ABSTRACTS

Oils and Fats

Edited by
M. M. PISKUR and RUTH LINDAHL

MAIN MEETING OF THE D. G. F. HAMBURG, SEPT. *25-9 (1938). Fette u. Seifen 45,* 558-78 (1938). One of the speakers announced that since the last meeting Japan, U. S. A., Denmark and Bulgaria have joined the I.C. A prize of 2000 R.M. is offered for the development of a simple method for detg. caustic and carbonate alkalies in presence of each other in soap. The general talks dealt with political economy, organization of fat research within Germany, brief mention of the leaders in each division, work of the I.C. etc.

ABSTRACTS OF PAPERS GIVEN AT D. G. F. (GERMAN FAT ASSN.) MEETING SEPT. *1938. Fette u. Seifen 45,* 526-37 (1938). A few selected titles are: shipping of fat and oil seeds; prepn. of fat acids by paraffin oxidation; surface tension of soap solns.; separation of glycerine and fat acids; oxidation of fats; formation of isooleic acid during fat hardening; margarine emulsifying; fat economy; shortening; refining; soap filling; Calgon; wool fat emulsifiers; corrosion; paint oils; emulsion protective coats; fish oil for paint; fat analyses; several on vitamins and new equipment.

USE OF HIGH SPEED CENTRIFUGES IN THE OIL AND FAT INDUSTRIES. F. Deitmers. *Fette u. Seifen 45,* 514-7 (1938).

THE TECHNIC OF HYDROGENATION. H. Jackson. *J. Soc. Chem. Ind. 57,* 1076-7 (1938). A brief discussion of microhydrogenation equipment.

THE USE OF SUBSTITUTED SALICYLIC ALDEHYDE FOR THE DETERMINATION OF KETONE RANCIDITY IN FATS. E. Glimm and A. Semma. *Fette u. Seifen 45,* 500-3 (1938). Acetylsalicylic aldehyde, 3-nitrose salicylic aldehyde, 2 oxy 3,5-, 6 oxy-2,5-, 6 oxy-2-4-, and 6-oxy-3-4-dimethyl benzaldehydes, vanillin and o-vanillin and o-oxy-benzaldehyde (salicylic aldehyde) were compared for their reactions with rancid fats. In this test the latter is known to give a colored complex (Täufel and Thaler reaction). Substitution in the o-position of salicylic aldehyde with CH_3- or CH_3O- groups yielded compounds which gave a bright rose color in the presence of ketones. However, the reactions were weaker than with salicylic aldehyde. Compounds with other arrangements of the substituted groups gave no color reaction.

IS DIPHENYLCARBAZID SUITABLE FOR THE DETECTION OF RANCID FATS. E. Glimm, L. Kludzinski and H. Fleischhauer. *Fette u. Seifen 45,* 496-9 (1938). Publications on the Stamm reaction are reviewed. In a test on olive oil the effects of various solvents were tested. The solvents with the color reaction were resp.: acetic acid, dark reddish violet; $C_2H_3Cl_4$, red; benzyl alc., rose; cyclohexanol, bright red; benzol and acetone, slight rose; vaseline, red; MeOH and EtOH, no reaction; 2 drops of acetic acid and $C_2H_2Cl_4$ dark red violet; and 2 drops acetic acid and benzol, deep blue. Blank detns. gave no reaction. Acetic acid increases the sensitivity of the test. Vaseline alone gives a negative reaction; but when acetic acid is added it was positive; probably due to the impurities in vaseline. One drop of Me heptenon and C_{14} aldehyde give negative results without acetic acid and positive with one drop of acetic acid. Other tests on several fats and oils indicated a strong effect with acetic acid. Color reactions of 14 aldehydes in $C_2H_2Cl_4$ solvent with and without acetic acid are tabulated. 8,9 Dioxystearic acid gives a red violet color reaction. Acidity of the fat sample influences the sensitivity of the test when no acid is added. The method is not quantitative for spoilage.

PRACTICAL TESTS FOR FOOD FATS. J. Grossfeld. *Z. Untersuch. Lebensm. 76,* 340-50 (1938). Methods for detg. butyric acid no., total no., isooleic acid content and residue no. of fat mixtures for detg. the butter fat contents are presented. Tables give factors for calcg. or interpolating results. From the average figures for butyric acid no. (B) and residue no. (R) the following equations were developed: (1) Butter fat = 5.09B — 0.12R and (2) cocofat = 2.76R — 2.07B.

THE FLUORESCENCE TEST FOR THE DIFFERENTIATION OF OIL FROM PRESSED OLIVES AND REFINED OLIVE OIL. W. Ciusa. *Olii minerali, grassi, e saponi, colori e vernici 18,* 33-5 (1938). The objections raised against Wood's fluorescence test are not valid: blue fluorescence observed in some oils from pressed olives does not occur normally, but is due to secondary changes in the oil. If treated with 5% activated charcoal, oils from pressed olives lose their yellow color, and their blue-red fluorescence turns blue; while refined oils do not lose their color or do so only to an insignificant extent, and their fluorescence remains unchanged. An addn. of chlorophyll to refined oils (to veil fluorescence) is easily detected by treatment with activated charcoal: there is poor discoloration and an intense blue fluorescence. A brief characterization is given of the 7 classes of olive oils known in the market. (*Chem. Abs.*)

STUDIES ON THE CHEMISTRY OF THE FATTY ACIDS. IV. THE PURIFICATION OF LINOLENIC ACID BY FRACTIONAL CRYSTALLIZATION OF THE FATTY ACIDS OF LINSEED AND PERILLA OILS, WITH OBSERVATIONS ON THE PROPERTIES OF THIS ACID PREPARED BY CRYSTALLIZATION AND BY DEBROMINATION. G. Y. Shinowara and J. B. Brown. *J. Amer. Chem. Soc. 60,* 2734-38. Low temp. crystallization procedures for the isolation of linolenic acid have been applied to the fatty acids of linseed and perilla oils. By fractional crystallization of the fatty acids of these oils in acetone, 75% linolenic acid remained in the filtrate at —75°. Crystallization of the 75% acid from petroleum ether resulted in prepn. of 83.5 to 88% purity. The constants of the crystallization acids are compared with those of α-linolenic acid, prepd. by debromination. The possibility of the multiple nature of linolenic acid is discussed; also the application of the hexabromide no. as a method of estimating the amt. of linolenic acid present in fatty acid mixtures.

"DIELKOMETRISCHE" DETERMINATION ON OILS AND FATS. H. Heller and A. Clever. *Seifensieder-Ztg. 65,* 820-2, 839-41 (1938). The uses of dielectric constant measurements in the oil and fat industry are given. The dielectric constants of mixtures of soy bean oil and poppy seed oil, rosin acids in tall oil, soy bean-benzine mixtures, water in emulsions, water in rape seeds and linseed oils subjected to various heat treatments are either tabulated or plotted.

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Possible changes in varnish manufacture with the special aim of saving linseed oil. E. Asser. *Fette u. Seifen 45,* 582-91 (1938). Several substitutes for drying oils are discussed. Varnish prepd. from linseed oil treated as per Ger. pat. 609,300 is superior to ordinary linseed oil varnish. It is more waterproof, more efficient in filling pores, gives a better surface and has better stability against smoke gases and heat.

Composition of boiled oil. S. Chatterjee, A. Saha and M. Goswami. *J. Ind. Chem. Soc. 15,* 433-7 (1938). Boiled oil has been shown to have Diene value, indicating the presence of conjugated double bond. The development of the conjugated state has been connected with the presence of metals in the finely divided condition. The formation of isoöleic acid during the hydrogenation of oil has been ascribed to the presence of finely divided metals acting as catalysts through the first creation of conjugated state in the linolic acid residue and then to partial hydrogenation of the latter.

Stabilization of animal and vegetable fats and oils. P. L. Salzbert (E. I. du Pont de Nemours & Co.). U. S. 2,131,904. The antioxidant claimed is a polyhydric phenol of benzene having at least one OH group in at least one of the positions, ortho and para, to another OH group and an alkyl radical of 12 carbon atoms, said phenol consisting of C, H and O.

Process for recovering maize oil. E. J. Boroughs (to Commercial Solvents Corp.). U. S. 2,135,462. The invention relates to the recovery of maize oil in processes in which maize-contg. grain meal is subjected to a starch conversion treatment to convert the maize starch into water-sol. products without substantially adversely affecting the maize germ. The maize germs are separated and extd.

Extraction. Extractol Processes Ltd. Brit. 484,117. Mech. features of new continuous countercurrent method are presented.

Extracting cottonseed oil. J. P. Dickinson. U. S. 2,126,539. A continuous cottonseed cooking process comprises cooking a succession of batches of cottonseed meats in a stack cooker by introducing hot steam.

Synthetic tea-seed oil for use in foods. Geo. Barsky. (to Wecoline Proc. Inc.). U. S. 2,126,527. Tea-seed oil is converted into an edible product, by saponifying, separating the fat acids, distilling over about 59% of the acids and treating the distillate with 6 parts of glycerine to esterify the refined fat acids.

Method of making shortening. A. K. Epstein and B. R. Harris (to Procter and Gamble Co.). U. S. 2,132,406. Shortening is improved by adding glycerine, heating to product mono and/or diglycerides and heating to remove excess glycerine.

Shortening, method of making and cakes made therefrom. H. S. Coith, A. S. Richardson, & V. M. Votaw (to Procter & Gamble Co.). U. S. 2,132,393-4 and 2,132,700-1; B. R. Harris (to Procter & Gamble Co.) U. S. 2,132,416-7 & 2,132,687. Mono and diglycerides are added to shortening for cakes or to cake ingredients to improve the finished cake product.

Palm fat. F. Heinrich and E. Schuth (Hoesch A.-G.). Ger. 663,164 Cl. 23a 3. The process for refining the palm fat of tin plating baths comprises extn. with trichloroethylene, dissolving the fat acids of tin in benzine, splitting with acid and reesterifying the acids recovered with glycerine.

Hydrogenation catalyst. J. Francon, France. U. S. 2,132,613. Nickel carbonyl, $Ni(CO)_4$ is prepd., passed over metal grates and heated to 100° C. Under these conditions the tetracarbonyl of nickel is destroyed and the metal is deposited upon the grates.

Processes of separating nitrile-hydrocarbon mixtures. A. W. Ralston and W. O. Pool (to Armour & Co.). U. S. 2,133,007. Aqueous alcohol solns. are used in separating nitriles from aliphatic hydrocarbons.

Nitriles; hydrocarbons. Armour & Co. Brit. 484,353. The process of separating mixtures composed of aliphatic nitriles and hydrocarbons which comprises subjecting the mixture to the action of an absorbent comprising silica gel, activated carbon, alumina, fuller's earth or activated natural silicates and then recovering the absorbed nitriles from the absorbent.

Process for improving the drying properties of oils. T. S. Hodgins (Helmuth Reichhold). U. S. 2,133,894. The natural antioxidants of drying oils are destroyed by treating the oils with .5 to 1.5% of strong oxidizing agent. During the process the pH of the oil is maintained at about neutrality by addns. of alkali.