was analyzed using a 1:3 dilution of hydrochloric acid. The oil was repeatedly washed with 100 ml. of hot 1:3 hydrochloric acid and the amount of soap decomposed by each wash was determined, as shown in Table III.

TABLE III

Results obtained using 1:3 HCl	
Soap found using 1:1 HCl.....	.1032%
Soap found using 1st wash 1:3 HCl	.0546%
Soap found using 2nd wash 1:3 HCl	.0251%
Soap found using 3rd wash 1:3 HCl	.0191%
	.0788%

Even with three washes of the weaker acid the amount of soap decomposed was not equal to that found using the stronger acid; also the separation of the aqueous phase from the oil was slower than with the more concentrated acid.

The most apparent defects of the test are; the time consumed in making a determination. Considerable time is required to extract with the acid, and carry out the evaporations. The second criticism is that any free alkali in the oil will be measured as soap unless the free alkali be determined separately This defect is of course common to any method of ashing or extracting and determining the alkalinity of the ash. In testing oils which have been given a brine wash, any brine remaining will also be included as soap.

In Table IV are tabulated the data showing the results obtained by the proposed method and by the method as given by Davidsohn. The second determination by Davidsohn's procedure illustrates the effect of insufficient washing to remove the mineral acid.

TABLE IV

Comparison of Davidsohn and Durst Method of Soap Determination

Material: Refined unwashed cottonseed oil	% soap found
Durst method	0.0709%
Davidsohn method	0.0689%
Davidsohn method*	0.119%

*Improperly washed to remove mineral acid.

CONCLUSIONS:

1. A review of methods of soap determination is given, outlining the procedures followed for the analysis of soap in refined oils.

2. A new test has been described for the determination of soap in refined oils. The test depends upon the formation of the alkali chloride by the decomposition of the soap with hydrochloric acid. The chloride being determined by titration with a standard silver nitrate solution.

3. An optional method is given substituting for the acid washing of the oil, ashing in a platinum crucible followed by conversion to the chloride and titration with silver nitrate.

4. Factors are given for converting the silver nitrate titration into its equivalent of soap.

5. Data are given showing the analyses of prepared samples of known composition. The average deviation of the analyses from the actual soap content being 0.0034%.

6. The proposed method is compared with the published method of Davidsohn.

Analysis of removal of soap by standard washing, using 1:1 HCl. Material, Shoeflis refined Soya Bean Oil, unwashed.

No. 1.	Soap found, 4 washes combined.....			0.05368%
No. 2.	Soap found, 1st wash.....	0.03636%	53.86%	
	2nd wash.....	0.01730	25.62	
	3rd wash.....	0.00866	12.83	
	4th wash.....	0.00519	7.69	
		0.06751%	100.00%	0.06751%
	Difference between two determinations.....			0.01383%

REPORT OF CRUDE MILL OPERATIONS COMMITTEE

PRESENTED AT 26TH ANNUAL MEETING, AMERICAN OIL CHEMISTS' SOCIETY, MAY 23-24, 1935

THE activity of the Committee on Crude Mill Operations this season has been of the same general character as in recent years; that is to say, rather more on individual than on cooperative lines. At the beginning of the season the chairman suggested to the membership certain problems which it appeared might be of interest to study. Some of these were relatively unimportant; others were in the nature of "long-shots." The members were invited to suggest any others and were asked to make some contribution relating to oil milling, even if not of outstanding significance.

The result has been the assemblage of four papers contributed by three members, as follows:

"A Study of the Possible Catalytic Effect of Some Metals and Alloys on the Changes Occurring in Crude Cottonseed Oil During Storage," by F. R. Robertson and J. C. Campbell, Houston Laboratories, Houston, Texas. (Published in the October issue of OIL & SOAP.)

"Effect of Different Methods of Disintegration of Cottonseed Meats on Some Properties of the Crude Oil," by J. M. Newbold, Eastern Cotton Oil Company, Hertford. N. C. (Published in August issue OIL & SOAP.)

"A Modified Procedure for Determining the Amount of Lint on Cottonseed, the Development of a More Rapid and More Accurate Technique," by Egbert Freyer, South Texas Cotton Oil Company, Houston, Texas. (Published in September issue OIL & SOAP.)

"A Rapid Visual Method for Estimating the Amount of Lint on Cottonseed, the Relation of Its Moisture and Lint Content to Some Properties of the Seed," by Egbert Freyer, South Texas Cotton Oil Company, Houston, Texas. (Published in November issue.)

Respectfully submitted,
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