ABSTRACTS

Soaps

Edited by **M. L. SHEELY**

New Fatty Acid Materials for Shaving Soaps. *Perfumery Essent. Oil Record,* **28** [3], 112 (1937). It has long been customary to incorporate in shaving soaps a substantial proportion of "stearine" (i.e., a mixture of stearic and palmitic acids), saponified with caustic potash. It is now possible to replace this "stearine" by other fatty acids which, while not quite so hard as stearine, are very suitable for the purpose. Distilled palm oil fatty acids, for instance, consisting mostly of palmitic acid, may now be obtained of excellent whiteness, and odorless, and in America, myristic acid, a fatty acid found, as glyceride, in coconut, palm kernel, and ground nut oils, is now being marketed. This commercial myristic acid is said to contain about 80 per cent actual myristic acid, together with 10 per cent lauric acid, 5 per cent stearine, and 5 per cent oleine. It has a titre of 45°-47° C., an iodine value of 4-8, and is claimed to produce a soap which is non-irritant to the skin, and at the same time yields a very profuse lather.

A New Oxidizing Agent for Incorporation in Soaps. *Perfumery Essent. Oil Record,* **28** [3], 113 (1937). A new compound, of high active-oxygen content, which appears likely to be serviceable to soap-makers has recently been patented by Krauss (Brit. Pat., 452,144). It consists of a per-silicate, of increased stability, prepared by mixing together a concentrated aqueous solution of sodium metasilicate and 30 per cent hydrogen peroxide, and drying the mixture in vacuo at a low temperature. The compound may also be prepared electrically by anodic oxidation.

Effect of Salts on Detergent Action. *Perfumery Essent. Oil Record,* **28** [1], 36 (1937). F. H. Rhodes and C. S. Wynn, of Cornell University, Ithaca, N. Y., in "Industrial & Engineering Chemistry" for January, 1937, state that in washing tests made with artificially soiled cloth at 60 deg. C., the detergent action of a 0.25 per cent soap solution is at a maximum when the alkalinity of the solution is adjusted to a pH of about 9.66. The addition of sodium chloride, sulphate, or phosphate to soap solutions at the optimum pH at first increases and then decreases the detergent effect. The effectiveness of the added salt at the optimum concentration is approximately proportional to the valence of the anion of the added salt. Sodium borate and acetate do not enhance the detergent action of the soap.

Distillation of Fat Acids. A. Bag *Maslobein. Zhirovoe Delo* **12,** 391-2 (1937). The Feld & Hahn app. for vacuum distn. of free fat acids is illustrated and described. (*Chem. Abs.*)

Determination of Free Alkali in Soaps. H. E. Cox et al *Analyst* **62,** 36-41 (1937). Det. (1) total free alkali by adding to an alc. soln. of the soap an excess of mineral acid and titrating back with alkali, (2) free NaOH by dissolving 10 g. of soap in 100 ml. of neutral alc., adding 5 ml. of hot neutral 10% $BaCl_2$ and titrating with acid to a phenolphthalein end point, (3) "carbonate alkali" by difference. Some alternatives are permitted. (*Chem. Abs.*)

Constitution of Dilute Soap Solutions. I. Turbidity Phenomena in Soap Solutions. P. Ekwall. *Kelloid-Z.* **77,** 320-33 (1936). Nephelometric measurements were made on several Na soaps (laurate, myristate, palmitate, stearate and oleate) in dil. aq. soln. (0.0005 to 0.01 N or higher) at various temps. (20-80°) both in the presence and absence of excess fat acid. In the absence of excess acid 2 turbidity max. were observed at concns. that depend upon the soap and the temp. The max. at the lower concn. (0.001 N or lower for all but the laurate) is due to the presence of free fat acid, while that at the higher concn. (0.002 N or higher) is due to acid soap. The effect of temp. on these max. is complex. As the temp. increases the suspended acid-soap particles (region of upper turbidity max.) change from cryst. to liquid a few degrees below the m. p. of the corresponding fat acid. (*Chem. Abs.*)

Silicate Detergents. *Soap, Perfumery Cosmetics* 10, 335 (1937). Leading article discussing some of the advantages of silicates of soda as detergents. It is stated that, in the commercial silicates of soda, the ratio between sodium oxide and silica is indefinite, except as arbitrarily standardized by the manufacturer. Most of the properties can be varied over a considerable range by changing this ratio. This ordinary range lies between 1½ parts silica to 1 sodium oxide and 1 : 4 respectively. A recent introduction is sodium metasilicate, a white granular crystalline salt which has proved to be of considerable value as a detergent, especially with washing machines. It has high wetting power and other advantages are claimed. (*J. Soc. Chem. Ind.* **56,** 176.)

Rapid Method of Saponification. *Soap, Perfumery Cosmetics* **10,** 335 (1937). The method consists in replacing the ethyl alcohol in alcoholic potash solutions by ethylene glycol monethyl ether, whereby the temperature of saponification may be raised to about 134° C., and the process becomes practically instantaneous. The solvent suggested is easily rectified by leaving it overnight on a little solid sodium hydroxide and then re-distilling. Potassium hydroxide is readily soluble in this solvent and a pale solution results. Whilst saponification of fatty material is nearly instantaneous, yet even with compounded mineral oils, wool fat, and carnauba wax, saponification is effected within fifteen minutes. The question of cost may be raised, but in view of the fact that only a very small amount is required, the cost of say 14c per gallon is justified. (*Analyst,* **61,** 687.)

Acid Soaps and Intermediate Layer Soaps. *Soap, Perfumery Cosmetics* **10,** 336 (1937). In boiling soaps lump formation is often observed. The author has investigated these lumps or clots from soap boils of 40-50 tons. made from fat charges containing

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40 per cent fatty acids with addition of 10 per cent kaolin, and distinguishes two kinds: (a) with very much higher fatty acid content than the soap mass itself, namely from 75.4 to 84.7 per cent fatty acids, of which 44.4 to 52.9 per cent is free fatty acid and the remainder combined in soap. In the cold state these clots are hard and of heterogeneous structure. When twice recrystallized out from ether solution water-free crystals of constant composition and containing 47.7 per cent free fatty acid are obtained, with mol. wt. of 286.1; whilst at a temp. of 87 to 88° partially, and at 121-3° completely, clear melts are obtained. (b) 43-4 per cent combined fatty acid, and of homogeneous structure, soft, and containing impurities. Both types were studied microscopically in polarized light and compared with control soaps, either sodium stearate or sodium palmitate, by the method of McBain and Field. (A. S. Kluckevitch, *Ind. Eng. Chem. U. S. S. R.* **1936,** 949-52.)

New Process Makes Soap Without Use of Alkali. *N. Y. J. Com.* May 22, 1937. A new solution of the problem of the production of soaps without the use of alkali is offered by Prof. Joachin Leimdorfer of Budapest, the Chemical Trade Journal at London reports.

He saponifies a suitable fat or mixture of fats with milk of lime and decomposes the lime soap formed by boiling with sodium phenolate, the reports point out.

The neutral soda soap produced is separated from the lyes and further worked up while the lyes containing calcium phenolate are treated with sodium bisulphate for the recovery of sodium phenolate.

PATENTS

Soap Preparations. British 459,040. I. G. Farbenindustrie Skt.—Ges., Frankfort-on-Main, Germany. Soap preparations contain a soap and a water soluble salt of an aliphatic carboxylic acid containing an aliphatic radical of at least 10 carbon atoms, which is linked to the carboxyl group through at least one atom of the group nitrogen, oxygen and sulphur, but not through two or more different atoms of the group. Specified salts are the alkali salts of laurylpropylaminoacetic acid, of oleylsarcoside, of the sarcoside of palm nut oil fatty acid, of the carboxylic acid obtained by reacting 1 mol. fo docecylamine with 1 mol. of maleic acid anhydride, and of heptadecylamino-acetic, hexadecyloxy-acetic and dodecylmercaptoacetic acids. Inorganic salts, albuminous substances, vegetable gums, starch, glycerine and odoriferous substances may be added. According to an example, a soap preparation is made by mixing the soda soap of palm nut oil fatty acid with the sodium salt of the sarcoside obtained by condensing oleic acid chloride with sarcosine in alkaline solution.

According to the specification as open to inspection under Sect. 91, the water-soluble salt used may be that of any aliphatic carboxylic acid which contains at least 10 carbon atoms and in which there is at least one nitrogen, oxygen or sulphur atom between the radical carrying the carboxyl group and the aliphatic radical. The carboxylic acid obtained by reacting a-stearyl-B-diethylethyl-enediamine with monochloracetic acid is specified. Further, the alkali salts of stearyl-benxyl-aminopropionic, dodecylmethylamino-acetic, dodecylmenaphthylamino-acetic and dodecylphenylamino-acetic acids, and of hardened fish oil fatty acids. (*Soap, Perfumery, Cosmetics,* **10,** 327.)

Protective Coatings on Articles Such as Golf Balls. U. S. 2,066,516, Jan. 5, Kenly C. Bugg. An article such as a golf ball to be packaged is dipped in a wetting agent such as a soap soln. to form a continuous film on the article, and then while the film is still liquid the article is dipped in a melted wax-like material such as paraffin of a temp. insufficient to evap. the said film, and the material is permitted to harden to form a protective seal surrounding the article but spaced therefrom and which can be readily removed when the article is to be used. (*Chem. Abs.*)

Machines for Pressing, Shaping and Cutting Predetermined Lengths of Tablets of Soap or Other Plastic Material. Brit. 455,781, Oct. 28, 1936. Safa Soap Co., Ltd., and James Dawe Thomson. (*Chem. Abs.*)

Subdividing Soap in an Atmosphere of Ozone. U. S. 2,070,308, Feb. 9, Henry J. Nicholls (To Sunlite Co.). Various features of app. and operation are described for subdividing pieces of soap, as in forming soap flakes or powder in an atm. permeated with O_3, which serves to improve the soap. (*Chem. Abs.*)

Plant for Making Soap in Bar Form. Brit. 452,287, Aug. 18, 1936. Laurence S. Harber, John E. Pointon, Baker Perkins, Ltd., and Anciens Etablissements A. Savy, Jeanjean & Cie. The plant comprises a container provided with a pair of rotary cooled drums that feed a layer of cooled soap through the nip into a chamber to a discharge. (*Chem. Abs.*)