as well as the oil of unripe poppy seeds, varied considerably in consistency from ordinary seed oils.

I am indebted to Mr. Charles M. Caines for the analyses of many of the raw materials and finished products.

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Abstracts

Oils and Fats

Edited by
M. M. PISKUR and SARAH HICKS

CONTINUOUS PROCESS FOR SOLVENT EXTRACTION OF TUNG OIL. R. S. McKinney, W. G. Rose, and A. B. Kennedy. *Ind. Eng. Chem. 36,* 138-44 (1944). The best prepn. of tung kernels and seeds for extraction by a continuous process was obtained by reducing them to a medium fine meal between corrugated rolls and passing this material between smooth rolls. Commercial tung press cake needs no special prepn. Successful solvent extractions of ground tung kernels and seeds, commercial tung press cake, and experimentally prepared tung press cake contg. 20% oil. were made in the Kennedy continuous countercurrent extractor using n-hexane as the solvent. In this process the oil-contg. material was moved slowly through a number of semicircular sections of the extractor by perforated blades of paddle wheels in each section, in a direction opposite to the travel of the solvent. Extraction efficiencies of 99% or better were obtained.

HYDROGENATED FATS. H. R. Mitchell. *Food Manuf. 18,* 360-73 (1943).

POLYHYDRIC ALCOHOL ESTERS OF FATTY ACIDS. Their preparation, properties, and uses. H. A. Goldsmith. *Chem. Revs. 33,* 257-349 (1943). The methods of prepn., the physical and chemical data, and the industrial applications of the higher fatty acid esters of polyhydric alcohols and of polyhydroxy ethers are reviewed. Triglycerides are not included.

DETERMINATION OF AIR IN BUTTER. W. Mohr and Elfriede Eysank. *Fette u. Seifen 50,* 143-8 (1943). A new rapid method for the detn. of air in butter is described. The amt. of air, escaping from the butterfat when the latter is heated in an evapg. dish half filled with glycerol, is collected in an inverted funnel with graduated stem closed by a rubber stopper and resting on a wire cross over the dish, and can be read off directly in c.c. *(Chem. Abs.)*

OBSERVATIONS ON FISHINESS IN BUTTER. R. V. Hussong and S. Quam. *J. Dairy Sci. 27,* 45-51 (1944). Fishy butter from different plants commonly had lower pH values than non-fishy butter from the same plants at about the same periods. In various instances in which fishy butter had a relatively high pH value, it contained comparatively large amounts of copper. Proper control of the pH of butter requires recognition of any unusual condition which develops. Certain sources of copper are very obvious but others, such as exposed copper in cheese plants supplying cream for butter manufr. are much less obvious. When fishy butter was separated into fat and serum, the fishy flavor was conspicuous in the fat but there was little or no fishiness in the serum.

THE KINETICS OF THE ANTIOXYGENIC SYNERGISM OF QUINONES WITH ASCORBIC ACID IN FAT SYSTEMS. V. P. Calkins and H. A. Mattill. *J. Am. Chem. Soc. 66,* 239-42 (1944). The absolute reaction rate of oxidation of ascorbic acid in ethyl esters of lard fatty acids has been measured in the presence and absence of quinone. The synergism of quinone with ascorbic acid in the stabilization of these esters has been shown to be due to the catalytic action of quinone. Quinone acts as a catalyst by being reduced to a semiquinone, which latter regenerates quinone by being oxidized by the activated peroxide radicals; this reduction of the peroxide radical prevents the accumulation of peroxides and thus protects the substrate. Quinone serves as an intermediary agent in the ascorbic acid-ester system by lowering the free energy of formation of the activated complex to such an extent that it doubles the number of particles of ascorbic acid possessing sufficient energy of reaction. The results follow closely the views of Michaelis on compulsory univalent oxidation, and on the basis of these data a mechanism for the synergistic action of quinone with ascorbic acid is proposed.

VITAMIN A IN SHARK-LIVER OILS. SHALLOW-WATER SHARKS AND RAYS OF THE FLORIDA REGION. S. Springer and P. M. French. *Ind. Eng. Chem. 36,* 190-1 (1944). The potencies of liver oil samples from sharks and rays of the Florida region vary from 35 to 340,000 U.S.P. units of vitamin A per gm. and individual sharks of the same species may provide oil in a wide range of potency.

PATENTS

METHOD OF TREATING FISH LIVERS TO REMOVE THE OIL THEREFROM. L. O. Buxton and S. T. Lipsius (National Oil Products Co.). *U. S. 2,325,367.* In a process for treating fish livers comprises the steps of admixing comminuted fish livers with an oil adsorbent vegetable material, adding thereto an amt. of an alkali not to exceed 5% (dry wt.) based on the wt. of the livers, digesting the mass by means of heat, and then removing the vitamins and vitamin-bearing oils contained therein by extg. with a suitable solvent for vitaminiferous materials.

SALAD DRESSING. B. F. Buchanan and R. C. Drury (American Maize-Products Co.). *U. S. 2,338,083.*

EDIBLE OIL AND FAT. Sol Shappirio. *U. S. 2,338,207.* The method includes incorporating edible cottonseed oil with non-pathogenic bacteria, warming the mixt. and maintaining the said substances in contact until antioxygenic substances are transferred from the bacteria to the oil and separating the bacterial residues from the treated oil.

SYNTHETIC DRYING OIL COMPOSITION AND METHOD OF PRODUCING THE SAME. C. C. Allen and V. E. Haury (Shell Development Co.). *U. S. 2,317,663.* The mixt. comprises a natural drying oil dissolved in an unsatd. ketone condensation product of acetone having at least 12 carbon atoms per mol.

POLYESTER RESINS FROM PHTHALIC ANHYDRIDE PENTAERYTHRITOL AND SOYA BEAN OIL. A. G. Hovey,

T. S. Hodgins, and C. J. Meeske (Reichhold Chemicals, Inc.). *U. S. 2,315,708.* The resin is made from soybean oil, pentaerythritol and phthalic anhydride.

DICHLORETHYL ETHER EXTRACTION PROCESS. J. Robinson and H. Lowery (Standard Oil Company). *U. S. 2,338,384.* The method of preventing emulsification difficulties and increasing the effective capacity of a Chlorex extn. system comprises introducing into the Chlorex a small amt. of a green acid soap, employing approx. 1 gallon of the green acid soap per 10,000 gallons of Chlorex and withdrawing a green acid soap soln. from the system as a separate phase.

Abstracts

Soaps

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THE CHEMISTRY OF GLYCERIN MANUFACTURE. 3. GLYCERIN LYE EVAPORATION. J. L. Boyle. *Mfg. Chemist 14*, 313-5, 326 (1943).

SURFACE ACTIVE AGENTS. Earl K. Fischer. *Soap 20*, No. 1, 28-30, 67-8 (1944). Empirical testing procedures for the evaluation of surface-active agents have the advantage of direct application to process control. Standard tests should be accepted when possible. The Draves-Clarkson and Canvas Disc Methods are convenient for wetting of textiles. For spreading of solutions over water-repellent surface, a simple drop test on paraffin-impregnated filter paper or on oil-covered glass gives a qualitative evaluation. Emulsifying agents can be rated for ease of emulsification and for stability of the product. Centrifuging test emulsions under standard conditions provides a comparison of stability in hours instead of months. Detergency is usually tested by standard laundering methods. Dispersion of powdered solids in liquids can be rated on the basis of settling tests in graduated cylinders where the solid content is low, or by rheological measurements where the solid contents are higher, resulting in a pasty consistency. Data obtained from empirical test procedures in one laboratory are often not comparable with data obtained in other laboratories. Fundamental physical data, on the other hand, are comparable, and it is urged that whenever possible the empirical test be calibrated with additional measurements. For comparative studies of surface-active agents, the determination of surface and interfacial tension values are the most important.

FAT SAVERS IN THE DETERGENT INDUSTRY. A. Foulon. *Seifenseider-Ztg. 69*, 23 (1942). The use of water glass in detergents is recommended in these times of fat scarcity because of its cleansing, emulsifying and thus dirt-binding effect. Another advantageous characteristic is its non-corrosive nature in solns. of not over 6-10 g./l. in Al boilers, etc., in contrast to soda and Na_3PO_4. *(Chem. Abs.)*

LINSEED-OIL SOAP—A NEW LURE FOR THE MELON FLY. M. McPhail. *J. Econ. Entomol. 36*, 426-9 (1943). Linseed-oil soap proved strongly attractive to *Dacus cucurbitae*; cottonseed-oil soap and corn-oil soap also possessed strong attractive properties. The attractive component of linseed-oil soap is probably a fat acid. Field trials to protect melons from fly attack were unsuccessful, owing to prompt reinfestation. *(Chem. Abs.)*

THE ANTIBACTERIAL ACTION OF SURFACE ACTIVE CATIONS. E. I. Valko and A. S. DuBois. *J. Bact. 47*, 15-25 (1944). The "killing" action of surface-active cations on bacteria can be reversed, under certain conditions, by detoxication with a high molecular anion. The antibacterial behaviour of surface-active cations is in agreement with that of toxic metallic ions and dye cations. They can be considered as a phenomenon of ionic exchange by bacteria. Observations are presented that demonstrate the protective action on bacteria of relatively harmless cations against toxic cations. This can likewise be considered as a case of ionic exchange.

ANALYSIS OF PETROLEUM OIL-SOLUBLE SODIUM SULFONATES BY ADSORPTION. J. M. Koch. *Ind. Eng. Chem. Anal. Ed. 16*, 25-8 (1944). The chief advantages of the adsorption procedure are freedom from emulsion difficulties, rapid convenient physical operations, and sharp separations of oil and sodium sulfonate components.

FORMATION OF INVISIBLE, NON-PERCEPTIBLE FILM ON HANDS BY CATIONIC SOAPS. B. F. Miller, R. Abrams, D. A. Huber, and M. Klein. *Proc. Soc. Exptl. Biol. Med. 54*, 174-6 (1943). Certain cationic soaps deposit an invisible, non-perceptible film on the hands. This film retains bacteria underneath it, and is very resistant to mech. trauma. The inner surface of the film has a low bactericidal power whereas the outer surface exerts a strong germicidal action.

SOLUBILIZATION AND THE COLLOIDAL MICELLES IN SOAP SOLUTION. J. W. McBain and K. E. Johnson. *J. Am. Chem. Soc. 66*, 9-13 (1944). The solubilization of water insol. dye by 4 K soaps has been measured for equilibrium conditions over a range of concns. The solubilization increases so rapidly with the higher soaps as to cast doubt upon the suggestion that it is soln. in the hydrocarbon fraction of the molecule, but rather to favor its incorporation between the layers of lamellar micelles. KCl not only greatly increases the solubilizing power of fully formed micelles, but it produces in dil. soln. micelles of still higher solubilizing power.

PATENTS

SOLID ROSIN SOAPS. Fritz Arledter. *Ger. 729,115.* Molten rosin is treated in an autoclave with steam and CO_2 and then saponified, in the same operation with NH_3. The latter is taken in an amount insufficient to bring about complete saponification. This soap is especially suitable for paper. *(Chem. Abs.)*

SOAPS CONTAINING NONE OR ONLY VERY LITTLE FILLER. Ernst Trommsdorff (Rohm & Hass). *Ger. 729,200.* Such soaps contain water-sol. polymers of acrylates and methacrylates. *(Chem. Abs.)*

FAT ACIDS AND GLYCEROL FROM SAPONIFIABLE OILS AND FATS. Otto Bruche (Metallgesellschaft). *Ger. 728,638.* The oils or fats are autoclaved with water under pressure. The mixt. is decompressed, thus evapg. part of the H_2O and the rest remaining in the fat acid-glycerol-H_2O mixt. is driven off in vacuo. The fat acids and crude glycerol are dist. off together and the two sepd. in the distillate by sedimentation. *(Chem. Abs.)*

CONTINUOUS MANUFACTURE OF SOAP. A. T. Scott (The Sharples Corporation). *U. S. 2,336,893.*