the isomerised "∝"-linoleic acid apparently consists largely of the trans-Δ^9-trans-Δ^{12}-form.

NOTE ON POLETHENOID ACIDS OF THE C-18 SERIES IN BUTTER FAT. T. P. Hilditch & H. Jasperson. *J. Soc. Chem. Ind. 58,* 241-3T (1939). A conc. of the unsatd. C-18 acids of a summer butter fat has been isomerised by Se at 220°. From the proportion of elaidic acid in the equilibrium mixt. of the isomersed acids it is shown that the only other acids present are almost exclusively diethenoid. Evidence is adduced for the presence of traces of a conjugated diethenoid acid. It is shown that neither the natural octadecadienoic (linoleic) acid of seed fats, nor the trans-Δ^9-trans-Δ^{12}-form, is present in appreciable amts. in the butter diethenoid acids. Conclusive evidence for or against the presence of either of the remaining forms is still lacking.

THE DEACIDIFICATION OF ANIMAL AND VEGETABLE OILS OR FATS BY MEANS OF CARBODIIMIDES. E. Schmidt, W. Hahn, H. Duttenhofer & J. Maerkl. *Ber. 72B,* 945-8 (1939). From the results recorded in this paper, the use for this purpose of carbodiimides, RN:C:NR (I), affords a simple method which seems not less worthy of attention than those which have previously been described. An equimol. amt. of I is insufficient for complete deacidification of herring, pilchard and sardine oils, beef tallow, animal body fat, poppyseed and rapeseed oils; a 10-100% excess is required. Generally 10-20 g. oil was deacidified by heating at 70-80°, but equally good results were obtained with larger amts. Deacidification is complete in 1-30 hrs. and the products which sep. can be removed by centrifuging the oil or molten fat. (*Chem. Abs.*)

DEGREASING THE RESIDUES OBTAINED IN FAT-RECOVERY APPARATUS. S. Liberman. *Myasnaya Ind. U. S. S. R. 9,* No. 3, 14 (1938); Chimie & industrie *41,* 762. The residue is boiled with 10% $NaHSO_4$ soln. for 2-3 hrs., water is added and boiling is continued for 1 hr. On allowing to stand the liquid seps. into 4 layers: fat, fatty emulsion, brine and sludge. The fat layer is decanted; part of the brine is siphoned off, water is added and the operation is repeated. The fatty emulsion is salted out in a decantation app. (*Chem. Abs.*)

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ART OF TREATING FATTY OILS. O. M. Behr (to Vegetable Oil Prod. Co., Inc.). *U. S. 2,166,103.* Partly polymerized fish oils are mixed with 3 pts. of org. solvent (ketones or alcs.) and the mixt. is permitted to settle. A lower layer is separated into a polymerized product and solvent. The top layer is separated into solvent and a non-drying oil.

IMPROVING THE DRYING PROPERTIES OF OILS. T. S. Hodgins (Reichhold Chemicals, Inc.) *U. S. 2,167,206.* A benzoyl peroxide treatment is used to destroy natural antioxidants of drying oils.

CONTINUOUS SPLITTING OF PLANT AND ANIMAL FAT. E. Hoffmann. *Ger. 677,957 Cl. 23d.* In the continuous splitting app. the fat or oil is continuously transferred through a series of superposed zones, which subject it to increasing temp. and press.

SYNTHETIC CREAM. D. Hildisch. *Ger. Pat. 670,549.* A confectionery cream is prepd. by partially hardening marine animal or fish oils, emulsifying these with milk or buttermilk and a little glycerin, and treating the homogenous mixt. in a beater to add air.

FAT-HARDENING PROCESS. S. H. Bertram. *U. S. 2,165,530.* Oleic acid, olein and their homologues are elaidinized by heating in the presence of selenium.

HARDENING FAT AND OIL. P. Irmen. *Brit. 503,607.* Higher alcs. or/and their esters, for example beeswax, are emulsified in water with the aid of heat and phosphoric acid salts, oil to be solidified is added to this emulsion and it is heated and boiled. On cooling, the oil separates above the emulsion as a solid fat in the form of a cake.

HIGH VACUUM DISTILLATION OF OILS. K. C. D. Hickman (to Distillation Products. Inc.). *U. S. 2,150,683.* Antioxidants are added to fish oils previous to concg. the vitamins by distn. Part of the antioxidant distills with the vitamin fraction.

CATALYTIC HYDROGENATION OF DINITRILES TO DIAMINES. B. W. Howk (to E. I. duPont). *U. S. 2,166,150-1. Hydrogenation of aliphatic dinitriles.* P. K. Signaigo (to E. I. du Pont). *U. S. 2,166,183.* Cobalt catalyst is used and hydrogenation may be at 25-200° C. and in presence of ammonia.

PROCESS FOR THE SEPARATION OF THE CONSTITUENTS OF ORGANIC MIXTURES CONTAINING BOTH RESIN ACIDS AND FATTY ACIDS, PARTICULARLY TALL OIL. F. H. Gayer & C. E. Fawkes (to Continental Res. Corp.). *U. S. 2,166,812.* Tall oil is esterified with alc., treated with NaO and the fatty acid esters are separated from resin acid soaps by treating the mixt. with hydrocarbon solvent, furfural and water.

ABSTRACTS

Soaps

Edited by M. L. SHEELY

THE STABILITY OF EMULSIONS. Part I. Soap-stabilized emulsions. A. King & L. N. Mukherjee. *J. Soc. Chem. Ind. 58,* 243-9T (1939). Hitherto emulsion stability has been ill-defined and a qualitative term. It is the object of the present series of papers to define emulsion stability quantitatively and to make a quantitative survey of the different types of emulsifying agents with a view of assessing their industrial efficiency. In the present paper results on soap-stabilized emulsions are reported. In general, it may be concluded that soaps form fine, but not very stable, emulsions. Sodium and potassium soaps of the same fatty acid possess an emulsifying efficiency of the same order; ammonium soaps are inferior. Oleates are more efficient than stearates and much more efficient than palmitates.

MAHOGANY SOAP AS A FLOTATION AGENT. W. E. Keck and Paul Jasburg. *Eng. Mining J. 140,* 49-51

(June, 1939). Unlike oleic acid it does not cause violent frothing in the presence of slimes. Mahogany soap is a Na salt of a sulfonic acid and a by product of petroleum refining. Mahogany soap has little frothing power and is an excellent collector of gang carriers (calcite, hematite and epidote) of valuable metallic minerals. Flotation with oleic and that with mahogany soap are compared. (*Chem. Abs.*)

Glycerine in gas drying. *Industrial Chemist 15,* 174, 279 (1939). Four gas dehydration plants have been erected in Great Britain using 82% glycerol as drying agent. The absorbed water is removed from the circulating liquor by evaporation under a vacuum of 27 in. of mercury. No difficulty is experienced in pumping the glycerol even at a winter temperature of 68° F. In a plant handling a million cu. ft. per day, the amount of glycerol in circulation is 5,000 lbs. Loss of glycerol is approximately 6 lbs. per million cu. ft.

Fatty acids for soap industry. Dr. J. Davidsohn and A. Davidsohn. *Soap 15,* [8], 23 (1939). In the use of fatty acids for the manufacture of soap, it can be said that all processes of soap manufacture can be used, the cold process alone excepted. As a matter of fact, all processes must be modified when using fatty acids. An important item in the use of fatty acids for soap is the fact that fatty acids can be saponified easily. It is possible, in manufacturing soap by boiling to save 30% of steam. Soap manufacture from fatty acids can be reduced in cost cheaper still by using sodium carbonate instead of caustic soda. We deal here with the so-called carbonate-saponification-process.

The full charge of fat stock must NOT be pumped into the kettle. The solution of soda ash is NOT added slowly in small portions — similar to the saponification of neutral fat, for immediately "acid soaps" would be formed, which are transformed into normal soap with great difficulty only. When using soda ash, it is necessary to pump the whole amount of the soda solution into the kettle and then slowly to add the melted fatty acids. Fatty acids are saponified the same way when using caustic soda. The same applies to the semi-boiled process. It is advisable to stir the contents of the kettle when adding the melted fatty acids to the lye. It may be emphasized in addition, that if the fatty acids contain neutral fat, it is necessary to saponify the neutral fat with caustic soda lye. (This fact is important for mixed fat stocks of fatty acids and neutral fat as well.) From the percentage of neutral fat in the fatty acids, it can be calculated how much caustic soda lye should be used for the saponification of the neutral fats, and how much soda ash for the saponification of fatty acids. It is advisable to use as a rule more caustic soda than calculated, and respectively less soda ash as in this way a complete saponification is made certain.

Sodium perborate in soap powders. J. B. Angus. *Industrial Chemist and Chemical Man, 1939,* 268. Many soap powders contain an oxygen evolving substance, the purpose of which is to exert a mild bleaching action on the materials being washed and to quicken the cleansing action of soap. The advantages of perborate over other oxidizing agents are that it gives up its oxygen comparatively slowly; it is solid, odorless and can be incorporated with the soap in the dry state without its action being impaired. In these respects it is obviously preferable to the better known bleaching agents such as sodium peroxide, hydrogen peroxide and sodium hypochlorite.

Salts of triethanolamine. II detergency. Ge. W. Fiero. *J. Am. Pharm. Assoc. 28,* 284-5 (1939). An app. is described utilizing a photoelectric cell to det. the extent of soil of cloth. Pure salts of triethanolamine were used in washing tests. The laurate, oleate, myristate and palmitate (in the order named) had definite detergent action but none possessed as great a detergent action as ordinary soap. Triethanolamine salts of com. mixed fatty acids possessed detergent action in the following order: tallow, fatty acids, coconut-oil fatty acids, red oil.

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Detergents. Egi. V. Fasce and Emil C. Rolfs, Jr. (to Standard Oil Development Co.) *Can. 381,193.* Crude alkyl sulfates contg. water and inorg. salts are dried to a viscous mass contg. less than about 50% water, about 1-3 vols. of 98% isopropyl alc. is added, about 50% of the added alc. is evapd., addnl. isopropyl alc. is added to reduce the viscosity, the dil. mixt. is filtered and the filtrate is evapd. substantially to dryness to recover substantially anhyd. salt-free, purified alkyl sulfates. (*Chem. Abs.*)

Coated metal cans. Loy S. Engle to Interchemical Corporation. *Can. 380,378.* A thin layer of coating compn. is applied to the surface of the metal, the coating hardened, an aq. lubricant applied to the hardened coating, composed essentially of glycerol and water contg. a minute amt. of a wetting agent and a few % of EtOH, the glycerol being in amt. such that the surface tension of the lubricant is less than about 40 dynes/cm. at 25°.

Perspiration preventing soap. Ervin Pick. *Brit. 506,903.* This patent relates to a perspiration preventing toilet soap which is characterized by concurrent addition of chromium oxide (chromic anhydride) and hexamethylene tetramine. Also a proportion of aluminum acetate may be successfully added to the soap. The soap basis may be provided with other usually used aromatic or similar substances, but the presence of large amounts of readily oxidizable substances should be avoided.

Example: 3.5 to 5 parts by weight of chromium oxide, 1 to 2 parts by weight of hexamethylene tetramine and 1 part by weight of aluminum acetate are stirred into 100 parts by weight of molten soap and then the soap is allowed to harden into shape of any desired configuration.

Emulsions. Leonard C. West to Howards and Sons. Ltd. *Brit. 501,521.* Stable emulsions of higher fatty acids and glycerides of the oleic and ricinoleic series, higher paraffin hydrocarbons such as paraffin wax and mineral oils, hydrogenated phenol and cresols, and animal and vegetable waxes are made with the aid of a cyclohexylamine soap, e.g., with fatty acids of the stearic, oleic, ricinoleic or linoleic series or with cycloaliphatic fatty acids or napthenic acid.

Preparation of detergents. W. S. Martin (to Procter & Gamble). *U. S. 2,166,314-5.* The sudsing qualities of sulfated alcs. are adjusted with unsulfated alcs.

Process for making brushless shaving cream. W. Kritchevsky (to Rit. Products Corp.). *U. S. 2,167,206.* The shaving creams comprise various mixts. of oils, aq. material and aromatic sulfonates.