Report of the Pot Cook Cellulose Yield Committee 1940-41

DURING 1940 work of the Cellulose Yield Committee consisted largely of sending out check samples of lint and hull fibre to all laboratories equipped with the proper equipment for running the tests.

The following table gives the results obtained on the three lint and two hull fibre samples sent out:

YIELDS

Laboratory No.	Lint B-1	Lint B-2	H. F. B-3	H. F. B-4	H. F. B-5	Group Average Lint	Group Average H.F.	Group Average Overall Lint & H.F.
1*	79.3	76.7	69.9	69.8	63.0	75.3	66.4	71.7
2*	78.7	76.5	69.7	69.8	62.0	75.0	65.9	71.3
3	79.2	76.0	70.7	70.3	63.3	75.3	66.8	71.9
4*	79.2	76.3	70.1	69.8	62.5	75.2	66.2	71.6
5	78.8	76.3	70.7	70.1	63.0	75.3	66.6	71.8
6*	79.3	76.6	70.6	70.4	64.1	75.5	67.3	72.2
7*	78.3	75.8	68.8	71.4	66.2	74.3	68.8	72.1
8	79.3	76.9	70.3	70.3	64.1	75.5	67.2	72.2
9	80.0	76.8	70.8	70.6	63.3	75.9	67.0	72.3
10*	78.7	76.6	70.8	69.8	62.1	75.4	66.0	71.6
11	79.6	76.6	70.8	70.8	64.4	75.7	67.6	72.4
12	79.5	77.3	69.7	70.4	62.9	75.6	66.7	72.0

*Members of Pot Cook Yield Committee.

All above results are calculated to 7% lint moisture basis.

The yields as a whole show very good checks on the samples sent to the different laboratories.

A few high results were obtained by some laboratories particularly on hull fibre (H. F.). These high results are probably due to improper washing which in turn is due to not enough water passing through the sprays. This should be checked several times a week.

Previous to the sending out of the samples a few complaints were received that different laboratories were not checking. If the complaints were justified, and it is believed that some were, it can safely be assumed that some laboratories were not following the method in detail.

Another complaint was registered with the committee that certain poor grades of hull fibre will plug the washing screen and give high results, particularly if the washing procedure is not followed closely. This condition was known to the originators of the method, and so stated in the original paper published August, 1937, in Oil & Soap, but since the amount of hull fibre of this type is very small and of a grade that has little commercial value it was thought that visual inspection would warn the buyer when the fibre contained large hulls or very short fibres, conditions under which screen plugging takes place giving high results, and compensate for this in the price paid if they purchased such type of fibre. The reason why high results are obtained on such type fibre is that either the hulls or the short fibres plug the screen due probably to insufficient draining. With less water and a longer washing time it is possible that no screen plugging will take place. More work will be done on this the coming year. The fact that some laboratories have no trouble washing fibre of the above type at present, indicates that the method is no being followed closely.

The committee has designated the following companies to build the equipment for the yield tests. The cooking pots, washing machine and lint mixer can be obtained from Wm. C. Ellis & Sons, Memphis, Tenn. The digester or autoclave can be obtained from the Memphis Welding Co., Memphis, Tenn.

Recommendations

The following recommendations are made:

(1) That check samples be sent out in September of 1941, at the beginning of the season, and every three or four months thereafter.

(2) That the tentative status of the method be maintained for another year.

(3) That more work be done on the off-grade hull fibre to determine if it can be washed satisfactorily.

(4) That the present committee be reappointed so that present work can be continued.

(5) That the name of the method be changed from "The Pot Cook Cellulose Yield Method" to "The American Oil Chemists' Society Cellulose Yield Method."

Pot Cook Cellulose Yield Committee.
E. C. Ainslie
M. G. Boulware
C. H. Cox
W. S. Hude
E. H. Tenent
L. N. Rogers, *Chairman.*

Report of the Sampling Committee 1940-41

DURING the year the committee has tested and tentatively approved the following samplers, which may be used for sampling oils under certain conditions by experienced and certified samplers:

Carpinello liquid sampler, made by the American Instrument Company, 8020 Georgia Ave., Silver Springs, Md. This sampler is of particular value when it is necessary to find out the amount of free water present. It may be used for sampling oils, whether in barrels, tankcars, or deep tanks. This sampler was described in Oil & Soap, April, 1939.

Bacon Bomb sampler, made in sizes from 4 oz. to 32 oz., distributed by R. P. Cargille, 118 Liberty St., New York City. Depending on size, this may be used for sampling barrels or deeptanks. The sampler is so constructed that it will pick up sediment or water directly from the bottom.

Curtis & Tompkins' deeptank sampler, and drum sampler, made by Curtis & Tompkins, Ltd., 236 Front St., San Francisco, Calif.

The deeptank sampler is primarily constructed to take samples of liquid oils from ships' tanks, land storage tanks, or tankcars. The instrument makes it possible to take a sample from any section of a tank.

The drum sampler may be used for sampling barrels. The diameter and length of the sampler must be specified in each particular case.

The committee recommends that:

1. The samplers mentioned in this report be tentatively approved by the society.

2. The standard methods of sampling commercial oils and fats be rewritten and made a separate section of our methods.

3. The sampling methods be revised yearly and that these methods be drawn up to apply to all commercial oils and fats, and that whenever official samples are submitted these should be taken according to standard methods approved and published by the A. O. C. S.

SAMPLING COMMITTEE:
V. C. MEHLENBACHER
H. H. MUELLER
P. W. TOMPKINS
B. L. STERNBERG
PROCTER THOMSON
P. A. WILLIAMS
LAMAR KISHLAR
H. P. TREVITHICK
C. V. SERBELL, *Chairman.*

Report of the Oil Characteristics Committee

THE following proposed American Oil Chemists' Society Specifications for cod liver, castor, sesame, rapeseed, corn and peanut oils, have been passed upon by the Oil Characteristics Committee, and are now available as a report for acceptance by the Uniform Methods Committee of the American Oil Chemists' Society.

All of these oils have been in use for sometime as standards by the British Standards Institute. In addition, those for castor and cod liver oils are contained in the U. S. Pharmacopeia.

With slight modification to conform to our own policy, the enclosed specifications have been provisionally adopted. Besides tabulating the usual items of analysis, it was felt that a brief summary of characteristic properties or of specific tests would be useful additions to the list of constants.

The Procedure of the A. O. C. S. is implied in all tests except where otherwise noted. Certain tests are given their commonly known names although the method may be A. O. C. S. nonetheless. Certain other tests are designated which though unofficial as yet, have recognized standing, and it is hoped will later be incorporated in the book of methods.

All members are again requested to note any exceptions not within the range of values given in this report and to call the chairman's attention to these.

A. O. C. S. SPECIFICATIONS* FOR CASTOR OIL

Specific Gravity—25°/25°C	0.945 to 0.965
nD @ 25°C	1.473 to 1.477
Iodine Value (Wijs)	81 to 91
Sap. Value	176 to 187
Unsap. Matter (F.A.C.)	Max. 1.0%
Acetyl Value (André-Cook)	Min. 144

The trade determines the quality of castor oil by its color, clearness and acidity. No. 1 is low in acidity, brilliantly clear and nearly colorless. No. 3 varies in color from yellow to brown or dark green. No. 2 grade is no longer recognized by the trade.

Characteristics: Highest specific gravity and viscosity of the common vegetable oils. High Acetyl value. Complete solubility in 95% alcohol and practical insolubility in petrolic ether. No "stearine" in cold test at 0° C.

A. O. C. S. Specification for *Cod Liver Oil*

Specific Gravity @ 25°/25°C	0.916 to 0.925
nD @ 25°C	1.474 to 1.478
Iodine Value (Wijs)	140 to 180
Sap. Value	180 to 190
Unsap. Matter (A. O. C. S.)	1.7% max.
(U. S. P.)	1.3% max. for medicinal grade

Characteristics: Liver Oil Reaction with chloroform and sulphuric acid. (U.S.P.)

A. O. C. S. SPECIFICATION for *Corn (Maize) Oil*

Specific Gravity 25°/25°C	0.915 to 0.920
nD @ 25°C	1.470 to 1.474
Iodine Value (Wijs)	103 to 128
Sap. Value	187 to 193
Unsap. Matter (F. A. C.)	Max. 2.0%
Titre	14° to 20°

A. O. C. S. Specifications for *Peanut (Arachis) Oil*

Specific Gravity @ 25°/25°C	0.910 to 0.915
nD @ 25°C	1.467 to 1.470
Iodine Value (Wijs)	84 to 100
Sap. Value	188 to 195
Unsap. Matter (FAC)	1.0% Max
Titre	26° to 32°C

Characteristics: The Bellier Qualitative test and the Renard Quantitative test for crude arachidic acid (mixture of lignoceric and arachidic), which is the characteristic fatty acid for peanut oil.

A. O. C. S. Specifications for *Rapeseed Oil*

Specific Gravity @ 25°/25°C	0.906 to 0.910
nD @ 25°C	1.470 to 1.474
Iodine Value (Wijs)	97 to 108
Sap. Value	170 to 180
Unsap. Matter (F. A. C.)	Max. 1.5%
Titre	11.5° to 15.0°C
Viscosity (Saybolt Universal @ 100°F)	Min. 210 seconds
Flash Point (open cup)	Min. 550°F
Ether Insoluble Bromides (Steele-Washburn)	Max. 4%
Cold Test (A.S.T.M.)	Max. 10°F.

Characteristics: Low saponification value, very low cold test, high viscosity. Its characteristic fatty acid is erucic which is unsaturated and yet is found in the solid or saturated fatty acid fraction of the lead-salt-ether method of separating liquid from solid acids. The iodine value of such solid acids should be over 60, whereas the usual iodine value of such solid acids in the case of any commercial oil (except mustard) range from 2 to 10. The Crismer Turbidity Test is useful in indicating the presence of rapeseed oil in olive oil.

A. O. C. S. Specifications for *Sesame Oil*

Specific Gravity 25°/25°C	0.914 to 0.919
nD @ 25°C	1.470 to 1.474
Iodine Value (Wijs)	103 to 116
Sap. Value	188 to 195
Unsap. Matter (F. A. C.)	1.8% max.
Titre	20°—24°C

Characteristics: Red reaction with conc. HCl and sugar (Baudouin) or furfural (Villavecchia).

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