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Product Information

Magnesium chloride hexahydrate

SigmaUltra

Product Number **M2670**

Store at Room Temperature

Replacement for Product Code **43,138-9**

Product Description

Molecular Formula: $\text{MgCl}_2 \cdot 6\text{H}_2\text{O}$

Formula Weight: 203.3

CAS Number: 7791-18-6

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

Magnesium chloride is a widely used reagent in chemistry and molecular biology as a source of magnesium ion. Magnesium has a variety of biological roles in enzymology, cell membrane and wall structural integrity, muscle cell physiology, and nucleic acid structure.^{1,2} Magnesium is an essential co-factor in many enzymes, including deoxyribonuclease (DNase), the restriction enzymes *EcoR* I and *EcoR* V, and Ribonuclease H.^{3,4}

Magnesium also stabilizes polymeric nucleic acids such as transfer RNA and ribozymes.⁵

Conditions for optimal use of MgCl_2 in the polymerase chain reaction (PCR) have been investigated.^{6,7} The use of MgCl_2 in the trypsin-mediated proteolysis of the mammalian α -ketoglutarate dehydrogenase complex has been reported.⁸ A protocol that includes MgCl_2 for dideoxy-mediated sequencing reactions using bacteriophage T7 DNA polymerase has been published.⁹

Precautions and Disclaimer

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

Preparation Instructions

This product is soluble in water (203 mg/ml, or 1 M), yielding a clear, colorless solution.

References

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4. 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.
5. *Principles of Bioinorganic Chemistry*, Lippard, S. J., and Berg, J. M., University Science Books (Mill Valley, CA: 1994), pp. 192-196.
6. Harris, S., and Jones, D.B., Optimisation of the polymerase chain reaction. *Br. J. Biomed. Sci.*, **54(3)**, 166-173 (1997).
7. Henegariu, O., et al., Multiplex PCR: critical parameters and step-by-step protocol. *Biotechniques*, **23(3)**, 504-511 (1997).
8. McCartney, R.G., et al., Subunit interactions in the mammalian alpha-ketoglutarate dehydrogenase complex. Evidence for direct association of the α -ketoglutarate dehydrogenase and dihydrolipoamide dehydrogenase components. *J. Biol. Chem.*, **273(37)**, 24158-24164 (1998).
9. *Molecular Cloning: A Laboratory Manual*, 3rd ed., Sambrook, J. and Russell, D.W., CSHL Press (Cold Spring Harbor, NY: 2001), pp. 12.32-12.37.

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