ABSTRACTS

Soaps

Edited by M. L. SHEELY

Spontaneous ignition of soap powders. *Oil and Colour Trades Journal,* Vol. LXXXIV, No. 1819, page 500, August 25, 1933.—It is well known that a number of organic compounds, especially in the powdered state which facilitates chemical reaction owing to the increased surface, can in certain circumstances spontaneously heat to such an extent that ignition occurs. It is not generally known that soap powder can, in circumstances not very clearly understood, undergo spontaneous ignition. Wegener reported a case of a box containing medicated soap which suddenly gave off vapor. One of the bags in the case was found to contain decomposed soap which had obviously undergone spontaneous heating. Welter showed that powdered soap prepared from drying or semi-drying oils had a tendency to spontaneous heating on storage, which was not the case with soaps prepared from saturated fats. Five hundred to 600 kilos of dry soap powder prepared from cottonseed oil were spread on a cement floor and found to heat after standing one hour. A small pile 1 metre high was made of the soap, and after a time the peak emitted smoke. Fifteen minutes later the whole of the soap was converted to a mass of coke. When, therefore, soap powders containing little water are made from drying or semi-drying oils, steps should be taken to avoid the possibility of combustion. It is not known whether the heating is due solely to the effect of atmospheric oxygen or to the heat produced from so-called exothermic intramolecular changes. Perhaps both are responsible under certain circumstances. It is also possible that traces of metallic catalysts may sometimes have an effect. Lederer also reported that soap flakes made from oil containing drying oil had a tendency to heat spontaneously. The presence of a small amount of zinc oxide was found to have a protective effect. If soap flakes are prepared too dry, they will take up water with such avidity that on the addition of a small quantity of water very considerable heating will occur. It has been shown, moreover, that soaps not made from drying or semi-drying oils are capable of spontaneous heating, so that the explanation of this phenomenon is not simple.—(*"Allg. Oel u. Fett. Zeit.,"* 1933, 346.)

New method for controlling the process of soapmaking. *The Perfumery and Essential Oil Record,* Vol. 24, No. 8, page 286, August 22, 1933.—A new method for controlling the saponification process has recently been proposed by M. Saliopo (*Maslobojno Shirwojo Delo.,* 1932, 19), who recommends taking a sample of the fitted soap in a test-tube, and centrifuging this in a jacket containing calcium chloride solution, heated to 102-105° C., for 1 minute, at 2,000 revolutions per minute. The calcium chloride solution is then removed, again heated to 102-105° C., the test reinserted, and again centrifuged for another minute. The contents of the test-tube are then examined as to separation into phases, and it is claimed that in this way information is immediately obtained as to the stability of the soap-paste, yield of good soap, and of nigre, and relative speed of separation of the nigre, so that any defect in the contents of the pan may be remedide at once, instead of having to wait several days for the large scale separation, when if the conditions are not correct, it is too late to rectify them.

(A Laboratory) Comparison of the detergent efficiencies of laundry soap builders. *Chemical Abstracts,* Vol. 27, No. 15, page 3840. August 10, 1933.—O. M. Morgan. *Can. J. Research* 8, 429-34 (1933); cf. C. A. 26, 5425.—The detergent efficiencies of four common laundry soap builders have been measured and compared on a laboratory scale. Their order of decreasing efficiency when both concentration and actual washing efficiency are considered is NaOH soda ash, Na metasilicate, and Na_3PO_4. When actual washing efficiency alone is considered, the order is Na metasilicate, NaOH, Na_3PO_4 and soda ash. In all experiments the soap concentration was 0.1 per cent. pH values of the built soaps are given over a wide range of concentration. All soap builders do not exert their optimum detergent effect at the same pH value. Two of the alkalies, namely NaOH and Na metasilicate, increased the lathering power of the soap notably. J. W. SHIPLEY.

Determination of perborate in washing compounds. A. Ringbom. *Z. Anal. Chem.,* 92, 95-101 (1933).—The presence of soap interferes with the direct titration of perborate by some of the common oxidizing agents. Satisfactory results can be obtained, however, in the analysis of washing powders by dissolving 1 g. of sample in 150 c.c. of water, adding 100 c.c. of $FeSO_4$-H_2SO_4 solution and titrating the Fe+++, formed by the action of perborate on Fe++, with $TiCl_3$ solution. (C. A., 27, 17, 4433 (1933)).

Soap preservatives. *Oil and Colour Trades Journal,* Vol. LXXXIV, No. 1821, page 639, September 8, 1933.—Oskar Hagen, writing in *Seifensieder Zeitung* (1933, 60, 523-4), described the use of sodium thiosulphate or sulphite as preservatives for soap. They are highly effective for this purpose, but have certain disadvantages. The sulphite is only sparingly soluble in water, and must be incorporated in the soap in the form of a very fine powder, though even then it is apt to form lumps and to impart a rather unpleasant smell. Thiosulphate is free from these defects. It is readily soluble in water and may be incorporated as a concentrated solution. It does not affect the odor of the soap, nor its lathering, if the amount added does not exceed 0.5 per cent. Its chief difficulty is that it readily parts with an atom of sulphur and is therefore reduced to sulphite. This happens under all sorts of conditions: in solution, in the presence of air, in the presence of acid, etc. Even the small amount of organic acid in ordinary perfumes is sufficient to upset its stability. Metals have a similar effect, especially iron or copper, as also have metallic salts. Hagen now recommends the use of bismuth nitrate in place of sodium thiosulphate, unless this latter is dealt with in wooden apparatus. Bismuth nitrate is already considerably used in medicinal soaps.

PATENTS

Millable soap containing alkali phosphate. Peter Krebitz. *American Perfumer and Essential Oil Review,* Vol. 28, No. 6, page 321, August, 1933.—German Patent 543,761 claims a new process of making dry millable soaps by adding to the liquid soap anhydrous sodium phosphate or in certain cases potassium phosphate. These substances combine chemically with the water of crystallization and they partially result in a change of the soap system so that the internal friction of the fatty acid salts is increased, and agglomeration of the particles takes place, and the mass becomes stiffer in spite of residual water still present in it.

Aluminum powder in soap making. *Oil and Colour Trades Journal,* Vol. LXXXIV, No. 1821, page 639, September 8, 1933.—In a German Patent (No. 573,818) granted to H. Vihrer, aluminum powder is added to the molten soap mass when hydrogen is evolved and the metal converted into aluminate. The hydrogen causes the soap mass to swell, giving a product which is flocculent and easy to dry. As an example, a tallow or coconut oil soap containing 0.5 per cent free alkali is treated with 0.15 per cent aluminum powder.

Soaps. *Chemical Abstracts,* Vol. 27, No. 18, page 4707, September 20, 1933.—Deutsche Gold- und Silber-Scheideanstalt vormals Roessler. French 746,401, May 29, 1933. Soaps having a disinfectant action are made by incorporating metallic Ag, as powder, granules or flakes, in the soap. The Ag may be made more active by a preliminary treatment with agents libertaing O, such as H_2O_2 or permanganate, or it may be submitted to a surface anodic oxidation. The disinfectant action of the soap may be increased by adding substances containing active O.

The proportion in which the phosphate is added is 7 to 15 per cent. For example, 100 k. of grained soap chips are mixed with approximately 13 k. of anhydrous dry sodium phosphate and the mixture is colored, perfumed and milled in the usual manner.

Soap. *Chemical Abstracts,* Vol. 27, No. 18, page 4707, September 20, 1933.—Henkel & Cie. G. m. b. H. (Wilhelm Pape, inventor). German 574,927, April 21, 1933. Transparent soap is made by addition of a resin to the usual fat and oil mixture prior to saponification with NaOH.

Soap. *Chemical Abstracts,* Vol. 27, No. 15, page 3841, August 10, 1933.—Carl Thieme. German 569,581, February 4, 1933. Plastic soap for making decorations on soap bars, etc., is formed by mixing quick-drying powdered soap from high-molecular fats with soft soap from low-molecular fats.

Corrosive action of sulfonated fatty alcohols. *Chemical Abstracts.* Vol. 27, No. 17, page 4433, September 10, 1933.—Welwart. Seifensieder Ztg. 60, 401 (1933).—Na sulfonates of fatty alcohols rapidly corrode Fe and steel by swelling the protective layer of FeO.OH, exposing a clean surface to rusting in the usual way.

Soap-Making Apparatus for Reaction of Alkali Carbonate Solutions with Fats and Fatty Acids. *Chemical Abstracts,* Vol. 27, No. 13, page 3355, July 10, 1933.—Hermann Weber and Wilhelm Pape (to Henkel & Cie G. m. b. H.). U. S. 1,904,021, April 18.—Various structural, mechanical and operative details are described.