

# Report of the Committee Appointed to Study Accelerated Methods for Determining the Stability of Edible Fats and Oils

Personnel: W. H. Irwin, A. S. Richardson, A. A. Robinson, J. J. Vollertsen and F. C. Vibrans, chairman.

At this time the committee has no recommendations to make; all it can do is to report progress.

The assignment has not been neglected. To develop a background for the work, the literature on fat oxidation and rancidity has been thoroughly reviewed and abstracted. In addition to this, laboratories making accelerated stability tests were advised by letter of the assignment that had been given the committee and then asked for their experience and a description of the method or methods they use, together with such comments as they saw fit to give, for measuring the keeping quality of fats. The response to this request was most gratifying. All the laboratories indicated a desire to cooperate with the committee in the interest of working out a method which would be suitable for determining the resistance of fats and oils to oxidation. For the most part these laboratories cooperated fully in giving information about the method or methods they use in testing a fat or oil for keeping quality.

Considering the various accelerated methods used for judging stability, a statistical study of comparative data

on cooperative samples from several laboratories indicates that there is a correlation between the various accelerated methods for determining resistance of fats to oxidation. However, this correlation is not close enough to enable one to accurately interpret stability as determined by one method in terms of another method. Likewise, these methods are not all equally useful in judging the keeping quality of different types of fats and oils; as for example, a salad oil and an all hydrogenated cottonseed shortening.

The active oxygen or peroxide method for determining stability of fats as developed by Tauffel & Revis and by Lea in England and by Kilgore & Wheeler in the U. S. is worthy of study. This test as it is used in Swift & Co.'s laboratory is receiving the attention of the committee.

At the present time no prediction can be made as to whether the active oxygen test will lend itself to standardization for the determination of the resistance of all fats to oxidation. The only thing that can be said is that the committee is working on the assignment intrusted to it and that some progress has been made.

## Minutes of the Twenty-Fourth Annual Meeting American Oil Chemists' Society, Roosevelt Hotel, May 11th and 12th, 1933

1. The Twenty-fourth Annual Meeting of the American Oil Chemists' Society was called to order at 9:30 A. M., May 11th, 1933, by E. G. Williams, Chairman of Local Arrangements Committee; after which invocation was asked by Father Doonan of Loyola University of the South.

2. Meeting was officially declared in session, by President N. C. Hamner.

3. Mr. W. H. Irwin moved that the reading of the minutes of the last Annual Meeting of the Society be dispensed with. Seconded by E. G. Williams. Carried. The minutes were not read.

At this time Mr. E. G. Williams, Chairman of the Local Arrangements Committee, announced that there would be a luncheon for the ladies at the Court-Yard Kitchen, 820 St. Louis St., down in the Vieux Carre.

4. President N. C. Hamner read his President's Annual Address. As Vice-President J. P. Harris was not present at the time to appoint a committee to report on the President's Address, this was passed over to be attended to later on during the meeting.

5. The Sec.-Treas., J. C. P. Helm, read his Annual Report. On motion, duly seconded and carried, the report was accepted and referred to an Auditing Committee appointed by President Hamner. The committee was composed of R. H. Fash, Chairman, E. B. Freyer and J. L. Mayfield.

6. Report of the Governing Committee was made by J. C. P. Helm, Secy., and minutes of the last two meet-

ings were read; the minutes of the meeting of May 10th, 1933, containing the following proposed amendments to the By-Laws of the Society:

Change the wording in all sections of Article II where the "Journal of Oil and Fat Industries" is mentioned, to read "Oil & Soap."

Change Articles VI, VII and VIII to VII, VIII and IX, and insert a new Article VI, in the By-Laws to cover the Journal "Oil & Soap," as follows:

### ARTICLE VI JOURNAL

#### Section (a):

The Society shall maintain an Official Journal which shall be called "Oil and Soap." Supervision and direction of the Journal shall be under a Journal Committee consisting of seven or more members.

#### Section (b):

The Chairman of the Journal Committee shall be appointed by the President with the advice of the Governing Committee.

#### Section (c):

The other members shall be appointed by the Chairman of the Journal Committee, with the consent of the President.

The Journal Committee shall, at their discretion, appoint an Editor-in-Chief. They shall appoint an Advisory Board of Editors, consisting of nine members, each of whom, after the first two years of the appointment of said Board, shall serve for terms of three years.

The Journal Committee, with the consent of the Governing Board, shall be empowered to make such arrangements and to negotiate such contracts as may appear advisable for the publication and maintenance of said Journal "Oil and Soap."

On motion of C. B. Cluff, seconded by J. J. Vollertsen, and carried, the minutes of the Governing Committee as read, including the amendments to the By-Laws, were adopted by the Society.

Mr. Hamner, the President, then made a further verbal report of what else the Governing Committee had done during the year past.

7. The following committees were appointed by President Hamner to serve during the meeting:

NOMINATING COMMITTEE: J. J. Vollertsen, Chairman, L. C. Haskell, L. B. Forbes.

RESOLUTIONS COMMITTEE: G. W. Agee, Chairman, G. K. Witmer, H. E. Brownfield.

8. Report of the Color Committee. W. D. Hutchins, Chairman. There was some discussions, questions and explanations by Messrs. Irwin, Cluff and Hutchins. Motion by J. J. Ganueheu, that the report be referred to the Uniform Methods Committee for proper action and recommendations. Seconded by W. H. Irwin. Carried.

At this time A. F. Sanchez, Chairman of the Golf Committee, announced that the Golf Tournament would be started at 2:30 P. M. at the Metairie Golf Club. President Hamner took this time to compliment the Golf Committee on their very good work in obtaining so many fine prizes for the tournament.

9. Report of the Membership Committee. J. P. Harris, Chairman. Accepted with thanks of the Society.

10. Report of the Cottonseed Analysis Committee. C. H. Cox, Chairman. Mr. Cox said that there was no report to be made, because the members of the committee had decided that as the methods were proving satisfactory they could see no way at present to improve them. Report accepted.

11. Report of the Committee on Crude Oil Mill Operations. J. J. Ganueheu, Chairman. Accepted.

12. Report of the Refining Committee. C. B. Cluff, Chairman. There was some discussion chiefly centered upon the kinds of filter papers to be used. Mr. W. D. Hutchins moved that the report be referred to the Uniform Methods Committee. Seconded by J. P. Harris. Carried.

13. Report of the Committee to Study Moisture Changes in Cake and Meal. Egbert Freyer, Chairman. This report was read by Dr. Freyer and explained thoroughly by Dr. Freyer with the aid of a lantern and slides. As there were no recommendations for the Uniform Methods Committee, the report was accepted with thanks.

14. Report of the Moisture Committee. C. H. Cox, Chairman. Moved, seconded and carried that this report be referred to Uniform Methods Committee.

15. Report of the Journal "OIL & SOAP" Committee. W. H. Irwin, Chairman. This report was accepted with thanks of the Society to Mr. Irwin for the good work he had done on the Journal.

16. Paper: "An Accelerated Stability Test Using the Peroxide Value as an Index," Messrs. King, Roschen and Irwin. Read by W. H. Irwin. There was some questions asked Mr. Irwin. Accepted with thanks.

17. Report of Committee to Study Accelerated Methods of Determining Stability of Edible Fats & Oils. A progress report by Mr. Vibrans. This paper was read by H. C. Dermitzer.

18. Paper, "Estimation of Gossypel in Crude Cottonseed Oil," H. D. Royce. Paper was read by J. J. Ganueheu.

19. Paper, "Selenium, The New Catalyst in Kjeldahl Digestion," M. F. Laure. Read by W. R. Stryker.

20. Paper, "Some Solvent Extraction Experiences," David Wesson. Read by A. S. Richardson.

21. Mr. J. P. Harris, taking the chair, appointed the Committee to report upon the President's Address. H. C. Dermitzer, Chairman, W. D. Hutchins, A. S. Richardson.

President Hamner read a telegram from Herman Aspegren stating that he regretted that he could not attend the meeting and sending best wishes for a successful meeting.

There being no further business, the meeting was adjourned till 9:30 A. M., Friday, May 12th, 1933.

### Second Day of Meeting.

The Meeting was called to order, 9:45 A. M., May 12th, 1933, by President N. C. Hamner.

22. Report of the Smalley Foundation Committee. A. W. Putland, Chairman. As Mr. Putland was not able to be in New Orleans, the report was read by W. H. Irwin. It was the opinion of some of the members present, that the moisture determination in samples be given more attention.

There was a general discussion about the number of cooperative samples sent out on the Check Meals and other samples sent out to Referee Chemists during the year past by the Referee Board; some members being of the opinion that the number of samples should be reduced. However, there were no definite recommendations made. The report was accepted and a vote of thanks given to Mr. Putland and others who handled this work so well.

23. At this time Mr. T. C. Law, Chairman of the Chemists' Committee of the National Cottonseed Products Association took the floor for a general discussion and comments on proposed changes in methods, etc., to be offered by the Chemists' Committee to the Rules Committee of the N. C. P. Association. There was a discussion of the accuracy of the method of determining of moisture in cottonseed.

Mr. W. H. Irwin stated that the Moisture Committee of the A. O. C. S. had studied the effects of the time-factor in moisture tests, and that the time adopted was in the nature of a compromise—the Committee really approved a 5 hour period, but the point was made that in many cases it would be impossible to complete the analysis the same day the sample was received if it came in late in the day, and since the 3 hour drying time results were usually not more than .25 per cent lower, the time was set for 3 hours.

Mr. T. C. Law stated that he thought the greatest source of variation in results in seed analysis was in the fuming of the seed, and that he had found a new oven that will do the work much better and without burning the seed. Mr. Law here presented a number of blueprint copies of drawing of the new oven for those that wanted to see what it looked like.

Dr. Freyer agreed that the present way was bad and asked, how was the new oven operated, and at what temperature.

Mr. C. H. Cox of Barrow-Agee Labs said they had one of the new ovens and explained how it was operated and said that the temperature of the oil in the jacket of the oven was kept at from 150° C. to 160° C.

Mr. Mayfield asked how was the drop in temperature controlled when the oven was opened to put in samples, etc., to which Mr. Law replied, that as the new oven opened from the top, the drop in temperature was very little.

Mr. Hutchins said that in the oven they had in the laboratory of the Southern Cotton Oil Co., Savannah, they used a steam coil for heating up the oil in the oven jacket.

Mr. G. W. Agee suggested that the size of the inside of the new oven be changed.

Mr. Cox said that he thought the reason that the free fatty acid tests on seed were not checking was that too small a portion of the sample was being ground and therefore the proper proportion was not being obtained and was not representative.

Mr. Cluff offered the suggestion that the duplicate oil determination on seed be eliminated.

Mr. Law then asked if there were any more questions, and Mr. Mayfield said that he would like to know just what was the result of the vote taken among the collaborators on seed sample analysis as to whether the method of designating the laboratories reporting on the samples by a number should be eliminated and the names be printed on the reports as tabulated and sent out by the Committee instead.

Mr. Law stated that the result of the vote was: the Commercial Laboratories voted to keep the number system, and that the Company Laboratories voted to print the names of the collaborators by their results; and that the final decision was to keep the numbers.

There were no further questions or suggestions.

24. Report of the F. A. C. Committee. W. H. Irwin, Chairman. There was a discussion of the method of stirring of the fatty acids in the test tube with the thermometer in the Titer Test. Mr. Irwin stated that the directions had been rewritten so as to clarify the matter. Report accepted.

25. Report of the Referee Examining Board. A. S. Richardson, Chairman. Accepted.

26. Report of the Committee on Revision of Methods. W. H. Irwin, Chairman. Mr. Irwin said that as the report was published in the Journal he would not take up the time to read it. He further stated that the Mayonnaise Chemists had adopted the methods of the American Oil Chemists' Society in as far as they were applicable to their product, and that they had had their methods printed in the same form as ours, and that they could be obtained by any of our members and would fit in our binders the same as our own methods. Report accepted.

27. Report of the Basic Research Committee. E. R. Barrow, Chairman. Mr. Barrow made a verbal report. Accepted.

At this time Mr. Barrow introduced Dr. Henry Stevens of the Department of Agriculture, Washington. Dr. Stevens made an informal talk about some of his work that was very interesting to our members.

28. Paper. "The Cooking of Cottonseed Meats in Various Gases," Dr. E. Freyer.

29. Paper. "New Anti-Oxidants in Fat and Oils," D. P. Grettie.

At this time Mr. E. G. Williams, Chairman of the Local Committee, got the floor and asked the members to please wear their badges when attending the banquet.

30. Report of The Sampling Committee. R. A. Duncan, Chairman. As Mr. Duncan was not attending the meeting, the report was read by Mr. C. B. Cluff. Accepted.

31. Paper. "Control of Meal Grinding Through Cake Analysis," J. L. Mayfield.

32. Paper. "Cooking Cottonseed Meats Containing High Moisture," R. H. Fash.

33. Paper. "Some Observations of Free Fatty Acids in Cottonseed," F. R. Robertson.

As the time was getting short to complete the session

the President with the permission of the members present, read the papers of Mr. J. T. R. Andrews, Mr. A. P. Lee and Mr. H. P. Trevithick by title only; these papers would be published in "Oil and Soap," Mr. Hamner explained.

34. Report of the Planning and Uniform Methods Committee. J. J. Vollertsen, Chairman.

Full report will be printed in the July issue of Oil and Soap.

35. Reports of Special Committees:

Report of the Auditing Committee. R. H. Fash, Chairman. As Mr. Fash was not present, the report was presented by Dr. Egbert Freyer, member of the committee acting for Mr. Fash. Accepted and ordered inserted in the minute book.

Report of the Resolutions Committee. G. W. Agee, Chairman.

Report was accepted and ordered spread upon the minutes, by motion of G. W. Agee, seconded by J. J. Vollertsen and carried. President Hamner then asked all present to rise and stand a moment in silent meditation in respect to the memory of our staunch friend and fellow member, Dr. I. G. Priest, who had died during the year.

With First Vice President J. P. Harris in the chair, Mr. H. C. Dermitzer, Chairman, reported for the Committee on President's Address. On motion, duly seconded and carried, the report was accepted; President Hamner was given a vote of thanks for his work during the year, and the address was ordered spread upon the records.

Report of the Nominating Committee. J. J. Vollertsen, Chairman:

The Committee nominated:

For President, John P. Harris;

For First Vice President, W. D. Hutchins;

For Second Vice President, F. R. Robertson;

For Third Vice President, J. L. Mayfield;

For Fourth Vice President and Chairman Soap Section, A. Campbell.

Motion by G. W. Agee, that nominations for president and vice presidents be closed, and these officers be elected unanimously by acclamation. Seconded by J. J. Vollertsen and carried.

Mr. Hamner stepped down and Mr. J. P. Harris took the President's Chair.

The Governing Committee, through N. C. Hamner, nominated J. C. P. Helm, to continue as Secretary-Treasurer for another year. On motion of N. C. Hamner, seconded by W. H. Irwin, the Secretary-Treasurer's election was made unanimous.

President-elect J. P. Harris invited all members to come to Chicago for the Fall Meeting. Mr. W. H. Irwin promised to get up a Golf Tournament for the golfers if they attended the Fall Meeting then. Mr. G. W. Agee said that he had attended his first Fall Meeting last fall in Chicago, and that if those present wanted to see a "Real Meeting" attend the one in Chicago next Fall.

Mr. E. G. Williams reminded every one to be on time for the Banquet at 7 P. M., at the Court of the Two Sisters, 615 Royal St., in the old Vieux Carre.

There being no further business, the meeting was declared adjourned.

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