matter of habit. We would recommend that during the next year's work only such reports as are in the hands of the chairman not later than Tuesday noon of the week in which the report is to be prepared, shall be considered in the final compilation.

We have often wondered how many of the members of the Society ever give any thought to the labor and care which is required in the preparation and distribution of these check meal samples. It is very easy for all of us to take this as a matter of course and to find fault with any little discrepancies which we think make the analysis of the sample more difficult. We feel that the Society, and particularly those members who take part in the check meal work, are greatly indebted to Mr. T. C. Law for his willingness to assume this burden year by year.

Personnel of Committee:
THOS. C. LAW,
E. H. TENNENT,
B. L. CALDWELL,
T. B. CALDWELL,
F. PAQUIN,
J. N. PLESS,
W. C. MOOR,
M. E. WHITTEN,
J. J. VOLLERTSEN,
Chairman.

Report of Committee on Soap in Refined Oils*

THE determination of small quantities of alkali soap in refined oils has been the problem of nearly each individual plant chemist who is in direct contact with edible oil refining. Since there is no standard method for this analysis, each chemist devised his own procedure with the result that there are now quite a few methods available. Because of the difficulty involved in obtaining concordant results by different methods, it is quite apparent that a standard analysis for the quantitative determination of soap in oil is important.

The amount of soap that may be found in a freshly neutralized oil will vary from 0.05% to 0.15%, depending upon the oil and the method of neutralization. A dried, bleached, and filtered oil will contain less than 0.005% of soap. A good edible oil should not contain any soap.

When a dried and filtered oil, liquid at ordinary temperature, is allowed to remain at 90° to 100° F. for some time, any soap present will separate in the form of a cloud. There may be other substances present in an oil that will tend to cloud it, however, the experienced chemist can probably recognize an alkali soap.

The oldest and probably the most common method employed is that of ashing the oil or fat, dissolving the ash in water, titrating with a standard acid solution and calculating the equivalent to sodium oleate or stearate.

This method is quite satisfactory when employed on oils containing high amounts of soap, such as 0.1% or greater. However, when the soap content varies from 0.001% to 0,01%, the amount of oil to be ashed so as to obtain a fair quantity of ash for titration with an acid would be so great as to make this method almost prohibitive and certainly time consuming.

From the standpoint of the oil plant chemist, it is more important to be able to determine accurately the smaller than the larger quantities of soap in oil. Your committee reasoned that if it were possible to devise a method that will accurately determine small quantities of soap in oil, the larger quantities will present no problem.

Following is the method used in the preparation of samples that were distributed to the members of this committee: A neutralized oil was washed with water several times to remove the soap. The oil was then dried, bleached, filtered, and allowed to remain at a temperature of 90° F. for three days and filtered twice through filter paper at ordinary temperature. This oil was then analyzed by both of the below outlined methods and found to be absolutely soap free. A definite amount of sodium oleate was then incorporated and samples mailed to the members for analysis. The sodium oleate was analyzed previous to incorporation and found to be 100% pure.

Following is the procedure for the first method of analysis:

Weigh 50.0 grams of the fat to be tested into a 250 ml. separatory funnel. Add 50 ml. distilled water heated previously to about 150° F. and shake for about two minutes. Add 5 ml. N/2 HCl and shake vigorously for five minutes. Allow to settle and draw off the water. Wash the oil remaining in the separatory funnel with 50 ml. portions of hot water until the wash water is neutral. Three or four washes are usually sufficient. Draw off the washed oil into a 250 ml. beaker and place in a hot water bath at about 160° F. for ten minutes to settle the water. Filter the oil to remove any remaining moisture and determine the F. F. A. as oleic acid using N/50 NaOH. Also determine the F. F. A. of the original oil with the same standard N/50 NaOH solution. Using a 28.2 gram sample.

% F. F. A. as Oleic = ml. N/50 NaOH x .02

(F. F. A. treated oil—F. F. A. original oil) x 1.08 = % soap as sodium oleate

For accuracy it is best to determine the free fatty acid of the treated and untreated oils at the same time, using the same alcohol that was previously neutralized with NaOH solution and employing phenalthalein as indicator; the end point being when the mixture *just turns pink.*

The results obtained are shown in Table 1.

TABLE 1.

Kind of Oil	Sample A Cottonseed	Sample B Cottonseed	Sample C Cocoanut
Per cent sodium oleate actually incorporated	0.0040	0.0100	0.0050
Laboratory No. 1	0.0043	0.0108	0.0054
Laboratory No. 2	0.0048	0.0111	0.0064
Laboratory No. 3	0.0045 0.0089	0.0045 0.0157	0.0014 0.0093
Laboratory No. 4	0.0042	0.0032	0.0005
Average of all laboratories	0.0053	0.0090	0.0046

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*As presented at Spring Meeting, A. O. C. S., New Orleans, May 28 and 29, 1936.

Above figures show that good checks were obtained on Sample A, only one analysis of Laboratory No. 3 being too high. The results, however, are not so accurate on the other samples. Laboratories No. 1 and No. 2 check closely throughout on all samples. Laboratory No. 1 had used this method from time to time as a plant control test.

The two distinct errors that may occur in this method of analysis would be due to incomplete washing out of the acid and to the titrating of the oils before and after treatment to a different "degree of neutrality."

Following is the procedure of analysis as outlined for the second method:

Weigh 100 grams of oil in a 200 ml. extraction cylinder. Extract three times with 50 ml. of hot alcohol (formula 30), allow to settle, and syphon off the alcohol into a 250 ml. beaker. If emulsion is encountered, place cylinder in hot water to facilitate separation of alcohol and oil.

Evaporate the alcohol from the three extractions to about 20-30 ml. and transfer to a platinum crucible, carefully washing the beaker with alcohol and transferring to crucible. Slowly burn off the alcohol and then ignite the crucible until no carbon remains.

Cool the crucible and place into a 250 ml. beaker. Wash the crucible with about 50 ml. hot distilled water and titrate with N/50 HCl, using methyl orange as an indicator.

1 cc N/50 HCl = .00607%
sodium oleate

The results obtained are shown in Table 2.

TABLE 2.

Kind of Oil	Sample A Cottonseed	Sample B Cottonseed	Sample C Cocoanut	Sample D Cottonseed
Per cent sodium oleate actually incorporated	0.0040	0.0100	0.0050	0.0500
Laboratory No. 1	0.0030	0.0067	0.0036	0.0380
Laboratory No. 2	0.0038	0.0033	0.0030	0.0035
Laboratory No. 3	0.0030	0.0070	0.0030	0.0400
Laboratory No. 4	0.0103	0.0161	0.0099	0.0367
Average of all laboratories	0.0050	0.0083	0.0049	0.0295

The above figures are very encouraging and indicate that more than three alcohol extractions were necessary to extract all the sodium oleate.

Laboratory No. 4 shows high results and states the following:

"The boiled distilled water used for taking up the alkaline ash showed slight alkalinity. The samples were reanalyzed and the distilled water was neutralized with N/50 acid employing methyl orange as indicator." The results are as follows:

TABLE 4.

	Sample A	Sample B	Sample C	Sample D
Per cent sodium oleate actually incorporated	0.0040	0.0100	0.0050	0.050
Laboratory No. 4 (reanalyzed).............	0.0061	0.0109	0.0043	0.0425

Laboratories No. 1, No. 2 and No. 3 all find a lower amount of sodium oleate than that actually incorporated. It appears that three extractions with alcohol were not sufficient to dissolve all the sodium oleate.

There was not sufficient time left for all the laboratories to reanalyze all samples using a greater number of extractions. However, laboratory No. 1 carried through same procedure and using five alcohol extractions instead of three.

Following (Table 4) are comparative results:

TABLE 3.

	Sample A	Sample B	Sample C	Sample D
Per cent sodium oleate incorporated........	0.0040	0.0100	0.0050	0.0500
Laboratory No. 1—3 alcohol extractions......	0.0030	0.0067	0.0036	0.0380
Laboratory No. 1—5 alcohol extractions......	0.0038	0.0094	0.0042	0.0406

These results are much more accurate than those shown in the original analysis.

Your committee agrees that of the two methods outlined above, the alcohol extraction is the more correct in principle, but insufficient work was done to definitely outline a correct procedure. It is, therefore, suggested that this committee be allowed to function another year, and it is believed that the work will be carried to a satisfactory conclusion.

L. A. SPIELMAN,
Chairman.
N. T. JOYNER,
J. J. LAPPEN,
R. C. STILLMAN.

RESOLUTIONS OF THE NEW ORLEANS CONVENTION, MAY 28 AND 29

RESOLUTION

Whereas, The management of the Hotel Roosevelt has offered many courtesies to our membership, including the use of a meeting room, and a valuable golf prize,

Be It Resolved, That the AOCS express its appreciation of the courtesies extended to it by the Roosevelt.

Be It Further Resolved, That the secretary of the Society be instructed to send a copy of this resolution to the Hotel Roosevelt, that it be spread upon the Minutes of the society, and that they be published in the Journal.

RESOLUTION

It is with deep sorrow that we record the death of Mr. Theodore Albert Gierahn, of Chicago, Ill., May 19, 1935.

Mr. Gierahn was born October 11, 1908, at Chicago, Ill. He attended Lane Technical High School and Lewis Institute in Chicago. After being employed by the Griffin Wheel Co. and Armour & Co., he entered the employ of the Southern Cotton Oil Co. in August, 1929.

He was unmarried and is survived by his mother, a brother and a sister.

Therefore, Be It Resolved, That the members of the American Oil Chemists' Society express our keen sense of sorrow at the death of Mr. Gierahn and extend to the bereaved family our deepest sympathy;

Be It Further Resolved, That this resolution be spread in full upon the Minutes, be printed in our Journal, and that a copy be sent to the family.

RESOLUTION

It is with deep sorrow that we record the death of James Boyce, of Holland, Michigan.

Mr. James Boyce attended Northwestern University for two years, but did not graduate.

He entered the cotton oil business as a laboratory assistant and was rapidly promoted because of unusual ability, becoming chief chemist of the N. K. Fairbank

Co. and the American Cotton Oil Co. in January, 1898. He retired in December, 1914, because of ill health, to a farm near Holland, Michigan, to spend the rest of his life with his family.

He was a tireless worker and did some outstanding pioneer work in the refining of cotton oil, the manufacture of compound, deodorization and hydrogenation. In the latter two fields, he introduced new developments which were of great value to his company. He was also the first to introduce laboratory control of crude mill operations.

He joined the American Oil Chemists' Society in June, 1913, and retained his membership even though he retired the next year, showing his intense interest not only in cotton oil in general but also in the work of the Society. Not less than 13 of our present members worked under him: Messrs. Agee, Barrow, Bodman, Cluff, Forbes, Hatter, Marceau, D. C. Morris, Oilar, Shipner, Stryker, Tenent and Helm.

Therefore, Be It Resolved, That the members of the American Oil Chemist Society express our keen sense of sorrow at the death of Mr. Boyce and extend to the bereaved family our deepest sympathy;

Be It Further Resolved, That this resolution be spread in full upon the Minutes, be printed in our Journal, and that a copy be sent to the family.

RESOLUTION

Whereas, The American Oil Chemists' Society, holding its 27th Annual Convention in the city of New Orleans, has greatly enjoyed the hospitality of this city, and whereas, the Local Committees have arranged an entertaining and most enjoyable program.

Be it Resolved, That the American Oil Chemists' Society express its heartiest appreciation and thanks to Mr. J. L. Ganucheau and the members of his committee and to Mrs. W. R. Stryker and the members of her committee for the delightful program of entertainment provided for the guests and members of the Society.

Be It Further Resolved, That the Secretary of the Society be instructed to send copies of these resolutions to Mr. J. L. Ganucheau and to Mrs. W. R. Stryker, that they be spread upon the Minutes of the Society, and that they be published in the Journal.

RESOLUTION

Whereas, The American Oil Chemists' Society, holding its 27th Annual Convention in New Orleans, has enjoyed a very enjoyable and successful Golf Tournament on the grounds of the New Orleans Country Club; and

Whereas, Many friends have donated, through the Golf Committee, many valuable and beautiful trophies,

Be It Resolved, That the members of the AOCS express to the New Orleans Country Club their thanks for the many courtesies extended.

Be It Also Resolved, That the members express to Mr. A. F. Sanchez and the members of the Golf Committee, and through them, to the many donors of the prizes, their deep appreciation of the courtesies extended.

Be It Further Resolved, That the Secretary send to the New Orleans Country Club and to Mr. Sanchez copies of this resolution, that they be spread upon the Minutes of the Society, and that they be published in the Journal.

Applications for Referee Certificates

Mr. T. G. Weiss of the Barrow-Agee Laboratories, Shreveport, Louisiana, has applied for a referee certificate reading on the analysis of meal and oil.

Mr. W. F. Beedle of Geo. W. Gooch Laboratories, Ltd., Los Angeles, California, has applied for a referee certificate reading on the analysis of meal and oil.

FALL MEETING

At a meeting of the Local Committee on Arrangements at the home of the Chairman, W. H. Irwin, plans for the Fall Meeting were discussed.

After considering the several propositions, the Committee decided to hold the meeting at the Congress Hotel and selected October 8 and 9 as the dates for the meeting.

A special Program Committee was named, consisting of Dr. Newton, Chairman, with Messrs. L. M. Tolman, J. J. Vollertsen and M. L. Sheely as the other local members. Jack Harris was renamed Treasurer and Chairman of the Committee on Exhibits, with Mr. A. E. MacGee as his assistant. The Bowling Tournament was left in the able hands of Al King.

It was decided to have three technical sessions—Thursday morning, Friday morning and Friday afternoon—with the Bowling Tournament scheduled for Thursday evening as well as the dinner and entertainment.

The staging of the Golf Tournament was left in the hands of a Committee consisting of Dr. L. M. Tolman, Chairman, with J. J. Vollertsen, A. A. Robinson and A. E. MacGee as the other members of the Committee. It was decided to have the Golf Tournament on Saturday morning, providing a sufficient number of the members sign their cards for such a tournament on Thursday, the first day of the registration.

The Local Committee hopes to make this the largest meeting ever held by the American Oil Chemists' Society and suggests that each of you, as far as possible, make your plans to attend.

The Congress Hotel has made rates as follows:
$2.50 single with bath
$4.50 double with bath

They have reserved the beautiful Florentine Room for our business sessions and for our Thursday evening dinner and entertainment.