

the isomer with the formula assigned by Tokano may also be present. (*Chem. Abs.* 40, 5584.)

DRYING OILS AND DRYING. A. Nauroy. *Peintures pigments vernis*, 17, 635-9 (1942). A discussion of the structure of drying oils, autoxidation, drying action, and polymerization. 15 references. (*Chem. Abs.* 40, 5577.)

PATENTS

CONJUGATED FATTY POLYENE COMPOUNDS. A. Turk and P. D. Boone. *U. S.* 2,405,380. In the process of producing conjugation is the step of heating a liquid containing a non-conjugated polyene compound which has an acyl nucleus of at least 12 C atoms, with a solid Mg silicate at a temperature not below 200° until the resulting liquid has a conjugation of 15% above the initial liquid, calculated on the basis of the increase of refractive index.

MODIFICATION OF FATTY OILS. L. Auer. *U. S.* 2,406,337. A process for treating fatty oils having drying properties, to improve their film-forming characteristics when used as components of surface coating materials comprises incorporating in the oil up to 30% of a polyhydroxy benzene as the sole active treating agent, and heating the mixture at 75-350°, but not above the boiling or decomposition point of the oil, whichever is lower, for at least 30 minutes.

COATING COMPOSITIONS. L. M. Kebrich and E. P. Peterson (Natl. Lead Co.). *U. S.* 2,406,609. This improved vegetable drying oil coating composition contains a lead salt of a hydroxy aromatic acid.

MODIFIED DRYING OILS AND LIKE UNSATURATED ESTERS. E. I. du Pont de Nemours and Co. (Imperial Chemicals, Ltd.). *Brit.* 565,777. A glycerol ester of an unsaturated aliphatic monocarboxylic acid preferably of long chain having at least 12 C atoms and several double bonds is treated with an organic compound containing several isocyanate or isothiocyanate groups. The ester may be a natural, at least partially unsaturated oil containing a free hydroxyl group as in castor oil. Improved plasticizers, coating, and drying oil compositions are obtained from linseed oil and decamethylene diisothiocyanate or ethylene diisocyanate. (*Chem. Abs.* 40, 5267.)

WRINKLE COATING COMPOSITIONS. E. L. Luaces. *Brit.* 566,000. The compositions are prepared by treating an oil having several double bonds in non-conjugated positions at 400° F. with an alcoholic solution of an alkali metal hydroxide in excess of the stoichiometric quantity required to transform all the acids into soap. The fatty acids are separated and heated with a polyhydric alcohol and a polycarboxylic acid. (*Chem. Abs.* 40, 5580.)

MODIFIED LINSEED OIL WRINKLE FINISH. W. A. Waldie (New Wrinkle, Inc.). *U. S.* 2,407,623. The method of making wrinkle varnish base consists in heating glycerol with a dehydrating agent from the group consisting of NaAc and NaOH to approximately 500° F. for about 30 minutes, adding non-conjugated double-bonded drying oil and heating to approximately 500-520° F.; adding natural resin and heating to approximately 540° F., and blowing the reaction mixture with air at about 400-420° F.

WRINKLE FINISHES. W. A. Waldie. *Brit.* 566,057 and 566,066. A wrinkle varnish base is prepared by heating a drying oil such as a dehydrated castor oil, an oil-soluble resin such as a rosin modified maleic acid glycerol resin or a phenol-aldehyde resin, and air for approximately 1 hour at 375-400°. A wrinkle coating composition is obtained by adding a metallic drier and solvent to the varnish bases. In 566,066, a polyglycerol modified drying oil is substituted for the drying oil. The cooking time of the varnish is thereby reduced. (*Chem. Abs.* 40, 5580.)

VULCANIZED OR SULFURIZED OIL COMPOSITIONS. J. A. Stokes and E. Bader. *Brit.* 570,262. A coating composition is produced by treating a fatty oil, and particularly one containing a hydroxyl group in the fatty acid radical, with a proportion of SCl₂ in association with a volatile organic solvent functioning as a diluent in a proportion and in conditions by which a highly viscous liquid is produced, which is still however soluble in cyclic hydrocarbons, and then converting the liquid to a final product insoluble in cyclic hydrocarbons with the aid of a curing agent or by the action of heat with or without the use of a curing agent. (*Chem. Abs.* 40, 5267.)

Abstracts

Soaps

Edited by
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SOAP GELS IN NONAQUEOUS MEDIA. G. S. Hattiangdi (Roy. Inst. Sci. Bombay). *J. Sci. & Ind. Research (India)* 4, 489-92 (1946). The time of gel setting was used to determine the effect of variations in soap concentration, temperature, and solvent in binary systems constituted from Na oleate or Na stearate in toluene, xylene, pinene, or Nujol. The time of setting of gels of either soap in any of the media used decreased as the soap concentration increased and temperature decreased. Time-concentration curves at 50° of Na oleate indicated the setting effect of the solvents to decrease in the order toluene, Nujol, xylene, pinene. Heats of activation for the setting processes were calculated by the method of Hurd *et al.* (cf. *C. A.* 38, 22545) for Na oleate and Na stearate, respectively, in 4 solvents: toluene —6776, —; xylene, —6713, —7775; pinene, —3202, —2820; Nujol, —5741, —4324. The gelation mechanism was considered as

being that of a true solution obtained by preparation at the b. p., forming a colloidal solution on cooling, consisting of a suspension of micelles in a soap solution, and finally passing to the true gel state. The retarding effect of various substances on the syneresis of the Na oleate-pinene gel was found to be in the order Na palmitate >K stearate >Na stearate for added soaps and Nujol >benzene >toluene for added solvents. (*Chem. Abs.* 40, 4937.)

PERMUTOID TRANSFORMATION OF FATTY ACID CRYSTALS INTO METALLIC SOAP CRYSTALS AND THE TEMPERATURE DEPENDENCE OF THE TWO-DIMENSIONAL PRESSURE OF MONOLAYERS. A. A. Trapeznikov (Colloid-Elektrochem. Inst. Acad. Sci., U.S.S.R.) *Compt. rend. acad. sci. U.R.S.S.* 47, 344-7; *Doklady Akad. Nauk S.S.S.R.* 47, 349-53 (1945). The penetration of crystals by electrolytes and the different stages of the interaction of multivalent cations with fatty acid molecules

within the crystal become apparent in a study of the temperature dependence of the two-dimensional equilibrium pressure of the monolayers that form upon spreading. The effect of electrolytes containing multivalent cations manifests itself in the marked lowering of the two-dimensional pressure as compared with the equilibrium pressure on pure H₂O. Following is the equilibrium pressure (dynes/cm.) of a palmitic acid monolayer in contact with different underlying solutions. Temperature is 75° above the m.p. of the crystals. H₂O 31.7; 0.02 N CaCl₂ 33.0; 0.02-N Th (NO₃)₄ 19.5; 0.02 N CuSO₄ 8.7; satd. Ca(OH)₂ 13.7. This also furnishes a new method of obtaining pure metallic soaps, free from univalent cations. The interaction of fatty acid crystals with electrolytes reaffirms that crystals in the hydrated state are three-dimensional analogs of monolayers. (*Chem. Abs.* 40, 4933.)

FATTY ACID SOAPS IN EMULSION POLYMERIZATION. Leo W. Rainard (General Latex & Chemical Corp., Cambridge, Mass.). *India Rubber World* 114, 67-9 (1946). Although the rate of the emulsion polymerization of styrene is proportional to the square root of the catalyst concentration, in butadiene emulsion polymerizations the rate passes through a maximum with increasing concentration of catalyst. A correlation has been observed between the oxidation potentials of emulsion systems and the rates of polymerization. Aqueous solutions containing K₂S₂O₈ and soap had lower oxidation potentials than corresponding solutions containing K₂S₂O₈ but no soap. However, polymerization would occur only when soap was present. The potential-concentration curves indicate that there is a reaction between soap and K₂S₂O₈. A possible reaction is the formation of free alkyl radicals by the decarboxylation of soap. It is suggested that soap in emulsion polymerization acts: (1) to bring the monomer into the aqueous phase where close contact is established with activating free radicals, (2) to furnish the activating free radicals in some cases, and (3) to stabilize the emulsion and prevent polymer particles from coalescing. (*Chem. Abs.* 40, 5284.)

GR-S EMULSIFIED WITH ROSIN SOAP. G. R. Cuthbertson, W. S. Coe, and J. L. Brady. *Ind. Eng. Chem.* 38, 975 (1946). Standard GR-S utilizes fatty acid soap as an emulsifier, which is in turn converted to free fatty acid when flocculated. Rosin acid soap could be substituted for fatty acid soap in the GR-S system, with formation of polymer of good quality. Experience in the building of tires from the rosin soap GR-S showed that considerably better quality was obtained because of superior adhesion between the solutioned cords and the surrounding carcass compound.

DETERMINATION OF PHENOLS IN SOAP. REPORT NO. 6 OF THE SUB-COMMITTEE ON SOAP ANALYSIS. H. E. Cox *et al.*, *Analyst* 71, 301-5 (1946). Two methods in general use give good results: (1) The soap is precipitated from an alkaline solution by means of Ca(NO₃)₂ and the phenols in the filtrate are determined by Br₂ absorption; as reagent a solution containing KBr and KBrO₃ is used. (2) The phenols are separated by steam distillation and subsequently determined by Br₂ absorption. (*Chem. Abs.* 40, 5584.)

SURFACE INTERACTION BETWEEN SODIUM SOAPS AND CERTAIN SODIUM ALKYL SULFATES. P. A. Winsor

(B. P. M. Research Labs., Cheshire), *Nature* 157, 660 (1946). That Na stearate (I) readily displaced Na n-tetradecyl sulfates (II) from the surface layer of aqueous solutions was demonstrated by the adverse effect of I on foams from solutions of II. The sulfates having the —SO₃Na group furthest removed from the end of the hydrocarbon chain were most easily displaced. The results of Dreger, *et al.*, which showed that the detergency of isomeric Na alkyl sulfates diminishes as the sulfate group recedes from the end of the hydrocarbon chain, were confirmed in the respect that the more readily displaced surface-active materials may be expected to have poor detergency properties. (*Chem. Abs.* 40, 5320.)

HEATING BY HOT WATER UNDER PRESSURE IN THE FAT INDUSTRY. R. de Saint-Martin. *Corps gras, savons* 1, 105-10 (1943). The advantages of hot H₂O under pressure over steam as a source of heat in various phases of the fat, soap, and glycerol industries are pointed out. The utilization of hot H₂O under pressure permits a more accurate temperature control and reduces loss by autovaporization, leakage, H₂O purification, boiler scale, condensation, corrosion of conduits, etc.

PRELIMINARY DEGLYCERINATION OR DIRECT SAPONIFICATION. Jacques Bergeron. *Inds. corps gras* 2, No. 1, 19-20 (1946). The two methods are compared by considering actual cases. It is evident that the quality of glycerol obtained by direct sapon. is superior to that obtained by extn.

RESEARCH ON THE MECHANISM OF DETERSION. Marcel Mathieu. *Corps gras, savons* 1, 168-78 (1943). The deterative action of various dipolar compds. of significant chain-length or mol. mass are interpreted in terms of their unimol. films.

PATENTS

PROCESS OF MAKING SOAP. Benjamin H. Thurman (Refining, Unincorporated). *U. S.* 2,403,413. The system comprises splitting glycerides to produce a mixture of glycerine, fatty acids, and water, adding a saponifying agent to convert fatty acids into soap, and separating glycerine in vapor form.

METHOD OF MAKING SALT WATER SOAP. James Blades (Kamen Soap Products Co.). *U. S.* 2,407,130. The product is sulfonated synthetic detergent from lauryl alcohol and naphthalene, neutralized with caustic soda.

SAPONACEOUS DETERGENT HAVING IMPROVED HARD-WATER CHARACTERISTICS. Harry H. Kroll and Mark Weisberg (Alrose Chemical Company). *U. S.* 2,404,298. A detergent having improved hard water characteristics comprises 5-20% of a water-soluble basic organic nitrogen compound, 20-40% of an amide of an alkylol amine and a higher molecular weight carboxy acid, and 40-80% of water-soluble soaps, the percentage being based on the amount of these, the three components, which detergent is produced by heating the aforesaid components at 100°-190° C. for a period of 10-60 minutes.

DETERGENT COMPOSITION. Lawrence H. Flett and Gilbert C. Toone (Allied Chemical and Dye Corporation). *U. S.* 2,401,726. A detergent composition useful as a shampoo contains one or more water-soluble salts of higher alkyl esters of sulfuric acid.