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Change to read:

Ferric Sulfate,

$Fe_2(SO_4)_3 \cdot xH_2O$ CAS RN®: 15244-10-7.—Grayish-white, hygroscopic powder, or fawn-colored pearls, slowly soluble in water.

Assay: Accurately weigh about 700 mg, and dissolve it in a mixture of 50 mL of water and 3 mL of hydrochloric acid in a glass-stoppered flask. Add 3 g of potassium iodide, and allow to stand in the dark for 30 minutes. Then dilute with 100 mL of water, and titrate with 0.1 N sodium thiosulfate VS, adding 3 mL of starch TS as the endpoint is approached. Each mL of 0.1 N sodium thiosulfate is equivalent to 5.585 mg of Fe: not less than 21.0% and not more than 23.0% is found.

Insoluble matter ⟨Reagent test⟩**:** A 10-g portion, dissolved in a mixture of 100 mL of water and 5 mL of sulfuric acid, shows not more than 2 mg of insoluble matter (0.02%).

Chloride: Dissolve 1 g by warming with a mixture of 10 mL of water and 1 mL of nitric acid, add 4 mL of additional nitric acid, and dilute with water to 50 mL. To 25 mL add 1 mL of phosphoric acid and 1 mL of silver nitrate TS. Any turbidity does not exceed that produced in a control containing 0.01 mg of chloride ion (Cl), 1 mL of nitric acid, 1 mL of phosphoric acid, and 1 mL of silver nitrate TS (0.002%).

Ferrous iron: Dissolve 4 g by warming with 50 mL of dilute sulfuric acid (1 in 10), cool, and titrate with 0.1 N potassium permanganate: not more than 0.16 mL is required to produce a permanent pink color (0.02% as Fe+2).

[Note—Because the reagents used in the tests for *Copper* and *Zinc* may contain excessive amounts of copper and zinc, they should first be purified by extracting with *Dithizone Extraction Solution* (see ▲*Lead* ⟨251⟩*, Procedures, Procedure 1*▲ (CN 1-Jun-2023)).]

Copper: Dissolve 1.2 g in 100 mL of water. To 10 mL add 50 mL of a solution containing 5 g of ammonium tartrate and 5 mL of ammonium hydroxide. Add 10 mL of *Standard Dithizone Solution* (see ▲*Lead* ⟨251⟩*, Procedures, Procedure 1*▲ (CN 1-Jun-2023)), shake for 2 minutes, draw off the dithizone layer, and compare the pink color with that in a control containing 6 µg of copper ion (Cu) and treated exactly as the 10-mL portion of test solution. If the color in the test solution is less than that in the control, then the test specimen contains less than the limit of both *Copper* and *Zinc*. If the color in the test solution is more than that in the control, add 15 mL of dilute hydrochloric acid (1 in 250), and shake for 2 minutes. Draw off the dithizone solution, and shake with a second 15 mL of dilute hydrochloric acid (1 in 250) for 2 minutes. Draw off the dithizone, combine the two acid extracts, and reserve for the *Zinc* test. Any pink color in the dithizone solution is not darker than that in the control solution treated exactly as the test solution (0.005%).

Zinc: To the combined acid extracts saved from the *Copper* test, add 0.5 M sodium acetate to bring the pH between 5.0 and 5.5, and then add 1 mL of 0.1 N sodium thiosulfate. Add 10 mL of *Standard Dithizone Solution* (see ▲*Lead* ⟨251⟩*, Procedures, Procedure 1*▲ (CN 1-Jun-2023)), shake for 2 minutes, and allow the layers to separate. Draw off the dithizone, and discard the water layer. Any pink color is not greater than that in a control prepared by adding 0.006 mg of zinc ion (Zn) to the combined acid extracts from the control used in the test for *Copper* (0.005%).

Nitrate: Dissolve 10 g in 100 mL of dilute sulfuric acid (1 in 100), heat to boiling, and pour, slowly, into a mixture of 140 mL of water and 50 mL of stronger ammonia TS. Filter through a folded filter while still hot, wash with hot water until the volume of the filtrate is 300 mL, mix, and cool. To 15 mL of this solution add 1 mL of sodium chloride solution (1 in 200), 0.10 mL of indigo carmine TS, and 15 mL of sulfuric acid. The blue color is not completely discharged at the end of 5 minutes (0.01%).

Substances not precipitated by ammonia: Evaporate to dryness 30 mL of the filtrate obtained in the test for *Nitrate*, and ignite gently: the weight of residue does not exceed 1 mg (0.10%).

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

Topic/Question	Contact	Expert Committee
FERRIC SULFATE	Margareth R.C. Marques Principal Scientific Liaison	HDQ Headquarters

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