textile material, and then submitting the impregnated material to a heat treatment in the absence of moisture at a temperature between 100° and 175°.

PERMANENT WATERPROOFING PRODUCT AND PROCESS OF MAKING IT. R. A. Pingree (Warwick Chemical Co.). *U. S. 2,386,631.* The process of making a waterproofing composition comprises heating a montan, candelilla, carnauba or beeswax with P trichloride, P pentachloride, sulfuryl chloride or thionyl chloride, heating the reaction product with a fat acid nitrile and an aldehyde until reaction has ceased, and thereafter heating the reaction product with a tertiary amine until a water-dispersible product has been secured.

WATER-REPELLENCY AGENTS FOR TEXTILES. M. A. T. Rogers (Imperial Chemical Industries, Ltd.). *U. S. 2,386,140.* A water-repellency agent consists of substantially pure N:N-di-(N'-chloro-pyridinomethyl)-distearyldiamino-methane.

QUATERNARY AMMONIUM SALTS AND PROCESS OF MAKING THE SAME. M. A. T. Rogers (Imperial Chemical Industries, Ltd.). *U. S. 2,386,142.* Special fat acid and heterocyclic quaternary ammonium salts are used as textile water repellents.

PROCESS OF TREATING TEXTILE MATERIALS. M. A. T. Rogers (Imperial Chemical Industries, Ltd.). *U. S. 2,386,143.* A process for treating textile fiber for the purpose of imparting thereto the quality of water-repellence, comprises impregnating the fabric with an aqueous solution, of not less than 0.5% concentration, of N,N-di-(N'-chloro-pyridinomethyl)-distearyldiamino-methane, and then submitting the impregnated fiber to a dry heat treatment at a temperature between 100° and 175°.

HIGH FREE ROSIN SIZE DISPERSIONS. F. L. Chappell, Jr. (Hercules Powder Co.). *U. S. 2,385,794.* A method of making a high free rosin size dispersion comprises treating an aqueous dispersion comprising saponified rosin, said rosin having been saponified by means of an alkali metal alkali, with terpinene-maleic anhydride, said terpinene-maleic anhydride being employed in an amount insufficient to reduce the pH of the dispersion below about 6.

BREAKING PETROLEUM EMULSIONS. M. DeGroote and B. Keiser (Petrolite Corp., Ltd.). U. S. *2,385,969-70.* Special derivatives of castor oil fat acids are prepared for use as demulsifiers.

PETROLEUM DEMULSIFIER. M. DeGroote and B. Keiser (Petrolite Corp., Ltd.). *U. S. 2,386,936-7.* The new composition consists of a quaternary compound of the pyridine series. Most of the derivatives mentioned contain fat acid radicals.

DEMULSIFIER. M. DeGroote and B. Keiser (Petrolite Corp., Ltd.). *U. S. 2,386,445-6.* The demulsifiers are special derivatives prepared from fat alcohols, polybasic organic acid, sulfo compounds, and amines.

CUTTING OILS. *E. C. Hughes* (The Standard Oil Co.). *U. S. 2,386,952.* A process of making a cutting oil comprises reacting P pentasulphide with a mineral oil in atmosphere of inert gas, at a temperature of 200-450° F. for at least about an hour, then incorporating a small amount of fatty oil to clear up residual P pentasulphide and subjecting to reaction temperature.

TREATING WOOL. W. P. Heintz and W. H. Zillessen (E. I. du Pont de Nemours & Co.). *U. S. 2,387,510.* In this method of processing wool to the final textile, the fibers are treated with petroleum oil and petroleum sulfonates for the purpose of lubrication, softening and easy removal of the treating agent.

PRINTING INK. E. F. Carman and W. Reil (Interchemical Corp.). *U. S. 2,385,793.* A printing ink consists of pigment dispersed in a vehicle comprising from 20-30% of tall oil, 8-15% of triethanolamine, and from 45-60% of water.

RUBBER MOLD LUBRICANT. H. H. Jones (Hugh Jones Products Co.). *U. S. 2,388,153.* A lubricant mixture for molds used in molding rubber comprises Na_3PO_4 1-4, turkey red oil 1.2-2.1, a mixture of pine oil and an alkali metal water soluble soap in the proportions of approximately 3 parts pine oil to one part of soap 0.4-1.2%, gum arabic mucilage 0.1-0.4%, and the remainder water.

LUBRICANT. G. D. Davis and E. J. Barth (National Oil Products Co.). *U. S. 2,385,912.* The new lubricant composition in sulphurized glyceryl esters of tall oil.

ANTIFREEZE COMPOSITION. F. R. Balcar (U. S. Industrial Chemicals, Inc.). *U. S. 2,386,182-3.* Glycol antifreeze is rendered less corrosive by addition of glycerol monoricinoleate. Alkali metal nitrate may also be added.

ESTERS. F. Dee Snell and A. F. Guiteras (Chemsearch Corp.). *U. S. 2,385,849.* This invention relates to new organic compounds and particularly to esters of higher aliphatic alcohols and higher fatty acids having properties similar to those of certain natural waxes.

Abstracts

Drying Oils

Edited by
HOWARD M. TEETER

OCCURRENCE OF HEXADECATRIENOIC ACID IN THE GLYCERIDES OF RAPE (BRASSICA NAPUS L.) LEAF. F. B. Shorland. *Nature 156,* 269-70 (1945). Abnormally high iodine values of the C_{16} fraction were found in the course of ester fractionation analyses of rape-leaf glycerides. Crystallization of the methyl esters from methanol, distillation at 0.1 mm., crystallization of the lithium salts from acetone, reconversion to methyl esters, and distillation at 0.1 mm. yielded a fraction with saponification value, iodine value, and bromine absorption close to the theoretical for methyl hexadecatrienoate. Hydrogenation yielded methyl palmitate. Compositions of two samples of rape fatty acids from lipides soluble in acetone at 0° are given. (*Chem. Abs. 39,* 5515.)

COURSE OF AUTOXIDATION REACTIONS IN POLYISOPRENES AND ALLIED COMPOUNDS. IX. THE PRIMARY THERMAL OXIDATION PRODUCT OF ETHYL LINOLEATE.

J. L. Bolland and H. P. Koch. *J. Chem. Soc. 1945,* 445-7. The primary product of the thermal reaction between ethyl linoleate and molecular oxygen is a monohydroperoxide which is shown by spectrographic analysis to contain at least 70 per cent of conjugated diene isomers resulting from rearrangement of the unsaturated system —C:C.C.C:C—. One of the first decomposition products appears to be ketonic according to similar evidence. The observed displacement of double bonds can be accounted for by a free radical mechanism of oxidation. The absorption curves of pure ethyl linoleate, two oxidized samples, and the chromatographically recovered unchanged ester in ethanol are given. The most characteristic feature of the spectra given by the oxidized samples, apart from weak selective absorption near 2750A, is the intense bond at 2315A, which is removed by absorption on alumina, and must, therefore, be associated with the peroxide ester present in the samples. Up to an oxygen uptake of about 2 per cent the extinction coefficient is reproducible within the limits of error of the spectrographic assay, so that its average value of 22,700 can be regarded as a characteristic constant of ethyl linoleate peroxide formed during thermal oxygenation. The course of the autoxidative reaction is discussed, as is the spectral evidence of decomposition. (*Chem. Abs. 39,* 4841).

THE SEGREGATION OF LINSEED OIL GLYCERIDES BY CHROMATOGRAPHY. F. T. Walker. *J. Oil Colour Chem. Assoc. 28,* 119-34 (1945). A solution of 2.5-3.0 g. of linseed oil in 50 ml. of *n*-hexane is percolated through an absorption column (dimensions 8x1.5 in.) containing finely divided alumina at the rate of approximately 200 ml. per hour. The chromatogram is developed by percolating an additional 300 ml. *n*-hexane through the column at the same rate. The thin colored layer at the top is removed, the remainder of the column is divided into 0.5 in. sections and the oil is removed by dissolving in a mixture of equal parts of ether and acetone. Wijs iodine value and refractive index are determined on the fractions. The more unsaturated portions are absorbed at the tops of the column. Four zones are found with characteristics corresponding to glycerides containing 7, 6, 5, and 4 double bonds respectively. Repeated fractionation separated a linoleo dilinolenin (8 double bonds) fraction and gave evidence of the presence of a small amount of trilinolenic (9 double bonds). The thiocyanogen value of linolenic is calculated from the thiocyanogen value of its glycerides. With iodine and thiocyanogen values of oleic, linoleic, and linolenic and the corresponding values of linseed oils, the proportions of these acids in the oils are calculated by simultaneous equations (*Chem. Abs. 39,* 5090.)

COMPONENT ACIDS OF TWO LESSER KNOWN PAINT OILS. C. R. Pye. *Paint Tech. 10,* 113-14 (1945). Data are presented on niger-seed and stillingia oils, which in heat-bodying and drying were found to be only slightly inferior to linseed oil. The niger-seed oil was pale yellow in color, and had saponification value 288.5, iodine value 140.8, free fatty acid (as oleic) 0.65 per cent and n^{20} 1.4738. Composition (calculated from "solid," and "liquid" acids was: saturated 9.6, oleic 16.3, linoleic 72.4, and linolenic 1.7. The stillingia oil was dark red-brown and had a saponification value 298.2, iodine value 187.8, thiocyanogen value 109.0, free fatty acid (as oleic) 1.82 per cent, n^{20} 1.4802, specific gravity (20°) 0.9383. Composition: Palmitic 4.8, stearic 2.5, oleic 4.5, linoleic 66.8, and linolenic 21.4. (*Chem. Abs. 39,* 5091.)

RESINS AND DRYING OILS. SOME RECENT DEVELOPMENTS. H. S. Lilley. *Paint Tech. 10,* 133-7 (1945). A review of progress in the following categories: alkyds, maleic alkyds, maleate vinyl interpolymers, vinyls, amines, natural resins, drying oils, and phenolics. One hundred references. (*Chem. Abs. 39,* 5091.)

THE APPLICATION OF CHROMATOGRAPHY TO THE PROBLEMS OF OIL AND VARNISH CHEMISTRY. M. R. Mills. *Paint Tech. 10,* 107-12 (1945). A review (27 references) presenting methods, technics, and suggestions for application. Chromatography has been utilized to fractionate fatty acid mixtures, to separate mono-, di-, and triglycerides to separate the glycerides of linseed oil and to study oil oxidation products. (*Chem. Abs. 39,* 5091.)

FUME DISPOSAL SYSTEMS. J. Jares. *Official Digest Fed. Paint Varnish Prod. Clubs 249,* 367-370 (1945). An analysis of factors affecting removal of fumes arising from bodying oils, running natural gums, and manufacturing oleoresinous varnish and alkyd varnish. Data are presented on the rate of fume evolution from bodying linseed and Perilla oils, and from cooking long oil and congo varnishes.

PREPARING A BOILED LINSEED OIL. A. S. Neto. Anais Assoc. quim., Brazil *2,* 151-7 (1943). Linseed oil heated 24 hours in an inert atmosphere at 100°-180° suffers only a small decrease in iodine number, and the acid number remains below 8. Heating for a few hours in the presence of air has little effect on these numbers at temperatures below 150°C. To obtain a boiled oil with an iodine number of at least 170, the raw oil must have an iodine number of above 175; the temperature should not exceed 180°, and by preference, the heating should be done in an atmosphere of carbon dioxide. (*Chem. Abs. 39,* 5509.)

SEGREGATED OILS. H. Luscombe. *Can. Paint and Varnish Mag. 19,* No. 9, 83 (1945). By segregating oils, such as linseed, fish, soya, and sunflower, fast hard-drying fractions were obtainable and, at the same time, soft nondrying fractions resulted. (*Chem. Abs. 39,* 5509.)

PATENTS

MODIFIED CASTOR OIL. F. G. Nessler and E. F. R. Schuellse (Sherwin-Williams Co.). *Can. 428,728.* A drying oil is produced by dehydration of castor oil, e.g. by esterification with one-third its weight of acetic anhydride at 85°-95°, heating to distill off free acetic acid, and then heating to over 280° under reduced pressure to decompose the ester and drive off the liberated acetic acid. (*Chem. Abs. 39,* 5095.)

DEHYDRATION OF CASTOR OIL. R. T. Urben and J. R. Price, Jr. (Armstrong Paint and Varnish Works). *Can. 428,786.* Fats or fat acids of the ricinoleic series are heated to 525°-575°F. with a quantity of phthalic acid or phthalic anhydride insufficient for complete esterification to effect successively formation of small quantities of the phthalic ester of the mixture and the decomposition of the ester to reform free phthalic anhydride and to give a product having conjugated double bonds. (*Chem. Abs. 39,* 5095.)