enabling lecithin formation to take place is discussed.

Fatty acid oxidation in liver. L. F. Leloir & J. M. Munoz. *Biochem. J. 33,* 734-46 (1939). The action of liver slices on normal fatty acids with 1-8 C atoms was studied. The rates of disappearance (-Q) of the different acids are: formic 1.5, acetic 5, propionic 2, butyric 9, valeric 2, hexanoic 6, heptanoic 3; octanoic 6.

Esters of *α-tocopherol.* V. Demole, O. Isler, B. H. Ringier, H. Salomon and P. Karrer. *Helv. Chim. Acta 22,* 65-8 (1939). C. A. *33,* 3819. The dubious reports as to the physiol. activity of α-tocopherol esters and the ready accessibility of synthetic *dl-α*-tocopherol (I) have led to the prepn. and biol. testing of several of these esters in comparison with esters of natural tocopherol. The caproate, stearate, succinate and benzoate of I were prepd. similarly. With the exception of the stearate all are viscous oils which can be distd. unchanged in high vacuum. Rat expts. show that all the esters have vitamin E activity.

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Process for purifying vegetable and animal oils. D. I. Ashworth (to the DeLaval Separator Co.) U. S. 2,157,882. The free fatty acids are removed from vegetable and animal oils and the color is improved by mixing the oil with alkylolamines, separating the reaction products formed and any uncombined reagent, mixing the partly refined oil with dilute NaOH and separating reaction products and remaining reagent. The product is made free of cloudiness and acids and will not substantially deteriorate on standing.

Method of bleaching oils and fats. W. M. Urbain and L. B. Jensen (to Indus. Pats. Corp.). U. S. 2,158,163. A mixt. of H_2O_2 and a nitrite is used as a bleaching agent for fats and oils.

Cake batter and shortening for making same. B. R. Harris (to Procter & Gamble Co.). U. S. 2,158,775. The product is a cake batter emulsion including flour, sugar, shortening and aq. material, and having as a constituent a sulfated triglyceride of a formula having at least one sulfate group attached to a double carbon at a double bond of an unsatd. fat acid radical and having at least one fat acid radical without a hydrophylic substituent.

Process for extracting oils or fat containing substances and the like. J. Riechert. U. S. 2,158,427. This continuous app. for counter-current extn. of oil seeds with solvent contains grinding equipment in successive steps. The solvent is in contact with the charge during grinding.

Process of treating oils. W. Hassard (D. B. Boyd). U. S. 2,160,861. The drying power of marine and animal oils is increased by treatment with a soln. of $KMnO_4$ and a mineral acid and separating the oil from the emulsion.

Soluble oils. D. R. Merriss (to Union Oil Co.). U. S. 2,158.374. Polymerized products of castor oil, castor oil fat acids and other castor oil derivs. are used as emulsifiers for spray oils employed in the spraying of citrus fruits and for similar uses in oiling of textiles.

Diesters of unsaturated glycols and processes of preparing the same. A. W. Ralston and W. M. Selby (to Armour & Co.). U. S. 2,157,144. The process deals with preparing diesters of unsatd. glycols by reacting a fatty acid chloride having 12 to 18 C atoms with an alkali metal while in solvent inert to the fatty acid chloride.

ABSTRACTS

Soaps

Edited by M. L. SHEELY

Instability of ammonium salts of higher fatty acids. *J. Chem. Soc. 1939,* 230. Neutral soaps were found to lose ammonia readily and to pass into the more stable acid soaps. Melting points of the soaps were determined as follows:

Carbon atoms in acid	7	8	10	11	12	13	14	15	16	17	18
Melting point (degrees)	45	54	68	72	77	81	84	86	89	91	93

Effect of soaps in increasing the water-solubility of essential oils. Adrien Albert. *J. Soc. Chem. Ind. 58,* 196 (1939). The soaps of saturated acids appear to promote emulsification rather than dissolution, while the latter effect is favored by some of the soaps derived from unsaturated acids. A comparison of the oleates and linoleates suggests that the presence of more than one double linking may be advantageous. Potassium appears to have advantages over ammonium soaps. Soaps have an extraordinarily selective action, no two of them aiding the dissolution of exactly the same group of oils. Oil of eucalyptus was dissolved by means of six soaps, whereas oils of turpentine and cloves did not lend themselves to dissolve readily.

Methyl cellulose in soap making. Paul I. Smith. *Am. Perfumer 38,* 3, 45-6 (1939). By using methylcellulose as a filler for both hard and soft soaps it is claimed that the fat acid content can be reduced 30 to 32%. This cellulose is a felt-like fibrous dry mass sold in compressed blocks from 1 lb. to 11 lb. and even in 2-cwt. bales. It is not readily inflammable and is sol. only in boiling water, and the soln. is very resistant to most chemicals and does not affect the pH of another soln. A soln. of 1 part in 15 parts of water can be incorporated to an extent of 10-20% in soap while crutching. The lather is said to be improved, but the lather in too large a quantity hinders the detergency.

New method for determining glycerol in filled soaps. W. Schulze. *Fette u. Seifen 46,* 66-9 (1939) Certain colloidal products, e.g. Tylose, used, as fillers in soaps interfere with the detn. of glycerol by the usual dichromate method. These interfering substances are left behind when the glycerol is allowed to diffuse out of a soln. of the soap sample through a parchment membrane. In order approx. to equalize the osmotic pressure, the diffusion vessel was filled, not with pure water, but with a soln. of pure soap of suitable concn. Tests with known amts. of glycerol showed that the glycerol concn. was the same in the solns. on either side of the membrane after 48 hrs. If the soap sample contains sugar or similar dialyzable substance, their presence must be considered when the glycerol detn. is carried out. (*Chem. Abs.*)

Selective hydrogenation of peanut oil and its fat acids under reduced pressure. Rene Escourrou. *Bull. Soc. Chim.* 5, 6, 360-7 (1939). Fat acids from peanut oil are selectively hydrogenated under reduced pressure (20 mm.) at 180° in Et-OH Et_2O soln. in the presence of Raney Ni. Under these conditions the I no. of the fat acids drops from 92 to 73 and seems to stop at this point with the formation of chiefly iso-oleic acid. At ordinary pressure partially hydrogenated fat acids with an I no. of 38, m. 42-3°, are obtained with stearic acid predominating. Hydrogenation of peanut oil under similar conditions to those described above confirms earlier expts. It is therefore possible to harden peanut oil by partial hydrogenation and by directing the fixation of H in such a way as to form iso-oleic acid. In a 2nd series of expts. the fat acids are sepd. via their Me esters and detd. It is found that the linolic acid disappears first and that the formation of the iso-oleic acid is slow at the beginning of the hydrogenation. With the oleic acid in its nascent state, the H is added preferably at the 12-13 double bond, which is the farthest away from the CO_2H group, while the iso-oleic acid is formed either by isomerization of oleic acid into elaidic acid or more probably by selective fixation of H to the 2 isomers of linoleic acid with the double bond at 12-13 or 11-12 linkages. The selectivity does not show up in the hydrogenation at ordinary pressure, but appears when reduced pressure is used which explains the stopping of the hydrogenation at an I no. of 80, indicating that one isomer of the linoleic acid can be hydrogenated without touching the other one. This would support the existence of an alpha and beta isomer as already indicated by Bedford (cf. Hilditch and co-workers). The phys. properties such as the hardening, odor, and fluorescence and the nutritive properties of the hydrogenated products are discussed.

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Lubricating grease. Standard Oil Delevopment Company. Brit. 496,331. A grease compn. consisting of a major proportion of a soap and a heavy hydrocarbon oil, preferably over 40% each, and a minor proportion of an org. oxygenated plasticizing agent consisting of pitch or a mixt. of pitch and glycerol. Soft stearin pitch and the residue obtained by distg. natural or synthetic fatty acids such as those obtained by the limited oxidation of paraffin may be used. In an example, steam-refined cylinder oil 51.5 is heated to about 160° F., cottonseed-oil pitch of m.p. 86° F. is added, the mixt. stirred, free tallow acids 21.9 and prime tallow 20 are added and a 40° Be. NaOH soln. contg. NaOH 6.75 lb. is added, the temperature being gradually raised from 160 to 225° F. and then rapidly to 500° F. and maintained there 30 to 60 min. to render the grease anhyd. The cooked grease is withdrawn from the bottom into molds.

Soap. Benjamin H. Thurman (to Refining Inc.). U. S. 2,146,661. A process of making soap comprises passing a mixt. of reagent such as NaOH soln. and fat contg. undesirable impurities through a heating zone in which a substantial proportion of said fat is saponified to form reaction products including soap, glycerol, and other undesirable impurities; removing the glycerol and the other impurities from a mass of the reaction products to form a purified soap contg. considerable moisture; pumping a stream of the purified soap through a second heating zone under pressure; introducing this heated stream of purified soap into a sepg. chamber in which the pressure is below the pressure existing in at least a portion of the second heating zone; controlling the amt. of heat added during passage through the second heating zone so that at the pressure existing in the sepg. chamber at least a portion of the moisture in the stream of purified soap is in the form of vapor; and separately removing the vapor and the soap from the sepg. chamber. An arrangement of app. is described.

Fatty acids. Charles E. McCulloch to Foster Wheeler Corporation. Ger. 672,225. Satd. or partly satd. fatty acids are obtained from unsatd. animal or vegetable oils or fats by hardening the oils or fats in known manner by catalytic hydrogenation under high pressure and passing the hardened products directly, without intermediate sepn. of catalyst, to an autoclave in which they are sapond., preferably by reaction with water.

Process of producing soap. Victor Mills to Proctor and Gamble. U. S. 2,159,397. That method of preparation of soap, which consists in continuously forming fatty acids from fats at high temperature and pressure by hydrolysis using an excess of water over that required for hydrolysis and by control of temperature during hydrolysis controlling the water dissolved in the resulting fatty acid to a definite percentage, then without substantial reduction of temperature and pressure or exposure of the fatty acids to oxidation combining said fatty acids with alkali solutions in combining proportions and containing a definite percentage of water the total combined water being maintained in a state of flow, and finally discharging the resulting soap at a temperature between 250 and 400° F. into a zone of lower temperature and pressure.

Purification of glycerol water. G. S. Petrov. Russ. 46,321. Glycerol water obtained on splitting fats and oils in the presence of sulfonic acids is extd. with a mixt. of petroleum hydrocarbons and amyl alcohol before neutralization. (*Chem. Abs.*)

Soap with glass-like structure. B. N. Tyutyunnikov and A. S. Chernichkina. Russ. 47,389. The fatty mass to be cooled is mixed with high-mol. satd. org. acids or their esters which have been preliminarily oxidized with peracids or their salts. (*Chem. Abs.*).

Organic mercury compound. Carl N. Anderson to Lever Bros. U. S. 2,155,922. The method of preparing an organic mercury compound wherein an aromatic mercury group is linked with a compound containing an -NH group by replacement of the hydrogen of the -NH group, which comprises reacting in an inert liquid medium a compound containing an -NH group in which both bonds thereof are joined to a bivalent residue, with a soluble aromatic mercury carboxylate of a soluble carboxyllic acid in which mercury is directly connected by one of its valences to the acid radical in the carboxylate and by its other valence to a nuclear carbon of an aromatic structure in which none of the carbon atoms has direct linkage with any element other than hydrogen, carbon, or mercury.

Extraction of fat acids from spent lye. M. M. Nikiforov and L. A. Magnitskii. Russ. 47,767. To the hot spent lye is added with agitation fat acids or inorg. acids in such amts. as to have two mols. of the fat acid available per mol. of alkali. The acid soaps sep. are removed. The soln. is treated to recover glycerol. (*Chem. Abs.*).