Abstracts

Oils and Fats

Edited by
M. M. PISKUR and SARAH HICKS

SENEGAL, THE PEANUT COUNTRY. J. Adam. *Oléagineux 1,* 61-7 (1946).

FATTY AMINES. A NEW COMMERCIAL CHEMICAL FAMILY. K. E. Johnson (Armour and Company, Chicago, Ill.). *Chem. Industries, 59,* 838-40 (1946). Characteristics, composition, manufacture, properties, and uses are discussed.

METHOD FOR DETERMINING THE GUMS IN OILS, DEPENDING ON THEIR SURFACE PROPERTIES. P. Desnuelle, O. Micaelli, and M. Naudet (Faculté des Sciences, Marseille). *Inds. corps gras 2,* 240-6 (1946). Methods of evaluating the degree of refining of an oil by means of surface tension (I) and foam stability were found to be only simple tests as to whether an oil was refined, for on addition of one crude oil to a refined oil, these characteristics appeared in appreciable value simultaneously and suddenly on addition of 2% of the former and remained practically constant with higher concentrations of the crude oil. This suggested that gums form a stable surface layer on the oil; this surface layer is apparent by appearance of a high I and the amounts of crude oil necessary for the formation of this layer on refined oil should be a function of the amount of gums in the added crude oil. Method: to 15 c.c. of a refined oil standard in an 8 cm. diameter crystallizing dish add a weighed amount of sample, stir, and while maintaining at 20° test for development of a high I with a Pt surface tension ring (0.3 mm. diameter of wire, 12 mm. diameter of ring). The operation is repeated until presence of a high I surface layer is evident. As an example of expressing the criterion, when a positive value is not obtained on addition of 1.2 g. of oil, but was positive at 1.4 g. the value of 1.3 g. is considered the end-point. By means of the equation $d = 10/p$, where p is the amount of crude oil (1.3), the figure 7.7 called the dilution index (II) of the oil is obtained. In tests on peanut oils the II was found to be a function of the amount of gums present in the oil. Tests on several peanut oils yielded II's of 2.8-66 for pressure extracted and 0.8-33 for solvent extracted products. The index is a useful criterion for evaluating efficacy of refining methods. Some preliminary investigations of the surface film caused by the gums indicated that this film has a viscosity 50-60 times that of the lower adjacent zone.

SOME ASPECTS OF THE NEUTRALIZATION OF PEANUT OIL WITH ALKALIES. P. Desnuelle, O. Micaelli, and M. Naudet (Lab. National Matières Grasses, Marseille). *Inds. corps gras 2,* 304-9 (1946). The losses during refining of peanut oil were investigated using (A) a modified Am. Oil Chem. Soc. refining cup test, (B) analysis of foots (per Vizern and Guillot), and (C) dilution value (see above abs.). The modification of the refining cup test comprised salting out the foots with 18 Bé NaCl solution and separating the foots from the refined oil with the aid of a centrifuge. The losses determined by B were less than those of Method A. In analysis of several mixtures of crude and refined oils the losses were influenced by the content of nonglyceride material as determined by C. For oils of the same acidity the glyceride losses were proportional to C. The data from B were used to calculate a neutralization value (D). This $D = 1 + (d - e - \alpha)/(e - \alpha)$ where d is the weight of the dried petroleum ether extract of H_2SO_4 hydrolyzed foots, e the weight of the fatty acids in the foots and α the weight of the fatty acids before the H_2SO_4 decomposition. Plotted values of D against C for oils of various acidities showed that the refining loss of an oil can be foretold when the acidity and C of the oil is known. The authors believe that C is a measure of substances in the oil that accumulate at the oil-air interfaces, and is also proportional to the glyceride losses caused by emulsification of the oil in the soap. The C should be of practical importance as a simple means of determining refining losses.

EFFECT OF ANOXIC ANOXIA ON GASTRIC EMPTYING TIME OF RATS FED CORN OIL. P. L. MacLachlan (West Virginia Univ., Morgantown). *Proc. Soc. Exptl. Biol. Med. 63,* 147-8 (1946). Adult albino rats fed corn oil showed an initial acceleration of the emptying of the stomach on exposure to diminished O_2 tension. A decreased rate of absorption of fat in rats subjected to anoxic anoxia cannot be explained on the basis of a prolonged gastric emptying time.

FURTHER EXPERIMENTS ON THE RELATION OF FAT TO ECONOMY OF FOOD UTILIZATION. I. BY THE GROWING ALBINO RAT. E. B. Forbes, R. W. Swift, W. H. James, J. W. Bratzler, and A. Black (Pennsylvania State College, State College). *J. Nutr. 32,* 387-96 (1946). A comparison was made between 3 diets containing 2, 10, and 30% of fat, respectively, these diets being so compounded and fed as to supply to each rat of a litter—three, and therefore to each group of 12, the same quantities of energy, protein, and vitamins. Determinations were made of gains in live weight, *N*, fat and energy, and of the heat production for 70 days as the energy of the food minus the energy of the excreta and of the body gain. The statistically significant results were body gains of fat and energy, and decrease in the heat production, in the order of the increasing fat contents of the diets. II. BY THE MATURE ALBINO RAT. *Ibid.* 397-403. The fat content of the diets had little effect on *N* utilization, but with the supermaintenance food intake there was slight increase in urinary *N* and decrease in *N* retention in the order of the increasing fat content of the diets. There were slight decreases in metabolizable energy and larger decreases in heat production in the order of the increasing fat contents of the diets, the fat component, therefore, conferring economy of utilization of food energy. The heat increments of the dietary supplements containing 2, 10, and 30% of fat, respectively, representing the use of food above maintenance, with voluntary activity excluded, were equivalent to 31, 26, and 16%, respectively, of their gross energy. The decreasing energy expense of utilization of the isocaloric intake of the diets in the order of their increasing fat contents was due mainly to decreasing heat from the catabolism of carbohydrates. No fat was catabolized from the 2%-fat diet, while much heat was produced from fat in the 30% fat-diet. Heat production from fat synthesis occurred in 3 periods in which the carbohydrate intake was highest.

SOUTH AFRICAN FISH PRODUCTS. XXI. RECOVERY OF VITAMIN A IN THE UNSAPONIFIABLE MATTER OF FISH LIVER OILS. M. M. Black, M. Lamchen, W. S. Rapson, H. M. Schwartz, and N. J. Van Rensburg (Univ. Cape Town, S. Africa). *J. Soc. Chem. Ind. 65,* 249-51 (1946). The percentage recovery of vitamin A in the unsaponifiable matters from commercial South African hake, soupfin shark, dogfish, kabeljou, and geelbek liver oils has been determined for a large number of samples and characteristic values for each type of oil have been established. Hake liver oils were exceptional in giving recoveries not significantly different from 100%, while recoveries from the other types of oils averaged from 93-95% and were unaltered when the oils were diluted with vegetable oils such as are employed in margarine compositions. No explanation of the different recoveries is given, but possible causes are discussed.

EFFECT OF LONG CHAIN FATTY ACIDS ON BACTERIAL GROWTH. R. J. DuBos (Rockefeller Inst., New York City). *Proc. Soc. Exptl. Biol. Med. 63,* 56-8 (1946). At equal concentrations of long chain fatty acids, the water soluble esters are more efficient than the corresponding soaps in supporting bacterial growth. It appears worth pointing out at this time that, under the proper cultural conditions, the amount of growth yielded by *micrococcus C* seems to be directly related to the amount of unsaturated fatty acids present in the medium (between 0.00001 and 0.0001%). This property suggests that the culture might lend itself to the development of a microbiological assay method for these lipids.

FATE OF SODIUM RICINOLEATE AFTER ORAL ADMINISTRATION TO WHITE RATS. E. L. MacQuiddy, E. Pinkerton, H. Goetze, and F. W. Oberst (Univ. of Nebraska, School of Med., Omaha). *J. Lab. Clin. Med. 31,* 763-8 (1946). Na ricinoleate (0.5 g.) was administered to white rats for 2 months either by stomach tube or by feeding it in the daily diet. Absorption studies indicate that orally administered Na ricinoleate is almost completely absorbed from the gastrointestinal tract of rats during a period of 24 hours. The rate of passage of an indicator, animal charcoal for instance, through the intestinal tract of rats is considerably retarded by the oral administration of Na ricinoleate. (*Chem. Abs. 40,* 6168).

FURTHER EVIDENCE FOR METHYLATABLE PRECURSORS OF CHOLINE IN NATURAL MATERIALS. H. L. Lucas (Univ. North Carolina, Raleigh), L. C. Norris, and G. F. Heuser. *Proc. Soc. Exptl. Biol. Med. 63,* 32-3 (1946). McGinnis and coworkers have suggested that precursors of choline are present in the simplified diet on which methionine and betaine prevent perosis. Jukes and Oleson have suggested that simple precursors of choline might exist in natural foods. The observations reported in the present paper support these views.

AN ANALYSIS OF THE EFFECT OF FAT IN THE DIET ON RECOVERY IN INFECTIOUS HEPATITIS. C. L. Hoagland, D. H. Labby, H. G. Kunkel, and R. E. Shank (Rockefeller Inst. Med. Res., N. Y.). *Am. J. Pub. Health 36,* 1287-92 (1946). No harmful effects were observed to follow the administration of a diet high in fat in patients in whom the intake of protein was kept correspondingly high. The diet high in fat appeared to have decided advantages over the diet low in fat with respect to the maintenance of an adequate caloric intake, particularly in the acute stages of liver insufficiency. Added evidence of the superiority of the high fat, high protein diet was indicated by the results of serial tests of bromsulfalein retention which revealed normal levels for the patients on the high fat, high protein diet earlier than the group on the high protein, low fat regimen.

PATENTS

TREATING OILS AND FATS. B. H. S. Chappell. *U. S. 2,410,427.* Roasted coffee is treated at a temperature below 200°F. with infrared rays to stabilize the oil constituents and thereby preserve the flavor.

APPARATUS FOR USE IN THE HYDROGENATION OF OILS. L. H. Manderstam and L. W. Warner. *U. S. 2,410,670.* The apparatus is designed to be continuous. It comprises a group of hydrogenating tubes in a temperature controlling chamber and the necessary means of adding H_2, oil, catalyst, etc.

HYDROGENATED OIL FOR DIELECTRIC USAGE. F. M. Clark (General Electric Co.). *U. S. 2,410,715.* The composition comprises about 1-60 parts of aromatic sulfone and 99-40 parts of hydrogenated castor oil.

IMPARTING SCROOP TO TEXTILES. S. Kaplan (Onyx Oil & Chemical Co.). *U. S. 2,410,382.* Emulsions of certain esters of higher fatty acids are used to impart scroop to textiles, and particularly knitted rayon. These emulsions are of the oil-in-water type with the disperse phase comprising a mono-ester of a fat acid or a mixture containing the same, with ethylene or propylene glycol, the continuous phase being an aqueous medium containing a gum, gelatin, or the like.

FATTY AMIDE POLYMERS. W. L. Morgan and E. D. McLeod (Arnold, Hoffman & Co., Inc.). *U. S. 2,410,-788-9.* This invention provides a new class of textile assistants such as wetting, softening, lubricating, waterproofing, and stiffening agents having improved properties. The products are resinous or semi-resinous materials in which dialkylol substituted carbamido compounds carrying side chains containing polyamido acid amide radicals are linked together by reaction with polybasic acids.

CONCENTRATION OF FAT-SOLUBLE VITAMINS. E. M. Shantz (Distillation Products, Inc.). *U. S. 2,410,590.* The process comprises reacting a glyceride fat which contains a fat-soluble vitamin with approximately stoichiometric amounts of primary amines, secondary amines, or quarternary ammonium bases, until all the fatty acids of the glyceride have combined therewith and then solvent extracting the vitamin in concentrated form from the reaction mixture.

PRESERVING VITAMIN-CONTAINING OILS. S. Musher (Musher Foundation, Inc.). *U. S. 2,410,455.* The process comprises adding the fish oil slowly to blackstrap molasses with agitation, passing through a colloid mill and then heating to 245°F. for 15 minutes, whereby marked enhancement in stabilizing activity is obtained.

STABILIZING, BLEACHING, AND HYDROGENATING OIL. W. J. Paterson (Lever Bros. Co.). *U. S. 2,410,102.* A process for hydrobleaching glyceride oils to form edible products having a minimum of unsaponifiable components and an improved color and stability comprising treating the oil at 130-250° with H_2 under pressure of 100 atmospheres, for not greater than 60 minutes and in the presence of not more than 0.5% of a catalyst having the general formula X--Y--O, in which X represents Cu or Ag, and Y represents Cr, V, W, or U.

ADHESIVE COMPOSITION. C. W. Johnson (E. I. du Pont de Nemours & Co.). *U. S. 2,410,414.* The resin comprises a homogeneous mixture of a polyvinyl acetal resin in which the hydroxyl content is 10-20% and 2-30% of an organic complex of the Werner type in which a trivalent Cr atom is coordinated with a fatty acid.

PLASTICIZERS. W. L. Morgan (A. E. Staley Mfg. Co., and American-Maize Products Co.). *U. S. 2,410,124.* A plasticized "prolamine-base" composition of matter comprises alkyl branched-chain organic fatty acid in which the total number of C atoms in the molecule is in the range from 4-18, inclusive, and "prolamine-base" protein.

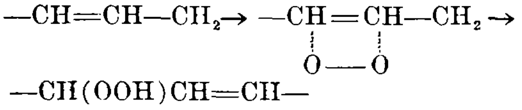
METAL SOAP GELS. H. C. Meyer (Foote Mineral Co.). *U. S. 2,409,950.* Alkaline earth metal salts of saturated cyclic hydrocarbon carboxylic acid are added to metallic soap gels, *i.e.*, lubricants, to reduce the syneresis tendency.

Abstracts

Drying Oils

Edited by
HOWARD M. TEETER

THE AUTOXIDATION OF METHYL OLEATE IN THE PRESENCE OF SMALL PROPORTIONS OF METHYL LINOLEATE. F. D. Gunstone and T. P. Hilditch (Univ. Liverpool). *J. Chem. Soc. 1946,* 1022-5. The autoxidation of Me oleate is strongly accelerated, and the induction period much reduced, in the presence of 1% of Me linoleate at 20°, or of 2% of the ester at 50°. The oxidation of the Me oleate is catalyzed by hydroperoxides resulting from the union of O_2 and Me linoleate. Further consideration has been given to the mechanism of addition of O_2 to systems such as $-CH_2-CH=CH-CH_2-$ and $-CH_2-CH=CH-CH_2-CH=CH-CH_2-$. It is now suggested that O_2 molecules are primarily attached to an ethenoid bond and not to an adjacent CH_2 group. Hydroperoxide formation takes place finally with formation of a new ethenoid bond:



$$-CH=CH-CH_2 \rightarrow -\underset{\substack{\vdots\qquad\vdots\\ O-O}}{CH=CH}-CH_2 \rightarrow -CH(OOH)CH=CH-$$

This view is consistent with Bergstrom's failure to isolate 11-hydroxystearic acid from hydrogenated Me linoleate hydroperoxide. Me oleate hydroperoxide would yield on this basis 9- and 10-hydroxystearic acids and not the 8- and 11- isomers. The oxidative scission products of autoxidized Me oleate would be the same in either case.

MANGANESE AND COBALT COMPOUNDS AS DRIERS IN LINSEED OIL. A. Lund (Univ. Kjem. Inst., Oslo). *Skrifter Norske Videnskaps-Akad. Oslo I. Mat.-Naturv. 1944,* No. 3, 116 pp. The autoxidation rate of the linseed oil with Mn and Co catalysts was studied by 3 methods: (1) measurement of pressure changes in a closed bottle having its walls wet with the oil; (2) measurement of change in weight of glass plates coated with the oil and plotting of Wegner curves; (3) measurement of set-to-touch time (finger method) of coated glass plates. Oils containing trivalent Co and Mn dried much more quickly than oils containing divalent Co and Mn. The catalytic power of di- and trivalent Cr, Fe, Co, Mn, and Ni is dependent upon the reducibility from the trivalent state, which increases in the above order, and upon the proportion of the metal present in the trivalent state, which decreases in the same order. According to the product of the 2 factors the catalytic power increases from Cr to Co and then decreases to Ni. Oils containing active peroxides convert Mn and Co soaps into substances which are no longer effective driers. The presence of these inactive compounds is one of the main reasons for the failure or decrease in drying power of linseed oils containing driers. It is assumed that catalysts in the trivalent complex form combine with the oil molecules by means of covalent bonds, and that these compounds react within the general conception of ordinary catalysis. The resulting peroxide is still in possession of the reaction energy and initiates a Christiansen reaction chain, while the catalyst splits off in its trivalent form. 91 references. (*Chem. Abs. 40,* 6837-8.)

DRYING RESIN OILS. R. Lombard. *Peintures, pigments, vernis 21,* 292-6 (1945). Decarboxylation of rosin forms rosin oil which contains abietene (I) and its disproportionation product, pyroabietene (II). Catalysts such as H_3PO_4 favor formation of I, while catalysts such as metal powders favor formation of II and others such as $ZnCl_2$ or acid oxides cause deep-seated changes (rupture of rings, removal of side chains, condensation, polymerization, etc.). The drying of rosin oil is best when the content of I is high. An average rosin oil dries in 24 hours in thin films, with a large amount of drier. The films are yellow and not suitable for exterior use without addition of linseed oil. Rosin oils are suited for indoor paints, grinding, printing inks, and putty. (*Chem. Abs. 40,* 6836.)

TALL OIL ESTERIFIED WITH PENTAERYTHRITOL. B. Widegren. *Tek. Tid. 74,* 153-8 (1944). Tall oil of varying resin content was esterified with pentaerythritol and the esters were made into varnishes with a modified phenolic resin. All varnishes are fast drying. In general, the higher the resin content of the tall oil, the faster the drying but the more rapid the decrease in water and weather resistance. It is indicated that carrying deresinification of the tall oil too far may impair all the properties of the oil. (*Chem. Abs. 40,* 6841.)

THE DETECTION OF WOOD OIL. G. Zeidler (Unters.-Forschungs-labor. Lacke Farben, Berlin). *Farben-Ztg. 47,* 294-6 (1942). *Chem. Zentr. 1944 II,* 378-9. When H_2SO_4 is dropped onto wood oil or wood-oil mixtures, brown polyhedral figures appear on the surface. As little as 10% wood oil can be detected in mixtures of stand oils and lacquers by this method. Oiticica oil and Trienol also give positive results. The extraction of the nongelatinized fraction from gels of mixtures of wood oil and other oils does not give satisfactory results. (*Chem. Abs. 40,* 6841-2.)

DRYING OIL OF PARINARIUM MACROPHYLLUM. A. Sosa. *Rev. botan. appl. agr. trop. 25,* No. 275-6, 19-24 (1945). From the kernels of *Parinarium macrophyllum,* plentiful in Senegal, is obtained a nearly colorless drying oil with properties similar to those of aleurites oil. The highest yield of oil, obtained by extraction with cold ether, is 61.5-63%. Though this oil dries less quickly than aleurites oil, gives a friable film, displays syneresis, and is difficult to process, it is nevertheless, after appropriate polymerization, usable for the preparation of varnishes, under-water paints, lithographic inks, and plastics. (*Chem. Abs. 40,* 7656.)

THE SEED OIL OF THE SAFFRON THISTLE (*Carthamus lanatus L.*). H. H. Hatt and W. J. Troyahn. *J. Council Sci. Ind. Research 19,* 86-95 (1946). The seeds of the saffron thistle contain 16% of an oil extractable by petroleum ether. The extracted oil is pale yellow and has the properties of a useful drying oil. It has an I no. 138 and a (SCN) no. 78-79, and dries to hard pale films. The chief acids present as glycerides are linoleic (70.4%), oleic (12.4%), palmitic (7.5%) and stearic (6.6%). The oil is almost identical with safflower oil.

PROTECTIVE COATINGS AS ENGINEERING MATERIALS. J. J. Mattiello (Hilo Varnish Corp., Brooklyn). *Am. Paint J. 31,* No. 10, 64-5, 68, 70, 72, 74, 76, 78 (1946). A review.

RECENT DEVELOPMENTS IN DRYING OIL EMULSIONS. L. A. Paxon. *Paint 26,* 368-70 (1946). A discussion of pigments and extenders, protective colloids, emulsifying agents, drying oil vehicles, manufacturing technics and continuous oil film emulsion paints is presented. 16 references.

THE AUTOXIDATION OF THE METHYL ESTER OF LINOLEIC ACID. S. Bergstrom. *Arkiv. Kemi, Mineral., Geol. 21A,* No. 14, 1-18 (1945). The autoxidation of linoleic acid with lipoxidase. *Ibid. 21A,* No. 15, 1-8 (1945). (*Chem. Abs. 40,* 6411.)

OITICICA OIL. O. Eisenschiml (Scientific Oil Compounding Co., Chicago). *Am. Paint J. 31,* No. 10, 60, 62 (1946).

TUNG OIL. S. R. Greer (Mississippi State College). *Soybean Digest 7,* No. 1, 14-15 (1946). The article describes the production of tung fruits.

PATENTS

DRYING OIL MANUFACTURE. A. Schwarcman (Spencer Kellogg and Sons, Inc.). *U. S. 2,412,177.* An improved drying oil capable of bodying rapidly to a fast drying product is manufactured by heating a fatty drying oil with 1-7% of a polyhydric alcohol until reaction is substantially complete and esterifying the product with 1-7% of a polybasic acid to form an oil of low acid number.

TREATMENT OF POLYUNSATURATED ESTERS WITH POLYTHIOLS AND PRODUCTS PRODUCED THEREBY. W. J. Burke (E. I. du Pont de Nemours and Co.). *U. S. 2,411,954.* A polymeric addition product is formed by the reaction of a monomeric hydrocarbon polythiol and a polymeric polyunsaturated ester of a polyhydric alcohol with an unsaturated acid.

INFRARED TREATMENT OF OILS. W. A. Waldie and H. A. Toulmin (New Wrinkle, Inc.). *U. S. 2,411,767.* An oil such as tung oil or crude oiticica oil is exposed to infrared radiations of such intensity that bodying time is substantially reduced.

METHOD FOR PRODUCING ALKYL ESTERS OF HIGHER FATTY ACIDS. F. H. Goyer and C. E. Fawkes (Continental Research Corp.). *U. S. 2,411,536.* Tall oil is treated with an excess of low molecular weight monohydric aliphatic alcohol in the absence of a catalyst, at a temperature between the boiling point and 200°, and under pressure. The reaction is discontinued as soon as the fatty acids are esterified and before esterification of the rosin acids begins.

Abstracts

Soaps

Edited by
LENORE PETCHAFT

THE DETERMINATION OF FAT ACIDS IN SOAPS. Giacomo Bionda. *Ann. chim. applicata 34,* 43-6 (1944). The soap is decomposed by an acid salt ($NaHSO_4$). The method is proposed for the examination of soaps containing silicates, bentonite, etc. (*Chem. Abs. 40,* 7663.)

THE DETERMINATION OF FAT ACIDS IN EASILY EMULSIFIABLE SOAPS AND IN THE "UNIFIED" TYPE OF SOAPS. F. Muscari. *Riv. ital. essenze profumi 27,* 137 (1945). For decomposing the emulsion formed in the determination of fat acids in soaps containing starch, clays, etc., it is proposed to add to the Et_2O solution in the separatory funnel, a little anhydrous Na_2SO_4 (about 20 g. per 10 g. soap). (*Chem. Abs. 40,* 7663.)

DETERMINATION OF SOAP, FREE FAT, AND MINERAL OIL IN GREASE; CHEMICAL AND GENERAL TESTS. Gus Kaufman, *et al.* (The Texas Co., New York, N. Y.). *ASTM Bull. No. 141,* 54-6 (1946). A modified A.S.T.M. method for analysis of grease, under investigation by Technical Committee G, is described. Instead of being decomposed with HCl, the grease is dissolved in inert solvents such as hot benzene and alcohol. A qualitative test for soap is specified, because the customary ash analysis is incorrect in the presence of fillers. The naphtha solution of the mineral oil, which may contain small amounts of soap, is acidified to convert any soap which may be present into fat acids, which, as such, will not influence the viscosity of the oil. The greases containing asphaltic or tarry material are decomposed with HCl instead of granular $KHSO_4$ and rinsed with small quantities of warm benzene. Data are given on cooperative tests carried out by some 8 laboratories for the determination of soap, free neutral fat, and mineral oil in samples of grease. (*Chem Abs. 40,* 7666.)

TITANIUM WHITE IN SOAPS. Th. Ruemele. *Allgem. Oel-u. Fett-Ztg. 37,* 146-8 (1942). *Chimie & industrie 47,* 91 (1942). A discussion of the merits and advantages of titanium white over other pigments, particularly zinc white is presented. (*Chem. Abs. 40,* 6835.)

ARTIFICIAL SOAPS AND THE PROBLEM OF WASHING. Ch. Meurice. *Ing. chim. 27,* 114-29 (1943). The theory of emulsions, electrophoresis, the principal characteristics of soaps, and the mechanism of washing are reviewed. (*Chem. Abs. 40,* 7660.)

Orientation of research in the use of fats. I. Cation-active soaps. Jean Ripert (Lab. Soc. Thibaud-Gibbs, La Plaine Saint Denis). *Corps gras savons 1,* 39-42 (1943). Following a report on the consumption of fats in France, the constitution and properties of active-cation soaps (aliphatic, cyclic, heterocyclic, and other derivatives of fat acids) are briefly reviewed, and the use of these compounds in the textile and medicinal fields is discussed. II. Non-ionizing active substances. *Ibid.* 143-5. The chemistry and application of various compounds (*i.e.*, phosphatides, saponins, condensation products of ethylene oxide with amino acids, fat acids, and alcohols, etc. now used as detergents or detergent aids are discussed. (*Chem. Abs. 40,* 7659.)

Alkyl aryl sulfonates. Lawrence H. Flett (National Aniline Division Allied Chemical and Dye Corp., New York). *Soap Sanit. Chemicals 22,* No. 12, 46-8, 167-8 (1946). The alkyl aryl sulfonates with alkyl groups of 10-16 C atoms are washing and foaming agents. They can be made by combining alcohols, olefins, or chlorides with benzene, phenol, or other aromatic compounds to give products which are easily sulfonated. Increase in industrial applications of these products has occurred because of such properties as speed and ease of washing, ready solubility, stability, effectiveness in cold water, deodorizing and antibiotic effects, and effectiveness at extremely low concentrations. Studies of wool and cotton washing are compared and reveal the efficiency of these compounds for wool. Commercial uses are reviewed. These include all forms of building cleaning and sanitation, rug cleaning, dishwashing, and vegetable washing.

Critical concentrations for micelle formation in mixtures of anionic soaps. M. L. Corrin and W. D. Harkins (Univ. Chicago). *J. Colloid Sci. 1,* 469-72 (1946). It appears likely that the micellar structure in solutions containing a mixture of soaps is determined by the relative tendency of the constituents to aggregate. If this tendency is quite dissimilar the soap with lower aggregation value tends to act as a salt toward the other soap. This effect is observed over only a portion of the composition range of the mixture. If the 2 soaps have approximately the same tendency to aggregate, neither exerts a salt effect upon the other.

Bactericidal properties of some surface-active agents. W. S. Mueller, E. Bennett, and J. E. Fuller (Massachusetts Agr. Exper. Sta.). *J. Dairy Sci. 29,* 751-60 (1946). Of the 42 surface-active agents investigated, only the quaternary ammonium and phosphonium compounds had sufficient germicidal properties and stability for a good sterilizing agent for dairy use. The quaternary ammonium compounds go into solution readily, are practically non-corrosive to metals, odorless, tasteless, and colorless, all of which are desirable properties. The phosphonium compounds also are non-corrosive to metals and have no serious objectionable odor or taste, but they do not go into solution readily and produce cloudy solutions, which are undesirable properties.

Testing the quaternary ammoniums. A. S. DuBois (Onyx Oil and Chemical Co.). *Soap Sanit. Chemicals, 22,* No. 11, 125, 127, 129, 131, 139, 141 (1946). A review of the methods currently in use for the estimation of high molecular quaternary ammonium compounds.

Biological properties of cation-active soaps. J. Rippert (Institute Technique d'Études, France), and J. Sisley. *Soap Perfumery Cosmetics 19,* 834-42, 854 (1946). Amines, substituted pyridine salts, trade products, detergency, potency, bactericidal and therapeutic properties, and antibiotic action are discussed.

PATENTS

Continuous manufacture of soap. Leopold Sender (The Sharples Corp.). *U. S. 2,411,468.* A continuous method of making soap with the aid of centrifugal separator, and bringing it into a state of uniform dispersion. The mixing step, saponifying reagent with fat, is divided into 2 steps with step of aging interposed between them to facilitate subsequent centrifugation.

Laundry detergent. Edwin S. Garverich and William L. Martin (Pennsylvania Salt Manufacturing Co.). *U. S. 2,411,090.* Laundry detergents and break compositions are prepared from alkaline metal silicates, phosphates, etc., clay and fatty material (including tall oil) in such a manner that substantial reaction takes place between the alkalies and the clay and fatty materials.

Soap stabilization. Lyle J. Lofdahl (Industrial Patents Corp.). *U. S. 2,411,443.* A small amount of stannic borate is added to soap to guard against deterioration and color formation.

Composition for cleaning dentures. F. D. Snell and K. W. Haeseler (Foster D. Snell, Inc.). *U. S. 2,409,718.* A denture cleaning composition comprises dry free flowing powder of the following ingredients: Na salt of 2,2′-dihydroxy-3,5,6-3′,5′,6′ hexachlorodiphenylmethane, Na perborate, tetrasodium pyrophosphate, Na lauryl sulfo-acetate, and $Ca_3(PO_4)_2$, and NaCl as diluent.

Wetting agent. J. Faust (L. Sonneborn Sons, Inc.). *U. S. 2,409,671.* A new substantially oil-soluble polyalkyl aromatic sulfonate consists of an oil soluble polyamyl naphthalene sulfonate having one metal sulfonate radical carried by an unalkylated position of the aromatic ring and having at least 3 amyl radicals.