

THE CRUDE MILL OPERATIONS COMMITTEE REPORT

The Crude Mill Committee worked on four problems this year. With the quantities of high acid seed increasing and the difficulty encountered by using phenolphthalein as an indicator, it was necessary to try and find another indicator whose end-point was more pronounced. We also needed an indicator that could be used with expeller oils. We tried the indicators which Mr. Shuey had worked and reported on namely, Thymol Blue, Aniline Blue, Thymolphthalein and Phenolphthalein. We were not aware of the fact that Mr. Mayfield was chairman of the Indicator Committee; however, we believe there is a better indicator and sincerely hope that Mr. Mayfield has a recommendation for at least an alternate indicator and that the society will adopt it.

In regard to recleaning seed which Mr. Bedell mentioned in his paper, we found that about 50 pounds of trash was removed from

10 tons of seed, this being our tonnage through the cleaning equipment. While the actual percentage of trash removed may seem small, it made a very noticeable difference in the quality of lint cut. However, unless the mill is producing its own power we do not believe this second cleaning will be profitable.

With the thought that by blending varying amounts of expeller oil with hydraulic we could lower the refining loss, we made tests using 10%, 20% and 30% expeller oil mixed with 90%, 80%, and 70% hydraulic. The expeller oil had F.F.A. of 2.6% while the hydraulic had 1.3%, 1.7%, 2.0%, 3.0% and 4.2%. The results:

Expeller Oil.	Loss	Color
F.F.A. 2.6	9.0	24.6
	10.8	15.7
Hydraulic		
F.F.A. 4.2	14.5	7.9
10% Exp. 90% Hy.		
F.F.A. 3.8	14.2	8.8
20% Exp. 80% Hy.		
F.F.A. 3.7	14.7	9.5
30% Exp. 70% Hy.		
F.F.A. 3.6	15.1	10.4

This is the best set of results obtained and with the lower acid oils the results were very much higher and so blending our oils would not be beneficial.

As Mr. Bedell stated in his paper, at his suggestion we worked on lint determination using a 30-mesh seive, through which to remove the lint we use a vigorous rotary motion. If one cc. of HCl is used on the seed as they come from the second linters there will not be such a great breaking down of the hull. What hull is broken will remain on the sieve and may be reweighed with the seed. As is to be expected this gives a small amount of pepper which is in our estimation very near the mill cut lint or even less.

A. G. BEDELL,

J. L. MAYFIELD,

H. L. THOMAS, Chairman.

REPORT OF THE MOISTURE COMMITTEE 1937-38

At the Spring convention in Dallas in May, 1937, the society adopted the Freas Horizontal Flow forced-circulation oven No. 601-233 as a tentative and alternate standard oven. A complete description of this oven will be found in the committee report as published in OIL & SOAP, August, 1937, pages 242-44.

Since the adoption of the oven, the committee has considered the advisability of substituting for the specific oven recommended at that time, an oven described in terms of performance, realizing that there may be other pieces of equipment on the market that would do the work of the Freas oven. The committee recommends, therefore, that the following oven, described in terms of functional performance, be substituted for the now recommended Freas oven No. 601-233: "A forced circulation oven designed to produce a temperature of circulative air which can be controlled between the limits of 100-105° C. The sensitivity of the thermostat shall be such that the maximum variations of the temperature at the position of the thermo-regulator in

the oven shall be $\pm 1^\circ$ C. at any one setting. However, no oven is approved for use with a greater number of seed or meal samples than the number of empty containers of approved type which can be placed in the oven without causing a variation of more than 4° C. within the usable space of the oven in the range 100-105° C.

"The rate and direction of the flow of air shall be such that proper drying will be obtained without danger of finely divided materials blowing from the sample container."

The society's methods now require that a 5-hour drying interval for cottonseed and a 3-hour drying interval for cottonseed meal be used in both the standard jacketed glycerin oven and in the Freas forced-circulation oven. The committee this year has investigated the feasibility of reducing this drying interval when the forced circulation oven is used. Two members of the committee, Messrs. A. D. Rich and C. P. Brenner, have conducted tests in their laboratories designed to establish what drying interval can be used. Their separate reports are attached and constitute

a part of this committee report.

Based on these two reports, the committee recommends that a drying interval of three hours be required for meal samples, and a drying interval of four hours for cotton seed samples where the forced-circulation oven is used.

This committee was organized for the purpose of studying the application of the forced-circulation principle to cottonseed and cottonseed meal moisture problems. It is felt that this work has been completed. The committee, therefore, requests that it be discharged from further duty.

C. P. BRENNER,

N. C. HAMNER,

A. D. RICH,

H. L. ROSCHEN, Chairman.

A. D. RICH REPORT

The new type of Freas Forced Draft oven (No. 601-233) was set up with the temperature adjusted at 101° C. For comparative results, a regular air drying Freas type oven was used. This was also set at 101° C.

The samples used in this work