

Abstracts

Soaps

Edited by
LENORE PETCHAFT

SURFACE-ACTIVE AGENTS. Arthur Carroll. *Pharm. J.* 155, 272-3 (1945). Soap and synthetic detergents and the theory of their use are discussed. (*Chem. Abs.* 40, 1333.)

FATTY ACIDS IN MANUFACTURING POTASH SOAPS. Dale V. Stingley (Armour & Co.). *Am. Perfumer* 48, No. 3, 54-5 (1946). The factors involved in utilizing fatty acids for potash soap manufacture are considered. These include the market price of fatty acids versus fats and oils; soap yields of fatty acids versus fats and oils; processing time of fatty acids versus fats and oils; and control of finished soap made with fatty acids versus fats and oils. Special types of soaps may be manufactured by choosing special individual fatty acids or mixtures.

THE EVALUATION OF SYNTHETIC WASHING AGENTS. R. B. Whitehead (Ciba Limited, Basle, Switzerland). *Ciba Rev. No. 49*, 1789-90 (1945). For the evaluation of synthetic washing agents protective colloid action and emulsifying, wetting, dispersing, and in some cases lubricating properties must be considered. A method proposed for anion-active washing agents consists of determining the quantity of washing agent necessary to produce a stable foam scouring liquor produced by adding a Ca salt to a soap solution containing 6 g. soap/l. This method is fallacious because (1) the amt. of Ca salt added cannot be chosen arbitrarily, (2) the strength of the soap solution advocated scarcely corresponds to practical working conditions, (3) the method determines only the foaming power of the washing agent and not its scouring properties. Detergents differ so much among themselves that no one test will give a valid comparison of their respective values under all conditions. Laboratory tests should be empirical and should be based on practical conditions. (*Chem. Abs.* 40, 1333.)

DETERMINATION OF SOAPS AND SULFONATES IN DETERGENTS. A. Hintermaier. *Fette u. Seifen* 51, 10-12 (1945). Suitable general methods developed cooperatively for analyzing detergents are described. Qualitative tests for the presence of fat acids, carbonates, and tylose are suggested. Procedures are given for unsaponifiable and sulfonate in fat acid-free detergents. Detergents containing fat acids are checked for sulfonates by an altered method. Shorter procedures are described for factory control tests. (*Chem. Abs.* 40, 1333.)

AUTOXIDATION OF SOAP. E. J. Better and A. Davidsohn (Palestine Oil Industry, Shemen Ltd., Haifa). *Soap, Perfumery, Cosmetics* 19, 132-4 (1946). The question of rancidity of soap is discussed. It was pointed out that darkened soap, or odor development did not necessarily indicate soap rancidity as characterized by the presence of a certain amount of peroxide oxygen. The amount of peroxide oxygen present in soap can be determined directly in exactly the same way as is used for oils by the Lea method. Directions for the procedure are listed. The effects of quartz light, free alkali, antioxidants, and unsaturation are graphed.

DIFFRACTION OF X-RAYS BY AQUEOUS SOLUTIONS OF HEXANOLAMINE OLEATE. Sydney Ross and J. W. McBain (Stanford Univ., Calif.) *J. Am. Chem. Soc.* 68, 296-9 (1946). X-ray diffraction studies are reported on a series of clear transparent aqueous systems of hexanolamine oleate at room temperature ranging in concentration from 25-92% by weight of soap. A remarkable increase in long spacing with dilution of soap solution is reported. This confirms results obtained in Germany. These results are interpreted as establishing the existence of layers of water many molecules deep between the successive layers of double molecules of soap, which lie side by side and end to end at right angles to the alternate layers of water and soap.

HEXANOLAMINE CAPRYLATE AND DIISOPROPYLAMINE CAPRYLATE AS COLLOIDAL ELECTROLYTES. Emanuel Gonick (Stanford Univ., Calif.) *J. Am. Chem. Soc.* 68, 177-81 (1946). The osmotic behavior, conductivity and relative viscosity of solutions of hexanolamine caprylate and diisopropylamine caprylate have been investigated. The concentration of free cation in solutions of hexanolamine caprylate have also been determined. By correlating the results, an attempt has been made to determine the mechanism of micelle formation as the concentration of soap is increased.

INVERSION OF EMULSIONS AND ALTERATION OF SOAP PHASES. Felix Lachampt. *Compt. rend.* 220, No. 10, 317-18 (1945). To a homogeneous oily solution of 100 cc. of triethanolamine oleate in 19 cc. of paraffin oil were added increasing amounts of water. With 15 cc. of water the solution became rigid. Toward 50 cc. the emulsion could not be resolved microscopically but had a honeycomb appearance suggesting heterogeneity. This was confirmed as more water was added, and with 100 cc. the water particles were clearly visible. With 200 cc. it was creamy, but was still of the type water-in-oil. Softening definitely occurred with 220 cc., and with 240 cc. inversion distinctly took place. To prove that the critical point of inversion is independent of the amount of oil the same experiment was repeated with 100 cc. of the oleate in 119 cc. of oil. The inversion again occurred with 240 cc. of water. By operating with the same amount of soap it was possible to add as much as 2500 cc. of oil without destroying the oil-in-water phase. The type of emulsion was determined by adding to each preparation a few grains of Sudan red, soluble in oil, and examining microscopically. The best means of preparing emulsions was found to be an egg beater. For concentrations of soap below 28.5% the soap is soluble in water (isotropic solution), although for very great concentrations (anisotropic solutions) it is the water that is dissolved in the soap. (*Chem. Abs.* 40, 1376.)

PATENTS

ACID MODIFIED SOAP-LIKE PRODUCT. Donald J. Loder (E. I. du Pont de Nemours & Co.) *U. S.* 2,395,971. This detergent composition consists of from 60-95%

of a reaction product of 1,3-dioxolane with a water-insoluble hydrophobic organic oxygenated compound, which prior to the addition of the 1,3-dioxolane group contained a reactive hydrogen atom, and from 40-45% sulfonated higher fatty alcohols, soaps, Turkey-red oil, saponin, aliphatic sulfonic acids or aromatic sulfonic acids.

NEUTRAL SOAPS. Einar Kalle. *Norwegian* 63,892. Soaps are stabilized and kept neutral by adding thereto of 2-3% of alginic acid. (*Chem. Abs.* 40, 754.)

FLOATING SOLID SKIN CLEANSER. Johannes Pfanner (Cirine-Werke Bohme & Lorenz). *Ger.* 743,504. The cleanser is compounded of synthetic washing agents and waxes or waxlike substances or solid paraffinic hydrocarbons. The content of the latter is 55-90% by weight. (*Chem. Abs.* 40, 684.)

SULFONATED DETERGENT. Colgate-Palmolive-Peet Co. *Canadian* 428,368. A detergent composition comprises 40-60% of a water soluble soap, about 40-50%

of a neutralized sulphonate obtained by extracting mineral oil with a solvent and sulphonating the extract while it is dissolved in liquid SO_2 , and about 10-40% of a water soluble salt of a H_3PO_4 , e.g. Na salt of the tetraphosphoric, pyrophosphoric or metaphosphoric acid.

SAPONIFICATION OF SYNTHETIC FATTY ACIDS. Sabine Hirsch. *U. S.* 2,391,019. A synthetic fatty acid soap is prepared by heating a high molecular weight hydrocarbon until liquefied, and reacting with an oxidation catalyst and a persalt of an alkaline reacting cation in an emulsion.

AMINO CAPILLARY ACTIVE AGENTS. Winfrid Hentrich and Heinz-Joachim Engelbrecht and Erik Schirm (Alien Property Custodian). *U. S.* 2,394,307. Compounds such as N-(3-lauroyl-amino-benzol sulphonyl)-benzamide or 3-lauroyl-amino-benzol benzolsulphimide have surface active properties. Method of preparation is given.

Abstracts

Drying Oils

Edited by
HOWARD M. TEETER

HEAT BODIED OILS. H. Feinberg (Baltimore Club). *Official Digest Fed. Paint and Varnish Prod. Clubs* 254, 112-121 (1946)—A review.

RECENT ACHIEVEMENTS IN OIL UTILIZATION FOR COATINGS. J. L. Boyle. *Paint Manuf.* 16, 50-51 (1946). A review of developments in alkyd resins, conjugation of oils, and separation of polymerized fatty acids.

LALLEMANTIA OIL. A Steger and J. van Loon (Lab. Technol. Öle u. Fette tech. Hochschule, Delft, Netherlands). *Fette u. Seifen* 51, 1-2 (1944). Constants for the oil from the seeds of *Lallemantia iberica* (from South Russia) are given. The seeds weighed an average of 4.23 mg. and are 4-5 mm. long and 1-2 mm. thick. Extraction with petroleum ether yielded 31.8% of a bright-green oil. The residual meal contained N 5.36 (= 33.5 crude protein), ash 9.1, crude fiber, carbohydrates, etc. 44.9 and water 2.5%. The bright-yellow cold-pressed oil had the following constants: n_D^{20} 1.4837, n_D^{70} 1.4645, d_4^{20} 0.9303, d_4^{70} 0.8917, Wijs I number 202.8, thiocyanogen number 125.1, saponification number 189.0, acid number 1.2, acetyl value 7.1, Reichert-Meissl number 0.86, Polenske value 0.49, diene number 1.3 and viscosity 43.5 centipoises at 20° C. The oil contained fat acids soluble in petroleum ether 95.1, unsaponifiable 0.5, glycerol residue 4.2 and volatile and insoluble matter 0.2%. Constants given for oil extracted by petroleum ether are: n_D^{20} 1.4830, n_D^{70} 1.4641, Wijs I number 197.0, saponification number 189.2 and acid number 3.1. Fat acid composition of the cold pressed oil is: saturated acids 8.9, 9-oleic acid 1.4, 9,12-linoleic acid 36.4, and 9,12,15-linolenic acid 5.33%. (*Chem. Abs.* 40, 1332.)

LALLEMANTIA IBERICA AS AN OIL CROP. H. P. Kaufmann (Inst. Pharm., U. Chem. Technol. Univ. Münster i. W., Germany). *Fette u. Seifen* 51, 2-5 (1944). Results of a cooperative investigation of 50 seed samples of *Lallemantia iberica* by different labs are given.

Tabulations are presented which give growth and fertilizer conditions for each sample. Pulfrich photometer measurements are given for oil samples extracted with ether and petroleum ether. Color data are plotted for 3 samples of yellow-brown, yellow, and green oils (wave length vs. percentage transmission). Ranges of analytical values reported for the samples are: weight of 1000 seeds 2.8-5.9 g., fat (dry basis) 8.5-35.8%, water 5.6-10.3%, acid number 0.1-39.9 iodine number 167.9-209.2, and n_D^{20} 1.48242-1.48343. A systematic analysis (reported by Bredemann) on pressed *Lallemantia* oil gave: saturated acids 7.6, oleic acid 5.6, linoleic acid 35.5, linolenic acid 46.4, and glycerol residue 4.5%. The oil had the following constants: I number 195.2, thiocyanogen number 121.1, acid value 4.9, saponification number 194.1, Reichert-Meissl number 0.17, and unsaponifiable 0.5%. The fat acids gave: iodine number 203.0, thiocyanogen number 126.0, acid value 199.1, and saponification 199.1. The drying properties of *Lallemantia* oil make it satisfactory for paint and varnish manufacture. Data are given for weight increase with time of thin films of the oil heat-bodied for various periods at temperatures ranging from 150° to 250°. (*Chem. Abs.* 40, 1332.)

REFINING OF OILS. J. van Loon (Lab. Technol. Öle u. Fette tech. Hochschule, Delft, Netherlands). *Verfkaoniek* 17/18, 103-4, 109-10 (1945). Drying and boiling processes for the purifying of linseed, train, soy, and wood oils are reviewed. Preparation of stand oils, their combination with wood oils, etc., blown oils and stand oils, sulfurized oils, uviol oils (polymerized by exposure to the quartz lamp), voltol oils, stand-oil extracts, distillation of stand oils, dehydration of castor oil, synthetic wood oils, activation of fat acids with isolated double bonds, hydrogenation of oils and combinations of oils with resins are also discussed. (*Chem. Abs.* 40, 1324.)