is of course very little room for rejection of material of questionable merit.

This Committee urges that all members of the Society assist in maintaining the standard of the Journal by reporting the results of their work and by asking their friends and acquaintances to do likewise. We are convinced that there is much good, unpublished work that needs only to be written down.

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ABSTRACTS

Oils and Fats

Edited by
M. M. PISKUR and RUTH LINDAHL

Physico-chemical investigation incidental to the study of chocolate fat bloom. Part I. W. Clayton, S. Back, R. I. Johnson, and J. F. Morse. *J. Soc. Chem. Ind.* **56,** 196-99T (1937).—A discussion of some properties of chocolate.

Modern oil deacidifying. Kurt Schneider. *Allgem. Oel- u. Fett-Ztg.* **34,** 252-5 (1937).—Two com. processes (Bamag-Meguin A.-G. and Wecker processes) for deacidifying fats and oils are described. (*Chem. Abs.*)

Contribution to the methods of identification and determination of traces of nickel in hydrogenated fats. Alfred Torricelli. *Mitt. Lebensm. Hyg.* **28,** 36-50 (1937).—The method recommended by T. consists essentially of the different shades of red produced when a drop of a soln. contg. small amts. of Ni is brought in contact with filter paper impregnated with a 1% alc. (95%) soln. of dimethylglyoxime. Instructions are given in detail for the prepn. of the paper. The fat under examn. is treated with HCl, filtered and washed well with hot H_2O and the Fe pptd. with pyridine; after centrifuging, the resulting liquor, which should be clear, is evapd. to dryness, ignited, taken up with a little HCl and brought to vol. By comparing the shade produced on the filter paper with those of known amts. of Ni, the amt. of the latter can be detd. (*Chem. Abs.*)

The binary systems of some fatty acids. M. Kulka and R. B. Sandin. *J. Amer. Chem. Soc.* **59,** 1347-1349 (1937).—The eutectic temperature for myristic and palmitic acids was found to be 45.2°, at a composition of 0.725 mole of myristic and 0.275 mole of palmitic acid. The eutectic temperature for capric and lauric acids was found to be 19.6°, at a composition of 0.725 mole of capric acid and 0.275 mole of lauric acid.

The field of the fats. XXXV. Diene syntheses in the field of the fats. 4. Iodimetric determination of the diene number. Diene numbers of various fats and their utilization. H. P. Kaufmann, J. Baltes, and H. Büter. *Ber.* **70B,** 903-11 (1937).—The alkalimetric detn. of diene nos. requires a sepn. of the water-insol. addn. product (I) with maleic anhydride (II) from the nonreacting fat components, and as the I forms an emulsion when pptd. from the acetone soln. with water it can be filtered off only after having been allowed to stand for some time. At the same time there is a possibility of reaction with atm. O. These disadvantages could be avoided if the excess of II (or the acid formed from it) could be detd., as soon as the reaction is completed, in the presence of the I and accompanying substances. It has been found that, in the absence of the lower fat acids, the excess of II can be detd. iodimetrically in aq. mediums. II in contact with water gives the free maleic acid which reacts with $KI\text{-}KIO_3$ according to the equation $3\,(:CHCO_2H)_2 + 5KI + KIO_3 = 3(:CHCO_2K)_2 + 3I_2 + 3H_2O$; if an excess of $Na_2S_2O_3$ is added the reaction is quant. Method is given. It has since been found that many other fats also have diene nos. while, on the other hand, there are some oils with diene nos. practically zero, as shown by the following list: Merck triolein 0, palm-kernel oil 0, cacoa butter 0, peanut oil 4.8-5.3, crude rapeseed oil 11.8-12.3, poppyseed oil 13.0-3.3, almond oil 8.0-8.4, cherry kernel oil, crude cottonseed oil 4.7-5.0, freshly extd. soja oil 9.9-10.3, crude soja oil 8.5-8.9, freshly extd. linseed oil 8.1-8.2, crude linseed oil 7.4-7.7, D. A. B. VI linseed oil 7.7-8.04, wood oil I 67.3-7.8, wood oil II 69.1-9.8. Hence fats which, as far as is known, contain no conjugated unsatd. acids have diene nos. Side reactions of II, such as esterifications, are excluded in the absence of water. It must be concluded, therefore, that fats which have diene nos. contain double bonds which can react with II. The free acids of fats which have diene nos. but contain no known acids with conjugated systems show no diene nos. when isolated from the fats; either the unsaponifiable portion is responsible for the diene nos. or in the sapon. process (which was effected in the cold) the diene fat acids are altered. This question is to be investigated further. Unsaponifiable isolated under the mildest possible conditions gave diene nos. of an order of magnitude which could not explain the diene nos. of the fats themselves. In the partial sapon. with cold alc. KOH of a linseed oil of diene no. 7.9, the diene no. of the half-sapond. product was only 1.3-1.7. It may be concluded, therefore, that many fats contain unsatd., very labile substances which are as yet unknown. (*Chem. Abs.*)

Dienometry and the diene numbers of fats. Remarks on the M. A. number of B. A. Ellis and R. A. Jones. H. P. Kaufmann. *Ber.* **70B,** 900-2 (1937).—The paper contains nothing new in principle, and using a new name (maleic anhydride, or M. A., no.) for what is essentially K.'s "diene no." will only lead to confusion. (*Chem. Abs.*)

Homology and isomerism in long-chain compounds. A thermochemical study of the n-Alkyl Esters derived from the monoethylenic monocarboxylic acids in C_{18}. L. J. P. Keffler. *J. Phys. Chem.* **41,** 715-21 (1937).—The heat of transformation of each of the oleates into the corresponding elaidate was

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shown to be very nearly constant for three out of the four members available for comparison; in the case of the fourth, the ethyl member, it changed sign.

An efficient fractionation equipment for the qualitative and quantitative examination of natural fats. H. E. Longenecker. *J. Soc. Chem. Ind.* **56**, 199-202T (1937).—The applicability of an electrically heated, packed fractionating column provided with total reflux and adjustable rate of distillation for the maximum separation of ester mixtures is indicated by several examples including beef tallow "solid" and butter fat "liquid" esters. The separation of adjacent members of the saturated ester series was more efficient than in the case of the unsaturated esters. The use of this column for the qualitative and quantitative determination of minor component acids in natural fats is suggested. Occurrence of small amounts of hexadecenoic and myristic acids in groundnut oil has been demonstrated. Closely agreeing composite analyses of groundnut oil obtained with both this column and one of a simpler type are interpreted as an indication of the general accuracy of ester fractionation procedure in the detailed analysis of natural fats.

Fat mixing for compounded fats. Th. Hinko. *Öle, Fette, Wachse, Seife, Kosmetik* **1937**, No. 6, 6-8. The m. p.'s of mixts. of high m. p. fats with oils are discussed from the standpoint of prepg. compounded fats with m. p. just below body temp. It is suggested that better information for prepg. compounded fats is obtainable from a cooling curve i. e., time plotted against temp., then from the plain m. p. A simple app. for obtaining cooling curves is described. (*Chem. Abs.*)

Vitamin B_1 and fatty livers. E. W. McHenry. *J. Physiol.* **89**, 287 (1937).—McHenry finds that the oral administration of vitamin B_1 to young rats maintained on a low choline diet causes an increase in liver fat. A similar effect is produced in experiments in controlled feeding in which the appetite stimulating effect of vitamin B_1 is avoided. Young rats on a low choline diet without vitamin B_1 exhibit increased liver fat until their stores of vitamin B_1 are presumably exhausted. Subsequently the liver fat diminished. It can be kept at a high level by the administration of vitamin B_1. The amt. of fat in the liver is increased by increasing the amt. of fat in the diet, provided the diet is low in choline, but the liver fat, at all the levels of fat intake investigated, is increased by the ingestion of vitamin B_1. This is also the case when a fat-free, high carbohydrate diet is employed.

Beneficial effect of non-saponifiable fraction of soy bean oil on chicks fed a simplified diet. Sidney H. Babcock, Jr., and Thomas H. Jukes. *Pro. Soc. Exptl. Biol. Med.* **36**, No. 5 (1937).—720-1.—The chicks on the supplemented diets appeared normal, but were definitely below normal weight. This observation of the protective effect of the non-saponifiable fraction of soy bean oil is in accord with the results of Goettsch and Pappenheimer. *J. Biol. Chem.* **114**, 673 (1936).

Do the fat acids of high melting point (above 50°) cause alimentary imbalance in the same titer as the fat acids which are liquid at the temperature of the organism? Raoul Lecoq. *Compt. rend.* **204**, 1001-3 (1937).—The fat acids m. 55-57° cause alimentary imbalance in pigeons in the same titer as those acids which are liquid at the body temp. The addn. of glycerol to these acids attenuates but does not suppress the imbalance. The K soaps have the same action as the acids. It is probable that the fat acids which are solid at the body temp. of the pigeon owe their action to the formation in the intestine of soaps which are rapidly assimilated. (*Chem. Abs.*)

Quantitative determination of oil in fish flesh. Maurice E. Stansby and James M. Lemon. *Ind. Eng. Chem. Anal. Ed.* **9**, 341-3 (1937).—Due to the susceptibility of fish oils to oxidation and polymerization, a rapid method for detg. oil content of fish flesh is necessary. The authors proposed: — 15 to 20 g. of ground fish flesh are extd. with acetone in a continuous extractor for 16 hrs. replacing acetone with fresh solvent every 2 hrs. The acetone and most of the H_2O are evapd. off on a steam bath, followed by 3 hrs. evapn. in vacuum desiccator contg. boiled H_2SO_4. The oil is removed and 35 cc. of ethyl ether are added. After thorough shaking the soln. is filtered into a weighed beaker and the residue washed with small portions of ether. The ether is removed by placing beaker in front of an electric fan and finally for 45 mins. in oven at 100-5°. After cooling, beaker and oil are weighed. The results obtained with several samples were in agreement with those obtained with the A. O. A. C. method and that described by Sebelin (*C. A.* 23, 4510^2). Data are presented to show that the widely quoted value of 7.1% for the oil content of mackerel (*Scomber scombrus*) is in error, a value of 12 to 15% being closer to the av. oil content of this species. (*Chem. Abs.*)

Linseeds and their treatment. H. *Allgem. Oel- u. Fett-Ztg.* **34**, 243-51 (1937).—Description of pressing and pretreatment necessary for linseeds is presented. (*Chem. Abs.*)

PATENTS

Grease manufacture. G. Kaufman. U. S. 2,084,974. A continuous process for manuf. of grease comprises mixing mineral oil and fatty oil, passing it through heated coils with air, discharging into a reaction chamber where it is further blown with air and then passing it through another coil with saponifying agent.

Composition for use in hydrogenating and method of preparing and utilizing same. H. B. Jespersen. U. S. 2,084,687. The composition comprises oil contg. about 5% anhydrous nickel formate.

Hydrogen production catalysts. J. K. Small (to Standard I. G. Co.). U. S. 2,084,511. A process for producing hydrogen comprising passing a normally gaseous hydrocarbon and steam at a reaction temp. over a catalyst contg. from 5 to 50% by wt. of Ni on from 20 to 75% by wt. of phosphates of Mg, the amt. of

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said phosphates being at least equal in wt. to the amt. of Ni.

Extracting oleaginous grains, etc. Ges. zur Verwertung Fauth'scher Patente m.b.H. Fr. 806,493. Dec. 17, 1936. App. is described for carrying out the grinding in the presence of the solvent for the fat or oil. (*Chem. Abs.*)

Shortening. L. C. Brown, D. P. Grettie and R. C. Newton. Brit. 458,582 (Addn. to 413,343). In the earlier patent mono- and/or di-glycerides are added to shortening to improve the capacity to mix with or cream in the other ingredients of a baker's mixt. The present invention deals with the use of mono- and/or di-glyceride of fat acids from hydrogenated sesame oil which in addn. prevents rancidity.

Condensation product of castor oil with half ester of maleic acid. H. A. Bruson. U. S. 2,081,266. The compn. consists of a condensation product of castor oil, an alcohol contg. only one hydroxyl group and a member of the group consisting of maleic acid and maleic anhydride.

Converting natural resins to lower and higher boiling oils. G. Doll. Ger. 646,637 Cl. 12o Gr. 1.01. Rosin is reacted with acetylene at 250 to 280° to give an oil product, 63% of which boils below 170° and 28% at higher temps.

Bodied tung oil and process of making the same. T. H. Geiger (to Tung Oil Products, Inc.). U. S. 2,084,137. A process of bodying tung oil comprises mixing tung oil with a volatile solvent, heating said mixt. to within a temp. range of from about 525° F. to 675° F. for a time sufficient to effect an appreciable thickening of said oil, while confining it to prevent evapn. of the solvent, and thereafter removing said solvent by distillation.

ABSTRACTS

Soaps

Edited by **M. L. SHEELY**

Soaps With the Addition of Solvents. H. Zilske. *Seif. Zeit.* **64,** 55 (1937).—Every addition to a soap solution acts upon its moistening, emulsifying and foaming capacities. The addition of ox-gall, ammonia solution, turpentine oil or benzene decreases the foaming power and increases the emulsifying power. Gall has been employed for a long time for the manufacture of gall-soaps (soaps for cleaning) because of its detersive properties. The ammonia solution as well as the turpentine oil also increase the power of dissolving fats. The manufacture of petroleum or benzene soaps, exclusively impasted in the cold is accompanied with difficulties owing to the volatility and insolubility of hydrocarbons. Instead of these, hydrogenized phenols or naphthalenes are used: hexaline (cyclohexanol), methylhexaline (methylcyclohexanol), tetraline (tetrahydronaphthaline), decaline (decahydronaphthaline). Their great solubility in aqueous soap solutions permits the obtaining of different sorts of soaps; hard and liquid soaps, also soaps for textiles and for the household, etc. Finally, they permit the preparation of cleaning products and of the new products designed as "Washing Extracts." The author mentions in the use of each soap, the manufacturing procedure and various formulae.

The Hydrolysis of Sodium Soaps in Aqueous Solution. Lustig and Schmirda. *Fette u. Seifen* **44,** 51 (1937).—During their investigation on the solubility of different fatty acids as well as that of stearic acid in the presence of varying quantities of sodium hydroxide and fatty acids, the authors have concluded that the hydrolysis of soaps is increasing with the high molecular weight of saturated fatty acids, but it is very slight in the presence of unsaturated fatty acids. The solubility of stearic acid is increased by the addition of saturated or unsaturated fatty acids with lower molecular weight. These statements are very important in the choice of fats for the manufacture of soap.

The "Descha System," a New Process for Base and Curd Soap. J. Schaal. *Fette u. Seifen* **44,** 55 (1937).—This system allows the preparation of a base soap, in 8-10 hours, which can be piled without drying. The saponification does not last more than one hour. After three washings (requiring 3-4 hours) the glycerol tenor is not more than 0.5%. After a short evaporation, the fatty acid tenor of the finished soap represents 68-70%. The author describes the necessary apparatus.

Coconut Oil Soap Prepared by Carbonate Saponification. *Allgem. Oel- u. Fett-Ztg.* **34,** 138-44 (1937). —Formulas and methods are given. (*Chem. Abs.*)

Permutite - Treated Water and Liquid Soaps. Welwart. *Seifensieder-Ztg.* **63,** 874-6 (1936).—Turbidity in soft or liquid soaps made by use of hard water softened by the permutite process is apt to be due to the Na salts in the water reacting with the K soaps to form relatively insol. Na soaps. (*Chem. Abs.*)

Recently Determined Causes for Turbidity of Liquid Potassium Soaps. Welwart. *Seifensieder-Ztg.* **63,** 1037-8 (1936); H. Janistyn. Ibid. **64,** 8 (1937). —A Turkey-red oil containing Na salts is apt to cause turbidity in liquid K soap preparations. Turkey-red oil is of virtually no value to prevent pptn. of Ca soaps and, when used in large amounts, has a bad effect on the cleaning and washing properties of K soaps. (*Chem. Abs.*)

Souring as a Laundry Operation. Foster D. Snell. *Ind. Eng. Chem.* **29,** 560-4 (1937).—In souring the