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Product Information

Calcium nitrate tetrahydrate Plant Cell Culture Tested

Product Number **C 2786**
Store at Room Temperature

Product Description

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

Molecular Weight: 236.2

CAS Number: 13477-34-4

Melting Point: approximately 560 °C¹

Synonyms: lime nitrate; nitrocalcite

This product is plant cell culture tested (0.15 mg/ml) and is appropriate for use in plant cell culture experiments.

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-SiO₂ binary system glasses, a poly(ϵ -caprolactone)/silica hybrid, aerosol-gel derived hydroxyapatite (HAP) coatings, and poly(dimethylsiloxane)-modified CaO-SiO₂-TiO₂ 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 Hensch, L. L., Low-temperature synthesis, structure, and bioactivity of gel-derived glasses in the binary CaO-SiO₂ 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 CaO-SiO₂-TiO₂ 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).

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