

Fat Analysis Committee Progress Report

AT the May meeting of the American Oil Chemists' Society held in New Orleans in 1932, the Governing Board discussed the inactivity of the Fat Analysis Committee which had been a joint committee of our Society and the American Chemical Society for a number of years. It was decided that there were many matters which should receive the attention of this committee and Mr. Hamner, therefore, reappointed the committee and also got in touch with the president of the American Chemical Society with a view of having the committee reappointed as an identical committee of that society. However, no action was taken by the American Chemical Society until shortly after the May, 1933, meeting when Mr. Harris again took the matter up with the American Chemical Society and secured the reappointment of the committee as it is constituted today.

The committee held a meeting in Chicago during the Fall convention of the society in 1932 and outlined considerable work, which we have undertaken. The progress of this work has been slow due to the curtailment of work of this kind because of the pressure of the regular work, but considerable progress has been made.

Rosin in Fatty Acid Mixtures

The sub-committee of the Fat Analysis Committee did considerable cooperative work on the determination of rosin in fatty acid mixtures and decided to turn this work over to the Soap Analysis Committee where we believe it properly belongs. A report of this work was presented yesterday by Mr. Sheely, chairman of the Soap Analysis Committee.

Smoke Point

Three sets of cooperative samples were sent out for smoke point, and as a result of this work, a method has been standardized which is offered for adoption as a tentative method of the Society.

Smoke Point Determination for Vegetable and Animal Fats and Oils

Apparatus

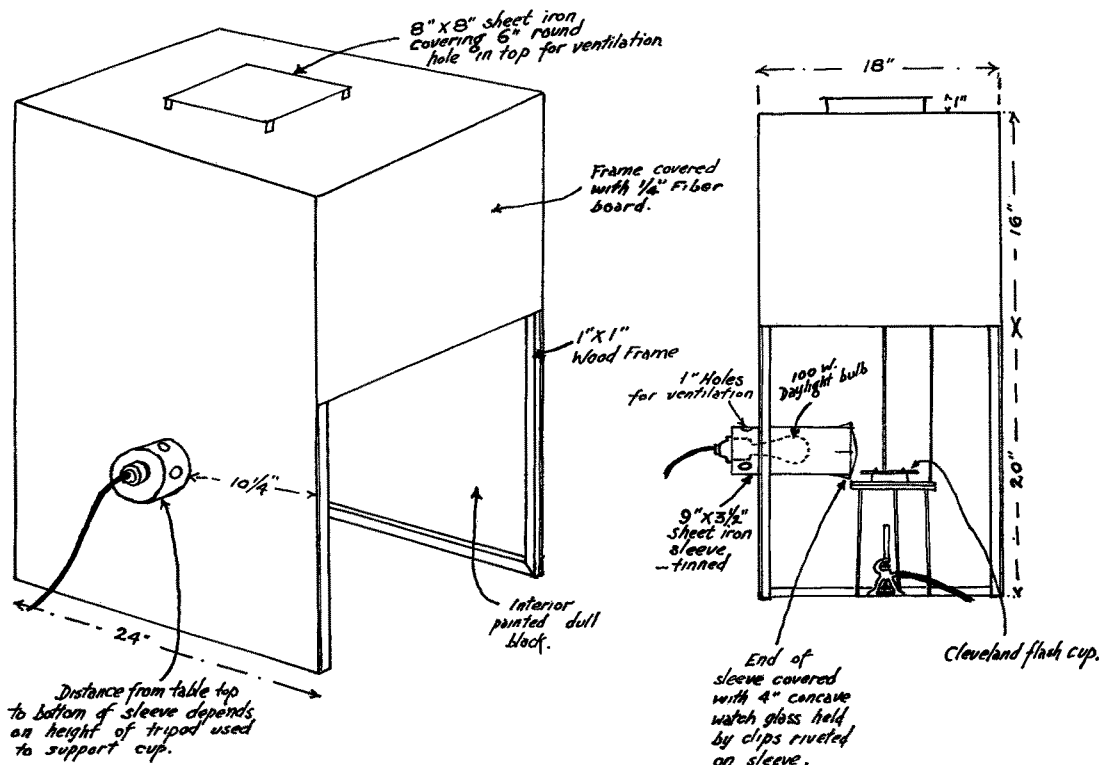
Same as used in the FAC Open Cup Flash and Fire Method (Cleveland Open Cup).
Cabinet as per sketch.

Method

Place the apparatus in the cabinet so that a beam of light from a 100-Watt daylight bulb which is encased in a tin cylinder is directed across the center of the Cleveland Open Cup Tester. Fill the cup with the sample so that the top of the meniscus is exactly at the filling line of the cup. Heat the oil rather rapidly to within approximately 75° of the Smoke Point. Thereafter regulate the flame so that the temperature of the oil increases at a rate of not less than 9 or more than 11 degrees Fahrenheit per minute. The smoke point is taken as the temperature at which the sample gives off a thin bluish smoke continuously.

In order to do away with heat waves, a shield made from a single piece of asbestos should be so arranged as to cover the top and three of the four sides of the A.S.T.M. stand. The side away from the source of

Apparatus for Smoke Point Determination



light (the right hand side as the observer faces the apparatus) should be left open.

Illustration

Note: In some cases occasionally a small puff of smoke is noted at a lower temperature, but this should not be confused with the smoke point.

Wiley Melting Point

Since there seemed to be a demand in certain quarters for the incorporation of the Wiley melting point method in our methods, cooperative samples were sent out to the several members of the committee. It developed that the method as now written, in the hands of the several laboratories gave rather widely varying results, and therefore the committee, in an effort to eliminate discrepancies, prepared certain modifications which have brought the results into better agreement. This method will be offered for further study by the committee during the coming year.

Color in Fish Oils

Since there is no standard method for reading the color in fish oils and it has been found impossible to read them by the standard method of the society, three methods were sent out for study by the committee, one a comparison with the FAC Standards, and method, second a dilution method using 9 parts of white mineral to 1 of fish oil and following the regular procedure with the Lovibond Tintometer glasses reading a 5½" column, and third the reading of a 1" column in the official Lovibond instrument. After a consideration of the results obtained the committee recommends further study.

Liquid and Solid Fatty Acids

The several members of the committee seemed to think that an official method for the separation of liquid and solid fatty acids was becoming increasingly more important and therefore the lead salt-ether method of the association of Official Agricultural Chemists was sent out for study in connection with the thiocyanogen method, calculations to be based on the thiocyanogen values and iodine values found. Two samples, one of lard and the other of hydrogenated product, were sent out to the committee but results are not ready for consideration. The committee expects to carry on the work as rapidly as possible under the existing conditions.

Detergents Committee Report

A MEETING of the Detergents Committee was called for 10:00 a. m., October 11th at the Congress Hotel, Chicago. The place of the meeting was posted on the hotel bulletin board. As the Chairman was unable to be present, Mr. Sheely of the Soap Analysis Committee presided.

The retiring Chairman suggests the following considerations.

There are two possible lines of further work which could, with advantage, be undertaken within the scope of the Committee's function of working for an adequate means of comparing detergents.

The present method as reported is certainly susceptible to further refinement, and it should be possible to work it out to give much closer checks than have heretofore been obtained. There seems, however, no possibility of regarding it as a general method of evaluating detergents, and great discrimination will have to be used in applying the findings. It does, however, appear to be already useful for making comparisons under limited conditions.

Other methods are in use using different soil and different mechanical treatment of the fabric with apparent

FAC Color Standards

At the fall convention in 1932 Mr. J. E. Doherty of Lever Brothers submitted a suggested formula for the improvement of the FAC color standards, in respect to fading. During the year, sets made up according to the proposed new formulae were sent to the committee for consideration. On the first sets sent out some trouble developed, not only as to fading, but precipitation of some of the coloring matter in the tubes. A later formula in which the solution was prepared with N/10 sulphuric acid, corrected the trouble in regard to precipitation but not as to fading. However, in September a third set of standards were submitted which up to the present time have stood up very well when exposed to sunlight and to the Mercury Vapor lamp, and unless some unforeseen difficulty develops, the Fat Analysis Committee will approve Mr. Doherty's formula. This should eliminate criticism in regard to fading which the committee has recognized as valid ever since the standards were first sent out.

The committee expects to continue its cooperative work during the coming year and will be glad to consider any suggestions or methods which our membership feel require attention.

FAT ANALYSIS COMMITTEE,

W. H. IRWIN, Chairman,
T. C. LAW
M. L. SHEELY
C. P. LONG
DAVID WESSON
R. W. BAILEY
J. J. VOLLERTSEN
H. P. TREVITHICK
H. J. MORRISON
L. M. TOLMAN

Dr. W. Lee Lewis inquired the procedure of this method and where a description of it has been printed.

Mr. Irwin explained that it was the Cleveland open cup method and is carried out in a darkened chamber with a cup illuminated from the side and with means for preventing air draft from interfering with the first appearance of smoke. A complete description would be published in OIL AND SOAP, he said.

possibility of yielding at least as good results as those we have obtained. For instance, one method consists of a uniform soiling of fabrics by mechanically drawing strips through a special India ink solution and conducting the washing in a small chamber so well thermally insulated that very little change of temperature occurs during the test. This chamber contains a metal frame on which the test fabric is stretched and the washing is done on a special eccentric shaking device which gives a thousand violent vertical thrusts against a spring in a few minutes. The extent of cleaning is judged with a photometer and a large number of washing liquors can be studied easily on a laboratory scale. The uniformity of soiling was very satisfactory, but a narrow standardization of the fabric is necessary and the appropriate fabric is quite different from what the Detergents Committee has been using.

It is not unlikely that still further variants of this idea can be devised, but to the writer it seems certain that the results will, as now, have to be used with extreme discrimination.

Yours sincerely,
Chairman, J. D. Vail, A. O. C. S.