

Haematinics

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Def.

Agents which are required for the formation of blood cells and also used for treatment of anaemia

i.e. Main haematinics are
Iron, vit-B₁₂, folate ions.

other agents

Ferrous sulphate,
ferrous Gluconate
ferrous fumarate
ferrous ascorbate

Haematinic drug in combination is
folic acid + Zn + vit B₁₂.

Anaemia

→ ↓ capacity of RBCs to carry to
O₂ to the tissue.

→ → It occurs when the balance between production and destruction of RBCs is disturb.

→ This disturbance can be due to

(1) Blood cells

↳ Impaired RBCs formation

↳ (due to deficiency of Fe, vit B₁₂, folic acid or bone marrow ↓)

↳ ↑ destruction of RBCs

(Haemolytic Anaemia)

Iron & it's Compound

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It is an essential element of the body and required for the formation of Hb.

Distribution of Iron in Body

- | | | |
|----------------------------|---|------|
| 1) Hb | → | 66 % |
| 2) Ferritin & haemosiderin | → | 25 % |
| 3) myoglobin | → | 03 % |
| 4) Parenchymal Iron | → | 06 % |

Daily Requirement of Iron

- Adult male → 0.5 - 1 mg.
- female → 1 - 2 mg.
- Infant (7-12 month) → 8 @ 11 mg.
- Pregnancy → 3-5 mg.

Iron Absorption

- The major part of dietary iron is inorganic and in Fe^{3+} form so it need to be reduced to ferrous (Fe^{2+}) form b/f absorption.
- It's absorption occurs in all over intestine.

Ferrous Sulphate

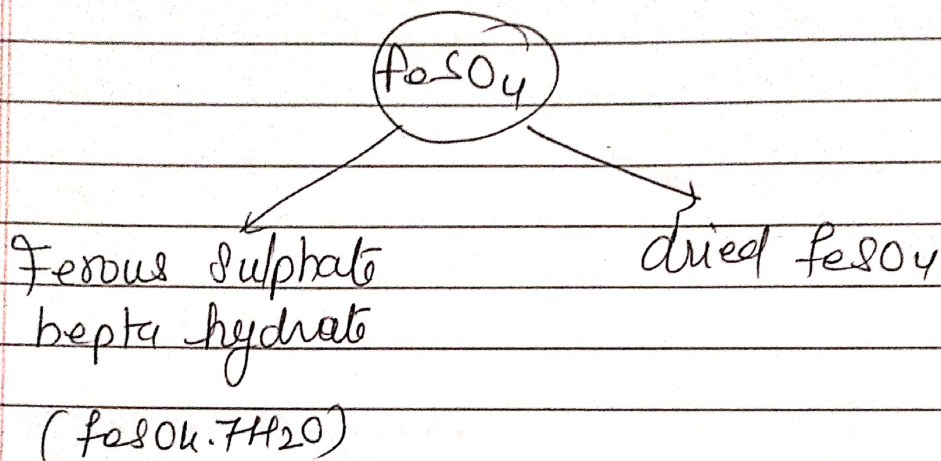
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molecular formula = $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$

m. wt = 278 g

Synonyms = Green vitriol, iron vitriole

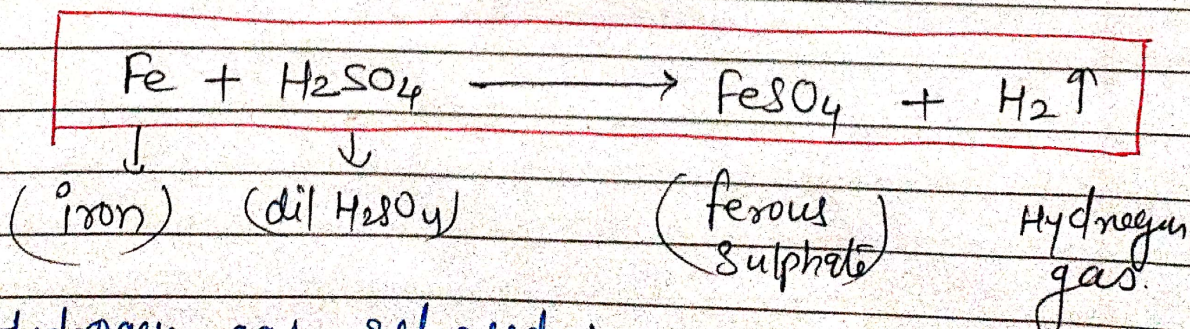
* FeSO_4 is available in two forms.



* Dried FeSO_4 contain not less than 80% and not more than 90% of FeSO_4 .

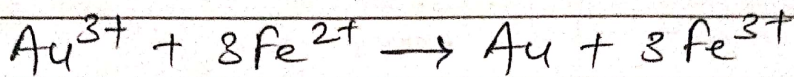
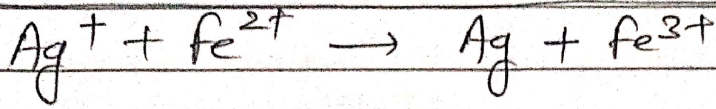
Method of Preparation

(1) It is obtained by the reaction of iron & sulphuric acid, in which along FeSO_4 (product), Hydrogen gas is released.

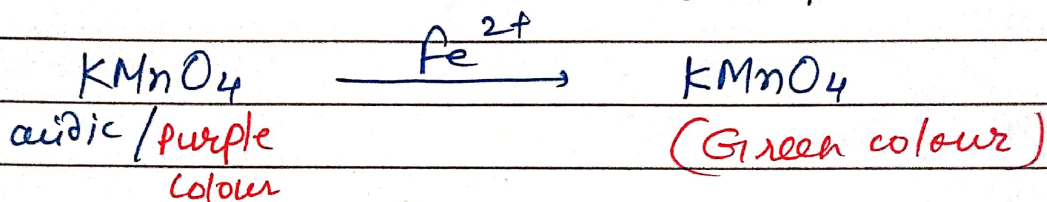


* Hydrogen gas released in form of bubbles.

2) It reduces salts of silver and gold to their metals.



3) It decolourise the acidified KMnO_4



4) With ammonium sulphate it forms Mohr's salt.



STORAGE

→ In air tight container.

Dose → 300-400 mg / daily.

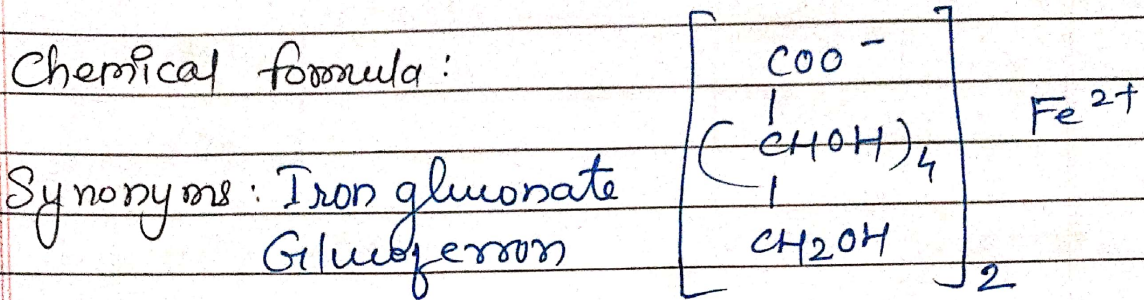
USES

- 1) As haematinics
- 2) Treatment of anaemia
- 3) Used to dye fabrics and tanning cloths.
- 4) Also possess disinfectant property
- 5) As insecticide in agriculture.

Ferrous Gluconate

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Mol. formula : $C_{12}H_{22}FeO_{14} \cdot 2H_2O$



Physical Property

1) colour → fine yellow grey
or pale greenish yellow powder.

2) Odour → Burnt sugar like

3) Solubility → rapidly soluble in warm H_2O
insoluble in alcohol.

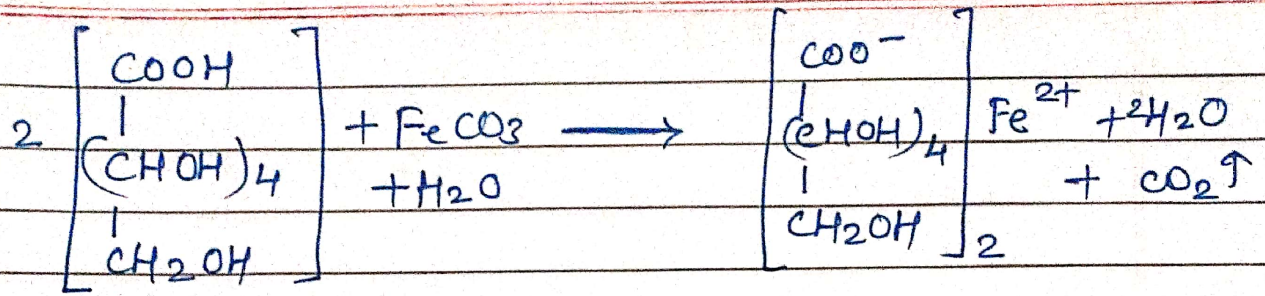
4) * Light sensitive as oxidized to ferrous (Fe^{2+}).

5) It's aq. solution is stabilized by addition of glucose.

Assay : Based on Redox titration

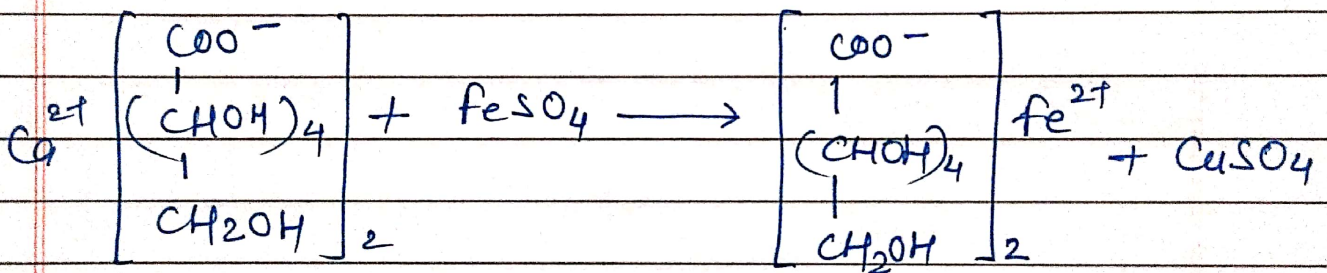
Method of Preparation

① It is prepared from ferrous carbonate (freshly prepared) & is heated & gluconic acid in aq. media.



(Gluconic acid)

(ferrous gluconate)

(2) By Double decomposition Reaction b/wCalcium gluconate + $\text{FeSO}_4 \rightarrow$ ferrous gluconateDOSE : 600 mg/dayUSES :

- 1) As haematinics
- 2) Much safer than ferrous sulphate having less side effect
- 3) Used in the form of tablet & elixir.