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Remington: Practice of

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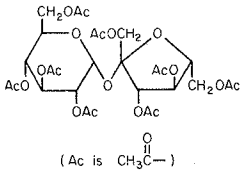
Solubility—Insoluble in water, but soluble, usually incompletely, in an equal weight of warm alcohol; soluble in acetone, carbon disulfide or ether, some insoluble residue usually remaining.

Uses—An *expectorant* but is used chiefly as a local remedy, especially in combination with benzoin; eg, it is an ingredient of *Compound Benzoin Tincture* (page 869). It may be used, like benzoin, to protect fatty substances from rancidity.

Sucrose Octaacetate

α-D-Glucopyranoside, 1,3,4,6-tetra-*O*-acetyl-β-D-fructofuranosyl-, tetraacetate



Sucrose octaacetate [126-14-7] $C_{28}H_{38}O_{19}$ (678.60).

Preparation—Sucrose is subjected to exhaustive acetylation by reaction with acetic anhydride in the presence of a suitable condensing agent such as pyridine.

Description—White, practically odorless powder; intensely bitter taste; hygroscopic; melts not lower than 78°.

Solubility—1 g in 1100 mL water, 11 mL alcohol, 0.3 mL acetone or 0.6 mL benzene; very soluble in methanol or chloroform; soluble in ether.

Uses—A *denaturant* for alcohol.

Sulfurated Potash

Thiosulfuric acid, dipotassium salt, mixt. with potassium sulfide ($K_2(S_x)$); Liver of Sulfur

Dipotassium thiosulfate mixture with potassium sulfide (K_2S_x) [39365-88-3]; a mixture composed chiefly of potassium polysulfides and potassium thiosulfate. It contains not less than 12.8% of S (sulfur) in combination as sulfide.

Preparation—By thoroughly mixing 1 part of sublimed sulfur with 2 parts of potassium carbonate and gradually heating the mixture in a covered iron crucible until the mass ceases to swell and is melted completely. It then is poured on a stone or glass slab and, when cold, broken into pieces and preserved in tightly closed bottles. When the heat is regulated properly during its production, the reaction is represented approximately by

$$3K_2CO_3 + 8S \rightarrow 2K_2S_3 + K_2S_2O_3 + 3CO_2$$

As this product rapidly deteriorates on exposure to moisture, oxygen and carbon dioxide, it is important that it be prepared recently to produce satisfactory preparations.

Description—Irregular pieces, liver-brown when freshly prepared, changing to a greenish yellow; decomposes upon exposure to air; an odor of hydrogen sulfide and a bitter, acrid, alkaline taste; even weak acids cause the liberation of H_2S from sulfurated potash; 1 in 10 solution light brown in color and alkaline to litmus.

Solubility—1 g in about 2 mL water, usually leaving a slight residue; alcohol dissolves only the sulfides.

Uses—Extensively in dermatological practice, especially in the official *White Lotion* or *Lotio Alba* (page 873). It is used as an opacifier.

The equation for the reaction of the potassium trisulfide in preparing the lotion is

$$ZnSO_4 + K_2S_3 \rightarrow \underline{ZnS} + \underline{2S} + K_2SO_4$$

Talc

Talcum; Purified Talc; French Chalk; Soapstone; Steatite

A native, hydrous magnesium silicate, sometimes containing a small proportion of aluminum silicate.

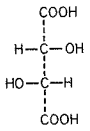
Occurrence and Preparation—The native form, called *soapstone* or *French chalk*, is found in various parts of the world. An excellent quality is obtained from deposits in North Carolina. Deposits of a high grade, conforming to the USP requirements, also are found in Manchuria. The native form usually is accompanied by variable amounts of mineral substances. These are separated from it by mechanical means, such as flotation or elutriation. It then is powdered finely, treated with boiling dilute HCl, washed well and dried.

Description—Very fine, white, or grayish white crystalline powder;

Uses—Officially, as a dusting powder and pharmaceutic aid; in both categories it has many specific uses. Its medicinal use as a dusting powder depends on its desiccant and lubricant effects. When perfumed, and sometimes medicated, it is used extensively for toilet purposes under the name *talcum powder;* for such use it should be in the form of an impalpable powder. When used as a filtration medium for clarifying liquids a coarser powder is preferred to minimize passage through the pores of the filter paper; for this purpose it may be used for all classes of preparations with no danger of adsorption or retention of active principles. It is used as a lubricant in the manufacture of tablets, and as a dusting powder when making handmade suppositories. Although it is used as a lubricant for putting on and removing rubber gloves, it should not be used on surgical gloves because even small amounts deposited in organs or healing wounds may cause granuloma formation.

Tartaric Acid

Butanedioic acid, [*R*-(*R**,*R**)] 2,3-dihydroxy-,



L-(+)-Tartaric acid [87-69-4] $C_4H_6O_6$ (150.09).

Preparation—From *argol*, the crude cream of tartar (potassium bitartrate) deposited on the sides of wine casks during the fermentation of grapes, by conversion to calcium tartrate which is hydrolyzed to tartaric acid and calcium sulfate.

Description—Large, colorless or translucent crystals, or a white granular to fine crystalline powder; odorless; acid taste; stable in the air; solutions acid to litmus; dextrorotatory.

Solubility—1 g in 0.8 mL water, 0.5 mL boiling water, 3 mL alcohol or 250 mL ether; freely soluble in methanol.

Uses—Chiefly, as the acid ingredient of preparations in which it is neutralized by a bicarbonate, as in effervescent salts, and the free acid is completely absent or present only in small amounts in the finished product. It also is used as a buffering agent.

Trichloromonofluoromethane

Methane, trichlorofluoro-,

$CFCl_3$

Trichlorofluoromethane [75-69-4] CCl_3F (137.37).

Preparation—Carbon tetrachloride is reacted with antimony trifluoride in the presence of a small quantity of antimony pentachloride. The reaction produces a mixture of CCl_3F and CCl_2F_2 which is readily separable by fractional distillation.

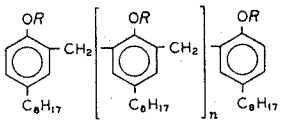
Description—Clear, colorless gas; faint, ethereal odor; vapor pressure at 25° is about 796 torr; boils about 24°.

Solubility—Practically insoluble in water; soluble in alcohol, ether or other organic solvents.

Uses—A *propellant* (No 11, see page 1696).

Tyloxapol

Phenol, 4-(1,1,3,3-tetramethylbutyl)-, polymer with formaldehyde and oxirane; (*Various Mfrs*)



[*R* is $CH_2CH_2O(CH_2CH_2O)_mCH_2CH_2OH$; *m* is 6 to 8; *n* is not more than 5]

p-(1,1,3,3-Tetramethylbutyl)phenol polymer with ethylene oxide and formaldehyde [25301-02-4].

Preparation—*p*-(1,1,3,3-Tetramethylbutyl)phenol and formaldehyde are condensed by heating in the presence of an acidic catalyst and the polymeric phenol thus obtained is reacted with ethylene oxide at elevated temperature under pressure in the presence of NaOH. US Pat. 2,454,541.

Description—Amber, viscous liquid; may show a slight turbidity; slight aromatic odor; specific gravity about 1.072; stable at sterilization temperature and in the presence of acids, bases and salts; oxidized by metals; pH

Solubility—Slowly but freely soluble in water; soluble in many organic solvents, including acetic acid, benzene, carbon tetrachloride, carbon disulfide, chloroform or toluene.

Uses—A nonionic detergent that depresses both surface tension and interfacial tension. It also is used in contact-lens-cleaner formulations.

Zinc-Eugenol Cement—see RPS-18, page 1328.

Iso-Alcoholic Elixir

Iso-Elixir

Low-Alcoholic Elixir
High-Alcoholic Elixir ..... of each a calculated volume

Mix the ingredients.

Low-Alcoholic Elixir

Compound Orange Spirit	**10 mL**
Alcohol	**100 mL**
Glycerin	**200 mL**
Sucrose	**320 g**
Purified Water, a sufficient quantity, to make	**1000 mL**

Alcohol Content—8 to 10%.

High-Alcoholic Elixir

Compound Orange Spirit	**4 mL**
Saccharin	**3 g**
Glycerin	**200 mL**
Alcohol, a sufficient quantity, to make	**1000 mL**

Alcohol Content—73 to 78%.

Uses—Intended as a general *vehicle* for various medicaments that require solvents of different alcohol strengths. When it is specified in a prescription, the proportion of its two ingredients to be used is that which will produce a solution of the required alcohol strength.

The alcohol strength of the elixir to be used with a single liquid galenical in a prescription is approximately the same as that of the galenical. When galenicals of different alcohol strengths are used in the same prescription, the elixir to be used is to be of such alcohol strength as to secure the best solution possible. This generally will be found to be the average of the alcohol strengths of the several ingredients.

For nonextractive substances, the lowest alcohol strength of the elixir that will yield a perfect solution should be chosen.

Other Miscellaneous Pharmaceutical Necessities

Bucrylate [Propenoic acid, 2-cyano-, 2-methylpropyl ester; Isobutyl 2-cyanoacrylate [1069-55-2] $C_8H_{11}NO_2$ (153.18); (*Ethicon*)]—*Preparation:* One method reacts isobutyl 2-chloroacrylate with sodium cyanide. *Uses:* Surgical aid (tissue adhesive).

Ceresin [Ozokerite; Earth Wax; Cerosin; Mineral Wax; Fossil Wax]—A hard, white odorless solid resembling spermaceti when purified, occurring naturally in deposits in the Carpathian Mountains, especially in Galicia. It is a mixture of natural complex paraffin hydrocarbons. Melts between 61 and 78°; specific gravity 0.91 to 0.92; stable toward oxidizing agents. Soluble in 30% alcohol, benzene, chloroform, petroleum, benzin or hot oils. *Uses:* Substitute for beeswax; in dentistry, for impression waxes.

Ethylenediamine Hydrate BP, PhI [$H_2NCH_2CH_2NH_2.H_2O$]—Clear, colorless or slightly yellow liquid with an ammoniacal odor and characteristic alkaline taste; solidifies on cooling to a crystalline mass (mp 10°); boils 118 to 119°; specific gravity about 0.96; hygroscopic and absorbs CO_2 from the air; aqueous solutions alkaline to litmus. Miscible with water or alcohol; soluble in 130 parts of chloroform; slightly soluble in benzene or ether. *Uses:* In the manufacture of aminophylline and in the preparation of aminophylline injections. See *Ethylenediamine* (page 1381).

Ferric Oxide, Red—Contains not less than 90% Fe_2O_3. It is made by heating native ferric oxide or hydroxide at a temperature which will yield a product of the desired color. The color is governed by the temperature and time of heating, the presence and kind of other metals and the particle size of the oxide. A dark-colored oxide is favored by prolonged heating at high temperature and the presence of manganese. A light-colored oxide is favored by the presence of aluminum and by finer particle size. *Uses:* Imparting color to neocalamine and cosmetics.

Ferric Oxide, Yellow—Contains not less than 97.5% Fe_2O_3. It is prepared by heating ferrous hydroxide or ferrous carbonate in air at a low temperature. *Uses:* As for *Red Ferric Oxide* (above).

Honey NF XII [Mel; Clarified Honey; Strained Honey]—The saccharine secretion deposited in the honeycomb by the honeybee, *Apis mellifera* Linné (Fam *Apidae*). It must be free from foreign substances such as parts of insects, leaves, etc, but may contain pollen grains. *History:* Honey is one of the oldest of food and medicinal products. During the 16th and 17th centuries it was recommended as a cure for almost everything. *Constituents:* *Invert sugar* (62 to 83%), *sucrose* (0 to 8%) and *dextrin* (0.26 to 7%). *Description:* Thick, syrupy liquid of a light yellowish to reddish brown color; translucent when fresh, but frequently becomes opaque and granular through crystallization of dextrose; characteristic odor and a sweet, faintly acrid taste. *Uses:* A sweetening agent and pharmaceutic necessity.

Hydriodic Acid, Diluted—Contains, in each 100 mL 9.5 to 10.5 g of HI (127.91), and 600 mg to 1 g of HPH_2O_2 (66.00). The latter is added to prevent the formation of free iodine. *Caution: Diluted Hydriodic Acid must not be dispensed or used in the preparation of other products if they contain free iodine.* *Preparation:* On a large scale, by the interaction of iodine and hydrogen sulfide. *Description* and *Solubility:* Colorless or not more than pale-yellow, odorless liquid; specific gravity about 1.1. Miscible with water or alcohol. *Uses:* In *Hydriodic Acid Syrup* (page 1393). The latter has been used as an expectorant. It also is used in the manufacture of inorganic iodides and disinfectants. The 57% acid also is used for analytical purposes, such as methoxyl determinations.

Lime [Calx; Calcium Oxide; Quicklime; Burnt Lime; Calx Usta; CaO (56.08)]—*Preparation:* By calcining *limestone* (a native calcium carbonate) in kilns with strong heat. *Description and Solubility:* Hard, white or grayish white masses or granules, or a white or grayish white powder; odorless; solution strongly alkaline. 1 g is soluble in about 840 mL water and 1740 mL boiling water; soluble in glycerin or syrup; insoluble in alcohol. *Uses:* In making mortar, whitewash, and various chemicals and products. It is an ingredient in *Sulfurated Lime Solution* (RPS-16, page 1187). In the USP, calcium hydroxide has replaced it, as it is more stable and more readily available of a quality suitable for medicinal use than the lime usually obtainable. Unless protected from air, lime soon becomes unfit for use, due to the action of carbon dioxide and moisture in the air. See *Calcium Hydroxide* (page 1408).

Peach Oil—An oil resembling almond oil obtained from *Persica vulgaris* (Fam *Rosaceae*). See *Persic Oil* (RPS-18, page 1323).

Polacrilin Potassium [Methacrylic acid polymer with divinylbenzene, potassium salt [39394-76-5]; Amberlite IRP-88 (*Rohm & Haas*)]—Prepared by polymerizing methacrylic acid with divinylbenzene and the resulting resin is neutralized with KOH. Dry, buff-colored, odorless, tasteless, free-flowing powder; stable in light, air, and heat; insoluble in water. *Uses:* *Pharmaceutic aid* (tablet disintegrant).

Poloxalene [Glycols, polymers, polyethylene-polypropylene [9003-11-6]—Polypropylene glycol is reacted with ethylene oxide. *Uses:* *Pharmaceutic aid* (surfactant).

Raspberry Juice—The liquid expressed from the fresh ripe fruit of *Rubus idaeus* Linné or of *Rubus strigosus* Michaux (Fam *Rosaceae*); contains not less than 1.5% of acids calculated as citric acid. *Preparation:* Express the juice from the washed, well-drained, fresh, ripe, red raspberries. Dissolve 0.1% of benzoic acid in the expressed juice and allow it to stand at room temperature (possibly for several days) until a small portion of the filtered juice produces a clear solution when mixed with ½ of its volume of alcohol, the solution remaining clear for not less than 30 min. Strain the juice from the mixture or filter it, if necessary. *Description:* Clear liquid with an aromatic, characteristic odor and a characteristic, sour taste; the freshly prepared juice is red to reddish orange; affected by light. *Uses:* In the preparation of *Raspberry Syrup* (see RPS-18, page 1302), a *flavored vehicle.*

Sodium Glutamate [Sodium Acid Glutamate [142-47-2] $HOOCCH(NH_2)CH_2CH_2COONa$]—White or nearly white, crystalline powder. Very soluble in water; sparingly soluble in alcohol. *Uses:* Imparts a meat flavor to foods.

Sodium Thioglycollate [Sodium Mercaptoacetate; $HSCH_2COONa$]—Hygroscopic crystals which discolor on exposure to air or iron. Freely soluble in water; slightly soluble in alcohol. *Uses:* Reducing agent in Fluid Thioglycollate Medium for sterility testing.

Suet, Prepared [Mutton Suet]—Internal fat of the abdomen of the sheep, *Ovis aries* (Fam *Bovidae*), purified by melting and straining. White, solid fat with a slight, characteristic odor and taste when fresh; melts between 45° and 50° and congeals between 37° and 40°; must be preserved in a cool place in tight containers. *Uses:* In ointments and cerates.

Urea [Carbamide [57-13-6] $CO(NH_2)_2$(60.06)]—A product of protein metabolism; prepared by hydrolysis of cyanamide or from carbon dioxide by ammonolysis. Colorless to white crystals or white, crystalline powder; almost odorless but may develop a slight odor of ammonia in presence of moisture; melts 132 to 135°. 1 g dissolves in 1.5 mL of water or 10 mL of alcohol; practically insoluble in chloroform or ether. *Uses:* A protein denaturant that promotes hydration of keratin and mild keratolysis in dry and hyperkeratotic skin. It is used in 2 to 20%