

SPECIFIC GRAVITY (841): about 1.1.

Acetylcholine Chloride (*Trimethylethanaminium Chloride; Acecoline*), $[\text{CH}_3\text{COOCH}_2\text{CH}_2\text{N}(\text{CH}_3)_3]\text{Cl}$ —**181.66** [60-31-1]—White, crystalline powder. Very deliquescent; very soluble in water; freely soluble in alcohol.

MELTING RANGE (741): When previously dried at 110° in a capillary tube for 1 hour, it melts between 149° and 152°.

REACTION: A solution (1 in 10) is neutral to litmus.

RESIDUE ON IGNITION (Reagent test): negligible, from 200 mg.

SOLUBILITY IN ALCOHOL: A solution of 500 mg in 5 mL of alcohol is complete and colorless.

PERCENT OF ACETYL (CH_3CO): Weigh accurately about 400 mg, previously dried at 105° for 3 hours, and dissolve in 15 mL of water in a glass-stoppered conical flask. Add 40.0 mL of 0.1 N sodium hydroxide VS, and heat on a steam bath for 30 minutes. Insert the stopper, allow to cool, add phenolphthalein TS, and titrate the excess alkali with 0.1 N sulfuric acid VS. Determine the exact normality of the 0.1 N sodium hydroxide by titrating 40.0 mL after it has been treated in the same manner as in the test. Each mL of 0.1 N sodium hydroxide is equivalent to 4.305 mg of CH_3CO . Between 23.2% and 24.2% is found.

PERCENT OF CHLORINE (Cl): Weigh accurately about 400 mg, previously dried at 105° for 3 hours, and dissolve in 50 mL of water in a glass-stoppered, 125-mL flask. Add with agitation 30.0 mL of 0.1 N silver nitrate VS, then add 5 mL of nitric acid and 5 mL of nitrobenzene, shake, add 2 mL of ferric ammonium sulfate TS, and titrate the excess silver nitrate with 0.1 N ammonium thiocyanate VS: each mL of 0.1 N silver nitrate is equivalent to 3.545 mg of Cl. Between 19.3% and 19.8% of Cl is found.

3-Acetylthio-2-methylpropanoic Acid, $\text{C}_6\text{H}_{10}\text{O}_3\text{S}$ —**162.21**—Use a suitable grade.

[NOTE—A suitable grade is available as β -(Acetylmercapto)isobutyric Acid, catalog number 39059, from Senn Chemicals AG www.sennchem.com.]

N-Acetyl-L-tyrosine Ethyl Ester, $\text{C}_{13}\text{H}_{17}\text{NO}_4$ —**251.28**—Determine the suitability of the material as directed in the Assay under *Chymotrypsin* (USP monograph).

Acrylic Acid (*2-Propenoic Acid; Vinylformic Acid*), $\text{C}_3\text{H}_4\text{O}_2$ —**72.06** [79-10-7]—Colorless liquid. Miscible with water, with alcohol, and with ether.

ASSAY: Inject an appropriate specimen into a gas chromatograph (see *Chromatography* (621)), equipped with a flame-ionization detector, helium being used as the carrier gas. The following conditions have been found suitable: a 0.25-mm \times 30-m capillary column coated with a 1- μm layer of phase G2; the injection port temperature is maintained at 150°; the detector temperature is maintained at 300°; and the column temperature is maintained at 50° and programmed to rise 10° per minute to 200°. The area of the $\text{C}_3\text{H}_4\text{O}_2$ peak is not less than 99% of the total peak area.

REFRACTIVE INDEX (831): between 1.419° and 1.423° at 20°.

Activated Alumina—See *Alumina, Activated*.

Activated Charcoal—See *Charcoal, Activated*.

Activated Magnesium Silicate—See *Magnesium Silicate, Activated*.

Adamantane, $\text{C}_{10}\text{H}_{16}$ —**136.23** [281-23-2]

MELTING RANGE (741): between 270° and 271°.

Adenine Sulfate, $(\text{C}_5\text{H}_5\text{N}_5)_2 \cdot \text{H}_2\text{SO}_4 \cdot 2\text{H}_2\text{O}$ —**404.36**—White crystals or crystalline powder. Melts, after drying at 110°, at about 200° with some decomposition. One g dissolves in

about 160 mL of water; less soluble in alcohol. Soluble in solutions of sodium hydroxide. It is not precipitated from solution by iodine TS or mercuric-potassium iodide TS, but a precipitate is produced with trinitrophenol TS.

RESIDUE ON IGNITION (Reagent test): negligible, from 100 mg.

WATER: Dry it at 105° to constant weight: it loses not more than 10.0% of its weight.

Adipic Acid (*Hexanedioic Acid; 1,4-Butanedicarboxylic Acid*), $\text{C}_6\text{H}_{10}\text{O}_4$ —**146.14** [124-04-9]—Colorless to white, crystalline powder. Slightly soluble in water and in cyclohexane; soluble in alcohol, in methanol, and in acetone; practically insoluble in benzene and in petroleum benzin.

ASSAY: Weigh accurately about 0.3 g, and dissolve in 50 mL of alcohol. Add 25 mL of water, mix, and titrate with 0.5 N sodium hydroxide VS to a pH of 9.5. Perform a blank determination, and make any necessary correction. Each mL of 0.5 N sodium hydroxide is equivalent to 36.54 mg of $\text{C}_6\text{H}_{10}\text{O}_4$. Not less than 98% is found.

MELTING RANGE (741): between 151° and 155°, but the range between beginning and end of melting does not exceed 2°.

Agar—Use *Agar* (NF monograph). When used for bacteriological purposes, it is to be dried to a water content of not more than 20%.

Agarose [9012-36-6]—Polysaccharide consisting of 1,3-linked β -D-galactopyranose and 1,4-linked 3,6-anhydro- α -L-galactopyranose. Use a suitable grade.

Air-Helium Certified Standard—A mixture of 1.0% air in industrial grade helium. It is available from most suppliers of specialty gases.

Albumin Bovine Serum [9048-46-8]—Almost colorless to faintly yellow powder. Not less than 95% pure. Solubility, 40 mg in 1 mL of water. Molecular weight is approximately 66,000. Use a suitable grade. Store between 2° and 8°.

Alcohol, Ethanol, Ethyl Alcohol, $\text{C}_2\text{H}_5\text{OH}$ —**46.07**

[64-17-5]—Use a suitable grade with a content of NLT 92.3% and NMT 93.8%, by weight, corresponding to NLT 94.9% and NMT 96% by volume, at 15.56°.

Alcohol, 70 Percent, 80 Percent, and 90 Percent—Prepare by mixing alcohol and water in the proportions given, the measurements being made at 25°.

Percent by Volume of $\text{C}_2\text{H}_5\text{OH}$ at 15.56°	Specific Gravity at 25°	Relative Proportions		Volume in mL of Alcohol, 94.9% v/v, Required for 100 mL
		Alcohol, mL	Water, mL	
70	0.884	38.6	15	73.7
80	0.857	45.5	9.5	84.3
90	0.827	51	3	94.8

The proportions of alcohol and water taken to prepare these or any other percentage (v/v) solutions may be determined as follows. Calculate the amount, in mL, of water to be mixed with 100 mL of alcohol taken by the formula:

$$[94.9(d/c) - 0.8096]100$$

in which 94.9 is the percentage (v/v) of $\text{C}_2\text{H}_5\text{OH}$ in alcohol, 0.8096 is the specific gravity of 94.9% alcohol, d is the specific gravity, obtained from the Alcoholometric Table (see *Reference Tables*), of the solution containing c% (v/v) of $\text{C}_2\text{H}_5\text{OH}$, and 100 is the volume, in mL, of alcohol taken.