ABSTRACTS

Oils and Fats

Edited by
W. F. BOLLENS and M. M. PISKUR

Deacidifying oils and fats. Gregory Leot. Brit. 451,730, Aug. 11, 1936. In allowing alkali- or alk. earth-coated heavy particles to settle through a body of oil or melted fat for deacidification thereof, the particles are sprinkled uniformly on the surface, e. g., by gauze or a sieve. The process may be repeated and the liquid may be kept in motion, e. g., by passage therethrough of an inert gas, e. g., N. CO_2, H. (*Chem. Abs.*)

Expelling liquid from cashew nut shells by heat. Edward R. Hughes (to Harvel Corp.). U. S. 2,058,456, Oct. 27. After causing the nut to absorb moisture, heat is applied to it by means of a body of cashew nut shell liquid in contact with the outside of the nuts, the temp. and the time of immersion being such as to effect discharge of a major portion of the shell liquid without scorching the nut-shell kernels. (*Chem. Abs.*)

Polymerizing drying-oils and fatty acids. Eric Wm. Fawcett, Reginald O. Gibson, Michael W. Perrin and Imperial Chemical Industries, Ltd. Brit. 452,039, Aug. 17, 1936. Polymerization is effected by heating under more than 500 atm. pressure. The oils and acids may be first degassed to remove H_2O and dissolved O; the products may be freed from decompd. matter and from unpolymerized oil or fat by short-path high-vacuum distn.; the polymerized fatty acids may be esterified to produce polymerized oils. Among examples, alkali-refined linseed oil is maintained at 325° for 1.5 hrs. under 3000 atm. pressure, and fatty acids, obtained by sapong. crude linseed oil with NaOH and acidifying with H_2SO_4, are kept at 280° for 3-4 hrs. under 3000 atm. (*Chem. Abs.*)

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Soaps

Edited by **M. L. SHEELY**

Tin Soaps as Anti-Oxidants. *The Industrial Chemist* **12**, 142, 492 (1936). The autoxidation of textile oleins and oils has sometimes caused considerable losses by spoiling materials treated with them and even by starting fires. Hitherto, organic reducing compounds have been employed to inhibit the autoxidation process, but various objectionable properties of these substances tend to reduce their usefulness. The International Tin Research and Department Council in Technical Publication No. 45 describes the work of Dr. S. H. Bertram which, it is claimed, shows that oil-soluble salts of tin, in the stannous condition, are good anti-oxidation catalysts free from these disadvantages. Additions of the order of 0.1 per cent of stannous oleate, stearate, or benxoate to textile oils delay the onset of oxidation and retard oxidation once it has started.

The mechanism of the retarding effect of stannous salts has been investigated, and it has been found that a direct relationship exists between the oxidizability of the textile-spinning lubricants and their content of peroxides. The oxidation products are probably the real catalyzers of the oxidation of the oleins or oils. The antioxidation effects of the stannous salts is due to their ability to reduce these highly catalytic oxidation products.

A Color Reaction of Glycerol. V. Arreguine. *Act. Trab. V. Congr. Nac. Med.* **7**, 396 (1934); *Anales asoc. quim. Argentina* **24**, 6B (1936). If, to a solution of dihydroxyacetone, obtained by oxidation of glycerol by Br by the Deniges method, there be added concentrated H_2SO_4, then superimposed thereon a 1% alcohol solution of veratrole, there forms instantaneously an intense indigo-blue ring at the zone of separation, which diffuses into the alcohol zone. The sensitiveness is 1/500. It appears to be specific for glycerol, not being obtained with other polyhydric alcohols or sugars. (*Chem. Abs.*)

Glycerine Dehydrating Manufactured Gas. *British, The Chemical Trade Journal,* 364 (October 30, 1936). Glycerine is serving successfully for the partial dehydration of manufactured gas in several British plants. Only routine attention required, in addition to the daily reconcentration of the weak glycerine, is occasional cleaning of the jet condenser in the vacuum evaporator. Amount of glycerine required to replace losses is less than first reported. (*Chemical Industries* **39**, 606 (1936).)

Effect of salts on detergent action of soap. F. H. Rhodes and C. S. Wynn. *Ind. & Eng. Chem.* **29**, 55-57 (1937). In washing tests made with artificially soiled cloth at 60° C., the detergent action of a 0.25% soap soln. is at a maximum when the alkalinity of the soln. is adjusted to a pH of about 9.66. The addn. of sodium chloride, sulphate, or phosphate to soap solns. at the optimum pH at first increases and then decreases the detergent effect. The effectiveness of the added salt at the optimum concn. is approx. proportional to the valence of the anion of the added salt. Sodium borate and acetate do not enhance the detergent action of the soap.

Improving Soap Packs. *Soap, Perfumery and Cosmetics* **1936**, 215. Soap tablets designed to fit the hand are usually concave-convex (or curved) in shape and are occasionally ribbed along the edges. Though these easy-to-hold tablets present considerable technical difficulties, when it comes to high-speed mechanical

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packaging, and are usually sold in cartons, or as a series put up in boxes (or wrapped, like the Mouson block, in cellulose foil), the sales appeal on the score of convenience and aesthetic appeal cannot be denied.

Such an appeal, in fact, is now being stressed by several continental manufacturers, especially French and Swedish. According to Advertising World, one well-know soap, Illum, has a short piece of white ribbon embedded into the tablet itself and topped off with a small celluloid ring. This enables the soap to be hung over the wash-basin or bath after use and prevents it from wasting away in a damp soap-dish.

When developing a soap package it is vitally important to study effects on the wrappers or carton of storage and handling. Most grocers and druggists keep their soap somewhere under the counter, where conditions are by no means ideal. The paper used for soap wrappers is often absorbent and smudges easily. This means that a percentage of the new packs passes over the counter looking soiled and second-hand, a condition that can easily be prevented if due care is taken in the first instance.

Electrolytic Treatment of Fats. *Soap Gazette and Perfumer* 39, [1], 9 (1937). The effects of low discharges are considerable, since not only is the steric acid content increased, but also the acidity, density, and viscosity. It is contended that this research is only as yet in its infancy, and that many improvements hitherto unknown will later be secured. Many theoretical suggestions have been made to account for these wide changes, but the most important feature is that the hydrogen atom contained in the oil molecules is rendered extremely active, as a result of the impact of the ions and electrons. Fresh carbon double bonds are produced, which ultimately leads to the polymerization of the molecule. Eventually saturated groups are formed, of which stearic and oleic acids are prominent. The fact that the molecular weight is increased is of particular importance, and this applies to a considerable number of oils and fats.

Other features of importance are that the iodine value tends to decrease, whilst the saponification number remains more or less the same.

Committee on oils, fats and waxes. X. Two new developments in the analysis of sulfated oils. D. Burton and G. F. Robertshaw. *J. Intern. Soc. Leather Trades' Chem.* 20, 495-8 (1936). Inaccuracies in the xylene dstn. method for H_2O are discussed and the heptane dstn. method is suggested as a substitute. Total oily matter is detd. by extn. with CCl_4 from acid soln. *Procedure.*—To 50 cc. CCl_4, 100 cc. H_2O and 50 cc. HCl (sp. gr. 1.19) in a sepn. funnel add 5 g. sulfated oil, shake vigorously at once, let stand 30 min., sep. the CCl_4 layer, evap. the solvent and weigh. Analyses of representative oils show that a second extn. recovers less than 1% oily matter and a third extn. recovers nothing. CCl_4 does not ext. H_2SO_4 from the aq. layer, and does ext. all organically combined sulfate. The percentage of oily matter directly detd. agrees well with (100%-percentage of H_2O-percentage of ash). (*Chem. Abs.*)

PATENTS

Process for the Manufacture of Soap and Soap-Like Products. German Patent 635,091. A. Imhausen and Dr. W. Presch. In the air drying of soap, especially toilet soap, by whichever method is used, there is almost invariably a risk that the air will contain impurities which may damage the soap in some way. The present patent claims a method for passing the air over absorbents whereby these injuries constituents of the air, especially carbon dioxide, are removed. One method of removing this particular gas is by means of potash lye or soda lime. (*Soap, Perfumery, and Cosmetics,* **1936**, 815.)

Soap Used in Corrosion Inhibitor. U. S. 2,060,138. Maurice H. Taylor, Stoneham, Mass., to Merrimac Chemical Company, Everett, Mass. Corrosion inhibitor comprising a mixture of cyclohexylamine and soap. (*Chemical Industries* **39**, 601.)

Bar Soap. U. S. 2,057,192, October 13, 1936, Willis A. Hutton. Various details of apparatus and operations. (*Chem. Abs.*)

Treating Salt to Prevent Hardening or Caking. U. S. 2,056,540, October 6, 1936. Marnell Segura (to Jefferson Island Salt Mining Company). About 0.05-3.0% of glycerol is added to salt. (*Chem. Abs.*)

Plasticizer for Glassine Paper Comprising Glycerine, Etc. U. S. 2,058,961. Lewis Dozier to Rhinelander Paper Company, both of Rhinelander, Wis, Plasticizer for glassine paper comprising glycerine, a monosaccharide and a wetting agent. (*Chemical Industries* **39**, 600.)

Barium soaps. Camille Deguide. Brit. 450,288, July 14, 1936. A Ba soap is prepd. by sapong. a drying oil by heating in an autoclave with H_2O and ⅔ the amt. of $Ba(OH)_2$ required for complete sapon. The mass is then allowed to cool and the glycerol-contg. H_2O withdrawn. The Ba soap may be mixed with turpentine, pigments and a drier to form a *paint* wherein the pigment particles are protectively coated with the soap, or the mixt., without the pigment, may be used as a *varnish.* Paper, cardboard, concrete, plaster and textiles may be waterproofed by means of a soln. of the Ba soap in turpentine oil. A jelly, formed by heating the soap with white spirit, may have C black or graphite suspended therein to form a liquid black polish for stoves, or may be used to form a paint by the addn. of a $BaSO_4$-TiO_2 pigment. The soap may be used as a *constituent of insecticidal prepns.* and of cellulose varnishes. It may be mixed with cork powder and used, in the manuf. of linoleum, as a substitute for linseed oil. Films of cellulose derivs. may be made by mixing solns. of the Ba soap and of a cellulose deriv., pouring the mixt. upon a table and allowing the solvent to evap. (*Chem. Abs.*)

New Solvents and Resin from Light Oil Refining

A broad study of the refining of light oils at by-product coke plants is being carried on at Mellon Institute of Industrial Research, Pittsburgh, Pa. P. J. Wilson, Jr., and J. H. Wells, who are in charge of this work, have recovered from the residues several new products, including a series of high-boiling oils and a dark stable resin, which can be produced in large quantities at low cost.

The high-boiling oils are largely aromatic hydrocarbons with small proportions of paraffins and compounds soluble in 80 per cent sulfuric acid. The general characteristics of these oils are as follows:

Boiling range: Between 180° C. and 375° C.
Specific gravity: 0.950 to 1.030 at 15.5° C.
Corrosion: Negative by copper strip test.
Acid number: 0.1.

These oils possess excellent solvent properties. They are solvents for rosin and resinates, many natural gums, a large number of synthetic resins, rubber and chlorinated rubber, and "Thiokol." Sulfur and paraffin are dissolved to a limited extent in the cold. The oils are miscible with most of the commercial organic solvents, and are not affected by water, brine, alkalis, or dilute mineral acids.

The characteristics of the oils suggest applications for them in many industries, such as the manufacture of paint, varnish and lacquer, rubber, wood preservatives, insecticides and fungicides, cleaning agents, roofings, floorings, and asphalt.

The new resin is apparently a mixed polymer of cyclic dienes and aromatic olefin compounds. Its principal characteristics follow:

Color: Brown to black.
Melting point: Soft to 140° C.
Specific gravity: 1.150.
Flash point: High. The 65° C. melting point resin has a flash point of 260° C.
Free carbon: None.
Emulsification: The lower melting resin is readily emulsified with water.

The resin is soluble in many commercial solvents, including the aromatic hydrocarbons, drying oils, and chlorinated hydrocarbons. It is slightly soluble in alcohol and petroleum hydrocarbons. It is miscible with sulfur, many gums and resins, including rubber, indene-cumarone resins, rosin, asphalt and coal-tar pitch, and pine tar.

Uses for this resin are indicated in such fields as adhesives and binders, including those for road work and briquets, varnishes and paints, pipe coatings, linoleum and floor tile, rubber compounding, and battery seals.