ABSTRACTS

Soaps

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Evaluation of crude fats for soap manufacture. E. I. BETTER. *Allgem. Oel-u. Fett-Ztg.* **28**, 379-80 (1931).—The term "saponifiability" is open to misconstructions. Discriminatory analyses should return neutral fat, Ca soaps, etc., in detail. (Cf. Wizöff Standard Methods, ed. I.) B. C. A.

Soap-stock analysis and neutral-oil loss. F. WITTKA. *Allgem. Oel-u. Fett-Ztg.* **29**, 9-13 (1932).—In the usual com. detn. the apparent free fatty acid content of the sepd. fatty matter is too high by 0.6-6%, because of secondary hydrolysis of the neutral fat during the boiling with acid; consequently the calcd. neutral-fat loss is too low. Acidification in the cold and ether extn. is accurate but too tedious. Figures for free fatty acid only 0.2-0.7% too high are obtained by dilg. the soap stock with luke-warm H_2O, adding excess of dil. H_2SO_4, and stirring until the stiff emulsion becomes non-viscous; then the mixt. is gently heated while being stirred and is boiled until the fat layer is clear (2-5 min.). The fat is sepd., stirred twice with fresh anhyd. Na_2SO_4 (which also removes any free H_2SO_4), and filtered before detn. of the acid value. B. C. A.

Soap as Lubricant. *Perfumery and Essential Oil Record,* Vol. 24, No. 3, Page 105, March, 1933.—Among the many non-detergent uses of soap a very important one is its use as a lubricant or a constituent of lubricants. Not only is soap employed as the emulsifying agent in the preparation of lubricating greases and soluble oils, but it also itself serves as a lubricant in wire-drawing and in the launching of ships.

In grease-making the more usual method is to saponify the fat or fatty acids already admixed with part of the mineral oil, though some grease-makers shred an ordinary boiled soap and dissolve this, by prolonged heating, in the mineral oil. Some years ago, according to Archbutt ("Lubrication and Lubricants"), the grease used by the Midland Railway was prepared by dissolving 6 cwt. of palm soap in twice its weight of water, and adding thereto 6 cwt. of tallow and 2 cwt. of palm oil, while later, the palm oil in this formula was replaced by dark mineral oil. So far as soluble oils are concerned, a solution of soft soap either alone or with addition of soda has been used for the lubricating or cutting tools, and one of the simplest methods of making a soluble oil is to dissolve soft soap in a suitable mineral oil.

The use of soap as a lubricant in wire-drawing has recently been the subject of two independent investigations. In one, R. C. Williams (*J. Physical Chemistry*, 1932, 3108) has examined the friction-reducing power of solutions of ordinary commercial hard soap (titre 40.8° C.), and ammonium linoleate of different concentrations, and also emulsions of tallow with soap. He concludes that there is no close relationship between lubrication value and surface tension when the pH is varied, and that the effectiveness of the soap solutions is due to the fatty acid or acid soap formed by hydrolysis. The results of the second investigation, by E. L. Francis ("Iron and Steel Institute, Carnegie School Mem.," 1932, 1) show that in wire-drawing, lubrication is of the boundary type, and confined to a film 10^5 inches thick. The soap used as lubricant should contain not less than 80% of fatty acids, and as little impurity as possible. At 100/120° C. many fatty oils are nearly as efficient lubricants as the best soap.

Ox-Bile or Sodium Cholate in Soap. *Perfumery and Essential Oil Record,* Vol. 24, No. 2, Page 69, Feb. 21, 1933.—It is now many years ago since it was first recommended to add ox-gall (bile) to soap, particularly carpet soap, with the object of increasing its cleansing power, and in 1917 the use of bile as a wetting agent in insecticidal spray fluids was proposed by Foreman and Graham-Smith (*J. Hygiene*, 1917, 109). Of recent years ox-gall soaps appear rather to have fallen out of use, but now the addition of one of its constituents, sodium cholate, to the extent of 2 to 10% is being advocated, and a long article by J. Augustin has recently appeared, extolling the advantages of such admixture, one claim being that the strength of textile materials is less injured by washing with soap containing sodium cholate than with soap in which it is absent. Some experiments made a few years ago with ox-gall seemed to indicate that it had very little effect on the cleansing qualities of the soap, and Woodman, from surface tension measurements with a Traube stalagmometer, showed (*Journ. Soc. Chem. Ind.*, 1930, T95) that sodium cholate, though superior, at concentrations of 0.063 to 0.5% to sodium resinate or caseinate and several other substances was much inferior to soft soap (potassium oleate) in the reduction of surface tension, i.e., improvement of wetting power.

Soap Substitutes as Additions. H. T. HEISER, *American Perfumer and Essential Oil Reveiw*, Vol. 28, No. 1, Page 48, March, 1933.—The real value of soap substitutes, including products obtained from higher fatty alcohols, will be as components of soap and not for use alone.

Experiments with naphthenic soaps have revealed that they are not any more resistant to the hardness salts in water than coconut oil soaps. Their presence in ordinary soap does, however, prevent the soap from becoming rancid. They should not be used in greater proportion than 10% of the weight of the original soap. Mixed soaps will absorb solvents easily.

Naphthenic acid combined with triethanolamine is a very useful product for clearing up liquid soaps and lowering the point at which turbidity occurs. It is also interesting that the naphthenic acid soaps affect the skin of super sensitive individuals much in the same manner as do pure coconut oil soaps. Furthermore, the germicidal properties of the naphthenate soaps are superior to that of ordinary soaps.

An improved wetting agent is obtained from ricininic acid which is a fatty acid with a conjugated double bond obtained by splitting water from ricinoleic acid and its derivatives such as the amide and the glyceride. This reacts with sulphites to form water soluble sulphonic acids.

Soda Silicate as Detergent. JOHN D. CARTER and WILLIAM STERICKER, *Oil, Paint and Drug Reporter*, Vol. 123, No. 14, Page 24, April 3, 1933.—(Abstract of paper presented before American Chemical Society, March, 1933.)

Samples soiled by two methods using four pigments with each method were washed two to twenty times with unsoiled cloth with the same detergent solution. With distilled water, soap gave excellent results, but in the presence of calcium bicarbonate, its efficiency was greatly reduced, while that of silicated soaps did not show a similar reduction. Carbon dioxide did not have as great an effect as calcium bicarbonate. This was true of both the removal of soil and the protection of the clean cloth.

Thickening Liquid Soaps. *Chemical Abstracts*, Vol. 27, No. 5, Page 1223, March 10, 1933. Joseph Augustin. *Am. Perfumer*, 27, 630-1 (1933).—The best way to thicken liquid soaps is to keep the fatty acid content as high as possible (25% or over) and to use in addition to coconut oil sufficient olein or olive oil, and some castor oil, or in the cheaper grades, soy-bean oil. Additions of 1-1.5% of essential oils and 0.5-1% K_2CO_3 also give a good consistency. E. SCHERUBEL.

PATENTS

Apparatus for Making Cakes of Soap. *The American Perfumer and Essential Oil Review*, Vol. XXVIII, No. 1, Page 47, March, 1933. German Patent Number 561,754, filed May 2, 1930. L. H. Nelles.—This invention is concerned with an apparatus for the manufacture and forming of soap, which comprises an endless carrier, on which are arranged several frames or molds, into which the soap is poured and from which it is later pushed out again after the soap has been allowed to cool off.

The apparatus, which is the subject of this patent specification, avoids the disadvantages of former molds by making the molds from material that can be easily bent into shape, as thin sheet metal, the molds being put together from suitably stamped and fitted parts.

Molds, which are made from bendable sheet metal, are cheaper to manufacture than those produced in the form of castings. The surfaces of the molds do not have to be polished, for the reason that the surface of the sheet metal is originally smooth enough to give good results when shaped into molds for making cakes of soap. If it is required to produce a raised or depressed design in the cakes of soap, then it is possible to reproduce this design on two opposite sides of the cakes, for when the molds are opened up to allow the cake of soap to be pushed out, the hard cake of soap is stripped from the mold without any trouble at all.

A particularly advantageous method of carrying out this invention is to provide a revolvable support for the mold so that the latter is made more rigid. This support is intended to hold the formed cake of soap independently of the mold itself over a certain distance of the travel of the conveyor.

The machine works without interruption, and the soap is made into cakes of any desirable shape and dimensions and dried. The flexibility of the walls of the molds enables them to strip from the cake with ease. Hence, the molds do not have to be cleaned after each cake is made. Any desirable design may be impressed on the cakes of soap by suitable shaping of the walls of the molds, and both the shape and dimensions of the cakes can be changed at will by similarly changing the molds.