
Abstracts

Drying Oils

Edited by
HOWARD M. TEETER

MONOLAYERS OF OXIDIZED AND HEAT-BODIED LINSEED OIL. D. C. Lichtenwalner, H. E. Adams, and P. O. Powers. *J. Phys. Chem.* 49, 511-519 (1945). Monolayers of linseed oil which had been oxidized or heat-polymerized for various periods of time were examined with a hydrophil balance. Polymerization does not introduce any new polar groups into the molecule; hence the main effects noted were (1) the force-area curves extrapolate to increasingly larger limiting areas as the molecular weight increases; (2) slightly smaller forces are required to change the film into the condensed state; (3) all films apparently are compressed to the same area at high pressures, irrespective of the molecular weight. Oxidation introduces new polar groups, resulting in the requirement of progressively higher pressures to put the film in the condensed state. The limiting area increases with addition of oxygen because of the greater attraction of oxygen for water and the resultant flattening of the film. When three atoms of oxygen per glyceride molecule have been added, a limiting area of 167 sq. Å is reached, and further addition of oxygen does not increase this area or cause the force-area curves to change appreciably. Apparently one oxygen per fatty acid chain is, on the average, sufficient to develop the maximum area and maximum force of attraction between oil and water. The minor effects produced by polymerization as contrasted with oxidation make it impossible to study the polymerization reaction which occurs during the oxidation of monolayers of linseed oil.

PATENTS

DRYING OIL SUBSTITUTE. C. H. Bibb and R. C. Palmer (Newport Industries). *U. S.* 2,388,947. Terpene hydrocarbons are thermally decomposed with an incandescent element immersed in the hydrocarbon until

a substantial proportion of the polymer has been formed. The product is steam distilled at 150-170°C. to remove volatile fractions and the residue is useful as a drying oil.

RUBBER SUBSTITUTE. J. H. Elder. *U. S.* 2,390,829. A rubber substitute prepared from 24 parts of linseed oil, 6 parts of pine tar, 5 parts of carbon black, 14 parts of carbon disulfide, 1 part of gum rubber, and 2 parts of hexamethylene tetramine and phenol.

POLYMERIZED RUBBER PRODUCT. D. Sanderson and H. Poff. *U. S.* 2,390,961. Mixtures of cottonseed and linseed oil are heated, then treated with asphalt and a small percentage of cyclized rubber, compounded with zinc oxide, sulfur, litharge and carbon black and cured at 380°F.

EMULSION COATING COMPOSITION. A. R. Trist. *U. S.* 2,389,011. A stable water in oil emulsion is prepared by colloidal milling a petroleum solution of highly polymerized linseed oil of high acid content with an aqueous solution of aluminum, calcium, magnesium or of zinc salt.

PRODUCTION OF WATER DISPERSIONS OF DRYING OILS, VARNISHES, AND LACQUERS. P. Stamberger. *U. S.* 2,391,041. An oxidized drying oil is emulsified in the presence of a stabilizing agent which maintains stability below pH of 7 during oxidation of the drying oil emulsion.

PROCESS FOR PRODUCTION OF THICKENED MASSES FROM ESTERS OF UNSATURATED FATTY ACIDS. P. Stamberger. *U. S.* 2,391,042. Process of producing stable aqueous emulsion of thickened polyhydric alcohol ester of a poly unsaturated long chain fatty acid by subjecting the emulsion to oxidation with H₂O₂ in presence of an oxidation promoting catalyst and stabilizing agents which maintain the pH between 4-10.

Abstracts

Soaps

Edited by
LENORE PETCHAFT

EXPERIMENTS WITH A CATIONIC WETTING AGENT. A. Steigmann. *J. Soc. Chem. Ind.* 64, 88 (1945). S. reports expts. with trimethyl- β -oleamidoethylammonium sulfate (Sapamine) in analytical chemistry. It ppts. anionic colloid electrolytes, acid dyes, salts of org. acids or org. compds. with acidic groups (SH, NO₂), polysulfides and polyiodides, nitroprussides, ferrocyanides, and thiocyanates. Techniques for impregnating filter papers for use in spot tests are described. (*Chem. Abs.* 39, 3491.)

SOAP PLANT LAYOUT. E. G. Thomssen. *Soap* 21, No. 11, 29-31, 71 (1945). The planning of a small soap plant is described. Building requirements, placing of equipment, handling of raw materials, glycerine recovery and storage of finished soap are all reviewed.

SURFACE-ACTIVE COMPOUNDS. XI. DERIVATIVES OF C-ALKYLANILINES. B. D. Tilak and K. Venkataraman. *J. Sci. Ind. Research (India)* 3, 290-8 (1945). The

compd. MeC₆H₄(2-SO₃Na)(4-NHCOC₁₁H₂₃) (I) has been previously found to have outstanding wetting agent properties, and related compds. were therefore prepd. by condensing aromatic amino sulfonic acids with fat acid chlorides. The compds. were examined by the Herbig No., the Draves test, Ca soap dispersing power by the titration and the optical method, Congo Rubin No., and stability to NaOH, H₂SO₄, and CaCl₂. In general the compds. derived from lauric acid were better wetting agents than those from oleic acid by both Herbig No. and flotation tests and were also more efficient in Ca soap dispersing power and protective colloidal action. In the majority of cases metaorientation between -NHCOR and SO₃Na in the lauric acid series gave better wetting agents than ortho, and the reverse was true in the oleic acid series. (*Chem. Abs.* 39, 5103.)

CHEMICAL TREATMENT OF SOAPY WASTE WATER. Harry W. Gehm. *Water Works & Sewerage* 92, 255-7

(1945). Soapy wastes from laundries or synthetic rubber plants, treated with sea water of spent zeolite softener regenerant, in connection with small doses of hydrated lime produces a rapidly settling, compact sludge. Expts. with Na stearate showed $MgCl_2$ to be 2.7 and 32.5 times as effective as $CaCl_2$ and NaCl, resp., in removing soap. In mixts. of these salts, pptn. and salting out actions produce summation result. Soapy rubber-polymerization wastes did not yield satisfactorily to lime treatment alone, but were pptd. as granular sludge by solns. contg. 0.2 lb. of $CaCl_2$ or $MgCl_2$ per lb. of solids. (*Chem. Abs.* 39, 5022.)

SOAP-CONTAINING SYNTHETIC DETERGENT. Louis McDonald. *Soap* 21, No. 12, 41-3, 61 (1945). It has been found that the use of certain combinations of synthetic detergents and soda soaps together with a resinous binder composition makes possible the formulation of an effective and desirable all-purpose detergent bar which embodies none of the disadvantages associated with the production and use of bar detergents containing substantial proportions of non-soap organic detergents. The detergents to be used with a resinous binder should have a high cleaning efficiency, should readily disperse magnesium and calcium soaps in the presence of soda soap solutions, and should solubilize soda soaps even in the presence of electrolytes in concentrations normally found in sea water. Two or more different detergents may be used to obtain these effects. Suitable detergents are listed. The specially plasticized resinous binder should promote the formation of micelles in solutions of the non-soap detergents and at the same time should equalize the rate of solution of the soda soaps and non-soap detergents. Results made on various formulations are given.

SOAP INGREDIENT. Anon. *Chem. & Eng. News* 23, 2236 (1945). Isopropanolamine is a viscous, hygroscopic liquid with a slightly ammoniacal odor; it is completely soluble in water, but only slightly soluble in hydrocarbons. Tests have proved that mixed isopropanolamine soaps are more resistant to darkening than are ethanolamine soaps. Because these soaps are oil-soluble, they are desirable for soluble textile and metal cutting oils as well as in dry-cleaning soaps.

NOTE ON DETERMINATION OF MOISTURE IN SOAPS. W. Howard Hunt and M. H. Neustadt. *Chemist-Analyst* 34, 93 (1945). Shredding the soap with a metal kitchen-type vegetable grater increases rapidity of solubility and permits greater accuracy in analytical procedures.

SOAP FOR BATTLING DISEASE—RECENT RESEARCH WORK. Waldemar Schweisheimer. *Perfumery Essent. Oil Rec.* 36, 302-3 (1945). Tests have shown that the thorough washing of the hands with formation of a good lather with any ordinary soap destroys diphtheria bacilli, streptococci and pneumococci typhoid bacilli. Best results are obtained by washing the hands for about one minute, in soap solutions of about 2% concentration in warm or hot water. Raising the temperature of the water has been shown to increase the efficiency of the washing. A phenolic compound "G-11," is fostered as a soap antiseptic ingredient.

PATENTS

ADDITION OF NITRILES TO SULFONATED DETERGENTS. Nathaniel Beverley Tucker (Procter & Gamble). *U. S.* 2,383,526. A detergent having improved detergent and cleansing abilities is prepared by the addi-

tion of a small amount of a fatty acid nitrile having from 10-14 carbon atoms to the water-soluble salts of organic sulfonic acids or sulfuric acid esters.

GRANULAR SOAP PRODUCT. David R. Byerly (Procter & Gamble Co.). *U. S.* 2,388,632. Preparation of non-balling granular soap product was accomplished by mechanically mixing a soap that balls, with a soap that contains 40 to 100% of coconut oil.

SOAP COMPOSITION. Leopold Safrin (Wilson & Co., Inc.). *U. S.* 2,388,767. A high sudsing toilet soap detergent combination contains animal and vegetable fats and oils free from lauric acid, small amount of hydrogenated rosin and an alkali sulfonated hydrocarbon of 12 to 14 C atoms.

HYDROLYZING FATS AND OILS. Lever Bros. and Unilever, Ltd. *Brit.* 561,191. Fats and oils are hydrolyzed in several successive stages. They are supplied under pressure to the first zone, while water is supplied at an elevated temp. and at a higher pressure to the last of the successive zones. The fatty material is transferred to each succeeding zone under increasing pressures while the water and resulting glycerol are transferred in the reverse order from succeeding to preceding zones under decreasing pressures. Water and glycerol are withdrawn from the first zone and fatty acids from the last zone. (*Chem. Abs.* 39, 5103.)

DETERGENT COMPOSITIONS. Foster D. Snell. *Brit.* 561,294. The detergent compn. contains a water-sol. ionizable anionic active surface-active compd. and Na_2O and B_2O_3 in the ratio of 3 mols. of Na_2O to 1 mol. of B_2O_3 . The ratio of the material contg. the B and Na to the surface-active compd. is 1:1. The material contg. Na and B is prepd. by treating $Na_2B_4O_7$ with NaOH, in proportion of 1 mol. of the former to 2 mols. of the latter, and converting the resulting compn. to powd. or granular form. The compn. may also include a Ca-sequestration agent, such as $Na_4P_2O_7$ or Na hexametaphosphate. (*Chem. Abs.* 39, 5108.)

ACID TRIPHOSPHATES AS BUILDERS FOR SOAPLESS DETERGENTS. Oscar T. Quimby (Procter & Gamble). *U. S.* 2,383,502. Alkali metal acid triphosphates are added to any type of anionic synthetic surface active compound to improve sudsing and detergent properties.

SAPONIFICATION OF SYNTHETIC FATTY ACIDS. Sabine Hirsch (Cargill, Inc.). *U. S.* 2,391,019. A method of soapmaking is described utilizing synthetic fatty acids prepared from a high molecular weight hydrocarbon by catalytic oxidation. These fatty acids are then reacted with an alkali solution at a temperature ranging from 20-100°C.

SOAP MANUFACTURE BY ANHYDROUS SAPONIFICATION PROCESS. Laszlo Auer. *U. S.* 2,382,531. Solid soaps are prepared from fatty materials by the anhydrous saponification process which consists of heating the fatty material, together with rosin and a dry saponification agent such as alkali metal oxides, hydroxides or carbonates, to a temperature ranging from 150-350°C. until a hard, anhydrous product is obtained.

BUILDER FOR ORGANIC SULFONATE DETERGENTS. Nathaniel Beverley Tucker (Procter & Gamble). *U. S.* 2,383,525. A detergent having improved detergent and cleansing abilities is prepared by the addition of a small amount of a N-acyl morpholine having 12-14 carbon atoms in the acyl radical to the water soluble salts of organic sulfonic acids or sulfuric acid esters.