present it is infinitesimal. Linseed oils as now produced do not contain conjugated systems (*Chem. Abs. 40,* 2653.)

NEWER PRODUCTS AMONG THE DRYING OILS-INFLUENCE OF THE WAR. J. H. Greaves. *Oil Colour Trades J. 109,* 410, 412, 414 (1946). The only new oil arousing continued interest in recent years is isano oil obtained from the fruit of *Ongokea klaineana.* Its drying properties are poor but it has 2 acetylenic linkages and a vinyl group which affords great reactivity and which prevents the development of drying properties by heating the oil in bulk. Little known drying oils, botanically related to tung oil, such as *Garcia nutans,* have received some attention. Lesser consideration has been given to dehydrated castor, tung and oiticica oils, tall oil, cashew nut-shell liquid, and a few synthesized oils. The modification of linseed oil is discussed from the standpoint of segregation, fatty acid modification, and alkali modification. Twenty-seven references. (*Chem. Abs. 40,* 3003.)

THERMAL POLYMERIZATION OF LINSEED OIL. G. Champetier and J. Petit. *Compt. rend. 220,* 748-9 (1945). In the thermal polymerization of linseed oil (I), whether *in vacuo* or in an atmosphere of N_2 at 295° for periods of 3-20 hours, the following is found to be true: The glycerol content of the gel is the same as that of the original oil; saponification gives stearic, oleic, and some di-acids (II) (mol. wt. 574); ozonization of II gives $(CH_2)_7(CO_2H)_2$; complete oxidration results in formation of some $o\text{-}C_6H_4(CO_2H)_2$ which is convertible to fluorescein and which on decarboxylation can be diazotized and coupled with β-naphthol. This corroborates the mechanism advanced by Kappelmeier in which by a Diels-Alder reaction cyclohexene derivatives are formed which on dehydrogenation give the aromatic ring. (*Chem. Abs. 40,* 3003.)

THE DI- AND TRIETHYLENIC (C_{20}) FAT ACIDS OF CAMBODIAN FISHES. P. Baudart (Inst. tech. supérieur chambre commerce, Marseille, France). *Bull. soc. chim. 11,* 174-5 (1944). These acids were isolated from fish oils (species not specified) by: low temperature crystallization from 85% methanol, fractional precipitation of the Pb soaps in ethanol, and finally fractional distillation of the Me esters at reduced pressure . From 4 kg. of oil 19 g. of Me esters (sap. no. 175.2, I no. 198) was isolated corresponding to 16 g. of fat acids (*I*). Hydrogenation of I gives eicosanoic acid, m.p. 75-6°. Bromination of I (16 g.) gives 3.9 g. of a product (*II*) containing 66.1% of Br. The filtrate from *II,* freed of Brand solvents, yields after treatment with petroleum ether at —10° for 4 hours, 3.8 g. of oil and crystals (*III*). There remains in solution 28 g. of oil (*IV*). After 5 extractions of *II* with Et acetate there remains 0.4 g. of $C_2H_5(CH_2)_3\text{-}CHBrCHBrCH_2CHBrCHBrCH_2CHBrCHBr(CH_2)_6\text{-}CO_2H$ (*V*), m.p. 140°. *III* treated with Et ether at —10° yields the viscous oily bromides of the partially oxidized acids and 0.2 g. *V. IV* in ethanol is fractionally precipitated by the addition of water in successive increments. Fractionation 15 times yields 8 g. of $C_2H_5(CH_2)_3CHBrCHBrCH_2CHBrCHBr(CH_2)_9\text{-}CO_2H$(VI) and 9.5 g. of *V.* Debromination and ozonization of *VI* and *V* prove that the C_{20} acids present are the $\Delta^{11,14}$-eicosadienoic acid and the $\Delta^{8,11,14}$-eicosatrienoic acid. (*Chem. Abs. 40,* 3009.)

Abstracts

Soaps

Edited by
LENORE PETCHAFT

SOME DETERGENT PROPERTIES OF INTEREST TO CANNERS. P. N. Burkard (Wyandotte Chemicals Corp., Wyandotte, Mich.). *Canner 102,* No. 9, 20-2, 44 (1946). A discussion of the action of detergents under the following headings: water conditioning, dissolving, saponification, emulsification, surface tension and interfacial tension, inhibitors, and germicides. (*Chem. Abs. 40,* 2657.)

SOAPLESS DETERGENTS. H. Hilfer. *Drug Cosmetic Ind. 58,* 646-7 1946). This article gives a general review of anionic and cationic detergents. Structural formulas, properties, uses, preparation, and availability are discussed.

DETERMINATION OF SMALL AMOUNTS OF SOAPS OR FATTY ACIDS ON COTTON MATERIALS. Carroll L. Hoffpauir and James H. Kettering (Southern Regional Research Laboratory, New Orleans, La.). *Am. Dyestuff Reptr. 35,* 265-6 (1946). Analytical methods for the determination of small quantities of fatty acids or their soaps in cotton fiber, yarn, or fabrics is described. The acids and their soaps are removed by Soxhlet extraction with ethyl or isopropyl alcohol, separated from extraneous material by extraction with low-boiling petroleum ether after acidification with hydrochloric acid, and finally titrated with alcoholic NaOH in the absence of CO_2 by use of metacresol purple indicator.

POTASH SOAPS VERSUS SYNTHETIC DETERGENTS. Herbert H. Kranich (Kranich Soap Co.). *Soap Sanit. Chemicals 22,* No. 5, 43-5, 145 (1946). Tests show that many of the new synthetic products increase the wetting action of water to a greater extent than do potash soaps. However, this may not be an advantage due to the fact that the increased lowering of surface tension may result in very deep penetration which may cause, beside dirt removal, removal of essential ingredients of the product being washed. When used on wood or linoleum, resins or oils may be removed or part of the detergent may remain deep within the pores to liberate sulfuric acid to cause erosion. Other factors discussed showing disadvantages of the newer detergents included high cost as compared with soap, and great lack of accurate information on many suggested uses for these detergents.

CATION-ACTIVE SOAPS OR REVERSED SOAPS. Monindra Mohan Chakrabarty. *Indian Soap J. 11,* 111-13 (1945). The explanations offered for the detergent actions of soaps and similar substances (anion-active compounds) and quaternary ammonium compounds (cation-active compounds) are discussed. These cation active or reversed soaps react in an opposite manner to the action of common soaps. While soaps having a negative charge react in alkaline solutions, these compounds are most useful below pH 7.0, because of their positive charge. These properties are utilized in the washing of wool to effectively remove mineral salts. The phenomenon of mutual neutralization of electrical charges by addition of cationic soaps has been utilized in a process of application of rubber to textiles. A related use is that of a method of applying white pigments to rayon.

Tensimetric analysis of surface-active electrolytes. J. M. Preston. *J. Soc. Dyers and Colourist 61,* 165-6 (1945). A method of analysis for anion- and cation-active substances is described which depends upon the apparent formation of stoichiometric complexes between these compounds and upon a sudden and marked fall in bubble pressure at the equivalence point because of the sharp change in surface tension. A modification of the standard bubble pressure method is used which gives an extremely clear end-point. Good reproducibility is obtained. (*Textile Research J. 16,* 176.)

Sodium chlorite is successfully used in bleaching tallow. John B. Tuttle (Theobald Industries, Inc., Kearny, N. J.) and Eric R. Woodward. *Chem. & Met. Eng. 53,* No. 5, 114-15 (1946). Tallow, though not one of the traditional soap-making materials, has been utilized due to the shortage of other sources. In order to improve its quality it must be bleached. Traditionally, there has been some hesitation about the use of chemical methods for fat bleaching because of the fear that the I value and titre might be affected, thus lowering the soap-making qualities of the fat. However, it was found that chlorite bleaching methods did not cause chemical deterioration. Two methods are described—the acid activation ($5\ NaClO_2 + 2\ H_2SO_4 \rightarrow 4\ ClO_2 + 2\ Na_2SO_4 + 2\ H_2O + NaCl$) and the Cl activation ($2\ NaClO_2 + Cl_2 \rightarrow ClO_2 + 2\ NaCl$). Directions are given for both these methods. Refined tallow may be treated by both methods but crude tallow (brown grease) has been treated only with the acid-activation method.

Synthetic detergents in the modern tannery. Paul I. Smith. *Soap Sanit. Chemicals 22,* No. 5, 46-7 (1946). Soap and sulfonated oils have been found to have limitations in tanning operations, but work with the new synthetic detergents has shown that they can disperse lime soaps and retain their surface activity in the presence of acids, alkalies and common salt. Moreover, they possess greatly superior emulsifying properties to both hard and soft soap and sulfonated castor oil. Sulfated fatty alcohols may be used for cleansing raw and partially dressed wool skins, for fatliquoring, and leather scouring. A new non-ionic agent "Corilene DG" is described for use in degreasing skins.

Lecithin in soap. Milton A. Lesser. *Soap Sanit. Chemicals 22,* No. 5, 37-40, 143 (1946). The sources, processing and analysis of lecithin are described. Lecithin is an effective emulsifying and dispersing agent, capable of reducing surface and interfacial ~~tensions. In soap making it is classified as a super~~ fatting agent, because of its beneficial effect on the skin and also because it helps to inhibit hydrolysis. It also stabilizes lather, and while it reduces bubble size, it produces a pleasing creamy effect. Results showed that it is effective in suppressing hydrolysis, aids soap in dirt removal and increases the suspending power of soap. Directions for incorporation of lecithin in various types of soaps are given. It has been found to be most satisfactory when used in liquid soaps.

PATENTS

Phosphoric acid salt detergent combination. Otto Lind (Procter & Gamble Co.). *U. S. 2,396,278.* Combination of a fatty alcohol sulfonate mixture containing sulfuric acid esters of octyl, decyl, dodecyl, tetradecyl, hexadecyl, and octadecyl alcohols with ortho- or pyrophosphoric acid salts, improves hard water stability of the detergents.

Corrosion resistant sulphonated organic detergent compositions. Russell Park McGhie (Colgate-Palmolive-Peet Co.). *U. S. 2,394,320.* The addition of inorganic phosphates improves clarity, color stability, and reduces metal corrosion of sulphonated and sulphated products.

Prevention of inseparable emulsions in soap manufacture. Leopold Sender and Leo D. Jones (The Sharples Corp.). *U. S. 2,397,161-2.* Preventing formation of difficultly separable emulsions formed in the saponifying process by carrying on this saponification in a series of mixing compartments. More thorough reaction of the fat with the saponifying reagent is insured by keeping the saponification of the saponifiable acid in each compartment either below 70% or above 85%.

Sulfonates from oils. Richard Rosenbusch, and Arnold Wolf (Victor Wolf, Ltd.). *Brit. 563,482.* Animal and vegetable glycerides are converted by alcoholysis into esters of aliphatic monohydric alcohols having fewer than 6 C atoms. The glycerol and excess of alcohol are removed and the esters are sulfated. (*Chem. Abs. 40,* 2658.)