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

ProductInformation

Iron(III) chloride hexahydrate

Product Number **F 2877**
Store at Room Temperature
Replacement for Product Code 20,792-6

Product Description

Molecular Formula: $FeCl_3 \cdot 6H_2O$
Molecular Weight: 270.3
CAS Number: 10025-77-1
Synonyms: ferric chloride hexahydrate, flores martis[1]

Ferric chloride occurs in nature as the mineral molysite. It is used in photoengraving, photography, the manufacture of pigments and ink, the chlorination of silver and copper ores, and as a mordant in dyeing and printing textiles.[1] Ferric chloride is also utilized in the synthesis of organic compounds.[2,3] A procedure has been published on the use of $FeCl_3$ to protect Nafion® membranes from calcification.[4]

$FeCl_3$ is used in the Mayer's tannic acid/ferric chloride method for staining tissue and their observation by light microscopy.[5,6] Studies of iron uptake and of apoptosis in cultured cells have utilized $FeCl_3$ as an iron source.[7,8,9,10]

Precautions and Disclaimer

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

Preparation Instructions

This product is soluble in 2% HCl (200 mg/ml), with heat as needed, yielding a slightly hazy, yellow/orange solution.

Storage/Stability

This product is light sensitive. It is advised to keep containers well closed and protected from light.

References

1. The Merck Index, 12th ed., Entry# 4061.
2. Kiso, M., and Anderson, L., Protected glycosides and disaccharides of 2-amino-2-deoxy-D-glucopyranose by ferric chloride-catalyzed coupling. Carbohydr. Res., **136**, 309-323 (1985).
3. Trost, B. M., and Lee, C. B., Geminal dicarboxylates as carbonyl surrogates for asymmetric synthesis. Part I. Asymmetric addition of malonate nucleophiles. J. Am. Chem. Soc., **123(16)**, 3671-3686 (2001).
4. Valdes, T. I., and Moussy, F., A ferric chloride pre-treatment to prevent calcification of Nafion membrane used for implantable biosensors. Biosens. Bioelectron., **14(6)**, 579-585 (1999).
5. Riboni, L., et al., A fast staining method for CNS slices. J. Neurosci. Methods, **38(2-3)**, 239-241 (1991).
6. Matsui, S., et al., A modification of Mayer's tannic acid-ferric chloride staining method for demonstrating cellular membranous systems for light microscopy. Biotech. Histochem., **75(1)**, 33-40 (2000).
7. Keeling, B., et al., Iron enhances uptake of mineral particles and increases lipid peroxidation in tracheal epithelial cells. Am. J. Respir. Cell. Mol. Biol., **10(6)**, 683-688 (1994).
8. Olakanmi, O., et al., Polyvalent cationic metals induce the rate of transferrin-independent iron acquisition by HL-60 cells. J. Biol. Chem., **272(5)**, 2599-2606 (1997).
9. Mukhopadhyay, C. K., et al., Role of ceruloplasmin in cellular iron uptake. Science, **279(5351)**, 714-717 (1998).

10. Jiang, X. P., et al., Induction of apoptosis by iron depletion in the human breast cancer MCF-7 cell line and the 13762NF rat mammary adenocarcinoma *in vivo*. Anticancer Res., **22(5)**, 2685-2692 (2002).

GCY/RXR 6/03