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# Ferric Subsulfate Solution

$Fe_4(OH)_2(SO_4)_5$ 737.71

Basic ferric sulfate solution.

Monsel's Solution CAS RN®: 1310-45-8; UNII: 3QJ8WS6V8H.

» Ferric Subsulfate Solution contains, in each 100 mL, basic ferric sulfate equivalent to not less than 20 g and not more than 22 g of iron (Fe).

Ferric Subsulfate Solution may be prepared as follows. Add 55 mL of Sulfuric Acid to 800 mL of water in a porcelain dish and heat to nearly 100°, then add 75 mL of nitric acid, and mix. Divide 1045 g of Ferrous Sulfate, coarsely powdered, into 4 portions, and add these portions one at a time to the hot liquid, stirring after each addition until effervescence ceases. If, after the Ferrous Sulfate has dissolved, the solution has a black color, add nitric acid, a few drops at a time, with heating and stirring, until red fumes cease to be evolved. Boil the solution until it assumes a red color and is free from nitrate, as indicated by the test for *Limit of nitrate* below, maintaining the volume at about 1000 mL by the addition of water as needed. Cool, and add enough water to make the solution measure 1000 mL. Filter, if necessary, until the Solution is clear.

**Packaging and storage**—Preserve in tight, light-resistant containers, and store at temperatures above 22°.

**Labeling**—The label indicates that crystallization may occur if the Solution is exposed to temperatures below 22°, and that warming will redissolve the crystals. Label it to indicate that it is intended for topical and vaginal use only.

**Identification**—

**A:** A 1 in 20 dilution of the Solution in water yields a brownish-red precipitate with ammonia TS.

**B:** A 1 in 20 dilution of the Solution in water yields a blue precipitate with potassium ferrocyanide TS.

**C:** A 1 in 20 dilution of the Solution in water yields a white precipitate with barium chloride TS that is insoluble in hydrochloric acid.

**Limit of nitrate**—Add a clear crystal of ferrous sulfate to a cooled mixture of equal volumes of sulfuric acid and a 1 in 10 dilution of the Solution in water: the crystal does not become brown, nor does a brownish-black color develop around it.

**Limit of ferrous salts**—Add a few drops of freshly prepared potassium ferricyanide TS to 2 mL of 1 in 20 dilution of the solution in water: a brown color is produced and the solution remains free from even a transient green or greenish-blue color.

**Assay**—Transfer 10.0 mL of the Solution to a 100-mL volumetric flask, dilute with water to volume, and mix. Transfer 10.0 mL of this solution to a glass-stoppered conical flask, and add 5 mL of hydrochloric acid and 3 g of potassium iodide. Insert the stopper into the flask, and allow the mixture to stand for 15 minutes. Add 15 mL of water, and titrate the liberated iodine with 0.1 N sodium thiosulfate VS, using starch TS as the indicator. Each mL of 0.1 N sodium thiosulfate is equivalent to 5.585 mg of iron (Fe).



**Auxiliary Information** - Please check for your question in the FAQs before contacting USP.

| Topic/Question | Contact | Expert Committee |
|---|---|---|
| FERRIC SUBSULFATE SOLUTION | Documentary Standards Support | SM22020 Small Molecules 2 |

**Chromatographic Database Information:** Chromatographic Database

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