ABSTRACTS

Oils and Fats

Edited by
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2,100,274-5.—Arrangements of app. for continuous treatment of oil with alkali followed by centrifuging in order to refine the oil are described. U. S. patents 2,100,276-7 modifications of the above app.

Process of preparing fat and oil splitting enzyme from plant seeds. B. Takamiya. U. S. 2,102,101.—Fat and oil splitting enzymes are prepd. from seeds and plant materials by treatment with 0.6 to 1.2 normal acid. The enzymes split off and can be separated.

Splitting and hydrogenating fats. Hans Kaufmann. Brit. 468,170.—In the production of hardened fatty acids, the oil or fat is first partly hydrogenated or partly hydrolyzed and then in the same app., hydrogenation and hydrolysis are effected together. In an example, 100 lb. sunflower oil is heated to 200° for 2 hrs. with 0.01 lb. Ni as formate in H at 20 atm.; 100 lb. preheated H_2O is then forced into the autoclave which is maintained at 180-220° for 3 hrs. more. (*Chem. Abs.*)

Fat acids. Hans Kaufmann. Fr. 811,797.—Fat acids suitable for soap making are obtained by treating an oil or fat with H in the presence of a catalyst, preferably under a high pressure and to the desired degree, the amt. of water necessary for the splitting being introduced afterward into the same app. In a modification the splitting takes place 1st and the H and catalyst are afterward introduced. (*Chem. Abs.*)

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Soaps

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Carbon dioxide derivatives in soap manufacture. *Soap Perfumery and Cosmetics* **10,** 1045 (1937).—According to a recent Hungarian patent application by Dr. J. Leimdorfer, the use of carbanides is of advantage in soapmaking. Fatty oils and fats may be divided into two groups: (a) castor oil, coconut oil, palm kernel oil type, and (b) tallow, bone fat, sunflower oil type. The former is characterized by easy saponification with strong lye at moderate temperature, and are suitable, inter alia, for Eschweger and transparent soaps. Materials of the second group may, however, be quite as readily used as those of the first for similar types of soap if a carbon dioxide derivative, e.g., carbamide, is incorporated with the fat charge. The products have improved wetting and lathering properties, the formation of lime soap is prevented, and the soaps generally have better texture, appearance, transparency, etc. By way of example, the following recipe may be used: 50 parts tallow and 50 parts olive oil are emulsified in a solution of 15.8 parts caustic soda and 7.5 parts carbamide (urea) in 43 parts water at 38° C. and the emulsion is poured into moulds to set.

Descha system of saponification. J. Schaal. *Soap Perfumery and Cosmetics* **10,** 1046 (1937). (*Fette u. Seife* **44,** 55-7.)—A new boiling process for soap base and curd soaps. Some further details of this method are given. It was first introduced by the author in 1933, and, as is probably well known, it provided a means for very rapid saponification—in about two hours—yielding a soap which answered all requirements for high quality. In fact, it was claimed that the product could be immediately milled into good class toilet soap, owing to the large content of glycerin left in the soap, imparting valuable cosmetic properties. Some further details are now given of the process which has been modified to meet the growing scarcity of glycerin in Germany and the new regulations governing the use of neutral oils and fats in soapmaking. In its modified form the Descha process now leaves little or no glycerin in the soap. Under the older method it was possible to produce from 100 kilos of neutral fat about 132 kilos of soap. The new method is described in detail.

Practical soap making. I. Manufacture of grain soap. H. Manneck. *Fette u. Seifen* **44,** 202-5 (1937).—The modern technic of soap making is reviewed with special attention to the chemistry and colloid chemistry of sapon., salting out and bleaching. **II. Fillers for soaps.** 1. Cl. Bauschinger. *Ibid.* 352-5.—This review mentions the use of neutral salts (e.g., chlorides or sulfates), carbonates, silicates, alkali phosphates, org. materials, (e.g., starch or cellulose derivs.), enzymes and insol. fillers, e.g., talcum. Attention is devoted to the advantages of using water glass and metasilicates as soap fillers. (*Chem. Abs.*)

Moisture in vegetable oil. P. Z. Zaichenko, V. P. Rzhekhin and N. I. Pogonkina. *J. Applied Chem.* (*U.S.S.R.*) **10,** 908-16 (1937).—Shake 10-15 grams of oil with 1-2 grams of 88-90 per cent glycerine in a test tube for 5 minutes, centrifuge for 1-2 minutes, shake again for 2 minutes and again centrifuge for 2 minutes. Withdraw the glycerine from the tube and determine its refractive index. The percentage of moisture in the oil is equal to

$$0.03 + \frac{(760\ [n_0 - n]\ p)}{m}$$

where 0.03 is the correction for the residual moisture in

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oil, n_0 and n are the refractive indexes of glycerine before and after extraction, p is the weight of glycerine and m that of oil. The accuracy of the refractometer method is 0.02 per cent.

The interferometer can be used instead of the refractometer. In that case in the formula 760, n_0 and n are replaced by 0.002, I_1 and I, respectively, which are the number of divisions on the interferometer scale before and after extraction. The accuracy of this method is 0.014 per cent. (*Chem. Abs.*)

Reversed soap. Harry Zimmerman. *Canadian Chem. and Met.* **21,** 367 (1937).—The most recent and interesting development in the search for textile detergents is in the field of "reversed soaps," which are quaternary ammonium compounds with surface active cations. Complex sulfonium and phosphonium compounds are being investigated. The sapamines also belong to this class of reversed soaps. By reacting oleic acid with unsymmetrical diethylethylene diamine, a product is obtained which is claimed to foam in a concentration as low as 1 to 2,000,000. These reversed soaps will precipitate ordinary soap and other compounds containing surface-active anions. They will improve the fastness of dyeing to perspiration and water, although in some cases they render the dyeing less fast to washing. Results have been obtained which may lead to a new technique in dyeing. (*Soap.*)

Oxygenated soap powder. A. N. Ghose. *Indian Soap J.* **4,** 88 (1937).—Soap powders which incorporate ingredients containing active oxygen such as peroxides, are made by mixing powdered dry soap and the powdered per compound, with or without the addition of other dry detersive substances. These oxygenated soap powders should be finely ground, otherwise the peroxides remain unmixed and may be deposited on textiles, causing serious damage. A method for overcoming this difficulty is as follows:

Grind the soap powder intimately with the oxygen compound and then convert it to flake form by adding water and pressing through rollers by means of a suitable mechanism. These small flakes prevent separation of soap and peroxide, thus reducing the danger of injuring fabric.

The oxygen-liberating per salts should not be used with a soap powder containing less than 30 per cent fatty acid. The proportion of per compound should be limited to 10 per cent. Such products should be stored in a cool dry place to avoid deterioration. (*Soap.*)

Synthetic fatty acid product in Germany. *Soap Gazette and Perfumer* **40,** No. 1, 4 (1938).—A pilot plant established in the spring of 1936 having given satisfactory results, Germany has been developing its commercial production of synthetic fatty-acid from paraffine hydrocarbons. A large commercial plant was recently completed in the Ruhr and is now in regular operation, and reports indicate that additional similar plants will be established as time goes on. The production of synthetic fatty acid is intended solely for technical uses, notably the manufacture of soap, in replacement of vegetable oils and fats hitherto imported from abroad and to relieve the shortage of imported technical oils and fats growing out of the insufficiency of foreign exchange.

Acid resistant metal in the soap industry. *Soap Gazette and Perfumer* **40,** No. 1, 16 (1938).—Various types of acid resistant steel have lately been introduced which have proven of value in the construction of chemical plant, especially that used in fat-splitting, so that temperatures as high as 225-250° C. under a pressure of some 25-30 atm. may be used. In this way something like 2½ tons of fat can be split in about three hours in a steel autoclave without the use of catalysts. It is not possible, of course, to go to a much higher temperature since, although the steel may stand it the fatty acids are liable to decompose at 300° C. A suitable type of plant is briefly described, also distillation apparatus for distilling fatty acids. The same type of steel is used for soap-boiling pans, shredding presses, mixing plant, pumps, etc. It is not necessary to use the resistant steel entirely, for in many cases it is sufficient if ordinary cast iron provided with a lining of the resistant steel is employed. Some of the steels referred to are described: they often contain molybdenum or chromium, and another important class is that which comprises the new nickel steels. The whole subject forms a large and very important chapter in modern metallurgy. (*Fette u. Seifen.*)

Philippines try new method of producing coconut oil. *Soap Gazette and Perfumer* **40,** No. 1, 16 (1938).—A new process of producing refined and edible coconut oil direct from fresh coconut meat without making copra may revolutionize the coconut industry, according to members of the National Research Council. Technologists of the Bureau of Science, who also visited the experimental plant operated by Mr. Vicente Lava in Calumpang, Laguna are less out spoken, says the American Trade Commissioner. It is not quite clear what would be gained by making oil from fresh coconut meat rather than from copra. It would make a clear oil but would seem to be a more expensive process. The more conservative oil millers are not at present concerned over this new method of processing coconut oil.

Spotting in toilet soaps. *Soap Perfumery and Cosmetics* **37** (1938).—According to H. Braun (*Riechstoff Ind. und Kosmetik* **12,** 124-5), spotting in toilet soaps is due to the following factors: excessive dryness; high content of cottonseed oil and/or olive oil; presence of bacteria favored both by impurities in, or certain constituents of, the soap and also by the conditions under which it is stored; inferior dyestuffs; rancid fats; metal impurities and the formation of metal soaps; wrong type of or inferior perfumes. Most of these factors, their origin and full significance, and methods of dealing with them are discussed.

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PATENTS

Soap for removing axle grease, oily inks and colors, varnish and for cleaning clothes. Belg. 420,061, March 31, 1937. L. Moulin.—The soap consists of a hydrated double stearate of K and Na, $CaCO_3$ and aq. glycerol. (*Chem. Abs.*)

Sulfonated glycerine product. Fr. Pat. No. 810,847. Colgate-Palmolive-Peet Co.—A cleansing agent is made by the reaction of 1 molecule of a fatty oil, 2 molecules of almost anhydrous glycerine and more than 3 molecules of fuming sulfuric acid; this product is neutralized. An example is obtained by the reaction of 216 parts of coconut oil, 64 of glycerine and 526 of sulfuric acid (102.8 per cent); the whole is then neutralized with caustic soda solution. The product is used in making soaps, dentifrices, etc.

Improvements in cleansing agents. I. G. Farbenindustrie A.G. (Brit. Pat. 474,518), describe an invention relating to detergents, and more particularly to solid cleansing agents containing alkali metal silicates and intended for use in the form of aqueous solutions. The invention aims at providing solid cleansing agents of the foregoing kind which, when dissolved in hard water, do not exhibit the highly inconvenient precipitation of alkaline earth silicates. To this end there is incorporated with a solid cleansing agent containing alkali metal silicate, an amino acid or salt of an amino acid containing three carboxylic acid groups in similar position per atom of nitrogen, the amino acid or acid salt being preferably present in such amounts that the lime and other salts contained in the water used for preparing and cleansing solution are retained in a dissolved condition. The sodium salt of trimethyl-amine-a, a^1, a^{11}-tricarboxylic acid (Beilstein, 4th Edition, Vol. IV, page 369) has proved particularly suitable for the purposes of the present invention; but similarly constituted acids or salts, such as result from the action of an excess of chloroacetic acid, chloropropionic acid, and the like, on amines such as hydrazine and hydroxylamine, also produce the same effect, though in somewhat smaller degree. (*Perfumery and Essential Oil Record.*)

Removal of unsaponifiable constituents. I. G. Farbenindustrie (Brit. Pat. 474,476), have found that soaps free from unsaponifiable constituents can be obtained from mixtures containing fatty acids and unsaponifiable constituents by saponifying the mixture with an alkali and treating the product with organic solvents capable of dissolving organic substances after distilling off a part of the unsaponified constituents. Suitable initial materials are the oxidation products of paraffin hydrocarbons. Other mixtures such as sperm oil may also be used. (*Perfumery and Essential Oil Record.*)

Soap from wool grease. Brit. Pat. 470,715 relates to the manufacture of soap from the wool grease recovered from suds discharged from wool washing factors. Crude soap is first prepared by saponification with caustic soda, a volatile solvent is then passed through the crude soap to extract the unsaponifiable matter.

The crude soap powder may be extracted with a solvent which does not cause swelling of the particles and for this purpose ketones such as acetone have been found satisfactory. Aids to the extraction of the crude soap in finely powdered form by the cheaper solvents such as benzene without causing swelling have been found to consist in the addition of certain low melting point salts or substances in proportions of 2-3 per cent. (*Perfumery and Essential Oil Record.*)

Edible tasteless emulsifying agent. U. S. 2,095,955, Oct. 19. Harry Bennett and Felix Braude (to Harry Bennett).—As an emulsifying agent there is used an ester of a polyhydric alc. such as glycerol or diethylene glycol with a higher fatty acid having a C content above 5, such as oleic or stearic acid, with an excess of the fatty acid, and a buffer such as boric acid or a sol. borate or mono- or di-Na phosphate for maintaining the compn. acid or neutral in the presence of water at temps. up to 100°. (*Chem. Abs.*)

Detergent compositions. U. S. 2,097,737. Oscar A. Pickett and Arthur L. Osterhof (to Hercules Powder Co.).—Clear liquid detergents comprise 50-80% of a mixt. of an alkali metal soap and an aliphatic amine soap or sulfonated oil or both (of which mixt. the soap comprises 50-95%), together with pine oil 10-45% and water 5-30%. (*Chem. Abs.*)

Soap and glycerol. U. S. 2,096,188, Oct. 19. Henry W. F. Lorenz and Frederick W. Brown (one-third each to Henry W. F. Lorenz, Theodore M. Sewards and Charles H. Wilson).—An anhyd. soap and glycerol are produced in a reaction chamber (of a described app.) through which superheated steam is continuously passed, by spraying an unsapond. mixt. of fat or oil and a caustic alkali soln. into contact with the superheated steam. Cf. C. A. **31**, 6044. (*Chem. Abs.*)

Process for rendering textiles water-repellent. U. S. 2,092,702, Sept., 1937. A. Nathansohn, assignor to the firm Studiengesellschaft fur Faserveredelung m. b. H., Berlin, Germany. Application June 25, 1935, Serial No. 28, 356. In Germany July 3, 1934.—A process of rendering textiles repellent to water, which includes the steps of treating the same with an emulsion of an anhydride of high molecular fatty acid in an aqueous solution of a stable soap, and heating for substantially 15 to 60 minutes to a temperature of substantially 70 to 150 degrees C., the said soap being characterized in stability by its resistance to decomposition at the temperature of heating. (*Rayon Textile Monthly.*)