V. S. Skinner, Shilstone Testing Laboratory, Houston, Texas.

The following have certificates reading on cottonseed, cottonseed meal and cottonseed cakes and similar materials covered by the official methods of the A. O. C. S.

G. C. Henry, Law & Company, Macon, Georgia.

John T. Boyd, Jr., Barrow-Agee Laboratories, Inc., Cairo, Ill.

B. L. Caldwell, Barrow-Agee Laboratories, Inc., Jackson, Miss.

Thos. B. Caldwell, Law & Company, Inc., Wilmington, N. C.

The following have certificates reading on all fatty oils and soap stock covered by the official methods of the A. O. C. S.:

John C. P. Helm, New Orleans, Louisiana.

S. Lomanitz, Oklahoma City, Oklahoma.

The following have certificates reading on all fatty oils, soap stock, oil cake and meal covered by the official methods of the A. O. C. S.:

W. F. Beedle, G. W. Gooch Laboratories, Ltd., Los Angeles, Cal.

P. W. Tompkins, Curtis & Tompkins, Ltd., San Francisco, Cal.

H. M. Shilstone, Shilstone Testing Laboratories, New Orleans, La.

Edw. G. Williams, New Orleans, La.

H. P. Trevithick, Bureau of Chemistry of the New York Produce Exchange, New York, N. Y.

H. M. Bulbrook, Industrial Laboratories, Fort Worth, Texas.

Robert H. Acock, The Oil Mill Laboratory, Austin, Texas.

ABSTRACTS

Oils and Fats

Edited by
M. M. PISKUR and RUTH LINDAHL

The value of the refractometric methods for determining the oil contents of seeds, oil cake, and extraction residue. F. Wittka. *Seifensieder-Ztg.* **65**, 742-3, 762 (1938). The Leithe method for refractometric oil analysis is an aid in process control. The method is unsuitable for seed analysis.

Comparative tests on butter pastry. W. Stodt. *Z. Untersuch. Lebensm.* **76**, 228-32 (1938). All the fat of bakery products is not extd. by the usual drying followed by Soxhlet extn. An average of 2.53% more fat is obtained if the sample is first boiled with dilute HCl, filtered and the residue and filter paper dried and extd. The butyric acid, sapon., and residue values of both extns. were compared. It was concluded that the per cent butter fat can be calcd. by the usual formulas.

History and the preparation and processing of oils and fats in Gross-Hamburg. A. Meyer and H. Schmalfuss. *Fette u. Seifen* **45**, 445-50 (1938). This is a historical sketch, statistics and a list of fat and oil industries in the Hamburg district.

Shark fishing and processing with special consideration to the liver oils. W. Schnakenbeck. *Fette u. Seifen* **45**, 450-6 (1938). A monograph. Included in the publication are charts giving the yield of oil from various sharks and the characteristics of the oils.

The measurement of herring oil in bulk. Neal M. Carter. Fisheries Research Board Can., Progress Repts. Pacific Stas. No. **36**, 16-19 (1938). The coeff. of cubic expansion or contraction per degree F., commercially accepted as 0.000404, for the conversion of a vol. of oil measured at its temp., to its vol. at 60° F., is not correct for all temps., because of the sepn. of stearins. Neither is the wt. of 1 gal. of oil at 60° F. a const. factor. The av. coeff. of expansion for oils between 60° and 120° F. was 0.000416. Stearin started to sep. at 77° F. and below, but, by carefully cooling to obtain a supersatd. soln. at these lower temps., it was possible to study the effect of the pptn. of stearin upon the coeff. of expansion. For the samples examd., the av. coeff. of expansion between 32° and 75° F. was found to be 0.00060 to -61. The wts. of a U. S. gal. at 60° of 1 sample were: 7.701 lbs., when liquid; 7.732 after stearin had sepd., on cooling and standing 24 hrs. at that temp.; and 7.751 after holding at 32° for 24 hrs. and then warming to 60°. (*Chem. Abs.*)

Oil bleached with combination absorbents. M. Singer. *Seifensieder-Ztg.* **65**, 701-2, 722-3 (1938). Bleaching agents prepd. from a combination of active carbon and earth were efficient and economical. The economies are realized from decrease in cost of bleaching agent, decrease in oil loss, saving in filtering cloths and improvement in bleaching effect. Cost data for bleaching in Germany are given.

Saturated acids of completely hydrogenated oils by fractional distillation. V. Hardened olive- and hardened rape seed oil. Seiichi Ueno and Masayoshi Iwai. *J. Soc. Chem. Ind. Japan* **41**, 256-7 (1938). An olive oil of I no. 80.7 and sapon. no. 191.8 had I no. 0.3, sapon. no. 187 and m.p. 67.1-70.7° after hardening. This was sapond.; the unsapond. was removed and the mixed fatty acids recovered. These were transformed to their Me esters and fractionally distd. The results indicated: C_{16} acids 7-10, C_{18} acids 90-93%, and C_{20} and C_{14} acids trace. This figure for C_{16} acids is higher than given in literature. A hardened rape seed oil (I no. 0.6, sapon. no. 170, m.p. 59.4-61.4) obtained from a typical rape seed oil (I no. 100.4), sapon. no. 174.5, n_D^{20} 1.4732) was investigated in the same manner as was the olive oil. The compn. of the mixed fatty acid of the hydrogenated oil was: stearic (palmitic, probably involved) acid 44, behenic acid 55 and lignoceric acid 1%.

Chemistry of fat spoilage. III. Influence of attended matter. F. Kiermeier and K. Taufel. *Fette u. Seifen* **45**, 487-91 (1938). The authors review the literature on the effect of natural impurities of oils from the standpoint as to whether they accelerate, reduce or have no effect on the spoilage rate.

Protection by guaiac against destruction of vitamin E by rancidity of fats of the diet. K. Johnson, A. J. Carlson and P. Bergstrom. Arch. Path. **26**, 144-6 (1938). The expts. support the contention that rancidity in fats destroys vitamin E. By retarding the development of rancidity in lard, guaiac prevents the destruction of vitamin E artificially added to the lard of the diet and increases reproduction in rats. (*Chem. Abs.*)

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Oils and Fats

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Aged fats in living organisms. H. Schmalfuss, H. Werner and A. Gehrke. *Hippokrates* 7, 1183-5 (1936); Chem. Zentr. *1937, I,* 1181. In no fats obtained from plants or animals so far investigated have aldehydes been found; ketones were found in traces only in linseed oil and in oil from the liver and roe of carp. The possibility of the aging of the fats *in vivo,* which could not be decided from these expts., is discussed. (*Chem. Abs.*)

The determination of unsaponifiable matter in whale oil by the draft method of the Norwegian standards association. E. R. Bolton and K. A. Williams. *Analyst* **63**, 652-4 (1938). The most important difference between the Norwegian standard method and the English Soc. of Pub. Anal. method lies in: (1) extn. from much more concd. soap soln. and (2) a double saponification. The methods were compared. The results indicated that only about 60% of the unsaponifiable was extd. by the Norwegian method.

Preparations of castor-oil-like product from soybean oil. Ryohei Oda. *J. Soc. Chem. Ind., Japan* **41**, Suppl. binding 195-6 (1938). The method consisted in adding 50 g. of soybean oil to 200 cc. of glacial acetic acid followed by 5-15 g. of 30% H_2O_2 and then agitating under a reflux condenser for 1 hr. and driving off the acetic acid under reduced pressure. The results for 15, 7.5 and 5 g. H_2O_2, resp. were: I no. 51.3, 72.6, —; acid no. 8.60, 6.89, 4.75; sapon. no. 246.3, 236.8, 227.5; Ac no. 88.2, 90.2, 50.5. The increase in sapon. no. over the original oil is probably due to the fact that some AcOH is combined as esters in the newly formed hydroxyl groups. The results in the case of the 7.5 g. H_2O_2 indicated an Ac no. of 54.19 for the combined acetic acid and an Ac no. of 78.22 in the case of the 15 g. H_2O_2 test. The product was very viscous. The same test was made with fish and castor oil. (*Chem. Abs.*)

Synthesis of glycerides with the aid of trityl-compounds and the applications of this new process. P. E. Verkade. *Fette u. Seifen* **45**, 457-65 (1938) The use of "tritylchloride," triphenylchloromethane, in the synthesis of glycerides is reviewed under the subject headings; mono-acid diglycerides, di-acid diglycerides, tri-acid glycerides, glycerol phosphatides, monoglycerides, polyhydroxyl compds. with primary and secondary OH groups and deacylizing of acyltritylglycerols.

The migration of fat reserves in the fasting mouse and the speed of mobilization of the fixed fat acids. L. Chevillard, F. Hamon and Andre Mayer. *Ann. physiol. physicochim. biol.* **13**, 533-8 (1937). At a certain period during fasting the animal utilizes fats almost exclusively. At this point the intensity of the respiratory metabolism may be an indication of the speed of removal of fat from the liver. If the fat content of the liver remains const., the speed of fat removal is equal to the speed of fat deposition. (*Chem. Abs.*)

PATENTS

Apparatus for the continuous extraction of oils from oily materials. P. L. Fauth and J. Reichert. (Ges. Verwertung Fauth'scher Pat. m.b.H.). Ger. 659,575 Cl. 23a 2. The charge is passed over a series of swinging or vibrating sieves which are sprayed with solvent. The app. also includes means of recirculating solvent and filter for solvent. The swinging or vibrating motion and the pitch of the sieves cause the forward motion of the charge.

Fish liver oil. A. Thorsteinsson. Brit. 486,277. Oil is removed from fish livers by boiling the liver with caustic to dissolve the proteins, cooling, removing the upper layer of oil and water emulsion and separating the oil therefrom.

Continuous refining of fats and oils. Akt. Bol. Separator. Brit. 485,975. The continuous method depends on proportional mixers for alkali and water for washing and upon centrifuging.

Refining fats and oils. W. H. Irwin (to Indus. Pats. Corp.). Brit. 484,689. Moisture is removed from oils and fats by treating them with calcined gypsum.

Stabilizing shortening. Indus. Pats. Corp. Brit. 484,477. Small quantities of certain hydroxy aliphatic monobasic acids are used as antioxidants for shortening and lard.

High molecular aldehydes. O. Schmidt, K. Huttner and G. Kab. (to I. G. Farbenind.). Ger. 660,735 Cl. 12o 7.03. High mol. wt. aldehydes are prepd. from fat acid by passing the fat acids with formic acid at 40 to 60 mm. Hg. pressure and at a high temp. over a catalyzer. The catalyzer is prepd. by subjecting a mixt. of pumice and $MnCO_3$ to reduction with methanol vapors at 350°.

Thiocyano fatty acid esters. A. K. Epstein and B. R. Harris. U. S. 2,123,186. The prepn. of thiocyano-acetate of aliphatic alcs. wherein the H of one OH group of the polyhydric alc. is substituted by a higher mol. wt. aliphatic radical of the group consisting of alkyl and acyl radicals is described.

Glycerin. Norddeutsche Hefe-industrie A.-G. Ger. 664,575 Cl. 6b Gr. 16/02. A soln. contg. 200 g. sugar, 50 g. NaCl, 20 g. $NaHCO_3$, 1 g. $(NH_4)_2SO_4$ per L. is treated with 10 g. yeast and fermented at 37°. The yield is about 25% glycerine; whereas without salt it is considerably less.

Glycerin. Henkel & Cie. Ger. 664,576 Cl. 6b Gr. 3. In the manuf. of glycerin by fermentation the fermented mass is dried and the glycerine is extd. with org. solvents.