Abstracts

Soaps

Edited by
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CERATE OXIDIMETRY. DETERMINATION OF GLYCEROL. G. Frederick Smith and F. R. Duke. *Ind. Eng. Chem. Anal. Ed. 13,* 558 (1941). The determination of glycerol by the use of the perchlorato cerate ion in excess in perchloric acid solution, followed by back-titration using standard sodium oxalate, has a number of material advantages over the familiar dichromate-ferrous sulfate procedure. The time required for oxidation of glycerol is reduced from 180 to 15 minutes and the reaction temperature required is reduced from 90-100° to 50-60° C. Colorless solutions during titration make available the use of an internal oxidation reduction indicator—namely, nitro-ferroin—and makes unnecessary the use of a potentiometric method.

SOAP AND PHENOLS. E. Angelescu and T. Manolescu. *Kolloid-Z. 94,* 319-27 (1941). A study of the viscosity of soap solutions in the presence of various phenols, was made. Ordinary phenol gave lower viscosity maxima in soap solutions than did cresols. The introduction of a second phenolic group into the phenol molecule causes the complete disappearance of these maxima. Introduction of another group such as nitro or amino into phenol molecule causes a decrease of disappearance of the viscosity maxima in 0.2 N sodium stearate solutions. Naphthols produce marked maxima, that with the beta isomer being much greater than that with the alpha isomer. (*Soap.*)

GLYCEROL AS THE STANDARD LIQUID OF HIGH VISCOSITY. Ziro Tukamoto and Sutezo Kuriyama. *J. Soc. Chem. Ind., Japan 44.* Suppl. binding 24 (1941) (in English). Abs. viscosity of a glycerol soln. in H_2O of d_4^0 1.2532 was 7.815 c.g.s. units by the falling-sphere method. Glycerol solns. may be analyzed for glycerol content by d or viscosity providing only water and glycerol are present. (*Chem. Abs.*)

RECOGNITION OF THE DISTINCTION BETWEEN DISINFECTANT AND THERAPEUTIC SOAPS. Th. Ruemele. *Siefensieder-Ztg. 68,* 8, 19-20 (1941). Disinfectant soaps include phenol-, creolin-, creosote-, salol-, formaldehyde-, oxone-, camphor- and turpentine-soaps. Therapeutic soaps include S-, ichthyol-, salicyl-, pine-needle and so-called salve-soaps. Brief comments are made upon methods of manufacture. All claims of medical action should be based upon exptl. demonstrations of effectiveness surpassing that of soap alone. Possible unfavorable dermatological effects must be considered. Popular opinions and advertising are not adequate criteria. (*Chem. Abs.*)

SOAP PERFUMING. *Perfumery and Essential Oil Record 32, 7* (1941). Generally, where direct combination with the alkali takes place, as with phenols, the odour quickly diminishes; where a breaking down and combination, as in the case of esters, the loss of perfume is much slower and the odour is altered; whilst polymerisation results in a complete loss of odour value.

There are two general methods for the construction of soap perfumes:—

1. The base is selected from suitable synthetics for strength, and their somewhat harsh character is modified with appropriate essential oils in small amount, the desired fixative is added and allowed to blend, and finally the whole is toned up with small quantities of the stronger synthetics of the same character.

2. A base of essential oils is provided characteristic of the perfume required, at the same time allowing for a suitable backing of the same natural material to safeguard against any subsequent loss of perfume. A little of the perfume value will then be sure to remain in the soap on ageing, even under the most trying conditions. It is then just modified with the necessary synthetics for strength, sweetness, or diffusing, and blended with selected natural fixative balsams or resins in generous amounts, and finally toned with traces of the more floral essential oils or natural material.

The first method is more suitable for the preparation of the cheaper and stronger perfumes, the second supplies the best way to build-up the true and more natural better-class variety. In the latter, colouration due to the perfume is not considered so much as with the former class, where mostly white soaps or very light coloured are in demand. Moreover, the aim is to produce a good perfume and to hold it, for the better class, and, to succeed, the natural material is the most reliable; many synthetics are important fixatives in combination, but they have not the same holding power as the fixative resins and the more heavy essential oils.

PROPERTIES OF DETERGENT SOLUTIONS. DETERGENT ACTION OF THE SYSTEM MODIFIED SODA-SOAP-WATER. Thomas H. Vaughn, Anton Vittone, Jr. and Leslie Bacon. *Ind. Eng. Chem. 33,* 1011 (1941). Three types of washing tests were made with an artificially soiled cloth at 60° C., using 0.1% soap solutions built with modified soda, show that at a constant pH soil removal in this system first increases to a maximum and then decreases as the amount of modified soda is increased. Over the range of soap-builder ratios used in commercial laundry practice, soil removal is approximately proportional to the acid titration value, which is in turn proportional to the concentration. For this system titration is therefore a much better means of controlling the suds bath in laundry practice than pH measurements. The optimum ratio of soap to modified soda with the type of standard soil used is approximately 1 to 2 at a soap concentration of 0.1%.

Results obtained with soiled cloths of the same type but with different residual removable soil contents are correlated. Reflectivity values of standard soiled cloth are only an indirect measurement of soil content. Under the conditions used in this study and other things being equal, the rate of soil removal is directly proportional to the residual removable soil content of the cloth. Two types of Launder-Ometer studies have been made and one type is correlated with commercial washer tests. The relative merits of all three types of experimental washing procedures are discussed.

PHASE STUDY OF COMMERCIAL SOAP AND WATER. James McBain, Marjorie Vold and John Porter. *Ind. Eng. Chem. 33,* 1049 (1941). Typical commercial soaps may be studied under the assumption that they behave like two-component systems consisting of a soap and water, in fair accordance with the principles of the phase rule. For isotropic liquid, liquid crystalline middle soap, soap-boiler's neat soap, superneat soap, and probably also the neat and subneat forms of anhydrous and nearly dry soap, the phase-rule behavior is qualitatively the same as that of single pure soaps. For other regions of the diagram, however, some fractionation seems to occur.

Solubilities of various pure and commercial soaps are each characterized by a value of T_8, the temperature of ready solubility which can be precisely defined by reference to the lower temperature boundary of moderately concentrated isotropic solution. As an example, for a palm oil soap T_8 is 52° C. Above this temperature as much as 30 g. soap will dissolve in 70 g. of water. Only 2° C. below T_8 this solubility has fallen to 5 grams in 95 g. of water.

PATENTS

SILICATED SOAP. James Vail (Philadelphia Quartz Co.). *U. S. 2,243,054.* In the manufacture of detergents, the process which comprises slowly agitating granular particles of an expanded sodium silicate, having an apparent specific gravity not substantially exceeding 0.7 and having a molecular ratio of Na_2O to SiO_2 within the range of about 1:1.5 to 1:3.3, in the presence of liquid, soap-forming fatty acid in amount sufficient to form at least about 5% of soap in the final product and continuing the slow agitation without substantial disintegration of the silicate particles until no liquid fatty acid is visible and a granular product is produced, whereby soap is formed by accretion on the silicate particles, the resulting silicate soap particles being of substantially uniform composition, but having a slightly larger proportion of soap on their surfaces than at their cores and having the general form and physical characteristics of the original silicate particles and having an apparent specific gravity not substantially exceeding 0.9.

Report of the Color Committee

OUR first problem was to study the Spencer colorimeter, devised by one of our members, Dr. Estey. There was only one instrument available for circulation among the members, so the progress of the work has not been rapid, nor has it been completed. On the results so far reported, there seems to be a very fair agreement between the results given by the new instrument and those commonly in use. Dr. K. S. Gibson also approved the instrument in principle, but suggested the possibility of adding a pair of field lenses to reduce reflections from the walls of the instrument. This the Spencer Lens Co. will study when the instrument is returned to them.

Mr. I. M. Diller has worked on a photoelectric colorimeter designed by him, and manufactured by Hellige-Diller, Inc., for several years. The past year he has worked on its use in reading the color of petroleum oils with considerable success, and he is now planning to study the problem of using it on vegetable oils, getting results which can be easily translated into Lovibond readings. Mr. Diller is hoping that he can present a paper discussing the instrument at the fall meeting, and is also planning to do a lot of work on cotton oils of known Lovibond readings, and see if he can either calibrate the instrument directly for Lovibond readings or devise some simple means of translating his results into the Lovibond system. It will be sometime, therefore, before this instrument will be ready for our study.

Th eproblem of the filtration of cocoanut oil was further studied by a subcommittee consisting of G. W. Agee as chairman, and the following members:

E. B. Freyer	H. P. Trevithick
R. C. Stillman	E. G. Williams

This problem was studied last year by a subcommittee and further work was done this year. This subcommittee has studied the use of various filter papers, etc., and makes the following recommendations:

Change the method as now given on page 16 d (amended 1938) to read as follows:

CRUDE COCOANUT OIL

Approved Filter Papers—Eaton-Dikeman #1—Whatman H12 and Whatman #40. 25 cm. size is recommended, but smaller papers can be used, if the quantity of oil available is small.

Procedure—Melt the oil at 32.5°C, plus or minus 2.5°C (do not heat above 35°C), in a water bath and filter once through two approved filter papers, folded together. Discard the first 10 ccs. of the filtrate, before collecting the sample for color reading.

(The remaining portion of the method as printed, beginning with the words "Read the color" and ending with the sentence "Report both readings," shall remain as printed in the method.)

The subcommittee has studied other papers, temperatures, etc., and find that the method as outlined, using the three papers enumerated, gives clear oils and very satisfactory results.

The color committee therefore recommends that this change be made in our methods.

For the new year, this committee recommends that: (1) The work on the Spencer colorimeter be continued. (2) That the new committee study the work on the Hellige-Diller instrument, if finished, and make a report on its next year, if possible.

The previous committee made the following recommendations, which we were unable to carry out this year, and we suggest that they be studied by the new committee:

(1) Adoption of one and only one standard colorimeter.

(2) Check the color tubes and recommend sources of supply that are satisfactory.

(3) Study the question of painting the interior of the colorimeter white, instead of black, as at present.

(4) Specify the amount of illumination at the magnesia block.

(5) Improvement of the tintometer.

(6) Standardization of the yellow-red ratio.

We have finished the work of cocoanut oil and that subcommittee should be discontinued, in our opinion.

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