flower oil and whale oil hardened at 32°. With unhardened whale oil, both crude and refined, the animals lost still more weight. To eliminate seasonal variations each experiment was repeated in the 4 seasons of the year, but in winter no group regained its original weight. Very low fat contents were found for the groups on unhardened whale oil, which lost further weight in the refeeding test, but other groups did not show correspondence between fat content and weight gain. Thus, fat contents of 21.3, 21.3 and 21.0 g. were found with weight gains of 12.8, 6.0 and 3.7 g. respectively. A fat content of 27.2 g. in the crude sunflower oil group was associated with a weight gain of 6.0 g., while fat contents of 26.4 and 23.5 g. in the olive oil and refined soya oil groups were associated with weight gains of 26.8 and 24.5 g. Estimations of the I and Reichert Meissl numbers of the fats indicated no relationship between these numbers and fat deposition. (*Nutr. Abs. & Revs. 14,* 710.).

PATENTS

METHOD OF SOLVENT EXTRACTION OF OIL FROM SEEDS. P. A. Singer and H. J. Deobald (Allied Mills, Inc.). *U. S. 2,377,975.* The method of extracting oil from seeds comprises contacting the seeds at elevated temperature with a solvent comprising approximately 75% ethanol and 25% isopropanol. On cooling the oil separates out and the lecithin can be separated from the solvent layer by a salting out agent.

ANTIOXIDANTS. L. H. Howland and P. T. Paul (United States Rubber Co.). *U. S. 2,377,423.* A method of preserving organic substances which tend to deteriorate by absorption of O_2 from the air comprises incorporating therein a product of reaction at an elevated temperature in the presence of an acidic catalyst of one molecular proportion of a monomeric 1,3-butadiene hydrocarbon and at least one molecular proportion of a diamino diphenyl methane, said amino groups being primary amino groups.

STABILIZATION OF FATTY MATERIAL. L. C. Brown (Industrial Patents Corp.). *U. S. 2,377,610.* The process of stabilizing fats and oils against rancidity comprises embodying therein a solution of gum guaiac in a higher fatty acid partial glyceride, the latter solvent being added to the stabilized fat in an amount not sufficient to substantially alter the shortening properties of the stabilized fat.

MANUFACTURE OF ANTIOXYGENIC PAPER. S. Musher (Musher Foundation Inc.). *U. S. 2,377,359.* In the method of making antioxygenic paper are the steps of providing paper pulp with a pH of between 4 and 6.9, adding to the paper pulp a small amount, less than 1%, of hydroquinone while maintaining a pH between 4 and 6.9, and then compacting the paper pulp at a temperature of at least 210° F. to form the paper.

FATTY ACIDS FROM TALL OIL. A. G. Houpt (American Cyanamid Co.). *U. S. 2,378,359.* The separation is made by dissolving the anhydrous tall oil, in which the fat acid was neutralized, in a solvent (AmOH) which dissolves both components when hot and only the rosin acids when cold; on cooling this solution the soaps of the fat acids precipitate out.

PROCESS FOR TREATING FATS AND FATTY OILS. E. W. Eckey (The Proctor & Gamble Co.). *U. S. 2,378,005-7.* The fat acid composition of oils is modified by ester interchanges. For example, the lower weight fat acid may be removed from coconut oil by heating it with Me esters of high molecular weight acids in the presence of a catalyst, thereafter removing the low boiling esters by distillation.

MINERAL OIL LUBRICANT. H. G. Smith, T. L. Cantrell and J. G. Peters (Gulf Oil Corp.). *U. S. 2,378,442-3.* Mono-fat acid amides of phthalic acid are added to lubricant mineral oils to serve as rust preventatives.

Abstracts

Drying Oils

Edited by
HOWARD M. TEETER

MISCELLANEOUS STUDIES AT THE GAINESVILLE TUNG-OIL LABORATORY. R. S. McKinney. *Proc. 10th Ann. Convention Am. Tung Oil Assoc. and United Tung Growers Assoc., 1944,* 59-63. Tests indicate the possibility of preparing a moldable plastic from solvent-extracted tung meal. Solvent-extracted tung meal and press cake with and without autoclaving for 2 hours with steam at 25-pound pressure were used in feeding tests with chickens. The materials not autoclaved were definitely toxic. With autoclaved tung-oil press cake in the diet up to 30% the chickens did not lose weight but they looked unhealthy. A new clarification process for crude tung oil is suggested in which sodium bisulfite is used to precipitate the non-oil constituents. Tests showed the new process to be better in certain respects than the diatomaceous earth filter-aid now used in the tung-oil mills. (*Chem. Abs. 39,* 2890.)

SOME PROBLEMS OF INTEREST TO TUNG PRODUCERS. R. S. McKinney, W. G. Rose and A. B. Kennedy. *Proc. Am. Tung Oil Assoc. 9,* 62-77 (1943). The regression coefficient to determine the relationship between kernel content and oil content of tung fruit was estimated. Studies were reported on the use of a modified portable English walnut huller for hulling tung fruit. Experiments are described on the recovery of oil from tung press cake and tung fruit by means of solvent. The dehulled tung fruit was ground preparatory to extraction with a heavy-duty attrition mill. A Kennedy continuous countercurrent extractor was used for the tests with a normal hexane petroleum fraction as the extracting solvent. Varnish made from the solvent-extracted oil appeared to be as durable as a standard spar varnish (*Chem. Abs. 39,* 2890).

HULLING AND EXPRESSION OF OIL FROM TUNG FRUIT. R. S. McKinney and R. E. Oglesbee. *Proc. 10th Ann. Convention Am. Tung Oil Assoc. and United Tung Growers Assoc., 1944,* 68-9. Tests with a modified walnut huller indicated that it will do a good hulling job on moist tung fruit, but its capacity is limited. An experimental tung huller operating on a principle similar to a peanut sheller was fairly satisfactory and had a good capacity. Hulling moist tung fruit in the or-

chard was found not to interfere with the expression of the oil if the moist dehulled fruit are properly dried without delay after hulling. It was found difficult to obtain efficient oil expression from tung meals containing filter cake. The expression of tung oil from a meal of ground old tung kernels and shell was found almost impossible. The difficulty was avoided by mixing with new kernels. (*Chem. Abs. 39,* 2890).

THE NEWER VARNISH OILS. J. C. Konen. *Official Digest, Federation of Paint and Varnish Production Clubs, 246,* 240-6 (1945). A review of the properties of pentaerythritol and sorbitol esters illustrated by experimental data.

PATENTS

TREATMENT OF DRYING OILS. H. G. Berger, G. S. Crandall and J. F. Sacolofsky (Socony-Vacuum Oil Co.). *U. S. 2,380,394.* Liquid coatings are prepared by a procedure, the steps of which comprise heating an oil with a Friedel-Crafts type of catalyst at 300° F. or less to a body of 6, arresting polymerization by addition of an inactivator such as quinoline, and adding resin, thinner, and drier.

HIGH IODINE VALUE OILS. L. O. Baxter (National Oil Products). *U. S. 2,380,412* and *2,380,413.* By selective saponification of 30 to 90% of a fish oil by means of alkali and subsequent separation of the unsaponified fraction from the resulting soap, an increase in iodine value of 5 to 50 is achieved.

IMPROVING THE QUALITY OF DRYING OILS. I. G. Farbenind-A. G. *Ger. 742,519.* Polymerized or oxidized drying oil is afterward treated with mono and/or diisocyanates. (*Chem. Abs. 39,* 2661).

Abstracts

Soaps

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CRACKING OF TOILET SOAPS. *Soap, Perfumery & Cosmetics 18,* 366-7 (1945). Cracking of soaps has its origin in the innate tendency of individual crystallizable soaps of the constituent glycerides present in oils and fats of the fatty-charge. The soaps made out of the oil-stock predominantly rich in the non-crystallizable glycerides, i.e., the liquid glycerides of unsaturated character, do not crack at all. Soaps made out of oil-stock composed of the crystallizable and the non-crystallizable glycerides present in a properly balanced proportion show very little cracking. Finally, soaps made out of oilstock rich in crystallizable constituents exhibit a very strong tendency to crack.

The cracking of good quality soaps is due to the particular mechanical treatment of toilet soap manufacture, which results in uniform but unnatural distribution of the solvent phase of the soaps of the liquid glycerides and consequent lack of suitable enveloping media to aid the natural process of crystallization of the crystallizable soaps. This defect can be minimized by an intimate milling-in of a little white potash soap, by adding binding materials and superfatting agents like lanolin to the soap during the milling process or by balancing the components of the oilstock in such a way as to allow enough percentage of the liquid soaps necessary to check the cracking.

SOAP CRACKING: ANOTHER INDIAN VIEW. *Soap, Perfumery & Cosmetics 18,* 449-50 (1945). Cracking is observed either on the surface of stamped soap cake or within the body of the soap only in the horizontal direction. The position of this cracking depends on the treatment to which the soap has been subjected during milling and plodding. Issue is taken with the theory that enveloping crystallizing soaps with non-crystallizing will prevent cracking while cold will induce crystallization. This theory fails to recognize the non-cracking nature of the cold process unmilled soaps where the crystallizable soaps envelop the non-crystallizable soaps, and the semi-boiled and settled unmilled soaps where quick cooling devices are in use. Such soaps have not been found to crack even when the moisture content is very low.

METALLIC SOAPS. Milton A. Lesser. *Soap 21,* No. 7, 36-39 (1945). Metallic soaps are insoluble in water and display properties which differentiate them from the ordinary water-soluble alkaline soaps. They may be prepared by causing the metallic salt to react with a water-soluble, sodium soap of the desired fatty acid or with the fatty acid or metal dissolved in alcohol. Fusion methods may be used instead of these precipitation methods.

The stearates are the most important compounds of this class, with aluminum stearate as the leading soap, being used in grease and lubricant manufacture, paint formulations and waterproofing processes. Calcium soaps have similar uses; zinc stearate is used in rubber compounding and cosmetic powder formulations; copper soaps are used as rot-proofing agents; and lead soaps are valuable in formulating special greases.

Because of increasing complexity of these compounds, the following classification of properties is suggested. Ability of the soap to dissolve in organic solvent and supply metal cations; ability to influence the characteristics of liquids in which it is dispersed; and the physical character of the soap.

MODERN DETERGENTS. *Soap, Perfumery & Cosmetics 18,* 307-8, 298 (1945). This symposium surveys the factors which are of importance in surface active agents and saltwater soaps. These factors include pH, soil removal, lowering of interfacial tension and emulsification of dirt. The literature on comparison of foam properties is reviewed.

TRENDS IN TOILET SOAP PERFUMING. E. G. Thomssen. *Soap 21,* No. 7, 33-35 (1945). The effect of the war on toilet soap perfuming is reviewed. Various synthetics have been replacing the natural oils. For example, artificial geraniums have replaced rose geranium, terpinyl acetate and linalyl acetate have been used for lavender while various combinations of available natural oils and synthetics have been used. The future of synthetics is predicted.

SOAP—THE PREMIER EMULSIFYING AGENT. Georgia Leffingwell. *Am. Perfumer & Essential Oil Rev. 47,* No. 7, 50-52 (1945). Soaps are said to be the best