A - Acacia R.... Azo violet TS

Acacia R

The dried gummy exudate from the stems and branches of *Acacia senegal* (L.) Willd. and of other species of *Acacia* of African origin.

Description. Rounded or ovoid tears of varying diameters from about 1 cm to 3 cm; yellowish white or pale amber; odourless.

Solubility. Very slowly soluble in twice its weight of water, leaving only a very small residue of vegetable particles; practically insoluble in ethanol (~750 g/L) TS and ether R.

Ash. Not more than 50 mg/g.

Acid-insoluble ash. Not more than 5.0 mg/g.

Insoluble matter. Mix 5 g of powdered or finely ground material with 100 mL of water and 10 mL of hydrochloric acid (~70 g/L) TS and boil gently for 15 minutes, stirring frequently. Filter while hot through a sintered glass crucible, wash the residue with hot water and dry to constant weight at 105 °C; not more than 5 mg/g.

Tannin. Dissolve 1 g in 10 mL of water and add 0.1 mL of ferric chloride (25 g/L) TS; no bluish-black colour or blackish precipitate is produced.

Acetaldehyde R

Ethanal; C_2H_4O.

Description. A clear, colourless, flammable liquid.

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

Refractive index. n_D^{20} = 1.332

Relative density. d_{20}^{20} = 0.788

Boiling point. About 21°C.

Acetate buffer, pH 3.0, TS

A buffer mixture of pH 3.0.

Procedure. Dissolve 12 g of sodium acetate R in water, add 6 mL of glacial acetic acid R and dilute with sufficient water to produce 100 mL.

Acetate buffer, pH 3.5, TS

Procedure. Dissolve 25.0 g of ammonium acetate R in 25 mL of water R and add 38.0 mL of hydrochloric acid (~250 g/l) TS. Adjust the pH, if necessary, with hydrochloric acid (~70 g/L) TS or ammonia (~100 g/L) TS. Dilute with water R to 100.0 mL.

Acetate buffer, pH 4.5, TS

Procedure. Dissolve 10.9 g of sodium acetate R in 100 mL of water, add 8 mL of glacial acetic acid R, mix and dilute to 1000 m with water.

Acetate buffer, pH 4.6, TS

Procedure. Dissolve 5.4 g of sodium acetate R in 50 mL of water, adjust to pH 4.6 with glacial acetic acid R and dilute to 100 mL with water.

Acetate buffer, pH 4.7, TS

Procedure. Dissolve 8.4 g of sodium acetate R in 100 mL of water, add 3.35 mL of glacial acetic acid R, mix and dilute to 1000 mL with water.

Acetate buffer, pH 5.0, TS

Procedure. Dissolve 13.6 g of sodium acetate R in 100 mL of water, add 6 mL of glacial acetic acid R, mix and dilute to 1000 mL with water.

Acetate buffer, pH 5.5, TS

Procedure. Dissolve 54.4 g of sodium acetate R in 50 mL of water, heating to 35 °C, if necessary. After cooling, slowly add 10 mL of glacial acetic acid R. Shake and dilute to 1000 mL with water.

Acetate buffer, pH 6.0, TS

Procedure. Dissolve 100 g of ammonium acetate R in 300 mL of water. Add 4.1 mL of glacial acetic acid R, adjust the pH to 6.0 using either ammonia (~100 g/L) TS or acetic acid (~300 g/L) TS and dilute to 500 mL with water.

Acetate standard buffer TS

Procedure. To 10 mL of acetic acid (~60 g/L) TS add 10 mL of sodium hydroxide (1 mol/L) VS and dilute with sufficient carbon-dioxide-free water R to produce 1000 mL.

Acetic acid (~10 g/L) TS

Acetic acid (~300 g/L) TS, diluted with water to contain 10 g of $C_2H_4O_2$ per litre (approximately 0.17 mol/L); *d*~1.0016

Acetic acid (~90 g/L) TS

Acetic acid (~300 g/L) TS, diluted with water to contain about 90 g of $C_2H_4O_2$ per litre (approximately 1.5 mol/L).

Acetic acid (~120 g/L) TS

Acetic acid (~300 g/L) TS, diluted with water to contain 120 g of $C_2H_4O_2$ per litre (approximately 2 mol/L); *d*~1.016.

Acetic acid (~300 g/L) TS

A solution of glacial acetic acid R containing about 300 g/L of $C_2H_4O_2$ (approximately 5 mol/L); *d*~1.037.

Acetic acid (~60 g/L) PbTS

Acetic acid (~60 g/l) TS that complies with the following test: Evaporate 20 mL of acetic acid (~60 g/L) TS almost to dryness on a water-bath, add 25 mL of water and carry out the test for heavy metals. The heavy metals limit is 3 µg/mL.

Acetic acid (~60 g/L) TS

Acetic acid (~300 g/L) TS, diluted to contain about 60 g/L of $C_2H_4O_2$ (approximately 1 mol/L); *d*~1.008.

Acetic acid (0.07 mol/L) VS

A solution prepared by diluting 4.2 mL of glacial acetic acid R to 1000 mL with water.

Acetic acid (5.0 g/L) TS

Acetic acid (~300 g/L) TS, diluted with water to contain about 5.0 g of $C_2H_4O_2$ per litre; *d*~1.0007.

Acetic acid (~10 g/L) TS

Acetic acid (~300 g/L) TS, diluted with water to contain about 10 g of $C_2H_4O_2$ per litre.

Acetic acid, anhydrous, R

Glacial acetic acid R for use in non-aqueous titrations containing not less than 99.6% w/w of $C_2H_4O_2$ and that complies with the following test:

Water. Not more than 4 mg/g, determined as described under *2.8 Determination of water by the Karl Fischer method*, Method A. If the water content is greater than 4 mg/g it may be adjusted by adding the calculated amount of acetic anhydride R.

Acetic acid, glacial, R

$C_2H_4O_2$ (SRIP, 1963, p. 25); *d*~1.048.

Acetic acid, glacial, R1

Glacial acetic acid R, that complies with the following tests:

Substances reducing dichromate. To 10 mL add 1.0 mL of potassium dichromate (0.0167 mol/L) VS and cautiously add 10 mL of sulfuric acid (~1760 g/l) TS. Cool the solution to room temperature and allow to stand for 30 minutes. While swirling the solution dilute slowly and cautiously with 50 mL of water, cool and add 1.5 mL of freshly-prepared potassium iodide (80 g/L) TS. Titrate the liberated iodine with sodium thiosulfate (0.1 mol/L) VS, adding 3 mL of starch TS as the end-point is approached. Perform a blank titration and make any necessary corrections. Not less than 0.60 mL of sodium thiosulfate (0.1 mol/L) VS is consumed.

Substances reducing permanganate. Add 40 mL to 10 mL of water. Cool to 15 °C, add 0.30 mL of potassium permanganate (0.02 mol/L) VS and allow to stand at 15 °C for 10 minutes; the pink colour is not entirely discharged.

Acetic anhydride R

$C_4H_6O_3$ (SRIP, 1963, p. 26).

Acetic anhydride/dioxan TS

Procedure. To 50 mL of dioxan R add 1 mL of acetic anhydride R (approximately 0.2 mol/L).

Acetone R

C_3H_6O (SRIP, 1963, p. 27).

Acetonitrile (400 g/L) TS

Procedure. Mix 1 volume of acetonitrile R with 1 volume of water. The resulting solution contains about 400 g/L of C_2H_3N.

Acetonitrile for chromatography R

Acetonitrile for chromatography contains not less than 99.9% of C_2H_3N and complies with the following tests.

Absorbance (1.6): not more than 0.10 at 200 nm, determined using water R as compensation liquid.

Acetonitrile R

Methyl cyanide, C_2H_3N.

Description. A clear, colourless liquid.

Miscibility. Freely miscible with water.

Acetyl chloride R

C_2H_3ClO. Contains not less than 98.0% of C_2H_3ClO in both assay A and assay B (see below).

Description. A clear, colourless or very slightly yellow liquid.

Phosphorus compounds. Carefully treat 1 mL with 1 mL of water, add 1 mL of nitric acid (~1000 g/L) TS, boil, cool, dilute with 20 mL of water, add 10 mL of ammonium molybdate/nitric acid TS and allow to stand at about 40 °C for 2 hours; no yellow precipitate is produced.

Assay. (A) Dissolve about 1 g, accurately weighed, in 50 mL of carbonate-free sodium hydroxide (1 mol/L) VS and titrate with sulfuric acid (0.5 mol/L) VS, using phenolphthalein/ethanol TS as indicator. Each mL of carbonate-free sodium hydroxide (1 mol/L) VS is equivalent to 7.850 mg of C_2H_3ClO. (B) Dilute the neutralized liquid from A to 250 mL with water, mix and titrate 50 mL with silver nitrate (0.1 mol/L) VS, using potassium chromate (100 g/L) TS as indicator. Each mL of silver nitrate (0.1 mol/L) VS is equivalent to 7.850 g of C_2H_3ClO.

Aciclovir R

Aciclovir of a suitable quality should be used.

Adipic acid R

$C_6H_{10}O_4$. CAS Reg. No. 124-04-9.

Description. Prisms.

Solubility. Freely soluble in methanol, soluble in acetone, practically insoluble in light petroleum.

Melting point. About 152 °C.

Agar R

(SRIP, 1963, p. 27).

Alum R

Aluminium potassium sulfate dodecahydrate; $KAl(SO_4)_2,12H_2O$ (SRIP, 1963, p. 29).

Ammonia/ethanol/methanol (1/95/5) TS

Procedure. To 1 mL of ammonia (~206 g/L) TS add 99 mL of Ethanol / methanol (95/5) TS.

Ammonia/methanol (10/90) TS

Procedure. To 10 mL of ammonia (~206 g/L) TS add 90 mL of methanol R.

Ammonium acetate (~0.40 g/L) TS

A solution of ammonium acetate R containing about 0.385 g of $C_2H_7NO_2$ per litre (approximately 0.005 mol/L).

Amoxicillin trihydrate R

Amoxicillin trihydrate of a suitable quality should be used.

Aluminium chloride R

$AlCl_3,6H_2O$ (SRIP, 1963, p. 30).

Aluminium chloride TS

Procedure. Dissolve 65.0 g of aluminium chloride R in sufficient water to produce 100 mL, add 0.5 g of charcoal R, stir for 10 minutes and filter. While stirring add to the filtrate sufficient sodium hydroxide (0.5 mol/L) VS to adjust the pH to 1.5.

Aluminium hydroxide R

Hydrated $Al(OH)_3$.

Description. A white, odourless powder.

Solubility. Practically insoluble in water and in ethanol (~750 g/L) TS.

Aluminium oxide R

Al_2O_3.

A suitable grade for use in thin-layer chromatography.

Aluminium R

Al (SRIP, 1963, p. 29); wire, granules or sheets.

Aluminium standard (2 ppm Al) TS

Procedure. Immediately before use dilute with water R to 100 times its volume a solution containing aluminium potassium sulphate R equivalent to 0.352 g of $AlK(SO_4)_2$, $12H_2O$ and 10 mL of diluted sulphuric acid R in 100 mL.

Aluminium standard (10 µg Al/mL) TS

Procedure. Dissolve 17.6 mg of alum R in 5 mL of sulfuric acid (0.05 mol/L) VS and dilute to 100 mL with water.

Note. For the preparation of this test solution commercially available aluminium nitrate standard solution 1000 µg Al^{3+}/mL or aluminium nitrate nonahydrate can also be used.

4-Amino-6-chloro-1,3-benzenedisulfonamide R

$C_6H_8ClN_3O_4S_2$.

Description. A white, odourless powder.

Solubility. Soluble in ammonia (~100 g/L) TS; practically insoluble in water.

Identification. The absorption spectrum of a 5 µg/mL solution in methanol R exhibits maxima at about 223 nm, 265 nm and 312 nm. The absorptivity at 265 nm is about 64.0 ($A^{1\%}_{1cm}$ = 640).

Sulfated ash. Ignite 2 g; not more than 1.0 mg/g.

4-Aminoantipyrine R

$C_{11}H_{13}N_3O$. 4-Amino-2,3-dimethyl-1-phenyl-3-pyrazolin-5-one; ampyrone; aminopyrazolone.

Description. Pale yellow crystals or powder.

Solubility. Sparingly soluble in water; freely soluble in ethanol (~750 g/L) TS; very slightly soluble in ether R.

Melting temperature. About 108 °C.

4-Aminoantipyrine TS1

Procedure. Dissolve 0.125 g of 4-aminoantipyrine R in 25 mL of methanol R containing 0.25 mL of hydrochloric acid (~420 g/L) TS.

4-Aminoantipyrine TS2

Procedure. Dissolve about 0.1 g of 4-aminoantipyrine R in 30 mL of water and add a mixture of 10 mL of sodium carbonate (200 g/L) TS and 2 mL of sodium hydroxide (1 mol/L) VS; dilute with sufficient water to produce 100 mL.

Note: 4-Aminoantipyrine TS2 must be freshly prepared.

4-Aminobenzoic acid R

$C_7H_7NO_2$. Contains not less than 98.5% of $C_7H_7NO_2$.

Description. White or slightly yellow crystals or a crystalline powder; odourless.

Solubility. Soluble in 170 parts of water, in 9 parts of boiling water, in 8 parts of ethanol (~750 g/L) TS and in 50 parts of ether R.

Melting range. 186–189 °C.

Sulfated ash. Not more than 1.0 mg/g.

Loss on drying. Dry at 105 °C for 2 hours; it loses not more than 2.0 mg/g.

Assay. Transfer to a beaker about 0.3 g, accurately weighed and previously dried at 105 °C for 2 hours, add 5 mL of hydrochloric acid (~420 g/L) TS, 50 mL of water and stir until dissolved. Cool to about 15 °C, add about 25 g of crushed ice and slowly titrate with sodium nitrite (0.1 mol/L) VS until a glass rod dipped into the titrated solution produces an immediate blue ring when touched to starch/iodide paper R. When the titration is complete the end-point is reproducible after the mixture has been allowed to stand for 1 minute. Each mL of sodium nitrite (0.1 mol/L) VS is equivalent to 13.71 mg of C7H7NO2.

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

2-Aminobutanol R

$C_4H_{11}NO$.

Description. A colourless or light yellow, clear liquid.

Miscibility. Miscible with water and methanol R.

Mass density. ρ_{20} = 0.944–0.950 kg/L.

Refractive index. n_D^{20} = 1.450–1.455.

Identification. Dissolve 0.05 g in 4 mL of ethanol (~750 g/L) TS, add 0.5 mL of a 2.5 mg/mL solution of triketohydrindene hydrate R and warm on a water-bath; a violet colour is produced.

4-Aminophenol R

C_6H_7NO.

Description. A white or almost white, crystalline powder.

Melting temperature. About 184 °C with decomposition.

Aminopolyether R

4,7,13,16,21,24-Hexaoxa-1,10-diazabicyclo[8,8,8]hexacosane ; $C_{18}H_{36}N_2O_6$.

A commercially available reagent of suitable grade.

Melting point. 70 °C to 73 °C.

Ammonia (~100 g/L) FeTS

Ammonia (~100 g/l) TS that complies with the following test: Evaporate 5 mL of ammonia (~100 g/L) TS nearly to dryness on a water-bath, add 40 mL of water, 2 mL of citric acid (180 g/L) FeTS, and 2 drops of mercaptoacetic acid R; mix, make alkaline with ammonia (~100 g/L) FeTS and dilute to 50 mL with water; no pink colour is produced.

Ammonia (~100 g/L) PbTS

Ammonia (~100 g/l) TS that complies with the following test: Evaporate 5 mL of ammonia (~100 g/L) TS to dryness on a water-bath, add to the residue 1 mL of hydrochloric acid (~70 g/L) TS and evaporate to dryness. Dissolve the residue in 2 mL of acetic acid (~60 g/L) PbTS, dilute with water to 25 mL and carry out the test for heavy metals. Prepare the blank in a similar way. The heavy metals limit is 2 µg/mL.

Ammonia (~100 g/L) TS

Ammonia (~260 g/L) TS, diluted to contain about 100 g/L of NH_3 (approximately 6 mol/L); *d*~0.956.

Ammonia (~17 g/L) TS

Ammonia (~100 g/L) TS, diluted to contain about 17 g of NH_3 per litre (approximately 1 mol/L); *d*~0.992.

Ammonia (~260 g/L) TS

[ammonia, strong, R] (SRIP, 1963, p. 31); *d*~0.894.

Ammonia (~35 g/L) TS

Ammonia (~100 g/L) TS, diluted to contain about 35 g of NH_3 per litre (approximately 2 mol/L); *d*~0.985.

Ammonia (~50 g/L) TS

Ammonia (~260 g/L) TS, diluted with water to contain about 50 g of NH_3 per litre (approximately 3 mol/L); *d*~0.977.

Ammonia (~10 g/L) TS

Concentrated ammonia solution R, strong ammonia solution R or ammonia (~260 g/L) TS, diluted to contain about 10 g of NH_3 per litre (approximately 1% (m/*V*)).

Ammonia buffer TS

Procedure. Dissolve 67.5 g of ammonium chloride R in 570 mL of ammonia (~260 g/L) TS and dilute with water to 1000 mL.

Ammonia buffer TS2

Procedure. Dissolve 67.5 g of ammonium chloride R in 650 mL of ammonia (~260 g/L) TS and dilute with water to produce 1000 mL.

Ammonia solution, concentrated R

Caution: On exposure to air, it loses ammonia rapidly. Use care in handling concentrated ammonia solution because of the caustic nature of the solution and the irritating properties of its vapor.

Definition: Content: 25.0 per cent (m/m) to 30.0 per cent of NH_3 (m/m).

Appearance: clear, colourless liquid, very caustic.

Solubility: miscible with water and with ethanol (96 per cent).

Relative density: d_{20}^{20} = 0.892 to 0.910.

Ammonia solution, strong R

Caution: On exposure to air, it loses ammonia rapidly. Use care in handling strong ammonia solution because of the caustic nature of the solution and the irritating properties of its vapor.

Definition: Content: Not less than 30 per cent of NH_3 (m/m).

Appearance: clear, colourless liquid, very caustic.

Relative density: d_{20}^{20} = not more than 0.892.

Ammonium acetate (100 g/L) TS

A solution of ammonium acetate R containing 100 g of $C_2H_7NO_2$ per litre.

Ammonium acetate (2 g/L) TS

A solution of ammonium acetate R containing about 2 g of $C_2H_7NO_2$ per litre.

Note: Ammonium acetate (2 g/L) TS must be freshly prepared.

Ammonium acetate (40 g/L) TS

A solution of ammonium acetate R containing about 38.5 g of $C_2H_7NO_2$ per litre (approximately 0.5 mol/L).

Note: Ammonium acetate (40 g/L) TS must be freshly prepared.

Ammonium acetate (50g/L) TS

A solution of ammonium acetate R containing about 50 g of $C_2H_7NO_2$ per litre.

Ammonium acetate (80 g/L) TS

A solution of ammonium acetate R containing about 77 g/L of $C_2H_7NO_2$ (approximately 1 mol/l).

Ammonium acetate TS

Procedure. Dissolve 150 g of ammonium acetate R in water, add 3 mL of glacial acetic acid R and dilute with sufficient water to produce 1000 mL.

Note: Ammonium acetate TS must be used within 1 week of preparation.

Ammonium acetate buffer, pH 4.62, TS

Procedure. Adjust the pH of ammonium acetate (100 g/L) TS to 4.62 using acetic acid (~60 g/L) TS.

Ammonium acetate R

$C_2H_7NO_2$ (SRIP, 1963, p. 32).

Ammonium bicarbonate R.

Analytical reagent grade of commerce containing not less than 99% of NH_4HCO_3.

Ammonium carbonate R

$(NH_4)_2CO_3$ (SRIP, 1963, p. 33).

Ammonium carbonate R1

A mixture of varying proportions of ammonium hydrogen carbonate (NH_4HCO_3) and ammonium carbamate (NH_2COONH_4). It liberates not less than 30 per cent m/m of NH_3.

Description. White or almost white translucent mass.

Solubility. Slowly soluble in about 4 parts of water. It is decomposed by boiling water.

Assay. Dissolve 2.00 g in 25 mL of water R. Slowly add 50.0 mL of hydrochloric acid (1 mol/L) VS, titrate with sodium hydroxide (1 mol/L) VS, using 0.1 mL of methyl orange/ethanol TS1 as indicator. Each mL of hydrochloric acid (1 mol/L) VS is equivalent to 17.03 mg of NH_3.

Storage. Store at a temperature below 20 °C.

Ammonium carbonate (158 g/L) TS

A 158 g/L solution of ammonium carbonate R1.

Ammonium chloride (10 µg/mL NH4) TS

Procedure. Dissolve 0.296 g, accurately weighed, of ammonium chloride R in sufficient water to produce 1000 mL. Dilute 10 mL of this solution to 100 mL.

Shelf-life. Use the solution within 2 weeks of its preparation.

Ammonium chloride (100 g/L) TS

A solution of ammonium chloride R containing about 100 g of NH_4Cl per litre.

Ammonium chloride (20g/L) TS

A solution of ammonium chloride R containing about 20g of NH_4Cl per litre.

Ammonium chloride buffer, pH 10.0, TS

A buffer mixture of pH 10.0.

Procedure. Dissolve 7.0 g of ammonium chloride R in 57 mL of ammonia (~260 g/L) TS and dilute with sufficient water to produce 100 mL.

Ammonium chloride buffer, pH 10.5, TS

A buffer mixture of pH 10.5.

Procedure. Dissolve 6.95 g of ammonium chloride R in 75 mL of ammonia (~260 g/L) TS and dilute to 100 mL with water.

Ammonium chloride R

NH_4Cl (SRIP, 1963, p. 33).

Ammonium chloride TS (Nessler's reagent)

Procedure. Dissolve 3.15 g of ammonium chloride R in a sufficient quantity of ammonia-free water R to produce 1000 mL.

Ammonium chloride, dilute, TS

Procedure. To 10 mL of ammonium chloride TS add a sufficient quantity of ammonia-free water R to produce 1000 mL.

Ammonium dihydrogen phosphate R

$(NH_4)H_2PO_4$

Ammonium formiate for chromatography R

Ammonium formiate for chromatography contains not less than 99.0% of CH_5NO_2.

Ammonium formate R

CH_5NO_2. Deliquescent crystals or granules, very soluble in water R, soluble in dehydrated ethanol R. Melting range: 119 °C to 121 °C. Storage in an airtight container.

Ammonium mercurithiocyanate TS

Procedure. Dissolve 30 g of ammonium thiocyanate R and 27 g of mercuric chloride R in sufficient water to produce 1000 mL.

Ammonium molybdate (45 g/L) TS

A solution of ammonium molybdate R containing about 47 g of $(NH_4)6Mo7O24$ per litre.

Ammonium molybdate (95 g/L) TS

A solution of ammonium molybdate R containing about 95 g/L of $(NH4)_6Mo_7O_{24}$.

Ammonium molybdate R

$(NH_4)_6Mo_7O_{24},4H_2O$ (SRIP, 1963, p. 34).

Ammonium molybdate/ceric sulfate/sulfuric acid TS

Procedure. Dissolve 2.5 g ammonium molybdate R and 1.0 g ceric sulfate R in sulfuric acid (~100 g/L) to produce 100 mL.

Ammonium molybdate/nitric acid TS

Procedure. Dissolve 50 g of ammonium sulfate R in 500 mL of nitric acid (~1000 g/l) TS using a 2000 mL conical flask or beaker. Dissolve separately in a beaker 150 g of ammonium molybdate R in 400 mL of boiling water. After cooling pour this solution slowly, while stirring, into the acid solution and dilute with water to 1000 mL. Allow to stand for 2–3 days and filter.

Storage. Store in well-closed, brown glass bottles and keep in a cool place.

Ammonium molybdate/sulfuric acid TS

Procedure. Dissolve 0.5 g of ammonium molybdate R in sufficient sulfuric acid (~1760 g/L) TS to produce 10 mL.

Ammonium molybdate/vanadate TS

Procedure. Shake 4 g of finely powdered ammonium molybdate R and 0.1 g of finely-powdered ammonium vanadate R with 70 mL of water. Add 20 mL of nitric acid (~1000 g/L) TS and dilute to 100 mL with water.

Ammonium nitrate (50 g/L) TS

A solution of ammonium nitrate R containing about 50 g of NH_4NO_3 per litre.

Ammonium nitrate R

NH_4NO_3 (SRIP, 1963, p. 35).

Ammonium nitrate TS

Procedure. Dissolve 1.6 g of ammonium nitrate R in 30 mL of water, add 3.0 mL of ammonia (~260g/L) TS and dilute with sufficient water to produce 100 mL.

Ammonium oxalate (25 g/L) TS

A solution of ammonium oxalate R containing about 27 g/L of $C_2H_8N_2O_4$.

Ammonium oxalate (50 g/L) TS

A solution of ammonium oxalate R containing about 50 g of $C_2H_8N_2O_4$ per litre.

Ammonium oxalate R

$C_2H_8N_2O_4,H_2O$ (SRIP, 1963, p. 36).

Ammonium persulfate R

$(NH_4)_2S_2O_8$ (SRIP, 1963, p. 37).

Ammonium persulfate/phosphate buffer TS

Procedure. Dissolve 10 g of ammonium persulfate R in sufficient phosphate buffer, pH 7.4, TS to produce 100 mL.

Ammonium pyrrolidinedithiocarbamate (10 g/L) TS

Procedure. Immediately before use wash 10 g of ammonium pyrrolidinedithiocarbamate R three times, each with 25 mL of isobutyl methyl ketone R, filter and dry the substance. Then dissolve 1.0 g in sufficient water to produce 100 mL.

Ammonium pyrrolidinedithiocarbamate R

Ammonium 1-pyrrolidinecarbodithioate; $C_5H_{12}N_2S_2$. Reagent grade quality.

Ammonium reineckate (10 g/L) TS

A solution of ammonium reineckate R containing about 10 g of $NH_4[Cr(NH_3)_2(SCN)_4]$ per litre.

Ammonium reineckate R

$NH_4[Cr(NH_3)_2(SCN)_4],H_2O$ (SRIP, 1963, p. 39).

Ammonium sulfamate (25 g/L) TS

A solution of ammonium sulfamate R containing about 25 g of $NH_4OSO_2NH_2$ per litre.

Ammonium sulfamate (5 g/L) TS

A solution of ammonium sulfamate R containing about 5 g of $NH_4OSO_2NH_2$ per litre.

Ammonium sulfamate (50 g/L) TS

A solution of ammonium sulfamate R containing 50 g of $NH_4OSO_2NH_2$ per litre.

Ammonium sulfamate R

$NH_4OSO_2NH_2$ (SRIP, 1963, p. 39).

Ammonium sulfate R

$(NH_4)_2SO_4$ (SRIP, 1963, p. 40).

Ammonium sulfate (50 g/L) TS

Transfer 50 g ammonium sulfate R in a 1000 mL volumetric flask and make up to volume with water R.

Ammonium sulfide TS

Procedure. Prepare a saturated solution of hydrogen sulfide R in ammonia (~100 g/L) TS. To 25 mL of this solution add 50 mL of ammonia (~100 g/L) TS.

Ammonium thiocyanate (0.01 mol/L) VS

Ammonium thiocyanate R, dissolved in water to contain 0.7612 g of NH_4SCN in 1000 mL.

Method of standardization. Ascertain the exact concentration of the solution following the method described under ammonium thiocyanate (0.1 mol/L) VS.

Ammonium thiocyanate (0.05 mol/L) VS

Ammonium thiocyanate R, dissolved in water to contain 3.806 g of NH_4SCN in 1000 mL.

Method of standardization. Ascertain the exact concentration of the solution following the method described for ammonium thiocyanate (0.1 mol/L) VS.

Ammonium thiocyanate (0.1 mol/L) VS

Ammonium thiocyanate R, dissolved in water to contain 7.612 g of NH_4SCN in 1000 mL.

Method of standardization. Ascertain the exact concentration of the 0.1 mol/L solution in the following manner: Place 30.0 mL of silver nitrate (0.1 mol/L) VS in a glass-stoppered flask. Dilute with 50 mL of water, add 2 mL of nitric acid (~1000 g/L) TS and then titrate with the ammonium thiocyanate solution to the first appearance of a red-brown colour, using 2 mL of ferric ammonium sulfate (45 g/L) TS as indicator.

Ammonium thiocyanate (10g/L) TS

A solution of ammonium thiocyanate R containing 10g of NH_4SCN per litre.

Ammonium thiocyanate (75 g/L) TS

A solution of ammonium thiocyanate R containing about 75 g/l of NH_4SCN (approximately 1 mol/L).

Ammonium thiocyanate R

NH_4SCN (SRIP, 1963, p. 40).

Ammonium thiocyanate/cobalt(II) nitrate TS

Procedure. Dissolve 20 g of ammonium thiocyanate R and 5 g of cobalt(II) nitrate R in 100 mL of water. Add sufficient sodium chloride R to saturate the solution.

Ammonium vanadate R

NH_4VO_3.

Description. A white to slightly yellowish, crystalline powder.

Solubility. Slightly soluble in water; soluble in ammonia (~100 g/L) TS.

Ammonium vanadate TS

Dissolve 0.5 g of Ammonium vanadate in 1.5 mL water and dilute to 100 mL with sulfuric acid.

Ampicillin trihydrate R

(2*S*,5*R*,6*R*)-6-[(R)-2-Amino-2-phenylacetamido]-3,3-dimethyl-7-oxo-4-thia-1-azabicyclo[3.2.0]heptane-2-carboxylic acid trihydrate; [2*S*-[2*α*,5*α*,6*β* (*S* *)]]-6-[(aminophenylacetyl)amino]-3,3-dimethyl-7-oxo-4-thia-1-azabicyclo[3.2.0]heptane-2-carboxylic acid trihydrate. $C_{16}H_{19}N_3O_4S,3H_2O$.

A commercially available reagent of suitable grade.

Amyl alcohol R

$C_5H_{12}O$ (SRIP, 1963, p. 42).

Aniline (25 g/L) TS

A solution of aniline R containing about 25 g of C_6H_7N per litre.

Aniline R

C_6H_7N (SRIP, 1963, p. 43).

Anisaldehyde R

4-Methoxybenzaldehyde; $C_8H_8O_2$.

Description. A colourless to pale yellow, oily liquid.

Solubility. Very slightly soluble in water, miscible with ethanol (~750 g/L) TS and ether R.

Mass density. ρ_{20} = about 1.125 kg/L.

Boiling point. About 248 °C.

Anisaldehyde TS

Procedure. Mix in the following order 0.5 mL of anisaldehyde R, 10 mL of glacial acetic acid R, 85 mL of methanol R and 5 mL of sulfuric acid (~1760 g/L) TS.

Anisaldehyde/methanol TS

Procedure. Slowly add 10 mL of glacial acetic acid R and 5 mL of sulfuric acid (~1760 g/L) TS to 55 mL of methanol R and cool to room temperature. Separately add 0.5 mL of anisaldehyde R to 30 mL of methanol R. Mix the two solutions thoroughly.

Storage. Keep anisaldehyde/methanol TS protected from light.

Note: Anisaldehyde/methanol TS should be freshly prepared.

Anisaldehyde/sulfuric acid TS

Procedure. Add 5 mL of anisaldehyde R to 10 mL of sulfuric acid (~1760 g/L) TS.

Anthrone R

$C_{14}H_{10}O$.

Description. A pale yellow, crystalline powder.

Solubility. Practically insoluble in water; slightly soluble in ethanol (~750 g/L) TS and in sulfuric acid (~100 g/L) TS.

Solubility in carbon tetrachloride R. Add 0.5 g to 10 mL of carbon tetrachloride R; a clear, non-fluorescent solution is produced.

Melting range. 154–156 °C.

Anthrone TS

Procedure. Dissolve 35 mg of anthrone R in 100 mL of sulfuric acid (~1760 g/L) TS.

Anthrone TS2

Procedure. Dissolve 200 mg of anthrone R in 100 mL of sulfuric acid (~1760 g/L) TS.

Antimony sodium tartrate (50 g/L) TS

A solution of antimony sodium tartrate R containing about 50 g/L of $C_4H_4NaO_7Sb$.

Antimony sodium tartrate R

$C_4H_4NaO_7Sb$.

Description. Hygroscopic, transparent or whitish scales or powder.

Solubility. Soluble in 1.5 parts of water; practically insoluble in ethanol (~710 g/L) TS.

Antimony trichloride R

$SbCl_3$. Contains not less than 97.0% of $SbCl_3$.

Description. Colourless crystals.

Solubility. Very soluble in dehydrated ethanol R and in chloroform R (may form a slightly turbid solution).

Chloroform-insoluble substances. Dissolve 5.0 g in 25 mL of chloroform R, filter through a tared filtering crucible, wash the crucible with several portions of chloroform R and dry at 105 °C; it leaves a residue of not more than 1.0 mg.

Assay. Dissolve 0.5 g, accurately weighed, in 30 mL of water containing 4.0 g of potassium sodium tartrate R, add 2 g of sodium hydrogen carbonate R and titrate with iodine (0.1 mol/L) VS. Each mL of iodine (0.1 mol/L) VS is equivalent to 11.41 mg of SbCl3.

Note: In moist air fumes may be evolved.

Antimony trichloride TS

Procedure. Dissolve 22 g of antimony trichloride R in 100 mL of ethanol-free chloroform R, add 2.5 mL of acetyl chloride R and allow to stand for 30 minutes.

Aprotinin R

A polypeptide consisting of a chain of 58 amino acids. A commercially available reagent of suitable grade.

Arachis oil R

Use arachis oil as described in the monograph for *Arachis oil*.

Argon R

Ar. Contains not less than 99.995% of Ar.

Carbon monoxide. When used as described in the test for carbon monoxide in medicinal gases, after passage of 10 litres of argon at a flow rate of 4 litres per hour, not more than 0.05 mL of sodium thiosulfate (0.002 mol/L) VS is required for the titration (0.6 µL/L).

Arsenic trioxide R

As_2O_3 (SRIP, 1963, p. 44).

Arsenic trioxide R1

Arsenic trioxide R that has been prepared according to either of the following methods:

1. Recrystallize arsenic trioxide R from a boiling mixture of 20 parts of hydrochloric acid (~420 g/L) TS and 5 parts of water. After cooling collect the crystals and recrystallize them from boiling water until the mother liquor has a pH greater than 4.0. Dry the crystals to constant weight over silica gel, desiccant, R.

2. Sublime arsenic trioxide R in an appropriate apparatus.

pH value. Heat to boiling for a few minutes 1.0 g in 20 mL of water, filter and cool; the filtrate has a pH greater than 4.0.

Chlorides. Dissolve 10 mg in sufficient water to produce 10 mL. Acidify with 1 drop of nitric acid (~1000 g/L) TS and add 2 drops of silver nitrate (0.1 mol/L) VS; the solution remains clear and colourless for not less than 2 minutes.

Sulfides. To a solution of 5.0 g in a mixture of 10 mL of sodium hydroxide (~80 g/L) TS and 15 mL of water add 2 drops of lead acetate (80 g/L) TS; the solution remains colourless.

Loss on drying. Dry to constant weight over silica gel, desiccant, R; it loses not more than 0.1 mg/g.

Sulfated ash. Not more than 0.1 mg/g.

Arsenic, dilute, AsTS

One millilitre contains 10 µg of arsenic.

Procedure. Dilute 1 mL of strong arsenic AsTS with sufficient water to produce 100 mL.

Note: Dilute arsenic AsTS must be freshly prepared.

Arsenic, strong, AsTS

Procedure. Dissolve 0.132 g of arsenic trioxide R in 6 mL of sodium hydroxide (~80 g/L) TS, by gentle heating. Dilute the cooled solution with 20 mL of water and add 50 mL of hydrochloric acid (~250 g/L) TS and sufficient water to produce 100 mL.

Azo violet R

4-(4-Nitrophenylazo)resorcinol; Magneson I: $C_{12}H_9N_3O_4$.

Description. A red powder.

Melting temperature. About 193 °C with decomposition.

Azo violet TS

Procedure. Dissolve 0.2 g of azo violet R in a mixture of 1 volume of toluene R and 2 volumes of cyclohexane R.