

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
methanesulfonate¹

Physical DescriptionMolecular formula: $C_{25}H_{48}N_6O_8 \cdot CH_4O_3S$

Molecular weight: 656.8

Melting point: 148-149 °C²

The log of the formation constant (K) of
deferoxamine complexed with ferric ion (Fe^{+3}) is
30.6.³

Stability / Storage as Supplied

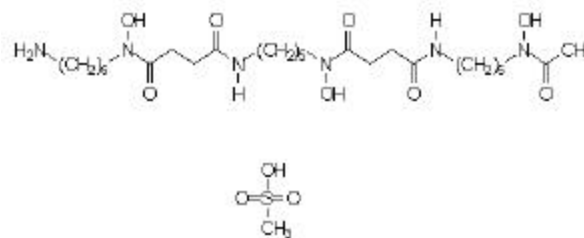
This product is assigned a two year shelf life. The
dry solid is stable under desiccation, but will
decompose on exposure to air.⁴

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."⁵ 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} .^{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

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6. *Martindale: The Extra Pharmacopoeia*, 30th ed., 676 (1993).
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8. Beyer, W.F., Jr. and Fridovich, I., *Arch. Biochem. Biophys.*, 271, 149-156 (1989).
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11. Schwarzenbach, G. et al., *Helv. Chem. Acta*, 46, 1390-1422 (1963). In German.

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