanine	$\text{C}_9\text{H}_9\text{NO}_2$	165.19	284	1.83	9.13		5.48	29
Pro	Proline	$\text{C}_5\text{H}_9\text{NO}_2$	115.13	222	1.99	10.60		6.30	1622
Ser	Serine	$\text{C}_3\text{H}_7\text{NO}_3$	105.09	228	2.21	9.15		5.68	422
Thr	Threonine	$\text{C}_4\text{H}_9\text{NO}_3$	119.12	253	2.09	9.10		5.60	97
Trp	Tryptophan	$\text{C}_{11}\text{H}_{12}\text{N}_2\text{O}_2$	204.23	282	2.83	9.39		5.89	12
Tyr	Tyrosine	$\text{C}_9\text{H}_9\text{NO}_3$	181.19	344	2.20	9.11	10.07	5.66	0.5
Val	Valine	$\text{C}_5\text{H}_{11}\text{NO}_2$	117.15	292-295	2.32	9.62		5.96	58

REFERENCES

- G. D. Fasman, Ed., *Practical Handbook of Biochemistry and Molecular Biology*, CRC Press, Boca Raton, FL, 1989.
 E. L. Smith, et al., *Principles of Biochemistry*, 7th ed., McGraw Hill, New York, 1983.
 H. J. Hinz, Ed., *Thermodynamic Data for Biochemistry and Biotechnology*, Springer-Verlag, Heidelberg, 1986.