PROCESS FOR REFINING FATS. G. B. Bradshaw and W. C. Meuly (E. I. du Pont de Nemours & Co.). *U. S. 2,398,492.* A process for refining a low-grade fat comprises esterifying the free acid components with a dialkyl sulfate not higher than diethyl sulfate, in the presence of an acid absorbing agent in quantity sufficient to neutralize the mineral acid liberated by the esterification process.

EMULSIONS. A. K. Epstein and M. Katzman (The Emulsol Corp.). *U. S. 2,398,295-6.* The non-alkaline emulsion contains oleaginous material, aqueous material, and small proportions of (1) a cation-active substance in the form of a salt of a higher molecular weight alkyl non-tertiary amine, and (2) a higher molecular weight fatty acid mono-ester of an aliphatic polyhydroxy substance.

OINTMENTS, CREAMS, SALVES, AND THE LIKE. N. K. Rosenthal (Ninol Development Co.). *U. S. 2,398,254.* The product consists essentially of petrolatum and a minor percentage of a condensation product of diethanolamine and oleic acid, the molal ratio of the diethanolamine to the oleic acid being about 1-2.

PRODUCTION OF LUBRICANTS. H. M. Fraser (International Lubricant Corp.). *U. S. 2,397,956.* The lubricating grease contains a grease-forming lubricant base and a Li soap of 12-hydroxy stearic acid in a quantity which increases the ability of the grease to maintain its consistency when mechanically worked.

PROCESS FOR PRODUCING A TALL OIL OF LOW VISCOSITY AND FREE FROM CRYSTALLIZATION. W. H. Jennings (Camp Manufacturing Co.). *U. S. 2,398,312.* The tall oil is dried to less than 0.1% moisture and then polymerized in the presence of $H_2SO_4$ in such a manner as to polymerize certain resin acids; the residue and acid is then separated by washing.

STABILIZATION OF FATS AND OILS. D. K. O'Leary (E. I. du Pont de Nemours & Co.). *U. S. 2,397,976.* Thio di-fatty acids and their esters are used as antioxidants.

WATERPROOFING TEXTILES. D. Aelony (Monsanto Chemical Co.). *U. S. 2,398,272.* The textile products are coated with fat acid carbamyl or fat acid sulfamyl substitution products of benzoic acid.

# Abstracts

## Drying Oils

Edited by
**HOWARD M. TEETER**

FILM FORMATION-FILM PROPERTIES-FILM DETERIORATION. J. S. Long. *Official Digest Fed. Paint Varnish Prod. Clubs 255,* 150-169 (1946). An address outlining a proposed research program for the Federation.

OIL MODIFICATION OF ALKYD RESINS FOR PROTECTIVE COATINGS. C. G. Moore (The Glidden Co.). *Natl. Paint Bull. 10,* No. 3, 7, 11 (1946). A discussion of the chemistry and technology of oil modified alkyd resins.

CHANGES IN WOOD OIL AND TUNG OIL ON PROLONGED STORAGE. G. Eisenschiml (Scientific Oil Compounding Co., Chicago). *Official Digest Fed. Paint Varnish Prod. Clubs 255,* 170-172 (1946). See *Oil and Soap 23,* 176 (1946).

THE CHEMISTS' CONTRIBUTION TO THE FIELD OF DRYING OILS DURING THE WAR. E. H. Valance (Spencer Kellogg and Sons, Inc.). *Official Digest Fed. Paint Varnish Prod. Clubs 255,* 183-5 (1946). A review of developments in chinawood oil replacements and linseed oil replacements. No references.

THE TUNG OIL INDUSTRY. GROWTH AND PROSPECTS. E. L. Ranker. *Natl. Paint Bull. 10,* No. 3, 5, 6, 8, 9, 12, 18 (1946).

DRYING OIL AND OLEORESINOUS VARNISH FILMS. V. J. Frilette (Ridbo Laboratories, Paterson, N. J.). *Ind. Eng. Chem. 38,* 493-6 (1946). A large increase in the acidity of air-dried varnish and oil films with aging was shown using a semimicro titration method developed by the author. Increase in acidity of air-dried films is found to correspond to decreased alkali resistance. Evidence is presented to indicate that oxidation at points of unsaturation in the glyceride molecule is responsible for the increase in acidity, and it is postulated that antioxidant activity of phenolic resins may account for the better alkali resistance of phenolic varnishes. Varnishes dried by baking do not develop acidity with aging.

EFFECT OF DEHYDRATION CONDITIONS OF CASTOR OIL ON THE QUALITY AND QUANTITY OF THE PRODUCT. I. T. Osnos and I. I. Galovistikov. *Khimicheskaya Prom. 1945,* No. 2, 19-20. Experimental dehydration of castor oil was carried out with 200 g. and 2 kg. samples at 280°, 290°, and 300° and pressures of 750, 700, 600, 200, and 100 mm. of Hg. The dehydration was carried out in the presence of catalyst "a" and catalyst "b" (not defined) and without any catalyst. Depending on the quantity of active catalyst present the rate of dehydration was faster, its degree greater (more water removed), the pyrogenic decomposition lessened, and the yield of dehydrated oil increased. Raising the temperature from 280-290° and 300° and diminishing the pressure to 100 mm. hastens dehydration, increases pyrogenic decomposition and hydrolysis of the oil, and decreases the yield. The effects of raised temperature and diminished pressure are more pronounced with catalyst "b" than with "a." (*Chem. Abs. 40,* 2652.)

LINSEED OIL FAT ACIDS. R. Rosenbusch. *Paint Tech. 10,* 281-7 (1945). The various methods of preparation are considered. Vacuum distillation, both the batch and continuous processes, is discussed. Methods of preparing pure fat acids are reviewed. (*Chem. Abs. 40,* 2655).

DOES LINSEED OIL CONTAIN CONJUGATED DOUBLE BONDS? L. L. Nesbitt and E. P. Painter (State College Station, Fargo, N. Dakota). *N. Dakota Agr. Exp. Sta. Bimonthly Bull. 6,* No. 6, 31-5 (1944). *Exp. Sta. Record 92,* 3 (1945). Several linseed oils were examined for the differences between Wijs and Woburn I numbers, and by means of an ultraviolet spectroscope glycerol esters of fat acids containing conjugated double bonds were studied to find out their effect on the properties of drying oils. Linseed oils show slight absorption near that for triene conjugation. The absorption is so small, however, that if present it is infinitesimal. Linseed oils as now produced do not contain conjugated systems (*Chem. Abs. 40,* 2653.)

NEWER PRODUCTS AMONG THE DRYING OILS-INFLUENCE OF THE WAR. J. H. Greaves. *Oil Colour Trades J. 109,* 410, 412, 414 (1946). The only new oil arousing continued interest in recent years is isano oil obtained from the fruit of *Ongokea klaineana.* Its drying properties are poor but it has 2 acetylenic linkages and a vinyl group which affords great reactivity and which prevents the development of drying properties by heating the oil in bulk. Little known drying oils, botanically related to tung oil, such as *Garcia nutans,* have received some attention. Lesser consideration has been given to dehydrated castor, tung and oiticica oils, tall oil, cashew nut-shell liquid, and a few synthesized oils. The modification of linseed oil is discussed from the standpoint of segregation, fatty acid modification, and alkali modification. Twenty-seven references. (*Chem. Abs. 40,* 3003.)

THERMAL POLYMERIZATION OF LINSEED OIL. G. Champetier and J. Petit. *Compt. rend. 220,* 748-9 (1945). In the thermal polymerization of linseed oil (I), whether *in vacuo* or in an atmosphere of $N_2$ at 295° for periods of 3-20 hours, the following is found to be true: The glycerol content of the gel is the same as that of the original oil; saponification gives stearic, oleic, and some di-acids (II) (mol. wt. 574); ozonization of II gives $(CH_2)_7(CO_2H)_2$; complete oxidration results in formation of some $o\text{-}C_6H_4(CO_2H)_2$ which is convertible to fluorescein and which on decarboxylation can be diazotized and coupled with $\beta$-naphthol. This corroborates the mechanism advanced by Kappelmeier in which by a Diels-Alder reaction cyclohexene derivatives are formed which on dehydrogenation give the aromatic ring. (*Chem. Abs. 40,* 3003.)

THE DI- AND TRIETHYLENIC ($C_{20}$) FAT ACIDS OF CAMBODIAN FISHES. P. Baudart (Inst. tech. supérieur chambre commerce, Marseille, France). *Bull. soc. chim. 11,* 174-5 (1944). These acids were isolated from fish oils (species not specified) by: low temperature crystallization from 85% methanol, fractional precipitation of the Pb soaps in ethanol, and finally fractional distillation of the Me esters at reduced pressure . From 4 kg. of oil 19 g. of Me esters (sap. no. 175.2, I no. 198) was isolated corresponding to 16 g. of fat acids (*I*). Hydrogenation of I gives eicosanoic acid, m.p. 75-6°. Bromination of I (16 g.) gives 3.9 g. of a product (*II*) containing 66.1% of Br. The filtrate from *II,* freed of Brand solvents, yields after treatment with petroleum ether at —10° for 4 hours, 3.8 g. of oil and crystals (*III*). There remains in solution 28 g. of oil (*IV*). After 5 extractions of *II* with Et acetate there remains 0.4 g. of $C_2H_5(CH_2)_3\text{-}CHBrCHBrCH_2CHBrCHBrCH_2CHBrCHBr(CH_2)_6\text{-}CO_2H$ (*V*), m.p. 140°. *III* treated with Et ether at —10° yields the viscous oily bromides of the partially oxidized acids and 0.2 g. *V*. *IV* in ethanol is fractionally precipitated by the addition of water in successive increments. Fractionation 15 times yields 8 g. of $C_2H_5(CH_2)_3CHBrCHBrCH_2CHBrCHBr(CH_2)_9\text{-}CO_2H$(VI) and 9.5 g. of *V*. Debromination and ozonization of *VI* and *V* prove that the $C_{20}$ acids present are the $\Delta^{11,14}$-eicosadienoic acid and the $\Delta^{8,11,14}$-eicosatrienoic acid. (*Chem. Abs. 40,* 3009.)

# Abstracts

## Soaps

Edited by
**LENORE PETCHAFT**

SOME DETERGENT PROPERTIES OF INTEREST TO CANNERS. P. N. Burkard (Wyandotte Chemicals Corp., Wyandotte, Mich.). *Canner 102,* No. 9, 20-2, 44 (1946). A discussion of the action of detergents under the following headings: water conditioning, dissolving, saponification, emulsification, surface tension and interfacial tension, inhibitors, and germicides. (*Chem. Abs. 40,* 2657.)

SOAPLESS DETERGENTS. H. Hilfer. *Drug Cosmetic Ind. 58,* 646-7 1946). This article gives a general review of anionic and cationic detergents. Structural formulas, properties, uses, preparation, and availability are discussed.

DETERMINATION OF SMALL AMOUNTS OF SOAPS OR FATTY ACIDS ON COTTON MATERIALS. Carroll L. Hoffpauir and James H. Kettering (Southern Regional Research Laboratory, New Orleans, La.). *Am. Dyestuff Reptr. 35,* 265-6 (1946). Analytical methods for the determination of small quantities of fatty acids or their soaps in cotton fiber, yarn, or fabrics is described. The acids and their soaps are removed by Soxhlet extraction with ethyl or isopropyl alcohol, separated from extraneous material by extraction with low-boiling petroleum ether after acidification with hydrochloric acid, and finally titrated with alcoholic NaOH in the absence of $CO_2$ by use of metacresol purple indicator.

POTASH SOAPS VERSUS SYNTHETIC DETERGENTS. Herbert H. Kranich (Kranich Soap Co.). *Soap Sanit. Chemicals 22,* No. 5, 43-5, 145 (1946). Tests show that many of the new synthetic products increase the wetting action of water to a greater extent than do potash soaps. However, this may not be an advantage due to the fact that the increased lowering of surface tension may result in very deep penetration which may cause, beside dirt removal, removal of essential ingredients of the product being washed. When used on wood or linoleum, resins or oils may be removed or part of the detergent may remain deep within the pores to liberate sulfuric acid to cause erosion. Other factors discussed showing disadvantages of the newer detergents included high cost as compared with soap, and great lack of accurate information on many suggested uses for these detergents.

CATION-ACTIVE SOAPS OR REVERSED SOAPS. Monindra Mohan Chakrabarty. *Indian Soap J. 11,* 111-13 (1945). The explanations offered for the detergent actions of soaps and similar substances (anion-active compounds) and quaternary ammonium compounds (cation-active compounds) are discussed. These cation active or reversed soaps react in an opposite manner to the action of common soaps. While soaps having a negative charge react in alkaline solutions, these compounds are most useful below pH 7.0, because of