Letter To the Editor: Commenting On Linseed Oil

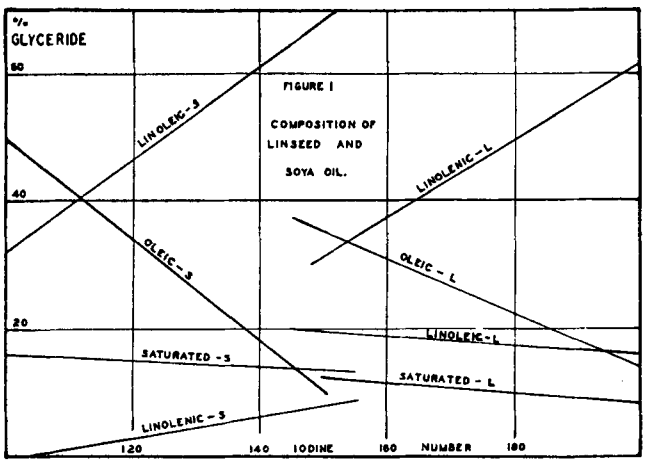
THE article by E. P. Painter ["Some Relationships Between Fat Acid Composition and the Iodine Number of Linseed Oil"] in December *Oil & Soap* summarizes the results of an exceedingly valuable examination of many samples of linseed oil. We have followed the earlier reports of this work with considerable interest and have derived equations to correlate the iodine number with the composition of the oil. Our equations are comparable but not identical with those derived by Painter (1).

We have however derived an equation for the linoleic content of linseed oil which, using Painter's equations, would be

$$\% \text{ linoleic glycerides} = -.067 \text{ iodine number} + 28.8.$$

This is derived by subtracting the equations for saturated, oleic and linolenic esters from 100%.

Since the values for saturated, oleic and linolenic glycerides can be determined with a satisfactory degree of accuracy, it would appear that the linoleic content could be obtained by difference with the same degree of accuracy. The results in Table 2 (1) show that the content of linoleic esters is much more affected by probable errors in the thiocyanate and iodine values than are the other values.



We cannot therefore subscribe to Dr. Painter's feeling that the linoleic glyceride content varies as greatly as the calculated results might indicate. We feel that variations of the linoleic acid content with change of iodine numbers is regular and decreases slightly as the iodine value decreases.

The comparable analysis of soy oil by C. R. Scholfield and W. R. Bull (2) shows a remarkably similar behavior in the change of composition as the iodine value increases. With soy the linoleic glyceride content increases with higher iodine values while with linseed oil it is of course the linolenic ester content. Curves for the glyceride content of the two oils are shown in Figure 1, the curves for linseed being our own derivation, but substantially equivalent to those derived by Painter.

We are therefore inclined to believe that the linoleic ester content of linseed oil decreases slightly with the increasing iodine value and that the wide variations found in the calculated values are inherent in the method for determination. When more results of the spectroscopic method are available, this point can be further clarified. One example shows a linoleic content in fair agreement with the equation above (3).

Another piece of evidence in support of a uniform content of linoleic ester is the behavior of linseed oil. In years of experience with linseed oil of 170-190 value it has been found that the behavior is measured by its iodine number and that samples of the same iodine value behave in the same fashion if foots and other extraneous matter are kept out of the oil. We believe that the iodine value measures the performance of an oil to a high degree of accuracy and hence the component fatty acid esters.

REFERENCES

1. Painter, E. P. Oil & Soap *21*, 345 (1944).
2. Scholfield, C. R., and Bull, W. R. Oil & Soap *21*, 87 (1944).
3. Mitchell, J. H., Jr., H. R. Kraybill, and F. P. Zscheile. Ind. Eng. Chem., Anal. Ed., *15*, 1-3 (1943).

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Correction

A confusion caused by the transposition of lines in the Abstract section of the January issue should be corrected as follows:

(Page 27, Patents) TREATMENT OF TEXTILE FIBER WITH WATER REPELLENCY AGENTS. L. Collins *et al. U. S. 2,361,270.* In the process of surface treatment of cellulosic fabric with stearamido-Me-pyridinium chloride whereby to impart thereto a water-repellent finish, the improvement consists of incorporating in the aq. impregnating bath from 0.1 to 0.5 part by wt. of n-Bu-methacrylate polymer resin for each part by wt. of the stearamido-Me-pyridinium chloride.

(Page 27, Soaps) DETERMINATION OF DETERGENCY. Marc Ringeissen. *Teintex 8*, 31-7 (1943). Detergency can be measured only by washing tests; such properties as surface tension or emulsifying capacity of the cleaning agent are not an accurate measure of detergency, because this depends not only on the cleaning agent, but also on the grease removed, the duration of washing and the temp. of the bath. A method devised by R. utilized the Toussaint photocolorimeter. A soiled wool sample is washed for 15 min. at 70°. The dirt contained in benzene used for cleaning is taken as "standard soil." The cleaning agent is added in varying quantities to a 2% soda soln. (calcd. on anhyd. Na_2CO_3). (*Chem. Abs.*)