ABSTRACTS FROM OTHER JOURNALS

Production of mixed glycerides of higher and lower fatty acids (butter substitutes). W. Normann. G. P. 407-180, 25, 4, 20. Fats or oils consisting entirely or almost entirely of esters of highly fatty acids, and heated with lower fatty acids at atmospheric or increased pressure in the absence of water, and, if necessary in the absence of air. For example, a butter substance can be prepared by heating natural or hardened fats with butyric acid or with other lower or fatty acids present in butter. (Through J. S. C. I. 44, No. 14.)—L. A. C.

Catalytic actions at solid surfaces. XII. Particles of a catalyst which participate in chemical change. E. F. Armstrong and T. P. Hilditch (Proc. Roy. Soc. 1925. A-108-111-120).—The results of investigations on the toxic action of the mucilaginous and other impurities of whale oil upon nickel catalyst are in agreement with certain theoretical postulates of Taylor (cf. A., June) regarding the existence of nickel atoms which are held to the catalytic surface by but one constraint, thus introducing a concept of mechanism whereby both reactants of a hydrogenation process may be attached to one and the same nickel atom. Poisoning depends upon these active atoms becoming overlaid with a particle of toxic material and being thus rendered inaccessible to unsaturated compounds or to hydrogen. Evidence is put forward indicating that at the moment catalytic change occurs the active nickel atom is not merely held by a single constraint to the rest of the solid surface, but can actually be detached therefrom, becoming temporarily a gaseous nickel atom. (Through J. S. C. I. 44, No. 26.)—J. S. C.

Oxidation products of oleic acid. I. Conversion of oleic acid into dihydroxystearic acid and the determination of higher saturated acids in mixed acids from natural sources. A. Lapworth and E. N. Mattram (J. Chem. Soc., 1925, 127, 1628-1631). The nearly quantitive conversion of oleic acid into dihydroxystearic acid by alkaline permanganate may be used for the determination of the former in natural mixtures of fatty acids. 5 g. of the sample are dissolved in 500 cc. of hot water containing 5 g. of sodium hydroxide, cooled and diluted with 4 litres of ice water. To this, well agitated at 10°, 400 cc. of 1% permanganate are quickly added. After 5 min. the color in discharged sulphur dioxide, 150 cc. of concentrated hydrochloric acid are added, and the precipitated crude dihydroxystearic acid, and after being washed with 50 cc. of light petroleum (b.p. 70°-80°), is dried to constant weight in a vacuum desiccator. On extraction of this product with 100-150 cc. of warm light petroleum, nearly pure dihydroxystearic acid remains; it is washed several times with cold light petroleum, dried and weighed. It represents 96% of the pure oleic acid actually present in the sample. For the combined petroleum extracts and washings the higher-saturated fatty acids are recovered by evaporation, lower acids are removed by steam distillation, and the residue is extracted with light petroleum. The solution on evaporation and drying on the water-bath gives the higher saturated acids present in the original sample. A sample of olive oil was found to contain 72% of oleic acid, 12-13% of linoleic acid, 1.4% of unsaponified matter, and 14-15% of higher saturated acids. (Through J. S. C. I., 44, No. 38.)—C. H.

Nature of Soap in alcohol. W. A. Patrick, W. L. Hyden, and E. F. Milan (J Physical Chem., 1925, 29, 1004-1008). Sodium oleate is considerably disassociated in dilute alcoholic solution at the boiling point. (Through J. S. C. I. 44, No. 40.)—J. S. C.

Chemistry of Drying Oils. I G. W. Ellis (J. Soc. Chem. Ind., 1925, 44, 401-408r). From a survey of previous work it is shown that linoelic acid and linolenic acid may be present in linseed oil in the proportion, 2.02; I, corresponding to a glyceride containing the two acids in the proportion of 2:I. If such a compound absorbed oxygen in the proportion of 2 mols. to each unsaturated group present, its composition would be represented by the formula, $C_{57}H_{96}O_{20}$. Mulder's linoxyn was prepared and its composition confirmed. Impurities in the form of stearin and palmitin were isolated and the amount determined and an adjusted percentage composition was calculated, which is within experimental error of that corresponding to the formula given. Linoxyn is not dissolved by any single solvent without decomposition, but a mixture of 25 vols. of carbon tetrachloride with 15 vols. of alcohol appears to dissolve the unchanged linoxyn if a temperature of 37°-45° be maintained for some hours. Higher temperatures may cause decomposition. The conditions for the preparation of linoxyn by drying linseed oil in very thin films were investigated, and a method for its purification by repeated precipitation from solution is described. No more highly oxidized product than that corresponding to $C_{57}H_{98}O_{20}$ could be obtained by autoxidation, nor was there any evidence that linoxyn can be fractionated into different constituents. Although it is confirmed that oxygen is added in the proportion of 1 mol. to each unsaturated group the unsaturation is, to an indefinite extent, retained insofar as it is indicated by iodine absorption.

Determination of unsaponifiable matter. Particularly in marine animal oils and wool grease. M. Auerbach (Collegium, 1925, 374-376). The Spitz and Hoenig method (J., 1891, 1039) is not applicable to marine animal oils since the unsaponifiable matter (e. g., spermaceti) is appreciably soluble in 50% alcohol. Fahrion's method (c.f., J., 1920, 697A) is recommended. 3-4 g. of the oil or grease are boiled for 1 hr. with 10 cc. of N-2 alcoholic potassium hydroxide and evaporated to dryness. The soap is dissolved in 50 cc. of warm water, and after addition of 10 cc. of alcohol extracted first with 50 cc. and then with 25 cc. of petroleum spirit. The combined extracts are washed with 2 cc. of N/2 hydrochloric acid and 8 cc. of water, and then with 3 cc N/2 alcoholic potassium hydroxide and 7 cc. of water. The spirit layer is then filtered through a dry filter, the spirit evaporated off, and the unsaponifiable matter weighed. A sample of wool grease gave 25.3% of unsaponifiable matter by the Spitz and Hoenig method and 30.5-31.2% by Fahrion's method. Saponification of the wool grease at 2 atm. pressure and extraction by the Fahrion method gave 31.9% of unsaponifiable matter. (Through J. S. C. I. **44**, No. 44.)—D. W.

Velocity of saponification of various fats. C. Bergell and I. Lascaray (Seifensied.-Ztg., 1925, 51-191-194; Chem. Zentr., 1925, 96, II, IIII: cf, B., 1925, 179). Figures given in the literature vary, since this is a heterogeneous reaction, the course of which depends on the size of the surfaces of contact. The authors used, on account of greater stability, emulsions of 90 pts. of 50% soap solution and 10 pts. of fat. The velocity of saponification of various fats was found to be inversely proportional to the content of unsaturated glycerides. On the basis of the Harkins-Langmuir theory, this is due to the fact that unsaturated molecules, owing to their higher activity, require more room in the surface, and hence their number is smaller. The initially slow saponification by alkalis is accelerated autocatalytically as the soap forms. In accord with the view of Lascaray (B., 1924, 432) that the capillary activity of sodium soaps reaches a maximum in the myristate, fats are saponified by water more rapidly in a coconut-oil soap emulsion (rich in stearic acid). (Through J. S. C. I. 44, No. 46.)—B. F.

ANNOUNCES DATE FOR A. O. C. S. ANNUAL MEETING

J. J. Vollertsen, President of the American Oil Chemists' Society, announces that the annual meeting of the Society will be held at the Hotel Roosevelt, New Orleans, May 10 and 11. Immediately following this convention, the Interstate Cotton Seed Crushers' Association will meet, beginning May 12 and concluding May 14.

REFEREE CHEMISTS NOTE

The referee board of the American Oil Chemist's Society desires to certify all referee chemists for the year 1926-7, not later than June 1st. It is hoped to have the list complete by May 1st. Please co-operate with the board by writing to Secretary J. C. P. Helm, 705 Tchoupitoulas Street, New Orleans, La.