CHEMICALS, REAGENTS, ETC.,

USED IN QUALITATIVE TESTING.

In the undermentioned list of substances and solutions used in chemical analysis, the word 'parts,' where it relates to preparations of the German Pharmacopœia, is to be understood to mean 'parts by weight.'

ACIDUM ACETICUM. ACETIC ACID.

B.P.
U.S.P. } The acids official in the respective Pharmacopœias.

P.G.—The *P.G.* Acidum Aceticum Dilutum more closely resembles Acetic Acid *B.P.* and *U.S.P.* *See* Acidum Aceticum, p. 10.

ACIDUM ACETICUM GLACIALE.

B.P. } The Glacial Acetic Acid official in the respective Pharmacopœias.
U.S.P. } *See* Acidum Aceticum Glaciale, p. 12.

P.G.—Acidum Aceticum *P.G.* is practically Glacial.

ALBUMEN.

B.P.—A thin glairy liquid obtained from the egg of *Gallus Bankiva* var. *domesticus*, from which the shell and yellow yolk have been separated.

U.S.P.
P.G. } Not included.

Coagulated White of Egg is employed by the *B.P.*, *U.S.P.* and *P.G.* as a test for the activity of Pepsin.

ALBUMEN SOLUTION.

B.P.—Albumen, 1 c.c.; Water, 4 c.c. The solution is recommended to be freshly prepared, and either the above quantity of Water may be added or a sufficiency to adjust the solution to meet the requirements of individual tests. The solution may be strained through moist cotton-wool or tow.

U.S.P.—The liquid portion of a fresh hen's egg, freed from the yolk, mixed with 100 c.c. of Water and filtered. It is recommended that the solution be prepared fresh for use when required.

P.G.—Not included.

ALCOHOL, ABSOLUTE.

B.P.
P.G. } The Absolute Alcohol official in the respective Pharmacopœias.
U.S.P.

ALCOHOL, DILUTED.

B.P.—The *B.P.* employs 90 p.c. and 70 p.c. Alcohols; the *U.S.P.* uses four strengths, viz., the Alcohol of the Pharmacopœia (94·9 p.c.), 90 p.c., 80 p.c., and 70 p.c.; and the *P.G.* uses the official 'Spiritus' containing from 90 to 91·2 p.c. of Ethylic Alcohol. All by volume.

ALUM.

B.P.—A colourless transparent crystalline salt represented by the chemical formula $Al_2(SO_4)_3$, K_2SO_4, $24H_2O$, or $Al_2(SO_4)_3$, $(NH_4)_2SO_4$, $24H_2O$.

P.G.
U.S.P. } Not included.

AMMONIA SOLUTION.

B.P.—The official 'Liquor Ammoniæ.'
P.G.—The official 'Liquor Ammonii Caustici.'
U.S.P.—The official 'Aqua Ammoniæ.'

They each contain 10 p.c. by weight of Ammonia. For strong solution of Ammonia the *B.P.* directs the use of the official 'Liquor Ammoniæ Fortis.'

AMMONIUM ACETATE SOLUTION.

B.P.—The official 'Liquor Ammonii Acetatis.'

P.G.
U.S.P. } Not included.

AMMONIUM CARBONATE SOLUTION.

B.P.—A filtered solution of 5 grammes of Ammonium Carbonate, 7·5 c.c. of Ammonia Solution, and Distilled Water *q.s.* to yield 100 c.c.

P.G.—Ammonium Carbonate 1 part, dissolved in a mixture of Water 3 parts and Solution of Ammonia 1 part.

U.S.P.—Ammonii Carbonas, *U.S.P.* 20 grammes dissolved in a mixture of Ammonia Water 20 c.c. and Water 70 c.c.; adding *q.s.* of Water to measure 100 c.c.

AMMONIUM CHLORIDE SOLUTION.

B.P.
U.S.P. } A filtered solution of 10 grammes of Ammonium Chloride in Distilled Water *q.s.* to measure 100 c.c.

P.G.—Dissolve 1 part of Ammonium Chloride in 9 parts of Water.

AMMONIUM CHLORIDE, NESSLER'S SOLUTION OF.

B.P.—A solution of 0·315 gramme of Ammonium Chloride in recently boiled and Ammonia free Distilled Water *q.s.* to measure 100 c.c.

AMMONIUM CITRATE SOLUTION.

B.P.—The official 'Liquor Ammonii Citratis.'

P.G.
U.S.P. } Not included.

AMMONIUM HYDROSULPHIDE. *See* AMMONIUM SULPHIDE.

AMMONIUM MOLYBDATE.

B.P.—A white or almost white crystalline solid, represented by the chemical formula $(NH_4)_2MoO_4$.

U.S.P.
P.G. } Not included.

AMMONIUM MOLYBDATE SOLUTION.

B.P.—Ammonium Molybdate, 10 grammes; Water, *q.s.* to produce 100 c.c.; filter.

U.S.P.—Ammonium Molybdate $(NH_4)_6Mo_7O_{24}4H_2O$, 15 grammes; Ammonia Solution, if necessary, *q.s.* to effect solution; Water, 100 c.c. This solution is gradually poured into an equal volume of Nitric Acid [sp. gr. 1·403 at 25° C. (77° F.)]. The solution is submitted to a gentle heat for about 2 hours, and decanted from any yellow deposit which may form. An alternative method is to mix gradually and with repeated shaking a solution obtained by dissolving Molybdic Acid (H_2MoO_4), 10 grammes; Ammonia Solution, 42 c.c. with a solution obtained by mixing 63 c.c. of Nitric Acid, of the above sp. gr. with an equal volume of Water. Heat gently for two hours. Any yellow sediment separating out after the solution has been made some days may be separated by decanting the liquid in the same manner as above. It is recommended that the reagent be kept in the dark, and the clear solution decanted from any sediment which may separate out from time to time.

P.G.—Not included.

AMMONIUM OXALATE.

B.P.—The colourless crystalline salt represented by the chemical formula $(NH_4)_2\ C_2O_4,\ H_2O$.

P.G.
U.S.P.} Not included.

AMMONIUM OXALATE SOLUTION.

B.P.—A filtered solution of 2·5 grammes of Ammonium Oxalate in Distilled Water *q.s.* to measure 100 c.c.

P.G.—A solution of 1 part of Ammonium Oxalate in 24 parts of Water.

U.S.P.—The solution of 4 grammes of pure crystallised Ammonium Oxalate $[(NH_4)_2\ C_2O_4,\ H_2O]$ in Water *q.s.* to measure 100 c.c. An alternative method is to dissolve 4 grammes of pure Oxalic Acid in 100 c.c. of Water, add 15 c.c. of Ammonia Water, boil to expel excess of Ammonia, and dilute with Water to 113 c.c. The *U.S.P.* requires that the residue obtained on evaporating a portion of the solution should, when ignited, be completely volatilised. The absence of Chlorides and Sulphates should be proved by the precipitate produced by Silver Nitrate T.S. or by Barium Chloride T.S. being completely soluble on the addition of Nitric Acid.

AMMONIUM SULPHATE.

B.P.
P.G.} Not included.

U.S.P.—The salt represented by the chemical formula $(NH_4)_2\ SO_4$ and may be prepared by neutralising a mixture of equal volumes of pure Sulphuric Acid and Water with Ammonia Water, then evaporating the solution and crystallising. The alkalinity of the liquid should be maintained during the evaporation, if necessary, by the addition of more Ammonia, ascertained by testing from time to time with Litmus paper. Three grammes of the salt should leave no appreciable residue upon ignition. An aqueous solution of the salt (1–10) should not respond to the time-limit test for heavy metals, nor should it become turbid with Nitric Acid and Silver Nitrate T.S. A similar solution of the salt should not be coloured red by 2 drops of Hydrochloric Acid and 1 drop of Ferric Chloride T.S. (absence of Sulphocyanate).

AMMONIUM SULPHIDE SOLUTION.

B.P.—The *B.P.* uses a solution of Ammonium Hydrosulphide prepared by passing washed Hydrogen Sulphide through 60 c.c. of Solution of Ammonia until saturated, then adding a further 40 c.c. of Solution of Ammonia. It recommends that the solution be prepared when required.

P.G.—Not included.

U.S.P.—The solution is prepared by saturating 3 parts of Ammonia Water with Hydrogen Sulphide, and then converting the greater portion of the Ammonium Hydrogen Sulphide formed into Ammonium Sulphide by the addition of 2 parts of Solution of Ammonia. It should be kept in small dark amber-coloured bottles in a cool, dark place, and when a notable deposit of Sulphur has made its appearance the solution should be rejected. It should be a perfectly clear and colourless solution, leaving no residue on evaporation, nor should any turbidity be produced in it by Magnesium Sulphate T.S. or by Calcium Chloride T.S.

If Ammonium Polysulphide T.S. be required it may be prepared by dissolving a small quantity of pure Sulphur in Ammonium Sulphide T.S.

AMMONIUM THIOCYANATE.

B.P.—The crystalline salt represented by the chemical formula NH_4SCN.

P.G.
U.S.P.} Not included.

AMMONIUM THIOCYANATE SOLUTION.

B.P.—A filtered solution of 2·5 grammes of Ammonium Thiocyanate in Distilled Water *q.s.* to measure 100 c.c.

P.G., *U.S.P.*—Not included.

AMYL ALCOHOL.

B.P.—A clear, colourless liquid, sp. gr. about 0·812, which is obtained by fractionating Fusel Oil, after the impurities soluble in a saturated Sodium Chloride Solution have been removed by shaking with that menstruum. The fraction distilling between 125° and 142·8° C. (257° and 289° F.) may be reserved for use. It contains principally Iso-amyl Alcohol. The boiling point of Iso-amyl Alcohol, it may here be noted, is between 128° to 132° C. (262·4° to 269·6° F.).

U.S.P.—A colourless oily liquid, boiling at 131° C. (267·8° F.). Soluble 1 in 40 of Water at 25° C. (77° F.), miscible with Alcohol (94·9 p.c.), Ether (sp. gr. 0·716 at 25° C. (77° F.)), Chloroform, Carbon Di-sulphide, Petroleum Benzin, Benzene, fixed and volatile oils.

P.G.—A colourless completely volatile liquid (sp. gr. 0·814). Boiling point 129° to 131° C. (264·2° to 267·8° F.).

AURIC CHLORIDE SOLUTION.

B.P.—A solution containing approximately 4·28 p.c. Chlorauric Acid, equivalent to 3 p.c. w/v of Auric Trichloride prepared by dissolving 1 gramme of pure commercial Leaf Gold in a mixture of 1·5 c.c. of Nitric Acid and 6 c.c. of Hydrochloric Acid, adding a further 1 c.c. of Hydrochloric Acid when solution is effected; evaporating to dryness at a temperature of 100° C. (212° F.) until free from acid vapours, and dissolving the residual Chloride in 50 c.c. of Water.

P.G.—Not included.

U.S.P.—Convert commercial Gold Chloride [consisting chiefly of Chlorauric Acid ($HAuCl_4,4H_2O$)] into neutral Auric Chloride by fusing it at a temperature not exceeding 150° C. (302° F.), moistening the residue with enough hot Water to produce a syrupy liquid. The clear liquid poured off from the precipitate and mixed with 20 volumes of Water gives the test-solution. An alternative method is to dissolve 1 gramme of dry Auric Chloride in 30 c.c. of Water.

BARIUM CARBONATE.

B.P., *P.G.*—Not included.

U.S.P.—The purified salt represented by the chemical formula $BaCO_3$, prepared by precipitating a solution of 12 parts of purified crystallised Barium Chloride in boiling Water 30 parts, with Ammonium Carbonate, 5 parts, followed by Ammonia Water, 5 parts. The precipitate is then thoroughly washed and dried.

BARIUM CHLORIDE.

B.P.—The official salt is in colourless crystals and contains 2 molecules of Water of crystallisation, and is represented by the formula $BaCl_2\ 2H_2O$, eq. 242·54. It is officially required to contain not more than traces of Iron, as indicated by its aqueous solution yielding no precipitate with Ammonium Hydrosulphide Solution; and to be free from alkali and alkali earthy metals as indicated by its failure to leave a residue when the filtrate, after the complete removal of Barium by diluted Sulphuric Acid, is evaporated to dryness in a platinum dish. It will be noted that the *U.S.P.*, which gives a similar test, evaporates to dryness and heats on a platinum foil. Unless the amount of diluted Sulphuric Acid corresponds exactly to that necessary to precipitate the whole of the Barium, a slight residue of the concentrated acid will remain. The *U.S.P.* directions are therefore somewhat more explicit. The *B.P.* permits the use of either Barium Nitrate, $Ba(NO_3)_2$, eq. 259·56, or Barium Acetate, $Ba(C_2H_3O_2)_2$, eq. 253·56, provided they manifest a similar degree of freedom from these impurities.

U.S.P.—A salt of similar composition to that of the *B.P.*, but the aqueous solution is required to be perfectly neutral, not to respond to the time-limit test for heavy metals, namely, Antimony, Arsenic, Cadmium, Copper, Iron, Lead and Zinc, to be free from traces of Strontium, as indicated by the colour imparted to a non-luminous flame by diluted Alcohol which has been allowed to remain in contact with the salt for some hours; the colour which it is required should be imparted being that of a pure yellowish-green free from red, and it is required to be free from other fixed bases as determined by completely removing the Barium by diluted Sulphuric Acid, evaporating the filtrate to dryness and heating on platinum foil.

P.G.—The salt is official in the text of the *P.G.* *See* Barium Chloride. Not in the list of reagents.

BARIUM CHLORIDE SOLUTION.

B.P.—A 10 p.c. w/v clear filtered solution of the official salt.

U.S.P.—A 10 p.c. w/v solution of the official salt.

P.G.—A 5 p.c. w/w solution of Barium Nitrate in place of a solution of the Chloride.

BARIUM HYDROXIDE.

B.P.—A crystalline salt represented by the chemical formula $Ba(OH)_2,8H_2O$, eq. 313·20, prepared by the purification by recrystallisation of the precipitate obtained by the interaction of concentrated Barium Chloride and Sodium Hydroxide Solutions. It is required to be free from heavy metals, *e.g.*, Arsenic, Copper, Iron, Lead and Zinc, as ascertained by its aqueous solution yielding no precipitate with Ammonium Hydrosulphide Solution, and to be free from metals of the alkalis and alkali earths as ascertained by the evaporation to dryness of the filtrate after the complete removal of the Barium as Barium Sulphate by means of a dilute Sulphuric Acid; only a very slight residue should remain.

P.G.
U.S.P.} Not included.

BARIUM HYDROXIDE SOLUTION.

B.P.—A filtered solution of 5 grammes of Barium Hydroxide in recently boiled Distilled Water *q.s.* to measure 100 c.c.

P.G.—A solution of crystalline Barium Hydroxide, 1 part in 19 parts of Water.

U.S.P.—A saturated aqueous solution of the salt $Ba(OH_2) + 8H_2O$, to be prepared when required for use.

BARIUM NITRATE SOLUTION.

B.P.—*See* Barium Chloride.

P.G.—A 5 p.c. w/w solution of Barium Nitrate.

U.S.P.—A 10 p.c. w/v solution of the pure salt, $Ba(NO_3)_2$. Barium Nitrate should answer the tests described under Barium Chloride *U.S.P.*, but its aqueous solution acidulated with Nitric Acid should not be rendered turbid by Silver Nitrate T.S., indicating the absence of Chlorides.

BENZIN OR PETROLEUM BENZIN.

B.P.—Not included.

P.G.—The official 'Benzinum Petrolei' of the Pharmacopœia. Sp. gr. 0·640 to 0·670. Boiling point between 50° and 75° C. (122° and 167° F.).

U.S.P.—The official 'Benzinum Purificatum' of the Pharmacopœia. Sp. gr. 0·638 to 0·660 at 25° C. (77° F.). Boiling point 45° to 60° C. (113° to 140° F.).

BENZOL.

B.P.—The official Benzol of the Pharmacopœia.

P.G.—A colourless liquid. Sp. gr. 0·880 to 0·890. Boiling point 80° to 82° C. (176° to 179·6° F.).

U.S.P.—Benzene or Benzole is a colourless, transparent liquid, represented by the chemical formula C_6H_6. Sp. gr. 0·871 at 25° C. (77° F.). It congeals at 5·2° C. (41·3° F.) and boils at 80·4° C. (176·7° F.). It is insoluble in Water, but soluble in 4 parts of Alcohol and in Ether.

Concentrated Sulphuric Acid when shaken with an equal volume of Benzene should not become coloured. 2 c.c. of Benzene, 0·5 c.c. of Sulphuric Acid and 1 drop of fuming Nitric Acid shaken together should not produce a green or blue tint.

BENZOLATED AMYL ALCOHOL.

B.P.—A mixture of Benzol and Amyl Alcohol, containing about a quarter of its volume of Amyl Alcohol, and prepared by mixing 30 parts of Benzol with 10 of Amyl Alcohol; any Water which separates out being removed by decantation. It is chiefly used as a solvent for the mixed alkaloids in the assay of Cinchona Bark and its galenical preparations.

P.G., *U.S.P.*—Not included.

BISMUTH OXYNITRATE.

B.P.—The official salt of the Pharmacopœia.

P.G., *U.S.P.*—Not included.

BORAX.

B.P., *P.G.*—The official salt of the respective Pharmacopœias.

U.S.P.—Not included.

BORIC ACID, SOLUTION OF.

B.P.—A filtered 2·5 p.c. w/v solution of the official acid in Alcohol (90 p.c.).

P.G., *U.S.P.*—Not included.

BROMINE.

B.P.—Commercial Bromine.

P.G.—The 'Bromum' of the Pharmacopœia.

U.S.P.—Not included.

BROMINE, SOLUTION OF.

B.P.—A 0·66 p.c. v/v solution of Bromine in Distilled Water. Should be kept protected from light.

P.G.—A saturated aqueous solution.

U.S.P.—A 1 p.c. v/v aqueous solution of the 'Bromum' of the Pharmacopœia.

CADMIUM IODIDE.

B.P.—The crystalline commercial salt represented by the chemical formula CdI_2.

P.G., *U.S.P.*—Not included.

CADMIUM IODIDE, SOLUTION OF.

B.P.—A 5 p.c. w/v filtered aqueous solution of the above salt.

P.G., *U.S.P.*—Not included.

CALCIUM CARBONATE.

B.P.—Commercial White Marble or Calc Spar.

P.G.—The salt should be free from Chlorides.

U.S.P.—Not included.

CALCIUM CHLORIDE SOLUTION.

B.P.—A filtered 10 p.c. w/v aqueous solution of the fused salt.
P.G.—A 10 p.c. w/w aqueous solution of the crystallised salt.
U.S.P.—A 10 p.c. w/v aqueous solution of the crystallised salt $CaCl_2 + 6H_2O$.

CALCIUM HYDROXIDE.

B.P.—The slaked Lime of the Pharmacopœia.
P.G.—Calcaria Hydrica.
U.S.P.—Not included.

CALCIUM HYDROXIDE SOLUTION.

B.P.
P.G. } The Lime Water official in the respective Pharmacopœias.
U.S.P.

CALCIUM SULPHATE.

B.P.—The pure native salt represented by the chemical formula $CaSO_4$, $2H_2O$.
P.G.
U.S.P. } Not included.

CALCIUM SULPHATE SOLUTION.

B.P.—A saturated filtered aqueous solution of Calcium Sulphate prepared by triturating 1·25 grammes of the salt with 10 c.c. of Distilled Water in a porcelain mortar and adding 90 c.c. of Water, filtering after allowing to stand for some time.

P.G.—A saturated aqueous solution of the salt.

U.S.P.—A saturated aqueous solution of native Gypsum, $CaSO_4$, $2H_2O$, obtained by shaking the powdered crystals of Gypsum in a bottle nearly full with Water at intervals during 12 hours, then decanting the clear saturated solution when required. The solubility at 25° C. (77 F.) is 1 in 378.

CARBON BISULPHIDE (DISULPHIDE).

B.P.
U.S.P. } The Carbon Disulphide official in the respective Pharmacopœias.

P.G.—A colourless, volatile, neutral liquid. Boiling point 46° C. (114·8° F.). Sp. gr. 1·272.

CHLORINATED SODA SOLUTION.

B.P.—The official Liquor Sodæ Chlorinatæ.
P.G.
U.S.P. } Not included.

CHLORINE SOLUTION.

B.P.—A freshly prepared, saturated solution of Chlorine in Water, obtained by saturating Water with the purified and washed gas obtained by the decomposition of Hydrochloric Acid and Manganese Dioxide. It possesses a gravity of 1·003, and contains about 0·5 p.c. of available Chlorine.

U.S.P.—The Liquor Chlori Co. of the Pharmacopœia. It contains about 0·4 p.c. of Chlorine and should be freshly prepared when required.

P.G.—The 'Aqua Chlorata' of the Pharmacopœia. A solution of Chlorine containing not less than 0·4 p.c. and not more than 0·5 p.c. w/w of Chlorine.

CHLOROFORM.

B.P.
P.G. } The Chloroform official in the respective Pharmacopœias.
U.S.P.

The *U.S.P.* requires that it should be strictly neutral to Litmus paper.

CHROMIC ACID SOLUTION.

B.P.—The Liquor Acidi Chromici of the Pharmacopœia.
P.G.—A 3 p.c. w/w aqueous solution of Chromic Acid prepared when required.
U.S.P.—Not included.

CITRIC ACID.

B.P.—The acid official in the Pharmacopœia.

P.G. }
U.S.P. } Not included.

COBALTOUS NITRATE SOLUTION.

B.P. }
P.G. } Not included.

U.S.P.—An approximately 10 p.c. w/v solution of Cobaltous Nitrate obtained by dissolving 1 gramme of the commercial Cobaltous Nitrate in 10 c.c. of Water.

Commercial crystalline Cobalt Nitrate $Co(NO_3)_2$, $6H_2O$, may be used in making the solution if, when dissolved in Water and the Cobalt precipitated by Ammonium Sulphide T.S., the filtrate leaves no residue after evaporating and igniting.

COLLODION.

B.P. }
P.G. } The Collodion official in the respective Pharmacopœias.

U.S.P.—Not included.

COPPER.

B.P. }
U.S.P. } The metal Cu in the form of wire, foil, or turnings.

P.G.—Not included.

COPPER OXYACETATE.

B.P.—Pure commercial Verdigris.

P.G. }
U.S.P. } Not included.

COPPER ACETATE SOLUTION.

B.P.—A filtered 10 p.c. w/v aqueous solution of Copper Oxyacetate prepared by digesting a weighed quantity of 10 grammes of finely-powdered Copper Oxyacetate in a mixture of 20 c.c. of Acetic Acid, and 10 c.c. of Water at a temperature of 100° C. (212° F.), evaporating to dryness, digesting the resulting residue in 80 c.c. of boiling Water, adding sufficient Water to produce a volume of 100 c.c.

COPPER SULPHATE.

B.P.—The salt represented by the chemical formula $CuSO_4$, $5H_2O$, official in the Pharmacopœia.

P.G. }
U.S.P. } Not included.

COPPER SULPHATE SOLUTION.

B.P. } A 10 p.c. w/v solution of Copper Sulphate in Water (filtered if
U.S.P. } necessary, *B.P.*)

The *U.S.P.* uses the salt, $CuSO_4$, $5H_2O$, official in the text.

P.G.—Not included.

DIPHENYLAMINE TEST-SOLUTION.

B.P. }
P.G. } Not included.

U.S.P.—A 0·2 p.c. w/v solution of Diphenylamine in diluted Sulphuric Acid. Diphenylamine, $(C_6H_5)_2NH$, is in greyish-white or colourless crystals, slightly soluble in Water, more soluble in acids. It has a peculiar, aromatic odour, and melts at 54° C. (129·2° F.). The T.S. should be colourless.

ETHER.

B.P.
P.G. } The Ether official in the respective Pharmacopœias.
U.S.P.

The *U.S.P.* requires that it should be strictly neutral to moistened Litmus paper.

FERRIC AMMONIUM SULPHATE SOLUTION.

B.P.—Not included.

P.G.—A solution of 1 part of Ferric Ammonium Sulphate in a mixture of Water 8 parts, and diluted Sulphuric Acid 1 part, to be prepared when required.

U.S.P.—A 10 p.c. w/v aqueous solution of Ferric Ammonium Sulphate $FeNH_4(SO_4)_2, 12H_2O$, *U.S.P.*

FERRIC CHLORIDE.

B.P.—The pure anhydrous commercial Ferric Chloride.

P.G.
U.S.P. } Not included.

FERRIC CHLORIDE SOLUTION.

B.P.—A 5 p.c. w/v aqueous solution of the above pure anhydrous Ferric Chloride. It should be filtered if necessary.

P.G.—Use the 'Liquor Ferri Sesquichlorati' of the Pharmacopœia diluted when necessary as directed.

U.S.P.—A 10 p.c. w/v solution of the Ferric Chloride of the Pharmacopœia in Distilled Water.

FERRIC SULPHATE SOLUTION.

B.P.—Use the 'Liquor Ferri Persulphatis' of the Pharmacopœia.

P.G.
U.S.P. } Not included.

FERROUS SULPHATE.

B.P.—The salt official in the Pharmacopœia represented by the chemical formula $FeSO_4, 7H_2O$.

P.G.
U.S.P. } Not included.

FERROUS SULPHATE SOLUTION.

B.P.—A freshly prepared, filtered 2 p.c. w/v solution of Ferrous Sulphate in Distilled Water.

P.G.—A solution of 1 part of Ferrous Sulphate in a mixture of 1 part of Water, and 1 part of diluted Sulphuric Acid to be prepared when required.

U.S.P.—The *U.S.P.* directs that a clear crystal of Ferrous Sulphate $FeSO_4, 7H_2O$ be dissolved in about 10 parts of Water which has been previously boiled to expel air. The solution should be freshly prepared immediately before use.

FERROUS SULPHIDE.

B.P.
P.G. } Not included.

U.S.P.—A heavy solid represented by the chemical formula FeS. It is in the form of black or brownish-black irregular masses, or fused into sticks, and is soluble in diluted Sulphuric Acid or diluted Hydrochloric Acid, with copious evolution of Hydrogen Sulphide.

GELATIN TEST-SOLUTION.

B.P.
P.G. } Not included.

U.S.P.—A freshly made solution of 1 gramme of the Gelatin official in the Pharmacopœia in 50 c.c. of Water. It is made with the aid of a gentle heat, and filtered if necessary.

GLYCERIN.

B.P. }
P.G. } The Glycerin official in the respective Pharmacopœias.
U.S.P.—Not included.

HYDROCHLORIC ACID.

B.P. }
P.G. } The Acidum Hydrochloricum of the respective Pharmacopœias.
U.S.P. }

The *U.S.P.* requires that the acid for use as a reagent should conform to the following additional tests: The addition of 1 c.c. of Barium Chloride T.S. to 1 c.c. of the acid diluted with 9 c.c. of Water should cause no turbidity within 24 hours. A crystal of Diphenylamine dropped into the acid should not turn blue (absence of free Chlorine).

HYDROCHLORIC ACID, DILUTED.

B.P.—The diluted acid of the Pharmacopœia containing 10·58 p.c. of Hydrogen Chloride.

P.G. }
U.S.P. } Not included.

HYDROCHLORIC ACID, FUMING.

B.P. }
U.S.P. } Not included.

P.G.—A colourless fuming liquid answering the tests of purity for the Hydrochloric Acid of the Pharmacopœia. Sp. gr. 1·190.

HYDROCHLORIC ACID, GASEOUS.

B.P.—Hydrochloric Acid in the dry gaseous form, directed to be prepared from Sulphuric Acid and Sodium Chloride.

P.G. }
U.S.P. } Not included.

HYDROGEN PEROXIDE SOLUTION.

B.P.—The official Liquor of the Pharmacopœia.

P.G. }
U.S.P. } Not included.

HYDROGEN SULPHIDE.

B.P. } The washed gas represented by the chemical formula H_2S obtained
U.S.P. } by the action of Hydrochloric Acid on Ferrous Sulphide. The *B.P.* employs Hydrochloric Acid, the *U.S.P.* diluted Sulphuric Acid.

P.G.—Not included.

The *B.P.* states that the gas may be used after having been passed through two wash-bottles containing Water, and the *U.S.P.* requires that after generation the gas be treated as described under Hydrogen Sulphide Solution.

HYDROGEN SULPHIDE SOLUTION.

B.P.—An aqueous solution of Hydrogen Sulphide gas. It should have a strong odour of Hydrogen Sulphide and should give a copious black precipitate with Lead Subacetate T.S.

P.G.—A saturated aqueous solution of Hydrogen Sulphide.

U.S.P.—A saturated aqueous solution of Hydrogen Sulphide. It directs that 1000 c.c. of the solution be prepared by treating 20 grammes of Ferrous Sulphide with 20 c.c. of Sulphuric Acid (*U.S.P.*) mixed with 250 c.c. of Water. The generated gas is first passed through a drying tube containing granulated Calcium Chloride, then from this through a tube of about 8 mm. diameter and about 40 cm. in length, containing about 5 grammes of coarsely pulverised Iodine mixed with glass wool, and finally through a wash-bottle containing a little Potassium Iodide T.S. The purified gas is then passed through 1000 c.c. of Water contained in a bottle of 1500 c.c. capacity, shaking the bottle occasionally.

After absorption ceases the solution is transferred to small dark amber-coloured bottles, allowing a stream of the gas to pass through each before stoppering. The bottles should be filled nearly to the top and preserved in a cool and dark place. The solution should only be used if it retains a strong odour of the gas and yields a copious precipitate of Sulphur when it is added to an equal volume of Ferric Chloride T.S.

ISINGLASS.

B.P.—A shredded gelatinous substance prepared from the sounds or swimming bladders of different species of *Acipenser*, Linn. *See* also p. 655.

P.G.
U.S.P. } Not included.

ISINGLASS, SOLUTION OF.

B.P.—The freshly prepared, filtered, aqueous 2 p.c. w/v solution of Isinglass prepared by digesting the Isinglass in Water for half an hour at a water-bath temperature. The product is filtered through tow.

LEAD ACETATE.

B.P.—The salt official in the Pharmacopœia.

P.G.
U.S.P. } Not included.

LEAD ACETATE SOLUTION.

B.P.
U.S.P. } A 10 p.c. w/v solution of the salt in Distilled Water.

P.G.—A 10 p.c. w/w solution of the salt in Distilled Water.

The *B.P.* directs that recently boiled Distilled Water should be used and that the solution be filtered. The *U.S.P.* directs that only transparent crystals of the salt be used free from adhering Carbonate.

LEAD PEROXIDE.

B.P.—The pure commercial Lead Peroxide represented by the chemical formula PbO_2.

P.G.
U.S.P. } Not included.

LEAD SUBACETATE SOLUTION.

B.P.
P.G.
U.S.P. } The 'Liquor Plumbi Subacetatis Fortis' official in the respective Pharmacopœias.

This is the Basic Lead Acetate Test Solution of the *U.S.P.*

LIME, SOLUTION OF CHLORINATED.

B.P.
U.S.P. } Not included.

P.G.—Triturate 1 part of Chlorinated Lime with 9 parts of Water, and filter the solution. It should be prepared when required.

MAGNESIUM AMMONIO-SULPHATE SOLUTION. (MAGNESIA MIXTURE, *U.S.P.*)

B.P.
U.S.P. } Magnesium Sulphate, 10 grammes; Ammonium Chloride, 20 grammes; dissolve in 80 c.c. of Water and add 42 c.c. of Ammonia Solution (Aqua Ammoniæ, *U.S.P.*).

The *B.P.* directs that the mixture be allowed to stand for a few days in a well-stoppered bottle, then decanted and filtered. The *U.S.P.* states that if not perfectly clear the mixture should be filtered before using.

MAGNESIUM SULPHATE SOLUTION.

B.P.
U.S.P. } A 10 p.c. w/v (filtered *B.P.*) solution of the official salt in Distilled Water.

P.G.—A 10 p.c. w/w solution of the salt in Water.

MANGANESE PEROXIDE.

B.P.
P.G. } Powdered native Pyrolusite, MnO_2.
U.S.P.—Not included.

MERCURIC CHLORIDE SOLUTION.

B.P.
U.S.P. } A 5 p.c. w/v filtered aqueous solution of the official salt.
P.G.—A 5 p.c. w/w aqueous solution of the official salt.

MERCURIC NITRATE SOLUTION.

B.P.
P.G. } Not included.
U.S.P.—The 'Liquor Hydrargyri Nitratis' of the Pharmacopœia.

MERCUROUS NITRATE SOLUTION.

B.P.—A solution of Mercurous Nitrate obtained by dissolving 1 gramme of Mercury in a mixture of 0·5 c.c. of Water and 0·5 c.c. of Nitric Acid, the mixture being allowed to remain at rest for 24 hours in a cool dark place and the crystalline residue dissolved in 100 c.c. of Water.

U.S.P.—A solution of Mercurous Nitrate prepared by mixing 10 grammes of Mercury, 5 c.c. of pure Nitric Acid, and 5 c.c. of Distilled Water, and setting aside in a cool dark place. The crystals formed during 24 hours are, after draining, dissolved in 100 c.c. of Water. The solution should be preserved in a dark amber-coloured bottle into which a small quantity of Mercury has been introduced.

P.G.—Not included.

METHYL ALCOHOL.

B.P.
P.G. } Not included.
U.S.P.—Rectified, purified wood Alcohol CH_3OH. Sp. gr., about 0·812 at 25° C. (77° F.). It should be free from pyroligneous odour.

MICROCOSMIC SALT.

B.P.—The commercial salt represented by the chemical formula $NaNH_4HPO_4$, $4H_2O$.
P.G.
U.S.P. } Not included.

NAPHTHYLAMINE ACETATE SOLUTION.

B.P.
P.G. } Not included.
U.S.P.—Boil 0·1 gramme of Alphanaphthylamine Acetate ($C_{10}H_7NH_2.HC_2H_3O_2$) in 20 c.c. of Distilled Water, filter through cotton, and mix the filtrate with 180 c.c. of diluted Acetic Acid (10 p.c. of absolute Acid). Only freshly Distilled Water should be employed in preparing this reagent, which must be kept in well-stoppered bottles protected from the light.

NITRIC ACID.

B.P.
P.G. } The official Nitric Acid of the respective Pharmacopœias.
U.S.P.

NITRIC ACID, CRUDE.

B.P.
U.S.P. } Not included.
P.G.—A clear, colourless or yellowish coloured liquid, fuming in the air, completely volatile on warming. Sp. gr. 1·380 to 1·400. It contains 61 p.c. of pure acid.

NITRIC ACID, DILUTED.

B.P.—The official diluted acid of the Pharmacopœia.
P.G.—Nitric Acid 1 part, Water 1 part; prepared when required.
U.S.P.—Not included.

NITRIC ACID, FUMING.

B.P.—Nitric Acid having a sp. gr. of 1·5.

P.G.—A clear reddish-brown liquid, completely volatile on warming. It evolves suffocating yellowish-red fumes. Sp. gr. 1·486 to 1·500. It contains 86 p.c. of pure acid.

U.S.P.—The commercial red fuming acid. Sp. gr. 1·437 at 25° C. (77° F.). It should be carefully kept in glass-stoppered bottles in a cool place.

OLIVE OIL.

B.P.—The Olive Oil of the Pharmacopœia.
P.G. }
U.S.P. } Not included.

OXALIC ACID.

B.P.—Not included.

P.G.—The air-dried acid. It should leave no residue when ignited on platinum foil.

U.S.P.—Pure Oxalic Acid represented by the chemical formula $H_2C_2O_4 + 2H_2O$; 10 grammes on ignition on platinum foil should leave no residue. It should be completely soluble in 12 parts of Water at 25° C. (77° F.). For the preparation of test and volumetric solutions, commercial Oxalic Acid should be purified as follows: To 1 part of the Acid add 10 parts of cold Water, and shake until the latter is saturated. Filter off the solution from the undissolved crystals, evaporate the filtrate to about three-fourths of its volume, and set it aside so that the fixed salts which it contains may crystallise out. Carefully decant the liquid from the crystals, concentrate it by evaporation, and set it aside to crystallise, stirring occasionally to prevent the formation of large crystals, which might enclose moisture. Drain the crystals in a funnel, dry them carefully on blotting paper, and preserve them in well-stoppered bottles.

OXALIC ACID SOLUTION.

B.P. }
P.G. } Not included.
U.S.P.—A 10 p.c. w/v aqueous solution of pure Oxalic Acid.

PALLADOUS CHLORIDE SOLUTION.

B.P. }
P.G. } Not included.

U.S.P.—A 5 p.c. w/v aqueous solution of Palladous Chloride $PdCl_2$. The solution should be preserved in a glass-stoppered bottle.

PHENOL.

B.P.—The 'Acidum Carbolicum' of the Pharmacopœia.
P.G. }
U.S.P. } Not included in the reagent list.

PHENOL SOLUTION.

B.P. }
U.S.P. } Not included.
P.G.—A 5 p.c. w/w aqueous solution of Carbolic Acid.

PICRIC ACID.

B.P.—Trinitrophenol represented by the formula $C_6H_2(NO_2)_3OH$. *See* also Acidum Picricum.

P.G. }
U.S.P } Not included.

PICRIC ACID SOLUTION.

B.P.—A 0·6 p.c. w/v aqueous solution of Picric Acid.

P.G.—Not included.

U.S.P.—A 1 p.c. w/v aqueous solution of pure, distinctly crystalline Picric Acid $C_6H_2(NO_2)_3OH$. Cool the solution and filter if necessary.

PLATINIC CHLORIDE SOLUTION.

B.P.—An approximately 8·6 p.c. solution of Platinum Tetrachloride, equivalent to 13·2 p.c. w/v Chloro-platinic Acid, obtained by heating 5 grammes of commercial platinum foil to a temperature of about 80° C. (176° F.) with 30 c.c. of Hydrochloric Acid, and very gradually adding 5 c.c. of Nitric Acid. The liquid is evaporated to dryness on a water-bath moistened with Hydrochloric Acid, and again evaporated and the residue dissolved in sufficient Water to measure 100 c.c.

P.G.—A 5 p.c. w/w solution of Chloro-platinic Acid in Water.

U.S.P.—A solution of 2·6 grammes of Chloro-platinic Acid $H_2PtCl_6, 6H_2O$ in 20 c.c. of Water. It is required that if a small portion of this solution be evaporated to dryness and the residue ignited, pure metallic Platinum should remain, which should yield nothing soluble in Nitric Acid.

POTASSIO-MERCURIC IODIDE ALKALINE SOLUTION (NESSLER'S).

B.P.—A solution prepared by dissolving a mixture of 3·5 grammes of Potassium Iodide and 1·25 grammes of Mercuric Chloride in 80 c.c. of Water, adding a cold saturated aqueous Mercuric Chloride Solution drop by drop with constant agitation until a faint permanent red precipitate ensues, adding 12 grammes of Sodium Hydroxide, 1 or 2 drops of the cold saturated aqueous Mercuric Chloride Solution and diluting with Water to measure 100 c.c.

U.S.P.—To a solution of 5 grammes of Potassium Iodide in 5 c.c. of Water gradually add in portions a saturated aqueous solution of Mercuric Chloride with constant agitation until a slightly red precipitate remains undissolved. Add 15 grammes of Potassium Hydroxide, and, when this has dissolved, 0·5 c.c. more of the saturated aqueous solution of Mercuric Chloride, then dilute with Water to 100 c.c. Allow the precipitate to subside and draw off the clear fluid. 2 c.c. of this reagent when added to 50 c.c. of Water containing 0·05 milligramme of Ammonia should produce at once a yellowish-brown coloration.

P.G.—Not included.

POTASSIO-MERCURIC IODIDE SOLUTION. MAYER'S REAGENT.

B.P. }
P.G. } Not included.

U.S.P.—Dissolve 1·344 grammes of Mercuric Chloride in 60 c.c. of Water and 5 grammes of Potassium Iodide in 10 c.c. of Water. Mix the two solutions, and then add sufficient Water to make the mixture measure 100 c.c.

POTASSIUM ACETATE SOLUTION.

B.P.—A 10 p.c. w/v filtered aqueous solution of Potassium Acetate.

P.G.—The Liquor Kalii Acetici of the Pharmacopœia prepared by gradually adding 24 parts of Potassium Bicarbonate to 50 parts by weight of diluted Acetic Acid, *P.G.*, heating the solution to boiling point, then neutralising with Potassium Bicarbonate and diluting the cooled liquid with Water until the solution has a sp. gr. of 1·176 to 1·180.

U.S.P.—Not included.

POTASSIUM ACID TARTRATE SOLUTION.

B.P.—A saturated solution of the official salt obtained by digesting an excess of it in Distilled Water and then filtering.

P.G. }
U.S.P. } Not included.

POTASSIUM BICHROMATE.

B.P.—The official salt of the Pharmacopœia. *See* Potassii Bichromas.

P.G.—Not included.

U.S.P.—Pure Potassium Dichromate. The pure salt $K_2Cr_2O_7$ answering the following tests of purity in addition to the official requirements: In a solution of 0·5 gramme of the salt in 10 c.c. of Water rendered acid by 0·5 c.c. of Nitric Acid, no turbidity should be produced by Barium Chloride T.S. (absence of Sulphates). 10 c.c. of an aqueous solution of the salt (1–20) should give no turbidity with 1 c.c. of Ammonia Water followed by 1 c.c. of Ammonium Oxalate T.S. (absence of Calcium). If to a solution of 0·5 gramme of the salt in 20 c.c. of Water sufficient Sulphurous Acid be added to impart a strong odour of the reagent and the mixture be boiled for about 3 minutes and cooled, the addition of 1 c.c. of Nitric Acid and a few drops of Silver Nitrate V.S. should produce no turbidity (absence of Chlorides). Should the official salt not answer these tests it may be purified by repeated recrystallisation until it does so. A hot saturated aqueous solution of the salt is rapidly cooled with agitation and the granular crystals collected on a plain filter, washed with cold Water to remove the mother liquor, drained and then dried at 120° C. (248° F.). This recrystallisation is repeated as often as is necessary.

POTASSIUM BICHROMATE SOLUTION.

B.P.—Not included.

P.G.—A 5 p.c. w/w aqueous solution of the official salt.

U.S.P.—A 10 p.c. w/v aqueous solution of the pure salt.

POTASSIUM BROMATE.

B.P.
P.G. } Not included.

U.S.P.—The salt represented by the chemical formula $KBrO_3$. It occurs as white cubical crystals or a granular crystalline powder, and has a pungent saline taste. It should respond to the following tests:—**Solubility:** 1 in 15·5 of Water at 25° C. (77° F.); 1 in 2 of boiling Water; slightly in Alcohol. **Litmus:** An aqueous solution should be neutral. **Sulphuric Acid:** The aqueous solution of the salt should not at once yield a yellow colour on the addition of the diluted acid, but Sulphuric Acid added to the salt causes decomposition with evolution of Bromine. **Nitric Acid:** Also causes decomposition with evolution of Bromine. **Heat:** At 350° C. (662° F.) decomposition occurs and Oxygen is given off. **Volumetric determination:** Dissolve 0·1 gramme of the salt which has been dried at 100° C. (212° F.) and 2 grammes of Potassium Iodide in 25 c.c. of Water contained in a glass-stoppered bottle of about 100 c.c. capacity; then add 5 c.c. of Hydrochloric Acid, well stopper the bottle and set aside for ten minutes. On titrating this mixture with Tenth-normal Sodium Thiosulphate V.S. not less than 36·1 c.c. of the V.S. should be required to discharge the colour, corresponding to 99·8 p.c. of pure salt.

Note.—Potassium Bromate should not be triturated or heated with organic or easily oxidisable substances.

POTASSIUM CARBONATE SOLUTION.

B.P.—A 10 p.c. w/v filtered aqueous solution of Potassium Carbonate.

P.G.—The 'Liquor Kalii Carbonici' of the Pharmacopœia made by dissolving 11 parts of the salt in 20 parts of Water, filtering the solution and diluting with Water if necessary to a sp. gr. of 1·330 to 1·334. It is an aqueous solution containing 33·3 p.c. w/w of Potassium Carbonate.

U.S.P.—A 10 p.c. w/v aqueous solution of anhydrous Potassium Carbonate. The anhydrous salt is prepared by heating the official salt to 130° C. (266° F.).

POTASSIUM CHLORATE.

B.P.—The official salt of the Pharmacopœia. *See* Potassii Chloras.

P.G.
U.S.P. } Not included.

POTASSIUM CHROMATE.

B.P.—The pure neutral commercial salt in yellow crystals represented by the chemical formula K_2CrO_4.

P.G. }
U.S.P. } Not included.

POTASSIUM CHROMATE SOLUTION.

B.P.—A 10 p.c. w/v filtered aqueous solution of Potassium Chromate.

P.G.—A 5 p.c. w/w aqueous solution of yellow Potassium Chromate free from Chlorine.

U.S.P.—A 10 p.c. w/v aqueous solution of yellow Potassium Chromate. The red precipitate produced by the addition of Silver Nitrate T.S. to a few drops of the solution, diluted with a little Distilled Water, should be entirely soluble in Nitric Acid (absence of Chlorides). It should be free from Sulphates; equal volumes of the solution and diluted Hydrochloric Acid yielding no precipitate with Barium Chloride T.S. Another portion of the solution should give no turbidity with Ammonia Water or Ammonium Oxalate T.S. (absence of alkali earths). A solution of 0·1 gramme of the salt in 20 c.c. of Water should not become red on the addition of a few drops of Phenolphthalein T.S. (limit of free alkalis).

POTASSIUM CYANIDE.

B.P.—The Potassium Cyanide, KCN, of commerce yielding not less than 90 p.c. of pure salt.

P.G. }
U.S.P. } Not included.

POTASSIUM CYANIDE SOLUTION.

B.P. }
U.S.P. } A 10 p.c. w/v aqueous solution of Potassium Cyanide. (*B.P.* filtered.)

The *U.S.P.* uses the official salt of the Pharmacopœia and directs that the solution be prepared when required.

P.G.—Not included.

POTASSIUM FERRICYANIDE.

B.P.—The salt represented by the chemical formula $K_6Fe_2C_{12}N_{12}$. It occurs as red crystals and should be free from Ferrous salt as ascertained by its aqueous solution failing to give a precipitate or blue coloration with a dilute solution of a pure Ferric salt.

P.G. }
U.S.P. } Not included.

POTASSIUM FERRICYANIDE SOLUTION.

B.P.—A freshly prepared 5 p.c. w/v aqueous filtered solution of crystallised Potassium Ferricyanide.

P.G.—A freshly prepared 5 p.c. w/w aqueous solution of Potassium Ferricyanide in crystals which have been previously washed with Water.

U.S.P.—A solution of 1 part of Potassium Ferricyanide in about 10 parts of Water, freshly made when required. The absence of Ferrocyanide is proved by its failure to give any turbidity or shade of green with Ferric Chloride T.S. well diluted with Water, only a brown tint being developed. Potassium Ferricyanide should be free from Sulphates and Chlorides.

POTASSIUM FERROCYANIDE.

B.P.—The salt in yellow crystals obtained by the fusion of a mixture of Potassium Carbonate, Iron and nitrogenous organic matter. It is represented by the chemical formula $K_4FeC_6N_6, 3H_2O$.

P.G.—Not included.

U.S.P.—The yellow crystalline salt represented by the formula $K_4Fe(CN)_6, 3H_2O$.

POTASSIUM FERROCYANIDE SOLUTION.

B.P.—A 5 p.c. w/v aqueous filtered solution of Potassium Ferrocyanide in crystals.

P.G.—A freshly prepared 5 p.c. w/w aqueous solution of Potassium Ferrocyanide.

U.S.P.—A 10 p.c. w/v aqueous solution of the salt.

POTASSIUM HYDROGEN SULPHITE.

B.P.—Acid Potassium Sulphite of commerce represented by the chemical formula $KHSO_3$.

P.G.
U.S.P.} Not included.

POTASSIUM HYDROXIDE.

B.P.—The Potassa Caustica of the Pharmacopœia.

P.G.
U.S.P.} Not included.

POTASSIUM HYDROXIDE SOLUTION.

B.P.
P.G.
U.S.P.} The solutions official in the respective Pharmacopœias.

POTASSIUM HYDROXIDE SOLUTION (ALCOHOLIC).

B.P.—A 10 p.c. w/v filtered solution of Potassium Hydroxide in Alcohol (90 p.c.).

P.G.—A 10 p.c. w/w solution of fused Potassium Hydroxide in Alcohol (90 to 91·2 p.c.).

U.S.P.—Use the Half-normal Alcoholic Potassium Hydroxide V.S., *q.v.* p. 1301.

POTASSIUM IODIDE.

B.P.—The official salt of the Pharmacopœia.

P.G.
U.S.P.} Not included.

POTASSIUM IODIDE SOLUTION.

B.P.—A 10 p.c. w/v filtered aqueous solution of the official Potassium Iodide.

P.G.—A 10 p.c. w/w aqueous solution of the official salt.

U.S.P.—A 20 p.c. w/v aqueous solution of the official salt. It should be kept in dark amber-coloured, well-stoppered bottles, and should be frequently renewed.

POTASSIUM NITRATE.

B.P.
P.G.} Not included.

U.S.P.—The dry salt, KNO_3, official in the Pharmacopœia. It should also be free from Chlorides and Sulphates.

POTASSIUM PERMANGANATE.

B.P.—The official salt of the Pharmacopœia.

P.G.
U.S.P.} Not included.

POTASSIUM PERMANGANATE SOLUTION.

B.P.—The 'Liquor Potassii Permanganatis' of the Pharmacopœia.

P.G.—A 0·1 p.c. w/w aqueous solution of the official salt.

U.S.P.—Use the Tenth-normal Volumetric Solution.

POTASSIUM SULPHATE.

B.P.—The official salt of the Pharmacopœia.

P.G.
U.S.P. } Not included.

POTASSIUM SULPHATE SOLUTION.

B.P.
P.G. } Not included.

U.S.P.—A 1 p.c. w/v aqueous solution of Potassium Sulphate.

POTASSIUM SULPHOCYANATE.

B.P.
P.G. } Not included.

U.S.P.—The salt represented by the chemical formula KSCN. It is in the form of colourless prismatic crystals, which are hygroscopic in moist air. It has a cooling saline taste. **Solubility** at 25° C. (77° F.): 1 in less than 1 of Water; 1 in 10 of Absolute Alcohol. An aqueous solution of the salt (1–20) should not become turbid within 5 minutes upon the addition of Barium Chloride T.S. (limit of Sulphate). The aqueous solution (1 in 20) after the addition of 1 c.c. of diluted Hydrochloric Acid, should remain colourless (absence of Iron), and should not respond to the time-limit test for heavy metals.

POTASSIUM SULPHOCYANATE SOLUTION.

B.P.
P.G. } Not included.

U.S.P.—Use the Tenth-normal V.S.

PYROXYLIN SOLUTION.

B.P.—The Collodion official in the Pharmacopœia.

P.G.
U.S.P. } Not included.

SILVER AMMONIO-NITRATE SOLUTION.

B.P.—A solution obtained by dissolving 2·5 grammes of Silver Nitrate in 80 c.c. of Distilled Water, and adding Ammonia Solution drop by drop until the precipitate at first formed almost redissolves; the clear liquid is decanted from the precipitate and sufficient Water added to measure 100 c.c.

P.G.—Not included.

U.S.P.—Prepared by adding, drop by drop, Ammonia Water *q.s.* to a solution of 1 gramme of Silver Nitrate in 20 c.c. of Water until solution of the precipitate formed is nearly, but not entirely, effected. Filter and preserve the solution in dark amber-coloured and well-stoppered bottles.

SILVER NITRATE SOLUTION.

B.P.—A 5 p.c. w/v aqueous solution of the official salt.

P.G.—A 5 p.c. w/w aqueous solution of the official salt.

U.S.P.—For ordinary purposes use the Tenth-normal Volumetric Solution.

SILVER SULPHATE SOLUTION.

B.P.
P.G. } Not included.

U.S.P.—To a solution of 1 gramme of the official Silver Nitrate in 0·5 c.c. of warm Water add 1·5 c.c. of pure concentrated Sulphuric Acid, cool the solution, and pour off the acid liquid from the crystals of Silver Sulphate $AgSO_4$ formed. Repeatedly wash the crystals by decantation with cold Water, and having transferred them to a bottle, agitate them with 100 c.c. of Water. Decant a sufficient quantity of this saturated solution when required.

SODIUM ACETATE.

B.P.—The salt represented by the chemical formula $CH_3COONa, 3H_2O$. The use of the pure commercial salt is officially permitted.

P.G.
U.S.P. } Not included.

SODIUM ACETATE SOLUTION.

B.P.—A 10 p.c. w/v filtered aqueous solution of the salt.
P.G.—A 20 p.c. w/w aqueous solution of the official salt.
U.S.P.—A 10 p.c. w/v aqueous solution of the official salt.

SODIUM ARSENATE.

B.P.—The official salt of the Pharmacopœia.

P.G.
U.S.P. } Not included.

SODIUM BICARBONATE.

B.P.—The official salt of the Pharmacopœia.

P.G.
U.S.P. } Not included.

SODIUM BICARBONATE SOLUTION.

B.P.
U.S.P. } Not included.

P.G.—Dissolve 1 part of the powdered salt in 19 parts of Water with gentle stirring.

SODIUM BITARTRATE SOLUTION.

B.P.
P.G. } Not included.

U.S.P.—To a solution of 3·5 grammes of the official Tartaric Acid in about 80 c.c. of boiling Water, add gradually, in small portions, Monohydrated Sodium Carbonate Na_2CO_3,H_2O until the solution has a neutral reaction; to this liquid is now added 3·5 grammes of Tartaric Acid, and after filtering and cooling sufficient Water is added to the solution to measure 100 c.c. This solution should be freshly prepared when required.

SODIUM CARBONATE.

B.P.—The official salt of the Pharmacopœia.
P.G.—Not included.
U.S.P.—The official monohydrated salt Na_2CO_3,H_2O. It should respond to the tests of the Pharmacopœia, and should be absolutely free from Chloride and Sulphate.

SODIUM CARBONATE SOLUTION.

B.P.—A 10 p.c. w/v filtered aqueous solution of the official salt.
P.G.—A 20 p.c. w/w aqueous solution of the official salt.
U.S.P.—A 10 p.c. w/v aqueous solution of the 'Sodii Carbonas Monohydratus' of the Pharmacopœia.

SODIUM CHLORIDE.

B.P.—The official salt of the Pharmacopœia.

P.G.
U.S.P. } Not included.

SODIUM COBALTIC NITRITE SOLUTION.

B.P.
P.G. } Not included.

U.S.P.—A solution of Sodium Cobaltic Nitrite $Co_2(NO_2)_6.6NaNO_2,H_2O$ made by dissolving 4 grammes of Cobaltous Nitrate $Co(NO_3)_2,6H_2O$ and 10 grammes of Sodium Nitrite $NaNO_2$ in about 50 c.c. of Water, then adding 2 c.c. of Acetic

Acid (*U.S.P.*) and diluting with Water to 100 c.c. A few drops of Acetic Acid should be added to the solution from time to time, and it should not be kept longer than three months.

SODIUM HYDROGEN SULPHITE.

B.P.—The salt $NaHSO_3$ found in commerce.
P.G. }
U.S.P. } Not included.

SODIUM BISULPHITE SOLUTION.

B.P. }
U.S.P. } Not included.
P.G.—It contains about 30 p.c. w/w of Sodium Bisulphite.

SODIUM HYDROXIDE.

B.P.—For the official varieties *see* Soda Caustica.

P.G.—The *P.G.* uses the fused Caustic Soda and requires that an aqueous solution (1–6) should respond to the tests of purity given for the 'Liquor Natri Caustici' of the Pharmacopœia.

U.S.P.—Not included.

SODIUM HYDROXIDE SOLUTION.

B.P.—A 20 p.c. w/v filtered aqueous solution of the 'Purified Sodium Hydroxide.'

P.G.—The 'Liquor Natri Caustici' of the Pharmacopœia. Sp. gr. 1·168 to 1·172. It contains about 15 p.c. w/w of Sodium Hydroxide.

U.S.P.—The 'Liquor Sodii Hydroxidi' of the Pharmacopœia. Sp. gr. 1·056 at 25° C. (77° F.). It contains about 5 p.c. w/w of Sodium Hydroxide.

SODIUM NITRITE.

B.P.—The official salt of the Pharmacopœia.

P.G.—Not included.

U.S.P.—The purest commercial salt, either granulated or in the form of sticks may be employed.

SODIUM NITRO-PRUSSIDE SOLUTION.

B.P. }
P.G. } Not included.

U.S.P.—An aqueous solution of Sodium Nitro-prusside $Na_2Fe(NO)(CN)_5$, $2H_2O$, prepared immediately before use by dissolving 1 part of the salt in 19 parts of Water.

SODIUM PHOSPHATE SOLUTION.

B.P. } A 10 p.c. w/v filtered aqueous solution of the salt official in the
U.S.P. } respective Pharmacopœias.
P.G.—A 5 p.c. w/w aqueous solution of the official salt.

SODIUM POTASSIUM TARTRATE.

B.P.—The 'Soda Tartarata' of the Pharmacopœia.
P.G. }
U.S.P. } Not included.

SODIUM SULPHATE.

B.P.—The official salt of the Pharmacopœia.
P.G. }
U.S.P. } Not included.

SODIUM SULPHATE SOLUTION.

B.P.—A 10 p.c. w/v filtered aqueous solution of the official salt.
P.G. }
U.S.P. } Not included.

SODIUM SULPHITE.

B.P.—The official salt of the Pharmacopœia.

P.G.
U.S.P.} Not included.

SODIUM SULPHITE SOLUTION.

B.P.
U.S.P.} Not included.

P.G.—A 10 p.c. w/w aqueous solution of Sodium Sulphite. It should be prepared when required.

SODIUM TARTRATE SOLUTION.

B.P.
P.G.} Not included.

U.S.P.—A solution of Sodium Tartrate $Na_2C_4H_4O_6$, $2H_2O$ prepared by adding gradually, in small portions, Monohydrated Sodium Carbonate *U.S.P.* to a solution of 6·5 grammes of Tartaric Acid *U.S.P.* in about 80 c.c. of boiling Water, until the solution has a neutral reaction. It is then filtered, cooled, and made up to 100 c.c. with Water. It should be freshly prepared when required.

SODIUM THIOSULPHATE.

B.P.—*Syn.* Sodium Hyposulphite. A crystalline salt represented by the chemical formula $Na_2S_2O_3$, $5H_2O$.

P.G.
U.S.P.} Not included.

SODIUM THIOSULPHATE SOLUTION.

B.P.
P.G.} Not included.

U.S.P.—Use the Tenth-normal V.S.

STANNOUS CHLORIDE SOLUTION.

B.P.—A solution of Stannous Chloride obtained by heating 20 grammes of granulated Tin with a mixture of 60 c.c. of Hydrochloric Acid and 20 c.c. of Water until the evolution of gas ceases, the undissolved Tin is allowed to remain in the liquid, to which sufficient Water should be added to measure 100 c.c.

P.G.—Let 5 parts of Stannous Chloride in crystals be mixed to a paste with 1 part of Hydrochloric Acid and the mixture completely saturated with dry Hydrochloric Acid gas. The solution so obtained is poured off after being allowed to deposit, and filtered through Asbestos. It is a pale yellow, strongly fuming, refractive liquid with a sp. gr. of not less than 1·900. The solution mixed with 10 volumes of Spirit should not become turbid even in the course of an hour. No turbidity should be produced by Barium Chloride Solution (1–20) in Stannous Chloride Solution diluted with 10 volumes of Water, even after ten minutes. The solution should be preserved in small well-stoppered bottles as full as possible.

U.S.P.—A solution of 1 part Stannous Chloride in crystals, in 10 parts of Water. The crystals of Stannous Chloride are prepared by heating Tin (in foil or granules) with concentrated Hydrochloric Acid, keeping the metal in excess. When the Acid is saturated, crystals of Stannous Chloride, $SnCl_2$, $2H_2O$ begin to form. These are removed and drained, and are then used in making the solution.

The solution should be preserved in well-stoppered bottles containing a fragment of pure Tin or a piece of Tin foil.

For Bettendorf's test pure concentrated Hydrochloric Acid (which responds to the *U.S.P.* tests of purity) is saturated with the freshly prepared crystals.

SULPHANILIC ACID SOLUTION.

B.P.
P.G.} Not included.

U.S.P.—A solution of 0·5 gramme of Sulphanilic Acid $C_6H_4(NH_2)$. (SO_3H) (Para-amidobenzenesulphonic acid) in 150 c.c. of diluted Acetic Acid (10 p.c.

absolute Acetic Acid). Only freshly distilled Water should be employed in preparing the diluted Acetic Acid and the reagent should be kept in well-stoppered bottles.

SULPHUR.

B.P.—The 'Sulphur Sublimatum' of the Pharmacopœia.

P.G.
U.S.P.} Not included.

SULPHURIC ACID.

B.P.
P.G.} The acids official in the respective Pharmacopœias.

U.S.P.—The official acid may be used as a reagent for most purposes, provided it is of the required degree of purity. If 'concentrated' Sulphuric Acid be specially directed in a test, the strongest obtainable pure acid, sp. gr. not less than 1·834 at 25°C. (77° F.), should be used. This acid should respond to the official tests of purity and conform to the following additional test:—'If 1 c.c. of Diphenylamine T.S. be carefully poured, as a separate layer, upon 5 c.c. of Sulphuric Acid contained in a test-tube, no distinct blue colour should appear in the zone of contact.'

SULPHURIC ACID, DILUTED.

B.P.
P.G.} The diluted acid of the respective Pharmacopœias.

U.S.P.—Not included.

SULPHUROUS ACID (SOLUTION).

B.P.—The 'Acidum Sulphurosum' of the Pharmacopœia.

P.G.—The reagent is prepared when required by acidulating a freshly prepared solution (1–10) of Sodium Sulphite with diluted Sulphuric Acid.

U.S.P.—Not included.

TALC (POWDERED).

B.P.—A purified Magnesium Silicate. *See* Talcum.

P.G.
U.S.P.} Not included.

TANNIC ACID SOLUTION.

B.P.—A freshly prepared 10 p.c. w/v aqueous solution of Tannic Acid.

P.G.—A 5 p.c. w/w solution of Tannic Acid in Water, prepared when required.

U.S.P.—A solution of 1 gramme of Tannic Acid *U.S.P.* in 1 c.c. of Alcohol diluted with Water to 10 c.c.

TARTARATED ANTIMONY SOLUTION.

B.P.—A freshly prepared 5 p.c. w/v filtered solution of Tartarated Antimony in boiling Water.

P.G.
U.S.P.} Not included.

TARTARIC ACID.

B.P.—The official 'Acidum Tartaricum' of the Pharmacopœia.

P.G.
U.S.P.} Not included.

TARTARIC ACID SOLUTION.

B.P.—A solution obtained by dissolving 12·5 grammes of Tartaric Acid in 65 c.c. of Water, mixing with 25 c.c. of Alcohol (90 p.c.) and adding sufficient Water to measure 100 c.c.

P.G.—A freshly prepared 20 p.c. w/w aqueous solution of Tartaric Acid.

U.S.P.—A freshly prepared solution of 1 part of the Acidum Tartaricum *U.S.P.* in 3 parts of Water.

TIN.

B.P. }
U.S.P. } The metal Tin in the granulated form. The *B.P.* requires that it should not respond to the tests for Lead, Copper, Iron or Zinc. The *U.S.P.* requires that it should be free from Lead, indicated by its solution in Hydrochloric Acid failing to give a precipitate with Potassium Sulphate T.S. When tested by the modified Gutzeit's test replacing the Zinc by Tin, the diluted Hydrochloric Acid by Hydrochloric Acid *U.S.P.*, and adding 1 drop of Platinic Chloride T.S., the Mercuric Chloride cap should not become coloured within the time required for the solution of the metal (absence of Arsenic).

P.G.—Tin foil free from Lead is to be employed.

TURPENTINE, OIL OF.

B.P.—The 'Oleum Terebinthinæ' of the Pharmacopœia.

P.G. }
U.S.P. } Not included.

URANIUM NITRATE.

B.P.—Pure commercial Uranium Nitrate in crystals.

P.G. }
U.S.P. } Not included.

URANIUM NITRATE SOLUTION.

B.P.—A 5 p.c. w/v aqueous solution of Uranium Nitrate.

P.G. }
U.S.P. } Not included.

WATER.

B.P.—The 'Aqua Destillata' of the Pharmacopœia.

P.G. }
U.S.P. } Not included.

ZINC.

B.P.—The metal in sheet or granular form. *See* Zincum.

P.G.—The *P.G.* employs also Zinc filings.

U.S.P.—The pure metallic Zinc of the Pharmacopœia.