



SIGMA-ALDRICH

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

Magnesium acetate tetrahydrate

Product Number **M 9147**

Store at Room Temperature

22,864-8 is an exact replacement for M 9147

Product Description

Molecular Formula: $\text{Mg}(\text{C}_2\text{H}_3\text{O}_2)_2 \cdot 4\text{H}_2\text{O}$

Molecular Weight: 214.5

CAS Number: 16674-78-5

Melting Point: approximately 80 °C¹

This product is designated as ACS Reagent grade and meets the specifications of the American Chemical Society (ACS) for reagent chemicals.

Magnesium acetate is used in chemistry and molecular biology as a reagent and a source of magnesium. Magnesium has a variety of biological roles in enzymology, cell membrane and wall structural integrity, muscle cell physiology, and nucleic acid structure.^{2,3} Magnesium is an essential co-factor in many enzymes, including deoxyribonuclease (DNase), the restriction enzymes *EcoR* I and *EcoR* V, and Ribonuclease H.^{4,5} Magnesium also stabilizes polymeric nucleic acids such as transfer RNA and ribozymes.⁶

Magnesium acetate has been widely used in the crystallization of proteins^{7,8,9} (Product Nos. 82009, 70437, 75403, 73513). A protocol for the separation of MB and BB isoenzymes of creatine kinase and the LD1 isoenzyme of lactate dehydrogenase that involves elution with magnesium acetate has been published.¹⁰

Precautions and Disclaimer

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

Preparation Instructions

This product is soluble in 1% acetic acid (100 mg/ml), yielding a clear, colorless solution. It is also highly soluble in water or alcohol.¹

References

1. The Merck Index, 12th ed., Entry# 5688.
2. Cowan, J. A., in *The Biological Chemistry of Magnesium*, Cowan, J. A., ed., VCH Publishers (New York: 1995), pp. 1-23.
3. *The Biological Chemistry of the Elements*, Frausto da Silva, J. J. R., and Williams, R. J. P., Clarendon Press (Oxford, UK: 1991), pp. 243-267.
4. Brooks, J. E., Properties and uses of restriction endonucleases. *Methods Enzymol.*, **152**, 113-129 (1987).
5. Black, C. B., and Cowan, J. A., in *The Biological Chemistry of Magnesium*, Cowan, J. A., ed., VCH Publishers (New York: 1995), pp. 137-157.
6. *Principles of Bioinorganic Chemistry*, Lippard, S. J., and Berg, J. M., University Science Books (Mill Valley, CA: 1994), pp. 192-196.
7. Mano, J., et al., Crystallization and preliminary X-ray crystallographic analysis of NADPH: azodicarbonyl/quinone oxidoreductase, a plant zeta-crystallin. *Biochim. Biophys. Acta*, **1480(1-2)**, 374-376 (2000).
8. Shaw, J. P., et al., Crystallization and preliminary X-ray diffraction studies of human RANTES. *J. Mol. Biol.*, **242(4)**, 589-590 (1994).
9. Lee, D. S., et al., Crystallization and preliminary X-ray diffraction analysis of fatty-acid hydroxylase cytochrome P450BSbeta from *Bacillus subtilis*. *Acta Crystallogr. D Biol. Crystallogr.*, **58(Pt 4)**, 687-689 (2002).
10. Morin, L. G., and Barton, E. G., A "column-batch" method for separating MB and LD1 in a single fraction. *Clin. Chem.*, **29(10)**, 1741-1745 (1983).

GCY/NSB 3/03

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.