DETERGENT COPOLYMERS. F. A. Stuart, W. T. Stewart, and W. Lowe (California Research Corp.). *U. S. 2,993,032.* The described product is a copolymer of at least the (A) and (B) monomers of the following monomers: (A) higher alkyl methacrylate having from 8 to 30 carbon atoms in the alkyl group; (B) monoester of carboxylic acid selected from the group consisting of the ester of methacrylic acid and half ester of maleic acid in which the carboxyl group of the acid is esterified with a polyhydroxy substituted alkyl alcohol; and (C) methacrylic acid. The monomers are present in the ratio of from 1 to 20 monomer units of the oil-solubilizing compound (A) for each monomer unit of the ester (B) and the acidic compound (C).

PURIFICATION OF SALTS OF DETERGENT AMINO ACIDS. D. L. Anderson (General Mills, Inc.). *U. S. 2,993,071.* A process is described for purifying the salt of a detergent amino acid of the formula $RNH_m(CHR'CH_2COOMe)_n$ where R is an aliphatic hydrocarbon group contains 8–22 carbons, R' is hydrogen or methyl, Me is sodium, potassium, or ammonium ion, m is not greater than 1, n is at least 1 and not more than 2. The zwitterion is formed and separated and dissolved in ethylene dichloride. The solution is cooled to cause separation of an ethylene dichloride phase, the ethylene dichloride is separated, and the purified zwitterion is recovered.

DETERGENT COMPOSITIONS. H. W. McCune (Procter & Gamble Co.). *U. S. 2,993,861.* The described composition consists of a calcium-sequestering phosphate and, as an inhibitor against the tendency to damage aluminum, a polyamine having the formula RX_nNH_2 in which R is an alkyl radical with 10 to 18 carbon atoms, X is the group C_2H_2NH or C_3H_3NH, and n is the integer 1 or 2. The polyamine is present in an amount from 5% to 15% by weight of the sequestering phosphate.

• Drying Oils and Paints

PHYSICAL-CHEMICAL ANALYSIS OF PAINTS AND VARNISHES. J. Huesa (Instituto de la Grasa y sus Derivados, Seville, Spain). *Grasas y Aceites* 11, 180–192 (1960). A review of the standard methods and apparatus for testing paints and varnishes.

PREPARING MODIFIED POLYAMIDE RESINS. H. H. Young and S. B. Luce (Swift & Co.). *U. S. 2,992,195.* Polyamide resins prepared from alkylene polyamines and polymeric fatty acids such as oleic, linoleic, linolenic, or eleastearic, are mixed with a small amount of a nitrogen-containing compound (urea, monosubstituted ureas, asymmetrically disubstituted ureas, malonamide, malononitrile, hydrazine, dimethyl hydantoin, or phthalamide) and heated to a point above the decomposition temperature of the nitrogen-containing compound. The modified resins exhibit improved toughness and decreased tackiness.

POLYEPOXIDE-DICARBOXYLIC ANHYDRIDE COMPOSITIONS. C. S. Ilardo, C. T. Bean, and P. Robitschek (Hooker Chemical Corp.). *U. S. 2,992,196.* The described composition consists of a polyepoxide which has greater than 1 nonterminal epoxide group per molecule and which is derived from naturally occurring glyceride vegetable oils, a constituent selected from the group consisting of organic dibasic acids, organic dihydric alcohols and mixtures thereof, and 1,4,5,6,7,7-hexachlorobicyclo-(2,2,1)-5-heptene-2,3-dicarboxylic anhydride.

MODIFIED OIL COPOLYMER EMULSIONS AND PROCESS OF PREPARING THE SAME. R. B. Boller (Archer-Daniels-Midland Co.). *U. S. 2,992,197.* The described emulsion is an aqueous system containing a continuous phase and an *in-situ* formed dispersed phase comprising: (1) in the continuous phase, water and about 2% to 35% oxidizable emulsifier with a film forming property and comprising water soluble salts of long chain fatty ester polymers modified with a dicarboxylic acid, alkyl modified dicarboxylic acid, dicarboxylic acid anhydride, or mixtures, and (2) in the dispersed phase, an *in-situ* polymerization product of: (a) about 3% to 35% unsaturated long chain fatty ester monomers containing polymerizable ethylenic linkages which are formed from drying oils, semidrying oils, etc. modified with an alcohol and polycarboxylic acid material selected from the groups consisting of polyhydroxy alcohols and *alpha,beta*-ethylenic polycarboxylic acids and their anhydrides, and (b) from about 5% to 40% polymerizable monomers having a terminal ethylenic $C=CH_2$ group.

PROCESS OF PRODUCING LIQUID COLOR. T. Funahashi. *U. S. 2,992,198.* About 5 parts by weight of an animal or vegetable oil is emulsified in about 10 parts of an aqueous medium in the presence of 10 parts of a polyalcohol and 5 parts of an organic capillary active agent. About 3 parts of an emulsifiable synthetic resin is added, the emulsion is heated to 80°, and about 3.5 parts of a water-soluble dyestuff is then added.

PROCESS FOR IMPROVING THE EFFICACY OF OILS USED AS BINDING AGENTS AND CORE SANDS FOR FOUNDRY. L. F. N. Schmit and K. P. J. Cassart. *U. S. 2,993,796.* Sand core for foundry work contains powdered silica or ziroconium sand, a drying oil as a binding agent, and lead dioxide (0.3 to 10% by weight of drying oil) as a setting accelerator.

MODIFICATION OF ALKYD RESINS WITH META- OR PARA-HYDROXY BENZOIC ACIDS. R. L. Heinrich, D. A. Berry, and R. J. Dick (Esso Res. and Eng. Co.). *U. S. 2,993,873.* The described alkyd is the intercondensation product of about 3.1 to 3.4 mol. equivalents of a polyol containing an average of 2.5 to 4.5 hydroxyl groups per molecule with 2 to 2.5 mol. equivalents of a polycarboxylic acid and, correspondingly, from 1 to 0.5 mol. equivalent of a modifier component consisting of 20 to 80 mol. % of an unsaturated glyceride oil fatty acid portion and 80 to 20% of an aromatic monocarboxylic acid.

RESINS AND METHOD OF MAKING THE SAME. W. M. Budde, Jr., and G. W. Matson (Archer-Daniels-Midland Co.). *U. S. 2,993,920.* A liquid aliphatic higher fatty acid ester material containing 12–26 carbon atoms in fatty radical and an iodine value higher than 140 is epoxidized to an internal oxirane value of at least 8% and neutralized. The resulting product, containing from 10 to 200 p.p.m. of monovalent alkali metal ion, is reacted with the anhydride of a polycarboxylic acid in the molar ratio of 0.5 to 1.2 moles anhydride per mole of internal oxirane in the fatty ester.

CASTOR OIL-BASED URETHANE COATINGS. G. O. Rudkin, Jr., J. E. Wilson, and M. A. Dunn (Atlas Powder Co.). *U. S. 2,994,674.* The described composition is the reaction product of an aromatic diisocyanate and the alcoholysis product of castor oil with a polyoxypropylene ether of a hexitol.

THIXOTROPIC OIL VEHICLE. H. M. Schroeder, R. L. Terrill, and H. M. Hauge (Spencer Kellogg and Sons, Inc.). *U. S. 2,996,396.* An oil vehicle having thixotropic characteristics is prepared by heating an oil selected from the group consisting of unbodied drying or semidrying oils, bodied drying or semidrying oils, a liquid copolymer of vegetable drying or semidrying oils with a benzenoid vinyl monomer (vinyl benzene or vinyl toluene) at a temperature in the range of 200 to 450°F. in the presence of 0.1% to 5% of ethylenediamine for 0.5 to 6 hours until the oil has acquired thixotropic characteristics greater than about 5/4.5.

PAINT TINTING COLOR BASES. C. W. Secker, Jr., (E. I. du Pont de Nemours and Co.). *U. S. 2,996,397.* A fluid multi-purpose paint tinting color base consists of (A) a dispersed pigment composition, (B) about 5–40% of an oleaginous nonvolatile organic vehicle consisting of dehydrated castor oil and soya lecithin in the proportion of 0.05 to 2 parts of lecithin per part by weight of the dehydrated castor oil, and (C) about 1 to 15% of a liquid nonionic surfactant composition which has a polyethanoxyethanol substituent linked through an ether oxygen atom to a ring carbon atom of a 5- to 6-member organic ring containing at least 4 ring carbon atoms, any atom in the ring other than carbon being a single ether oxygen atom. The organic ring also has a hydrophobic alkyl substituent of at least 8 carbon atoms linked to it.

COATING COMPOSITIONS. M. Kronstein and J. Eichberg (American Lecithin Co.). *U. S. 2,997,398.* A liquid coating composition consists of boiled linseed oil with a zinc salt reaction product of commercial lecithin (containing about 8% zinc) combined with red lead, using 65 parts of read lead for each 22 parts of linseed oil diluted with 19 parts of mineral spirits. The oil is light in color and high in light transmission.

Erratum

The September Journal, Vol. 38, No. 9, page 505, Effect of Extraction Temperature and Refining on the Halphen-Test Response of Cottonseed Oil, by Bailey, Magne, Pittman, and Skau.

The beginning of the fourth paragraph should read as follows: "The Halphen determinations were made by a modification of the procedure for the A.O.C.S. qualitative test (1) using a 0.5-g. oil sample. The Halphen-test response is expressed in terms . . ."