Abstracts

Soaps

Edited by
LENORE PETCHAFT

Dry cleaning soap. Alexander Fabry. *Soap 22,* No. 7, 48-9 (1946). The prime requisites of a dry cleaning soap should be: stability in composition; no objectionable odors in the soap itself, nor should the soap contribute any odors to the garments; the soap should cause a minimum amount of pressure in the filter and not corrode equipment; it should increase the electrical conductivity of the solvent; it should possess a high degree of both inert insoluble soil and water soluble soil removal power; it should not discolor the solvent; it should produce a minimum amount of foam. Foam is not desirable in the dry cleaning process.

Effect of soaps on mutual solubility of organic liquids. Santi R. Palit and James W. McBain (Stanford University, Calif.). *Ind. Eng. Chem. 38,* No. 7, 741-4 (1946). Whereas solubilization is the incorporation of insoluble material in or upon colloidal micelles, blending is an effect caused by similar forces without necessarily forming colloidal particles. The examples presented show the great effect of soap in making organic liquids such as glycols miscible with hydrocarbon solvents such as carbon tetrachloride and the hydrocarbons themselves. The soap becomes highly soluble in the mixture even if it is only slightly soluble in one or both of the solvents separately. Blending is illustrated with diagrams and data for soaps with propylene glycol and benzene. Methyl alcohol and cyclohexane show similar behavior. Of the soaps, potassium and sodium stearate are most effective, since they are even more powerful blenders than sodium oleate. Twelve per cent sodium oleate suffices to make benzene and propylene glycol miscible in all proportions at room temperature.

Soap lather treatment. Anon. *Perfumery Essential Oil Record 37,* 147 (1946). A method has been found to improve lathering of soap by treatment with nitric oxide. Nitric oxide, a colorless and odorless gas, is passed through the soap solution before the salting-out process until no more is absorbed. The soap produced gives a thicker and finer lather than usual.

Loci of emulsion polymerization: The diffusion of organic molecules from emulsion droplets through an aqueous phase into soap micelles. Richard S. Stearns and Wm. D. Harkins. *J. Chem. Phys. 14,* 214-15 (1946). The rate of diffusion of molecules from the surface of oil emulsion droplets was determined by successive measurements of the diameter of a drop of oil by use of a microscope. With drops of ethylbenzene in 12.2% aq. K laurate at 40°, the rate of decrease was 0.00260 mm./min. with a drop diameter of 1.4 mm., and 0.00430 mm./min. with a drop diameter of 0.25 mm. The effects of concentration of K laurate (0-20%) and of temperature (25° and 40°) on the rate of diffusion are plotted; there are maxima near 15% K laurate. The rate is greatly increased by salts, such as KCl. (*Chem. Abs. 40,* 3325.)

Protection of dry bacteria by fat against cationic detergents. O. Rahn (Cornell Univ., Ithaca, N. Y.). *Proc. Soc. Exptl. Biol. Med. 62,* 2-4 (1946). The adsorption of quaternary ammonium compounds on cell surfaces has been proved experimentally. The formation, on hands, of a film of cationic detergent of which only the outside is germicidal, has been explained as due to an oriented adsorption of the detergents on an organophilic surface, such as fat or paraffin.

A useful selective bactericidal property of Tergitol-7. A. L. Pollard (Knoxville, Tenn.). *Science 103,* 758-9 (1946). Starch tryptone agar containing 1:20,000 Tergitol-7 was successfully sterilized in the Arnold by one 30-minute heating period. Decreasing the concentration to 1:30,000 resulted in 4% failures. A concentration of 1:20,000 in the cold killed spores of *B. mycoides* and an unidentified heat-resistant bacillus but failed to kill spores of *B. subtilis.* Concentrations of 1:30,000 permitted growth after sterilization of all species of Streptomyces which were tested, while concentrations of 1:20,000 permitted growth of all species but one. Concentrations of 1:20,000 did not inhibit the growth of selected species of *Penicillium* and *Aspergillus* or of *Staph. aureus.* Concentrations as high as 1:10,000 did not inhibit the growth of *E. coli.*

PATENTS

Process of producing esters. N. B. Tucker (Procter & Gamble Co.). *U. S. 2,399,959.* In the process of condensing a metal salt of a fatty acid and an aliphatic halide free of sulfonate groups wherein an ester and a neutral salt are formed, the improvement comprises conducting the condensation in the presence of an amide which does not enter into the reaction but which at least partially dissolves the reactants.

Detergent composition. M. J. Myres (U. S. Army). *U. S. 2,402,657.* A detergent composition non-irritating to skin comprises the products obtained by heating about 5 gallons of kerosene and ¼ pound of anhydrous caustic soda to a temperature of about 200° F. for a period of 2 hours.

Process for removing greasy deposits from concrete, wood, and tile surfaces. R. L. Reynolds and H. M. Rice (Solvay Process Co.). *U. S. 2,403,612.* A process for removing a greasy deposit from a concrete garage floor comprises applying thereto an aqueous emulsion of a composition comprising o-dichlorbenzene containing 1-25% of a mixture of water-soluble alkyl benzene sulfonates substantially free of inorganic salts, the alkyl side chains of which are derived from kerosene, and then flushing the greasy deposit from the floor with water.

Method of concentrating iron ore. J. B. Clemmer and C. Rampacek (Sec. Interior). *U. S. 2,403,481.* A mixture of alkali, lignin sulfonate, fat or rosin acids, and soap is used as a flotation agent for iron ores containing siliceous gangue.

Liquid cleaning compositions. G. M. Skinner (National Carbon Co., Inc.). *U. S. 2,403,618.* A cleaning ture, in proportions by volume, of about 12 ethylene glycol monobutyl ether, 48 Me amyl ketone, 20 mineral lubricating oil, 8 water, 8 morpholine oleate and 4% morpholine.

LIQUID CLEANING COMPOSITION. G. M. Skinner (National Carbon Co., Inc.). *U. S. 2,403,619.* A cleaning composition for removing sludge from internal combustion engines comprises a homogeneous liquid mixture in proportion by volume of about 32 ethylene glycol monoethyl ether acetate, 18 ethylene glycol monobutyl ether, 18 mineral lubricating oil, 4 water, 19 morpholine oleate, and 9% oleic acid.

Abstracts

Drying Oils

Edited by
HOWARD M. TEETER

TREATED OILS. H. R. Touchin. *Paint Manuf. 26,* 186-9, 228 (1946). A review of methods for improving linseed and other oils.

DEHYDRATED CASTOR OIL. R. Mansell. *Paint Oil Chem. Rev. 109,* No. 10, 9-10 (1946). A summary of the preparation, properties and uses of dehydrated castor oil.

SYNTHETIC DRYING OILS. A. E. Williams. *Paint Manuf. 26,* 193-6 (1946). A review of the production of synthetic glycerides, pentaerythritol esters, and related materials.

PAINT, VARNISH, AND LACQUER INDUSTRY IN GERMANY, Part III. H. O. Farr, Jr. (Joint Intelligence Objectives Agency). *Paint Oil Chem. Rev. 109,* No. 13, 46, 48 (1946). Part IV. *ibid. 109,* No. 14, 40, 42, 44 (1946).

THE WETTING OF SURFACES BY ESTERS OF UNSATURATED FATTY ACIDS. N. F. Miller (New Jersey Zinc Co. of Pa.). *J. Phys. Chem. 50,* 300-18 (1946). The wetting properties of a series of pure esters of common unsaturated fatty acids toward polished 48-S-5 armor plate were measured. The type and degree of unsaturation have no effect on the wetting properties of methyl esters. Wetting of steel by three linoleate esters decreases in the order methyl > glycol > glyceryl. Atmospheric oxidation of methyl linoleate ultimately decreases the wetting power of this ester for unrusted steel. These esters show an inverse relationship in their wetting power for steel (organophilic) and their affinity for a water surface (hydrophilic). It was shown that unrusted 48-S-5 steel is organophilic, whereas as rusting begins the surface rapidly becomes hydrophilic. A theoretical discussion is given of the significance of different contact angles. With regard to the adhesion of paint films on steel it appears that contact-angle values measure a more fundamental wetting property than work-of-adhesion values, since contact angles apparently determine the ability of a paint to displace adsorbed air or moisture films from steel.

SELECTIVE ADSORPTION OF FAT ACIDS. A. Santos-Ruiz and M. Saniz Muñoz (Inst. Cajal. Sec. Bioquim., Madrid). *Mon. farm. 52,* 83-8 (1946). By subjecting the fat acids from linseed and other oils to selective adsorption, it was found that Brockman's alumina can be used as a separating agent. The saturated acids accumulate in the upper part of the column. Magnesium oxide as such or mixed with alumina or phenol red was ineffective. (*Chem. Abs. 40,* 4233.)

STYRENE COPOLYMERS IN SURFACE COATINGS. D. H. Hewitt and F. Armitage (L. Berger and Sons, Ltd.). *J. Oil Colour Chem. Assoc. 29,* 109-28 (1946). The copolymerization of styrene with dehydrated castor, linseed, oiticica, tung, and other bodied and conjugated oils was investigated and the conditions which lead to homogeneous products were determined. It is postulated that styrene polymerization with non-conjugated fatty acid radicals is a chain transfer process which proceeds more readily than the corresponding chain transfer with a relatively inert solvent such as xylol. A range of chain lengths is produced. Polymerization with conjugated fatty acid radicals involves propagation of the styrene chain across the conjugated system as in the styrene-butadiene reaction. In polyreactive systems the chains are short and the products homogeneous. Where both types of radical are present, the degree of conjugation in conjunction with the complexity (viscosity) will determine which process predominates and hence the compatibility of the species.

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CONJUGATED OILS. A. Turk and P. D. Boone. *U. S. 2,405,380.* Non-conjugated fatty polyene compounds are heated at 200° with a solid magnesium silicate to produce conjugation of 15% calculated on the basis of refractive index.

DRYING OIL. F. J. Stark and G. H. Slack. *U. S. 2,399,697.* A new and improved drying oil is obtained by chlorinating soybean oil with silicon tetrachloride and then treating with benzoyl peroxide.

OMISSION

Howard M. Teeter of the Northern Regional Research Laboratory, Peoria, Ill., reports that in the July 1946 paper on "Reactions of Conjugated Fat Acids. I. Addition of Crotonic Acid Derivatives," by himself, C. R. Scholfield, and J. C. Cowan (*23,* 216-219, 1946), the Roman numeral IV should be inserted after the word "structure" on page 217, fifth line.

CORRECTION

Rozier D. Oilar of Indianapolis, Ind., calls attention to a possible error in a July 1946 paper: "The Role of Fat in Human Nutrition" by H. J. Deuel, Jr., University of Southern California, Los Angeles, Calif. In the 26th line, right hand column. page 209, he suggests that "50° F." should be 50° Centigrade.