S - Salicylaldehyde R.... Sulfurous acid TS

Salicylaldehyde R

$C_7H_6O_2$.

Description. A clear, colourless, oily liquid; odour, bitter, almond-like.

Solubility. Slightly soluble in water; soluble in ethanol (~750 g/L) TS and ether R.

Relative density, d_{4}^{20} = 1.17.

Salicylaldehyde TS

Procedure. Mix 2 g of salicylaldehyde R with 100 mL of methanol R and add 0.1 mL of hydrochloric acid (~420 g/L) TS.

Salicylic acid R

2-hydroxybenzoic acid; $C_7H_6O_3$.

A commercially available reagent of suitable grade.

Storage. Keep protected from light.

Saline TS

A sterile solution of sodium chloride R containing about 9 g/L of NaCl. Sterilization by heating in a steam autoclave at 120 °C for 30 minutes is suitable.

Selenious acid R

H_2SeO_3. Contains not less than 93% of H_2SeO_3.

Description. Colourless or white crystals.

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

Assay. Transfer about 0.1 g, accurately weighed, to a glass-stoppered flask and dissolve in 50 mL of water. Add 10 mL of potassium iodide (300 g/L) TS and 5 mL of hydrochloric acid (~420 g/L) TS, mix, insert the stopper into the flask and allow to stand for 10 minutes. Dilute with 50 mL of water, add 3 mL of starch TS and titrate with sodium thiosulfate (0.1 mol/L) VS until the colour is no longer diminished, then titrate with iodine (0.05 mol/L) VS to a blue colour. Subtract the volume of iodine (0.05 mol/L) VS from the volume of sodium thiosulfate (0.1 mol/L) VS equivalent to selenious acid. Each mL of sodium thiosulfate (0.1 mol/L) VS is equivalent to 3.225 mg of H_2SeO_3.

Note: Selenious acid R effloresces in dry air and is hygroscopic in moist air.

Selenious acid/sulfuric acid TS

Procedure. Dissolve 10 mg of selenious acid R in 2 mL of sulfuric acid (~1760 g/L) TS.

Selenium R

Se (SRIP, 1963, p. 172).

Caution. Selenium vapours are toxic.

D-serine R

A commercially available reagent of suitable grade.

Silica gel for chromatography R

A very finely divided (3–10 µm) silica gel. The particle size is indicated after the name of the reagent in the tests where it is used.

Description. A fine, white, homogeneous powder.

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

Silica gel R1

Silica gel G.

Description. A white, homogeneous powder.

Composition. A mixture of silica gel (particle size 10–40 µm) and calcium sulfate, hemihydrate (about 130 g/kg).

Silica gel R2

Silica gel HF(UV254).

Description. A white, homogeneous powder.

Composition. Silica gel (particle size 10–40 µm) containing a fluorescent indicator having an optimal intensity at 254 nm (about 15 g/kg).

Silica gel R3

Silica gel H.

Description. A white, homogeneous powder.

Particle size. 10–40 µm.

Silica gel R4

Silica gel GF (UV 254).

Description. A white, homogeneous powder.

Composition. A mixture of silica gel (particle size 10–40 µm) and calcium sulfate, hemihydrate (about 130 g/kg) containing a fluorescent indicator having an optimal intensity at 254 nm (about 15 g/kg).

Silica gel R5

Silica gel 60.

Description. A white, homogeneous powder.

Average pore size. 6 nm.

Silica gel R6

Silica gel 60 (UV 254).

Description. A white, homogeneous powder.

Average pore size. 6 nm.

Composition. Silica gel (average particle size 15 µm) containing a fluorescent indicator having an optimal intensity at 254 nm (about 15 g/kg).

Silica gel R7

Silica gel H, octadecylsilyl (UV 254)

Description. A white, homogeneous powder.

Composition. RP-18 modified silica gel (particle size 9-12 µm) containing a fluorescent indicator having an optimal intensity at 254nm.

Silica gel for chromatography, hexadecylamidylsilyl

Particles of silica gel, the surface of which has been modified with chemically-bonded hexadecylamidylsilyl groups.

Silica gel for chromatography, octadecylsilyl, base-deactivated

A very finely divided silica gel, pretreated before the bonding of octadecylsilyl groups to minimize the interaction with basic compounds.

Silica gel, desiccant, R

Description. An amorphous, partly hydrated SiO_2, occurring in glassy granules of varying sizes. It is frequently coated with a substance that changes colour when the capacity to absorb water is exhausted. Such coloured products may be regenerated (i.e. may regain their capacity to absorb water) by heating at 110 °C until the gel assumes the original colour.

Loss on ignition. Ignite 2 g, accurately weighed, at 950 ± 50 °C to constant weight; the loss is not more than 60 mg/g.

Water absorption. Place about 10 g in a tared weighing-bottle and weigh. Then place the bottle, with the cover removed, for 24 hours in a closed container in which the atmosphere is maintained at 80% relative humidity by being in equilibrium with sulfuric acid having a relative density of 1.19. Weigh again; the increase in weight is not less than 310 mg/g.

Silver nitrate (0.001 mol/L) VS

Silver nitrate R dissolved in water to contain 0.1699 g of $AgNO_3$ in 1000 mL.

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

Silver nitrate (0.01 mol/L) VS

Silver nitrate R dissolved in water to contain 1.699 g of $AgNO_3$ in 1000 mL.

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

Silver nitrate (0.05 mol/L) VS

Silver nitrate R dissolved in water to contain 8.494 g of $AgNO_3$ in 1000 mL.

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

Silver nitrate (0.1 mol/L) VS

Silver nitrate R dissolved in water to contain 16.99 g of $AgNO_3$ in 1000 mL.

Method of standardization. Ascertain the exact concentration of the 0.1 mol/L solution in the following manner: dilute 40.0 mL of the silver nitrate solution with 100 mL of water. Heat the solution and add slowly, with continuous stirring, hydrochloric acid (~70 g/L) TS until precipitation of the silver is complete. Boil the mixture cautiously for about 5 minutes then allow it to stand in the dark until the precipitate has settled and the supernatant liquid has become clear. Transfer the precipitate completely to a tared filtering crucible and wash it with small portions of water that have been slightly acidified with nitric acid (~1000g/L) TS. Dry the precipitate to constant weight at 110 °C. From the weight of silver chloride calculate the concentration of the silver nitrate solution in mol/L. Protect the silver chloride from light as much as possible during the determination.

Silver nitrate (~0.1 mol/L) TS

A 17 g/L solution of silver nitrate R.

Storage. Protected from light.

Silver nitrate (100 g/L) TS

A solution of silver nitrate R containing 100 g of $AgNO_3$ per litre.

Silver nitrate (40 g/L) TS

A solution of silver nitrate R containing about 42.5 g/L of $AgNO_3$ (approximately 0.25 mol/L).

Silver nitrate R

$AgNO_3$ (SRIP, 1963, p. 173).

Silver nitrate/methanol TS

Procedure. Prepare a saturated solution of silver nitrate R in methanol R.

Silver oxide R

Ag_2O.

Description. A brownish-black, heavy powder; odourless.

Solubility. Practically insoluble in water; freely soluble in nitric acid (~130 g/L) TS and ammonia (~260 g/L) TS.

Substances insoluble in nitric acid. Dissolve 5 g in a mixture of 5 mL of nitric acid (~1000 g/L) TS and 10 mL of water, dilute to about 65 mL with water and filter any undissolved residue on a tared filtering crucible (retain the filtrate for the test for substances not precipitated by hydrochloric acid). Wash the crucible with water until the last washing shows no opalescence with 1 drop of hydrochloric acid (~250 g/L) TS and dry to constant weight at 105 °C; not more than 0.2 mg/g.

Substances not precipitated by hydrochloric acid. Dilute the filtrate obtained in the test for substances insoluble in nitric acid to

250 mL with water, heat to boiling and add drop-wise sufficient hydrochloric acid (~250 g/L) TS to precipitate all of the silver (about 5 mL) avoiding any great excess. Cool, dilute to 300 mL with water and allow to stand overnight. Filter, evaporate 200 mL of the filtrate to dryness in a suitable tared porcelain dish and ignite; not more than 0.5 mg/g.

Alkalinity. Heat 2 g with 40 mL of water on a water-bath for 15 minutes, cool and dilute to 50 mL with water. Filter, discarding the first 10 mL of the filtrate. To 25 mL of the subsequent filtrate add 2 drops of phenolphthalein/ethanol TS and titrate with hydrochloric acid (0.02 mol/L) VS to the disappearance of any pink colour; not more than 0.20 mL is required.

Silver standard (5 µg Ag/mL) TS

Procedure. Dissolve 39.5 mg of silver nitrate R in sufficient water to produce 100 mL. Dilute 1.0 mL of this solution to 100 mL with water.

Soda lime R

(SRIP, 1963, p. 174).

Sodium 1,2-naphthoquinone-4-sulfonate (5 g/L) TS

A solution of sodium 1,2-naphthoquinone-4-sulfonate R containing about 5 g of $C_{10}H_5NaO_5S$ per litre.

Sodium 1,2-naphthoquinone-4-sulfonate R

$C_{10}H_5NaO_5S$.

Description. A yellow or orange, crystalline powder.

Solubility. Soluble in water; insoluble in ethanol (~750 g/L) TS.

Sodium acetate (0.04 mol/L) VS

Sodium acetate R dissolved in water to contain 3.281 g of $C_2H_3NaO_2$ in 1000 mL.

Sodium acetate (150 g/L) TS

A solution of sodium acetate R containing about 150 g/L of $C_2H_3NaO_2$.

Sodium acetate (50 g/L) TS

A solution of sodium acetate R containing about 50 g of $C_2H_3NaO_2$ per litre.

Sodium acetate (60 g/L) TS

A solution of sodium acetate R containing about 60 g of $C_2H_3NaO_2$ per litre.

Sodium acetate R

$C_2H_3NaO_2,3H_2O$. Contains not less than 99.0% of $C_2H_3NaO_2,3H_2O$.

Description. Colourless crystals.

Solubility. Very soluble in water; sparingly soluble in ethanol (~750 g/L) TS.

Clarity and colour of solution. A 0.1 g/mL solution is clear and colourless.

pH value. pH of a 50 mg/mL solution, 7.5–9.2.

Iron. Use 8 g; the solution complies with the *2.2.4 Limit test for iron*; not more than 5.0 µg/g.

Heavy metals. Use 1.0 g for the preparation of the test solution as described in *2.2.3 Limit test for heavy metals*, Procedure 1; determine the heavy metals content according to Method A; not more than 10 µg/g.

Substances reducing permanganate. Dissolve 1 g in 100 mL of boiling water, add 2 mL of sulfuric acid (~100 g/L) TS and 0.05 mL of potassium permanganate (0.02 mol/L) VS and boil for 5 minutes; the pink colour does not entirely disappear.

Assay. Dissolve about 0.4 g, accurately weighed, in 100 mL of glacial acetic acid R and 5 mL of acetic anhydride R. After 5 minutes add 10 drops of 1-naphtholbenzein/acetic acid TS and titrate to a green end-point with perchloric acid (0.1 mol/L) VS as described under *2.6 Non-aqueous titration*, Method A. Each mL of perchloric acid (0.1 mol/L) VS is equivalent to 13.61 mg of $C_2H_3NaO_2,3H_2O$.

Sodium acetate/glacial acetic acid (0.1 mol/L) VS

Procedure. Dissolve 5.3 g of anhydrous sodium carbonate R in small portions in 100 mL of glacial acetic acid R1, stirring well after each addition and add sufficient glacial acetic acid R1 to produce 1000 mL.

Method of standardization. Ascertain the exact concentration of the solution in the following manner: titrate the solution against 15.0 mL of perchloric acid (0.1 mol/L) VS using 2–3 drops of crystal violet/acetic acid TS. Each mL of perchloric acid (0.1 mol/L) VS is equivalent to 8.203 mg of $C_2H_3NaO_2$.

Sodium alizarinsulfonate (1 g/L) TS

Procedure. Dissolve 0.11 g of sodium alizarinsulfonate R in sufficient water to produce 100 mL.

Sodium alizarinsulfonate (10 g/L) TS

A solution of sodium alizarinsulfonate R containing about 10 g of $C_{14}H_7NaO_7S$ per litre.

Sodium alizarinsulfonate R

Alizarin Red S, sodium salt of 3,4-dihydroxy-9,10-anthraquinone-2-sulfonic acid; $C_{14}H_7NaO_7S,H_2O$.

Description. A yellow-brown or orange-yellow powder.

Solubility. Freely soluble in water, producing a yellow solution; sparingly soluble in ethanol (~750 g/L) TS.

Sodium arsenite (0.05 mol/l) VS

Procedure. Dissolve 5 g of arsenic trioxide R in a mixture of 20 mL of sodium hydroxide (~80 g/L) TS and 20 mL of water, dilute to 400 mL with water and add hydrochloric acid (~70 g/L) TS until the solution is neutral to litmus paper R. Dissolve 4 g of sodium hydrogen carbonate R in the prepared solution and dilute to 1000 mL with water.

Method of standardization. Ascertain the exact concentration of the 0.05 mol/L solution in the following manner: dilute 25 mL with 50 mL of water, add 5 g of sodium hydrogen carbonate R and titrate with iodine (0.05 mol/L) VS, using starch TS as indicator.

Storage. Add 1 drop of mercury R for the preservation of the solution.

Sodium carbonate (10 g/L) TS

A solution of sodium carbonate R containing about 10.6 g of Na_2CO_3 per litre (approximately 0.1 mol/L).

Sodium carbonate (50 g/L) TS

A solution of sodium carbonate R containing about 50 g/L of Na_2CO_3 (approximately 0.5 mol/L).

Sodium carbonate (75 g/L) TS

A solution of sodium carbonate R containing about 75 g of Na_2CO_3 per litre.

Sodium carbonate (106 g/L) TS

A solution of sodium carbonate R containing about 106 g of Na_2CO_3 per litre (approximately 1 mol/L).

Sodium carbonate (200 g/L) TS

A solution of sodium carbonate R containing 200 g of Na_2CO_3 per litre.

Sodium carbonate R

$Na_2CO_3,10H_2O$ (SRIP, 1963, p. 179).

Sodium carbonate standard TS

Procedure. Dissolve 2.64 g of sodium carbonate R and 2.093 g of sodium hydrogen carbonate R in sufficient carbon-dioxide-free water R to produce 1000 mL.

Sodium carbonate, anhydrous, FeR

Anhydrous sodium carbonate R that complies with the following additional test: Dissolve 4.0 g in 25 mL of water, add 8 mL of hydrochloric acid (~250 g/L) FeTS and proceed with the *2.2.4 Limit test for iron* using 2 mL of iron standard FeTS; not more than 10 µg/g.

Sodium carbonate, anhydrous, R

Na_2CO_3 (SRIP, 1963, p. 179).

Sodium chloride (10 g/L) TS

A solution of sodium chloride R containing about 10 g of NaCl per litre.

Sodium chloride (300g/L) TS

A solution of sodium chloride R containing about 300 g of NaCl per litre.

Sodium chloride (400 g/L) TS

A saturated solution of sodium chloride R containing about 400 g of NaCl per litre.

Sodium chloride (5.84 g/L) TS

A 5.84 g/L solution of sodium chloride R1 in water R.

Sodium chloride (9 g/L) TS

A solution of sodium chloride R containing about 9g of NaCl per litre.

Sodium chloride R

NaCl (SRIP, 1963, p. 181).

Sodium chloride R1

Use sodium chloride as described in the monograph for Sodium chloride.

Sodium chloride, pyrogen-free, R

Sodium chloride R which complies with the following additional test:

Pyrogens. Carry out the test as described under *3.5 Test for pyrogens* injecting, per kg of the rabbit's weight, a solution containing 9 mg in 10 mL of sterile water R.

Sodium citrate (250 g/L) TS

A solution of sodium citrate R containing about 294 g of $C_6H_5Na_3O_7,2H_2O$ in 1000 mL.

Sodium citrate R

$C_6H_5Na_3O_7,2H_2O$.

Contains not less than 99.0% of $C_6H_5Na_3O_7$, calculated with reference to the anhydrous substance.

Description. White, granular crystals or a crystalline powder; odourless. Slightly deliquescent in moist air.

Solubility. Soluble in less than 2 parts of water, practically insoluble in ethanol (~750 g/L) TS.

Appearance of solution. A 100 g/L solution is clear and colourless.

Water. Determined by the Karl Fischer method, keeping the substance in contact with the dehydrated methanol R for 15 minutes; not less than 110 mg/g and not more than 130 mg/g.

Assay. Dissolve about 0.15 g, accurately weighed, in 20 mL of glacial acetic acid R and titrate with perchloric acid (0.1 mol/L) VS as described in *2.6 Non-aqueous titration*, Method A. Each mL of perchloric acid (0.1 mol/L) VS is equivalent to 8.603 mg of $C_6H_5Na_3O_7$.

Sodium cobaltinitrite (100 g/L) TS

A solution of sodium cobaltinitrite R containing about 100 g/L of $Na_3Co(NO_2)_6$.

Sodium cobaltinitrite R

$Na_3Co(NO_2)_6$ (SRIP, 1963, p. 182).

Sodium diethyldithiocarbamate (0.8 g/L) TS

A solution of sodium diethyldithiocarbamate R containing about 0.8 g of $C_5H_{10}NNaS_2$ per litre.

Sodium diethyldithiocarbamate R

$C_5H_{10}NNaS_2,3H_2O$ (SRIP, 1963, p. 183).

Sodium dihydrogen phosphate (275 g/L) TS

A solution of sodium dihydrogen phosphate R containing about 275 g of NaH_2PO_4 per litre.

Sodium dihydrogen phosphate (45 g/L) TS

A solution of sodium dihydrogen phosphate R containing about 47 g of NaH_2PO_4 per litre.

Sodium dihydrogen phosphate, anhydrous R

Molecular formula: NaH_2PO_4

Description. White powder, hygroscopic.

Storage. In a tightly closed container.

Sodium dihydrogen phosphate dihydrate R

[sodium biphosphate]; sodium phosphate, monobasic; $NaH_2\ PO_4$, 2 H_2O.

Sodium dihydrogen phosphate R

[sodium biphosphate]; sodium phosphate, monobasic; NaH_2PO_4,H_2O (SRIP, 1963, p. 178).

Sodium dithionite R

Sodium hydrosulfite, sodium sulfoxylate; $Na_2O_4S_2$.

Description. A white or greyish white, crystalline powder.

Solubility. Very soluble in water, slightly soluble in ethanol (~750 g/L) TS.

Note : Sodium dithionite R oxidizes in air.

Sodium dithionite (200g/L) TS

A solution of sodium dithionite R containing about 200 g of $Na_2O_4S_2$ per litre.

Sodium dodecyl sulfate R.

Sodium lauryl sulfate; $C_{12}H_{25}NaO_4S$.

Purified grade of commercially available reagent containing not less than 99.0% of $C_{12}H_{25}NaO_4S$.

White, crystalline flakes.

Sodium fluoride R

NaF (SRIP, 1963, p. 183).

Sodium formate R

$CHNaO_2$.

Description. White, deliquescent granules or a crystalline powder; slight odour of formic acid.

Melting temperature. About 253 °C.

Sodium hexanesulfonate R

$C_6H_{13}NaO_3S$.

A commercially available reagent of suitable grade.

Sodium hydrogen carbonate (100 g/L) TS

A solution of sodium hydrogen carbonate R containing about 100 g of $NaHCO_3$ in 1000 mL.

Sodium hydrogen carbonate (40 g/L) TS

A solution of sodium hydrogen carbonate R containing about 42 g of $NaHCO_3$ per litre (approximately 0.5 mol/L).

Sodium hydrogen carbonate R

[sodium bicarbonate]; $NaHCO_3$ (SRIP, 1963, p. 177).

Sodium hydrogen carbonate R

$NaHCO_3$ (SRIP, 1963, p. 177).

Sodium hydroxide (~0.8 g/L) TS

A solution of sodium hydroxide R containing about 0.8 g/L of NaOH (approximately 0.02 mol/L).

Sodium hydroxide (~4 g/L) TS

A solution of sodium hydroxide R containing about 4 g/L of NaOH (approximately 0.1 mol/L).

Sodium hydroxide (~40 g/L) TS

A solution of sodium hydroxide R containing about 40 g/L of NaOH (approximately 1 mol/L).

Sodium hydroxide (~80 g/L) TS

A solution of sodium hydroxide R containing about 80 g/L of NaOH (approximately 2 mol/L).

Sodium hydroxide (~85 g/L) TS

A solution of sodium hydroxide R in water R containing about 85 g/L of NaOH.

Sodium hydroxide (~ 100 g/L) TS

A solution of sodium hydroxide R containing about 100 g/L of NaOH (approximately 2.5 mol/L).

Sodium hydroxide (~150 g/L) TS

A solution of sodium hydroxide R containing about 150 g/L of NaOH.

Sodium hydroxide (~200 g/L) TS

A solution of sodium hydroxide R containing about 200 g/L of NaOH.

Sodium hydroxide (~300 g/L) TS

A solution of sodium hydroxide R containing about 300 g/L of NaOH.

Sodium hydroxide (~400 g/L) TS

A solution of sodium hydroxide R containing about 400 g/L of NaOH.

Sodium hydroxide (~420 g/L) TS

A solution of sodium hydroxide R containing about 420 g/L of NaOH.

Sodium hydroxide (0.01 mol/L) VS

Sodium hydroxide R dissolved in water to contain 0.4001 g of NaOH in 1000 mL.

Method of standardization. Ascertain the exact concentration of the solution following the method described under sodium hydroxide (1 mol/L) VS.

Sodium hydroxide (0.01 mol/L), carbonate-free, VS

Sodium hydroxide R dissolved in water to contain 0.4001 g of NaOH in 1000 mL.

Procedure, test for carbonates and method of standardization. Prepare the solution, carry out the test and ascertain the exact concentration following the method described under carbonate-free sodium hydroxide (1 mol/L) VS.

Sodium hydroxide (0.02 mol/L) VS

Sodium hydroxide R dissolved in water to contain 0.8001 g of NaOH in 1000 mL.

Method of standardization. Ascertain the exact concentration of the solution following the method described under sodium hydroxide (1 mol/L) VS.

Sodium hydroxide (0.02 mol/L), carbonate-free, VS

Sodium hydroxide R dissolved in water to contain 0.8001 g of NaOH in 1000 mL.

Procedure, test for carbonates and method of standardization. Prepare the solution, carry out the test and ascertain the exact concentration following the method described under carbonate-free sodium hydroxide (1 mol/L) VS.

Sodium hydroxide (0.05 mol/L) VS

Sodium hydroxide R dissolved in water to contain 2.000 g of NaOH in 1000 mL.

Method of standardization. Ascertain the exact concentration of the solution following the method described under sodium hydroxide (1 mol/L) VS.

Sodium hydroxide (0.1 mol/L) VS

Sodium hydroxide R, dissolved in water to contain 4.001 g of NaOH in 1000 mL.

Method of standardization. Ascertain the exact concentration of the solution following the method described under sodium hydroxide (1 mol/L) VS.

Sodium hydroxide (0.1 mol/L), carbonate-free, VS

Sodium hydroxide R dissolved in water to contain 4.001 g of NaOH in 1000 mL.

Procedure, test for carbonates and method of standardization. Prepare the solution, carry out the test and ascertain the exact concentration following the method described under carbonate-free sodium hydroxide (1 mol/L) VS.

Sodium hydroxide (0.2 mol/L) VS

Sodium hydroxide R, dissolved in water to contain 8.001 g of NaOH in 1000 mL.

Method of standardization. Ascertain the exact concentration of the solution following the method described under sodium hydroxide (1 mol/L) VS.

Sodium hydroxide (0.2 mol/L), carbonate-free, VS

Sodium hydroxide R dissolved in water to contain 8.001 g of NaOH in 1000 mL.

Procedure, test for carbonates and method of standardization. Prepare the solution, carry out the test and ascertain the exact concentration following the method described under carbonate-free sodium hydroxide (1 mol/L) VS.

Sodium hydroxide (0.5 mol/L) VS

Sodium hydroxide R dissolved in water to contain 20.00 g of NaOH in 1000 mL.

Method of standardization. Ascertain the exact concentration of the solution following the method described under sodium hydroxide (1 mol/L) VS.

Sodium hydroxide (0.5 mol/L), carbonate-free, VS

Sodium hydroxide R dissolved in water to contain 20.00 g of NaOH in 1000 mL.

Procedure, test for carbonates and method of standardization. Prepare the solution, carry out the test and ascertain the exact concentration following the method described under carbonate-free sodium hydroxide (1 mol/L) VS.

Sodium hydroxide (1 mol/L) VS

Sodium hydroxide R dissolved in water to contain 40.01 g of NaOH in 1000 mL.

Method of standardization. Ascertain the exact concentration of the 1 mol/L solution in the following manner: dry about 5 g of potassium hydrogen phthalate R at 105 °C for 3 hours and weigh accurately. If the potassium hydrogen phthalate is in the form of large crystals they should be crushed before drying. Dissolve in 75 mL of carbon-dioxide-free water R and titrate with the sodium hydroxide solution using phenolphthalein/ethanol TS as indicator. Each 0.2042 g of potassium hydrogen phthalate is equivalent to 1 mL of sodium hydroxide (1 mol/L) VS. Standard solutions of sodium hydroxide should be restandardized frequently.

Storage. Solutions of alkali hydroxides absorb carbon dioxide when exposed to air. They should therefore be stored in bottles with suitable non-glass, well-fitting stoppers, provided with a tube filled with soda lime R.

Sodium hydroxide (1 mol/L), carbonate-free, VS

Sodium hydroxide R dissolved in water to contain 40.01 g of NaOH in 1000 mL.

Procedure. Dissolve sodium hydroxide R in water to produce a 400–600 g/L solution and allow to stand. Taking precautions to avoid absorption of carbon dioxide, siphon off the clear supernatant liquid and dilute as required with carbon-dioxide-free water R.

Test for carbonates. Titrate 45 mL of hydrochloric acid (1 mol/L) VS with the carbonate-free sodium hydroxide solution using phenolphthalein/ethanol TS as indicator. At the end-point add just sufficient acid to discharge the pink colour and boil to reduce the volume to 20 mL. Add, whilst boiling, sufficient acid again to discharge the pink colour and prevent its reappearance on continued boiling; not more than 0.1 mL of the acid is required.

Method of standardization. Ascertain the exact concentration of the 1 mol/L solution in the following manner: dry about 5 g of potassium hydrogen phthalate R at 105 °C for 3 hours and weigh accurately. If the potassium hydrogen phthalate is in the form of large crystals they should be crushed before drying. Dissolve in 75 mL of carbon-dioxide-free water R and titrate with the carbonate-free sodium hydroxide solution using phenolphthalein/ethanol TS as indicator. Each 0.2042 g of potassium hydrogen phthalate is equivalent to 1 mL of carbonate-free sodium hydroxide (1 mol/L) VS. Standard solutions of sodium hydroxide should be restandardized frequently.

Storage. Solutions of alkali hydroxides absorb carbon dioxide when exposed to air. They should therefore be stored in bottles with suitable non-glass, well-fitting stoppers, provided with a tube filled with soda lime R.

Sodium hydroxide (~8.5 g/L) TS

solution of sodium hydroxide R containing about 8.5 g/L of NaOH.

Sodium hydroxide (10 g/L) TS

A solution of sodium hydroxide R containing about 10 g of NaOH per litre (approximately 0.25 mol/L).

Sodium hydroxide (50 g/L) TS

A solution of sodium hydroxide R containing about 50 g of NaOH per litre.

Sodium hydroxide R

NaOH (SRIP, 1963, p. 185).

Sodium hydroxide/ethanol (0.1 mol/L) VS

Sodium hydroxide R dissolved in ethanol (~710 g/L) TS to contain 4.00 g of NaOH in 1000 mL.

Method of standardization. Ascertain the exact concentration of the solution in the following manner:

Dissolve 0.10 g of benzoic acid R, accurately weighted, in 10 mL of water R and 40 mL of dehydrated ethanol R. Titrate with the sodium hydroxide/ethanol solution, determining the end-point potentiometrically or using 0.2 mL of thymolphthalein solution R as indicator. Standardize immediately before use.

1 mL of 0.1 M sodium hydroxide/ethanol (0.1 mol/L) VS is equivalent to 12.21 mg of C7H6O2.

Sodium hydroxide/ethanol TS

Procedure. Dissolve 50 g of sodium hydroxide R in sufficient ethanol (~750 g/L) TS to produce 1000 mL.

Sodium hydroxide/methanol TS

Procedure. Dissolve 40 g of sodium hydroxide R in sufficient methanol R to produce 1000 mL.

Sodium hypobromite TS

Procedure. Dissolve 2.5 g of sodium hydroxide R in 7.5 mL of water, add 0.5 mL of bromine R and a sufficient quantity of water to produce 10 mL.

Note : Sodium hypobromite TS must be freshly prepared.

Sodium hypochlorite (~40 g/L) TS

Description. A pale, greenish yellow, clear liquid; odour, resembling that of chlorine.

Assay. Introduce 3 mL into a glass-stoppered flask, weigh accurately and add 50 mL of water. Add 2 g of potassium iodide R and 10 mL of acetic acid (~300 g/L) TS and titrate the liberated iodine with sodium thiosulfate (0.1 mol/L) VS, adding 3 mL of starch TS as the end-point is approached. Each mL of sodium thiosulfate (0.1 mol/L) VS is equivalent to 3.723 mg of NaOCl.

Storage. Sodium hypochlorite (~40 g/L) TS must be kept in a light-resistant container at a temperature not exceeding 25 °C.

Sodium hypochlorite TS1

Procedure. Dilute 10 mL of sodium hypochlorite (~40 g/L) TS to 100 mL with water (contains approximately 0.5% of chlorine).

Sodium iodide R

NaI.

Description. White crystalline powder or colourless crystals, hygroscopic.

Solubility. Very soluble in water, freely soluble in alcohol.

Sodium laurilsulfate (10 g/L) TS

A solution of sodium laurilsulfate R containing about 10 g of $C_{12}H_{25}NaO_4S$ per litre.

Sodium laurilsulfate R

Sodium lauryl sulfate; a mixture of sodium alkyl sulfates, consisting mainly of sodium dodecyl sulfates, $C_{12}H_{25}NaO_4S$.

Description. A white or pale yellow powder, crystals, or flakes; odour, faint but characteristic.

Solubility. Very soluble in water giving an opalescent solution; partly soluble in ethanol (~750 g/L) TS.

Sodium mercaptoacetate R

(Sodium thioglycolate R.) $C_2H_3NaO_2S$.

Description. Hygroscopic crystals.

Solubility. Freely soluble in water; slightly soluble in ethanol (~750 g/L) TS.

Sodium metabisulfite (50 g/L) TS

A solution of sodium metabisulfite R containing about 50 g of $Na_2O_5S_2$ per litre.

Sodium metabisulfite R

$Na_2O_5S_2$ (SRIP, 1963, p. 187).

Sodium metaperiodate R

Sodium periodate $NaIO_4$. Contains not less than 98.0% of $NaIO_4$.

Description. White crystals or a white, crystalline powder.

Solubility. Soluble in water.

Assay. Dissolve 0.5 g in 100 mL of water. Add 3 g of sodium hydrogen carbonate R and 3 g of potassium iodide R and titrate the liberated iodine with sodium arsenite (0.05 mol/L) VS. Each mL of sodium arsenite (0.05 mol/L) VS is equivalent to 10.69 mg of $NaIO_4$.

Sodium metaperiodate TS

Procedure. Dissolve 60 g of sodium metaperiodate R in 120 mL of sulfuric acid (0.05 mol/L) VS and dilute to 1000 mL with water. *Do not heat to dissolve the periodate.* If the solution is not clear filter through a sintered-glass filter. Store the solution in a glass-stoppered, light-resistant container.

Suitability test. Pipette 10 mL into a 250 mL volumetric flask, dilute to volume with water and mix. To about 550 mg of glycerol R dissolved in 50 mL of water add, using a pipette, 50 mL of the diluted sodium metaperiodate. For a blank transfer 50 mL of the diluted sodium metaperiodate solution to a flask containing 50 mL of water. Allow the solutions to stand for 30 minutes then to each add 5 mL of hydrochloric acid (~420 g/L) TS and 10 mL of potassium iodide (80 g/L) TS and swirl to mix. Allow to stand for 5 minutes, add 100 mL of water and titrate with sodium thiosulfate (0.1 mol/L) VS, shaking continuously and adding 3 mL of starch TS as the end-point is approached. The ratio of the volume of sodium thiosulfate (0.1 mol/L) VS required for sodium metaperiodate TS to that required for the blank should be between 0.750 and 0.765.

Sodium methoxide (0.1 mol/L) VS

Procedure. Cool in ice-water 150 mL of dehydrated methanol R and add in small portions 2.5 g of freshly cut sodium R. When the metal has dissolved add sufficient toluene R to produce 1000 mL.

Method of standardization. Ascertain the exact concentration of the 0.1 mol/L solution in the following manner: titrate 0.10 g of benzoic acid R, accurately weighed, as described under *2.6 Non-aqueous titration*, Method B. Each 12.21 mg of $C_7H_6O_6$ is equivalent to 1 mL of sodium methoxide (0.1 mol/L) VS.

Note: Sodium methoxide (0.1 mol/L) VS must be standardized immediately before use.

Sodium molybdotungstophosphate TS

Procedure. Boil under a reflux condenser for 2 hours 350 mL of water with 50 g of sodium tungstate R, 12 g of phosphomolybdic acid R and 25 mL of phosphoric acid (~1440 g/L) TS; cool and add sufficient water to produce 500 mL.

Sodium nitrate R

$NaNO_3$.

A commercially available reagent of suitable grade.

Sodium nitrite (0.1 mol/L) VS

Sodium nitrite R, dissolved in water to contain 6.900 g of $NaNO_2$ in 1000 mL.

Method of standardization. Ascertain the exact concentration of the 0.1 mol/L solution in the following manner: place 50.0 mL of potassium permanganate (0.02 mol/L) VS in a glass-stoppered flask, dilute with 300 mL of water, add 25 mL of sulfuric acid (~100 g/L) TS and 20.0 mL of the sodium nitrite solution. Allow the solution to stand for 10 minutes. Then add 2 g of potassium iodide R and titrate with sodium thiosulfate (0.1 mol/L) VS using starch TS as indicator. Perform a blank determination and make any necessary corrections.

Sodium nitrite (1 g/L) TS

A solution of sodium nitrite R containing about 1 g of $NaNO_2$ per litre.

Note: Sodium nitrite (1 g/L) TS must be freshly prepared.

Sodium nitrite (10 g/L) TS

A solution of sodium nitrite R containing about 10 g/L of $NaNO_2$.

Sodium nitrite (100 g/L) TS

A solution of sodium nitrite R containing about 100 g of $NaNO_2$ per litre.

Sodium nitrite (20 g/L) TS

A solution of sodium nitrite R containing about 20 g of $NaNO_2$ per litre.

Sodium nitrite (3 g/L) TS

A solution of sodium nitrite R containing about 3 g of $NaNO_2$ per litre.

Note: Sodium nitrite (3 g/L) TS must be freshly prepared.

Sodium nitrite (35 g/L) TS

A solution of sodium nitrite R containing about 35 g of $NaNO_2$ per litre (approximately 0.5 mol/L).

Sodium nitrite (50 g/L) TS

A solution of sodium nitrite R containing about 50 g of $NaNO_2$ per litre.

Sodium nitrite R

$NaNO_2$ (SRIP, 1963, p. 189).

Sodium nitrite/hydrochloric acid TS

Procedure. Dissolve 0.5 g of sodium nitrite R in sufficient hydrochloric acid (0.1 mol/L) VS to produce 100 mL.

Sodium nitroprusside (8.5 g/L) TS

A solution of sodium nitroprusside R containing about 8.5 g of $Na_2Fe(NO)(CN)_5$ per litre.

Sodium nitroprusside (20 g/L) TS

A solution of sodium nitroprusside R containing about 20 g of $Na_2Fe(NO)(CN)_5$ per litre.

Note: Sodium nitroprusside (20 g/L) TS must be freshly prepared.

Sodium nitroprusside (45 g/L) TS

A solution of sodium nitroprusside R containing about 45 g of $Na_2Fe(NO)(CN)_5$ per litre.

Note: Sodium nitroprusside (45 g/L) TS must be freshly prepared.

Sodium nitroprusside R

$Na_2Fe(NO)(CN)_5,2H_2O$ (SRIP, 1963, p. 190).

Sodium nitroprusside, alkaline, TS

Procedure. Dissolve 1 g of sodium nitroprusside R and 1 g of sodium carbonate R in sufficient water to produce 100 mL.

Sodium octanesulfonate R

$C_8H_{17}NaO_3S$.

Contains not less than 98.0% of $C_8H_{17}NaO_3S$.

A commercially available reagent of suitable grade.

Absorbance. A 0.05 g/mL solution of a 1 cm layer measured at a wavelength of about 250 nm has an absorbance of not greater than 0.01.

Sodium oxalate R

$C_2Na_2O_4$ (SRIP, 1963, p. 190).

Sodium perchlorate R

$NaClO_4,H_2O$; Molecular weight 140.5; CAS Reg. No. 7791-07-3.

Content. Not less than 99.0% of $NaClO_4,H_2O$.

Description. White or almost white, deliquescent crystals, very soluble in water.

Storage. Store in a well-closed container.

Sodium peroxide R.

Na_2O_2 (SRIP, 1963, p. 191).

Sodium phosphate, anhydrous, R

Sodium dihydrogen phosphate anhydrous; NaH_2PO_4.

A commercially available reagent of suitable grade.

Contains not less than 99.0% of NaH_2PO_4.

Sodium R

Na (SRIP, 1963, p. 175).

Sodium rhodizonate dibasic R

3,4,5,6-Tetraoxocyclohexene-1,2-diol; rhodizonic acid disodium salt; $C_6Na_2O_6$.

A commercially available reagent of suitable grade.

Sodium salicyclate R

$C_7H_5NaO_3$. Use sodium salicylate as described in the monograph for *Sodium salicylate*.

Sodium salicylate (11.5 g/L) TS

A solution of sodium salicylate R containing about 11.5 g of $C_7H_5NaO_3$ per litre.

Sodium standard (200 µg Na/mL) TS

Procedure. Dissolve 0.5084 g of sodium chloride R, previously dried at 100–105 °C for 3 hours, in sufficient water to produce 1000 mL.

Sodium sulfate, anhydrous, R

Na_2SO_4 (SRIP, 1963, p. 195).

Sodium sulfide R

$Na_2S,9H_2O$ (SRIP, 1963, p. 195).

Sodium sulfide TS

Procedure. Dissolve 12 g of sodium sulfide R in 25 mL of water and add sufficient glycerol R to produce 100 mL.

Sodium sulfide (100 g/L) TS

Dissolve 1 g of sodium sulfide R in sufficient water R to produce 10 mL. Note: this solution must be freshly prepared.

Sodium sulfite R

$Na_2SO_3,7H_2O$ (SRIP, 1963, p. 196).

Sodium sulfite, anhydrous R

Anhydrous sodium sulfite of a suitable quality should be used.

Sodium tetraborate (10 g/L) TS

A solution of sodium tetraborate R containing about 10 g of $Na_2B_4O_7$ per litre.

Sodium tetraborate R

Borax, $Na_2B_4O_7,10H_2O$.

Description. Transparent, colourless crystals, or a white, crystalline powder; odourless.

Solubility. Soluble in 20 parts of water and in 0.6 part of boiling water; very slightly soluble in ethanol (~750 g/L) TS.

pH value of a 0.01 mol/L solution. Dissolve 0.3814 g in water and dilute to 100 mL using water having a pH of 6.5–7.4. The pH should be from 9.15 to 9.20 at 25 °C.

Chlorides. Dissolve 1.0 g in 20 mL of water, filter if necessary through a chloride-free filter, add 1 mL of nitric acid (~1000 g/L) TS and proceed as described in 2.2.1 Limit test for chlorides. Sodium tetraborate R contains not more than 250 µg/g.

Sulfates. Dissolve 0.5 g in 20 mL of water, add 2 mL of hydrochloric acid (~70 g/L) TS and filter. Proceed as described in 2.2.2 Limit test for sulfates. Sodium tetraborate R contains not more than1.0 mg/g.

Sodium tetraborate standard TS

Procedure. Dissolve 3.81 g of sodium tetraborate R in sufficient carbon-dioxide-free water R to produce 1000 mL.

Storage. Store the solution protected from atmospheric carbon dioxide and keep it stoppered at all times except when actually in use.

Sodium tetraphenylborate (30 g/L) TS

A solution of sodium tetraphenylborate R containing about 30 g/L of $C_{24}H_{20}BNa$.

Note: If necessary stir for 5 minutes with 1 g of aluminium hydroxide R or charcoal R and filter to clarify.

Sodium thioglycolate R. *See* Sodium mercaptoacetate R.

Sodium tetraphenylborate R

$C_{24}H_{20}BNa$.

Description. A fluffy, white or almost white powder.

Solubility. Freely soluble in water and acetone R; insoluble in light petroleum R.

pH value. pH of a 20 g/L solution, not less than 7.5.

Sodium thiosulfate (0.002 mol/L) VS

Sodium thiosulfate R, dissolved in water to contain 0.316 g of $Na_2S_2O_3$ in 1000 mL.

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

Sodium thiosulfate (0.01 mol/L) VS

Sodium thiosulfate R dissolved in water to contain 1.582 g of $Na_2S_2O_3$ in 1000 mL.

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

Sodium thiosulfate (0.02 mol/L) VS

Sodium thiosulfate R dissolved in water to contain 3.164 g of $Na_2S_2O_3$ in 1000 mL.

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

Sodium thiosulfate (0.05 mol/L) VS

Sodium thiosulfate R dissolved in water to contain 7.910 g of $Na_2S_2O_3$ in 1000 mL.

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

Sodium thiosulfate (0.1 mol/L) VS

Sodium thiosulfate R dissolved in water to contain 15.82 g of $Na_2S_2O_3$ in 1000 mL.

Method of standardization (alternative procedure). Ascertain the exact concentration of the 0.1 mol/L solution in the following manner: to about 40 mL of water in a glass-stoppered conical flask add 10.0 mL of potassium bromate (0.0167 mol/L) VS, 1 g of potassium iodide R and 3 mL of sulfuric acid (~1760 g/L) TS. Allow the solution to stand for 5 minutes and titrate the liberated iodine with the sodium thiosulfate solution, adding 3 mL of starch TS as the end-point is approached. Perform a blank determination on the same quantities of the reagents and make any necessary corrections.

Sodium thiosulfate (320 g/L) TS

A solution of sodium thiosulfate R containing about 320 g of $Na_2S_2O_3$ per litre.

Sodium thiosulfate R

$Na_2S_2O_3,5H_2O$ (SRIP, 1963, p. 197).

Sodium tungstate R

$Na_2O_4W,2H_2O$ (SRIP, 1963, p. 197).

Sorbitol R

$C_6H_{14}O_6$. Contains not less than 97.0% of $C_6H_{14}O_6$.

Description. White granules or powder or a white, crystalline mass.

Solubility. Very soluble in water; sparingly soluble in ethanol (~750 g/L) TS; practically insoluble in ether R.

Assay. Dissolve about 0.2 g, previously dried and accurately weighed, in sufficient water to produce 100 mL. Transfer 10.0 mL to an iodine flask, add 50.0 mL of potassium periodate TS and heat for 15 minutes on a water-bath. Cool, add 2.5 g of potassium iodide R, stopper tightly and shake well. Allow to stand for 5 minutes protected from light and titrate with sodium thiosulfate (0.1 mol/L) VS using 3 mL of starch TS as an indicator. Perform a blank titration and make any necessary corrections. Each mL of sodium thiosulfate (0.1 mol/L) VS is equivalent to 1.822 mg of $C_6H_{14}O_6$.

Storage. Store in a tightly closed container.

Squalane R

2,6,10,15,19,23-Hexamethyltetracosane; $C_{30}H_{62}$.

Description. A colourless, oily liquid.

Solubility. Freely soluble in ether R; slightly soluble in acetone R and ethanol (~750 g/L) TS.

Relative density. d_{20}^{20} = 0.811–0.813.

Refractive index. n_D^{20} = 1.451–1.453.

Stannated hydrochloric acid (~ 250 g/L) AsTS

Refer to Hydrochloric acid (~250 g/L), stannated, AsTS.

Stannous chloride AsTS

Procedure. Prepare from stannous chloride TS by adding an equal volume of hydrochloric acid (~250 g/L) TS, boil down to the original volume and filter through afine-grained filter-paper.

Test for arsenic. To 10 mL add 6 mL of water and 10 mL of hydrochloric acid (~250 g/L) AsTS and distil 16 mL. To the distillate add 50 mL of water and 2 drops of stannous chloride AsTS; then apply the general test for arsenic. The colour of the stain produced is not more intense than that produced from a 1 mL standard stain, showing that the amount of arsenic does not exceed 1 µg/mL.

Stannous chloride R

$SnCl_2,2H_2O$ (SRIP, 1963, p. 198).

Stannous chloride TS

Procedure. Dissolve 330 g of stannous chloride R in 100 mL of hydrochloric acid (~250 g/L) TS and sufficient water to produce 1000 mL.

Stannous chloride/hydrochloric acid TS1

Procedure. Dissolve 10 g of stannous chloride R in sufficient hydrochloric acid (~70 g/L) TS to produce 100 mL.

Starch iodide TS

Procedure. Dissolve 0.75 g of potassium iodide R in 5 mL of water and 2 g of zinc chloride R in 10 mL of water, mix the two solutions and add 100 mL of water. Heat the solution to boiling and add, with constant stirring, a suspension of 5 g of corn or potato starch R in 35 mL of water. Boil for 2 minutes and cool.

Storage. Store in a well-closed container and keep in a cool place.

Starch R

[potato starch R or corn starch R] (SRIP, 1963, p. 199).

Starch TS

Procedure. Mix 0.5 g of starch R or of soluble starch R with 5 mL of water and add this solution, with constant stirring, to sufficient water to produce about 100 mL; boil for a few minutes, cool and filter.

Note: Starch TS must be freshly prepared.

Starch, soluble, R

(SRIP, 1963, p. 199).

Starch/iodide paper R

[starch-iodide paper R] (SRIP, 1963, p. 200).

Starch solution TS

Triturate 1.0 g of soluble starch R with 5 mL of water R and whilst stirring pour the mixture into 100 mL of boiling water R containing 10 mg of mercuric iodide R.

NOTE: commercially available reagents may be used; including mercury-free solutions or those containing alternative preservatives.

Carry out the test for sensitivity each time the reagent is used.

Test for sensitivity. To a mixture of 1 mL of the starch solution and 20 mL of water R, add about 50 mg of potassium iodide R and 0.05 mL of iodine solution TS. The solution is blue.

Strontium chloride hexahydrate R

$SrCl_2,6H_2O$.

A commercially available reagent of suitable grade.

Contains not less than 99.0% and not more than 103.0% of $SrCl_2,6H_2O$.

Strychnine sulfate R

$C_{42}H_{44}N_4O_4,H_2SO_4,5H_2O$ (SRIP, 1963, p. 200).

Sudan red G R

1-(4-Phenylazophenylazo)-2-naphthol; Sudan III; Solvent red 23; C.I. 26100; $C_{22}H_{16}N_4O$.

Description. A reddish brown powder.

Solubility. Practically insoluble in water.

Sudan red TS

Procedure. Dissolve 0.5 g of sudan red G R in 100 mL of glacial acetic acid R1.

Sulfadoxine R

N^1 -(5,6-Dimethoxy-4-pyrimidinyl)sulfanilamide; 4-amino-*N*-(5,6-dimethoxy-4-pyrimidinyl)benzenesulfonamide; $C_{12}H_{14}N_4O_4S$

A commercialy available reagent of suitable grade.

Description. A white or creamy white, crystalline powder.

Solubility. Very slightly soluble in water; slightly soluble in ethanol (~750 g/l) TS and in methanol R; practically insoluble in ether R.

Sulfamethoxazole R

4-Amino-N-(5-methylisoxazol-3-yl)benzenesulfonamide; 4-amino-N-(5-methyl-1,2-oxazol-3-yl)benzenesulfonamide; N1-(5-methyl-3-isoxazolyl)sulfanilamide;$C_{10}H_{11}N_3O_3S$.

A commercially available reagent of suitable grade.

Description. A white or yellowish white, crystalline powder.

Solubility. Very slightly soluble in water; soluble in 50 parts of ethanol (~750 g/L) TS and in 3 parts of acetone R.

Sulfamic acid (5 g/L) TS

A solution of sulfamic acid R containing about 5 g of H_3NO_3S per litre.

Sulfamic acid (50 g/L) TS

A solution of sulfamic acid R containing about 50 g of H_3NO_3S per litre.

Note: Sulfamic acid (50 g/L) TS must be freshly prepared.

Sulfamic acid (80 g/L) TS

A solution of sulfamic acid R containing about 80 g of H_3NO_3S per litre.

Note: Sulfamic acid (80 g/L) TS must be freshly prepared.

Sulfamic acid R

H_3NO_3S.

Description. Colourless or white crystals.

Solubility. Soluble in water; slightly soluble in ethanol (~750 g/L) TS.

4-Sulfamoylbenzoic acid R

p -Sulfamoylbenzoic acid; $C_7H_7NO_4S$.

Melting point. About 291 °C.

Sulfan blue R

Sodium [[[(4-diethylamino)phenyl](2,4-disulfonatophenyl)methylene]cyclohexa-2,5-dien-1-ylidene]diethylammonium. $C_{27}H_{31}N_2NaO_6S_2$. CAS Reg. No. 129-17-9.

Appearance. Violet powder.

Solubility. Soluble in water.

Colour of solution. Dilute solutions are blue and turn yellow on the addition of concentrated hydrochloric acid.

Sulfanilic acid R

$C_6H_7NO_3S$ (SRIP, 1963, p. 201).

Sulfanilic acid, diazotized, TS

Procedure. Dissolve 0.2 g of sulfanilic acid R in 20 mL of hydrochloric acid (1 mol/L) VS with warming, cool in ice, add drop by drop and with continuous stirring 2.5 mL of sodium nitrite (35 g/L) TS, allow to stand in ice for 10 minutes and then add 1 mL of sulfamic acid (50 g/L) TS.

Sulfosalicylic acid (175 g/L) TS

A solution of sulfosalicylic acid R containing about 175 g/L of $C_7H_6O_6S$.

Sulfosalicylic acid R

$C_7H_6O_6S,2H_2O$.

Description. White or slightly pink coloured, needle-like crystals.

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

Insoluble matter. Dissolve 5.0 g in 50 mL of water, heat to boiling and digest in a covered beaker on a water-bath for 1 hour. Filter through a tared filtering crucible, wash thoroughly and dry at 105 °C. The weight of the residue does not exceed 1.0 mg.

Sulfated ash. Gently ignite 1.0 g in a tared crucible or dish, other than platinum, until charred. Cool, moisten the residue with 1 mL of sulfuric acid (~1760 g/L) TS and ignite again; not more than 1.0 mg/g.

Sulfur dioxide R

SO_2 (SRIP, 1963, p. 202).

Sulfuric acid (~10 g/L) TS

Procedure. Mix 100 mL of sulfuric acid (~100 g/L) TS with sufficient water to produce 1000 mL.

Sulfuric acid (~50 g/L) TS

Procedure. Mix 500 mL of sulfuric acid (~100 g/L) TS with sufficient water to produce 1000 mL.

Sulfuric acid (~98 g/L) TS

Procedure. Add 55 mL of sulfuric acid (~1760 g/L) TS to sufficient water to produce 1000 mL; d ~ 1.063.

Sulfuric acid (~100 g/L) TS

Procedure. Add 57 mL of sulfuric acid (~1760 g/L) TS to sufficient water to produce 1000 mL (approximately 1 mol/L); *d*~1.065.

Sulfuric acid (~1125 g/L) TS

Sulfuric acid (~1760 g/L) TS, diluted with water to contain about 1125 g of H_2SO_4 per litre; *d*~1.61.

Sulfuric acid (~1760 g/L) TS

[sulfuric acid R] (SRIP, 1963, p. 202); *d* ~ 1.84.

Sulfuric acid (~1760 g/L), nitrogen-free, TS

Sulfuric acid (~1760 g/L) TS containing not less than 1760 g/L of H_2SO_4 and complying with the test for nitrates.

Nitrates. Mix 45 mL with 5 mL of water, cool and add 8 mg of diphenylbenzidine R; the solution is colourless or not more than very pale blue.

Sulfuric acid (~190 g/L) TS

Procedure. Mix 1 volume of sulfuric acid (~1760 g/L) TS with 9 volumes of water and cool. The resulting solution contains about 190 g/L of H_2SO_4 ; *d*~1.12.

Sulfuric acid (~440 g/L) TS

Procedure. Dilute 485 mL of sulfuric acid (~1760 g/L) TS to 1000 mL with water (~4.5 mol/L); *d*~1.25.

Sulfuric acid (~50 g/L) TS.

Procedure. To 50 mL of sulfuric acid (~100 g/L) TS add about 50 mL of water and mix.

Sulfuric acid (~500 g/L) TS

Procedure. Cool separately 10 mL of water R and 5 mL of sulfuric acid (~1760 g/L) TS to about -5 °C. Carefully add the acid to the water keeping the solution as cool as possible and mix gently (approximately 5 mol/L); d~1.29.

Sulfuric acid (~570 g/L) TS

Procedure. Slowly add 3 volumes of sulfuric acid (~1760 g/L) TS to 7 volumes of water while gently stirring and cool; *d*~1.33.

Sulfuric acid (~635 g/L) TS

Sulfuric acid (~1760 g/L) TS diluted with water to contain about 635 g of H_2SO_4 per litre; *d*~1.36.

Sulfuric acid (~700 g/L) TS

Procedure. Slowly add sulfuric acid (~1760 g/L) TS to an equal weight of water while gently stirring and cool; *d*~1.40.

Sulfuric acid (0.005 mol/L) VS

Sulfuric acid (~1760 g/L) TS diluted with water to contain 0.4904 g of H_2SO_4 in 1000 mL.

Method of standardization. Ascertain the exact concentration of the solution following the method described under sulfuric acid (0.5 mol/L) VS.

Sulfuric acid (0.01 mol/L) VS

Sulfuric acid (~1760 g/L) TS diluted with water to contain 0.9808 g of H_2SO_4 in 1000 mL.

Method of standardization. Ascertain the exact concentration of the solution following the method described under sulfuric acid (0.5 mol/L) VS.

Sulfuric acid (0.05 mol/L) VS

Sulfuric acid (~1760 g/L) TS diluted with water to contain 4.904 g of H_2SO_4 in 1000 mL.

Method of standardization. Ascertain the exact concentration of the solution following the method described under sulfuric acid (0.5 mol/L) VS.

Sulfuric acid (0.1 mol/l) TS

Sulfuric acid (~1760 g/L) TS diluted with water to contain 9.808 g of H_2SO_4 in 1000 mL.

Sulfuric acid (0.1 mol/L) VS

Sulfuric acid (~1760 g/L) TS diluted with water to contain 9.808 g of H_2SO_4 in 1000 mL.

Method of standardization. Ascertain the exact concentration of the solution following the method described under sulfuric acid (0.5 mol/L) VS.

Sulfuric acid (0.125 mol/L) VS.

Sulfuric acid (~1760 g/L) TS diluted with water to contain 12.52 g of H_2SO_4 in 1000 mL.

Method of standardization. Ascertain the exact concentration of the solution following the method described under sulfuric acid (0.5 mol/L) VS.

Sulfuric acid (0.25 mol/L) VS

Sulfuric acid (~1760 g/L) TS diluted with water to contain 24.52 g of H_2SO_4 in 1000 mL.

Method of standardization. Ascertain the exact concentration of the solution following the method described under sulfuric acid (0.5 mol/L) VS.

Sulfuric acid (0.5 mol/L) VS

Sulfuric acid (~1760 g/L) TS diluted with water to contain 49.04 g of H_2SO_4 in 1000 mL.

Method of standardization. Ascertain the exact concentration of the 0.5 mol/L solution in the following manner: dissolve about 1.5 g, accurately weighed, of anhydrous sodium carbonate R, previously dried at 270 °C for 1 hour, in 50 mL of water and titrate with the sulfuric acid solution, using methyl orange/ethanol TS as indicator. Each 52.99 mg of anhydrous sodium carbonate is equivalent to 1 mL of sulfuric acid (0.5 mol/L) VS.

Sulfuric acid (90% v/v) TS

Procedure. Cool separately 10 mL of water R and 90 mL of sulfuric acid (~1760 g/L) TS to about -5 °C. Carefully add the acid to the water keeping the solution as cool as possible and mix gently.

Sulfuric acid/ethanol (~0.05 mol/L)

Carefully add 4.9 g of sulfuric acid (~1760 g/L) TS to about 800 mL ethanol (~750 g/L) TS, while mixing gently, and dilute to 1000 mL with ethanol (~750 g/L) TS.

Sulfuric acid/ethanol (10%) TS

Procedure. Cool separately 10 mL of sulfuric acid (~1760 g/L) TS and 90 mL of ethanol (~750 g/L) TS to about -5 °C. Carefully add the acid to the ethanol keeping the solution as cool as possible and mix gently.

Sulfuric acid/ethanol (20%) TS

Cool separately 20 ml of sulfuric acid (~1760 g/L) TS and 60 mL of ethanol (~750 g/L) TS to about -5 °C. Carefully add the acid to the ethanol, keeping the solution as cool as possible, mix gently and dilute to 100 mL with ethanol.

Note: Sulfuric acid/ethanol (20%) TS must be freshly prepared.

Sulfuric acid/ethanol TS

Procedure. Cool separately 10 mL of ethanol (~750 g/L) TS and 90 mL of sulfuric acid (~1760 g/L) TS to about -5 °C. Carefully add the acid to the ethanol keeping the solution as cool as possible and mix gently.

Sulfuric acid/methanol (1%) TS

Procedure: cool separately 10 mL of sulfuric acid (~1760 g/L) TS and 990 mL of methanol R to about -5 °C. Very carefully, add the acid to the methanol keeping the solution as cool as possible and mix gently.

Sulfuric acid/methanol TS

Procedure. Cool separately 10 mL of sulfuric acid (~1760 g/L) TS and 90 mL of methanol R. Carefully add the acid to the methanol keeping the solution as cool as possible and mix gently.

Sulfurous acid TS

[sulfurous acid R] (SRIP, 1963, p. 204).