Abstracts

Soaps

Edited by M. L. SHEELY

USE OF SOAP IN THE METAL PLATING INDUSTRY. *Products Finishing 4,* No. 9, 52 (1940). In alkaline cleaning solutions, the addition of wetting agents has been the practice for a long time, soap being the first to be used. Decreasing the attraction between the molecules of the solution results in better penetration of the cleaner between particles of dirt and grease and the metal being cleaned, lessening the bond between them for easier removal of the dirt and wetting the surface of the article.

In metal plating solutions, the same effect is present, and, in addition, the force resisting the rinsing of the hydrogen bubbles at the cathode is decreased and hydrogen pitting is eliminated. This latter action is very easily noted in nickel plating baths. Plating with a new nickel solution, small bubbles form at the cathode and grow in size until the hydrostatic pressure of the solution on the bubble is greater than the force holding it to the cathode surface, at which time the bubble detaches itself and rises to the surface. Many bubbles remain attached for a long time and since no deposit forms at the point a pit results. As soon as a wetting agent is added, the interfacial tension is decreased so that the bubbles rise almost as soon as they are formed and before they can increase in size.

In ball burnishing, the substitution of wetting agents for all or part of the usual soap additions is very advantageous, especially where hard water and low water temperatures are prevalent. Without proper precautions, such as the addition of water softening materials before adding soap to hard water, insoluble calcium and magnesium soaps of gummy consistency are formed. These coat the burnishing material shapes and make it impossible to get a good bright finish on the work. In this connection, it should be remembered that the addition of soap to a burnishing barrel is not for the purpose of cleaning the work but for lubrication of the burnishing shapes as they do their work.

An excess of wetting agent is to be avoided, since the surface tension may be lowered sufficiently to remove the lubricating qualities of the solution, and as a result, the burnishing shapes instead of sliding over the work, gouge it and ruin the finish.

SOLVENT PROPERTIES OF SOAP SOLUTIONS. *Soap, Perfumery and Cosmetics 13,* 266 (1940). The presence of soap increases the solubility of essential oils in water. The most useful soaps for this purpose are ammonium sulpho-ricinoleate, potassium linoleate, potassium ricinoleate, triethanolamine linoleate, and triethanolamine ricinoleate.

It is anticipated that essential oil-soap solutions will prove valuable in compounding preparations for repelling or exterminating insects, particularly in agricultural and veterinary practice, in deodorizing rooms and drains, and in the manufacture of toilet preparations. They could also be used as liniments, inhalants, mouthwashes, antiseptics, and liquid medicated soaps.

Concentrated soap solutions such as the potassium linoleate, triethanolamine linoleate and ricinoleate, especially after the addition of a little cyclohexanol, will dissolve considerable quantities of white spirit or solvent naphtha. Such mixtures with the addition of a little castor oil and a mild abrasive give excellent hand cleaning preparations.

INDUSTRIAL DERMATITIS. *Drug and Cosmetic Industry 46,* 5 (1940). Klauder and his collaborators maintain that trade dermatitis is caused annually in an enormous number of cases not by the substances encountered at work but by the removal of these substances with methods harmful to the skin. In the discussion of the action of soap on the skin the authors take up mechanic soap and its ingredients, toilet soap, neutral soap, soaps for household and laundry purposes, soap filler, silicates of sodium, the allergic action of soap and soap as a primary cutaneous irritant. Soap is not sufficiently soluble, as employed for toilet or laundry purposes, to permit the alkaline salts it contains, especially sodium carbonate, in sufficient concentration in soap solution to act as cutaneous irritants. Exceptions are soaps in powder form mixed with Na carbonate. The authors also evaluate detergents other than soap: triethanolamine soap, naphthenic acid soap and sulfonated oils. Formulas of different combinations of sulfonated olive oil, sulfonated neat's foot oil, gelatin and liquid petrolatum and one containing sodium lauryl sulfate are proposed as soap substitutes. Sulfonated esters, sulfonated ethers and sulfonated alcohols have extensive use in industry, but there are few data available as to their use as detergents for human skin. The detergent property of vegetable meals is not sufficiently appreciated. They mention oat meal flour, almond meal (sweet almond) and powdered bitter almond, powdered soap tree bark (quillaja), powdered orris root and to a lesser degree flaxseed meal. When these substances are used with water to cleanse the hands the result is relatively satisfactory. (*Arch. Derm.* and *Syph. 41,* 331.)

SILICATED SOAPS. C. R. Kemp. *Soap* 16, No. 6, 27 (1940). The cold method of soap manufacture can produce a base soap of lower moisture content, capable of taking up more silicate of soda, than the full-boiled method. This advantage is attained by the use of high-density lyes.

When calculating formulas for cold or semi-boiled soaps, it should be remembered that silicate of soda will react with caustic soda and combine with it up to a certain point. A rough method of calculating excess of caustic soda over the amount necessary for saponification is to add 2 lbs. of solid caustic soda for each 100 lbs. of silicate of soda in a semi-boiled soap and about 5½ lbs. for each 100 lbs. of silicate in a cold made soap.

If it happens that a hot mixture of soap and silicate stiffens in the crutcher, it is an indication that there is not sufficient excess of caustic soda present.

The melting point of a base soap has considerable influence upon the percentage of silicate of soda that can be used with it. Briefly, the hard fats will produce soaps capable of holding up more silicate than the soft fats. Coconut oil possesses the property of making base soaps which pass quickly from the fluid to the solid state. This property is particularly valuable when mixing in silicate with base soaps, since it is desirable to crutch the silicate and soap to a point where the soap begins to stiffen. As coconut oil soaps cool quickly and hold larger percentages of silicate, they are ideal. Gen-

erally speaking, coconut oil should be at least 25% of the fat used in making a base soap for silicated soaps.

DEGRADATION OF STAPLE RAYON BY WASHING. H. Behringer and H. Seyfert. *Malliand Textilber 20,* 353-5 (1939). Numerous curves are given to show the relative decreases of tensile strength and degree of cellulose polymerization (P) produced by washing cotton and 2 types of cellulose staple rayon 0-50 times with various soap and sodium carbonate and soap and oxidant detergent solns.; the results are further correlated with data obtained by fractionating solns. of the nitrocelluloses (Rath method) derived from these fibers. It is concluded that P is a satisfactory criterion of the durability of a staple rayon material although refinement of the Staudinger method of detn. is desirable. Oxidizing detergents deteriorate staple rayon and are not recommended for general use. (*Chem. Abs.*)

SOAP IN WET SANDING OF WOOD. *Industrial Finishing 16,* No. 7, 21 (1940). Wet sanding, in connection with wood finishing, is greatly facilitated if a handful of neutral soap flakes is dissolved in a 4-gal. pail of hot water and the mixture used as the lubricant for the abrasive, instead of plain water. The wiping-up operation removes any traces of the thin soap solution, so that no interference with succeeding coats is experienced.

EVALUATION OF DETERGENT POWER BY DETERMINING THE DIRT IN THE WASH LIQUORS. W. Kind and O. Oldenroth. *Fette u. Seifen 46,* 292-9 (1939). The practical method of measuring cleansing action by detg. the insol. dirt in the spent wash-liquors from soiled linen (batches of, e.g., 6 kg. can be so studied) is described, the results of applying the method when studying the effect of various factors, e.g., time of washing, presence of alkalies and other assistants, lye ratio, effect of presoaking, are detailed. It is confirmed that practically the full soil-removing action of a charge of liquor is exerted within a comparatively short time (about 5-10 min.). (*Chem. Abs.*)

PATENTS

SOAP TABLET. Claude Meyer. *U. S. 2,198,880.* The combination with a soap tablet having an end wearing surface, and having its lateral faces formed with a series of flutings substantially parallel to said wearing surface and extending peripherally around the tablet, and a pliable waterproof protective sheath mounted on said tablet and extending over said lateral faces, and elastic fixing ring pressing the portion of the wall of said sheath adjacent the fluting nearest said wearing surface, within said fluting, the portion of said sheath beyond said ring being reversely folded over the same and having its outer edge free from said fixing ring, said free edge serving as a means for advancing the ring and sheath from one fluting to the adjacent fluting.

RIBBON SOAP PRODUCT. Industrial Patents Corporation. *U. S. 2,202,973.* A new soap product consisting of tubular sections approximately .07 to .09 inches in diameter, having soap walls approximately .0035-.0055 in. *U. S. 2,202,974.* A ribbon soap product consisting of collapsed soap tube solidified into a characteristic accurate edged ribbon, whereby chipping at the edges and consequent production of dust-like matter is obviated. It presents a large available surface area which makes it readily soluble.

SOAP FREE FROM METALS. Hooker Electrochemical Co. *U. C. 2,202,103.* Production of soap relatively free from metals tending to prevent deterioration of soaps which comprises saponifying a fatty material with caustic soda containing sensible quantities of such metals, in the presence of a sulphur compound which forms with said metals compounds innocuous to soap and relatively insoluble which tend to settle in the fluid soap, removing metal-free upper or neat soap layer.

FATTY ACID DISTILLATION. Martin Hill Ittner (Colgate-Palmolive-Peet Co.). *U. S. 2,202,007.* The process of distilling fatty acids which comprises vaporizing such fatty acids with the aid of indirect heat and high vacuum, separating entrained unvolatilized material from this, preheating to temperature of the still by subsequent indirect generally countercurrent contact with the hot vapors freed from the entrained and unvolatilized material. *U. S. 2,202,008.* The still includes a separating chamber above the vapor space where entrained unvolatilized material is separated.

FALL AOCS CONVENTION

THE Fall Convention of The American Oil Chemists' Society will be held at the Stevens Hotel in Chicago on October 2nd, 3rd, and 4th.

It is of interest to note that the Program Committee has, at this early date, arranged a symposium on "The Oxidation, Rancidity and Flavor Reversion of Fats and Oils." The following papers have already been scheduled in this symposium:

"The Mechanism of the Reaction of Oxidation of Fatty Materials," by H. A. Mattill, State University of Iowa, Iowa City, Iowa.

"Factors Which Increase the Rate of Oxidation of Fats and Oils," by Mayne R. Coe, Bureau of Agricultural Chemistry and Engineering, Washington, D. C.

"Fat and Oil Antioxidants," by H. S. Olcott, Mellon Institute of Industrial Research, University of Pittsburgh, Pittsburgh, Pa.

"Methods of Measuring the Rate and Extent of Oxidation of Fats," by Frank C. Vibrans, Institute of American Meat Packers, Chicago, Ill.

"Comparative Rates of Oxidation of Isomeric Linolenic Acid," by Jack Meyers, J. P. Kass and G. O. Burr, University of Minnesota, Minneapolis, Minn.

"Flavor Reversion of Edible Fats," by W. G. Bickford, U. S. Regional Laboratory, Urbana, Ill.

"Development of Rancidity in Bakery Products," by G. T. Carlin, Swift & Company, Chicago, Ill.

"The Role of Oxidation in Drying Oils," by G. W. Priest and T. D. Von Mikusch, Woburn Degreasing Company, Harrison, N. J.

In view of the fact that a symposium usually presents papers of a review nature, the Program Committee is considering limiting other papers presented in the general fat and oil section to those covering original researches or new developments. A dozen or more such papers are desired.

Communications should be addressed to Dr. R. C. Newton, Chairman of Program Committee, c/o Swift & Company, Research Laboratories, Chicago.