chanical agitation during heating. On the basis of observations of the apparatus used in a number of oil laboratories, and considering various possibilities, especially one wherein the simplest arrangement of apparatus is that in which the source of heat, whether it be electric or gas, is integral with the bleaching apparatus (and hence not requiring any transfer of the test after it reaches bleaching temperature), it appears best to designate for the heating stage the same kind of paddle as now designated for the bleaching, and to specify that the agitation be at "approximately 250 R.P.M." Since, as stated above, the agitation *during the heating period* is not critical, it is not necessary to designate any specific speed, such as the "250 (plus or minus 10) R.P.M." for the bleaching stage, in the present method. Thus, in laboratories in which adequate heating apparatus is *not* integral with the multi-unit, fixed speed stirring apparatus, the use of small, controlled and variable speed electric or air-driven agitators becomes permissible. With little experience one can judge 250 R.P.M. plus or minus 25 R.P.M. quite easily.

One outstanding feature of the results shown here is represented by the rather wide discrepancies between the results of different laboratories in the case of the check samples. A single sample of bleached soybean oil sent to the Committee members for a check on the color reading factor alone yielded results which indicate strongly that these discrepancies are largely due to the color reading factor. At least two possible causes for this were brought out in the study: (1) variability in the clarity of the filtered bleached sample; (2) uncertainty, and hence variability in the amount of yellow to use in making the color match, which emphasizes the need of conducting further work on this test. The Committee therefore recommends that it be continued another year: (1) to determine the effect of using different kinds of filter papers, and (2) to attempt to settle the question of the yellow component of the color reading, and (3) to follow any other lines of investigation which may be indicated.

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# Report of the Cellulose Yield Committee 1941-42

During the year the Cellulose Yield Committee sent out two sets of samples of linters and hull fibre. Each set consisted of four linter and two hull fibre samples. These samples were sent to laboratories which had the necessary equipment for determining the yields as outlined in the A.O.C.S. method for determining cellulose yields.

The following table gives the results of samples sent out on January 10. All results are calculated to 7 per cent lint moisture basis.

TABLE I

| Laboratory No. | Yields: Hull Fibre A | Hull Fibre B | Linters C | Linters D | Linters E | Linters F | Overall Average |
|---|---|---|---|---|---|---|---|
| 1* | 64.2 | 66.9 | 66.0 | 67.6 | 71.9 | 78.6 | 69.20 |
| 2* | 64.8 | 68.1 | 66.3 | 70.1 | 73.5 | 79.4 | 70.36 |
| 3* | 62.6 | 66.8 | 65.3 | 69.0 | 72.3 | 77.9 | 68.98 |
| 4* | 64.5 | 68.5 | 65.0 | 68.1 | 74.1 | 78.1 | 69.71 |
| 5* | 66.6 | 69.5 | 65.0 | 68.7 | 72.0 | 78.1 | 69.98 |
| 6* | 65.7 | 69.5 | 65.1 | 69.4 | 73.3 | 80.0 | 70.50 |
| 7 | 63.5 | 67.0 | 65.6 | 68.7 | 72.4 | 78.8 | 69.33 |
| 8 | 63.6 | 67.2 | 66.3 | 69.8 | 73.3 | 78.8 | 69.83 |
| 9 | 65.1 | 69.5 | 66.5 | 69.1 | 72.7 | 77.8 | 70.11 |
| 10 | 64.2 | 68.1 | 65.5 | 68.7 | 72.9 | 78.4 | 69.63 |
| Av. | 64.48 | 68.11 | 65.66 | 68.92 | 72.84 | 78.59 | 69.76 |

* Members of Cellulose Yield Committee.

The overall average of all samples is good. A few individual tests could be better.

Table II gives the results of samples sent on February 5.

The results of the last set of check samples are better than those obtained in Table I.

The individual yield variations are due to (1) not following the procedure in detail and (2) nonuniformity of the low yield linters produced for the past season. The samples sent out do not represent the average of lint yield produced but do represent the maximum range.

The results as a whole are satisfactory.

The cellulose yield method was adopted as a tentative procedure by the A.O.C.S. in 1937. Since that time it has been on that basis. At present it is being used 100 per cent as a basis for the purchasing of second cut linters and hull fibre for chemical uses.

TABLE II

| Laboratory No. | Yields: Linters A | Linters B | Linters C | Linters D | Hull Fibre E | Hull Fibre F | Average |
|---|---|---|---|---|---|---|---|
| 1* | 74.2 | 67.7 | 77.2 | 72.7 | 62.0 | 69.6 | 70.57 |
| 2* | 74.3 | 67.6 | 77.1 | 72.7 | 64.3 | 69.8 | 70.97 |
| 3* | 73.2 | 67.4 | 76.1 | 72.6 | 64.4 | 71.1 | 70.80 |
| 4* | 73.8 | 66.0 | 77.3 | 72.0 | 66.7 | 68.4 | 70.70 |
| 5* | 73.1 | 66.8 | 76.2 | 71.6 | 62.2 | 68.8 | 69.79 |
| 6* | 72.4 | 65.8 | 76.6 | 71.4 | 61.8 | 68.8 | 69.47 |
| 7 | 73.4 | 67.7 | 77.3 | 72.2 | 65.0 | 69.7 | 70.88 |
| 8 | 73.1 | 66.4 | 76.2 | 71.3 | 65.8 | 69.1 | 70.32 |
| 9 | 73.1 | 65.8 | 76.8 | 71.9 | 64.2 | 69.0 | 70.13 |
| 10 | 72.8 | 65.7 | 77.8 | 72.5 | 63.3 | 69.5 | 70.27 |
| 11 | 73.9 | 67.8 | 77.0 | 72.8 | 63.0 | 69.4 | 70.65 |
| Av. | 73.39 | 66.79 | 76.87 | 72.15 | 63.88 | 69.38 | 70.41 |

* Members of Pot Cook Yield Committee.

## Recommendations

(1) That the Cellulose Yield procedure be adopted as an official method to be known as "The American Oil Chemists Society Cellulose Yield Method."

(2) That check samples be sent out several times during the next year.

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