ABSTRACTS

Soaps

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Emulsifying, Detergent and Wetting Agents. *Perfumery and Essential Oil Record,* November, 1934, page 365.—The Resinous Products and Chemical Company of Philadelphia described in British Patent 418,247 a process for preparing wetting or emulsifying agents having soap-like properties and for making soap-like materials which are readily soluble in dilute acids so that they can be used in aqueous acidic media as detergents, wetting agents or emulsifiers with the ordinary metallic soaps of fatty acids.

According to this information a primary amide of a monocarboxylic or dicarboxylic acid is heated with formaldehye and a strongly basic secondary amine. A new compound is formed which in contrast to the original amide, is readily soluble in dilute mineral or organic acids such as acetic acid to form soapy solutions which foam strongly when shaken.

Products formed from high melting amides such as palmitic or stearic amides are hard or waxy masses, whereas the products prepared from oleic and lauric amides are soft, oily, or jelly-like substances. They dissolve readily in dilute aqueous acids such as acetic or lactic acids or in dilute mineral acids, especially on gentle warming, to give foamy, soapy solutions which can be used as detergents, emulsifiers, or wetting agents. These soapy solutions find use in cleaning and washing fibers and fabrics in an acid bath, for emulsifying fatty oils or hydrocarbons and water in acetic media, and as leveling agents and wetting agents in the dyeing and printing of rayon and other textiles. They may be admixed with sulfonated oils and sulfonated alcohols to produce special soaps.

Action of Carbon Dioxide on Soap. *The Perfumery and Essential Oil Record,* 25, 12, 401 (1934).—It is well known that any small amount of free sodium hydroxide in soap quickly becomes converted into sodium carbonate on exposure of the soap to air, and it has been suggested that the effect of any excessive amount of carbon dioxide may be to go further than this and actually decompose soap with liberation of free fatty acids. Bergell ("Allgem. Oel.-u. Fett. Ztg.," 1934, 145) has recently carried out some interesting experiments on this point, and finds that powdered dried soap exposed to a current of carbon dioxide for five hours, developed an acidity of 15 per cent of the fatty content, of which 7 per cent was fatty acid, and the remainder sodium bicarbonate. On leaving this soap exposed to the air re-saponification gradually took place until equilibrium was reached when there was still 1 per cent of free fatty acid left.

Incidentally, Bergell recommends the determination of free fatty acids in soap by dissolving the soap in a neutralized mixture of alcohol and ether, and titrating with alcoholic potassium hydroxide.

Glycol-Water Mixtures. H. M. Trimble and Walter Potts, Oklahoma Agricultural and Mechanical College, Stillwater, Oklahoma. *Industrial and Engineering Chemistry,* 27, 1, 66 (1935).—The pressure-boiling point-composition relations for glycol-water mixtures have been investigated from 0 to 100 per cent glycol and up to approximately atmospheric pressure. The boiling point-pressure relations for various compositions are given in the form of the Young equation, the constants varying with the composition. These mixtures obey Raoult's law fairly closely.

Mold Lubricant. *Rubber Age,* October, 1934, page 24—Cocoa soapstock, a material containing a large percentage of cocoanut oil saponified with alkalis to give a pure hard soap, makes a suitable product for lubricating molds to prevent sticking of the vulcanized stock. If properly made, without traces of sodium silicate, it will not cause caking on the molds. The recommended quantity is 8 to 12 lbs. to a 55 gallon drum of water. The soap is dissolved in water by cooking, either by open steam or external heat of some kind. For easy spraying the solution is kept warm by steam or a small electric heating unit can be applied at the spray nozzle to prevent clogging. (*Chemical Industries,* 35, 5, 421 1934.)

Can Soap Become Rancid? G. Knigge. *Seifensieder-Ztg.* 61, 571-2 (1934).—The following experiments are cited as evidence that free fat acids in soap, but not their alkali metal salts, become rancid. A 35-year old, strongly rancid, C. P. Na stearate contained 10.15% free acid. On continuous extraction of this material with Et_2O, all the odoriferous substances were found concentrated in the extract. Similar results were obtained with various samples of toilet and curd soap. A flaked soap product which contained free alkali, but which had nevertheless become rancid, seemed to be an exception. More careful examination in accord with Bergell's work (cf. C. A. 28, 22094) revealed the presence of free fat acids liberated during the course of manufacture by atmospheric CO_2, and thus cleared up the anomaly. (C. A. 28, 21, 7049, 1934.)

Practical Possibilities of Utilizing Pine Oil in Soap Manufacture. Otto Duesberg. *Seifensieder-Ztg.* 61 632-3, 667-8 (1934).—Pine oil is most readily incorporated in soap by adding it as an emulsion in a soap-water mixture to the main body of the soap. A number of examples of pine oil-soap preparations of varying consistency are given. They are particularly advantageous for cleaning greasy, oily and tarry surfaces and as emulsifiers. (C. A. 28, 22, 7572 1934.)

PATENTS

Distilling Glycerine, Fatty Acids, Etc. British 408,259. G. W. Riley and G. Scott & Son, London, Ltd., Bradfield-rd., Silvertown, London.—In the distillation of high-boiling substances such as fatty acids, glycerine, volatile products and fatty acids contained in oils, fats, waxes, etc., without using carrier vapor, and at absolute pressures lower than 10 mm. of mercury, reflux condensation is minimized by providing the still with a deep vapor space above the liquid in the still, and with a tubular baffle so that the vapors first ascend to the top of the still and then descend in the space between the baffle and the still wall to the outlet leading to the condensing system, vacuum-producing means such as steam ejectors, and a final tubular condenser. When the substance to be distilled contains substantial proportions of water or other low-boiling impurities, the bulk of these may be removed in a preliminary still of similar construction operating at a higher absolute pressure of 25-75 mm. of mercury (e.g., 50 mm. when the main still operates at 2 mm.). The vapors from the still pass through a tubular condenser and pipe to the condenser, the outlet of which is connected to a vacuum pump. The space between the baffle and the still wall may be heated by a steam coil, the condensate collecting at the bottom of condenser may be heated by a coil, and the cooling water of condenser may be maintained at a controlled temperature of over 100° C. by means of an auxiliary condenser which condenses the steam produced by the boiling of the cooling water and return the condensed water to the condenser. The condensate from condenser is discharged into a vacuum receiver coöperating with an extraction pump delivering at atmospheric pressure, and the condensate formed in the baffle space of still and in condensers is withdrawn by pumps through cooling coils. The liquid in the stills is heated by circulating through the tubes by means of the centrifugal impellers, as described in Specification 280,666 (Class 32), the tubes being surrounded by a heating medium such as high-pressure steam.—*The Oil and Colour Trades Journal,* 86, 1887, 1656 (1934).

Soap Holder. U. S. 1,981,389. In a soap holder, a bar-like member, means for supporting the said member, a plate having a flange secured to said member, an arm having a soap engaging extremity, means for pivotally mounting the arm on the member with the soap engaging extremity in coöperative relation to the plate, and means operating on the arm for yieldingly pressing the soap engaging extremity thereof on the soap.—*Soap Gazette and Perfumer,* 37, 1, 22 (1935).

Process for Anti-Freeze Agent. U. S. 1,977,545. Eberhard Elbel, Dusseldorf, Germany, to Henkel & Cie., Gesellschaft mit beschrankter Haftung, Dusseldorf, Germany. Process for anti-freeze agent; refrigerating liquid composition of water and a lower monoalkyl ether of glycerol.—*Chemical Industries,* 35, 6, 519 (1934).

Soap—Detergent Pellets. Detergent pellets, characterized by being coherent, easily soluble in water, and capably producing uniform detergent action, are patented under U.S.P. 1,975,946. Product is formed from a mixture of a major part of crystallized sodium metasilicate, a minor part of crystallized trisodium phosphate and enough water to render mixture plastic.—*Chemical Industries,* 35, 6, 517 (1934).