polyene fatty acids, said product is characterized by the presence of isomers of 10,12-octadecadienoic and isomers of 10,12,14-octadecatrienoic acid residues.

METHOD OF MANUFACTURING CERTAIN ACYLATED POLYAMINO ETHERS. M. De Groote and B. Keiser (Petrolite Corp.). *U. S. 2,354,578-80.* Method of manufg. acylated polyaminoether having one fat acid radical and 2 basic amino N atoms is described. The products are used for the demulsification of crude oil emulsions.

Abstracts

Soaps

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SOAP-BOILING EQUILIBRIA FOR SODIUM STEARATE. THE NEW PHASE, KETTLE WAX. James W. McBain, Kenneth Gardner and Robert D. Vold. *Ind. & Eng. Chem. 36,* 808-810 (1944). Earlier work has established the range of existence of the four chief recognized phases in soap boiling. Ternary systems have been described in terms of (1) curd fibers, (2) neat soap phase (liquid crystalline soap solution), (3) a similar but separate middle soap, and (4) isotropic solutions with complicated boundaries extending into lye or brine containing almost no soap. However, it is now proved by a variety of methods, including direct analysis, that a new waxlike form, termed "kettle wax phase", exists in a predominant position in the ternary diagram at soap boiling temperatures even with the highest pure soap, sodium stearate. Only with the highest concentrations of salt are curd fibers of sodium stearate formed at 90°C. Therefore a general description of ternary systems involves soap, water, and electrolyte.

THE MEASUREMENT OF FOAM STABILITY. A. P. Brady and S. Ross. *J. Am. Chem. Soc. 66,* 1348-56 (1944). A foam meter for the measurement of foam stabilities at different temps. is described, employing bubbling as the method of producing the foam. Foam stabilities of several types of materials are measured and reported.

FOAM STABILITY OF SOLUTIONS OF SOAPS OF PURE FATTY ACIDS. G. D. Miles and J. Ross. *J. Phys. Chem. 48,* 280-90 (1944). The effect of alterations in pH upon relative foam stability has been examd. for 0.1%solns. of Na caprate, laurate, myristate, palmitate and stearate. Relative foam stability as a function of concn. has been measured at 57° for solns. of Na caprate, laurate, myristate, palmitate, stearate, undecylenate, oleate, elaidate and ricinoleate at the pH where each soln. showed max. foam. The pH range associated with the max. foam stability for these soaps as a function of concn. was detd. at 57°. The influence of Ca and Mg soaps upon the foam stability of solns. of the corresponding Na soaps was examd. The compn. of the Ca and Mg soap was detd. indirectly by measurements of foam stability. The effect of temp. upon the relationship of pH to foam stability was studied for Na caprate and laurate. The effect of temp. on the foam stability of all the soaps mentioned in the second sentence (above) was ascertained for the range of 27-82°. The effect of pH on the foam stability of mixts. of Na laurate and palmitate was detd. Good foam stability was obtained for a few solns. contg. 2 materials neither of which, alone, is a particularly good foam stabilizer.

CRYSTALLIZATION OF BINARY AND COMMERCIAL SOAP SYSTEMS. R. H. Ferguson and H. Nordsieck. *Ind. Eng. Chem. 36,* 748-52 (1944). Although the short spacings of x-ray diffraction patterns have proved most suitable for identification of at least 4 crystn. modifications of Na soap, it is necessary to turn to the long spacings in order to ascertain the crystn. behavior of the individual fatty constituents of mixed and com. soaps. Fractional crystn. may occur when there is a sufficient difference in chain length between the 2 components, but even here the fractions are solid soln. phases and not pure components. It appears to be the general rule that com. soap crystallizes as a solid soln. No evidence of fractional crystn. has been observed in com. soap.

SODIUM ALCOHOL SULFATES PROPERTIES INVOLVING SURFACE ACTIVITY. E. E. Dreger, G. I. Keim, G. D. Miles, L. Shedlovsky and J. Ross. *Ind. Eng. Chem. 36,* 610-17 (1944). The prepn. and properties are described for alternate members of a homologous and of an isomeric series of purified Na salts of secondary alc. sulfates, contg. from 11 to 19 C atoms, and for a straight hydrocarbon chain with the SO_4 group in various positions. The purified Na salts of the primary alc. sulfates with 10, 12, 14, and 16 C atoms are also examined. Measurements have been made of the surface tension and foaming, wetting, and detersive properties of solns. of these compds. in water and with added electrolytes. Solubilities of Na salts of the secondary and primary alc. sulfates studied are reported at 5° intervals from 20° to 40° C. The data are discussed from the point of view of correlating changes in the properties involving surface activity when the structure and mol. wt. of the compd. are changed.

AT THE SOAP PAN. NEW SERIES: No. 5. Joseph M. Vallance. *Soap, Perfumery & Cosmetics. 17,* 496-7 (1944). A method is described for the manufacture of a toilet soap base which includes a multiple graining process and improved glycerin recovery. The sweating of soaps is discussed and the negative effects of such addition agents as proteins, rosin and hydroquinone are told. Soaps for solid soap dentifrices are surveyed and formulations are given.

DETERGENTS IN CORN INOCCULATION. *Soap 20,* No. 9, 135 (1944). Detergents such as triethanolamine oleate and monobutylamine oleate have been used to advantage in inocculating corn from disease organism in test work. They gave low tensitometer reading, low phytocidal and fungicidal action and allowed the production of a high percentage of infection of a severe type.

LOW-TEMPERATURE SAPONIFICATION IN ANHYDROUS SYSTEMS. Wilfred Gallay and Ira E. Puddington. *Can. J. Research 22B,* 76-89 (1944). Finely dispersed NaOH suspended in mineral oil effected almost complete sapon. of fats and fatty acids at 60°. Finely

dispersed $Ca(OH)_2$ effected sapon. at 50°. Small quantities of added water promote sapon. This procedure was also used to prep. suspensions of soaps of Al, Mg, Ba, Pb and Li (*Chem. Abs.*)

INDUSTRIAL SOFT SOAPS. Widaly. *Seifensieder-Ztg. 69*, 176-7 (1943). In the manuf. of industrial soft soaps, soaps of low viscosity are always obtained by the use of Mersolsulfonic acid (I). In order that the soap shall not be too soft, a mixt. of fat acids must be used. In addn. to I, such a mixt. contains liquid fat acids and fat acids of higher b.p., as whale-oil fat acids, soap-oil fat acids, preferably the hard fat acids of train oil, and in certain cases the hard fat acids of Japanese train oil. The liquid fat acids used include those from soybean fat, peanut and corn oil. The ratio of liquid to solid fat acids should be 1:1; I is then added to this 1:1 mixt. The manuf. of a 39% industrial soft soap is described and the formula used is given. (*Chem. Abs.*)

INVERT SOAPS. THIOMORPHOLINIUM SALTS. William F. Hart and Joseph B. Niederl. *J. Am. Chem. Soc. 66*, 1610 (1944). N-Cetylthiomorpholine was prepared by action of mustard gas on cetyl amine and bactericidal properties of this invert soap having "cetyl" group was examined. Quaternary thiomorpholinium salts were also prepared and tested.

A METHOD OF GROWING SINGLE CRYSTALS OF SODIUM STEARATE AND SODIUM PALMITATE. A. De Bretteville, Jr., and F. V. Ryer. *J. Phys. Chem. 48*, 154-8 (1944). Crystals of Na stearate were obtained by allowing a soln. contg. 0.32 g. in 100 cc. of 95% alc. to evap. slowly for a few days at 25°. For Na palmitate the concn. was 0.62 g. in 100 cc., and it was necessary to add a pinch of NaCl to start crystn. The conditions of temp. and concn. were found to be crit. (*Chem. Abs.*)

PATENTS

SOAP LEAF. C. W. Mabley. *U. S. 2,356,168.*

SOAP-FREE DETERGENTS IN BAR FORM. R. C. Wood (Procter & Gamble Co.). *U. S. 2,356,903.* A substantially soap-free detergent in bar form comprises: a water-sol. salt of an alkyl sulfate having more than 8 C atoms in the alkyl radical, a polyhydric alc. partially esterified with an unsatd. fatty acid in amt. not exceeding about 33% and at least 5% and not over about 40% NaCl.

ALKALINE DETERGENTS. C. Schwartz. *U. S. 2,359,587.* An alk. detergent for cleaning tin, comprises by wt. about 40-60% Na metasilicate, about 20-40% NaOH, about 5-15% $NaBO_3$, about 1-10% $SnSO_4$ and about 1-10% CaCl.

REFINING OIL-SOLUBLE SULPHONATES. F. M. Archibald and D. van Dijk (Standard Oil Development Co.). *U. S. 2,357,866.* An alkali metal petroleum oil-sol. sulphonate material resistant to deterioration and color degradation when heated in the presence of moisture at a temp. between 130° and 160° consists essentially of an oil-sol. sulphonate to which is added during the drying process wherein the sulphonate is heated to a temp. between 130° and 160° an alkanolamine in concn. between 0.1% and 2% by wt. of the sulphonate.

WATERPROOFING OF CONCRETE. H. Goldstein and L. Liberthson (L. Sonneborn). *U. S. 2,358,776.* A waterproofing compn. for concrete and like hydraulic mixes comprises 10-40% of a suspension of a finely divided water insol. metallic stearate, being a member selected from the group consisting of Ca stearate and Al stearate, in 60-90% of aq. medium, having normally a neg. capillarity with respect to said stearate and substantially dissolved in said aq. medium, .1-.5% of sulfonated Bu oleate of a potency sufficient to depress the surface tension of said aq. medium to a point of pos. capillarity with respect to said stearate.

METHOD OF MAKING A COMPOSITION FOR USE IN DETERGENTS. H. G. Bissinger (Drew Associates, Inc.). *U. S. 2,356,443.* The invention is directed to compns. of alk. nature adapted to use directly for detergent purposes in a laundry or the like, more particularly to products contg. up to about 80% free caustic alkali.

ALIPHATIC AMINOACYL COMPOUND AND METHOD FOR PREPARING SAME. Hugh William Gray (E. I. du Pont de Nemours & Co.). *U. S. 2,343,769.* Synthetic detergents from amino acyl compounds made by the reaction of a keto acid or keto acid derivative with ammonia or amines in the presence of a hydrogenation catalyst.

APPARATUS FOR DEDUSTING COMMINUTED SOAP. Bernard Maxwell and Charles Atwood (Lever Bros.). *U. S. 2,351,351.* An apparatus for dedusting comminuted soap is described consisting of a tall chamber and a series of inclined ramps and suction arrangement to rid air of dust and very fine soap particles.

PROCESS FOR THE PREPARATION OF DETERGENT MIXTURES. Andrew Treffler (Solvay Sales Corp.). *U. S. 2,351,559.* A detergent mixture comprising sodium carbonate, an amount of water sufficient to form a moist, non-pasty mass, and added to this, tetrasodium pyrophosphate or sodium tetraphosphate to form a detergent which is readily broken, free-flowing and readily soluble in water.

SODIUM SILICATE DETERGENT COMPOSITION. Paul W. Soderberg. (Wyandotte Chemicals Corp.). *U. S. 2,345,776.* An anhydrous sodium orthosilicate detergent which normally would generate fine dust-like particles is rendered dust-proof by being treated with an oil selected from the group consisting of kerosene and pine oil.

DETERGENT COMPOSITION. Herbert Seyferth. (Allied Chemical & Dye Corp.). *U. S. 2,347,336.* A new detergent product with improved deterging and lathering properties is composed of about 95 parts by weight of a mixture of sodium alkyl mono-nuclear aromatic sulfonates in which the alkyl groups are attached to nuclear carbon atoms and have an average carbon content of 12 to 18 carbon atoms, and about 5 parts by weight of a mixture of water-soluble methyl ethers of cellulose.