

would have been obtained in some instances if another recipe, method of mixing, or method of incorporating the addition agent had been adopted. Nevertheless, the results of this work show that the inclusion of a glyceryl monostearate addition agent in the shortening definitely improved the volume of plain cakes made by a conventional formula.

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Abstracts

Oils and Fats

Edited by

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APPARATUS FOR EXTRACTION OF LIPOIDS FROM WET TISSUES. Frederic E. Holmes. *Ind. & Eng. Chem. Anal. Ed.* 13, 918-22 (1941).

OIL PRODUCTS FOR THE TEXTILE TRADES. A. H. Preston. *Manuf. Chemist* 12, 233-4 (1941). The article constitutes a brief review of the possible oil products, including synthetic substitutes.

CETYL AND STEARYL ALCOHOLS AS EMULSIFYING AGENTS. *Manuf. Chemist* 12, 243-4 (1941). Uses in cosmetics were fostered.

NEW TINNING OILS. W. E. Hoare. *Tin and Its Uses No. 11*, 6 (1941). Tallow is not particularly efficient for this task, possibly due to a low capacity to absorb lead oxide and possibly also to decreased activity at the lower working temperatures used for solder baths. "Tinning" with lead-tin alloys is usually carried out in a single pot with a flux cover. If, however, the finish called for requires that acid flux residues shall be absent, an oil-covered second bath would be a valuable refinement. These oils can also be used in the same way as palm oil as "draining" media.

BREEDING AND FEEDING INVESTIGATIONS WITH SMALL ANIMALS. U. S. Dept. Agr. B.A.I. Rept. 1941, 12-3. In cooperation with the Meat Inspection Div., a study of the relative nutritive properties of butterfat, oleo stock, mutton tallow, soybean oil, corn oil, linseed oil, coconut oil, and cocoa butter was made by means of growth and digestion expts. with young male albino rats. Growth expts. with diets contg. 5% of fat indicate that soybean oil and corn oil were superior to the other fats. Linseed oil was not tested at this level of intake. When the diets contained 15% of fat, the butterfat, soybean oil, corn oil and linseed oil were superior in growth promoting properties to the other fats. Results of 7-day digestion tests with each fat at each level of intake show rather wide differences between the digestion coefficients of certain fats. When the diets contained 5% of fat, the soybean oil, corn oil and coconut oil had digestion coeffs. of 98 to 99%, butterfat 88, oleo stock 74, mutton tallow, 74 and coco butter 63. When they contained 15% of fat, the soybean oil, coconut oil and linseed oil had digestion coeffs. of 97-99%, butterfat 91, oleo stock 87, mutton tallow 85 and cocoa butter 82. The higher digestibility of several of the fats at the higher level of intake is noteworthy.

THE EFFECT OF HYDROGENATION ON THE NUTRITIVE VALUE OF THE FATTY ACID FRACTIONS OF BUTTER FAT AND OF CERTAIN VEGETABLE OILS. R. K. Boutwell *et al. J. Dairy Sci.* 24, 1027-34 (1941). The superior

growth-promoting property of butter fat as compared to certain vegetable oils is probably due to a satd. compd.; apparently a long chain satd. fatty acid (acids) present in small amts. in butter fat is responsible for these properties of butter fat. The unsatd. fraction of butter fat is relatively rich in an unsatd. form of this compd. which by hydrogenation may readily be converted to the active compd. Certain vegetable oils as corn oil, coconut oil, cottonseed oil and soybean oil apparently do not contain the unsatd. form of this compd. Hydrogenation of these vegetable oils did not improve their nutritive value when incorporated into skimmed milk.

RATE OF DISAPPEARANCE OF SUBCUTANEOUS VEGETABLE OIL IN NORMAL AND CASTRATE MICE. J. C. Turner and Barbara Mulliken. *Proc. Soc. Exptl. Biol. & Med.* 48, 598-601 (1941). Vegetable oil administered parenterally to mice is not physiol. inert but disappears rather rapidly from the site of injection. The rate of disappearance of oil appears to vary to some extent in different breeds of mice. The rate of disappearance of oil in both of 2 different strains of mice appears to be higher in normal young adult males than in normal females of the same age. In a small series of mice, castration before puberty abolished this sex differential.

INCREASE IN BLOOD LIPIDS OF FASTED MICE. P. L. MacLachlan. *Proc. Soc. Exptl. Biol. & Med.* 48, 411-2 (1941). On fasting, 3-mo.-old male, albino mice show increased blood phospholipid and total lipid values.

THE RELATION OF FASTING KETOSIS IN THE RAT TO THE PRECEDING DIET AND THE LIVER FAT. Eaton M. MacKay *et al. J. Biol. Chem.* 141, 889-96 (1941). Neither the liver fat content *per se* nor any of the agents such as choline methionine, or cystine which are known to influence the amt. of fat in the liver has a significant effect upon the degree of fasting ketosis in the rat. The rapidity of onset and the degree of ketosis reached during fasting bears an inverse relation to the protein content of the preceding diet. This fasting ketosis is apparently related to the protein intake preceding the fasting period because the latter determines the amt. of ("stored") protein available for catabolism during fasting. This serves as a source of antiketogenic material and fasting rats, previously on a high protein intake, better maintain their liver glycogen and blood sugar levels as well as have a lower level of blood ketone bodies.

THE TRANSPORTATION OF ABSORBED LIPIDS. J. Maxwell Little and C. S. Robinson. *Am. J. Physiol.* 134,

773-88 (1941). In three dogs the percentage of absorbed lipids which was transported by the left thoracic duct lymph during and immediately after absorption of lipids varied from 4 to 17 per cent. The rate of transport of total lipids, neutral fat and phosphatides increased during absorption. There is a greater increase in the proportion of cholesterol in the free state in the general circulation during the absorption of lipids than during the absorption of non-lipids. There is a definite increase in the neutral fat concentration in the general circulation during the absorption of lipids and little change during the absorption of non-lipid material. There is little change in the concentration of phosphatide in the general circulation during the absorption of lipids, but there is a marked decrease during the absorption of non-lipids. These results are evidence that neutral fat and phosphatide enter the general circulation during lipid absorption, probably by way of lymphatic-venous communications.

PATENTS

APPARATUS FOR EXTRACTION. Arthur A. Levine *et al.* (E. I. du Pont de Nemours & Co.). *U. S. 2,264,390*. The continuous app. for oil extn. contains a counter current extractor, followed by a steaming stage and a drying stage for the extd. meats.

EXTRACTION OF VITAMINS FROM VITAMIN-BEARING OILS. Harden F. Taylor *et al.* (The Atlantic Coast Fisheries Co.). *U. S. 2,266,830*. The process comprises sapon. and extg. the unsapon. with methyl chloride.

PROCESS FOR PURIFYING AND DECOLORIZING OILY AND FATTY MATERIALS. Eugene Kellens. *U. S. 2,260,910*. Oils and fats are decolorized by adding 0.1-0.5% oxide of Ni, Co, Cu or Mn, or O-contg. salts of these metals in finely divided suspension and 0.2 H₂SO₄, 66° Be heating to 90°, adding decolorizing earth and removing the metals and earths.

DESTRUCTIBLE OIL CONTAINER. David Schmidt (The Dobeckmun Co.). *U. S. Re. 21,945*. The present invention relates to the manufacture of a container the body portion of which is made of a paper stock, preferably cardboard, chipboard, or similar materials, it being the purpose to devise a container, the major portion of which can be destroyed easily, as by burning.

FOOD PACKAGE. John Seneca Cummings. (Interchemical Corp.). *U. S. 2,262,270*. A foodstuff container providing for inspection of the contents while protecting them from rancidity; the portion providing for inspection comprises a translucent sheet material consisting of transparent regenerated cellulose coated with a blushed lacquer film.

METHOD OF REDUCING OILS AND PRODUCT. Herbert Hompel (Gorton-Pew Fisheries Co., Ltd.). *U. S. 2,266,036*. Method for the recovery of fish oil from press liquor, comprises the steps of treating the liquor with an alk. buffer reagent, and sepg. the aq. fraction from the oil fraction.

FILLING MACHINE. Peter T. McIlvried (Industrial Patents Corp.). *U. S. 2,266,979*. The invention relates to a measuring and filling apparatus for dispensing predtd. amts. of liquid and semiliquid materials, such as, for example, oils and fats and more particularly, to means for preventing operation of the filling means in the event a container fails of carriage relative to the filling spout.

PROCESS OF IMPROVING SALAD OILS. Eddy W. Eekey and Edwin S. Lutton (The Proctor & Gamble Co.). *U. S. 2,266,591*. The process of retarding the deposition of stearine from salad oil at low temp, comprising dissolving in salad oil without chem. reaction and incorporating therewith less than one per cent of polyglycerol completely esterified to form a mixed ester in which the combined fatty acid consists partially of higher satd. fatty acid.

PROCESS OF STABILIZING SHORTENING. Alonzo E. Taylor and Jakob L. Jakobsen (General Mills, Inc.). *U. S. 2,267,224*. The process of stabilizing shortening against rancidity comprises hydrogenating a crude tocopherol contg. concentrate, which includes a minor percentage of tocopherol, to render ineffective the pro-oxidant compds. therein without destroying the tocopherol, to prepare a compn. in which the tocopherol constitutes the predominant antioxidant in the concentrate, and adding a small amt. of said comp. to a shortening to stabilize the same.

PROCESS FOR HYDROLYZING FATS. Norman G. Robisch (The Proctor & Gamble Co.). *U. S. 2,267,750*. In a continuous countercurrent process for hydrolyzing fat, where the water is dissolved in the fat while same is being preheated and before same participates in the countercurrent reaction step, the step of introducing into said fat a substantial amt. of said water in the form of steam, while maintaining said fat under sufficient press. to cause said steam to condense.

HYDROXYLATION OF UNSATURATED OILS, FATS, GLYCERIDES AND RELATED PRODUCTS. Nicholas A. Milas (Research Corp.). *U. S. 2,267,248*. Process of hydroxylating an unsatd. glyceride in a naturally occurring oil or fat comprises mixing the oil or fat with a substantially anhydrous and inert org. solvent therefor contg. substantially anhydrous H peroxide and in the presence of catalytically active osmium tetroxide or other catalyst (Cr, Ta, V, etc., oxides).

PROCESS OF PRODUCING CONJUGATION IN UNCONJUGATED POLYENES. G. O. Burr (Regents of the University of Minnesota). *U. S. 2,242,230*. A process for converting natural relatively non-drying fatty oils having 2 or more unconjugated double bonds into relatively rapidly drying oils by producing conjugation of the unconjugated polyenes comprises subjecting such a natural relatively non-drying oil and a basic alcoholate in the substantial absence of water to an elevated temp., the basic alcoholate being present in excess of the stoichiometric equiv. of fatty acids occurring in the mixt. and heating the thus formed product with glycerin.

COMPOSITION OF MATTER. Melvin De Groote and Arthur F. Wirtel (Petrolite Corp., Ltd.). *U. S. 2,266,960*. A new compn. of matter, consists of blown octadecadiene acid foots derived by the process of prepg. 9,11-octadecadiene 1-acid by subjecting ricinoleic acid to a temp. above its pyrolytic point and below the decompn. point, followed by removal of said octadecadiene acid by vacuum distn., with subsequent drastic gaseous oxidation of the residuum by a conventional blowing process.

MERCURATED ALIPHATIC KETONES. Anderson W. Ralston and Miles R. McCorkle (Armour & Co.). *U. S. 2,262,430*. The process comprises refluxing an unsaturated ketone containing an oleyl group with a mercuric salt in the presence of a lower aliphatic alcohol. The products are highly antiseptic and germicidal.

METHOD FOR IMPROVING TEXTILE MATERIAL. Winfrid Hentrich *et al.* (Heberlein Patent Corp.) *U. S. 2,263,730*. A textile treating agent for imparting water-repelling properties to textiles consists in a carbodiimide having 2 aryl radicals and at least one alkyl radical contg. no less than 10 carbon atoms.

CHLORINE DERIVATIVES OF THE HIGHER FATTY ACID ALKYLOLAMIDE ACETATES. Mark Weisberg and Louis Corman (Alrose Chemical Company). *U. S. 2,266,136*. The process for improving textile yarns and fabrics rendering them soft and smooth comprises treating them in a bath contg. a small amt. of a chlorinated derivative of stearic diethanolamide acetate made by reacting a member of the group consisting of ethylene chlorhydrin and polychlorhydrocarbons of not over 2 carbon atoms with stearic diethanolamide, said amide being of the kind produced by condensing diethanolamine with stearic acid in the

ratio of 1-1/5-2 moles of the amine to 1 mole of the fatty acid, and then admixing this chlorinated amide derivative with acetic acid in an amt. which is 2 to 3 times the theoretical requirement for neutralizing the excess amine therein.

OIL-TREATED MINERAL WOOL. Walter V. Cullison (American Rock Wool Corp.). *U. S. 2,252,169*. An article of manufacture comprising mineral wool coated with a water-repellent material consisting of a homogeneous mixt. of mineral oil, Al stearate, and an alk. earth compd., said compd. being selected from the group consisting of an oxide or carbonate of one of the elements, Ca and Mg.

ELECTRICAL INSULATION VARNISH. W. F. Schaufelberger (Harvel Corp.). *U. S. 2,264,409*. A varnish comprises essentially a heat reaction product of gilsonite, China-wood oil, and heat thickened alkyl ether of cashew nut shell liquid.

Abstracts

Soaps

Edited by
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MEASUREMENT OF SKIN PH. H. v. Czetsch-Lindenwald. *Fette u. Seifen* 47, 401-4 (1940). Investigations were made to det. what influence on the pH of the hand and arm was exerted by washing with water, soap, beauty cleansers, acids and alkalies; also the time required for the skin to return to its normal acidity. In the case of washing and shaving of the face, the skin returned to its normal pH in about 3 hrs. On warm days the skin was more acid than on cool days. The inside of the hand was more acid than the back of the hand and the arm. When the skin was washed with warm water the acid layer was unaffected. When the skin was washed with NaOH (1:1000) and rinsed with water it reacted alk. for a short while. Soaps displaced the pH toward alky. but hardly ever attained a pH of more than 7. Beauty prepns. forced the skin pH (I) up and leveled off the return to normal because they formed a film on the skin. Clays and preparatory washing agents did not influence I. Rinsing off the soap was necessary. If it was omitted the remaining soap film gave a strong alk. value. Petrolatum and lanolin did not alter the acid film of the skin. Stearate creams caused some displacement to the alk. side. They seemed to operate either by splitting off the skin fatty acids or by combining with them. Acids were of importance in salves only when they were dissolved. Acid prepns. which were buffered insured an acid I for many hrs., and in general to the next washing. On the other hand alk. salves were neutralized on the skin in a few hrs. In general, only a few washing agents displaced I to the alk. side. The acids of the skin were moderately resistant to water and fat solvents. (*Chem. Abs.*)

DETERGENT ACTION AND SKIN PROTECTION. Giuseppe Fachini. *Riv. ital. essenze profumi, piante offic., olii vegetali, saponi* 23, 273-8 (1941). The pH values of the hand and arm skin were detd. before and after cleaning with several types of soaps and detergents, and the time necessary for the return of pH to the original value was recorded. For the ordinary and pharmaceutical soaps the increase of pH was 2.0-2.5 units and the time to reach the original value about

24 min.; with soaps contg. pectin substances and with sulfonic acid coaps, the increase was 0-0.6 pH units and the corresponding time 0-9 minutes. These soaps seem to be less injurious to the skin. (*Chem. Abs.*)

REFLECTOMETER. Anon. *Textile World* 91, No. 12, 88 (1941). A reflectometer suitable for the textile industry was developed by the Henry A. Gardner Labs. Measurements of interest to textile men, which the meter is designed to give, include determination of cleaning effect of soaps and detergents on soiled cloth; determination of colorimetric specifications of surfaces; measurement of color differences and change; determination of which of a number of samples is closest to a standard color measurement of bleaching, amount of blueing and tinting strength; determination of resistance to weathering, wear abrasion, etc.; and others.

SILVER POLISHES. C. T. Small. *Chem. Ind.* 49, 648-50 (1941). Formulae are given for typical silver polishes in paste form. They contain around 15-20% diatomaceous earth, 2-8% soap—tallow or Na stearate, 0.5-1% soda ash, Na silicate, metasilicate, borax (not recommended) or TSP, and around 80% water. The soap acts as an emulsifying agent for the abrasive, and the alkali acts as a soap builder. Liquid silver polishes, very similar to brass polishes, contain amorphous silica—25%, 5-6% soap, soda soap or ammonium oleate, ammonia and water. Alcohol may be used as a solvent. Glycerine is sometimes added as hygroscopic agent.

Aluminum polishes contain tripoli (comparable to silica) dissolved in naphtha, ammonium stearate soap, and excess stearic acid to leave a sheen on the aluminum. Steel wool aluminum polishes contain Na oleate soap of stearic acid and water. A product containing dolomitic limestone, soda soap and Na silicate (1.5%) is advertised to clean and polish without scratching.

PHOSPHATES. Symposium presented at Div. of Ind. Eng. Chem. and Fertilizer Chemistry at 102nd Meeting of the A.C.S. *Ind. Eng. Chem.* 34, 9-58 (1942). This series of articles covers phosphate deposits, de-fluorinated phosphate rock, alkali metal meta- and