TABLE III

Quality of Oil Extracted by the Four Solvents

	"Commercial" hexane	"High purity" hexane	"Pure" hexane	Benzene
Soybean oil				
F.F.A., %	1.4	1.3	0.7	0.9
Neutral oil, %	94.9	94.1	94.7	90.8
Color	46.8	47.1	41.3	58.2
Cottonseed oil				
F.F.A., %	2.8	2.6	1.1	1.0
Neutral oil, %	91.9	91.4	92.3	93.6
Color	319.6	225.8	342.1	477.5

summarized in Table III. Free fatty acid content was determined by the A.O.C.S. official method (2a). Color was determined by the A.O.C.S. tentative photometric method (2b) and neutral oil by the A.O.C.S. tentative chromatographic method (2c).

Extraction of soybeans by pure hexane was slower than by the other two hexanes. During the first 60 minutes extraction by benzene was more rapid than by the other solvents. At the end of 80 minutes the amount of oil extracted by benzene was only slightly more than by pure hexane and definitely less than by the commercial hexanes. The rate of extraction of cottonseed was practically the same for the four solvents.

On the basis of free fatty acids and color the best quality soybean oil was extracted by pure hexane. The benzene-extracted oil had the lowest neutral oil content and highest color. Pure hexane produced a cottonseed oil exceeded in color only by that extracted by benzene. The best colored oil was produced by the high purity hexane. Apparently there is little choice between the two commercial hexanes for soybean oil extraction. A lighter colored cottonseed oil was produced by the "high purity" hexane. These results do not necessarily apply to extraction at other temperatures than 135 to 140°F. range nor to extraction carried out under different conditions.

REFERENCES

1. Arnold, L. K., and Rao, R. K., J. Am. Oil Chemists' Soc., 35, 277–281 (1958).
2. American Oil Chemists' Society, "Official and Tentative Methods," 2nd ed., revised to 1958, Chicago, Ill. (a) Ca 5c-40; (b) Cc 13c-50; (c) Cc 9f-57.

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ABSTRACTS . . . . R. A. REINERS, Editor

ABSTACTORS: R. R. Allen, S. S. Chang, Sini'tiro Kawamura,
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• Fats and Oils

CHROMATOGRAPHIC STUDIES ON THE COMPOSITION OF COMMERCIAL SAMPLES OF TRIOLEIN-I^{131} AND OLEIC ACID-I^{131}, AND THE DISTRIBUTION OF THE LABEL IN HUMAN SERUM LIPIDS FOLLOWING ORAL ADMINISTRATION OF THESE LIPIDS. G. Lakshminarayana, F. A. Kruger, D. G. Cornwell, and J. B. Brown (Ohio State Univ.). *Arch. Biochem. Biophys.* **88**, 318–327 (1960). Triolein-I^{131} and oleic acid-I^{131} ("Raolein" and "Raoleic acid," Abbott) were chromatographed on a standardized silicic acid column. Triolein-I^{131} was found to contain methyl esters and tri-, di-, and monoglycerides of labeled oleic acid. Gas chromatographic, infrared spectrographic, and chemical analyses confirmed the presence of these components. The radioactivity distribution showed a lower proportion of triglycerides than did chemical analysis. Following oral administration of triolein-I^{131} or oleic acid-I^{131} to normal individuals, the chromatographic fractionation of the serum lipids showed that about 90% of the radioactivity was in the triglyceride fraction and the remainder was mostly in the diglyceride and non-esterified fatty acid fractions.

NEUTRON ACTIVATION PAPER CHROMATOGRAPHIC ANALYSIS OF PHOSPHATIDES IN MAMMALIAN CELL FRACTIONS. E. H. Strickland and A. A. Benson (Pennsylvania State Univ.). *Arch. Biochem. Biophys.* **88**, 344–348 (1960). Diphosphatidylglycerol (cardiolipin) was found in the mitochondria of a number of cell fractions. Its concentration was estimated by neutron activation chromatographic analysis of the deacylated derivative, 1,3-diglycerophosphorylglycerol. Microsomes contained little or none of this lipid. The distributions of the other glycerol phosphatides in mitochondria and microsomes were similar. A possible functional role for diphosphatidylglycerol is discussed.

EDIBLE FATS AND PROCESS FOR MAKING SAME. H. Wissebach (Lever Bros. Co.). *U. S. 2,942,984.* A natural fat such as palm oil, shea butter, lard, beef tallow, or mutton tallow is fractionally crystallized so as to obtain a liquid fraction having a softening point below 30°C. The liquid is then hydrogenated to give a fat having an iodine value in the range of 50 to 65, a softening point in the range of 30°C. to 45°C., and a dilatation at 20°C. of not less than 1200.

DYEING SOLUTION FOR COLORING CITRUS FRUITS AND METHOD OF DYEING CITRUS FRUITS. H. J. Keller (Clearwater, Fla.). *U. S. 2,943,943.* An annatto derivative is dissolved in a hydrocarbon solvent, oleic acid, and an amine (the amine being present in at least equal amounts in relation to the oleic acid). The mixture is emulsified with water, maintained at a pH between 7 and 13, and applied to the skin of citrus fruits to dye them.

PROCESS FOR NEUTRALIZING VEGETABLE OR ANIMAL OILS OR FATS IN A WATER-SOLUBLE SOLVENT. C. Vaccarino and G. Vaccarino (Messina, Italy). *U. S. 2,944,072.* Vegetable and animal oils and fats are dissolved in a solvent miscible in all proportions with both water and the fats and oils. The solution is treated with sodium or potassium hydroxide or carbonate until neutralization of the oils and fats is complete. Hot water is added and the two immiscible liquid phases thus obtained are separated. The solvent is removed and the neutralized oils and fats are collected. The solvent-free aqueous phase, which is a solution of soap and water-soluble impurities, is discarded.

MAYONNAISE PRODUCT AND METHOD OF MANUFACTURE. J. G. Spitzer, L. S. Nasarevich, J. L. Lange, and H. S. Bondi (Carter Products, Inc.). *U. S. 2,944,906.* A mayonnaise-like product of relatively low caloric content is an oil in water emulsion in which the oil phase dispersed throughout the continuous water phase consists of edible oil droplets at a concentration of 5.0 to 30% by weight of the total composition. The emulsion also contains an egg yolk containing material (1 to 7% by weight), an acidifying agent (0.1 to 1.5% by weight based on pure acid content), a stiff gum (0.5 to 2.5% by weight), and a predominant amount of water.

SOLVENTS FOR FAT AND OIL ANTIOXIDANTS. M. B. Knowles and H. S. Pridgen (Eastman Kodak Co.). *U. S. 2,944,908.* A liquid antioxidant for addition to fats and fatty oils contains as the active constituent 5 to 50% of a phenolic antioxidant. The solvent consists of from 10 to 95 parts by weight of an acetic acid ester of glycerine out of a total of 10 to 164 parts by weight of solvent.

PROCESS FOR LUBRICATING AND PROMOTING THE COHESION OF TEXTILE FIBERS. W. H. Shields and H. T. Buckley (Emery Ind., Inc.). *U. S. 2,944,920.* A textile dressing consists of 5% to 50% polymerized fatty acid compound (polymerized fatty acids, polymerized esters of fatty acids and monohydric alcohols of up to 8 carbon atoms, or polymers of polymerized fatty acids and dihydric alcohols of up to 8 carbon atoms chain length) and 95% to 50% of an oily diluent. This diluent may be an animal, vegetable, or mineral oil, a liquid fatty acid or a liquid ester of a fatty acid.

Oxidation process. N. W. Franke, C. M. Selwitz, and A. C. Whitaker (Gulf Res. & Dev. Co.). *U. S. 2,945,050.* A process for preparing fatty acids consists of the following steps. An olefin is reacted with hydrogen and carbon monoxide in the presence of a metallic hydroformylation reaction catalyst at an elevated temperature and an elevated pressure to obtain a mixture containing an aldehyde having one more carbon atom than the olefin. The catalyst is removed, and the demetalled mixture is hydrogenated to convert the aldehyde to the corresponding alcohol. The alcohol is recovered and the remainder of the hydrogenated mixture is oxidized with nitric acid to give a mixture comprising an organic layer containing fatty acids and a nitric acid layer.

Studies in the reduction of some long chain epoxy acids. F. J. Julietti, J. F. McGhie, B. L. Rao, and W. A. Ross (Dept. of Chem., Chelsea Coll. of Sci. and Tech., London, S.W.3). *Chem. & Ind.* **1960**, 874. The conclusions that the catalytic reduction of 9,10-epoxyoctadecanoic acids resulted in unidirectional opening of the oxirane ring are proved to be misleading.

Studies on the lipids of wheat: fractionation on silicic acid. N. Fisher and (in part) M. E. Broughton (British Baking Industries Research Assocn., Chorleywood, Herts). *Chem. & Ind.* **1960**, 869–70. Lipids of wholemeal flour were separated into petroleum ether soluble and petroleum ether insoluble fractions. An acetone insoluble fraction of petroleum ether soluble fraction was also obtained. Whereas the linoleic acid contents are almost identical in all three fractions, petroleum ether soluble fraction contained significantly less palmitate and more oleate than either of the others. The petroleum ether insoluble fraction and the acetone insoluble fraction were remarkably similar in composition. The petroleum ether soluble fraction and acetone insoluble fraction were separated by chromatography on silicic acid. Galactosyl glycerides, galactose, choline, inositol, ''polypeptide,'' ethanolamine, and serine were found to be concentrated in subfractions obtained by chromatography.

Evaluation of fat rancidity. A. Uzzan (Inst. Corp Gras, Paris). *Rev. Franc. Corp Gras,* Special Number (Journ. Etude Alternation Oxidative Corp Gras), 22–36 (1959). The author reviews methods of evaluating the state of rancidity of fats as determined by panel testing, and by chemical and physical methods, and discusses the degree of correlation existing between the various methods. He discussed the stability measurements by using normal and accelerated tests and also discusses their relationhips to each other.

The relationship between the catalysed oxidation of various unsaturated fatty acids and environmental factors. W. Schuler, S. Mayor, and R. Meier (C.I.B.A., Research Laboratories, Basel). *Fette Seifen Anstrichmittel* **62**, 389 (1960). The authors report that the appearance of various types of intermediates and end products of oxidation and the formation of free radicals on the initiation of the oxidation reactions are responsible for the different behavior of various fatty acids upon oxidation. The appearance of these materials was shown to be dependent upon the type of fatty acid studied, the type of catalyst employed, and the environmental factors surrounding the experiments. The fatty acids studied by these authors were: linoleic, linolenic, alpha-eleostearic, arachidonic, clupanodonic, and erucic acids. The catalysts studied were cortisone, Cu^{++}, and Co^{++} ions as the sulphate and chloride, respectively. The oxidations were studied in emulsion solution as well as in the dry oil. It was shown that Cu^{++} exerted the most pronounced effect on the oxidation.

Paper chromatography in the field of fat. XL. The analysis of mixtures of fatty acids and glycerides. N. P. Kaufmann and Z. Makus (Deut. Inst. Fettforsch., Munster). *Fette Seifen Anstrichmittel* **62**, 153–160 (1960). The authors discuss the subject of suitable solvent systems for the separation of the various lipids very thoroughly; and illustrate the discussion by reporting the results of analysis of mixtures containing odd and even chain length fatty acids from C_7–C_{28} preformed on paper using the undecane/acetic acid solvent system. The authors have investigated critical pair formation (pairs or more of fatty acids which are inseparable) and have derived an empirical rule which governs them and they call it the paper chromatographic value number. Using the undecane acetic acid solvent system, critical pairs of fatty acids were determined to be as follows: stearic and dihydrochaulmoogric acids; oleic, elaidic, petroselenic and chaulmoogric acids; linolenic and eleostearic acids; and parinaric acid. The paper chromatographic value number was determined by the following formula: $pc\,V = n - 2m$, where n is the number of carbon atoms in the acid and m is the number of double bonds in the acid. The values for stearic, oleic, linoleic, linolenic, and parinaric acids would then be 18, 16, 14, 12, and 10, respectively.

• Fatty Acid Derivatives

Shear stable barium 12-hydroxy stearate grease containing a boron ester compound. H. J. Worth (Union Oil Co.). *U. S. 2,943,054.* A shear stable lubricating grease is described which consists essentially of mineral lubricating oil thickened with about 3% to 30% by weight of barium 12-hydroxystearate. The grease also contains a small amount, sufficient to impart good mechanical stability and reversibility characteristics, of a product obtained by heating to 215°F. to 425°F. orthoboric acid and an ester such as glycol and polyglycol, mono- and diesters of hydroxy fatty acids having 8 to 50 carbon atoms or glycerol mono-, di-, and tri-esters of hydroxy fatty acids having 8 to 50 carbon atoms.

Barium 12-hydroxy stearate grease containing a boron ester compound. H. J. Worth (Union Oil Co.). *U. S. 2,943,055.* A sheaer stable lubricating grease is described which consists essentially of mineral lubricating oil thickened with from 3% to 30% by weight of barium 12-hydroxy stearate. In addition the grease contains between 0.05% and 5% by weight of the reaction product of 1 equivalent of an alkanolamine with between 1.4 and 1.7 equivalents of orthoboric acid.

Oxidized polyethylene wax compositions of controlled high melt viscosities and process for preparing them. R. Rosenbaum (Allied Chem. Corp.). *U. S. 2,943,069.* The described composition contains at least 50% of oxidized polyethylene wax containing between 2% and 7% of oxygen, having an acid number between 11 and 20 and an average molecular weight between about 1,000 and 5,000. Also present is between 1% and 10% (on weight of oxidized wax) of a water-insoluble aluminum salt of a saturated, aliphatic monocarboxylic acid having from 8 to 20 carbon atoms. The balance of the composition consists of conventional hot melt coating additives The product has a potential melt viscosity at temperatures between 230°F. and 300°F. of at least 1,000 centipoises.

Lubricants containing fatty acid esters of saccharides. A. J. Morway and W. E. Waddey (Esso Res. & Eng. Co.). *U. S. 2,944,024.* A lubricating grease composition is described which contains about 5 to 40 weight per cent of an ester prepared by reacting one mole of a disaccharide with 1 to 3 moles of a C_{12} to C_{32} fatty acid; between 5 to 40 weight percent of an alkaline earth metal salt of a C_2 to C_6 fatty acid; and a major proportion of lubricating oil.

Salts of basic amino acids and linoleic acid. R. W. H. Chang and Frances L. Moyer (General Mills, Inc.). *U. S. 2,945,049.* The product claimed is a salt of linoleic acid and an edible basic amino acid.

Metallic salts of commercial stearic acid. G. M. Davis (American Cyanamid Co.). *U. S. 2,945,051.* A method is described for producing a coarsely crystalline metallic soap from a mixture of commercial fatty acids of from 12 to 22 carbon atoms containing less than 20% by weight of unsaturated fatty acids. A continuous phase layer of fatty acids in molten condition is supported on an underlying body of a hot aqueous liquid and reacted with an aqueous slurry of magnesium, calcium, or zinc hydroxide. The fatty acid layer is kept distinct from the underlying aqueous layer, and the metallic soap is precipitated.

Process of drying soap. G. Mazzoni. *U. S. 2,945,819.* An aqueous soap mass is heated to a temperature higher than that at which it is substantially fluid. A continuous stream of the heated soap is sprayed against a collecting surface a sufficient distance through a partial vacuum to evaporate a sufficient portion of the water to dry it to a fatty acid content in the range of laundry and toilet soaps. The soap should also be cooled to a sufficiently low temperature during passage through the partial vacuum to be solidified upon reaching the collecting surface. The dried soap is continuously removed from the collecting surface so as to continuously obtain a homogeneously dried, solid soap of uniform fatty acid content.

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• Biology and Nutrition

Dietary fats and effects of internal radiation by P^{32}. Camillo Artom and H. B. Lofland, Jr. (Dept. of Biochem., Bowman Gray School of Med., Wake Forest College, Winston-Salem, N. C.). *Proc. Soc. Exp. Biol. Med.* **104**, 369-9 (1960). Mice were maintained on various experimental diets and injected with single doses of radio active phosphate (4-5 μc/g).

Higher % of survivors and longer survival time were observed in animals on fat-free diet as compared with those fed diets containing 30% corn oil, or 30% hydrogenated coconut oil. However, with these high-fat diets as well as with the dietscontaining only minimal amounts of fats, a better survival was demonstrable when highly unsaturated fatty acids were present. It appears that if definite amounts of these fatty acids are included, a low-fat diet should be beneficial in alleviating effects of internal radiation by P^{32}.

Cholesterol estimation on unmeasured drops of whole blood. A. Keys, M. Mancini, and J. T. Anderson. (Lab. of Physiological Hygiene, Univ. of Minnesota School of Public Health, Minn.). *Proc. Soc. Exp. Biol. Med.* **104**, 452–7 (1960). A method is presented for estimation of serum total cholesterol concentration from concentration of cholesterol/unit of whole blood solids, using a few unmeasured drops of finger tip blood dried in room air on filter paper. Prolonged storage at ordinary temperatures may elapse before analysis. In 124 sets of comparisons between serum from arm vein and dried finger tip blood, standard error measurement was ± 15.5 mg. cholesterol/100 ml. serum. This is comparable to intra-individual variability in direct serum measurement of blood samples drayn a few days apart and is smaller than variability between serum values in casual bloods drawn at longer intervals. Significance of blood cholesterol level in prediction of risk from coronary heart disease has been under-estimated in previous studies.

Cholesterol concentration in human serum and blood cells. M. Mancini and A. Keys (Lab. of Physiological Hygiene, University of Minnesota, and Hastings State Hospital, Hastings). *Proc. Soc. Exp. Biol. Med.* **104**, 371–3 (1960). 1) Direct analysis of cholesterol in blood cells from 38 men yielded average value of 137.7 mg./100 ml., and there was no correlation with serum values in these samples. Standard deviation of these cell values was only 6.5 and part of this small value is accounted for by analytical error. Indirect estimates agreed closely but variability was larger. 2) In 2 dietary experiments on 6 men which produced average changes of −63.8 and +51.8 mg. of cholesterol/100 ml. of serum there were no significant changes in cholesterol concentration in the cells.

Studies on the regulation of fatty acid and cholesterol synthesis in avian liver. E. C. Layne, G. G. Rudolph, and S. P. Bessman (Dept. Pediatrics and Biochemistry, University of Maryland, School of Medicine, Baltimore, Md.). *Science* **132**, 418–419 (1960). Homogenates of pigeon liver have been incubated with acetate-C^{14} in excess. Simultaneously, substrate for glycolysis was provided as glucose-6-phosphate. The incorporation of carbon-14 into cholesterol was maximal at low levels of glycolysis whereas fatty acid turnover was maximum at higher glycolytic levels. A regulatory mechanism is proposed to explain the differential synthesis of cholesterol and fatty acid.

Effect of vitamin A on the cystine content in skin of rats. T. Koyanagi and S. Odagiri (Iwate Univ., Morioka, Japan). *Nature* **186**, 809–810 (1960). In the skin of vitamin A deficient rats there was less cystine than in that of normal rats, suggesting that vitamin A may be involved in the metabolism of cystine and may have an effect on the resistance of epithelium.

Haemorrhagic lipaemia in the rat. S. Punsar, G. Härtel, A. Louhija, and O. P. Heinonen (Wihuri Res. Inst., Helsinki, Finland). *Nature* **186**, 888–889 (1960). Three groups of rats, each on a standard low-fat diet, were subpected to a daily withdrawal of an amount of blood corresponding to 2% of body weight. The first group served as a control group and developed a marked anaemia, together with a definite increase in the serum cholesterol and phospholipid concentrations and visible lipaemia. The animals of the second group received after each bleeding an amount of rat serum approximately corresponding to the amount withdrawn. Anaemia and lipaemia developed similarly to the control group. The rats in the third group received after each bleeding an amount of red cells sufficient to prevent the development of anaemia. No lipaemia occurred in this group. It thus seems possible that the anaemic anorexia is the cause of the haemorrhagic lipaemia.

Synthesis of β-carotene. M. H. Stern (Eastman Kodak Co.). *U. S. 2,945,069.* A retrovitamin A halide is reacted with a triaryl phosphine to form a retrovitamin A triaryl phosponium halide. The resulting phosphonium halide is converted to a triaryl phosphorus-ylid having the vitamin A structure with a strong organic base. The phosphorous-ylid is then reacted with vitamin A aldehyde to form β-carotene.

Phosphatide emulsifying agent and process of preparing same. C. E. Moyer, J. A. Fancher, and P. E. Schurr (Upjohn Co.). *U. S. 2,945,869.* A soya phosphatide fraction which is well suited for use as an emulsifier in an intravenous fat product is prepared in the following manner. One part by weight of the monatomic, lower molecular weight aliphatic alcohol-dissolved soya phosphatides is contacted with about two parts by weight of an adsorbent such as aluminum oxide, magnesium oxide, or activated carbon. The solids are removed, and the desired soya phosphatide fraction is recovered from the solvent.

Biology of fats. X. Experiments on the resorption of conjugated oils. H. P. Kaufmann and H. Dransfeld (Deut. Inst. Fettforschung). *Fette Seifen Anstrichmittel* **62**, 265–271 (1960). The resorption and deposition of impatiens oil has been studied through ultraviolet spectroscopic investigation of the blood lipids and fats from various organs after administering the emulsified oil to rabbits orally and rectally. In addition to this, experiments have been carried out on human beings. The results show that small amounts of emulsified fats are resorbed through the large intestine.

The permeation of fatty alcohol sulfates and sodium soaps of fatty acids with definite chain lengths (C_8–C_{18}) in unaffected human skin and its relationship with causes of irritation. A. Szakall and K. H. Schul (Univ. Clinic, Hamburg). *Fette Seifen Anstrichmittel* **62**, 171 (1960). The skin permeability of aqueous solutions of a homologous series of alkyl sulfates and of sodium salts of fatty acids with a chain-length range of C_8–C_{18} has been investigated. The results obtained show that the compounds with 12 carbon atoms in both of the series possess the maximum permeability. The degree of permeability of C_8 acids is about the same as that of water. The authors point out a close relationship between permeation and irritability to the skin. It is considered necessary that permeation through the horny layer of the skin is prerequisite for irritation. The mechanism of permeation through this layer is also discussed by the authors.

Lipids of mycobacteria. E. Lederer (Paris). *Angew. Chem.* **72**, 372 (1960). The following conclusions were drawn by the author in his review. The lipids of mycobacteria can be divided into three groups: Fats, phospholipids, and waxes. They are esters of branched chain fatty acids with various sugars, sugar alcohols, glycerol, and high molecular weight aliphatic alcohols. A material of especial interest is the bacterial D-wax which is essentially a trehalose-6,6′-dimicolate. The molecular weight and composition of the D-waxes vary with the bacterial strain from which they have been isolated and consist of equal proportions of mycolic acids and nitrogen containing polysaccharides. 105 references.

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• Drying Oils and Paints

Coating composition. N. B. Hughes (Berwyn Heights, Md.). *U. S. 2,942,995.* A liquid coating composition which consists of the following ingredients: castor oil, 1 part by weight; benzol, 2; beeswax, 2; turpentine, 48; and Spar varnish, 26, is described.

Tinting base composition. L. S. Bram and L. F. Vecchio (Benjamin Moore & Co.). *U. S. 2,942,997.* A fluid colorant is described which consists of a mixture of the following ingredinets: (a) a nonionic alkyl or alkaryl alkylene glycol ether which is soluble in water, ethylene glycol, and polar solvents and has from 9 to 15 oxyalkylene groups; (b) a second nonionic alkaryl alkylene glycol ether which is, at most, partially soluble in water and ethylene glycol, but which is miscible with hydrocarbon solvents and has from 1 to 7 oxyalkylene groups; (c) a hydrocarbon solvent; and (d) the pigment dispersed in a latent solvent such as alkyl ketone, alkylene glycol, mono- or di-alkyl ethers of alkylene glycols, or ether esters of alkylene glycols. The first and second nonionic ethers should constitute from 10% to 45% by weight of the total colorant.

Process for post-bodying styrenated oil-modified alkyd resins. W. F. Hart (American Cyanamid Co.). *U. S. 2,944,991.* A small but effective amount of an organic peroxide catalyst is introduced into a solution of a preformed styrenated glyceride oil-modified alkyd resin containing minor amounts of residual styrene monomer. The solution is heated at a temperature between 90°C. and the reflux temperature with constant agitation until the desired viscosity increase is obtained.

High temperature alkyd resin varnish. L. W. Frost and M. A. Mendelsohn (Westinghouse Elec. Corp.). *U. S. 2,945,829.* The described varnish is comprised of (A) from 98% to 90% by weight of the reaction product of (a) from 5 mols to 8 mols glycerol, (b) from 2 mols to 5 mols salicylic acid, (c) from 4 mols to 6 mols isophthalic acid, and (d) from 0.7 to 1.3 mols dehydrated castor oil, there being sufficient alcohol present to provide about a 30% to 50% stoichiometric excess of hydroxyl groups to carboxyl groups and (B) from 2% to 10% by weight of a compound such as butylated melamine-formaldehyde resin, butylated urea-formaldehyde resin, or pyromellitic dianhydride.

Catalyst for the preparation of improved alkyd resins. W. M. Kraft (Heyden Newport Chem. Corp.). *U. S. 2,945,830.* Pentaerythritol is partially esterified with at least one mole of a monocarboxylic acid (6 to 18 carbon atoms) per mole of pentaerythritol. The ester is heated in the presence of a catalytic amount of a nuclear sulfonated polystyrene cation exchange resin the hydrogen cycle. From 0.4 to 0.8 mole of water of etherification per mole of pentaerythritol is removed to form an esterified dipentaerythritol-containing pentaerythritol reaction product.

Sb_2O_3-adduct of an organic monobasic fatty acid triglyceride with an organic polyisocyanate composition. W. Szukiewicz (Allied Chem. Corp.). *U. S. 2,943,947.* A compos'tion adapted for use in adhesives, coatings, and films consists of a mixture of Sb_2O_3 and an adduct of a monobasic fatty acid triglyceride having a hydroxyl number above 50 with an organic polyisocyanate sufficient to provide from 1.5 to 4.0 isocyanate groups for each hydroxyl group in the glyceride. The Sb_2O_3 is present in the proportion of 25% to 300% by weight of the adduct.

• Detergents

The sulphosuccinate wetting agents. J. S. Stanley (J. A. Radley, Industrial Res. & Dev. Labs.). *Mfg. Chemist* **31**, 242–244 (1960). A list of oil-soluble dialkyl sulphosuccinates which are currently commercially available in pure form is presented. The properties of the various members of the series (isobutyl, amyl, 1:4-dimethylbutyl, 2-ethylhexyl, *n*-octyl, and 3,5,5-trimethyl hexyl) and their use in the formulation of pesticides and pharmaceuticals are discussed.

Emulsions in cosmetics and toilet goods. J. Pickthall (Polak and Schwarz (England) Ltd. Div. of Internation Flavours & Fragrances, Inc.). *Perfumery Essent. Oil Record* **51**, 299–303 (1960). Typical formulations for various types of cosmetics such as foundation creams, cleansing creams, and beauty milks are presented. The role of surface-active agents in these preparations is discussed, and methods of manufacture are described.

Effect of different detergents on appearance of home laundry washed in different appliances. Florence Ehrenkranz (Univ. of Minn.). *Soap Chem. Specialties* **36** (6), 47–50 (1960). The effect of various detergents on the appearance of bed sheets, pillow cases, and towels washed in different automatic washers with minimum amounts of detergents was determ'ned. The sheets washed with all-purpose high-sudsing liquid syndet in the pulsator automatic and in the combination washer-dryer were judged to look cleaner than those washed with controlled sudsing syndet in the pulsator or agitator automatics and cleaner than those washed with mild soap in the agitator washer or in the combination washer-dryer. However, pink towels washed with the high-sudsing liquid syndet in the pulsator automatic showed graying after two washings. Thus, under the conditions used, none of the detergents completely meets the desired criteria: a detergent should wash household textiles clean and be rinsed out of the articles in the complete washing cycle.

Non-spray dried wash powders. A Davidsohn (Haifa, Israel). *Soap Chem. Specialties* **36**, (6), 151–154, 201)1960). A number of typical formulas for detergent, soap-detergent powder mixes for sale in bulk packages are presented.

Liquid detergent compositions. D. A. Cook (Diamond Alkali Co.). *U. S. 2,943,058.* The described composition is characterized by a high degree of clarity and absence of a cloud point up to 100°C. and is capable of providing clear solutions in water having hardness values ranging from 10 to 100 grains and contains the following ingredients: (a) 7–8% sodium dodecyl benzene sulfonate; (b) 24–25% alkyl benzene polyether ethanol; (c) 5% diethanolamide mixture (72% diethanolamide, 1% diethanolamine laurate, 21% diethanolamine, and 6% glycerine); (d) 3% hexylene glycol; (e) 3% ethyl alcohol; (f) 0.1% tetrasodium salt of ethylene diamine tetraacetic acid; and (g) water to make 100%.

Sulfonate detergent compositions. R. D. Stayner (Calif. Res. Corp.). *U. S. 2,944,028.* The compsition consists essentially of a water-soluble polypropylene benzene sulfonate detergent having an average carbon content in the polypropylene chain of about 12 carbon atoms. Also present in an amount to enhance the sudsing properties, is a straight-chain alkyl benzene sulfonate having from 13 to 18 carbon atoms in the chain.

Process for the production of water-repellent finishes on textiles and composition thereof. L. H. Groves and J. W. Roberts (Imperial Chemical Ind. Ltd., London). *U. S. 2,944,921.* The described composition consists essentially of a methylolamide of a fatty acid containing at least 14 carbon atoms, less than 4.0% by weight of free fatty acids (on weight of the methylolamide), and an anionic surface-active agent as dispersing agent at a concentration of not more than 6% by weight of the methylolamide. The formulation is applied to the textile material in conjunction with an acid, or an acid generating catalyst, and the material is heated.

Sanitary paper and process of making the same. C. H. C. Yang (Crown Zellerbach Corp.). *U. S. 2,944,931.* To a stable, aqueous slurry of papermaking fibers is added a stable, aqueous emulsion of 1 to 90% by weight of lanolin and 10 to 99% by weight of a cationic emulsifier such as quaternary ammonium salts or bases, quaternary sulfonium salts or bases, long-chain amine salts, or tertiary sulfonium bases. A paper web is then formed from the resulting slurry. The amount of lanolin and emulsifier deposited on the fibers is sufficient to improve the softness and surface feel of the paper, but insufficient to permit lanolin from being rubbed off of the paper.

Process for preparing aqueous soap-synthetic detergent mixtures in ribbon form. R. E. Compa (Colgate-Palmolive Co.). *U. S. 2,944,977.* A sodium soap of a saturated higher fatty acid (16 to 18 carbon atoms) and a sodium salt of a higher fatty acid monoglyceride sulfate detergent (12 to 18 carbon atoms in the fatty acid moiety) are combined with water to give a homogeneous aqueous mixture of 65 to 70% solids. The soap accounts for 35 to 70% of the total solids. The mixture is chilled to a temperature below its setting-up point and formed into form-retaining ribbons.

Process for breaking emulsions of the oil-in-water class. L. T. Monson and F. W. Jenkins (Petrolite Corp.). *U. S. 2,944,978.* A demulsifying agent includes the ester of a polycarboxy acid and a high-molal non-ionic surfactant having a molecular weight in the range of 1,000 to 10,000. The surfactant is an oxyalkylated derivative produced by reaction between a 2,4,6-C_4-to-C_{14}-hydrocarbon-substituted monocyclic phenol-C_1-to-C_8 aldehyde resin and an alkylene oxide having from 2 to 4 carbon atoms.

Disinfectant compositions. E. Schraufstatter, E. Gottsacker, and H. Wolz (Farben-fabriken Bayer Aktiengesellschaft). *U. S. 2,945,782.* The desired composition contains water, a disinfecting amount of dichlorobenzyl alcohol, an alcohol solvent, and an anion-surfactant such as alkyl sulfate, alkyl sulfonate, aralkyl sulfonate, or alkyl aryl sulfonate.

Abrasive detergent compositions. R. B. Diaz (Colgate-Palmolive Co.). *U. S. 2,945,815.* An abrasive detergent composition which is substantially non-scratching to porcelain and is of excellent cleaning power consists of a major proportion of silica and a minor proportion (up to about 20%) of a water-soluble synthetic organic detergent.

Process for preparing detergent bars. I. R. Schmolka (Colgate-Palmolive Co.). *U. S. 2,945,816.* A water-soluble fatty acid monoglyceride sulfate detergent salt, containing less than 1% of free fatty acid, is prepared, plasticized, and shaped into bar form.

Process for preparing surface-active compositions. R. L. Costine and R. W. Behrens (Atlas Powder Co.). *U. S. 2,945,818.* To a hydrocarbon solvent solution of an organic compound such as an alkylaryl sulfonic acid (8 to 18 carbon atoms in the alkyl radical) is added an aqueous slurry of an inorganic base and a synthetic non-ionic surface-active agent in an amount sufficient to provide a weight ratio of surfactant to organic compound of about 40/60 to abount 75/25. A composition composed of an inorganic compound and a homogeneous reaction mixture of solvent, surface-active agent, and salt of an organic compound is produced. The precipitated inorganic sulfate is filtered from the reaction mixture.