ABSTRACTS

Soaps

Edited by **M. L. SHEELY**

Effect of Chemical Constitution of Soaps Upon Their Germicidal Properties. *American Professional Pharmacist* 11, 4, 44 (July, 1936). Pneumococci are especially susceptible to the action of certain unsaturated soaps, such as sodium oleate, linoleate, linolenate and clupanodonate, according to a paper by Bayliss in the *Journal of Bacteriology.* Less effective in killing this organism are the other unsaturated soaps and the hydroxylated and saturated soaps. Pneumococcus is less resistant to these soaps than Streptococcus lactis. However, sodium myristate and laurate, the two saturated soaps and sodium oleate, linoleate, linolenate, clupanodonate, ricinoleate in killing this form of strepsulfate esters, are effective in killing this form of streptococcus. Only sodium diode-salicylate and undecylenate are effective against Escherichia coli when a concentration of 1% and pH of 8.0 are used. These last two compounds are also effective against Staphylococcus aureus at the same pH.

Medicinal Soaps. L. Wagner. *Seifens. Zeit.* **63,** 373-4 (1936). Reference is made to the latest work of Unra and Eichhoff, which appears to confirm that many ordinary soaps and even so-called medicinal soaps are quite unsuitable for medicinal purposes. It is necessary in the first place that the soap shall be quite neutral and not react in any way with the substances incorporated for special therapeutical purposes. Tallow is one of the most suitable fats, with olive oil or lanolin for superfatting agent. Lanolin as a rule is particularly valuable. Palmkernel oil and coconut oil may generally be used, but palm oil, fish oils, and practically all fillers should be avoided. The author apparently includes also talc among these latter; and perfumes, too, must be sparingly used and with great care. Albuminoids and casein may, however, often be used with advantage, as they tend to neutralize free alkali that may be fofmed during use, and frequently improve lathering power. In using an acid medicament, such as salicylic acid, sufficient additional alkali must be available in the soap to combine with this acid. The medicinal soaps of the German Pharmacopoeia are briefly described, including many liquid soaps not contained in the Pharmacopoeia. Reference is also made to the new mercury soap of the I. G. Farbenind, sold under the name of Afridolseife, and to various types of tar and sulphur soaps, albuminous soaps and oxygen soaps. (*Perfumery and Essential Oil Record,* **27,** [7] 308.)

Soaps Containing Water Glass in the Textile Industry. A. Foulon. *Monatschr. Textil-Ind.* **51,** 104-5 (1936). The favorable influence of water glass on soaps and other detergents is due to the presence of OH ions in the washing liquor and the absorptive power of the colloids which causes them to absorb the dirt from the textile material. Water glass strengthens the cleaning action of soaps by its emulsifying action and colloidal adsorption, brings about an intimate contact between the washing liquor and the textile by means of its wetting power, increases the amount of soap foam and makes it more stable, has no effect on surface and interface tension of the liquor in the amounts used, prevents completely the corrosion of sheet Al in amounts of 0.5-2% added to 10% soda solutions, stabilizes O-containing bleaches and soaps, has a very high water-softening effect as it forms Ca silicate more rapidly than soda $CaCO_3$, and can be used to soften water which has temporary hardness. The colloidal Ca silicate tends to remain dispersed in the liquid and can be rinsed off easily as a soft, slippery hydrated gel while Ca soap remains on the fiber and cannot be removed by rinsing. The use of substitutes such as KCl, alkali carbonates, etc., is briefly discussed. (*C. A.* **30,** 4678.)

Hydrolysis of Fats with Acetone. *American Perfumer and Essential Oil Review* **55,** 2, 47 (August, 1936). Most acid-hydrolysis methods employ emulsifying agents of an acid character; for example, Twitchell reagent. The rate of hydrolysis depends on the intimacy of the contact between the reagents. In an emulsion there is more surface contact than in methods where there are two layers with one interface disturbed by blowing a blast of air or steam through the mixture.

Previously, true solutions were impossible in hydrolyzing mixtures because of the immiscibility of water and fat in the ratio employed. To produce the desired true solution, the amount of water must be reduced and a common solvent for fat and water introduced.

The complete miscibility is produced by dissolving the fat along with about 2½ times the stoichiometrically required amount of water in acetone.

The following measures by volume may be used in a typical hydrolysis:

100 parts of fat
400 parts of acetone
15 parts of water

One-half part of 98% sulphuric acid are placed in an autoclave and heated by steam coils to a pressure of 150-200 pounds. Fifty to 60% of the fat is hydrolyzed in 15 minutes to an hour and a half. Additional water is then pumped into the autoclave under pressure and heat is applied for from 15 minutes to an hour and a half, when the hydrolysis will have reached 95 to 100% of the fat.

The Surface Tension of Fat Acid Condensation Products and Sulfuric Acid Esters of Fat Alcohols. Weltzien and H. Ottensmeyer. *Fette und Seifen* **43,** 91-3 (1936). An apparatus was devised for detg. surface tension of solns. at temps. up to 80°c. The change in surface tension of solns. of pure Igepon A, Igepon T and Gardinol WA with increase in concn. are plotted for 20° and 80° temps. Similar data are presented for the above as affected by presence of Na_2SO_4 and also data for com. samples. It was found, with com. products, that the lowering of surface tension is perceptibly greater than that of the pure product when compared in like concns.

Sources of Glycerol Contamination. A Klyuchevich. *Maslobino Zhirovoe Delo* **12,** 95-6 (1936). Study of the fermentation of glycerol water, as one of the sources of contamination of glycerol with low-molecular fatty acids, disclosed that besides the usual microorganisms of the butyric acid fermentation of the type Clostridium butyricum, the microflora of the fermented glycerol water contains also yeasts and various fungi, such as Ascomycetes, Saccharomycetes. (*C. A.* **30,** 4708.)

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PATENTS

Spray Dried Soap. U. S. Patent 2,046,449 covering the spray drying of soap having a substantial degree of hydration has recently been granted to Carleton Ellis and assigned to Procter and Gamble.

Middle soap contains hydrated soap particles in a condition fully adequate for spray drying. Particles with a desirable high moisture content are obtained without the necessity for subsequent humidification.

Middle soap in its viscid gummy state is of too high a degree of consistency to pass through spray nozzles, but it is possible in accordance with the present invention to convert the middle soap into a more liquid form by incorporation of a degumming agent. Among the degumming agents are included various alkaline and nonalkaline salts and saponified rosin. [*Soap Gazette and Perfumer* **38**, [8] 7 (1936).]

Tube Soap. U. S. 2,043,685, June 9, 1936. Charles T. Walter, Chicago, Ill., assignor to Industrial Patents Corp., Chicago, Ill. The art of preparing soap which comprises extruding liquid soap stock in the form of a thin-walled tube to the drying effect of a heated air current and cutting the tubes at a predetermined state in the drying process. (*Soap* **12** [8] 73.)

Fibrous Soap. U. S. 2,043,378, June 9, 1936. Masaji Igarashi and Toshiro Hatta, Tokyo, Japan, assignors to Kao Sekken Kahushiki Kaisha Nagase Shokai, Tokyo, Japan. In apparatus for manufacturing fibrous soap having a chamber provided at the upper portion thereof with a rotatable means for centrifugally projecting soap in fluid form into the chamber and at the lower portion of the sides thereof a peripherally disposed air supply means, the combination of a perforate conical apron occupying the lower portion of the chamber and the major portion of the sides thereof over the air supply means and reaching upwardly toward the level of the rotatable soap projecting means in order to cause the incoming air from the air supply means to pass inwardly through the perforations in the form of a plurality of obliquely directed air jets, and a perforate member fixedly associated with a portion of the rotatable means so as to rotate therewith and rapidly project the soap centrifugally into the chamber towards the sides and perforated conical apron in the form of a large number of simultaneously formed soap fibres. (*Soap* **12** [8] 73.)

Detergents. British 439,435. Lever Bros., Ltd., Port Sunlight, Cheshire, R. Furness, Westbourne, Belvoir-rd., Lower Walton, Warrington, and A. Fairbourne 31, Church-rd., Bebington, Cheshire. Washing powders are obtained by mixing a sufficiently water-soluble polyglycerol ester containing unesterified hydroxy groups, with one or more soluble sulphate adapted to form freely flowing powders with the oily or syrupy esters. Alkali metaphosphate and/or pyrophosphate may be added. Suitable sulphates are those of sodium, potassium, ammonium and magnesium. Suitable esters are the crude orpurified monoacid esters of rosin, naphthenic and fatty acids, e.g., the acids of palm-kernel oil, with tri-, tetra- and pentaglycerols. Preferred proportions are 2-4 lb. of sulphate to 1 lb. of ester. For example, 2 lb. of sodium sulphate, ¼ lb. sodium metaphosphate and ¼ lb. sodium pyrophosphate are dissolved in 2.5-4.0 lb. of water at 80° C., and after cooling to 50° C. there is added 1 lb. of crude ester obtained by the partial esterification of approximately penta-glycerol with 20% of the fatty acids from coconut oil; the well-agitated thick cream is dried on a rotary drying cylinder. In other examples the cream is sprayed in hot air to obtain light and puffed particles or part of the salts is added to the dried powder. [*Oil and Colour Trades Journal* **90**, 1972, 345 (1936).]

Stabilizing Soap. U. S. 2,040,430, May 12, 1936. Ernest C. Crocker and Lloyd F. Henderson, assignors to Arthur D. Little, Inc. The art of stabilizing soap containing ionized copper and iron, which comprises adding an excess of zinc sulfide to the soap mass during the mixing operation preceding the milling operation. (*Patent Gazette.*)

Heating and Distilling Fatty Acid Stocks. U. S. 2,042,713, June 2, 1936. James W. Gray (to Luis de Florez). A fatty acid stock is heated and discharged into a vessel wherein it is brought into contact with steam, and a circulation is maintained by passing steam through a superheater, bringing the superheated steam into indirect heat exchange with fatty acid stock to heat it and then returning it to the superheater; a portion of the steam leaving the superheater is withdrawn and discharged into the vessel to come into contact with the fatty acid stock, and additional steam is injected into the circulation after the indirect heat exchange mentioned. Various details of apparatus and operation are described. (*C. A.* **30**, 5064.)

Use of Palmitic Acid in Transparent Film-forming Coating Base. U. S. 2,044,220. Harold A. Levey, New Orleans, La. Formation of transparent film-forming coating base comprising cellulose acetate, soluble phenol aldehyde resin, and bayberry wax or *palmitic acid.* [*Chemical Industries* **39**, 40 (1936).]

Still and Associated Apparatus for Deordizing Oils and Fats and Distilling Off Some Free Fatty Acids. U. S. 2,042,711, June 2, 1936. Wilhelm Gensecke (to American Lurgi Corp.). Various structural and operative details. (*C. A.* **30**, 5064.)

Hard Water Soluble Oil. U. S. 2,039,377, May 5, 1936. E. W. Adams and G. W. Flint, assignors to Standard Oil Co. of Indiana. A soluble oil which contains no alcohol and which will readily emulsify in extremely hard water and which consists essentially of a mineral lubricating oil having a viscosity of about 80-300 seconds Saybolt at 100° F. containing in solution about 8 to 40% of purified mahogany soap, a small amount of a preferentially water-soluble soap, and about 2.5 to 0.5% of water, the amount of water being sufficiently low to prevent separation of the soap when the soluble oil is exposed for an extended period to an ice bath. (*Patent Gazette.*)

Soluble Oil from Mahogany Soap. U. S. 2,040,673, May 12, 1936. Jack Robinson (to Standard Oil Co. of Indiana). Impure mahogany soap is washed with a 3-10% solution of NaOH, the aqueous washing solution is removed, and the slightly alkaline washed mahogany soap is neutralized with a soap-forming acid such as a resin acid and is admixed with a light mineral oil. (*C. A.* **30**, 4708.)