Haematinics

⇒ A haemtinic is a nutrient required for the formation of the blood cell.

⇒ A compound that contain iron salt is called haematinic agent.

⇒ They are used in the treament of Iron deficiency disease, eg Anaemia.

Example :- ~~Ferrous~~

Ferrous sulfate ($FeSO_4.7H_2O$)

Ferrous Fumarate. ($\bar{O}OC-CH=CH-COO^-$) Fe^{2+}

Ferrous Gluconate $[HOCH_2(CHOH)_4COO^-]_2 Fe^{2+}.2H_2O$

Iron and Ammonium citrate.

Iron Dextran Injection.

~~Ferrous~~ Ferrous Sulfate :-

$FeSO_4.7H_2O$, M.W = 278.0

IP limit :- It contain not less than 98.0 % of $FeSO_4.7H_2O$.

Prepration :-

Ferous sulfate is prepeared by adding a slight excess of iron to dilute H_2SO_4.

$$Fe + H_2SO_4 \longrightarrow FeSO_4 + H_2$$

Properties :-

→ It occurs as odourless bluish-green crystalline powder

→ On exposure to moist air it is oxidized and becomes brown in colour due to the formation of basic sulfate.

→ It is complete dissolve in water.
→ It is stored in tightly-closed container.
→ Ferrous sulfate can oxidised to convert ferric sulfate on exposure to air.

$$4FeSO_4 + 2H_2O + O_2 \longrightarrow 4Fe(OH)SO_4$$

Ferric sulfate
(Brown colour.

Assay:-
→ Assay is based on oxidation-reduction (redox) titration.
→ Acidified solution of the substance is titrated with cerric ammonium sulfate, in the presence of H_2SO_4.
→ Ferroin sulfate solution as an indicator.

Method:-

weighed amount of $FeSO_4 \cdot 7H_2O$ (1gm)
↓ dissolve in H_2O_2 (30ml)
solution
↓ add H_2SO_4 (20ml)
To make it acidified
↓ titrated with
0.1N cerric ammonium sulfate
↓ using indicator
Ferroin solution.

Each ml of 0.1N cerric ammonium sulfate is equivalent to 0.0278g of $FeSO_4 \cdot 7H_2O$.

Iron and haematinics

→ Iron and its official compounds are used haematinic agent.
→ They are also used in the treatment of iron deficiency eg anaemia.
→ Their are some official compound of Iron.

Ferrous sulphate - $FeSO_4 \cdot 7H_2O$
Ferrous Fumarate - $C_4H_2FeO_4$ $FeC_2H_4(CO_2)_2$
Ferrous Gluconate - $FeC_{12}H_{22}O_{14} \cdot 2H_2O$
Ferric Ammonium Citrate.
Iron Dextran Injection
Dried Ferrous Sulphate.

Ferrous Sulphate:-

$FeSO_4 \cdot 7H_2O$ -
Mol. weight - 278.0

Ferrous sulphate contain not less than 98.0% of $FeSO_4 \cdot 7H_2O$.

Prepration:

Ferrous sulphate is prepared by adding a slight excess of Iron to dilute sulphuric acid.

$$Fe + H_2SO_4 \longrightarrow FeSO_4 + H_2.$$

Physical properties:-

→ It is odourless bluish-green crystal
→ Its taste metallic and astringent.