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Product Information

Iron(II) sulfate heptahydrate

Product Number **F7002**

Storage Temperature 2-8 °C

Replacement for Product Code 31,007-7

Product Description

Molecular Formula: $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$

Molecular Weight: 278.0

CAS Number: 7782-63-0

Synonym: ferrous sulfate heptahydrate, copperas, green vitriol, iron vitriol¹

Iron(II) sulfate (ferrous sulfate) occurs in nature in hydrated forms as the minerals melanterite, sideritol, szomolnikite, and tauriscite. Ferrous sulfate is used in such applications as fertilizer manufacture, iron electroplating baths, radiation dosimeters, wood preservatives, writing ink, and process engraving and lithography.¹ A model study of acid mine drainage where ferrous sulfate is incorporated into the simulation has been published.²

The use of ferrous sulfate to treat human and rat cells to study dehydroepiandrosterone (DHEA) formation in Alzheimer's disease pathology has been reported.³ Ferrous sulfate has been utilized in a study of the expression of neuronal nicotinic acetylcholine receptors as affected by oxidative stress in PC12 cells.⁴ Ferrous sulfate has been shown to counteract the inhibitory action of hydrogen peroxide on human cytoplasmic aconitase (iron regulatory protein 1).⁵

Precautions and Disclaimer

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

Preparation Instructions

This product is soluble in oxygen free water (100 mg/ml), with sonication as needed, yielding a slightly hazy, light yellow to green solution.

Storage/Stability

Aqueous iron(II) sulfate solutions are oxidized slowly by air when cold and rapidly when hot. The rate of oxidation is increased by exposure to light or the addition of alkali.¹

References

1. The Merck Index, 12th ed., Entry# 4105.
2. Bunce, N. J., et al., Electrochemical treatment of acidic aqueous ferrous sulfate and copper sulfate as models for acid mine drainage. *Water Res.*, **35(18)**, 4410-4416 (2001).
3. Brown, R. C., et al., Oxidative stress-mediated DHEA formation in Alzheimer's disease pathology. *Neurobiol. Aging*, **24(1)**, 57-65 (2003).
4. Guan, Z. Z., et al., Reduced expression of neuronal nicotinic acetylcholine receptors during the early stages of damage by oxidative stress in PC12 cells. *J. Neurosci. Res.*, **66(4)**, 551-558 (2001).
5. Brazzolotto, X., et al., Human cytoplasmic aconitase (Iron regulatory protein 1) is converted into its [³Fe-⁴S] form by hydrogen peroxide *in vitro* but is not activated for iron-responsive element binding. *J. Biol. Chem.*, **274(31)**, 21625-21630 (1999).

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