



>>Entry Name: **Deferoxamine**, INN, USAN

Synonym(s): *N*'-[5-[[[4-[[[5-(Acetylhydroxyamino)pentyl]amino]-1,4-dioxobutyl]hydroxyamino]pentyl]-*N*-(5-aminopentyl)-*N*-hydroxybutanediamide, 9Cl. **Desferrioxamine**, BAN. Desferrin. NSC 527604

CAS Registry Number: 70-51-9

$\text{H}_2\text{N}(\text{CH}_2)_5\text{N}(\text{OH})\text{COCH}_2\text{CH}_2\text{CONH}(\text{CH}_2)_5\text{N}(\text{OH})\text{COCH}_2\text{CH}_2\text{CONH}(\text{CH}_2)_5\text{N}(\text{OH})\text{Ac}$

Molecular Formula: $\text{C}_{25}\text{H}_{48}\text{N}_6\text{O}_8$

Molecular Weight: 560.69

Accurate Mass: 560.353364

Percentage Composition: C 53.55%; H 8.63%; N 14.99%; O 22.83%

Source/Synthesis: Isol. from *Streptomyces pilosus*

Use/Importance: Siderophore. Chelating agent for iron mobilization with low oral toxicity; used in the treatment of β -thalassaemia and as an antidote to iron poisoning; also chelates aluminium, of interest with respect to treatment of Alzheimer's disease. Shows anti-HIV and antineoplastic activity. Used as 4mM aq. soln. for photometric detn. of V(*I*) (λ_{max} 480 nm, ϵ 3150, pH 1.3), Fe(*III*)

Physical Description: Cryst. + 1H₂O (EtOH aq.)

Melting Point: Mp 138-140°

Solubility: BERDY SOL: Sol. H₂O

pKa Value: p*K*_{a1} 8.39; p*K*_{a2} 9.03; p*K*_{a3} 9.7; p*K*_{a4} 11 (20°, 0.1M NaNO₃)

Hazard & Toxicity: Long term treatment may cause visual and hearing disturbances. LD₅₀ (mus, orl) 1340 mg/kg

>>Derivative: Hydrochloride

Synonym(s): **Deferoxamine hydrochloride**, USAN. Ba 29837

CAS Registry Number: 1950-39-6

Melting Point: Mp 172-175°

>>Derivative: Methanesulfonate

Synonym(s): **Desferrioxamine mesilate**, BAN, JAN. Desferal. Ba 33112. Ciba 33112

CAS Registry Number: 138-14-7

Physical Description: Cryst. (EtOH aq.)

Melting Point: Mp 148-149°

Sigma: D9533

>>Derivative: *N*-Ac

Melting Point: Mp 180-182°

pKa Value: p*K*_{a2} 9.24; p*K*_{a3} 9.69 (20°, 0.1M NaNO₃)

References:

- Bickel, H. *et al.*, *Helv. Chim. Acta*, 1960, **43**, 2118; 2129; 1963, **46**, 1385, (*isol, synth*)
Prelog, V. *et al.*, *Helv. Chim. Acta*, 1962, **45**, 631, (*synth*)
Luterotti, S. *et al.*, *Acta Pharm. Jugosl.*, 1986, **36**, 341; *CA*, **105**, 237518z, (*detn, Fe*)
Luterotti, S. *et al.*, *Analyst (London)*, 1986, **111**, 1163, (*detn, V*)
Bergeron, R.J. *et al.*, *J.O.C.*, 1988, **53**, 3131, (*synth, bibl*)
Allain, P. *et al.*, *Drugs of Today (Barcelona)*, Suppl.A, 1992, **28**, 89, (*rev*)
Hider, R.C. *et al.*, *Chemistry of Iron*, (Silver, J, ed.) Blackie, 1993, 275, (*use*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 676
Lewis, R.J., *Sax's Dangerous Properties of Industrial Materials*, 8th edn., Van Nostrand Reinhold, 1992, DAK200; DAK300