CALCULATION:

$$\text{Free glycerol, \%} = \frac{(B - S) \times N \times 2.302}{W}$$

B = Titration of blank; average of 2
S = Titration of sample
N = Normality of $Na_2S_2O_3$
W = Weight of sample represented by aliquot tested.
2.302 = Mol. wt. of glycerol (92.09) divided by 40.

Calculate to the nearest 0.01%.

Direct Iodimetric Method

This is used for routine testing where some accuracy can be sacrificed in the interest of time and simplicity and where the periodic reducing constituents of the sample, other than glycerol, are not large enough to interfere with the results.

PROCEDURE:

Weigh 0.5 ± 0.002 g. of the sample into a 400 ml. beaker. If the glycerol content is above 4.0%, use 0.25 ± 0.001 g. sample. Add 100 ml. distilled H_2O and heat if necessary to effect solution. Cool to room temperature and pipette 50 ml. of the periodic acid reagent into the solution of the sample and rotate gently to mix thoroughly. Cover the beaker with a watch glass and allow to stand 30 minutes. Prepare two blanks using 100 ml. of distilled H_2O in place of the sample. Proceed as directed in the extraction iodimetric titration method beginning with "Add 20 ml. KI soln." Calculate free glycerol to the nearest 0.1%.

Summary

The determination of free glycerol in soap has been improved and shortened.

1. When it is known that there are no substances which interfere with periodic acid reaction, the direct-iodimetric method is applicable. However, if the glycerol content is below 1%, the accuracy and precision are only fair.
2. The extraction-iodimetric method is applicable when the sample contains no periodic acid reducing substance other than glycerol or when such substances are soluble in chloroform.
3. The extraction-acidimetric method is preferable when the sample contains periodic acid reducing substances other than glycerol and which are soluble in the aqueous acid solution along with the glycerol.

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☆ ☆ ☆ ABSTRACTS ☆ ☆ ☆

Oils and Fats

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COMMERCIAL EXTRACTION OF SOYBEAN OIL USING NON-INFLAMMABLE SOLVENTS. E. G. Hollowell. *Iowa State Coll. J. Sci. 23,* 41-3(1948). A system for extracting oil from flakes moved countercurrent to trichloroethylene was put into successful operation in a commercial plant. Soybeans (moisture content up to 14%) were cracked, rolled into flakes 0.01 in. thick, heated to 140-150°, and with a 20-min. extraction time, reduced to 0.8% oil content. The oil was far above commercial requirements. About 0.05% of the beans were fines. Some corrosion occurred where solvent and water condensed. The solvent loss was 8-10 lb. per ton of beans processed. Other materials were tried. Milk-weed seeds were reduced from 23 to 5% oil in 15 minutes; cottonseed from 35 to 2% in 30 minutes; oatmeal from 6.5 to 1%; corn germs from 50 to 3%. The cottonseed oil was not good. (*Chem. Abs. 43,* 1581.)

HYDROGENATED WHALE OIL. ITS INDUSTRIAL EMPLOYMENT. P. Merat. *Oleagineux 4,* 203-12(1949).

RECENT DEVELOPMENTS IN CONTINUOUS FAT-SPLITTING. J. Seaman. *Soap, Perfumery & Cosmetics 22,* 384-5, 395(1949).

CHEMISTRY OF THE OXIDATION OF OLEFINIC FATS. K. Täufel and H. Rothe. *Angew. Chem. 61,* 84-9 (1949). A review from 52 references.

DEODORIZATION OF SHARK-LIVER OIL. P. K. Mathew, P. V. Nair, T. A. Ramakrishnan, and H. Sreemulanathan. *Nature 162,* 494(1948). Shark-liver oil can be deodorized by steam treatment, agitation with fermenting milk or toddy, or by catalytic hydrogenation with Ni catalyst. The first of these methods gives only temporary deodorization for several days, while treatment by the second gives an oil that remains bland for several months, with little change in physical constants or vitamin A potency. (*Chem. Abs. 43,* 1531.)

DETERMINATION OF SAPONIFICATION NUMBER. D. T. Englis and J. E. Reinschreiber (Univ. Illinois, Urbana). *Anal. Chem. 21,* 602-5 (1949). The reaction of KOH with HCl in solutions of varied proportions of ethanol and water, and in the presence and absence of soap, has been followed potentiometrically with special reference to its significance to the determination of the saponification number of oils and fats. In the usual saponification procedure the final ethanol content of the solution may be as low as 35%, yet the hydrolysis of the soap does not interfere seriously with the end-point detection at the proper stage of the reaction. The change in the pK value for phenolphthalein with change in solvent composition does not detract from the use of this indicator for the determination. The directions in the official method are properly prescribed. A series of analyses showing the effect of absorption of CO_2 under ordinary operating conditions was performed and results are reported.

SPOILAGE OF FATS AND OILS. H. E. Iselin. *Mitt. Gebiete Lebensm. Hyg. 39,* 310-36(1948). The process of spoilage of veal, mutton, beef, and pork fat is discussed. The fats were exposed for 2 to 3 years to diffuse daylight and the progress of oxidation was