

**FRONTIER**  
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Frontier Specialty Chemicals, Inc. **Technical Data Sheet**  
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Catalog Number: **H651-9**

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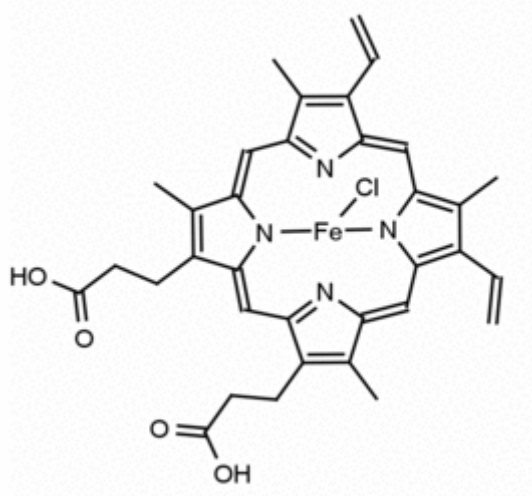
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**For research use only**

Not intended or approved for  
diagnostic or therapeutic use.

**Product Name: Hemin**

**Catalog Number: H651-9**



**Sizes Available:** 1 g, 5 g, and larger sizes available

**Molecular weight:** 651.95 g/mol

**Molecular Formula:** C<sub>34</sub>H<sub>32</sub>ClFeN<sub>4</sub>O<sub>4</sub>

**CAS Number:** 16009-13-5

**Storage:** Store at room temperature, protected from light

**Synonyms:** Ferric Hemin, ferric iron ppIX chloride, ferriheme, Ferriporphyrin Chloride, Ferriporphyrin, Ferriporphyrin ix, Ferriporphyrin IX chloride, haemin

**Field of Interest:** Natural Products Synthesis, Heme Containing Proteins, Hemoglobin, Myoglobin, Cytochrome C pathology, Complexes, Heme oxygenase

**Background: Hemin** is an iron-based porphyrin based natural product has a myriad of bioactivities where cells up-regulate heme oxygenase 1 (Hmox1, EC 1.14.99.3), which catabolizes heme to biliverdin, carbon monoxide, and free iron, and results in oxidative stress and cellular injury.<sup>1,2</sup> Aptamer-hemin complexes and other conjugates are found to mimic peroxidases and hemin is used in catalytic nanomaterials.<sup>3,4,5</sup>

#### References:

- 1) Poss, Kenneth D., Tonegawa, Susumu, Reduced stress defense in heme oxygenase 1-deficient cells Proceedings of the National Academy of Sciences of the United States of America (1997), 94(20), 10925-10930.
- 2) Yachie, Akihiro, Yo, Niida, Wada, Taizo, Igarashi, Noboru, Kaneda, Hisashi, Toma, Tomoko, Ohta, Kazuhide, Kasahara, Yoshihito, Koizumi, Shoichi, Oxidative stress causes enhanced endothelial cell injury in human heme oxygenase-1 deficiency, Journal of Clinical Investigation (1999), 103(1), 129-135. DOI:10.1172/JCI4165.
- 3) Travascio, Paola, Li, Yingfu, Sen, Dipankar, DNA-enhanced peroxidase activity of a DNA aptamer-hemin complex, Chemistry & Biology (1998), 5(9), 505-517. DOI:10.1016/S1074-5521(98)90006-0.
- 4) Lin, Youhui, Ren, Jinsong, Qu, Xiaogang, Catalytically active nanomaterials: A promising candidate for artificial enzymes, Catalytically active nanomaterials: A promising candidate for artificial enzymes, Accounts of Chemical Research (2014), 47(4), 1097-1105. DOI:10.1021/ar400250z
- 5) Guo, Yujing, Deng, Liu, Li, Jing, Guo, Shaojun, Wang, Erkang, Dong, Shaojun, Hemin-graphene hybrid nanosheets with intrinsic peroxidase-like activity for label-free colorimetric detection of single-nucleotide polymorphism, ACS Nano (2011), 5(2), 1282-1290. DOI:10.1021/nn1029586

**Hazardous Properties and Cautions:** The toxicological and pharmacological properties of this compound are not fully known. For further information see the SDS on request. **Hemin** is manufactured, shipped according to standard practices, and intended for research and development in a laboratory utilizing prudent procedures for handling chemicals of unknown toxicity, under the supervision of persons technically qualified to evaluate potential risks and authorized to enforce appropriate health and safety measures. As with all research chemicals, precautions should be taken to avoid unnecessary exposures or risks.

**Warranty and Disclaimer:** Frontier Specialty Chemicals, Inc. warrants the product conforms to the specifications stated herein. In the event of nonconformity, Frontier will replace products or refund purchase price, at its sole option, and Frontier shall not be responsible for any other loss or damage, whether known or foreseeable to Frontier. No other warranties apply, express or implied, including but not limited to warranty of fitness for any purpose or implied warranty of merchantability. Purchaser is solely responsible for all consequences of its use of the product and Frontier assumes no responsibility therefore, including success of purchaser's research and development, or health or safety of any uses of the product.