

as more satisfactory than the lead salt separation method. The procedure is illustrated in a few samples. Composition of linseed oil acids, I value 191.3; palmitic 7, stearic 8, arachidic 1, oleic 13, linoleic 17, and linolenic 54% by weight; wheat germ oil acids: palmitic 16, stearic 6, oleic 12, linoleic 57, and linolenic 9% by weight; Ceylon rubber-seed oil acids, I value 139.8: palmitic 11, stearic 12, arachidic 1, oleic 17, linoleic 35, and linolenic 24% by weight; Nigerian rubber-seed oil acids, I value 141.0: palmitic 9, stearic 10, arachidic 1, oleic 20, linoleic 39, and linolenic acid 21% by weight. The prospects of rubber-seed oil as a drying oil are also discussed. (*Chem. Abs.* 40, 3007-9.)

PEROXIDATION IN RELATION TO OLEFINIC STRUCTURE. E. H. Farmer (Brit. Rubber Producers' Research Assoc., Welwyn Garden City, Herts). *Trans. Faraday Soc.* 42, 228-36 (1946). The autoxidation of olefinic substances comprises 2 major phenomena: that of the incorporation of molecules of O_2 (peroxidation) and that of secondary change (peroxide breakdown). When the peroxido-olefins are at least moderately stable, no serious difficulty attends the study of their decomposition. When however, they are unstable, deductions of their structure and mode of decomposition must be made from the nature of the secondary decomposition products actually isolated, and hence erroneous conclusions may easily be drawn. All peroxides of conjugated non-aromatic dienes and polyenes are formed by addition of O_2 to the double bond system, even if this system is flanked by $-CH_2-$ groups as is the case with Me sorbate and Me eleostearate. Even when of high thermal stability they exist as polymeric bodies rarely exceeding octameric complexity and containing little or no monomeric component. They undergo chemical reduction and catalytic hydrogenation so incompletely that no satisfactory absolute method of their analytical determination exists. Catalytic hydrogenation fails to yield quantitative reduction to monomeric 1,4-diol because the metal surface promotes extensive catalyzed decomposition. Thus methyl eleostearate yields 60% of mixed hydroxyketo and dihydroxystearic esters. Crude polymeric peroxides formed from open-chained conjugated systems usually contain up to 20% of oxidative scission products, which may occur unavoidably during absorption of O_2 or otherwise may first occur by metal catalyzed decomposition during hydrogenation. Sorbic ester, α,δ -diphenylbutadiene, and Me eleostearate belong to the spontaneous unavoidable type while β,γ -dimethylbutadiene and isoprene are of the catalyzed type. Numerous polynuclear aromatic compounds form photo-oxides which dissociate thermally into the original hydrocarbon and O_2 . Di- and polyolefinic compounds containing the 1,4-system form hydroperoxides upon the methylene groups between the double bonds. The detachment of an H-atom during the oxidation enables the radical to rearrange into more stable conjugated forms. Mono-olefinic compounds oxidize less easily, but appear to behave in a very similar manner. In mono-olefinic systems the point of attachment follows the ordinary directive rules for ethylenic reactivity. Good justification appears to exist for postulating universal initiation of autoxidation by addition. The α -methylene products from uncon-

jugated olefins follow by an intermolecular chain mechanism. The influence of peroxidic structure upon the tendency to chain scission is obscure since the course of reaction is much affected by experimental conditions. The polymeric tendency referred to in connection with Me eleostearate and conjugated olefins is of general occurrence and appreciable polymer fractions are found in even the most favorable cases of hydroperoxide formation. Finely divided metals actively promote a type of decomposition which differs from the spontaneous decompositions and is characterized by the formation of $=C=O$ and $\equiv C-OH$ groups.

DRYING OIL EMULSIONS WITH ZINC OXIDE AS SUBSTITUTES FOR STRAIGHT DRYING OILS. V. S. Varlamov. *Pishchevaya Prom.* 1945, No. 2, 24-7. With Pb-Mn driers as emulsifiers and ZnO as stabilizer, O-W emulsions of linseed oil were prepared, for example, oil (acid No. 4.4) 50, water 49.7, ZnO 0.3%. The drier contained Pb 0.1 and Mn 0.07%. This emulsion had 4.5 times the viscosity of the raw oil and was stable over a 65-day test period. A similar emulsion but with linseed oil of acid number 9.9 and a drier containing Pb 0.12 and Mn 0.08% showed after 18 days only traces of phase separation attributable to evaporation of water. For use as paints these emulsions were successfully pigmented with ZnO, lithopone, whiting, Cr oxides, chrome green, litharge, red Pb, and hematite. Yellow ochre, ultramarine and powdered silica gel were not readily compatible with these O-W emulsions. Economy in linseed oil for 2 paint coats is 27% (ZnO pigment) or 24% (hematite pigment) as compared with straight oil paints. In a single coat the saving is greater. (*Chem. Abs.* 40, 3621.)

PATENTS

SYNTHETIC DRYING OIL. C. J. Mighton (E. I. du Pont de Nemours and Co.). *U. S.* 2,401,769. A synthetic drying oil comprises a copolymer of furylaldehyde (35-5%) and a drying or semidrying oil (65-95%).

PAINT COMPOSITION. M. T. Schmidt (U. S. Gypsum Co.). *U. S.* 2,401,666. A paint consists of a drying oil, a reaction product of an aliphatic fatty acid having 12-24 C atoms with a volatile alkaline reacting material, 4% of coal tar solvent, pigment, and fillers. Coal tar naphtha may be used as the coal tar solvent.

SYNTHETIC DRYING OILS AND COATING COMPOSITIONS. E. I. du Pont de Nemours and Co. *Brit.* 574,680. Glycerine is partially esterified with an α,β -ethylenic- α -(alken-1-yl) monofunctional acid, such as α -vinylcinnamic, or α -vinylcrotonic acid, and esterification is then completed with an aliphatic monocarboxylic acid such as oleic, stearic, lauric, crotonic, and sorbic acids or the fatty acids of vegetable oils. Films of the mixed glycerides when mixed with driers dry in 8 hours at room temperature to hard, clear, light-colored, tack-free films. The glycerides may be blended with natural resins and synthetic resins of various types.

CORRECTION

ABSTRACT TITLED LALLEMANTIA OIL (Steger and van Loon), *Oil & Soap* 22, 175 (1946), last line should read "linolenic acid 53.5%."