Progress Report of Soap Stock Committee 1937-38

The committee's time has been devoted to study of the Official and Optional Official methods, rule 276, sections 2 and 3, respectively, for the determination of total fatty acids in soap stock. Particular attention has been given acidulated soap stock from soya bean and corn oils. Ten samples of soap stock from soya bean and cotton seed oils, and acidulated soap stock from cotton seed, soya and corn oils have been analyzed in the chairman's laboratory. Some of these have been analyzed by the entire committee.

Using the Official method, we have conducted experiments in which the fatty acid cake was dried at room temperature and at 50-55 F. With the Optional Official, or wet extraction method, we have extracted the fatty acids with warm petroleum ether, used varying quantities of solvent, and held the solvent in contact with the fatty acids overnight.

Results to date indicate that both methods as now written give satisfactory results on the materials that we have analyzed. However, it appears advisable to re-write the methods, clarifying the wording, and making the directions more specific in several instances. A draft of the methods containing the proposed changes is now being studied by the committee, but we wish to accumulate more data before making our recommendations to the Society. A complete report will be given at the Spring meeting.

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Report of the Glycerin Analysis Committee American Oil Chemists' Society, October, 1937

FOR several months your committee has been engaged in coöperative work on the determination of the per cent glycerin yield of oils and fats. For natural oils of high quality glycerin yield may be ascertained fairly closely by calculation from ester value but for low grade stocks, which have undergone partial hydrolysis, or superglycerinated fats, glycerin yield must be estimated by direct methods of analysis.

The method selected for study involved a saponification of 5.000 gms. of sample with 5 ml. aqueous, 50% KOH. The oil and caustic are stirred in a beaker until a homegeneous paste is obtained and heated for four 15-minute periods in an oven at 105° C., stirring after each heating. The saponified mass is dissolved in water, decomposed with dilute H_2SO_4, cleared by heating and filtered through a wet paper into a volumetric flask from which an aliquot portion of suitable size may be taken with a pipette for dichromate oxidation.

Four oils were chosen for coöperative work, all of high quality: coconut, cottonseed, hydrogenated cottonseed and tallow. Eleven laboratories reported analyses by the method described, several even trying other methods for purposes of comparison. The results, on the whole, were surprisingly good, only two members of the committee having difficulties sufficient to impair the accuracy of their analyses seriously, though most of them appear to have had trouble with imperfect and incomplete saponification.

Though the proposed method is believed by several members to be satisfactory in the hands of an experienced analyst, the consensus of opinion appears to be that the uncertainty of complete saponification is so great that the method should not be recommended for adoption by the Society. It is expected that this work will be continued during the coming year, with the investigation embracing one or more other methods proposed by members of the Committee. In future work it is desirable to include low grade stocks which may necessitate purification of the glycerin solution before oxidation.

The Committee has under consideration the International Committee Methods of Analysis for Crude Glycerin. It is expected that action will be taken in the near future on the question of recommending certain of these methods to the Uniform Methods Committee.

A. O. C. S. Glycerin Analysis Committee—1936-1937

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