

mention, third place, resulted in a three-way tie with an efficiency of 98.80%. These analysts were Edward R. Hahn, Hahn Laboratories, Columbia, S. C.; P. L. Phillips, Barrow-Agee Laboratories, Jackson, Miss.; and F. G. Schmid, Texas Testing Laboratories, San Antonio, Tex.

2. Soybean Series. This series comprised 10 samples and represented types of soybeans marketed in various localities from Iowa to Mississippi. These samples were distributed to 27 collaborators located in 13 states and one Canadian province. Results indicated improvement over the previous year's series. Results indicated improvement over the previous year's series, particularly with respect to moisture. Final grade tabulations, using the customary tolerances, have been mailed to all collaborators.

The collaborators with the highest grades for the 1954-55 series were as follows. Certificate for first place were awarded to W. N. Kesler, Woodson-Tenent Laboratories, Little Rock, Ark., and to Oscar E. Wilkins, Memphis Testing Laboratories, Memphis, Tenn. Both of these analysts received a top grade of 100.0%. Honorable mention for second place was given to N. C. Hamner, Southwestern Laboratories, Dallas, Tex., and to Biffle Owen, Planters Manufacturing Company, Clarksdale, Miss. Both of these analysts received a grade of 99.7%.

3. Peanut Series. This series comprised seven samples and represented types of peanuts produced in the southeastern states. These samples were distributed to 13 collaborators located in five states. Results were comparable to those of previous years' series. Final grade tabulations, using the customary tolerances, have been mailed to all collaborators.

The analysts with the highest grade for the 1954-55 series are as follows. Certificate for first place was awarded to Thomas C. Law, Law and Company, Atlanta, Ga., who received a grade of 99.60%. Certificate for second place was awarded to E. C. Ainslie, Buckeye Cotton Oil Company, Atlanta, Ga., who received a grade of 99.00%. Honorable mention for third place was given to M. L. Hartwig, Law and Company, Montgomery, Ala., who received a grade of 98.80%.

W. T. COLEMAN	G. C. HENRY
E. R. HAHN	R. T. DOUGHTIE JR., chairman

Subcommittee on Crude Vegetable Oils

THREE soybean oils and three cottonseed oils were sent to 105 collaborators. This was an increase of 10 collaborators over the past year. The samples were analyzed for free fatty acid, refining loss, and color, and grades were based on these tests. Because of some confusion on the Official Bleaching Earth the collaborators were not graded on color on the first sample. Seventy-six and one-half per cent of the collaborators reported all of the required tests. The average grades for those reporting all tests were:

soybean oil	94.7%
cottonseed oil	90.7%
both oils	92.7%

Certificates of proficiency were awarded to J. J. Ganuchau, Southern Oil Company, Gretna, La., with a grade of 100%, and to F. M. Tindall, The HumKo Company, Memphis, Tenn., with a grade of 99.4%. Honorable mention was given to J. P. Henry, Iowa Testing Laboratory, Waterloo, Ia., with a grade of 98.4%.

R. A. DECKER	F. R. EARLE
F. G. DOLLEAR	J. R. MAYS
J. P. HEWLETT, chairman	

Report of the Uniform Methods Committee, 1954-55

IN CONTRAST to the fall meeting in Minneapolis, at which no recommendations for the adoption of new methods of analysis or changes in existing methods, were received, the Uniform Methods Committee has received, for action at the annual meeting, no fewer than 47 new methods and changes in present methods. One of these will add an entire new section to our Methods Book. These changes and additions were initiated by four of our standing technical committees.

Subcommittee on Tallow and Grease

FIVE SAMPLES of inedible fat were distributed to 70 collaborators. This was the largest number that ever participated in the series. Determinations were made for moisture, insoluble material, unsaponifiable, free fatty acid, titer, and color. On samples running under 10% in free fatty acid a refined and bleached color was requested. Grades were not based on this test however. Based upon the experience gained on the results on color this year, a revised grading system will be adopted next season. The quality of the work was excellent. There is little doubt that participation in this check sample program during the past few years has resulted in better adherence to A.O.C.S. Methods and improvement in the quality of analyses. Those with the highest grades this season were: Donald W. Turnham, Swift and Company, No. Portland, Ore., with a grade of 99.90%; and Leroy McClelland, Wilson and Company, Los Angeles, Calif., with a grade of 99.79. These men will receive certificates. Honorable mention is given to T. S. McDonald, Procter and Gamble Company, Dallas, Tex., with a grade of 99.78.

A comprehensive report showing the list of collaborators, accuracy as measured by the standard deviation, and other pertinent comments, has been sent to all collaborators.

K. H. FINK	N. W. ZIELS
D. L. HENRY	I. R. BRESHNAHAN
B. N. ROCKWOOD	C. P. LONG, chairman

Subcommittee on Drying Oils

THE subcommittee on drying oils was reactivated this year. Three sets of two samples each were sent to 14 collaborators. These were analyzed for iodine value, saponification value, specific gravity, acid value, color, and viscosity. Standard deviations have been calculated for each sample in the case of iodine value, saponification value, specific gravity, and acid value.

The collaborators' results were not graded, and no certificates were issued this year. From the standard deviations obtained this year we shall attempt to establish a grading system for next season. The tabulated results have been sent to the collaborators.

V. B. SHELBURNE	E. C. GALLAGHER
K. E. HOLT	L. V. ANDERSON, chairman

Subcommittee on Glycerine

FIVE SAMPLES were distributed to 23 collaborators. These samples included a C. P. glycerine, two soap lye crudes, and two saponification crudes. On the C. P. sample the glycerine was determined by the periodate method (EA 6-51) and the specific gravity by methods EA 8-50 and EA 7-50. The four crudes were analyzed by method EA 2-38 for ash, acidity, or alkalinity and sodium chloride. Glycerol was determined by the sodium periodate method and the total and organic residue at 160°C. by method EA 3-38. The results on four samples have been tabulated and distributed to the participants.

When the analyses are all in on the fifth sample, the results will be tabulated and a summary made giving the precision attained as measured by the standard deviation.

C. P. LONG
B. A. SCHROEDER
W. D. POHLE, chairman

With one exception, all were approved by the Uniform Methods Committee.

Bleaching Methods and Refining Committee,

T. C. Smith, chairman

1. Bleaching Methods Subcommittee, H. E. Seestrom, chairman

Add to Sec. A-6 of Method Cc 8a-52: "Filter papers E. & D. 617 or R. A. 230 may be used to filter

the refined oil for use in running the bleach test. The purpose is to speed up the filtering rate. The use of these two 'fast' filter papers is not permitted when the refined oil sample is to be used directly for color determination." Add the same provision to Secs. B-1 of Cc 8a-52 and to B (a)-1 of Cc 8b-52. *Approved.*

2. Refining Methods Subcommittee, G. W. Holman, chairman

a) The subcommittee recommends a change in Table 1, "Alkali Concentration," in Method Ca 9a-52. Actual NaOH content, by weight, is unchanged, but the permissible variations are reduced from $\pm 2\%$ to $\pm 1\%$. This controls an unnecessarily large variation in the Refining Method, which can affect loss results. *Approved.*

b) The Refining subcommittee also recommends an addition to Sec. E-9b, crude soybean oils, of Method Ca 9a-52 to read as follows: "Note: On degummed oils when the refining produces a poorly coalescing and difficult-to-separate soapstock, carefully decant, as described in Section E-8, to prevent loss of soapstock and to remove as much oil as possible. After the first melt, coagulate the soapstock by swirling the cup, without splashing, at 100 ± 20 r.p.m., with a simultaneous gentle rocking motion. Emulsification can occur if this is continued for too long a period or too fast a rate. Make subsequent remelts as described." *Approved.*

Fat Analysis Committee, V. C. Mehlenbacher, chairman

1. Determination of Moisture Subcommittee, R. J. Houle, chairman

The committee recommends adoption, as tentative, of a method for moisture, using a Modified Karl Fischer Reagent employing two solutions. This new method, Ca 2e-55, has an advantage over existing methods in that it is satisfactory for fats containing added monoglyceride. While it relies on a visual endpoint, the subcommittee is continuing work on an electrometric titration method for use on dark oils. The Uniform Methods Committee further requests that investigation be made of a single stabilized reagent which is commercially available and that a report be made on its advantages or disadvantages. *Approved.*

The Uniform Methods Committee has approved an addition to the scope of each of four existing methods for moisture in fatty oils (Ca 2a-45, 2b-38, 2c-25, and 2d-25) to read: "Not applicable to fats containing added monoglyceride." These methods all depend upon application of heat to expel moisture. *Approved.*

2. Closed Cup Flash Point Subcommittee, D. S. Bolley, chairman

Replacement of Tentative Method Cc 9b-52 by Tentative Method Cc 9b-55 is recommended. The only change is that of thermometer specifications in which present Specifications H 10-48 and H 11-48 are replaced by a single Specification H 10-55. The committee is continuing its investigations and advises continuing the method as "Tentative." *Approved.*

3. The Fat Analysis Committee

The Fat Analysis Committee recommends minor changes in two methods for Saponification Value Cd 3-25 and Ka 8-48. The significant differences are the change in reaction time from 30 min. to 1 hr. *Approved.*

4. Analysis of Drying Oils Subcommittee, J. C. Konen, chairman

A new method, Ka 12-55, for Diene Value is recommended. This is a chemical method for measuring conjugation of unsaturated linkages, the result being expressed in terms of iodine value. Present ultraviolet spectrophotometric method, Cd 7-48, is applicable to "fats containing only small amounts of pre-conjugated material." *Approved.*

5. Analysis of Commercial Fatty Acids Subcommittee, J. L. Trauth, chairman

Addition of a new section "L" to our methods is recommended. This section will cover analysis of commercial fatty acids, using, in many cases, methods which are Official A.O.C.S. Methods. For this reason, and since these new methods must remain "Tentative" for at least one year, The Uniform Methods Committee has approved the complete printing of only three of the 13 methods comprised in the new section. These are the "Methods for Sampling," for "Hot Plate Moisture," and for "Iodine Value," in all of which special procedures, peculiar to commercial fatty acids, are particularly necessary. In the remaining 10 methods reference will be made to the present, well-established official or tentative method which is deemed applicable. These decisions were made with the advice and consent of R. H. Dreyer, representing Chairman J. L. Trauth, who was unable to be present.

New Methods	Nature	Reference to Present Method
L 1-55	Sampling	Print in full
L 2a-55	Hot Plate Moisture	Print in full
L 2b-55	Distillation Moisture	Refer to Ca 2a-45
L 3a-55	Acid Value	Refer to Ca 5a-40
L 4a-55	Unsaponifiable	Refer to Ca 6a-40
L 5a-55	Ash	Refer to Ka 10-55
L 6a-55	Titer	Refer to Cc 12-41
L 7a-55	Sap. Value	Refer to Ka 8-48
L 8a-55	Iodine Value	Print in full
L 9a-55	Refrac. Index	Refer to Ka 4-55
L 10a-55	Specific Gravity	Refer to Cc 10a-25, but add a note directing that when Sec. B (b) is applied determine Sp. Gr. at $70^{\circ}/25^{\circ}\text{C.}$, instead of at $60^{\circ}/25^{\circ}\text{C.}$, and fill bottle at 66° to 68°C.
L 11a-55	Open Cup Flash and Fire Pts.	Refer to Ka 7-55
L 12a-55	Poly-Unsaturated Acids	Refer to Cd 7-48

By making the recommended references to existing standard methods, instead of printing each new method in full, a substantial saving in printing costs will be realized. Eventually it is expected that each method will be printed and included in full in Section L. This should be done when each method is given official status. *Approved.*

6. Continuous Flow Method of Sampling Subcommittee, L. R. Brown, chairman

A method for the continuous flow sampling of tanks or tank cars during loading or unloading was presented to the Uniform Methods Committee for approval. This method is designed to replace C 1-47, Sec. D (a), which is the Petcock Method of sampling. For various reasons, which will be given to the committee and subcommittee, approval by the Uniform Methods Committee was not voted at this time.

7. The Fat Analysis Committee

The Fat Analysis Committee has recommended that the following tentative methods be made official:

Commercial Fats and Oils

Ca 11-46	Ash in Fatty Oils
Ca 12-53	Phosphorus
Cc 8d-48	Refined and Bleached Color of Tallows and Greases

Lecithin

Ja 3-46	Benzene Insoluble Matter
Ja 5-53	Total Phosphorus
Ja 6-51	Acid Value

Drying Oils

Ka 2-47	Acid Value
Ka 4-47	Refractive Index
Ka 5-47	Specific Gravity
Ka 6-48	Viscosity
Ka 7-48	Flash and Fire Points (Open Cup)
Ka 10-51	Ash
Ka 11-51	Acetone Tolerance

These changes from tentative to official status were approved by the Uniform Methods Committee. *Approved.*

**Seed and Meal Analysis Committee,
T. H. Hopper, chairman**

1. Residual Lint on Cottonseed Subcommittee,
R. T. Doughtie, chairman

An improved method for the determination of residual lint on cottonseed was recommended as tentative, with retention of the present official method Aa 7-44. The proposed method is supported by a mass of cooperative analytical data which show its advantages over the present method. In order to avoid confusion and duplication of methods the Uniform Methods Committee has approved the proposed Tentative Method Aa 7-55 to supersede and replace present Official Method Aa 7-44. Specifications for the Infra-Red Oven will be made available to the editor of the Methods. *Approved.*

2. Gossypol Analysis Subcommittee, C. L. Hoffpauir, chairman

a) A new method for Total Gossypol, Ba 8-55, is recommended for adoption as Tentative. It is applicable to cottonseed, cooked meats, slab press cake, and meals, not chemically treated so as to contain dianilino-gossypol. It has been completely validated by cooperative work. *Approved.*

b) The Official Method for Free Gossypol in cottonseed, meats, cake, and meal has been revised to make it applicable to those meals which have been chemically treated and contain dianilino-gossypol. The proposed revision, to be known as Tentative Method Ba 7-55, is to replace and supersede Official Method Ba 7-50. It includes a qualitative test for differentiating normal and treated meals and separate procedures for their analysis. These methods have been tested thoroughly. *Approved.*

Soap Analysis Committee, E. W. Blank, chairman

1. A new method, for determination of chlorides in soaps and synthetic detergents and their products, by potentiometric titration is recommended for adoption as Tentative. The proposed method will be known as Tentative Method Db 7b-55 and uses commercially available apparatus. Its adoption as a Tentative Method was *approved.*
2. Changes should be made in the scope of the following methods for "Total Alkalinity of Alcohol Insoluble Matter:"

Da 7-48

Scope should be revised to read:

"Applicable to soda soaps and soda soap products."

Db 5-48

Scope should be revised to read:

"Applicable to all soda soaps and soda soap products containing synthetic detergents."

These changes were *approved.*

All actions approved by the Uniform Methods Committee were adopted by the Society in its business session on April 20, 1955. The length of this report is ample testimony to the industry of our technical committees. There is reason to believe that the Fall Meeting will bring further evidence of their activity.

The Uniform Methods Committee wishes to thank the technical committee chairmen and members, and through them their employer organizations, for the support of the investigations which have made necessary these changes and additions to A.O.C.S. Methods.

M. M. DURKEE
J. J. GANUCHEAU
D. L. HENRY

T. H. HOPPER
R. J. HOULE
R. R. KING

J. T. R. ANDREWS, chairman

ABSTRACTS R. A. Reiners, Editor

• Oils and Fats

Ralph W. Planck, Abstractor
Dorothy M. Rathmann, Abstractor
Sin'itiro Kawamura, Abstractor

A constituent of the unsaponifiable portion of animal tissue lipids (λ max. 272 $m\mu$). G. N. Festenstein, F. W. Heaton, J. S. Lowe and R. A. Morton (Dept. Biochemistry, Univ. of Liverpool, England). *Biochem. J.* 59, 558-566 (1955). A substance (SA) with an absorption peak at 272 $m\mu$ (in cyclohexane), an inflexion near 330 $m\mu$ and a plateau near 410 $m\mu$ ($E_{1\%}^{1cm}$, 180, 13 and 8 approx. respectively) has been obtained by chromatography on alumina of various animal tissue unsaponifiable fractions. SA is not very strongly adsorbed on alumina, it contains two oxygen atoms (no hydroxyl) and a possible formula is

$C_{28}H_{42}O_2$ (molecular weight observed 430); it is alkali-labile, particularly so in the purer state. From the polarity, infrared and ultraviolet absorption and probable empirical formula, SA could be a steroid with a chromophoric grouping 8(9)-ene-7:11-dione.

Infrared evaluation of sodium salts of organic acids. E. Childers and G. W. Struthers (Polychemicals Dept., E. I. du Pont de Nemours & Co., Charleston, W. Va.). *Anal. Chem.* 27, 737-741 (1955). Infrared spectra of the sodium salts of the monobasic acids (acetic through caproic) and the dibasic acids (oxalic through pimelic) have been recorded over the 2- to 15-micron range. The spectral absorption bands of the sodium salts show a marked degree of specificity in contrast to the acids themselves, and can be used for both qualitative and quantitative evaluation of acid mixtures. A typical analysis—the determination of adipic acid in an adipic-glutaric acid mix-