Abstracts

Oils and Fats

Edited by
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SOLVENT EXTRACTION OF TUNG OIL. W. G. Rose *et al. Ind. Eng. Chem. 34*, 612-7 (1942).

THE EXTRACTION OF FAT ACIDS FROM ROSIN ACID-FAT ACID MIXTURES BY MEANS OF LIQUID PROPANE. A. W. Hixson and A. N. Hixson. *Trans. Am. Inst. Chem. Engrs. 37*, 927-57 (1941).

FORMATION OF CONJUGATED MATERIAL DURING BLEACHING OF VEGETABLE OILS. J. H. Mitchell, Jr. and H. R. Kraybill. *J. Am. Chem. Soc. 64*, 988-94 (1942). By low temperature crystallization from solvents, the most unsaturated fraction of bleached linseed oil fatty acids was obtained. This process removed the substance causing a band at 2680 A., leaving the highly unsaturated fraction with a spectrum similar in character to that obtained for the four double bond conjugated system in decatetraene and in parinaric acid. Oxidation of the oil or fatty acid esters is a necessary intermediate step in the formation of the conjugated system which may be produced by dehydration. Pure non-conjugated linoleic and linolenic acids would show no absorption bands in the region of wave length longer than 2200 A. Any bands found in regions of longer wave length are due to the presence of traces of conjugated materials. There was no evidence for diene conjugation in linoleic and linolenic acids prepared by debromination. In the bleached oils examined, the amounts of conjugated material were very small, about 0.1 or 0.2%. Deodorization results in a lowering of these bands due to polymerization of the conjugated systems at elevated temperatures. The bands are removed in the process of bodying linseed oil by heating in vacuo or by oxidation.

PHOSPHATIDES FROM SOYBEAN OIL. M. H. Thornton and H. R. Kraybill. *Ind. Eng. Chem. 34*, 625-8 (1942). A method for refining vegetable oils by treatment with a solid absorbent is described. The materials removed can be recovered, substantially unaltered, by extn. from the adsorbent with solvents. The adsorption method is applied to the refining of soybean oil, and a procedure for the recovery of the adsorbed material is outlined. The adsorbed phosphatide material is recovered by successive extns. with acetone, ether, abs. ethanol and 50% ethanol. The acetone ext. consists largely of oil together with some phosphatides, sterols and sterol glucosides. The ether ext. is made up of material with the same phys. properties as those usually ascribed to phosphatides. However, the P:N ratio is approx. 2:1. It contains more cephalin than lecithin. Extn. of this material with abs. ethanol results in a fraction which is a viscous liquid, is soluble in acetone and is a good emulsifying agent. Oil refined by the adsorbent method contains approx. 30% as much N as did the crude oil, but only a trace of P. This fact shows that all of the N and P of the crude oil does not occur as lecithin and cephalin.

INTRAVENOUS NOURISHMENT WITH PROTEIN CARBOHYDRATE AND FAT IN MAN. D. E. Clark and A. Brunschwig. *Proc. Soc. Exptl. Biol. & Med. 49*, 329-32 (1942). Parenteral nutrition was carried out over a 17-day period in an adult male by means of intravenous injection of dextrose, casein digest (amino acids) and emulsified fat. It is believed that this is the first recorded instance of nutrition in man by the simultaneous administration of the 3 primary types of foodstuff.

EFFECT OF FATS AND FAT-SOLUBLE SUBSTANCES ON RAT GROWTH. II. Beth v. Euler, Hans v. Euler and Inez Saberg. *Arkiv. Kemi. Mineral Geol. 15B*, No. 8, 3 pp. (1941). Beginning at about 4 weeks of age, 2 series of 10 litters (65) rats each were fed the following diet: casein 200, wheat starch 500, salt mixt. 50, fat 115, fresh yeast 400 g., vigantol 10, I soln. 10, lemon juice 20 cc. and water to give a semisolid consistency; the fat consisted of butter in one series, margarine in the other. In addn., 3 I. U. β-carotene was fed to both series. The av. initial wt. of the butter rats (I) was 32.9g., that of the margarine rats (II) 33.1 g. The av. weekly increase in wt. during the 1st, 2nd, 3rd, 4th, 5th, and 6th weeks on these diets was 12.5, 11.8, 12.9, 10.3, 15.7, and 13.8 g., resp., for I and 15.3, 12.3, 13.1, 20.2, 18.3, and 17.5 g., resp., for II. The av. increase in wt. during the entire explt. period was 77.0 g. (males 80, females 74) for I and 96.7 g. (males 103, females 91) for II. This difference in wt. between the 2 series is striking. Already on the 2nd or 3rd weeks on these diets, II presented a better appearance and seemed stronger. *(Chem. Abs.)*

VARIOUS OILS AND FATS AS SUBSTITUTES FOR BUTTERFAT IN THE RATION OF YOUNG CALVES. T. W. Gullickson, F. C. Fountaine, and J. B. Fitch. *J. Dairy Sci. 25*, 117-28 (1942). In average daily gain in weight as well as in general well-being, the calves fed butterfat excelled those in all other groups. Following closely were those receiving lard and tallow. Corn oil, cottonseed oil, and soybean oil were the least satisfactory. The average daily gains of calves in the latter three groups were .40 pound, .31 pound, and .32 pound, respectively. They appeared unthrifty, listless, and emaciated. Some calves in these groups died and others were saved only by changing to whole milk.

CASTOR OIL BASE HYDRAULIC FLUIDS. A. H. Shough. *Ind. Eng. Chem. 34*, 628-32 (1942). The properties of various blends of castor oil and solvents have been detd. and compared with samples of com. fluids. Methods of testing are described. Among the important properties are corrosiveness to metals, attack on rubber, pour point, and volatility of solvent. Blends of bodied castor oil and high-boiling alcs. give low pour points and do not solidify on continued standing at low temps. Glycols reduce the attack on rubber. The acid no. of the fluid is not an indication of its corrosiveness to the metals observed. Aliphatic amine phosphates are effective corrosion inhibitors. Castor oil antioxidants appear helpful in combating corrosion.

PATENTS

CONTINUOUS SOLVENT EXTRACTION APPARATUS. J. F. Cyphers, Geo. Schue, and W. T. Jones (Rockwood & Co.). *U. S. 2,278,647.*

IMPROVEMENTS RELATING TO SOLVENT-EXTRACTION PROCESSES. S. F. Warren (Chemische Fabrik Flora). *Brit. 521,417.*

OLIVE. Al. Musher (Food Mfg. Corp.). *U. S. 2,278,942.* The method of treating an olive; said method comprising freezing the olive, then substantially reducing the moisture of the olive, then subjecting the olive to steam at an elevated temp. and pressure, and then suddenly releasing to a substantially lower temp. and pressure, is described.

OIL PRODUCTION. Al. Musher (Food Mfg. Corp.). *U. S. 2,280,046.* As a pretreatment before extn. of oils, the raw material is either slow frozen or treated with steam at high press. followed by low press. in order to disrupt oil cells.

TREATMENT OF OIL CAKE. O. S. Anderson (V. D. Anderson Co.). *U. S. 2,277,055.* The method of treating oil bearing proteinacious materials comprises subjecting the material to increasing pressure in a continuously acting high pressure screw press to thereby separate oil from cake fragments which are at a temperature sufficiently high to cause deteriorating, and without appreciable loss of heat, immersing the hot cake fragments in water for a predetermined period to thereby simultaneously cool them and increase their moisture content.

SOLVENT RECOVERY. K. C. D. Hickman (Distillation Products, Inc.). *U. S. 2,277,401.* The method of recovering a solvent from vegetable and animal oils in which it is dissolved, comprises in combination heating the oil containing the dissolved solvent while under vacuum to cause vaporization of the solvent and absorbing these vapors in the oil which is likewise under vacuum and which is at a substantially lower temp. than that at which the oil containing the solvent is heated and then subjecting the oil in which these vapors are absorbed to solvent extn. with the same solvent.

FRACTIONATION OF FREE FATTY ACIDS. S. E. Freeman (Pittsburgh Plate Glass Co.). *U. S. 2,278,309.*

SEPARATION OF CONSTITUENTS OF ANIMAL AND VEGETABLE OILS AND RESIDUE FROM REFINING THEREOF. D. McDonald (Erwin H. Haas). *U. S. 2,279,408.* Oils contg. soap are treated with 50% alc. and the oil as extd. from the mixt. with a chlorinated hydrocarbon.

IMPROVEMENTS IN OR RELATING TO THE MANUFACTURE OF MARGARINE OR THE LIKE BY DE-AERATION AND KNEADING OR MIXING. Lübecker Metallgiesserei u. Maschinenfabrik G.m.b.H. *Brit. 521,394.* A method of treating margarine and like oil and fat emulsions includes the step of solidifying the emulsion upon a cooling drum and scraping off the film thus formed in known manner, the mass obtained being subjected to a deaerating process while in the flaky condition and then to a kneading or mixing operation.

PURIFICATION OF STARCHES. Thomas J. Schoch (Corn Products Refining Co.). *U. S. 2,280,723.* Fat acids can be removed from starch without hydrolysis by extn. with solvents such as MeOH, EtOH or dioxane.

PROCESS FOR THE PREPARATION OF TUNG OIL. R. S. McKinney *et al. U. S. 2,277,342.* A process for producing a clear liquid petroleum ether solvent-extracted tung oil, which comprises subjecting petroleum ether solvent-extracted tung oil to a temperature of at least 200° C. for substantially 30 minutes.

DEODORIZING AND REFINING OF TUNG OIL. Louis A. Gruenwald and M. J. Reider. *U. S. 2,276,233.* A process of deodorozing tung oil comprises heating the tung oil first with a small quantity of an aq. soln. of a sodium sulfite dispersed throughout the body thereof and then with a small quantity of an aq. soln. of lead acetate.

MONOCHLOROHYDRIN ESTERS. I. G. Farbenind. A. G. *Fr. 850,709.* Monochlorohydrin esters of fatty acids are obtained by treating epichlorohydrin with aliphatic monocarboxylic acids contg. at least 4 C atoms in presence of Friedel-Crafts catalysts such as $AlCl_3$, $FeCl_3$, and BF_3, as well as their complex compds. such as Na Al chloride. The reaction is effected by pouring slowly (drop by drop) an equiv. quantity of epichlorohydrin into a mixt. of carboxylic acid and catalyst. *(Chem. Abs.)*

GLYCEROL ESTERS OF FATTY ACIDS. I. G. Farbenind. A. G. *Fr. 850,751.* The monocarboxylic acid esters of monochlorohydrin obtained according to *Fr. 850,709* (preceding a bstr.), are treated with metallic salts of aliphatic monocarboxylic acids contg. at least 4 C atoms. *(Chem. Abs.)*

INSECT REPELLENT CONTAINING NITRILES. A. W. Ralston and J. P. Barret (Armour and Co.). *U. S. 2,280,850.* An insect repellent contains fat acid nitrile as an active essential constituent.

ALIPHATIC CARBOXYLIC ACID NITRILES. P. Herold and H. D. F. von der Horst (I. G. Farbenind. A.-G.). *Ger. 704,494.* Fat acid nitriles are prepared by reaction with NH_3 at 300-400° temp. and 10 atm. press.

PROCESS FOR CONCENTRATING ORE MATERIALS. D. W. Jayne, Jr., *et al.* (American Cyanamid Company). *U. S. 2,278,107.* In ore concg. processes utilizing differential surface wettability principles of separating acidic siliceous gangue from non-metallic ore constituents the process comprises carrying out the concn. operation in the presence of products obtained by reacting org. sulfonic acid salts of amino alcs. having at least one free OH group with a fatty acid having at least 8 C atoms.

PROCESS OF SEPARATING CHALCOCITE ORE. A. W. Ralston and E. W. Segebrecht (Armour and Company). *U. S. 2,278,020.* In the separation by froth flotation of copper sulfide from chalcocite ores the step which comprises subjecting an aq. pulp of the chalcocite ore to froth flotation in the presence of a water-sol. primary aliphatic amine salt or fat acids.

RECOVERY OF CARBOXYLIC ACIDS. L. S. Galstaum (Tide Water Assocd. Oil Co.). *U. S. 2,277,315.* The invention is particularly adapted to the recovery of carboxylic acids from petroleum-refinery-spent alkali liquors, obtained from the neutralization of raw straight-run gasoline and kerosene distillates.

LIVER DERIVATIVE. Armour & Co. *Brit. 537,508.* A process of producing a liver deriv. comprises subjecting mammalian liver to an extn. step for dissolving out those portions of the liver material which are sol. in a fat solvent, subjecting the ext. to saponification by an alkali, and separating the unsapon. residue remaining from said saponification.

IMPROVEMENTS IN OR RELATING TO TEXTILE OILS. J. G. Fife (N. V. de Bataafsche Petroleum Maatschappij). *Brit. 522,151.* Lubricating oil compns. of the class referred to as textile oils, comprises a mixt. of a mineral oil and higher aliphatic alcs. or ketones having more than 8 C atoms in the mol. and a small proportion, preferably of the order of a few tenths per cent, and not exceeding 1% by wt. of the sulphonated compd. which reduces the surface tension, such as sulphuric acid ester salts contg. higher alkyl radicals or alkali sulphonates derived from mineral oil sulphonic acids.

POLYMERS FROM OIL AND EXTRACT OF THE GENUS COFFEA. H. S. Polin *et al.* (Coffee X Corp.). *U. S. 2,277,252.* Process for polymerizing oil extd. from the genus Coffee comprises the steps of: halogenating said oil, and thereafter treating with a polymerizing agent selected from the group consisting of alkalies, polybasic acids, and aldehydes.

PROCESS FOR REFINING TALL OIL. E. Segessemann (Nat'l Oil Products Co.). *U. S. 2,275,186.* A process for refining crude tall oil comprises contacting a soln. of crude tall oil in a petrol. hydrocarbon solvent with successive batches of ethylene chlorhydrin under conditions such that the ethylene chlorhydrin is substantially immiscible with the tall oil son. and recovering refined tall oil from the soln. thereof.

PROCESS FOR REFINING AND OBTAINING VALUABLE PRODUCTS FROM TALL OIL. F. H. Gayer and Chas. E. Fawkes (Continental Research Corp.). *U. S. 2,275,075.* A process of obtaining valuable products from tall oil comprises subjecting crude tall oil to refining treatment at a temp. near or below atmospheric, with approx. 1 to 2% of HCl by wt. of the tall oil to form a granular readily filterable ptt., filtering off the resultant precipitate and treating it with alc. to selectively dissolve and separate coloring impurities from phytosterol contained therein, separating the solvent soln. and treating the undissolved material to recover therefrom by crystn. purified phytosterol as a product of the process.

PROCESSING OF TALL OIL. Ernest Segessemann (Natl. Oil Products Co.). *U. S. 2,278,674.* In a process of treating tall oil to separate the fatty acid components from the resinic acid components, the steps comprise esterifying the fatty and resinic acids with a relatively high boiling alc., subsequently trans-esterifying the fatty acid esters only with an alc. having a lower boiling point than the first alc. and distilling off the fatty acid esters thus formed.

METHOD OF CONCENTRATING THE STEROL CONTENT OF TALL OIL. A. F. Oliver and R. C. Palmer (Newport Industries, Inc.). *U. S. 2 280,843.* The method of recovering a tall oil fraction rich in sterols from a mass of adsorbent material satd. therewith and wetted with a soln. of tall oil in a liquid hydrocarbon comprises displacing said so'n. with a liquid hydrocarbon, washing said mass with an org. solvent sol. in water to an extent at least equal to 4% and miscible with liquid hydrocarbons and distg. off the solvent from the resulting ext.

METHOD OF ISOLATING FATTY ACIDS FROM TALL OIL. A. F. Oliver and R. C. Palmer (Newport Industries, Inc.). *U. S. 2,280,842.* A method of prepg. stearic acid from tall oil comprises desulfurizing and removing oxidized bodies from said tall oil, hydrogenating the desulfurized tall oil substantially, completely, and sepg. stearic acid from the hydrogenated desulfurized tall oil by fractional distn.

WAXLIKE PRODUCT AND METHOD OF MAKING THE SAME FROM TALL OIL OR ROSIN AND FATTY ACIDS. Ralph H. McKee and H. L. Blengsli. *U. S. 2,280,247.* The process of producing a wax-like condensation product of unsatd. fatty acids and rosin acids comprises heating tall oil with an aromatic sulfonic acid of the benzene series at a temp. within the distillation range of tall oil, and removing by distillation the unchanged organic acids whereby a wax is produced.

DRYING OIL AND PROCESS. Ivor M. Colbeth (The Baker Castor Oil Co.). *U. S. 2,278,425-7.* Borated hydroxylated fat acids are destructively distd. to yield products that dry when exposed to the atm.

RESINOUS COMPOSITION. W. D. BOWLBY (Trojan Powder Co.). *U. S. 2,279,438.* Pentaerythritol esters of drying oil fat acids are used in certain cellulose lacquer to increase the strength of the films.

REACTION PRODUCT. Harry Bennett. *U. S. 2,275,494.* A reaction product consists of a polymerized polyhydric alc. of a mol. wt. in excess of 500 and completely esterified with an org. acid contg. more than 5 carbon atoms to the molecule, said product being sol. in water to provide a clear water soln. thereof. It is used for protective coatings and as a plasticizer.

CONDENSATION PRODUCT AND METHOD. Edwin T. Clocker. *U. S. 2,275,843.* The process of producing a resin or the like, comprises condensing maleic anhydride with an oil predominantly consisting of glycerides of linoleic and oleic acids at a temp. in excess of 150° C. and for a time of at least ¾ of an hr. the reaction being substantially wholly between the anhydride and the oil, and esterifying the acidic condensation product with a poly-hydric alc.

PRODUCTION OF ALKYD RESINS. H. J. West (Am. Cyanamid Co.). *U. S. 2,276,243.* A method of producing a fatty oil-acid modified phthalic glyceride resin comprises reacting together at high temps. phthalic anhydride, glycerine and a fatty oil-acid in the presence of melamine in amts. of about 1 part of melamine for each 20 parts of phthalic anhydride.

PROCESS OF MAKING ALKYL AMINO FATTY ACID. C. O. Henke and F. McGrew (E. I. duPont). *U. S. 2,279,138.* Alpha-bromo-fat acids are reacted with a water sol. dialkyl amine in water sol. contg. 2 mols. of alkali per mol. of *a*-bromo-fat acid.

MANUFACTURE OF DRYING OILS. R. Priester (Naamlooze Vennootschap Industrieele Maatschappij). *U. S. 2,280,082.* An oil having improved drying qualities comprises Isano-oil and at least 1 oil selected from the group consisting of drying and semi-drying vegetable oils and drying and semi-drying animal oils in a ratio of about 1:4.

POLYMERIZATION OF MALEIC ACID-LINSEED OIL FATTY ACIDS-ETHYLENE GLYCOL-ALLYL ALCOHOL RESIN. D. G. Patterson (Am. Cyanamid Co.). *U. S. 2,280,256.*

PROCESS OF COMBINING HARDENABLE PHENOL-ALDEHYDE CONDENSATION PRODUCTS WITH AIR-DRYING FATTY OILS. F. Seebach (Bakelite Corp.). *U. S. 2,279,499.* Process of preparing composition comprises mixing a hardenable phenol-aldehyde condensation product with an oxidized air-drying fat oil in a solvent for both components and thereafter removing the solvent.