min ester concentrate comprises saponifying 10-60% of the glycerides present in a fat-soluble vitamin-containing marine oil, separating the unsaponified fraction from the saponified matter, contacting the unsaponified fraction with isopropanol, cooling the mass to a temperature within the range of 0° to —70° to cause layer formation and separating the isopropanol layer containing the extracted vitamins from the isopropanol-insoluble portion of said fraction.

Process of refining marine oils. L. O. Buxton (National Oil Products Co.). *U. S. 2,380,411.* A process of refining a fatty material comprises the steps of saponifying all of the free fatty acids and 10-30% of the glycerides present in a fish liver oil, separating the unsaponified oil from the resulting soap and extracting the soap-free oil at a relatively low temperature with isopropanol containing at least 9% water to remove odor, taste and color bodies.

High iodine value oils. L. O. Buxton (National Oil Products Co.). *U. S. 2,380,412.* The process of producing high I value oils from fish oils comprises selectively saponifying 30-90% of a fish oil by means of an alkali to split saturated glycerides and separating the unsaponified fraction from the resulting soap mass.

Treatment of animal and vegetable oils. L. O. Buxton (National Oil Products Co.). *U. S. 2,380,413.* The process of increasing the I value of animal and vegetable oils comprises partially and selectively saponifying 25-95% of an oil selected from the group consisting of animal and vegetable oils by means of an alkali to split saturated glycerides and separating the unsaponified fraction from the resulting mass.

Fat-soluble vitamin concentration. L. O. Buxton (National Oil Products Co.). *U. S. 2,380,414.* The process of producing an improved fat-soluble vitamin concentrate comprises contacting a fat-soluble vitamin-containing marine oil with aqueous acetone, heating the mixture to dissolve at least a major portion of the oil in the aqueous acetone, cooling the mass to a temperature within the range of 0° to —70° whereby layers are formed, separating the aqueous acetone-insoluble fraction from the mass, saponifying said insoluble fraction and recovering the unsaponified matter therefrom.

Preparation of tocopherols. J. G. Baxter and C. D. Robeson (Distillation Products, Inc.). *U. S. 2,379,420.* The process of increasing the concentration of a tocopherol preparation comprises dissolving the preparation which contains the tocopherol in free form to be concentrated in a relatively weak eluting solvent to form a solution containing approximately 1-20% tocopherol, passing this solution through the body of a weak adsorbent and then eluting the vitamin E from the body of adsorbent with an eluting solvent.

Antioxidant for food. C. W. Lindow and J. J. Thompson (Kellogg Co.). *U. S. 2,382,242.* The method of stabilizing a glyceride oil containing food composition against oxidative deterioration comprises incorporating therewith a relatively small proportion of an agent selected from the group consisting of hops and a water and alcohol soluble extract of hops.

Antioxidants. W. I. Patterson and M. B. Williamson (S.M.A. Corp.). *U. S. 2,380,546.* The process of preparing an antioxidant from rice bran concentrate comprises extracting said concentrate with a halogenated hydrocarbon solvent having a boiling point below 100°, extracting the resulting extract with an aqueous medium under alkaline conditions, re-extracting the thus obtained aqueous extract under acidic condition with said halogenated hydrocarbon solvent and distilling off said solvent from the resulting extract.

Insecticides. T. W. Evans and P. H. Williams. (Shell Development Co.). *U. S. 2,379,223.* An insecticidal composition comprises a carrier and a diallyl amide of a fat acid.

Low temperature greases. J. D. Morgan (Cities Service Oil Co.). *U. S. 2,383,147.* A low temperature grease comprises from 63-88% of a mineral lubricating oil, from 5-30% of an alkyl acetyl ricinoleate, approximately 6% of Li stearate and approximately 1% of Al stearate.

Abstracts

Drying Oils

Edited by
HOWARD M. TEETER

Some oils and oil substitutes. P. H. Faucett. *Paint, Oil, Chem. Rev. 108,* 11, 12, 14, 16, 18, 20, 22-3 (1945). An extensive descriptive discussion of the preparation and properties of synthetic drying oils. (*Chem. Abs. 39,* 3254.)

Alkali-refining of linseed oil. H. R. Touchin. *J. Oil Colour Chem. Assoc., 28,* No. 297, 49-54 (1944). The excess of NaOH added to the oil, multiplied by the time required to get a break-free oil raised to a constant power, was found to be roughly constant. It is suggested that the break is absorbed by the soap formed and that the amount of break present rather than the acid number should be used in determining the amount of NaOH to be added for refining. (*Chem. Abs. 39,* 3254.)

Heat polymerization of oils. N. L. Phalnikar and B. U. Bhide. *J. Indian Chem. Soc. 21,* 313-317 (1944). Safflower, niger seed and olive oil were heated *in vacuo* at 360°-400°. Some of the products present in the distillate and residue were identified. (*Chem. Abs. 39,* 3254.)

Spectrophotometric studies of the oxidation of fats. I. Oleic acid, ethyl oleate, and elaidic acid. R. T. Holman, W. O. Lundberg, W. M. Laner, and G. O. Burr. *J. Am. Chem. Soc. 67,* 1285-92 (1945). When lard is allowed to oxidize in air the ultraviolet absorption increases greatly, and the absorption near 2700 Å is roughly proportional to the peroxide value. However, decomposition of the peroxides by steam caused an increase in absorption in this region. A study of the absorption spectra of individual unsaturated fatty acids was undertaken to determine if any of these are involved in the change of absorption occurring on oxidation of natural fats. The absorption of oleic acid, ethyl oleate and elaidic acid was determined before and after oxidation both in neutral alcohol and in alkaline solution. These substances showed similar behavior, absorption in the region of

2700 Å increasing slowly if measured in alcohol but more rapidly if measured in alkaline solution. Destruction of the peroxides formed gave products absorbing much more strongly at 2700 Å in either alcohol or alkali than the parent oxidized compounds. Decomposition of all peroxides to conjugated trienes and dienes would have produced much larger increases in absorption than were observed. The dihydroxy stearic acids, isomeric 9,10-ketolstearic acids, 9,10-diketostearic, and 9,10-oxidostearic acids were examined in alcoholic and alkaline solutions, both in the absence of and in the presence of oleic acid. These substances were also studied after autoxidation. However, under no conditions could they be responsible for the absorption of oxidized fats in the region of 2750 Å. It is suggested that the increased absorption of the oxidized fats is due in part to conjugated systems containing carbonyl groups or to conjugated polyenes formed by enolization of these systems. II. THE OXIDATION OF DIENOIC FATTY ACIDS. R. T. Holman, W. O. Lundberg, and G. O. Burr. *Ibid.*, 1386-1390. The absorption spectra of ethyl linoleate, linoleic acid, and 10,12-linoleic acid were studied in neutral and alkaline alcoholic solutions before and after oxidation. Autoxidation of each of these compounds is accompanied by an increase in the absorption at 2750 Å which is not directly related to the peroxide value. Oxidation of the conjugated linoleic acid greatly reduced the absorption at 2300 Å. However, the absorption of the oxidized linoleic acid is spectroscopically unlike that of oleic acid. The absorption of acrolein, *alpha*-methylacrolein, mesityl oxide, phorone, crotylideneacetone, and *beta*-ionone, used as reference substances, indicates that the structures represented by these compounds could not account for the absorption of autoxidized linoleic acid. Cool alkali was found to have no effect upon the absorption of conjugated or non-conjugated fresh fatty acids but to produce marked changes in the oxidized products. III. ULTRAVIOLET ABSORPTION SPECTRA OF OXIDIZED OCTADECATRIENOIC ACIDS. R. T. Holman, W. O. Lundberg, and G. O. Burr. *Ibid.*, 1390-1394. The changes in ultraviolet absorption spectra were followed during the oxidation of linolenic acid, ethyl linolenate, elaidolinolenic acid, pseudoeleostearic acid, *alpha*-eleostearic acid and *beta*-licanic acid. In the case of the non-conjugated trienes, oxidation was accompanied by increased absorption with production of maxima at 2350 and 2750 Å. Oxidation of the conjugated trienes decreased absorption in the region of 2600-2800 Å, and increased absorption near 2300 Å and above 3200 Å. Since the spectra of purified fatty acids, conjugated or unconjugated, are not affected by cold alkali, it is concluded that the absorption bands which appear with autoxidation are due to oxygen-containing chromophores.

PATENTS

METHOD OF TREATING VULCANIZED OILS. K. W. Posmansky (Stamford Rubber Supply Company). *U. S. 2,384,491.* In the manufacture of vulcanized oil products from oils, the steps comprise mixing with sulfur and heating until vulcanized to the desired degree and then treating the vulcanized oil at room temperature with ammonia until the hardness of the vulcanized oil is substantially increased.

PLASTIC COMPOSITION AND METHOD OF PREPARING SAME. J. C. Cowan and H. M. Teeter (Secretary of Agriculture). *U. S. 2,384,443.* A process of manufacturing a plastic composition comprises intimately mixing a polyester of a dihydric alcohol and a polymeric fat acid with rubber compounding agents, heating the mixture until it becomes millable and then plasticizing the resulting composition by milling.

Abstracts

Soaps

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FATTY ALCOHOLS. Ernest Stossel. *Soap 21,* No. 8, 38-9, 70, 78 (1945). By catalytic hydrogenation processes, using copper chromite or nickel, any natural fat or mixture of fats can be converted into the corresponding alcohols almost quantitatively. Higher fatty alcohols have been available from natural waxes, from the high pressure hydrogenation of fats and by synthesis from paraffin hydrocarbons and ethylene oxide. The oxidation of paraffins is another possible source, but this process involves the following problems: Attempting to increase optimum yields of alcohols and decrease the amount of by-products formed, the separation of alcohols from undesirable by-products, and selection of appropriate raw material. The yield can be increased by oxidizing in the presence of weak inorganic or organic acids of low molecular weight acids. The separation of the oxidized fraction from the non-oxidized may be effected by distillation or by pressing with or without selective solvents. To separate alcohols from the oxidized fraction the acids are removed by saponification and the neutral products esterified with sulfuric or phosphoric acid. The calcium and magnesium salts of the monosulfuric esters of these fatty alcohols are soluble in cold water. Thus the sodium salts can be used in hard or soft water as detergents and wetting agents. These salts are not affected by dilute mineral acids and can be used as detergents in acid media. The hydrosulfates and sulfonic acids derived from these alcohols also have excellent detergent properties.

NEW SURFACE-ACTIVE AGENTS. W. K. S. Wallersteiner. *Soap, Perfumery & Cosmetics 18,* 538-41 (1945). The general field of the new surface-active agents is reviewed. Types are classified as anionic, nonionic, sulphonated peroxy-fatty alcohols, and cationic agents. Methods of determining the following properties are given: foaming, wetting, surface tension, kataphoresis, emulsion stability, germicidal activity, tissue toxicity and solubilizing activity.

PATENTS

DETERGENT COMPOSITION. Truman E. DeVilliers (Cities Service Oil Co.). *U. S. 2,383,114.* A detergent mixture comprises approximately 30% of orthodichlorbenzene, approximately 20% of ethylene glycol monobutyl ether, approximately 15% of glycerin, approximately 7% of water, the remainder of the mixture consisting essentially of an ethanolamine oleate soap.