Deferoxamine Mesylate
Product No. D9533
Storage Temperature -20°C

Cas Number: 138-14-7
Synonyms: deferoxamine mesilate; deferoxamine methanesulfonate; desferal; desferal mesylate; desferal methanesulfonate; desferrioxamine B mesylate; desferrioxamine B methane sulfonate; desferrioxamine methanesulfonate

Physical Description
Molecular formula: \(C_{25}H_{48}N_6O_8\)
Molecular weight: 656.8
Melting point: 148-149°C
The log of the formation constant (K) of deferoxamine complexed with ferric ion (Fe\(^{3+}\)) is 30.6.\(^3\)

Stability / Storage as Supplied
This product is assigned a two year shelf life. The dry solid is stable under desiccation, but will decompose on exposure to air.\(^4\)

Solubility / Solution Stability
Sigma assays show deferoxamine mesylate to be soluble in water at 50 mg/mL. It is also reported to be soluble at 1 part in 5 of water, 1 in 20 of alcohol, "practically insoluble in dehydrated alcohol, chloroform and ether." A 10% solution in water has a pH of 3.5 to 5.5. Solutions deteriorate on storage and should be prepared immediately prior to use; cloudy solutions should be discarded. A preparation in a sterile aqueous vehicle containing methylcellulose 0.5% and benzyl alcohol 1% (w/v) was reportedly stable up to one week.\(^6\)

Usage and References
This product is an aluminum and iron(III) chelator which has been used in the treatment of acute iron poisoning and chronic iron or aluminum overload. Deferoxamine appears to remove both free iron and bound iron from hemosiderin and ferritin but not from hemoglobin, transferrin or cytochromes. Theoretically, 100 mg of deferoxamine mesylate can chelate approximately 8.5 mg iron (III).\(^2,5,6\) It chelates iron (as a 1:1 chelate complex) only in the +3 oxidation state, not +2 oxidation state. The free form can be detected by HPLC at 226 nm, the iron-bound form at 430 nm.\(^7\) The binding constant for deferoxamine-iron(III) is reported to be on the order of 10\(^{30-34}\).\(^3,4\) Deferoxamine has been used to bind manganese ion.\(^8\) Deferoxamine has been used to scavenge contaminating metal ions in xanthine oxidase incubations.\(^9\) It was used to protect myocytes against peroxide-induced damage.\(^10\)

Ionization constants for the compound complexed with a number of different metal ions are reported.\(^11\) Numerous citations for use are cited.\(^2,5\)

References
1. Sigma MSDS; quality control.