



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

Calcium nitrate tetrahydrate Cell Culture Tested

Product Number **C 7652**

Store at Room Temperature

Product Description

Molecular Formula: $\text{Ca}(\text{NO}_3)_2 \bullet 4\text{H}_2\text{O}$

Molecular Weight: 236.2

CAS Number: 13477-34-4

Melting Point: approximately 560 °C¹

Synonyms: lime nitrate; nitrocalcite

This product is cell culture tested (0.1 mg/ml) and is appropriate for use in cell culture applications.

Calcium nitrate occurs in nature as the mineral nitrocalcite. It is used in such industrial processes as the manufacture of fertilizers, matches, and radio tubes.¹ Calcium nitrate has been investigated as an agent to control sulfide generation by sulfate reducing bacteria in oily, waste water environments.²

Calcium nitrate is used to engineer new materials. These include the preparation of CaO-SiO_2 binary system glasses, a poly(ϵ -caprolactone)/silica hybrid, aerosol-gel derived hydroxyapatite (HAP) coatings, and poly(dimethylsiloxane)-modified $\text{CaO-SiO}_2\text{-TiO}_2$ hybrids.^{3,4,5,6}

The use of calcium nitrate to fix cells of *Plectonema boryanum* for localization of alkaline phosphatase has been described.⁷ Calcium nitrate has been utilized as a culture media component for the growth of *Synechocystis* sp. PCC 6803 to study changes in the oxygen-evolving apparatus from a mutation in the CP43 component of Photosystem II.⁷

Precautions and Disclaimer

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

Preparation Instructions

This product is soluble in water (200 mg/ml), yielding a clear, colorless solution.

References

1. The Merck Index, 12th ed., Entry# 1729.
2. Londry, K., and Suflita, J., Use of nitrate to control sulfide generation by sulfate-reducing bacteria associated with oily waste. *J. Ind. Microbiol. Biotechnol.*, **22(6)**, 582-589 (1999).
3. Saravanapavan, P., and Hench, L. L., Low-temperature synthesis, structure, and bioactivity of gel-derived glasses in the binary CaO-SiO_2 system. *J. Biomed. Mater. Res.*, **54(4)**, 608-618 (2001).
4. Manso, M., et al., Microstructural study of aerosol-gel derived hydroxyapatite coatings. *Biomol. Eng.*, **19(2-6)**, 63-66 (2002).
5. Rhee, S. H., et al. Preparation of a bioactive and degradable poly(ϵ -caprolactone)/silica hybrid through a sol-gel method. *Biomaterials*, **23(24)**, 4915-4921 (2002).
6. Chen, Q., et al., Bioactivity and mechanical properties of PDMS-modified $\text{CaO-SiO}_2\text{-TiO}_2$ hybrids prepared by sol-gel process. *J. Biomed. Mater. Res.*, **51(4)**, 605-611 (2000).

7. Doonan, B. B., and Jensen, T. E., Ultrastructural localization of alkaline phosphatase in the blue-green bacterium *Plectonema boryanum*. *J. Bacteriol.*, **132**(3), 967-973 (1977).
8. Young, A., et al., Alterations of the oxygen-evolving apparatus induced by a ³⁰⁵Arg --> ³⁰⁵Ser mutation in the CP43 protein of photosystem II from *Synechocystis* sp. PCC 6803 under chloride-limiting conditions. *Biochemistry*, **41**(52), 15747-15753 (2002).

GCY/RXR 8/03

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.