F - Ferric ammonium sulfate (0.1 mol/L) VS.... Fuchsin/sulfurous acid TS

Ferric ammonium sulfate (0.1 mol/L) VS

Ferric ammonium sulfate R dissolved in a mixture of sulfuric acid (~1760 g/L) TS and water to contain 48.22 g of $FeNH_4(SO_4)_2$ $,12H_2O$ in 1000 mL.

Procedure. Dissolve 50 g of ferric ammonium sulfate R in a mixture of 300 mL of water and 6 mL of sulfuric acid (~1760 g/L) TS. Dilute with sufficient water to produce 1000 mL.

Method of standardization. Ascertain the exact concentration of the 0.1 mol/L solution in the following manner: transfer 25 mL to a glass-stoppered flask and add 3 mL of hydrochloric acid (~420 g/L) TS and 2 g of potassium iodide R. Allow the solution to stand for 10 minutes and titrate the liberated iodine with sodium thiosulfate (0.1 mol/L) VS using starch TS as indicator. Perform a blank determination and make any necessary corrections.

Storage. Store this solution in a tightly closed container, protected from light.

Ferric ammonium sulfate (45 g/L) TS

A solution of ferric ammonium sulfate R containing about 45 g/L of $FeNH_4(SO_4)_2$.

Ferric ammonium sulfate R

$FeNH_4(SO_4)_2,12H_2O$ (SRIP, 1963, p. 88).

Ferric ammonium sulfate TS1

Procedure. Dissolve 0.2 g of ferric ammonium sulfate R in 50 mL of water, add 6 mL of nitric acid (~1000 g/L) TS and sufficient water to produce 100 mL.

Ferric ammonium sulfate TS2

Procedure. Dissolve 8.3 g of ferric ammonium sulfate R in sufficient sulfuric acid (0.25 mol/L) VS to produce 1000 mL.

Ferric chloride (25 g/L) TS

A solution of ferric chloride R containing about 27 g/L of $FeCl_3$.

Ferric chloride (50 g/L) TS

A solution of ferric chloride R containing about 50 g of $FeCl_3$ per litre.

Ferric chloride (63 g/L) TS

A solution of ferric chloride R containing about 63 g of FeCl3 per litre.

Ferric chloride (65 g/L) TS

A solution of ferric chloride R containing about 65 g of $FeCl_3$ per litre.

Ferric chloride R

$FeCl_3,6H_2O$ (SRIP, 1963, p. 88).

Ferric chloride/ferricyanide/arsenite TS

Procedure. Prepare 3 separate solutions:

(1) Dissolve 2.7 g of ferric chloride R in 100 mL of hydrochloric acid (~70 g/L) TS.

(2) Dissolve 3.5 g of potassium ferricyanide R in 100 mL of water. This solution should be freshly prepared.

(3) Dissolve 3.8 g of arsenic trioxide R in 25 mL of hot sodium hydroxide (~80 g/L) TS. Allow to cool, add 50 mL of sulfuric acid (~100 g/L) TS and dilute to 100 mL with water.

Immediately before use mix 5 volumes of solution (1), 5 volumes of solution (2) and 1 volume of solution (3).

Ferric chloride/potassium ferricyanide TS

Procedure. Dissolve 2 g of ferric chloride R and 0.10 g of potassium ferricyanide R in sufficient water to produce 20 mL.

Note. Ferric chloride/potassium ferricyanide TS must be freshly prepared.

Ferric chloride/potassium ferricyanide TS1

Procedure. Dissolve 2 g of ferric chloride R and 0.5 g of potassium ferricyanide R in sufficient water to produce 20 mL.

Note. Ferric chloride/potassium ferricyanide TS2 must be freshly prepared.

Ferricyanide standard (50 µg/mL) TS

Procedure. Prepare a solution of potassium ferricyanide R in water to contain 7.8 g of $K_3Fe(CN)_6$ per 100 mL. Dilute 1.0 mL of this solution with sufficient water to produce 1000 mL.

Note. Ferricyanide standard (50 µg/mL) TS must be freshly prepared.

Ferrocyanide standard (100 µg/mL) TS

Procedure. Prepare a solution of potassium ferrocyanide R in water to contain 2.0 g of $K_4Fe(CN)_6,3H_2O$ per 100 mL. Dilute 1.0 mL of this solution with sufficient water to produce 100.0 mL.

Note. Ferrocyanide standard (100 µg/mL) TS must be freshly prepared.

Ferroin TS

Procedure. Dissolve 0.15 g of *o*-phenanthroline R in 10 mL of a solution of ferrous sulfate R prepared by dissolving 0.70 g of clear crystals of ferrous sulfate R in 100 mL of water.

Note: The ferrous sulfate solution must be prepared immediately before dissolving the *o*-phenanthroline.

Storage. Ferroin TS should be stored in well-closed containers.

Ferrous ammonium sulfate (0.1 mol/L) VS

Procedure. Dissolve 40 g of ferrous ammonium sulfate R in 100 mL of sulfuric acid (~190 g/L) TS and dilute to 1000 mL with carbon-dioxide-free water R.

Method of standardization. Ascertain the exact concentration of the 0.1 mol/L solution in the following manner: to 25 mL add 10 mL of sulfuric acid (~100 g/L) TS and 1 mL of phosphoric acid (~1440 g/L) TS and titrate with potassium permanganate (0.02 mol/L) VS. Each mL of potassium permanganate (0.02 mol/L) VS is equivalent to 39.21 mg of $(NH_4)_2Fe(SO_4)_2$.

Ferrous ammonium sulfate (1 g/L) TS

A solution of ferrous ammonium sulfate R containing about 1 g/L of $Fe(NH_4)_2(SO_4)_2$.

Ferrous ammonium sulfate R

$Fe(NH_4)_2(SO_4)_2,6H_2O$ (SRIP, 1963, p. 89).

Ferrous sulfate (0.1 mol/L) VS

Procedure. Dissolve 2.8 g of ferrous sulfate R in 90 mL of freshly boiled and cooled water and add a sufficient quantity of sulfuric acid (~1760 g/L) TS to produce 100 mL.

Method of standardization. Ascertain the exact concentration of the 0.1 mol/L solution in the following manner: to 40.0 mL of the ferrous sulfate solution add 5 mL of phosphoric acid (~1.440 g/L) TS and titrate immediately with potassium permanganate (0.02 mol/L) VS.

Note: Standardize immediately before use.

Ferrous sulfate (15 g/L) TS

A solution of ferrous sulfate R in freshly boiled and cooled water containing about 15 g/L of $FeSO_4$ (approximately 0.1 mol/L).

Note: Ferrous sulfate (15 g/L) TS must be freshly prepared.

Ferrous sulfate (7 g/L) TS

A solution of ferrous sulfate R in freshly boiled and cooled water containing about 7 g of $FeSO_4$ per litre.

Note: Ferrous sulfate (7 g/L) TS must be freshly prepared.

Ferrous sulfate R

$FeSO_4,7H_2O$ (SRIP, 1963, p. 90).

Ferrous sulfate/hydrochloric acid TS

Procedure. Dissolve 0.45 g of ferrous sulfate R in 50 mL of hydrochloric acid (0.1 mol/L) VS and dilute with sufficient carbon-dioxide-free water R to produce 100 mL.

Note : Ferrous sulfate/hydrochloric acid TS should be prepared immediately before use.

Firebrick, pink, R

A suitable grade for use in gas chromatography with an average particle size of about 180–250 µm.

Fluorescein sodium TS

A 2 g/L solution of fluorescein sodium R in water R.

Fluorescein sodium (2 g/L) R

Use fluorescein sodium as described in the monograph for *Fluorescein sodium.*

2-Fluoro-2-deoxy-D-glucose R

$C_6H_{11}FO_5$.

Description. A white crystalline powder.

A commercially available reagent of suitable grade.

Melting point. 174 °C to 176 °C.

Formaldehyde TS

[formaldehyde R]. (SRIP, 1963, p. 91).

Formaldehyde/sulfuric acid TS

Procedure. To 10 mL of sulfuric acid (~1760 g/L) TS add 0.2 mL of formaldehyde TS.

Shelf-life. Use within 1 month after preparation.

Formamide R

CH_3NO (SRIP, 1963, p. 92).

Formic acid (~1080 g/L) TS

[formic acid R]. CH_2O_2 (SRIP, 1963, p. 92) *d* ~ 1.2.

Formic acid, anhydrous, R

CH_2O_2, *d* ~ 1.22. Contains not less than 98.0% of CH_2O_2.

Description. A colourless liquid; odour, pungent.

Miscibility. Miscible with water and ethanol (~750 g/L) TS.

Chlorides. Dilute 1 mL to 15 mL with water and proceed as described under *2.2.1 Limit test for chlorides*. Anhydrous formic acid R contains not more than 0.50 mg/g.

Sulfates. Dilute 0.5 mL to 15 mL with water and proceed as described under *2.2.2 Limit test for sulfates*. Anhydrous formic acid R contains not more than 1.5 mg/g.

Residue on evaporation. Evaporate on a water-bath and dry to constant weight at 105 °C; leaves not more than 0.5 mg/g of residue.

Assay. To a tared flask containing about 10 mL of water, quickly add about 1 mL of the test liquid and weigh. Dilute with 50 mL of water and titrate with carbonate-free sodium hydroxide (1 mol/L) VS using phenolphthalein/ethanol TS as indicator. Each mL of carbonate-free sodium hydroxide (1 mol/L) VS is equivalent to 46.03 mg of CH_2O_2.

Fuchsin TS

Procedure. Pour carefully 40 mL of sulfuric acid (~1760 g/L) TS into 60 mL of water. Allow to cool and add 100 mL of a 1 g/L solution of basic fuchsin R. Dilute with water to 200 mL and allow to stand. An orange-yellow colour develops. Immediately before use dilute the solution with an equal volume of glacial acetic acid R.

Fuchsin, basic, R

[magenta, basic R]. A mixture of rosaniline hydrochloride, $(H_2NC_6H_4)_2C:C_6H_3(CH_3):NH_2^+Cl^-$ and pararosaniline hydrochloride, $(H_2NC_6H_4)_2C:C_6H_4:NH_2^+Cl^-$.

Description. Crystals or crystalline fragments, with a glossy, greenish-bronze lustre.

Solubility. Soluble in water, ethanol (~750 g/L) TS and amyl alcohol R.

Loss on drying. Dry to constant weight at 105 °C; it loses not more than 0.10 g/g.

Sulfated ash. Ignite 1 g with 0.5 mL of sulfuric acid (~1760 g/L) TS: not more than 3.0 mg/g.

Fuchsin, decolorized, TS

Procedure. Dissolve 1 g of basic fuchsin R in 600 mL of water and cool in an ice-bath; add 20 g of sodium sulfite R dissolved in 100 mL of water; cool in an ice-bath and add slowly, with constant stirring, 10 mL of hydrochloric acid (~250 g/L) TS; dilute with water to 1000 mL. If the resulting solution is turbid it should be filtered and, if brown in colour, it should be shaken with sufficient charcoal R (0.2–0.3 g) to render it colourless and then filtered immediately. Occasionally it is necessary to add 2–3 mL of hydrochloric acid (~250 g/L) TS, followed by shaking, to remove a little residual pink colour. The solution resulting from any of the foregoing modifications should be allowed to stand overnight before use. Decolorized fuchsin TS should be protected from light.

Fuchsin/sulfurous acid TS

Procedure. Dissolve 0.10 g of fuchsin, basic, R in 50 mL of water with gentle heating. To the cooled solution add 20 mL of sodium metabisulfite (50 g/L) TS and 1 mL of hydrochloric acid (~420 g/L) TS. Dilute to 100 mL with water, mix and allow to stand in the dark for 2 hours. Fuchsin/sulfurous acid TS should be colourless and should not be used for a period longer than 24 hours.