Abstracts

Oils and Fats

Edited by
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SURVEY OF THE CHEMISTRY OF DRYING OILS. T. F. Bradley. *Paint Technology 6,* 85-8, 100 (1941).

BUNA, GERMAN SYNTHETIC RUBBER AND ITS APPLICATION IN FAT PRODUCTION AND FAT PROCESSING INDUSTRIES. P. Stocklin. *Fette u. Seifen 48,* 205-11 (1941). The physical and chemical properties of Buna are given. Among the tests there is included the effect of heat together with butter and olive oils, stability of the materials against many hydrocarbon, fats, oils, aromatic compds. esters, ketones, aldehydes, alcohols, aliphatic acids, CS_2 and ethyl ether.

FOOD FAT ECONOMY. A VIEW OF THE ORGANIZATION AND MARKET REGULATIONS. W. Modest. *Fette u. Seifen. 48,* 267-7 (1941). The control and ration of fat during the last few years is discussed.

OUR FAT CONSUMPTION—A WISH OR A NECESSITY. K. Thomas. *Fette u. Seifen 48,* 275-8 (1941).

INFLUENCE OF FAT CONTAINING MATERIAL ON THE VALUE OF OUR DOMESTIC ANIMALS. H. Schmalfuss. *Fette u. Seifen 48,* 278-83 (1941). The publications on the need of fat in the diet and the substitution of milk fat in calf feeds are reviewed.

RESEARCH STATION FOR THE OIL AND FAT INDUSTRY MILAN. S. Fachini. *Fette u. Seifen 48,* 272-4 (1941).

RESEARCH STATION FOR HEMP AND VEGETABLE OILS AT SZEGED, HUNGARY. A. Laczko. *Fette u. Seifen 48,* 274-5 (1941).

FIGHTING THE BUTTER DEFECT "FLAMINESS." F. Munin. *Fette u. Seifen 48,* 221-3 (1941). A review of the subject.

CONSISTENCY IMPROVING IN BUTTER. F. Munin. *Fette u. Seifen 48,* 223-6 (1941).

ABSORPTION SPECTRA OF FATS AND OILS IN THE ULTRAVIOLET. M. Pestemer. *Fette u. Seifen 48,* 178-84 (1941). The curves include those of trimethyl, ethylene, heptene, allyl alc., acetone, acetic acid, ethyl acetate, stearic acid, eladic acid, St oleate, 3, 5-octa dienoic acid, 9, 11-linoleic acid, *a*-, and *β*-eleaostearic acid, cholesterol, ergosterol vitamin A, and D_2, *a*-carotin and digitonin. Information on many other compds. is also presented.

MIXING AND EMULSIFICATION. E. Belani. *Fette u. Seifen 48,* 230-1 (1941).

PRESENT STAND OF PHOSPHATIDE RESEARCH. W. Halder, K. Schilde and H. Duftschmid. *Fette u. Seifen 48,* 302-5 (1941). PHOSPHATIDES IN PLANT STORAGE ORGANS AND THEIR INFLUENCE ON THE NUTRITION OF THE PLANT. K. Schmalfuss. *Fette u. Seifen 48,* 306-7 (1941).

KNOWLEDGE OF SOYBEAN LIPASE. G. Yorbach. *Fette u. Seifen 48,* 308-12 (1941).

CASES OF ALLEGED LACK OF LIPASE IN OIL-CONTAINING SEEDS. Ernst Schreiber. *Ber. deut. botan. Ges. 58,* 250-5 (1940); cf. C.A. 25, 3030. The presence of lipase in seeds of *Cannabis* and *Cucurbita* was detected by 3 different methods and detd. by titrating with alc. KOH, the fat acid set free from an olive oil substrate. The presence of lipase in hemp and pumpkin seeds as reported by Jono and others is probably due to errors based on the solvent used or other method defects. (*Chem. Abs.*)

FAT PRODUCTION BY MICROBIOLOGICAL METHODS. R. Ciferri and P. S. Garoglio. *Chimica e industria (Italy) 17,* 146-7 (1941). A review, particularly on the studies made in Italy with the cultures of several species of *Penicillium* and *Mucor,* which gave yields of 15.45 to 25.4% of fats (calcd. on the dry wt. of the mycelia. (*Chem. Abs.*)

REACTION MECHANISM OF THE ACID HYDROLYSIS OF FATTY OILS. Tzeng-Jiueq Suen and Tsun-Pu Chien. *Ind. Eng. Chem. 33,* 1043 (1941). Fatty oils were hydrolyzed by the sulfuric acid method, and the reaction course was followed by detg. the acid number of the samples at various time intervals. By plotting the logarithm of the difference of saponification number and acid number, of the oils hydrolyzed, against time, straight lines were obtained. Since this is practically the same as plotting the logarithm of the concn. of unhydrolyzed oil in the oil phase against time, the reaction appears to be first order. Hydrolysis with different oil-water ratios yielded the same results. By assuming that the reaction takes place in the oil phase, all the data can be satisfactorily interpreted. Some of Lewkowitsch's data on hydrolysis of oils with hydrochloric acid as the catalyst can be interpreted in the same way.

THE BELLIER NUMBER AND ITS APPLICATION FOR ANALYTIC PROBLEMS. J. A. Broge. *Fette u. Seifen 48,* 333-6 (1941). The standard method is presented. The procedure can be used to identify peanut oil and to detect adulteration with peanut oil.

THE DECOMPOSITION OF SATURATED FAT ACID TRIGLYCERIDES TO METHYL KETONES BY PENICILLIUM GLAUCUM. A. Thaler and W. Eisenlohr. *Fette u. Seifen 48,* 316-21 (1941). Ketone formation from trilaurin was as well in acid soln. as in neutral but weak in alkaline soln. Tricaproin acts similarly. The effect of pH is plotted. Ketone formation was greater from the triglycerides then from the free fat acids.

OXIDATION COURSE OF FATS. E. Glimm and E. Seeger. *Fette u. Seifen 48,* 322-6 (1941). The work was for the purpose of obtaining higher yields of polymerized products. Radiation with red-yellow light reacted similar to daylight. The necessity of light was affirmed. The information on the course of the reaction include peroxide, acid, I, and SCN values.

CEREAL ANTIOXIDANT PREVENTS TALLOWINESS IN BUTTER. W. J. Corbett and P. H. Tracy and C. N. Hansen. *Food Ind., 13,* #8, 34-36, 74 (1941). It is used in 3 ways—in cream, in salt and on wrapper. When the conc. was added to sweet (No. 1) cream in the propn. of 0.15 to 0.3% of the fat content of the cream, the development of oxidation flavors in susceptible butter was retarded. When it was added to sour (No. 2) cream in the propn. of 0.1 to 0.3% of the fat content of the cream, the score of the resulting butter was improved as much as one point and the butter usually had less of an "old cream" flavor.

THE KEEPING OF OILS IN LONG STORAGE AT VARIOUS TEMPERATURES. Fr. Kiermeier. *Fette u. Seifen 48,* 326-32 (1941). Considerable data are presented on acidity and on development of aldehydes and peroxides in various oils at temps. 35, 18.5, 0°, —65, —16.5 and —24° C.

INFLUENCE BETWEEN MELTING POINT AND ORGANOLEPTIC SALT IMPRESSION (FLAVOR) IN MARGARIN. L. Erlandson. *Fette u. Seifen 48,* 313-5 (1941). It has been known that margarin tastes saltier in summer than in winter. The melting time at 40° in seconds for

fats with melting points between 22° and 33° are tabulated and plotted. They vary between 260 and 1160. Effect of salt on the melting time is also given. It was pointed out that the salt taste, depends on the melting time of the margarine while on the tongue.

DILATOMETRIC INVESTIGATION OF SOME EDIBLE FATS. Kai Hofgaard. *Ingenioren 48,* K 1-5 (1939). While valuable information is to be obtained by this means, nevertheless the form of the vol.-temp. diagram may depend to a marked degree on the exptl. procedure and often a diagram corresponding to a condition of thermodynamic equil. can be obtained only with difficulty or not at all. The polymorphism of the triglycerides is reviewed. Deviations from equil. on the part of the fats during dilatometric measurements can often be recognized in isothermal vol. changes. Moreover, a condition similar to the condition of glass may occur in fats; stratified crystals may also form. In general the vol. of solid triglyceride mixts. can be calcd. by the law of mixts. from the vol. of the constituents in the solid state and the compn. of the mixt. The relations existing between vol. sapon. no. and acid no. can be expressed by formulas and the amt. of the solid phase can be calcd. approx. The vol.-temp. diagrams and the dilatometric characteristic values for the different animal, vegetable and hardened fats are examd. individually. On the basis of the exptl. results an attempt is made to offer a basis for the detn. of the amt. of solid phase and the consistency of the fat. (*Chem. Abs.*)

MOLECULAR DISTILLATION OF POLYMERIZED DRYING OILS. Richard S. Morse. *Ind. Eng. Chem. 33,* 1039-43 (1941). A series of fractions was distilled from a commercially processed and polymerized fish oil. By removal of approximately 10% of the low-molecular-weight constituents, a residue can be obtained which has greatly improved film-forming characteristics. Further improvements in drying time and film hardness may be obtained by rebodying polymerized oils from which low-molecular-weight materials have been removed by distn. The removal of distillate from polymerized oiticica, castor, and walnut oils gave residues which had drying times considerably less than those of the original polymerized oils.

PROMOTING THE OXIDATION OF FATS AND OILS. George R. Greenbank and G. E. Holm. *Ind. Eng. Chem. 33,* 1058-60 (1941). The results indicate that the effectiveness increases with a decrease in the wave lengths employed; the energy of the blue end of the spectrum was most effective in promoting oxidation. Light absorption that the amt. of light absorbed in the yellow, orange, data upon samples of oils of the types used indicate and red regions (5400-7500 A.°) of the spectrum is practically constant for each oil, and exceeds 5% only for lard. Irradiation with light in these regions produced relatively small amts. of peroxides. With light of wave lengths shorter than 5400 A°, the light absorption and the amt. of peroxides formed increased progressively with decrease in the wave length. The magnitude of these increases varied with the type of oil used.

THE ABSORPTION AND RETENTION OF CAROTENE AND VITAMIN A BY HENS ON NORMAL AND LOW FAT RATIONS. Walter C. Russell, M. Wight Taylor, H. A. Walker, and L. J. Polskin. *J. Biol. Chem. 140* (Proc. 35) cix (1941). In contrast with carotene, the hen absorbs vitamin A as efficiently on the low fat ration as on the normal. With increasing levels of feeding the percentage recovered in the droppings was practically constant and characteristic of the individual hen.

NUTRITIVE PROPERTIES OF FATS. A. A. Pchelin and E. I. Ginzburg. *Tsentral. Nauch-Issledovatel. Inst. Kozhevennoi Prom., Sbornik Rabot No. 10,* 238-44 (1938) *Chimie & industire 43,* 939 (1940).—Emulsified foods formed of 2 constituents, a neutral fat and an emulsifying agent consisting of sapond. and sulfonated fats, possess better nutritive properties than the emulsifying agents alone. On the other hand, the nutritive properties of different fats and their mixts. vary within wide limits, the variations depending chiefly on the compn. and properties of the fat, the pH of the emulsion and the quant. relationships between the constituents of the mixt. (*Chem. Abs.*)

PATENTS

PROCESS FOR PREPARING FOOD FROM OLEAGINOUS, PROTEIN-BASE, ORGANIC MATERIAL. H. Rosenthal. *U. S. 2,247,851.* A system for using low boiling hydrocarbons, butane, propane, etc., for the extn. of fats and oils is described. It is especially recommended for manufacture of lard oil, lard and an edible protein from cracklings.

REFINING OF FATTY OILS. A. U. Ayres (The Sharples Corp.). *U. S. 2,247,430.* In an alkali refining process the oil is alkali treated, part of the foots is removed, water is added and the water and remaining foots are centrifugally separated.

METHOD FOR BLEACHING OILS, FATS AND WAXES. Anna Noder (Buffalo Electro-Chemical Co., Inc.). *U. S. 2,250,203.* The method of bleaching a material of the group consisting of oils, fats and waxes which comprises subjecting the material to indirect heating to raise the temp. thereof to 50° C. to 100° C. and thereafter slowly adding to the material with agitation an amt. of a perpyrophosphate sufficient to bleach the material and continuing the agitation and maintaining the temp. within the stated range until the bleaching is effected.

APPARATUS FOR REFINING OILS. George Frederick Wheelwright, Jr. (De Laval Separator Company). *U. S. 2,249,263.* A continuous system is described.

REFINING OF VEGETABLE OILS. B. Clayton (Refining, Inc.). *U. S. 2,249,700-2.* In the refining process the charge is subject to dehydration by heat and rehydrated before sepn. of foots or the foots is sepd. by centrifuges without rehydrating.

PROCESS OF REFINING AND FRACTIONATION OF TALL OIL. A. W. Hixson and R. Miller (The Chemical Foundation, Inc.). *U. S. 2,247,496.* The process of refining and fractionating tall oil comprising the steps of dissolving tall oil in a mixture of liquefied, normally gaseous hydrocarbons; separating any insoluble material from the hydrocarbon solution; warming the clear hydrocarbon soln. under pressure until substantially all the rosin acids have separated from the hydrocarbon soln.; separating the rosin phase from the hydrocarbon phase, and distilling the hydrocarbon soln. to recover the fatty acids is described.

PURIFICATION OF VITAMIN A ESTERS. Kenneth C. D. Hickman (Distillation Products, Inc.). *U. S. 2,249,525.*

VACUUM DISTILLATION. Kenneth C. D. Hickman (Distillation Products, Inc.). *U. S. 2,249,526.*

PROCESS FOR IMPROVING OILS. Kenneth C. D. Hickman and John C. Hecker (Distillation Products, Inc.). *U. S. 2,249,524.* Vitamin medicinal oils are improved in flavor by distg. off undesirable taste and odor producing material in a short path vacuum still.