ABSTRACTS

Oils and Fats

Edited by
M. M. PISKUR and RUTH LINDAHL

said phosphates being at least equal in wt. to the amt. of Ni.

Extracting oleaginous grains, etc. Ges. zur Verwertung Fauth'scher Patente m.b.H. Fr. 806,493. Dec. 17, 1936. App. is described for carrying out the grinding in the presence of the solvent for the fat or oil. (*Chem. Abs.*)

Shortening. L. C. Brown, D. P. Grettie and R. C. Newton. Brit. 458,582 (Addn. to 413,343). In the earlier patent mono- and/or di-glycerides are added to shortening to improve the capacity to mix with or cream in the other ingredients of a baker's mixt. The present invention deals with the use of mono- and/or di-glyceride of fat acids from hydrogenated sesame oil which in addn. prevents rancidity.

Condensation product of castor oil with half ester of maleic acid. H. A. Bruson. U. S. 2,081,266. The compn. consists of a condensation product of castor oil, an alcohol contg. only one hydroxyl group and a member of the group consisting of maleic acid and maleic anhydride.

Converting natural resins to lower and higher boiling oils. G. Doll. Ger. 646,637 Cl. 12o Gr. 1.01. Rosin is reacted with acetylene at 250 to 280° to give an oil product, 63% of which boils below 170° and 28% at higher temps.

Bodied tung oil and process of making the same. T. H. Geiger (to Tung Oil Products, Inc.). U. S. 2,084,137. A process of bodying tung oil comprises mixing tung oil with a volatile solvent, heating said mixt. to within a temp. range of from about 525° F. to 675° F. for a time sufficient to effect an appreciable thickening of said oil, while confining it to prevent evapn. of the solvent, and thereafter removing said solvent by distillation.

ABSTRACTS

Soaps

Edited by **M. L. SHEELY**

Soaps With the Addition of Solvents. H. Zilske. *Seif. Zeit.* **64,** 55 (1937).—Every addition to a soap solution acts upon its moistening, emulsifying and foaming capacities. The addition of ox-gall, ammonia solution, turpentine oil or benzene decreases the foaming power and increases the emulsifying power. Gall has been employed for a long time for the manufacture of gall-soaps (soaps for cleaning) because of its detersive properties. The ammonia solution as well as the turpentine oil also increase the power of dissolving fats. The manufacture of petroleum or benzene soaps, exclusively impasted in the cold is accompanied with difficulties owing to the volatility and insolubility of hydrocarbons. Instead of these, hydrogenized phenols or naphthalenes are used: hexaline (cyclohexanol), methylhexaline (methylcyclohexanol), tetraline (tetrahydronaphthaline), decaline (decahydronaphthaline). Their great solubility in aqueous soap solutions permits the obtaining of different sorts of soaps; hard and liquid soaps, also soaps for textiles and for the household, etc. Finally, they permit the preparation of cleaning products and of the new products designed as "Washing Extracts." The author mentions in the use of each soap, the manufacturing procedure and various formulae.

The Hydrolysis of Sodium Soaps in Aqueous Solution. Lustig and Schmirda. *Fette u. Seifen* **44,** 51 (1937).—During their investigation on the solubility of different fatty acids as well as that of stearic acid in the presence of varying quantities of sodium hydroxide and fatty acids, the authors have concluded that the hydrolysis of soaps is increasing with the high molecular weight of saturated fatty acids, but it is very slight in the presence of unsaturated fatty acids. The solubility of stearic acid is increased by the addition of saturated or unsaturated fatty acids with lower molecular weight. These statements are very important in the choice of fats for the manufacture of soap.

The "Descha System," a New Process for Base and Curd Soap. J. Schaal. *Fette u. Seifen* **44,** 55 (1937).—This system allows the preparation of a base soap, in 8-10 hours, which can be piled without drying. The saponification does not last more than one hour. After three washings (requiring 3-4 hours) the glycerol tenor is not more than 0.5%. After a short evaporation, the fatty acid tenor of the finished soap represents 68-70%. The author describes the necessary apparatus.

Coconut Oil Soap Prepared by Carbonate Saponification. *Allgem. Oel- u. Fett-Ztg.* **34,** 138-44 (1937).—Formulas and methods are given. (*Chem. Abs.*)

Permutite - Treated Water and Liquid Soaps. Welwart. *Seifensieder-Ztg.* **63,** 874-6 (1936).—Turbidity in soft or liquid soaps made by use of hard water softened by the permutite process is apt to be due to the Na salts in the water reacting with the K soaps to form relatively insol. Na soaps. (*Chem. Abs.*)

Recently Determined Causes for Turbidity of Liquid Potassium Soaps. Welwart. *Seifensieder-Ztg.* **63,** 1037-8 (1936); H. Janistyn. Ibid. **64,** 8 (1937).—A Turkey-red oil containing Na salts is apt to cause turbidity in liquid K soap preparations. Turkey-red oil is of virtually no value to prevent pptn. of Ca soaps and, when used in large amounts, has a bad effect on the cleaning and washing properties of K soaps. (*Chem. Abs.*)

Souring as a Laundry Operation. Foster D. Snell. *Ind. Eng. Chem.* **29,** 560-4 (1937).—In souring the

ABSTRACTS

Soaps

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residual alky. remaining in the clothes from the sour and bleach operations and any alky. of the rinse water is neutralized. At the same time $H_2 C_2 O_4$ and acid fluorides are relatively efficient in the removal of Fe stains. Alkali fluosilicates are less efficient. Antichlor action can be obtained by addition of bisulfites. Bleaching action can be obtained by use of persulfates as sours but the sequence of operations must be so modified that souring becomes a hot instead of a cold operation. In com. use the function is mainly neutralization with some Fe stain removal. Com. sours are largely oxalic acid, acid fluorides and fluosilicates. (*Chem. Abs.*)

Soap Flake Manufacture. Les Matieres Grasses, 1937, 118.—An essential property of soap flakes is that they should be readily soluble in water. Such solubility depends on the melting point of the fatty acids of the oil used, and also the degree of saturation of the fatty acids. Ready lathering is also an advantage so that coconut oil is to be preferred as the chief constituent of the fat charge. Groundnut oil is also a useful addition to the charge and can be included to the extent of 30-40 per cent. The soap formed from this mixture may be too friable in flakes, and modifications can be made by addition of some potash soap, castor oil, sugar, glycerol, etc. With such a mixture discoloration may occur, and to avoid this only the best raw materials should be used, and some antioxidant added. The soap may also be dyed. It is an advantage to leave a little free alkali in the soap, e. g., below 0.1%, as sodium hydroxide.

Soap as an Antiseptic. William Brady. *Soap Gazette and Perfumer* **XXXIX** 6, 5 (1937).—A guinea pig injected with an infinitesimal dose of diphtheria toxin or tetanus toxin dies from the poison, not from the disease. If a little soap is mixed with the toxin the guinea pig will not be seriously affected by an injection of a hundred times an otherwise fatal dose. Soap forms a film around the toxin and so interferes with its absorption and action on the body cells. It may be, too, that soap neutralizes germ toxins or poisonous products as an alkali neutralizes an acid. The antiseptic action of soap is accounted for in the same way—the soap forms a film around the germs and causes their death by excluding them from their nutritive medium.

Dry soap powder containing two grains of menthol to the ounce is recommended by a Dr. Hickling in the British Medical Journal to give the effect of a nasal irrigation for children with adenoids or nasal obstruction and excessive nasal secretions. A pinch of the powder is snuffed or flicked on the partition just within the nostrils.

An Invention for Resin Stabilization. *Soap Gazette and Perfumer* **XXXIX** 6, 5 (1937).—A novel type of resin acid has been developed which can readily be purified and which is adaptable to numerous industrial applications where high stability is required. The new product has been named Novex. According to research by Dr. Torsten Hasselstrom and Edward A. Brennan, oleoresin is composed of two different types of rosin acids, namely l-Sapietic and d-Piramic. The latter type of rosin is also common to resins such as the manila, Kauri, Copal, etc. The Sapinic acids are not individual components but rather mixtures of l-Sapietic and d-Pimaric acids in various proportions. It was discovered that the l-Sapietic type of rosin acid was unusually unstable to atmospheric conditions, and could be easily converted by various means of treatment to abietic acid, which is also most unstable.

The instability of ordinary rosin is brought out by the fact that it has never been able to incorporate rosin in white toilet soap without consequent discoloration of the soap on storage. After extensive investigation it was found that a crystalline acid occurring in rosin oil seemed to offer unusual stability. This pseudo-Pimaric acid was isolated from the oil, purified, fully characterized, and claimed in patents.

Since it was proved that the stability of the acid was caused by the action of heat in the distillation of rosin, it also seemed likely that a similar acid could probably be formed with a lower temperature by using a suitable catalyst. This supposition proved true and announcement has been made that it is now possible to manufacture an unusually stable acid at a moderate cost.

Toilet Soap Cracking. *Soap Perfumery and Cosmetics* **X**, 581 (1937).—From varied experiments with cracking of soaps, Sadgopal advanced the following explanation of cracking (Indian Soap Journal—July, 1935):

Cracking of soaps has its origin in the innate tendency of the individual crystallizable soaps of the constituent glycerides in the oils and fats. The soaps made out of oil stock predominantly rich in the non-crystallizable glycerides, i. e., the liquid glycerides of unsaturated character, do not crack at all. This class of stock is represented by the oils of olive and sesame. Again, 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. The oils of palm and groundnut are the two examples of this sort. Finally, soaps made out of oil stock rich in crystallizable constituents exhibit a very strong tendency to crack.

In the case of soaps not mechanically treated, the individual constituent soaps of fatty acids of both crystallizable and non-crystallizable characters find their own natural places in the soap mass according to their individual specific gravities, during the necessary long time which is allowed for framing. Thus the phase of the crystallizable soaps gets distributed throughout the mass in its natural order, enveloped by the other phase of the non-crystallizable soaps acting more or less as solvent for the former. This is in fact responsible for the development of the characteristic streaks of individual crystallizable soaps in the total mass of soap slabs and bars. The high content of water probably helps in allowing free crystallization without cracking.

With machine-made soaps, in contrast, where the fine state of division, reported milling, etc., causes a forced removal of the solvent-medium-like influence of the non-crystallizable phase, and also lower moisture content, the individual crystallizable soaps of the constituent fatty glycerides begin crystallizing out from every point in the cake. During this process they cause cracks, due to the internal resistance met at every point, because of the lack of the necessary "fluid medium." As

ABSTRACTS

soap

Edited by M. L. SHEELY

a remedy is suggested either the addition of suitable binding agents during milling or balancing the fat charge to include a sufficiency of non-crystallizable soaps.

Saponification by Means of Sodium Carbonate. R. L. Datta. *Dept. Ind. Govt. of Bengal,* India, *Bull. No.* 72.—Results are presented of tests made to discover the most favorable conditions for sapon. by Na_2CO_3, with a view to its application in commercial practice without the use of any foreign substance or the use of any special plant. (*Chem. Abs.*)

Natural Fat Acids—Fat Acids from Splitting. Josef Hetzer. *Fette u. Seifen* **43,** 257-8 (1936).—Neither natural enzymes, whose saponifying action is responsible for the fat acids present in soap stock from edible oil refineries, nor partial autoclave saponification functions so as to liberate fat acids of high molecular weight in preference to those of low molecular weight, or unsaturated acids in preference to saturated acids. These conclusions are based on a comparison of the fat acids obtained (1) by first distilling the free acids out of a soybean oil soap stock and then splitting and distilling the residue and (2) by first partially splitting and then distilling and afterward subjecting the neutral residue to further splitting and distillation. (*Chem. Abs.*)

The Half-Warm Process for Making Soaps from Fat Acids. R. Krings. *Seifensieder-Ztg.* **63,** 1017-19 (1936).—A modified process, for making soap at 70-80° without boiling, involves forcing the caustic soln. into the molten fat acids, or vice versa, in the form of fine jets. A no. of other practical suggestions for carrying out half-warm sapon. of fat acids are given and various advantages are discussed. Hermada. Ibid. **64,** 3-4, 24-5 (1937). The practicality of Krings' suggested process is questioned and the use of coconut oil acids in making soap products contg. (1) pumice and org. solvents or (2) ox gall is discussed. H. Janistyn. Ibid. 46.—A good agitator is recommended as more economical than Krings' process. (*Chem. Abs.*)

Foam Measurements. Anon. *Seifensieder-Ztg.* **60,** 1019-20 (1936).—Tabulated data, obtained when using the Lederer app. to measure the foaming power of 4 soap products, show that the results are reproducible within limits. (*Chem. Abs.*)

The Causes of Spot Formation in Cake Soap. Karl J. Partisch. *Seifensieder-Ztg.* **64,** 226-7 (1937).—After discussing a no. of cases of spot formation due to particles of Fe, Cu, bronze, etc., being introduced into the soap mechanically, P. tells of cases where the trouble was due to the use of a light-colored resin contg. dissolved metal as one of the raw materials for making the soap. On changing to a darker grade of resin, the trouble cleared up. The power of resin to dissolve metal oxides, e.g., as a flux in soldering, is well established. (*Chem. Abs.*)

PATENTS

Soap Stops Oil Well Drowning. *Chemical Industries* **XLI** No. 1, 64 (1937).—How ordinary soap may prevent the "drowning" of oil wells and give greater yields of water-free crude oil is revealed in a patent granted to George E. Cannon of Houston, Texas, and assigned to Standard Oil Development Company. He claims that by pumping a plain soap solution down into the bore holes of oil wells the pores can be plugged up in the underground sands through which oozes the water that is responsible for "drowning" the well and contaminating the oil. The plugging action occurs when the soap reacts with the magnesium and calcium salts in the water. A reaction takes place to form a tough soap curd which fills up the pores right in the sand and keeps the water from getting through.

Heretofore, cement has been pumped down into the bottom of the well to plaster the walls of the bore hole in order to keep water out, but this not only blocks the flow of water but also the ooze of oil from oil-bearing sands into the well. This means less oil is obtained from the well.

Big advantage of using soap instead of cement, he claims, is that the soap only blocks the flow of water from the water sands. Thus the pores in the oil sands are left open to ooze their oil into the well, since the soap is inert to oil and is not curded by it.

Detergent Pad Comprising Metal Wool and Soap. U. S. 2,079,600, May 11, 1937. George W. Brooks (to S. O. S. Company). Various details. (*Chem. Abs.*)

Glycerides of Fatty Acids. U. S. 2,073,797, Mar. 16, 1937. Thomas P. Hilditch and John G. Rigg (to Imperial Chemical Industries, Ltd.). For producing esters contg. a high proportion of monoglycerides, glycerol is esterified with one or more fatty acids such as stearic, oleic or palmitic acid in a solvent medium composed of one or more monohydric mononuclear phenols such as PhOH or p-cresol in the presence of camphor b-sulfonic acid. Several examples are given. (*Chem. Abs.*)

Improved Toilet, Liquid and Shaving Soaps. *Perfumery Essent. Oil Record* **28,** (5), 192 (1937). A. G. Chem. Fab. Grunau, Landshoff & Meyer, of Berlin-Grunau, described in British Patent Specification 462,977 an invention characterized by adding to soap certain protein degradation products of high molecular weight consisting of lysalbinic and/or protalbinic acid, or containing these substances as the main constituent substituted at the nitrogen by higher fatty acid residues, or the alkali salts of the said substituted protein degradation products. Suitable substituents of the protein degradation products of high molecular weight are the residues of the following acids: lauric, palmitic, stearic, oleic, ricinoleic, linoleic, linolenic, and the acids contained in tall oil.

Compositions Containing Mixed Cellulose Fatty Acid Esters. U. S. 2,073,687, Mar. 16. Henry Dreyfus. Liquid and solid compns. are formed in which the base material consists mainly of cellulose esters of lower aliphatic acids such as cellulose acetate mixed with a relatively small proportion (suitable about 5-15%) of cellulose esters of higher aliphatic acids such as cellulose stearate or palmitate. Such compns. are suitable for foils, sheets, films, etc. (*Chem. Abs.*)

WHO WHAT WHERE WHEN WHY ?

Changes Corporate Name

The Stein-Brill Corporation of 183 Varick Street, New York City, has announced a change in the corporate name to the Brill Equipment Corporation. There will be no change in management.

This company also wishes to announce the opening of a St. Louis office and warehouse located in the Mart Building at St. Louis, Mo.

They are now in a position to serve their eastern and middle western clients to better advantage as they will be able to furnish equipment from both warehouses.

Both offices will specialize in machinery and equipment for the following industries: Chemical, Pharmaceutical, Food Products, Wine and Liquor, Paint, Soap, Rock Product, Plastics, Oil Refining, Rubber, Paper Mill, etc.

The St. Louis branch is also representing several nationally known machinery manufacturers in the St. Louis territory and will have display rooms in the Mart Bldg. for this purpose.

Larger Production of Vegetable Oils Seen

Good prospects for increased supplies of edible vegetable oils in 1937-38 were reported by the Bureau of Agricultural Economics in its monthly "Fats and Oils Situation."

Bases for the forecast are increased acreages of cotton and soybeans, and the likelihood of increased yields of flaxseed. Prices of vegetable oils were reported in general as slightly lower than a month ago.

The report deals chiefly with corn, olive, sesame and sunflower oils—each significant in its own field, although annual consumption of all four combined is less than 20 per cent the average consumption of cottonseed oil alone.

Prior to 1933 the United States exported small quantities of corn oil; since then, net imports have increased from 9,000,000 to 29,000,000 pounds a year. "The establishment by American companies of wet process corn grinding plants in the United Kingdom, France, Czechslovakia, Germany, Korea, Yugoslavia, Mexico, Argentina, and Brazil has increased the United States imports of corn oil," says the Bureau.

The world production of olive oil was reduced nearly 25 per cent last year, and a reduction of at least 33 per cent in the supply available for the 1937 marketing year as compared with 1936, was estimated by the Bureau. Prevailing high prices are expected to continue for some time—at least until exports from Spain become normal.