identical with those obtained using Phenolphthalein. Its absorption of CO_2 was not excessive. Whether or not the material is entirely uniform is not known, but the selection of a satisfactory "lot" should be comparatively easy. The adoption of this indicator, however, unless dispensed by the society itself, would necessitate the designation by the society of a specific product of a manufacturer—a practice considered undesirable. In addition to this indicator, several others, as yet untested, have recently been suggested by Dr. Snell as worthy of study.

The majority of the members of this committee feel that the purchase of a tested lot of indicator, to be dispensed by the secretary, would be a satisfactory solution to the problem of an alternate indicator for dark oils. If that should prove to be the will of the society, we recommend the selection of a committee for that purpose.

We are of the further opinion that if the indicator designated must be uniform, regardless of "lot" or source of supply, that the value of continuing this work another year is doubtful. The committee has no further recommendations.

(Signed) J. L. MAYFIELD,
Chairman, Committee on Indicators.

REPORT OF THE SEED ANALYSIS COMMITTEE

The work of the Seed Analysis Committee during the past six months has been confined to studying the methods for determining the percentage of lint on cottonseed. The two methods used in this study are outlined as follows:

METHOD NO. 1:

Fifty gram portions of the seed weighed and placed in porous clay pots, which had been treated with 3 cc. of conc. HCl, and fumed for 1 hour at 130 degrees C. Lint was removed after cooling and reweighing by placing the fumed seed on a 10-mesh screen and rubbing with a No. 11 rubber stopper and finally between layers of a soft cloth. The delinted seed were then reweighed. The lint removed was saved and a moisture determination made and recorded. Original moisture content of the lint was assumed as 8 per cent. Percentage lint was calculated by converting the weight of the dried lint to per cent by multiplying by the factor obtained by dividing (100 — moisture of dried lint) by (100 — moisture of lint).

METHOD NO. 2.

Moisture of the seed was determined. Fifty gram portions were weighed and dried for 3 hours at 130 degrees C. Seed were then placed in porous clay pots, which had been treated with 2.5 cc. of conc. HCl, and fumed for 1 hour at 130 degrees C. All traces of lint were removed by brushing on a 20-mesh screen with an ordinary paint brush or by rubbing between layers of a soft cloth. The bald seed were dried overnight and the weight recorded. The percentage moisture free lint on moisture free seed was calculated. Using this percentage, and assuming the average moisture content of lint as 8 per cent, the pounds of 8 per cent moisture lint on as-is seed can be calculated.

Three samples of cottonseed were used, two being used for Method No. 1 and one being used on Method No. 2. Results of the work were as follows:

1. Method No. 2 is generally considered by members of the committee as being superior and more practical than Method No. 1. Tabulation of results obtained on the samples used for Method No. 2 were more uniform and showed a closer range of variation than results obtained on samples used for Method No. 1.
2. Screens of 10, 20 and 30-mesh were used by the collaborators on their tests, though 10-mesh is specified by one method and 20-mesh by the other. Results obtained were more satisfactory when the 20-mesh screen was used.
3. It has been recommended by some members of the committee that the bald seed be dried by heating for 2 to 3 hours at 130 degrees C. rather than overnight. This would enable the time element involved in handling the sample to be shorter and more practical, and in cases where such drying was used the results checked well with those obtained when the bald seed were dried overnight.
4. The thought has been advanced by some members of the committee that the fuming temperature of 130 degrees C. was too high, and also that 2.5 cc. and 3 cc. of conc. HCl was too much to use in the pots. It has been recommended that the official method of fuming be used and also that the amount of acid be reduced to 1.5 cc. Satisfactory results were obtained when these variations from Method No. 2 were used.
5. Some of the objectionable features in Method No. 1 are eliminated by using Method No. 2; namely, the breaking of the hull of the seed into a fine powder by use of the rubber stopper in removing the lint is minimized; moisture of the dried lint is eliminated; calculations are shorter and involve use of fewer variables; work of determining the lint percentages is simplified and time is saved.
6. Objections have been raised to the assumption of the moisture of the original lint as 8 per cent. No satisfactory method has yet been suggested for making an accurate determination of the moisture content of the lint.
7. It is recommended that further study be made on the methods of determining the lint on cottonseed for another year.

Before closing this report, it might be of interest to the members of the A.O.C.S to know that during the past year, the United States Department of Agriculture has supervised the sampling and grading of approximately 1,500,000 tons of cottonseed in the states of the Mississippi Valley, official samples being drawn and prepared from each shipment by men licensed by the Department and the analyses and grades on the official samples certificated by licensed chemists who are under the supervision of the Department. The grades on 80 certificates of analysis, involving approximately 2,000 tons of seed, have been brought before the Department for review. The percentage of the total tonnage of

cottonseed on which the grades have been disputed amounts to approximately 0.13⅓ per cent. Of the 80 cases brought before the Department, only in 16 cases were the original grades found to be erroneous and on which it was necessary to make a change from the grades originally reported. The number of cases on which the grades were changed represents only approximately 400 tons of cottonseed, or approximately 0.02⅔ per cent of the total tonnage involved which was officially sampled and officially certified.

This record speaks well of the chemists handling the analysis work on cottonseed under the supervision of the Department, all of whom are members of the A.O.C.S. The results of the supervised grading of cottonseed also speaks well of the accuracy of the present methods of sampling and analysis which are used in analyzing cottonseed and which have been developed and improved by various members of the A.O.C.S. and the Bureau of Chemistry and Soils of the United States Department of Agriculture.

Respectfully submitted,

R. T. Doughtie, Jr., Chairman,
F. R. Robertson,
C. A. Smith,
C. P. Brenner,
D. C. Picard,
L. B. Forbes.

REPORT OF THE FAT ANALYSIS COMMITTEE

The Fat Analysis Committee believes that at this time there are several methods having to do with fat and oil analysis which need study and consideration. During the past year serious thought has been given to several of these. Although the committee does not at this time have many definite recommendations to make, the following report will indicate the work which is in progress.

Several qualitative tests or so-called specific tests for various fats and oils are being investigated. These include tests for peanut oil, hydrogenated and unhydrogenated fish oil, kapok oil, sesame oil, teaseed oil, and a few others.

Iodine No.'s: A study of the technique of the Wijs method is being considered as well as a comparison of this with a few other more recently suggested procedures.

Titers: The technique of this determination is being studied especially with the view of simplifying the procedure. New specifications for the titer thermometer have been studied and practically decided upon.

Unsaponifiable Matter: This method is being studied, especially with the view of detecting denaturants and possible simplification of the method.

Alcohol for Fat and Oil Analysis: The question of the most suitable alcohol for the free fatty acid determination is being considered.

Tristearin in Lard: A study is being made of the method for the detection of foreign fats in lard. Cooperative samples have indicated that the present procedure does not yield reproducible results in all cases.

Liquid and Solid Fatty Acids: The results on cooperative samples have indicated that a considerable amount of work is still necessary on the liquid and solid fatty acid determination, especially in connection with Iso-oleic acid.

Wiley Melting Point: The committee recommends that the specifications for the beaker and test tube be changed to the following:

Beaker: Height — 200 mm. Diam. — 85 mm. (This corresponds to the common Griffins tall form — 1000 ml.)

Test Tube: Overall length — 300 mm. Inside diam.:—35 to 38 mm.

Moistures: The committee recommends that the wording of the method for the hot-plate moisture determination be changed slightly so as to avoid the possibility of misinterpretation. We suggest the method read as follows:

Hot-Plate Method—Determination: Weigh out 5 to 20-gram portions of the prepared sample into a glass beaker or casserole and heat on a heavy asbestos board over burner or hot plate, taking care that the temperature of the sample does not at any time go above 130° until the very end of the test (see below). During the heating rotate the vessel gently by hand to avoid spattering or too rapid evolution of moisture. The approach of the end point may be judged by the absence of rising bubbles of steam and by the absence of foam at the last. At this point, the heating should momentarily be carried on to incipient smoking (caution!) Cool in dessicator and weigh.

Limitations: This method is applicable to all the ordinary fats and oils, including emulsions such as butter and oleomargarine, and high acid coconut oil. It is not applicable, however, to certain abnormal samples such as naphtha extracted greases which contain, in addition to moisture, solvents of fairly high boiling point which are driven off with difficulty. In handling such samples it is possible to obtain satisfactory results by using the Kingman distillation method for actual moisture and steam distillation of the solvents. In difficult cases it may be advisable to determine the actual saponifiable matter present.

R. C. Newton, Chairman,
R. W. Bailey,
C. P. Long,
M. L. Sheeley,
H. P. Trevithick,
T. C. Law,
H. J. Morrison,
L. M. Tolman,
J. J. Vollertsen.

COMMENT

C. R. Brown of The Sharples Specialty Company, Philadelphia, has sent the following comment with reference to the paper on "Isopropyl Alcohol as a Solvent for Free Acid Titration" by G. Worthen Agee (see July issue):

"The writer has used this material for some time in the place of specially denatured alcohol for free fatty acid determinations. I have only one thing of interest to add to the article, and that is, the ease with which anhydrous isopropyl alcohol may be recovered from waste alcohol. After first making a distillation of the constant boiling mixture, the distillate is treated with sufficient solid caustic soda to combine with the water in the mixture, and a separation made in a separatory funnel of the separated caustic solution which breaks out of the constant boiling mixture. If it is then redistilled, anhydrous alcohol is recovered, providing the distillation is not carried too far. That is, an 85 or 90% recovery of the alcohol is about all that can be anticipated."