Abstracts

Oils and Fats

Edited by
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CHINA PRODUCES FUELS FROM VEGETABLE OILS. Fa-Wu Cheng. *Chem. & Met. Eng. 52,* 99 (1945).

THE INDUSTRIAL USES AND MARKETING PROBLEMS OF TALL OIL. R. H. McKee. *Paper Trade J. 120,* No. 4, 49-50 (1945).

POLYPENTAERYTHRITOL DRYING OILS. H. Burrell. *Ind. Eng. Chem. 37,* 86-9 (1945). Conversion of the oils to the polypentaerythritol can improve drying time, color, hardness and durability.

THE SOLUBILITY RELATIONSHIPS OF HIGH MOLECULAR WEIGHT FATTY ACIDS AND THEIR ESTERS IN PROPANE NEAR THE CRITICAL TEMPERATURE. D. A. Drew and A. N. Hixson. *Trans. Am. Inst. Chem. Engrs. 40,* 675-94 (1944).

THE CORROSION OF METALS BY ORGANIC ACIDS IN HYDROCARBON SOLVENTS. C. F. Prutton, D. R. Frey, D. Turnbull and G. Diouhy. *Ind. Eng. Chem. 37,* 90-100 (1945). The corrosion of Pb or Cd by fatty acids does not take place at an appreciable rate in nonpolar media, such as white oil, benzene or xylene in the absence of mol. O_2 and peroxides. When Pb is corroded by fatty acids in solvents which themselves do not rapidly oxidize in the presence of O_2 or peroxides, an amt. of O_2 is used up which is equiv. to the amt. of metal corroded. In the absence of fatty acids, mol. O_2 or peroxides attack Pb very slowly as a result of the formation of a protective oxide film. When fatty acids are present, the oxide film does not accumulate and the metal corrodes rapidly. Corrosion of Pb by fatty acids in nonpolar media is not greatly influenced by the presence or absence of water. When O_2 and peroxides are absent, no appreciable corrosion takes place when the media are water-satd., and in the presence of O_2 the rate of corrosion is somewhat less for water-satd. than for dry media. When the effect of mol. O_2, tert.-Bu hydroperoxide, and lauroyl peroxide upon the rate of corrosion of Pb is compared in the presence of fatty acid, it is observed that their effectiveness decreases in the order named.

VITAMIN A CONTENT OF PALM OILS. C. F. Poe and H. A. Fehlmann. *Food Res. 9,* 500-4 (1944). The vitamin A content of palm oils from many different geographical sources was tabulated.

SOUTH AFRICAN FISH PRODUCTS. VIII. COMPOSITION OF THE FLESH OF CAPE FISHES. G. F. Van Wyk. *J. Soc. Chem. Industry 63,* 367-71 (1944). IX. THE CAPE JOHN DORY, ZEUS CAPENSIS (C. AND V.). J. H. Corbett, W. S. Rapson, H. M. Schwartz and N. J. Van Rensburg. *Ibid.* 371-2. The main fat depot of the Cape John Dory (*Z. capensis,* C and V.) has been found to be the body, but appreciable amts. of oil are stored in the liver, pyloric caeca and intestines, which constitute a high proportion of the total wt. of the fish. Little fat is present in the head. The fat content reaches a max. in the early winter and a min. in the spring. In general chem. characteristics and in vitamin A content, the liver and total visceral oils are similar to stock fish and kingklip liver oils. Data, in so far as they are available, indicate a higher degree of unsatn. in the head and body oils than in the liver oils.

FATTY ACID METABOLISM. II. THE BREAKDOWN OF CARBOXYL-LABELED BUTYRIC ACID BY LIVER TISSUE. G. Medes, S. Weinhouse and N. F. Floyd. *J. Biol. Chem. 157,* 35-41 (1945). A study of the breakdown of carboxyl-labeled butyric acid by liver tissue indicates that this substance is converted to ketone bodies mainly by fission into 2-C chains with subsequent recombination, and to a lesser extent by direct *b* oxidation.

THE RELATIONSHIP OF THE ADENOSINE POLYPHOSPHATES TO FATTY ACID OXIDATION IN HOMOGENIZED LIVER PREPARATIONS. A. L. Lehninger. *J. Biol. Chem. 157,* 363-81 (1945). The oxidation of fatty acids by broken cell prepns. of rat liver requires the presence of adenosine polyphosphates. All the normal satd. fatty acids having from 4-18 C atoms are oxidized in this system, as evidenced by the increase in O_2 uptake, but only in the presence of adenosine polyphosphates. These observations, together with certain other data reported, have been correlated into a working hypothesis concerning the mechanism of the activation, a central feature of which is the possible formation of fatty acid acyl phosphates as intermediates.

THE EFFECT OF DIETARY FAT ON THE LIPOTROPIC ACTION OF INOSITOL. J. M. R. Beveridge and C. C. Lucas. *J. Biol. Chem. 157,* 311-21 (1945). Corn oil obliterates the lipotropic action of inositol under the dietary regimen used. Choline brings about a greater reduction of cholesterol esters than does inositol under the conditions used. Liver phospholipid is practically unaffected by the removal of choline, inositol, corn oil, or "non-essential fat" from the diet. The addn. of these factors singly or in pairs did not change appreciably the amt. of phospholipid in the liver.

THE CHEMISTRY OF THE LIPIDS OF TUBERCLE BACILLI. LXXII. FATTY ACIDS OCCURRING IN THE WAX PREPARED FROM TUBERCULIN RESIDUES. CONCERNING MYCOCEROSIC ACID. L. G. Ginger and R. J. Anderson. *J. Biol. Chem. 157,* 203-11 (1945). The normal fatty acids were represented by palmitic, stearic and hexacosanoic acids and an unsatd. acid, probably oleic acid. The branched chain fatty acids giving ether-sol. lead salts were sepd. into tuberculostearic acid, dextrorotatory acids analogous to phthioic acid and a levorotatory acid. The name "mycocerosic acid" is proposed to designate the levorotatory acid which has been found to be a characteristic constituent of all the wax fractions of the human tubercle bacillus. Mycocerosic acid was obtained as a non-crystn. waxy solid, m.p. 27-28°, $[a]_D$ in chloroform —5 to —6°, and is compn, corresponds to the formula $C_{30}H_{60}O_2$.

DIETARY CIRRHOSIS WITHOUT CEROID IN RATS. K. M. Endicott, F. S. Daft and W. H. Sebrell. *Proc. Soc. Exptl. Biol. Med. 57,* 330-1 (1944). Hepatic cirrhosis without ceroid has been produced in rats by feeding certain purified diets. The type of fat given to rats in low-choline, low-protein diets appears to have an

important influence on the deposition of ceroid. It seems probable that some substance or substances which are present in cod liver oil causes the appearance of this pigment. They did not observe ceroid in rats receiving palmitic, stearic, oleic, linoleic or linolenic acids. Cirrhosis may be produced on a completely fat-free diet.

THE DEFECT IN UTILIZATION OF TOCOPHEROL IN PROGRESSIVE MUSCULAR DYSTROPHY. A. T. Milhorat and W. E. Bartels. *Science 101,* 93-4 (1945).

PATENTS

HIGH VACUUM DISTILLATION PROCESS AND APPARATUS. K. C. D. HICKMAN (Distillation Products, Inc.). *U. S. 2,364,360.* This invention relates to improved high vacuum centrifugal stills and in particular high vacuum stills in which the condensing and vaporizing surfaces both rotate.

LUBRICANT POUR DEPRESSOR. E. Lieber and H. T. Rice (Standard Oil Development Co.). *U. S. 2,364,454.* The invention comprises the production of wax modifying agents by chemically condensing halogenated derivs. of abietic and related acids with aromatic compds.

PROCESS FOR TREATING FIBROUS PRODUCTS AND PRODUCT THEREOF. E. W. Glusenkamp (Monsanto Chemical Co.). *U. S. 2,365,813.* A combined grease proof and water repellent paper contained a previously prepd. N,N'diacyl diamino methane, where the acyl groups are those of fatty acids ranging from C_{12} to C_{28}.

PROCESS AND REAGENT FOR DEMULSIFYING OILS. M. S. Arguss and H. Schindler (Pure Oil Co.). *U. S. 2,365,852.* Reagent for use in breaking water-in-oil emulsions comprises a major portion of sulfonated tall oil which has been neutralized with alkali metal hydroxide and a minor proportion of glycerin dichlorhydrin and *n*-Bu aniline.

BREAKING OF CRUDE OIL EMULSIONS. M. S. Arguss and H. Schindler (Pure Oil Co.). *U. S. 2,365,853.* This demulsifier contains Na salts of sulfonated tall oil and mahogany sulfonates, alc. and water.

TREATMENT OF FABRICS WITH METALLIC SOAPS. H. Schiller (Socony-Vacuum Oil Co.). *U. S. 2,364,391.* A treating soln. for fibrous materials against fungi comprises a heavy metal soap of a soap-forming org. acid; water, NH_3 in quantity sufficient to produce soln. of said soap in said water, and a quantity of an alkylolamine sufficient to delay the pptn. of said soap which otherwise results from the evapn. of the NH_3.

PRODUCTION OF HYDROXY FATTY ACIDS. Donald Price and Richard Griffith (National Oil Products Co.). *U. S. 2,367,050.* A process for the production of hydroxy fatty acids contains the steps of subjecting sulfated fatty acids, sulfated fatty oils, sulfated fats, sulfated fatty waxes to an acid hydrolysis and subjecting the acid-hydrolyzed mass to alk. hydrolysis at a temp. of 80 to 250°.

METHOD OF PURIFICATION OF GLYCEROL FORMED BY FERMENTATION. James S. Wallerstein and Ralph Thomas Alba (The Overly Bio-Chemical Research Foundation, Inc.). *U. S. 2,366,990.* The method of obtaining pure glycerol from fermented carbohydrate solns. by distn. consists in treating the impure glycerol solns. with small quantities of CH_2O and maintaining the soln. for a period of about 1 hr. at an alk. reaction prior to distn.

Abstracts

Soaps

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PREPARATION AND APPLICATION OF SOLUBLE OILS. Andrew Treffler. *Chem. Industries 55,* 922-24 (1944). Soluble oils are homogeneous compositions containing mineral oil, pine oil or other hydrocarbons; an emulsifying agent and a small amount of water. The emulsifying agents used include: fatty acid soap, sulfonated mineral oils or a combination of both. The fatty acid may consist of two parts of oleic or linoleic acid and one part of rosin acids, or two parts of tall oil and one part of oleic acid. Other ingredients may be naphthenic acids or Alox. The soluble oil when properly prepared may be used in hand soaps, hand cleaners and disinfectants and metal cleaning and degreasing compounds.

A UNIVERSAL SEPARATORY FUNNEL. M. M. Katsin. *Zavodskaya Lab. 10,* 217 (1941). This funnel, designed for the analysis of fats, soaps, etc., permits the removal of the upper layer without disturbing the lower layer. A cylindrical separatory funnel has 2 glass tubes extending into it from above and 1 from below. A ground-glass connection is made between the lower tube (I) and another tube (II) in such a way that II can be moved up and down inside I and adjusted so that its upper end is approx. 2 mm. above the surface of the liquid layer to be removed. II is closed by a ground-glass stopper attached to a glass rod and manipulated through one of the upper tubes. The extn. liquid is introduced through the other upper tube, the stopper is removed and the floating layer is removed by sliding II down to the proper level. (*Chem. Abs.*)

SOAP IN SPECIALIZED TEXTILE TREATMENTS. *Chem. Industries 55,* 984 (1944). Soap may be used in a new process for producing a wool-like character in acetate rayon by treating the acetate rayon with water at 70-100° C. and with soap, or certain other substances to produce curling of the fibers.

WETTING AGENTS IN INK. *Am. Ink Maker 22,* No. 12, 35 (1944). The use of a five to seven percent addition of a wetting agent to ink has several excellent results, such as control of crawling, crystallization, gelation, and relief of tension and heating between ink and paper.

GLASS CLEANERS. Milton A. Lesser. *Soap 21,* No. 1, 28-31, 69 (1945). A review is given of the formulation of glass cleaners, polishes and antimists. Soaps and glycerine are contained in many of the formulations. Twenty-six references.

AUTO POLISHES. Robert A. Stetson. *Soap 21,* No. 1, 32-35, 70 (1945). Automobile polishes may be divided into five classes: polish emulsions, cleaner polishes,