LUBRICATING COMPOSITION. J. C. Zimmer and A. J. Morway (Standard Oil Development Co.). *U. S. 2,391,113.* A water-resistant, high temperature, extreme pressure lubricant of the grease type, consists of about 78% asphaltic base lubricating oil and the remainder being a mixture of Li, Pb, Zn, and Al soaps and chlorinated wax.

LITHIUM BASE GREASES. J. D. Morgan (Cities Service Oil Co.). *U. S. 2,390,450.* A grease adapted for use at extremely low temperatures comprises mineral oil with small amounts of Li and Al soaps.

POLYMERIZABLE UNSATURATED ESTER-AMIDES. I. E. Muskat and F. Strain (Pittsburgh Plate Glass Co.). *U. S. 2,390,551.* The new compounds are ester amides derived by the reaction of amino alcohols or other amino-hydroxy substituted hydrocarbons with unsaturated chloroformates.

OIL SOLUBILIZING COMPOSITIONS. T. R. Donlan and A. Gathman (Standard Oil Development Co.). *U. S. 2,391,087.* The composition comprises an oil soluble Na sulfonate 74, oleic acid 4, Na-alkyl-naphthalenesulfonate 2, and secondary Bu alcohol 20% by weight.

Abstracts

Drying Oils

Edited by
HOWARD M. TEETER

DRYING OIL POLYMERIZATION SINCE 1930. E. Sunderland. *J. Oil Colour Chem. Assoc. 28,* 137-67 (1945). A critical review of work accomplished in this field since 1930.

CARBON DIOXIDE PROTECTION OF PAINT MANUFACTURING PROCESSES. D. A. Diehl. *Am. Paint J. 30* (No. 20), 26-30 (1945). A discussion of the use of CO_2 fire extinguishing systems and their application to paint and varnish factories.

EMULSIFYING DRYING OILS. A. J. Rosental, Z. I. Bodyazhina, and E. O. Bukan. *Pishchevaya Prom. 1944,* No. 5/6, 39-41. Formulas. (*Chem. Abs. 40,* 474.)

CATALYTIC CONJUGATION OF LINSEED AND SOYBEAN OILS. S. B. Radlove, H. M. Teeter and J. C. Cowan. *Pub. AIC-101, 1945. U. S. Dept. Agr., Bur. Agr. Ind. Chem., Nor. Reg. Res. Lab.* A process is described for the conjugation of linseed and soybean oils by heating them at 160-200° with a catalyst composed of Ni and C black, activated under the proper conditions. The resulting products contain up to 35% conjugation, and show correspondingly high rates of polymerization and drying. Extensive experimental data are given concerning factors influencing the process and studies for evaluation of the products. The principal advantage of the process is that splitting of the glyceride is avoided, thus enabling the production of oils of excellent color, viscosity, and acidity.

AUTOXIDATION OF LINOLEIC ACID. S. Bergstrom. *Nature 156,* 717 (1945). Me linoleate was oxidized by shaking with O_2 at 30° in diffuse daylight until 0.3 mole of O_2 per mole of ester had been absorbed. Selective ultraviolet absorption at 2320 Å appeared and increased parallel to the O_2 absorption. Chromatography on alumina gave 3 fractions: (1) A peroxide mixture having an extinction coefficient of 10,000 at 2327 Å; (2) a peroxide mixture having negligible absorption above 2200 Å; and (3) a non-peroxide ketone absorbing at 2720 Å. Fraction 1 was reduced by H_2 to monohydroxystearic acids from which 9- and 13-hydroxystearic acids were isolated and identified. The second fraction gave, after reduction with H_2, dihydroxy stearic acids which could be split with Pb tetra-acetate. K linoleate gave similar products when treated with lipoxidase.

THE COURSE OF AUTOXIDATION REACTIONS IN POLYISOPRENES AND ALLIED COMPOUNDS. PART IX. THE PRIMARY THERMAL OXIDATION PRODUCT OF ETHYL LINOLEATE. J. L. Bolland and H. P. Koch. *J. Chem. Soc. 1945,* 445-7. Et linoleate was oxidized by shaking under an O_2 pressure of 100 mm. in the dark at 45° until from 0.431 to 5.4% of O_2 was absorbed. The most characteristic feature of the ultraviolet absorption of the oxidized samples, apart from weak selective absorption at 2750 Å, was an intense band at 2315 Å. Since the material responsible for this absorption was removed by adsorption on alumina, it must be associated with the peroxido-ester present in the samples. Up to an O_2 absorption of about 2%, the average extinction coefficient of the oxidation product is 22,700. At higher O_2 absorptions, the coefficient declines, probably due to secondary or peroxide decay reactions. The value 22,700 corresponds to a content of 70-85% of conjugated isomers, if the extinction coefficients of previously studied dienes are considered. The production of conjugation during oxidation is believed to occur through formation of a free radical at C atom 11 at the moment of attack by O_2. The free radical can rearrange to positions 9 or 13 with concomitant formation of 10,12 or 9,11 conjugation. The selective absorption near 2750 Å is believed to be due to a conjugated diene ketone formed by decomposition of the hydroperoxides from the 10,12 or 9,11 conjugated free radicals.

TALL OIL IN SURFACE COATINGS. Golden Gate Club. *Official Digest Fed. Paint Varnish Production Clubs 251,* 490-2 (1945). Pentaerythritol esters of the tall oil acids were employed as the linseed oil substitute, and the alkyd resins were prepared from maleic anhydride and either a tall oil glyceryl ester with addition of pentaerythritol or a tall oil pentaerythritol ester. The substitute oils were made into paints and the alkyd resins were made into a blue striping compound. Color was satisfactory, and brushing and leveling were equal to or better than that obtained with the standard paints. Gloss and drying time were lower for the paints made with the substitute oils, but the alkyd resins were equivalent to commercial alkyd vehicles in this respect. The tall oil alkyds dried as rapidly as the standards but gave slightly softer films. After 325 hours' exposure in the accelerated weathering unit, all panels were chalking but no failures had occurred. Reflectance of the tall oil alkyds indicated that chalking was occurring somewhat more slowly than the standard.

PATENTS

UNSATURATED ACIDS. T. P. Hilditch and H. Plimmer (Imperial Chemical Industries, Ltd.). *Brit. 561,803.* When unsaturated higher acids containing 2 or more isolated ethylenic double bonds are heated under pressure in water with a considerable excess over the chemical equivalent of alkali, such as KOH, they are isomerized to a substantial extent into the conjugated form. The products thus obtained may be converted into glycerides for use as synthetic drying oils. (*Chem. Abs. 40,* 222.)

DRYING OILS. Distillation Products, Inc. *Brit. 561,840.* Unsaturated fish oils having an I value above 120 are distilled *in vacuo* under unobstructed path conditions until 40-50% or more is removed by distillation. The residue is used in a paint, lacquer or varnish. The distillate is worked up to obtain vitamins and other products (*Chem. Abs. 40,* 222.)

WRINKLE FINISH. W. A. Waldie (New Wrinkle, Inc.). *U. S. 2,392,346.* A wrinkle composition is produced by heating a noncongugated drying oil with an oil soluble resin such as natural resins, resin-modified alkyds, and phenolics, and then reacting with a polycarboxylic acid.

DRYING OIL COMPOSITIONS. Bakelite, Ltd. *Brit. 562,310.* A composition derived from a drying oil and an oil soluble resin such as a resin of the phenol-aldehyde type, is advanced in the presence of a control agent until it is more than 30% insoluble in acetone but is still capable of dispersion in a hydrocarbon thinner. This composition is then mixed with a cellulose ether or a polymerized vinyl compound. (*Chem. Abs. 40,* 477.)

DEACIDIFICATION OF STAND OIL, BALSAM, OR RESIN. L. P. Edel (Chemische Werke Albert). *Ger. 742,271.* The substance to be deacidified is placed in a closed heated vessel and the vapor of a mono- or polyhydric alcohol boiling below 300° is passed through it. Part of the acids carried away by the alcohol vapors are recovered and part are esterified. (*Chem. Abs. 40,* 478.)

SICCATIVE OILS. K. Vierling (I. G. Farbenind. A.-G.). *Ger. 742,665.* The fractions obtained by the reaction of anthracene with at least 2 moles of an olefin (having 3-10 C atoms) at 100-200° in the presence of a Friedel-Krafts catalyst are combined with a siccative and used as drying oils. (*Chem. Abs. 40,* 477.)

VARNISHES, AIR-DRYING LACQUERS, AND PAINTS. H. Rebs (K. Herberts and Co. vorm. O. L. Herberts). *Ger. 742,666.* Distillation residues of the oxidation product obtained when CO is hydrogenated by the Fischer-Tropsch method are mixed with siccatives and used in the production of varnishes, etc. (*Chem. Abs. 40,* 478.)

REMOVING PAINT AND VARNISH. R. Sadtler. *U. S. 2,392,699.* The removal of paint and varnish is accomplished by coating the surface with anacardic acid and cashew nut shell liquid and removing the film as soon as it is disintegrated.

COATING MATERIALS. H. L. Gerbart (Pittsburgh Plate Glass Co.). *U. S. 2,392,732.* A coating composition comprises a solution in an organic solvent of the polymerization product of cyclopentadiene and a fatty acid glyceride.

Abstracts

Soaps

Edited by
LENORE PETCHAFT

SPRAY PROCESS FOR SOAPS. Alan Porter Lee. *Soap 22,* No. 1, 29-31, 39 (1946). Factors involved in washing powder manufacture include strict adherence to formulation, maintenance of uniform pressure at the nozzles, prompt removal from the reaction zone of the latent heat released by air blasts, and suitable equipment for removal of the powder.

DIRECT VOLUMETRIC DETERMINATION OF THE ORGANIC SULFONATE CONTENT OF SYNTHETIC DETERGENTS. T. U. Marron and Joseph Schifferli. *Ind. & Eng. Chem. Anal. Ed. 18,* 49-50 (1946). This new method for determination of Na alkylbenzene sulfonates is applicable to commercial detergents containing alkyl or alkylaryl sulfonates. Under standardized conditions paratoluidine hydrochloride reacts with these organic sulfonates to give amine sulfonate salts which can be subjected to direct titration with standard alkali in the presence of a suitable indicator. The weakly basic amine does not interfere.

SOAP FILMS USEFUL IN LABORATORY STUDIES. Anon. *Chem. Industries 58,* 110 (1946). Soap films and soap bubbles are extensively employed in stress studies, in hydrocarbon explosions and flame spread investigations and in other research procedures. A standard soap solution for such film experiments consists of: pure castile soap—1 oz., distilled water—8 oz., and pure glycerine—4 oz. The soap, in thin shavings, is dissolved in the water and the glycerine added. After thorough mixing the solution is allowed to stand for a while, after which the clear fluid at the bottom may be siphoned off and used for experimental purposes. It is said to keep indefinitely.

NEW LUBRICANTS AID OILING AND WET FINISHING WOOLENS AND WORSTEDS. Wallace P. Heintz. *Textile World 95,* No. 7, 101, 176, 178, 180 (1945). A commercial product, "Avitone," is discussed. (*Chem. Abs. 39,* 5082.)

STABILIZATION OF OIL-IN-WATER EMULSIONS. W. G. Alsop and J. H. Percy. *Am. Perfumer 48,* No. 1, 71-7 (1946). A preliminary study is reported on stability of emulsions in the systems mineral oil-water-monoglyceride-soap and mineral oil-water-monoglyceride-synthetic detergent. Oil-in-water emulsions may show instability in two ways. The emulsion may break, that is, the dispersed droplets of oil may coalesce or the emulsion may cream, showing a clear or cloudy lower aqueous layer without any apparent coalescence. Increasing either monoglyceride, soap, or detergent concentration tended to reduce coalescence. The effect of concentration on creaming varied at different concentrations. However, in the region studied, both soap-monoglyceride and synthetic detergent-mono-