fatty acids to supplement a fat-free diet in promoting wt. increase is not necessarily associated with ability to heal skin lesions.

Destruction of vitamin A by rancid fats. E. J. Lease, J. G. Lease, J. Weber and H. Steenbock. *J. Nutr. 16,* 571-83 (1938). Rancid fats were found to destroy pure carotene and vitamin A or precursors thereof as contained in halibut liver oil, egg yolk, or alfalfa. Ozonized fats and palmitic peroxide also destroyed vitamin A. Heating of rancid fats lowered both their capacity to destroy vitamin A and their peroxide value. The addition of ascorbic acid, hydroquinone, gallic acid and ethyl gallate to rancid fats as antioxidants did not prevent the destruction of vitamin A. Vitamin A was not destroyed when given to rats on an empty stomach even though they were being maintained on a ration rich in rancid fat.

PATENTS

Treatment of oiticica oil. J. P. Stancil. U. S. pat. 2,139,864. Stearins are separated from the oil by a heat treatment followed by partial cooling and filtering.

Hydrogenation of soybean oil. H. E. Moore and R. B. Vogel (to Capital City Prod. Co.). U. S. 2,136,653. To produce a margarine fat, soy bean oil is hydrogenated at 177-225° C. for 3 hrs. or more in the presence of a relatively inactive catalyst to reduce linoleic acid glycerides to less than 10% and to develop between 20 and 50% isooleic acid with satd. glycerides not exceeding 20%.

Apparatus for refining oils. B. Clayton, W. B. Kerrick and H. M. Stodt (to Refining, Inc.). U. S. 2,137,214. The app. comprises oil and alkali supplying means, mixing chamber, pumps, metering devices, heaters, pressure chambers and centrifugal separators.

Treatment of soya bean oil. A. K. Epstein et al. (to The Emulsol Corp.). U. S. 2,140,793-4. The prereversion period of soybean oil is extended by addn. of 0.5% aliphatic polyhydroxy substance or 0.1% of a sugar, heating under reduced pressure to temp. sufficiently high for deodorization.

Manufacture of catalyst. S. Faulkner (to Procter and Gamble Co.). U. S. 2,140,400. The Ni is pptd. as the carbonate is aq. soln., boiled to reduce the combined CO_2 content and until the suction filtered ppt. amts. to 9 cc. per g. of metal content and continued for 12 min., afterwards reducing the pptd. carbonate to metal by a wet reduction step.

Antiparasitic compositions. B. R. Harris. U. S. 2,134,917. The anti-parasitic composition comprises a nicotine salt of coconut oil fat ester of glycerol monosulfate.

Motor fuel containing nitriles. V. Conquest (to Armour & Co.). U. S. 2,135,327. Fat acid nitriles when added to motor fuels impart antiknock qualities to the fuel.

ABSTRACTS

Soaps

Edited by M. L. SHEELY

The use of aluminum in the soap industry. H. Lichtenberg. *Fette u. Seifen 45,* 518-21 (1938). Al app. has the advantages of resistance to corrosion by fatty acids, a high heat-transfer coeff., and avoidance of product discoloration.

The detergent qualities of soft soaps. Edwin J. Rathbun and Edward D. Davy. *J. Am. Pharm. Assoc. 27,* 836-40 (1938). As a result of a study of the relative efficiencies of soaps made of corn, soybean, coconut and linseed oils and 3 brands of com. oleic acid, with NaOH and KOH the following formula and procedure for the prepn. of sapo molis are recommended: dissolve 103 g. KOH in 120 cc. of H_2O, add the soln. to 510 g. of cottonseed oil, mix, allow to stand with occasional mixing until a small portion of the soap, when dissolved in distd. H_2O, makes a clear soln.; adjust the alky. to not over 0.04% and add H_2O to 1000 g. As a demand exists for a soap contg. some coconut oil because of its added lathering qualities, the following formula is recommended: cottonseed oil 408, coconut oil 102, KOH 109 g., distd. H_2O 120 cc.; prep. as for sapo molis. The following is recommended for liquor cresolis saponatus: cottonseed oil 350 g., KOH 71 g., distd. H_2O 90 cc.; saponify as for sapo molis, add cresol 500 cc., H_2O to 1000 cc. Sapon. of the oil is incomplete in the presence of cresol; addn. of cresol to the neutral soap makes a brilliantly clear product that can be dild. as desired without clouding the soln. (*Chem. Abs.*)

Termodynamic behavior of liquid crystalline solutions of sodium palmitate and sodium laurate in water at 90°. Robert D. Vold and Marjorie J. Vold. *J. Am. Chem. Soc. 61,* 37-44 (1939). The vapor pressure of aqueous sodium laurate at 90° has been measured as a function of its concentration and the existence of waxy soap as a separate phase has been confirmed.

The activities of sodium palmitate and sodium laurate have been calculated for each of the phases present in aqueous systems at 90°. Possible models of each of these phases are described. The models proposed account qualitatively for the experimental activity concentration curves of middle soap and neat soap.

Up-to-date manufacture of soap flakes without nigre. H. Zilske. Seifens.-Ztg., 1938, 65, 315-316. Tedious settling on a nigre is avoided in the described system of saponification, which includes two treatments of the soap mass with "Blankit" (once to modify the Fe-containing impurities, and once to bleach the soap) and a final settling on an alkaline lye; the made soap is shredded and dried to 84-85%

fatty acid content, whereby the content of free caustic alkali is reduced (as a result of atm. contact) from, e.g., 0.2-0.5% to 0.1%, and then mixed with moister soap and worked into flakes by means of warmed rolls. (*Brit. Chem. Phys. Abs.*)

A PHASE RULE STUDY OF THE MIXED SOAP SYSTEM SODIUM PALMITATE-SODIUM LAURATE-SODIUM CHLORIDE-WATER AT 90°. James W. McBain, Robert D. Vold & Walter I. Jameson. *J. Am. Chem. Soc. 61,* 31-7 (1939). Diagrams have been determined showing the phase behavior of the four component system sodium palmitate-sodium laurate-sodium chloride-water at 90° for two constant ratios of sodium palmitate to sodium laurate. From these data a curve has been constructed which permits fairly accurate prediction of the phase rule diagram for any mixture of the two soaps.

Corresponding phase boundaries in the mixed soap system occur at salt concentrations far nearer the values for pure laurate than for pure palmitate. This effect is probably due to interference of the shorter sodium laurate molecules with the degree of regularity in the sodium palmitate micellet.

The least soluble phase of sodium palmitate is made actually as soluble as sodium laurate by the addition of sodium laurate to the system.

ABSTRACTS

Soaps

Edited by M. L. SHEELY

PATENTS

DISTILLING GLYCERINE AND SIMILAR VOLATILE LIQUIDS. Br. 486,311. Glycerine and similar volatile substance are distilled by heating the substance by indirect contact with saturated steam under pressure with resulting condensation of water from such steam and with vaporization of the glycerine and then reducing the pressure on the condensed water and bringing it into indirect contact with the hot glycerine vapours to effect condensation of glycerine and generation of steam from the water at a lowered pressure, and passing steam so generated directly into the glycerine undergoing distillation to promote such distillation. Apparatus as described in Specifications 486,415 is utilized in carrying out this method. (*Soap Gazette & Perfumer*)

DETERGENTS. Procter & Gamble Co. Brit. 488,196, June 30, 1938. A soap-free detergent in tablet form contains predominantly a mixt. of more than 5% glycerol or glycol partially esterified with a satd. fatty acid contg. 12 or more C atoms, and less than 95% of a solid H_2O-sol. salt, e.g., the Na salt, of a H_2SO_4 reaction product of an aliphatic org. compd. contg. 8 or more C atoms in the alkyl radical and characterized by its ability to dissolve in H_2O quickly to an amt. ample to accomplish its purpose as a detergent in cleansing operations, by its ability to resist pptn. when added to hard water in concns. ordinarily employed in cleansing operations and by detergent and lathering properties of sufficient magnitude that efficient cleansing is effected when it is employed in the ordinary way. Specified H_2SO_4 reaction products are sulfonated and sulfated aliphatic hydrocarbons or alcs. e.g., the normal primary monohydric alcs. obtainable from natural fats and fatty oils such as coconut and palm kernel oils, fatty acid esters, e.g., the oleic ester of hydroxyethyl-sulfonic acid, the fatty acid esters, e.g., the coconut oil fatty acid ester, or the alkyl ethers of dihydroxypropyl-sulfonic acid, and fatty acid amides, e.g., the oleic acid amide, of methyltaurine, or mixts. thereof. Among examples, such a compn. contains 90 parts of the Na salt of the reaction product of concd. H_2SO_4 on the normal primary monohydric alcs. derived from coconut oil and 10 parts of mono- and (or) di-glycerides prepd. from hydrogenated cottonseed oil. (*Chem. Abs.*)

DETERGENTS. Procter & Gamble Co. Brit. 489,097, July 18, 1938. The lathering and detergent properties of a detergent contg. as the essential ingredient 1 or more H_2O-sol. salts of alkylsulfuric acids contg. 8-18 C atoms in the alkyl radical (which may be obtained from the acids of natural fats and fatty oils, e.g., coconut oil, by reduction, sulfation, e.g., with H_2SO_4 or $ClHSO_3$, and neutralization, e.g. by NaOH, KOH, NH_3, amines or org. bases) and retaining in unsulfated form a known percentage of the alcs. from which the said salts are prepd. are improved by adjusting the unsulfated alc. content by addn. or subtraction to an amt. that will improve said properties but which is not in excess of 75 parts unsulfated alc. to 100 of said salt. When the adjustment is by addn. the unsulfated alc. is either a satd. primary aliphatic alc. contg. 8-14 C atoms or mixts. thereof, e.g., those obtainable from coconut or palm-kernel oils, or a satd. secondary aliphatic alc. contg. 8-25 C atoms or mixts. thereof, e.g., those prepd. from oxidized petroleum. When the adjustment is by subtraction the unsulfated alcs. may be extd. by solvents or the com. detergent may be spray-, drum- or otherwise-dried. In a modification, the lathering and detergent properties of a detergent as above, but derived from alcs. contg. 8-14 C atoms only, may be regulated by controlling the sulfation process so that the amt. of unsulfated alc. remaining in the product is the amt. that will give the desired properties, but not in excess of 75 parts unsulfated alc. to 100 parts of the said salt. (*Chem. Abs.*)