> and that the present method for expeller oil be designated as a tentative method for hydraulic oil.''

Our committee, therefore, recommends that the method now designated for hydraulic oils be deleted from the methods and that the method now designated for expeller oil be designated as a tentative method for hydraulic oil.

A sub-committee has been working on the refining of degummed, extracted soybean oil which seems to give difficulty with the methods employed for non-degummed oil. While some very interesting work has been done in this study, nothing of a definite nature has been developed. However, considerable interest has been shown in the subject and we are sure that within the very near future a method for degummed, extracted soybean oil will be worked out.

Mr. Ganucheau of our committee called attention to the fact that when analyzing cottonseed it is possible to get greatly varying results if the sample is permitted to stand overnight or for any considerable period during the progress of analysis. We, therefore, recommend that a note be put with this method urging all analysts to carry on this analysis without any undue delay.

We had no reports from the Sampling Committee, Soap in Refined Oil Committee, Committee on the Analysis of Peanuts and Peanut Products, and Sulphonated Oils Committee. We hope that it will be possible for these committees to have reports for consideration in the near future.

A number of our methods have been tentative for one year or more and we are, therefore, recommending that the following tentative methods be made official:

Method	Page	Adopted as tentative
Peanuts, Sampling	II	1941
Raw Soapstocks, Sampling	III	1940
Acidulated Stocks, Sampling	IV	1940
Peanuts, Analysis	10c	1940
Methods of Sampling	24a	1941
Titer Test	29	1940
Evolution—Volumetric Method for Carbonates	A-9	1940
Combined Na_2O and K_2O	A-15	1937
Methods of Glycerin Analysis	D-1 to D-7	1938
Fitelson Test—Teaseed Oil	E-3	1939

There are several other methods which have been tentative sufficiently long to be considered for an official status, but since work is being done on them and they are in a state of flux we recommend that they be held in a tentative state for the time being.

All of the above recommendations of the Committee on Uniform Methods and Cooperative Work were put to a vote of the Society and adopted.

For several years we have been trying to revise all of our methods in order to have them more uniform and in somewhat larger form. This is a very difficult undertaking and little progress has been made on it up to the present time. However, we are pleased to say that Mr. V. C. Mehlenbacher has agreed to undertake this work for our committee and we are sure that we will see considerable progress in this direction in the near future.

J. T. R. ANDREWS
J. J. GANUCHEAU
C. P. LONG
E. B. FREYER
T. C. LAW
H. P. TREVITHICK
J. J. VOLLERTSEN,
Chairman.

Abstracts

Oils and Fats

Edited by
M. M. PISKUR and SARAH HICKS

PROCESSING OF DRYING OILS. RECENT DEVELOPMENTS. J. H. Greaves. Oil Colour Trades J. *105*, 579-82 (1944).

MOLECULAR DISTILLATION. A NEW PATH TO SEPARATION OF CHEMICALS. Theodore R. Olive. *Chem. & Met. Eng. 51*, No. 8, 100 (1944).

MODERN ALCHEMY BY ARMOUR & COMPANY. David S. Oakes. *Central Manufg. District Mag. 28*, No. 5, 9-16 (1944). A description of new fatty acid derivs. for postwar consumption. (*Chem. Abs.*)

THE BACTERIAL OXIDATION OF CORN OIL. J. O. Mundt and F. W. Fabian. *J. Bact. 48*, 1-11 (1944).

HEXABROMIDE METHOD FOR DETECTION OF SMALL QUANTITIES OF LINOLENIC ACID IN ANIMAL FATS. Detection of horse meat in admixtures with pork or beef. G. K. Crowell. *J. Assoc. Off. Agr. Chem. 27*, 448-51 (1944). The m. p. of the hexabromide formed from the fatty acids present in horse fat is in accordance with the literature for linolenic acid hexabromide. Table I shows that an increased hexabromide value above that found for pork or beef, together with an identification (m. p.) of the prepd. hexabromide deriv. would constitute sufficient evidence that horse fat/meat was present. The method presented obviously does not lend itself to a quant. estn. of the proportion of horse meat in mixts. with pork or beef, since meat from horses being slaughtered at the present time contains less fat than is usually present in either pork or beef. Products such as hamburger and sausage require considerable fat to be palatable, and it would be generally assumed that this addnl. fat would be obtained from either the pork or beef and not from the adulterant, horse meat.

ESTIMATION OF TUNG OIL AS AN ADULTERANT. T. J. Suen and M. C. Wang. *Ind. Eng. Chem., Anal. Ed. 16*, 511-13 (1944). Tung oil is sometimes adulterated with soybean, sesame, peanut, rapeseed, stillingia and other oils, which are much cheaper than tung oil during normal times. Since the present Sino-Japanese War, the situation has been reversed. A method of identification of adulteration with tung oil, depending on amt. of resins formed under controlled treatment with HNO_3, was developed.

UNION OF GASEOUS O WITH ME OLEATE AT 20° AND 120°. D. Atherton and T. P. Hilditch. *J. Chem. Soc. 1944*, 105-8 (1944). Me oleate (1) was stirred with O in bright daylight at room temp. (about 20°) for a total period of 34.5 days (i.e., 24-hr. periods). At the end of this time, its peroxide was 920 (calcd. for complete conversion into peroxide 3050) and its iodine value 72.7. This fall in iodine value is greater than that demanded by the exclusive formation of hydroperoxide but only about half that which would occur if the peroxide were wholly that produced by union with the double bond. This relationship persisted throughout the autoxidation. Thus, the autoxidation at 20° did not follow exclusively either of the supposed mechanisms, unless all the reduction of iodine value could be accounted for by secondary interactions of hydroperoxide with I. (*Chem. Abs.*)

THE ROLE OF DIETARY FAT AND LINOLEIC ACID IN THE LACTATION OF THE RAT. J. K. Loosli, J. F. Lingenfelter, J. W. Thomas, and L. A. Maynard. *J. Nutr. 28*, 81-88 (1944). Studies are reported in which the growth of standardized litters to 17 days of age is used as a measure of lactation performance. In these studies rats suckled by mothers fed a diet contg. corn oil made more rapid growth than rats whose mothers were fed a fat-free diet. Carcass analyses showed that the extra gain of the young consisted largely of fat. A diet contg. hydrogenated coconut oil gave no better growth than the fat-free diet. No improvement in growth of the young was produced by feeding ethyl linolate to the mothers or directly to the young. Similarly, feeding the mothers 125 mg. of ethyl linolate each day did not improve the lactation response on the fat-free diet.

DISTURBANCES OF FAT METABOLISM AND BLOOD CLOTTING IN AVITAMINOSIS K, AND THEIR CORRECTION BY DONORS OF ME GROUPS. G. S. Topelberg and C. R. Honorato. *Rev. soc. argentina biol. 19*, 409-16 (1943). In chicks deprived of vitamin K there is a marked prolongation of clotting time, a large increase in fat deposition in the liver, and hemorrhagic lesions and fat infiltration in the kidneys. These changes are prevented by administration of 2-methyl-1, 4-naphthoquinone. Caffeine and choline also prevent the increase in liver fat but only slightly decrease the prolongation of clotting time. (*Chem. Abs.*)

THE EFFECT OF MUSCULAR WORK ON THE GROWTH AND WORK CAPACITY OF WHITE RATS, ON THE GLYCOGEN AND FAT CONTENTS OF THEIR LIVERS AND MUSCLES, AND ON THE WEIGHT OF THEIR ADRENALS ON DIFFERENT CARBOHYDRATE AND FAT DIETS. Istvan Hajdu. *Arch. ges. Physiol.* (Pflügers) *245*, 556-74 (1942). Inhibition of growth and loss in wt. as a result of excessive work was greatest on a diet which calorically consisted of 64% fat and 36% protein. Max. growth and wt. were attained on a diet contg. 69% carbohydrate, 8% fat and 23% protein. A diet contg. 38% fat, 36% carbohydrate, and 26% protein caused scarcely any loss in wt. and only inhibition of growth. Work capacity was max. on the last-named diet but min. on the fat diet. The decrease in fat and increase in glycogen of the liver and muscle during work was independent of the type of diet. The adrenals hypertrophy even during rest on a high-fat diet. Exercise on all diets caused a similar hypertrophy. (*Chem. Abs.*)

FURTHER STUDIES ON THE TUMOR-PRODUCING ACTION OF FAT. P. S. Lavik and C. A. Baumann. *Cancer Research 3*, 749-56 (1943). The fat acids of hydrogenated vegetable oil, resynthesized into triglycerides, had the same tumor-promoting activity as natural fat. Prolonged heating of natural fats did not greatly alter their tumor-promoting activity. Products of fat metabolism, as acetone, Et acetoacetate, butyric acid, did not promote tumor growth. Increased intake of riboflavin and protein did not diminish the tumor-promoting activity of fat. With equiv. caloric intakes, the incidence of tumors was more nearly equal on high- and low-fat diets. At least part of the tumor-promoting action of fat appears to be due to an accompanying increased consumption of calories. (*Chem. Abs.*)

THE CHEMISTRY OF THE LIPIDS OF TUBERCLE BACILLI. LXVI. CONCERNING THE STRUCTURE OF TUBERCULOSTERIC ACID. S. F. Velick. *J. Biol. Chem. 154*, 497-502 (1944). The (001) crystal spacing of tuberculostearamid is 37.8 A and of *dl*-10-methylstearamide 39.1 A. The observed differences are consistent with the hypothesis that tuberculostearic acid, although showing no detectable optical rotation, is optically active. The results support the structure *d*- or *l*-10-methylstearic acid proposed for tuberculostearic acid.

INVESTIGATION, BY MEANS OF SMALL INGOTS CAST FROM STEARINE, OF SOME FACTORS IN THE DEVELOPMENT OF FAULTS IN CAST STEEL. G. N. Oiks. *Metallurg 15*, No. 10, 3-11 (1940). Small ingots were poured from a mixt. contg. 45-6% of stearic and palmitic acids and 8-10% of oleic acid. From the behavior of the stearin mixt., conclusions were drawn on the formation of columnar crystals and of pipes in steel ingots. Equations are given for the calcn. of the crystn. velocity of stearin and for the thickness of the solidified layer. (*Chem. Abs.*)

PATENTS

EXTRACTION OF DRYING OIL. R. F. Ruthruff and D. F. Wilcock. (The Sherwin-Williams Co.). *U. S. 2,355,605.* The method of treating drying oil to secure a fraction therefrom having a higher I no. comprises extg. the drying oil with sufficient furfural to provide a liquid furfural ext. phase and a liquid raffinate oil phase, extg. oil from the said ext. phase with a paraffin hydrocarbon solvent to form a residual furfural raffinate phase and a hydrocarbon ext. phase contg. oil of said higher I no., and reducing the hydrocarbon content of said phase to secure said fraction while lowering the proportion of said hydrocarbon to oil, whereby the distn. of furfural in the presence of oil is avoided, with the avoidance of forming antioxidants in the oil.

SOLVENT EXTRACTION OF OILS AND ACIDS (APPARATUS). J. D. Jenkins (Pittsburgh Plate Glass Co.). *U. S. 2,352,546.*

SEPARATION OF TALL OIL INTO ITS CONSTITUENTS. J. D. Jenkins (Pittsburgh Plate Glass Co.). *U. S. 2,354,812.* A countercurrent solvent process is used. The tall oil in hydrocarbon solvent is passed countercurrently to an aq. soln. of a polar solvent (monoethyl ether of ethylene glycol). The aq. soln. exts. a fraction rich in resin acids and poor in fatty acids.

PRODUCTION AND PURIFICATION OF FATTY OILS. D. S. Bolley (Natl. Lead Co.). *U. S. 2,352,883.* Method for the production of highly unsatd. linseed oil comprises extg. flaxseed with acetone, filtering the resulting soln., cooling it to about —25°, sepg. therefrom pptd. solids, further cooling the soln. to about —68° and sepg. the pptd., highly unsatd. linseed oil from the solvent.

PROCESS OF STABILIZING FATTY MATERIALS. B. J. Verbeck (Wilson & Co.). *U. S. 2,354,719.* The process of stabilizing an edible oleaginous substance capable of becoming rancid comprises admixing said substance while in liquid form with a tannin and thereafter filtering said treated substance to remove a tannin compd.

ADSORPTION RECOVERY OF PHOSPHATIDE MATERIAL FROM VEGETABLE OILS CONTAINING IT. H. R. Kraybill, P. H. Brewer and M. H. Thornton (Purdue Research Foundation). *U. S. 2,353,571.* Method of recovering phosphatide material from a vegetable oil consists in bringing the vegetable oil and a phosphatide-material adsorbing solid into intimate contact to cause adsorption of said material upon said solid, separating said solid with the adsorbed material, washing the said solid with an oil solvent, removing the phosphatide material from said solid by washing with solvent evaporation of the solvent.

HYDROGENATION OF OIL. Maurice M. Durkee (A. E. Staley Manufacturing Co.). *U. S. 2,353,229.* The process of producing a non-reverting comestible soybean oil by selective hydrogenation comprises treating said oil in an hydrogenator with a suitable selective catalyst within the range of 0.001 to 0.02% based on the wt. of the oil, agitating the treated oil at a rate which will prevent spraying, creating a vacuum in said hydrogenator above the oil level, applying heat to the oil until a temp. between 130° C. and 180° C. has been reached, maintaining an atm. of H_2 above the surface of the oil and maintaining said conditions until an I value not less than 125 for said oil has been reached.

PREPARATION OF AMINES BY HYDROGENATION OF FAT ACID NITRILES. H. P. Young, Jr. (Armour and Co.). *U. S. 2,355,356.*

PREPARATION OF UNSATURATED HYDROCARBONS FROM PRIMARY ALIPHATIC AMINES. M. R. McCorkle. (Armour and Co.). *U. S. 2,355,314.*

PREPARATION OF A PHOSPHATE COMPOSITION. P. L. Julian and E. W. Meyer. (The Glidden Co.). *U. S. 2,355,081.* Phosphoric acid is added to phosphatides to increase their soly. in oils.

OAT EXTRACT USEFUL FOR ADDITION TO FOODS FOR ANTIOXIDANT AND OTHER PURPOSES. S. Musher. (Musher Foundation Incorp.). *U. S. 2,355,097.* A method of making an antioxidant comprises extg. an oat product with water, adding to the ext. a low mol. wt. aliphatic alc. and then removing the insol. material.

EXTRACTION OF STEROLS. R. F. Light, H. Kothe, and C. N. Frey. (Standard Brands, Inc.) *U. S. 2,355,661.* A method of extg. sterols by first sapong. and then extg. with an org. solvent is described.

POLYGLYCOL ETHERS OF HIGHER SECONDARY, MONOHYDRIC ALCOHOLS. F. Schlegel. (The Procter & Gamble Co.). *U. S. 2,355,823.* As a new product a wax-like mass consists of polyglycol ethers of higher mol. monohydric secondary, straight chain aliphatic alcohols, having at least 11 C atoms.

SUBSTITUTED GLYOXALIDINES. A. L. Wilson. (Carbide and Carbon Chemicals Corp). *U. S. 2,355,837.* The waxy compd. is prepd. by the action of diethylene triamine and a fat acid in hydrocarbon solvent.

Abstracts

Soaps

Edited by
ARMOUR AUXILIARIES LIBRARY

NEWER INDUSTRIAL USES FOR SOAPS. Milton A. Lesser. *Soap 20*, No. 8, 25-28, 70 (1944). This article describes the role of soap in modern industrial operations. These uses include emulsion polymerization of synthetic rubber emulsification of reclaim rubber, lubricants in the molding of rubber, prevention of water seepage into both oil and gas wells, emulsification of compounds in various types of construction treatment such as road building, flotation agent in ore concentration work, case hardening of metals, metal drawing, use in water-emulsion paints, in textile processing for scouring of raw wool, cleansing of oily piece goods, bleaching and cleaning of cotton and rayon goods and many other uses. References are given for all the applications listed.

CRYSTALLIZATION OF BINARY AND COMMERCIAL SOAP SYSTEMS. R. H. Ferguson and H. Nordsieck. *Ind. & Eng. Chem. 36*, 748-52 (1944). From a study of long spacings of x-ray diffraction patterns, the following conclusions can be drawn relating the nature of crystalline phases in the solidified soap systems: 1. Fractional crystallization into the single-constituent soap is completely absent, as either anhydrous binary soap systems or the more complicated commercial soap systems crystallize. 2. Fraction crystallization into different solid solution phases can occur in certain restricted composition ranges, as in binary systems, but only one solid solution phase has been found in typical unbuilt commercial soap systems. 3. In the typical anhydrous binary system sodium myristate-sodium palmitate, where the components are even-numbered adjacent homologs, a continuous series of solid solutions occur, with nearly linear variation of the long spacing with composition. 4. Where the components differ by four CH_2 groups, as in the system sodium laurate-sodium palmitate, the behavior is more complex. A laurate-rich solid solution separates at the laurate end and a palmitate-rich solid solution separates at the palmitate end of the system. 5. In a system in which the components are even further separated by six CH_2 groups, as in the system sodium laurate-sodium stearate, a still more involved behavior is found. Here three different solid solutions are able to exist. While no detailed evidence is included here, the short-spacing x-ray patterns of these binary mixtures are essentially independent of composition. The short spacings are thus uniquely useful in detecting changes in crystal modification over wide ranges of fatty composition. Their value in the complicated mixtures involved in commercial soaps needs scarcely be emphasized.

MODERN FAT SPLITTING METHODS. *Soap 20*, No. 8, 57, 59 (1944). Modern fat-splitting processes obtain high yields of glycerine by working with the right proportions of water to fatty oil and operating in such a way that the products of hydrolysis are removed. The continuous process is modern development. It has the advantages of requiring smaller