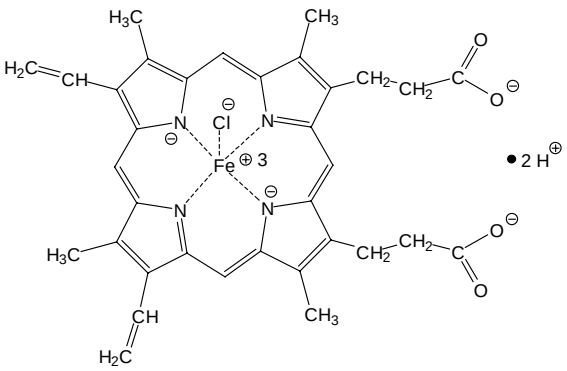
ProductInformation

HEMIN
Sigma Prod. No. H-5533

CAS Number: 16009-13-5



SYNONYMS: Hemin chloride; (SP-5-13)-Chloro[7,12-diethenyl-3,8,13,17-tetramethyl-21H-porphine-2,18-dipropanoato(4)N^{21},N^{22},N^{23},N^{24}]ferrate(2)di hydrogen; Chloro[dihydrogen-3,7,12,17-tetramethyl-8,13-divinyl-2,18-porphinedipropionato(2)iron; Chlorohemin; 1,3,5,8-Tetramethyl-2,4-divinylporphine-6,7-dipropionic acid ferrichloride; Teichmann's crystals; Ferriheme; Ferriheme chloride; Ferriprotoporphyrin; Ferriprotoporphyrin chloride; Ferriprotoporphyrin IX; Ferriprotoporphyrin IX chloride; Ferriporphyrin chloride; Ferric hemin; Hemin IX; Protohemin; Protohemin chloride; Protoferriheme; Chloroprotohemin; Chloroprotoferriheme

PHYSICAL PROPERTIES:

Appearance: Dark blue to black powder
Molecular formula: $C_{34}H_{32}ClFeN_4O_4$
Molecular weight: 652.0
Melting Point: Sintered at 240°C, but not melted even at 300°C.[1]

UV Data:

λ (nm)	ε_{mM}	Solvent
610	4.60 - 4.75	1 M NaOH[2]
385	53.50 - 58.70	1 M NaOH[2]
382	89.10	HCl-Acetone[3]
512	8.91	HCl-Acetone[3]
540	8.91	HCl-Acetone[3]
640	4.68	HCl-Acetone[3]
545	5.01	Acetone[3]
388	63.10	pH 9.9/11.7[3]
600	3.98	pH 9.9/11.7[3]

STABILITY / STORAGE AS SUPPLIED:

Store powder at 2-8°C.

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SOLUBILITY / SOLUTION STABILITY:

Hemin is soluble in dilute ammonia, and in solutions of NaOH with hematin formation (the Cl is displaced by an OH group); practically insoluble in dilute acid or carbonate solutions; soluble in strong organic bases such as trimethylamine, p-toluidine and dimethylaniline; soluble in concentrated H_2SO_4 with loss of Fe; sparingly soluble in 70-80% alcohol; practically insoluble, but stable, in water.[1] Hemin is soluble in DMSO (at least 1 mg/mL), giving a dark brown solution. Solubility has also been confirmed in 1.4 N NH_4OH at 25 mg/mL, as well as in 1% $NaHCO_3$ in 50% ethanol at 0.16 mg/mL; solutions are dark green to black.[2]

METHOD OF PREPARATION:

H-5533 is prepared from bovine gallbladders.[4] Generally, hemin can be prepared from hemoglobin solutions by heating with acetic acid and sodium chloride.[1] These methods of preparation are not necessarily those of Sigma's suppliers.[1] Product No. H-2250 was deleted in 1999. It was replaced with Product No. H-5533 from a different manufacturer.

PRODUCT DESCRIPTION:

Hemin is used in the identification of blood stains, in biochemical research, and as a complexing agent.[5] Hemin has been reported to inhibit porphobilinogen synthase.[6]

REFERENCES:

1. *Merck Index*, 12th ed., S. Budavari, Ed., pp. 793-794 (1996).
2. Sigma data.
3. *Organic Electronic Spectral Data* , Vol. II, H.E. Ungnade, Ed., p. 846 (1960).
4. Supplier data.
5. *Hawley's Condensed Chemical Dictionary*, 12th Ed., R.J. Lewis, Sr., Ed., p. 589, Van Nostrand Reinhold Co., New York (1993).
6. J.B. Weissberg and P.E. Voytek, *Biochem. Biophys. Acta*, 364, 304 (1974).