Abstracts

Soaps

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Determining the washing value of soaps and detergents by a rapid laboratory washing method. T. Hesse. *Fette u. Seifen 49,* 436-41 (1942). H. developed a washing app. of glass or porcelain with rustless metal rollers and air-tight cover, all housed ina thermostat. Two rollers squeeze the material. Two others cause cloth to rub on itself. Three rollers give necessary changes of direction. Endless strips of cloth 2x80 cm., weighing 2-5 g., and soiled with a standard soil, are washed in 10 times their weight of soap soln. for periods of 1 hr.; 20-50 washings can be made. Soap of fixed compn. (K or Na soap of mixed lauric and palmitic acids-proportions not stated) is preferred as standard material. Results with this are rated 100 and others proportioned to this. Forty-seven references. *(Chem. Abs.)*

Fatty acid soap process. Andreas Treffler. *Soap 19,* No. 9, 32-3, 74 (1943). A process is described for producing a low moisture-content soap requiring no boiling or drying and little heat supply. The reaction between sodium carbonate and fatty acid is shown. It is more successful with constant stiring and large surface area in the sodium carbonate particles. Excess alkali is used in the process to overcome skin acidity. Tests made on clean and dirty hands showed that clean hands had a pH of 6 while dirty hands had a pH of 4, showing the necessity of alkali to neutralize this acidity. Tall oil was tried in this process due to the shortage of animal and vegetable oils. The results were not too satisfactory as the resin acids and unsaponified matter slowed down the reaction and gave a sticky soap, and sodium carbonate is not the alkali for saponifying resin acids.

Analysis of cleaning and wetting agents on the basis of sulfonated fatty acid amides. Vizern and Guillot. *Ann. Chim. Anal. chim. appl. 23,* 235-7 (1941). The value of a cleansing and wetting agent on the basis of sulfonated acid amides should show the ratios of fatty substance: "active substance" = about 0.8. The detn. of the "active" substance can be carried out as follows: Take 2 g. of sample (or more), dry it at 85-90° and take up the dried substance portionwise in 50 ml. of hot abs. EtOH and boil 15 minutes with a reflux condensation in an acetylating flask. Decant off clear soln. and repeat extn. in same way with 2 sep. 20 ml. portions of alc. Distill off alc. from the combined ext., dry at temp. of steam bath and weigh. To det. the fatty substance saponify a 2-g. sample with HCl in the presence of NaCl, ext. the fatty acids with $CHCl_3$, evap. off the $CHCl_3$ and weigh the residue. To det. the detergent effect, compare it with an equally strong soln. of castile soap (with 65% fatty acid content) on the same size squares of linen cloth and viscose. *(Chem. Abs.)*

Foam and emulsion stabilities. Sydney Ross. *J. Phys. Chem. 47,* 266-77 (1943). A few foam-stability data, obtained with a Stiepel-type app., are given for aq. solns. of Aerosol OT and laurylsulfonic acid. Like many other foams (e.g., from saponin, beer), these give a linear portion in a log V vs. t plot, where V is the vol. of liquid retained in the foam at time t. If the foam is formed by a slow rate of air bubbling and some of the liquid remains below the foam when the agitation stops, this linear section is longer, but irregularities always occur near the beginning and the conclusion of the foam-collapse period. A derivation is given for a new equation: $(V_o—V_d)/V_o=1/(bt+1)$; V_o is the initial vol. of liquid in the foam, V_d the vol. drained in time t. and b is a const. The equation can also be applied to emulsions, in which case $V_o—V_d$ represents the vol. of emulsified liquid left in emulsion. Application to the emulsion data of King (C.A. 35, 5773^5) gave a fairly const. value of b. Apparently stability of emulsions involves 2 mechanisms: unstable emulsions break down as soon as the drops come in contact by draining (or creaming), whereas more stable emulsions will not coalesce even after creaming has occurred, the difference being attributed to absence or presence of a stabilizing agent. *(Chem. Abs.)*

Solid soap phases. R. H. Ferguson, F. B. Rosevear, and R. C. Stillman. *Ind. & Eng. Chem. 35,* 1005-1012 (1943). Four separate crystalline phases exist in sodium soaps—alpha, beta, delta, and omega. These phases give rise to different properties in solid commercial soaps. Various soap manufacturing processes involve phase transformations among these solid forms. The identification and estimation of approximate proportions of solid soap phases rests on x-ray diffraction patterns, by means of which the phase condition of the final product may be ascertained and the processing history followed.

Refractometric investigations in the soap industry. Carl Steinchen. *Seifensieder-Ztg. 67,* 283-4 (1940). Shaving soap, curd soap, and soap powder were analyzed for fat acid content by the refractometric method of Leithe and Heinze (C.A. 30, 6227^9), with a Zeiss refractometer. The finely shaved soap (2-3 g.) or soap powder (5 g.) was treated with 20 cc. water and 10 cc. of 20% H_2SO_4, and then 3 cc. of α-bromonaphthalene was added and the mixt. was centrifuged and the n of the fat acid-α-bromonaphthalene was detd. The formula of Leithe and Heinze was used for calcn. of the fat acid content. Results for fat acid content by the refractometric method agree closely with those obtained by the ether method. *(Chem. Abs.)*

Work of the international commission on study of fats. 1938-9. IV. Estimation of chloride and total fat acids in soaps. H. P. Kaufmann. *Fette u. Seifen 48,* 682-9 (1941). Various methods for the estn. of both constituents and the expts. performed by the commissions in various countries are presented. In the estn. of chloride by ashing, volatilization must be avoided, and this is time consuming. Methods which do not involve ashing are more rapid. Improvements are described. The estn. of total fat acids involves no special difficulty as long as no volatile or H_2O sol. acids are present. In this case the method of Grossfeld appears best. A reexamn. by the soap chemist is recommended. V. Estimation of resin acids in soaps. *Ibid.* 753-8.—After a general review, several methods for the detection and estn. of resin acids performed in various labs. are mentioned. The most useful method appears to be a French procedure: about 2 g. of the sample (p) is refluxed for 30 min. with 20 ml. of MeOH (contg. about 10 g.

H_2SO_4 of 66°Bé. per 100 ml.). After cooling, the mixt. is back-titrated with 0.2 N alc. KOH (N ml.). A blank is run in the same manner (N′ ml.). The amt. in per cent obtained from $[6.6(N-N')/p]-1.6$. This new technique is described with the recommendation that its value be confirmed. *(Chem. Abs.)*

Studies on synthetic detergents. II. Jay C. Harris. *Soap 19,* No. 9, 29-31, 74 (1943). Continuation of article giving actual results of tests on soap-santomerse combinations in sea water with various concentrations of the detergent. Tables and graphs are given.

The effect of soaps and soap-like compounds on the disinfecting powder of phenols. Richard Hueter and Heinz Joachim Engelbrecht. *Die Chemie 55* 329-31 (1942). Exptl. data are presented on the bactericidal action of mixts. of chlorinated phenolic type compds. and alkyl sulfonates, K soaps and sapamine-type soaps, resp. Definite conclusions are not presented, but the theoretical aspects of the problem are discussed. *(Chem. Abs.)*

Soaps in relation to their structure: detergent power, formation and mode of action of the foam. J. Leimdorfer. *Seifensieder-Ztg. 68,* 437-8, 462-4, 474-5, 487-8, 499-500, 512-13, 526-8, 543-5 (1941). The properties of soaps are discussed in relation to a concept of hydrous soap as a special type of hydrated colloid (hydroid of fatty acid salts) having the structure of a lamelar assembly of sheets of fundamental film- or leaflet-like mol. aggregates (the counterparts of the basic "cells" of a crystal lattice), each possessing a lyophobe (fatty acid) and a lyophile (H_2O) surface and being able to cohere in one plane only to form films. The behavior of soaps in the pan, the foaming and detergent properties of their solns., etc., are explained as manifestations of this intrinsic film-like structure evoked by circumstances such as diln., aeration or agitation. *(Chem. Abs.)*

Emulsions and their pharmaceutical use. A. Teran. *Farmac. nueva 7,* 89-93 (1942). A review of emulsifying agents, types of emulsions, their stability and pharmaceutical uses. *(Chem. Abs.)*

Naphthenic acid soaps. Rinoldi. *Laniera 55,* 527 (1941). Tech. naphthenic acid has acid no. 230 and I no. 9.2; it contains unsaponifiable 9.2 and S 0.3%. It is suitably sapond. with KOH or triethanolamine. The soap is mostly used in 2% soln. as an emulsifier, softener, etc.; and in action it surpasses sulforicinate. It has good stability in cold and does not gel, it acts antiseptically and opposes oxidation. *(Chem. Abs.)*

Studies in commercial soap drying. E. Glucklich. *Fette u. Seifen 49,* 607-10 (1942). Review of well-known methods and principles. *(Chem Abs.)*

New uses for low-grade tobacco. Soap. J. S. McHargue, C. W. Woodmansee, and Karl E. Rapp. *Chemurgic Digest. 2,* 16, 136-7 (1943). The material extracted from tobacco by ethyl ether was saponified with sodium hydroxide and the unsaponified portion then washed out with ether. Excess alkali in the aqueous solution was neutralized with dilute sulfuric acid, and the saponified portion dissolved in 75-per cent ethyl alcohol (sodium sulfate being almost insoluble in this medium). The solution was filtered and the solvent was evaporated, leaving an almost black, solid soap. This represented about two-thirds of the total extract which ranged from 6-15 per cent.

PATENTS

Textile treating processes. John B. Rust (Ellis-Foster Co.). *U. S. 2,315,135.* A process of making textile fabrics water repellent without seriously lowering the tensile strength comprised of treating the fabric with an aqueous solution of from 1% to 10% of the reaction product of a tertiary amine formed from palmityl chloride, stearonitrile, and paraformaldehyde, and drying the fabric between 110°C. and 160°C. from 1-15 minutes.

Detergent composition. Coleman R. Caryl (American Cyanamid Co.). *U. S. 2,314,840.* A detergent composition comprising 0.5 to 3 parts of the condensation product of an aliphatic monocarboxylic acid having 10 to 18 carbon atoms (lauric acid) with a monoalkylol cyanamide (monoethyl), 5 to 10 parts of the sulfosuccinic ester of at least one aliphatic alcohol having 6 to 10 carbon atoms (sodium dioctyl sulfosuccinate) and 10 to 50 parts of a water-soluble salt of pyrophosphoric acid (tetrasodium pyrophosphate).

Glossy soap flakes and bars. Thomas Penny. (Lever Bro. & Unilver Ltd.). *Can. 413,692 and 413,693.* A continuous method for enhancing the gloss and transparency of soap flakes comprises passing the flakes through a steaming zone in which they are freely exposed to the action of steam for not more than a few seconds. They are then passed through a drying zone in such a manner that they are kept substantially separate from one another until their surfaces have become sufficiently dry to prevent them from sticking together when they are collected. *(Chem. Abs.)*

Evaluation of washing agents. Theodor Hesse. *Ger. 723,097.* The foam no., the half-time value of foam breaking, the pH and surface tension are detd. almost simultaneously in the same testing vessel at the time the soln. is made.

Guanylurea salts. Jack T. Thurston and Robert C. Swain (American Cyanamid Co.). *U. S. 2,310,045.* Salts are prepared by reaction of guanylurea and lauric, myristic, palmitic, stearic and other organic acids, which serve as sudsing and cleansing agents, and for preparing soaps for incorporation with mineral lubricating oils and greases.

Soap in rubber cement. *Brit. 495,263.* Rubber cements are more and more made as aqueous dispersions of rubber, often reclaimed rubber, in dilute soap solutions. Or the rubberlike material may be a synthetic, such as chloroprene. The chloroprene emulsion is deodorized by extracting with a low-cost hydrocarbon solvent. It is then mixed with soap in water to yield a rubber cement. *(Chem. Abs.)*

Dispersing agents. Bosme Fettchemi-G.m.b.H. *Ger. 710,680.* Lower alkyl or aryl esters of sulfate esters of high-molecular fatty acids are neutralized with organic bases, especially pyridine, to give wetting and dispersing agents. *(Chem. Abs.).*