Report of the Cellulose Yield Committee, 1953-1954

During the past year three samples were sent out to 12 laboratories. Two of these samples were second cut linters, and one was hull fiber. The following table gives the average analysis of the three samples sent out:

Lab. No.	No. of Tests	A Linter	B Linter	C Fiber	Over-all Avg. for the Yr.
1	3	78.7	73.9	67.3	73.3
2	3	78.4	73.6	67.0	73.0
3	3	79.0	74.6	67.4	73.7
4	3	78.8	74.3	67.3	73.5
5	3	77.9	73.8	67.4	73.0
6	3	78.9	73.6	66.7	73.1
7	3	79.0	74.0	67.2	73.4
8	3	78.9	74.6	67.6	73.7
9	3	78.1	73.8	67.0	72.9
10	3	78.8	74.4	67.4	73.5
11	3	78.7	73.8	68.4	73.6
12	3	79.5	74.4	67.1	73.7
Average		78.7	74.1	67.3	73.4

With a few exceptions the check analyses were very good. In the case where a laboratory was a little out of line, attention was called to the poor test. As seen from the above table, the over-all averages of the analyses were very good.

During the past year several inquiries have been made in regard to the type of wire used on the screen on the yield washer. The standard method does not give details of the wire to be used so it is thought advisable to include the specific specifications of the wire which have been used from the beginning of this test. The screen wire used is a 60-mesh nickel screen with the following specifications:

Mesh, Tyler designation	60
Number of Bureau of Standards designation	60
A.S.T.M. designation (microns)	250
Opening, in.	.0097
Opening, mm.	.246
Diameter of wire, in.	.0070
Diameter of wire, mm.	.1778

The following tolerances are allowed:

Openings	4%
Diameter	10%

Recommendations

It is recommended a) that samples be sent out at least three times a year to all laboratories equipped to run the cellulose yield, and b) that the specifications of the wire used on the yield washer be included in the standard A.O.C.S. method. This can be considered a clarification of the present method as no new equipment is being used.

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Consistency of Fats Plasticized with Acetoglycerides[1]

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MODIFICATION of cottonseed, peanut, and similar oils by the introduction of acetic acid to produce a large proportion of diacetoglycerides results in unusual oil products (4). The melting, cloud, and pour-points are generally higher than those of the original oils, but plasticity at low temperatures is greatly increased. Increased plasticity results from the fact that low-melting compounds, like 1,2-diaceto-3-olein, melting point of —18.3°C., are formed, and that these and certain higher melting acetoglycerides solidify into a waxy or plastic form (1, 4, 5, 6, 7, 9, 10). The modified oils are more saturated than the original oils and hence should have a better keeping quality. Also they can be rendered flavorless and odorless by ordinary oil-processing techniques.

The acetylated oils, as they will be referred to hereafter, may have some important uses in the food field. However their use in foods must await the completion of feeding and other physiological tests now under way.

One potential use for acetylated oils is in the formulation of a margarine-like spread having an exceptionally long plastic range. Representatives of the armed forces have indicated the need for such an item in individual operational rations. Their requirements include physical and chemical stability at temperatures ranging from —40° to 100°F.(—40° to 38°C.), spreadability at temperatures between 40° and 100°F.(4° and 38°C.), appearance and acceptability comparable to margarine or butter, and a storage life of at least 6 months at 100°F.(38°C.). Experiments have shown that mixtures of acetylated oil, hard fat, salt, traces of antioxidant, imitation butter flavor, and butter color may meet the requirements.

A related use for acetylated oils might be in the plasticizing of commercial margarine oils to produce products having a moderately greater plastic range than those presently available. Some commercial margarine oils undergo great changes in consistency with small variations in room temperature.

A somewhat different use for acetylated oils might be in the plasticizing of hard fats which are sometimes used in the form of a chocolate type of coatings for ice cream bars and certain hard candies. Frequently, when such products are stored at low temperatures, the coatings become harder than desirable and tend to shatter.

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