



3050 Spruce Street
Saint Louis, Missouri 63103 USA
Telephone 800-325-5832 • (314) 771-5765
Fax (314) 286-7828
email: techserv@sial.com
sigma-aldrich.com

Product Information

Guanidine hydrochloride Sigma Ultra

Product Number **G 7153**
Store at Room Temperature

Product Description

Molecular Formula: $\text{CH}_5\text{N}_3\cdot\text{HCl}$
Molecular Weight: 95.53
CAS Number: 50-01-1
 pK_a : 13.6¹
Melting Point: 178-185 °C²

Trace elemental analyses have been performed on the SigmaUltra Guanidine Hydrochloride. The Certificate of Analysis provides lot-specific results. SigmaUltra Guanidine Hydrochloride is for applications which require tight control of elemental content.

Guanidine HCl may agglomerate upon storage. It may appear as a free-flowing crystalline powder, a free-flowing powder with solid material dispersed throughout, or a solid. The quality of the product does not appear to be affected and solutions prepared from the free-flowing and lumpy guanidine HCl appear identical.

Guanidine HCl is used in the isolation of RNA to dissociate the nucleoprotein into its nucleic acid and protein moieties.³ It is an inhibitor of RNase. Highly concentrated (6 - 8 M) Guanidine HCl solutions are used to denature native globular proteins. It apparently disrupts hydrogen bonds which hold the protein in its unique structure. However, there also is evidence suggesting that guanidine hydrochloride may disrupt hydrophobic interactions by promoting the solubility of hydrophobic residues in aqueous solutions.⁴

A method for measuring guanidine in the sera of uremic subjects has been reported.⁵

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

In order to make an 8 M solution in water, one must heat the solution to 35 °C for approximately 30 minutes. The maximum solubility of guanidine hydrochloride in water at room temperature is approximately 6 M.

References

1. Data for Biochemical Research, 3rd ed., Dawson, R. M. C., et al., Oxford University Press (New York, NY: 1986), pp. 322-323.
2. Handbook of Chemistry and Physics. 65th ed., p. C-316.
3. Cox, R. A., The Use of Guanidinium Chloride in the Isolation of Nucleic Acids, Methods in Enzymology, **12B**, 120-129 (1968).
4. http://www.agsci.ubc.ca/courses/fnh/410/protein/1_54.htm
5. Menichini, G. C. and Giovannetti, S., A New Method for Measuring Guanidine in Uremia, Experientia, **29**, 506-507 (1973).

HLD 6/03

Sigma brand products are sold through Sigma-Aldrich, Inc.

Sigma-Aldrich, Inc. warrants that its products conform to the information contained in this and other Sigma-Aldrich publications. Purchaser must determine the suitability of the product(s) for their particular use. Additional terms and conditions may apply. Please see reverse side of the invoice or packing slip.