Coating and impregnating composition. A. H. Gleason. *U. S. 2,284,570.* Poly-esters of hydroxy fat acids, with mol. wt. of over 5,000 are used as protective coating ingredients.

Coating composition and method of preparation. B. E. Sorenson (duPont). *U. S. 2,280,862.* A new article of manuf. is the reaction product of a modified fatty unsatd. non-hydroxylated oil having substantially no conjugation and an ester of maleic acid and an unsatd. alc.

Composition of matter and method of producing the same. E. W. Mace (Petrolite Corp.). *U. S. 2,281,316.* A viscous, non-gelatinized product is formed by oxidizing with an O_2-contg. gas the reaction product of a member of the group consisting of ricinoleic acid, polyricinoleic acid and their esters with a member of the group consisting of aldehydes and ketones.

Lubricating oil composition. John E. Schott (Tide Water Associated Oil Co.). *U. S. 2,281,623.* The lubricant is made up of mineral oil and small portion of al-soap and a glycol fat acid ester.

Grease composition and method for making same. J. C. Zimmer and Arnold J. Morway (Standard Oil Co.). *U. S. 2,265,791.* The lubricant contains mineral oil, rape seed oil and rape seed oil soap.

Lubricant. Carl. F. Prutton (The Lubri-Zol Development Corp.). *U. S. 2,272,923.* Ca salts of halogenated fat acids are used as improvers for mineral oil lubricants.

Abstracts

Soaps

Edited by
MARY GRIFFITH

Detergents in the dairy industry. C. Schwartz. *J. Milk Technol. 4,* 258-67 (1941). This is a general discussion of the dairy equipment cleaning problem, with a classification of detergents and suggestions regarding the selection and use of a detergent best adapted to a particular job. As a general conclusion, it is stated that the best detergent available to the dairy industry today is one in which there is contained an efficient Ca-sequestering material for the control or prevention of alkaline-earth-metal ppts. and an alkali sufficient in amt. to do a good cleaning job and of a type least harmful both to operator and equipment.

Application of the Gibbs adsorption equation to solutions of paraffin-chain salts. A. E. Alexander. *Nature 148,* 752 (1941). Recently considerable doubt has been cast on the validity of the Gibbs adsorption isotherm as applied to aq. solns. of the paraffin-chain salts (soaps and soap-like mols.). The chief objection is the numerous examples of dil. solns. showing a min. in the surface tension-concn. curve, usually at 30-35 dynes, presenting the paradox of a surface tension much lower than that of water, and showing a zero or neg. surface excess of solute as calcd. from the Gibbs equation when applied in the customary manner. The anomaly is satisfactorily explained by Powney and Addison (C. A. 32:1161). When using the activity of the soln. as a whole, the Gibbs equation breaks down; the activity term should be that for the molecularly dispersed solute in bulk soln. The Gibbs equation holds, even with the paraffin-chain salts, when micelles are absent. Calcns. of adsorption by solns. of lauryl sulfonic acid at two concns. are in good agreement with expt. *(Chem. Abs.)*

Determination of caustic alkali and alkali carbonate when they occur together in soaps. Th. Hesse. *Fette u. Siefen 47,* 41-9 (1940); *Chem. Zentr. 1940, I, 2878.* The known methods of volumetric analysis are discussed. These methods were studied by making potentiometric measurements during the whole course of the analysis and plotting the corresponding curves. This was done for the potentiometric titration of KOH and K_2CO_3 in various solvents in both the presence and absence of K oleate. These results were used in detns. made on some tech. soaps in order to det. the correct end point with indicators. The following method is given for the detn. of free alkali in soaps in the presence of alkali carbonates: 5.6 g. of soap is dissolved in 50 cc. neutralized alc. (96 vol.—%) and decompd. by shaking vigorously with 25 cc. of 10% $BaCl_2$ soln. Liquid and ppt. are then titrated with 0.1 N HCl. The titration must be done slowly in order that the Ba soaps and $BaCO_3$ are not attacked by the HCl. The % free alkali $= z/10$ ($z =$ cc. of 0.1 N HCl used). Alkali carbonates in soap in the presence of caustic alkali were detd. as follows: 5.6 g. of soap was dissolved in 50 cc. neutralized alc. as before and titrated immediately in the cold with 0.1 N HCl ($k =$ cc. used). The blank value (w) for the alc. must also be detd. The % alkali carbonate then $= 0.246 (k - z) + 0.246 w$. Details and numerous tables are given in the original. *(Chem. Abs.)*

Modern soap and glycerine making. James A. Lee. *Chem. and Met. 49,* No. 5, 125-8 (1942). The modernized plant of Manhattan Soap Co. is discussed in detail, starting with the refining and bleaching equipment, saponification equipment, tunnel dryers, plodders, and finishing equipment for toilet soaps. The nigre is purified, mixed with TSP and Na silicate and dried in flakes. Glycerine recovery is described. Nickel clad steel is used for the sections of the soap kettle that are generally above the liquor level. The glycerine-lye evaporators have copper tubes and 5% nickel steel castings. Pipe lines for salt slurries are made of red brass. Aluminum steam coils are used in storage tanks for coconut oil.

Phosphatides from soybean oil. M. H. Thornton and H. R. Kraybill. *Ind. Eng. Chem. 34,* 625-8 (1942). A method for refining vegetable oils by treatment with a solid adsorbent is described. The materials removed can be recovered, substantially unaltered, by extraction from the adsorbent with solvents. The adsorption method is applied to the refining of soybean oil, and a procedure for the recovery of the adsorbed material is outlined. The adsorbed phosphatide material is recovered by successive extractions with acetone, ether, absolute ethanol, and 50% ethanol. The acetone extract consists largely of oil together with some phosphatides, sterols, and sterol glucosides. The ether extract is made up of material with the same physical properties as those usually ascribed to phosphatides. However, the P:N ratio is approximately 2:1. It contains more cephalin than lecithin. Extraction of this material with absolute ethanol results in a fraction which is a viscous liquid, is soluble in acetone and is a good emulsifying agent.

The material extracted from the adsorbent by absolute ethanol has a P:N ratio of about 1:1 and contains more lecithin than cephalin. The choline and aminoethanol contents of this fraction indicate that it is at least 50% true phosphatides. The material extracted from the adsorbent by 50% ethanol also contains lecithin and cephalin. In addition, it contains other material of an acidic nature which yields large amounts of sugar upon hydrolysis with acids. This substance has marked foaming properties.

Analysis of extracts of different layers of a column indicated that the adsorbed material was of constant composition throughout the column. Phosphatide fractions of similar composition were obtained from soybean oils prepared by the expeller, solvent, and hydraulic press processes. Oil refined by the adsorbent method contains approximately 30% as much nitrogen as did the crude oil, but only a trace of phosphorus. This fact shows that all of the nitrogen and phosphorus of the crude oil does not occur as lecithin and cephalin.

THE DETERMINATION OF WATER-IMMISCIBLE ORGANIC SOLVENTS VOLATILE WITH STEAM IN SULFONATED (SULFATED) OILS. Ralph Hart. *Am. Dyestuff Reptr. 31,* 64-70 (1942). This method of test dets. water-immiscible org. solvents that are volatile with steam existing in a sample of sulfonated (sulfated) Oil. Alc. or other volatile compds. that are mutually sol. in water and solvents interferes with this test. This method yields reliable results even in the presence of certain volatile fat acids, such as coconut oil fat acids provided the latter are converted into their soaps. Excess caustic alkali, however, may yield low results with samples contg. cresylic acid, but free soda ash or calcium carbonate is permissible. Addn. of $CaCl_2$ to the alk. mixt. prevents foaming. Addn. of pine oil to samples contg. cresylic acid prevents the distillate from being returned to the distn. flask. Prolonged distn. is necessary for accurate results. *(Chem. Abs.)*

FLOTATION TREATMENT OF WHITE PAPER. E. N. Poor and H. A. Whitenight. *Paper Trade J. 114,* No. 9, 21-4 (1942). In soap flotation of white waters contg. both clay and clay-fiber mixts., the insoly. of Al soap is the most important factor in efficiency. The effectiveness of pure satd. fatty-acid soaps increases with the length of the chain up to and including C_{14}, above which the efficiency is impaired. Increasing proportions of fiber in the suspension increases the action of the fatty-acid soap, and the extent of improvement varies with the type of soap present. Flotation efficiency increases with alum concn. up to an optimum point and then decreases. In general, the effectiveness of natural-fat soaps tends to increase with the degree of unsatn. The behavior of such soaps cannot be predicted from that of the individual fatty acid constituents. *(Chem. Abs.)*

PATENTS

SOAP CAKE. Carl O. Swanson. *U. S. 2,271,959.*

TOILET SOAP PROCESS. John W. Bodman (Lever Bros.). *Brit. 539,718.* Soap of 8 to 25% moisture content is agitated at 65-125° and a press of 100 lbs. per sq. in. and solidified by releasing to yield a product having a density less than water.

DETERGENT. Lucas P. Kyrides (Monsanto Chem. Co.). *U. S. 2,267,205.* A detergent comprises water sol. alkylene polyamine having 2 to 4 amino groups per mol. the alkyl group may be derived from fat alc.

SOAP PRODUCT AND METHOD OF MAKING THE SAME. B. H. Thurman (Refining, Inc.). *U. S. 2,271,407-8.* Foots from oil refining may be converted to a useful detergent by addn. of Na_3PO_4, Na_2CO_3, NaOH and Na-metasilicate.

DETERGENT COMPOSITION. Walter P. Ericks (American Cyanamid Co.). *U. S. 2,284,086.* Guanidines compds. contg. fat acid radicals are prepd. for use as wetting agents.

SOAP COMPOSITION. W. J. Tennant (Armour & Co.). *Brit. 533,846.* Marine oil fat acids are distd. and saponified to yield a soap of substantially C_{18} acids with less than 3% C_{20}-C_{22} fat acids.

AMINO FATTY ACID DERIVATIVES. J. R. Geigy, A.G. *Brit. 534,129.*

DETERGENT AIDS AND WETTING AGENTS. Standard Oil Development Co. *Brit. 533,327.* The products are prepd. by the action of phosphorus oxychloride on phenolic compds. contg. paraffinic hydrocarbon chains of av. 3 to 10 C atoms to obtain phosphoric diesters which are subsequently neutralized with alkali.

METHOD AND APPARATUS FOR HYDROLYZING FATS AND OILS. Warren Davey and Martin Hill Ittner to Colgate-Palmolive-Peet Co. *U. S. 2,281,534.* Substantially unoxidized fatty acids and concentrated glycerine are produced by hydrolyzing fatty acid esters of glycerol under superatmospheric pressure and elevated temperature in the presence of water, flashing the glycerine-water solution produced by said hydrolysis and heating the glycerine-water solution by indirect contact with the fatty acids produced in said hydrolysis to concentrate the glycerine solution.

SEPARATION OF CONSTITUENTS OF ANIMAL AND VEGETABLE OILS AND RESIDUE FROM REFINING THEREOF. Dan McDonald to Erwin H. Haas. *U. S. 2,279,408.* Oleaginous material in which free fatty acids are present as alkaline salts of the free fatty acids is processed as follows: forming an aqueous alcohol solution of the alkaline salts, the alcohol being not more than approximately 50% by volume of the total alcohol-water content, counterflowing a chlorinated hydrocarbon for downwardly flowing solvent-extraction of neutral and unsaponifiable oils and upwardly flowing withdrawal of the aqueous alcohol solution, converting stearates of the alkaline salts to stearates which are insoluble in the aqueous alcohol, adding to the aqueous alcohol solution, a chlorinated hydrocarbon of specific gravity greater than the aqueous alcohol solution for precipitating the insoluble stearates as a suspension in said second mentioned chlorinated hydrocarbon, displacing remaining free fatty acids from the aqueous alcohol solution in the presence of a chlorinated hydrocarbon, and solvent-extracting the displaced free fatty acids by said last mentioned chlorinated hydrocarbon.

SOAP COMPOSITION. Hans Beller and John Owen to Jasco Incorporated. *U. S. 2,274,584.* A laundry bar soap comprising a water-soluble, kettle-boiled soap is obtained by saponifying a mixture of 75% by weight of tallow and 25% by weight of synthetic fatty acid manufactured by oxidizing crude scale wax to an acid number of 60 and a saponification number of 112 and having a boiling point range of from 150-180° C. at 8 mm. mercury pressure, a builder consisting of 15% sodium silicate and 10% sodium carbonate, and as a foam stabilizer 10% sodium pyrophosphate.