THE reverse charged soaps or cationic detergents based usually on quaternary ammonium compounds are increasing in importance and although soap-like in appearance are, generally speaking, of poor detergency, but have found use as softening agents on cellulosic fibers because of the monomolecular layer of large cation oriented on the negatively charged cellulose. An example of a quaternary is the alkyl ($R=C_8-C_{18}$) dimethyl benzyl ammonium chloride which ionizes as reverse charged material having the large part of the molecule in the cation. These products will precipitate in the presence of soap and the other anionic detergents mentioned above and, furthermore, cannot be used during dyeing. Their application is confined to aftertreatment of yarns and fabrics. Some of the better scouring types are used in acid scouring bath of wool under certain special conditions.

Far more important as detergents and of growing supply are the new non-ionics which have all of the advantages of the true detergents coupled with stability under all textile conditions. They furthermore possess very low affinity for fibers and therefore have remarkable rinsability and high economy. The alkyl aryl polyglycol ethers

$$R\,C_6H_4O(CH_2CH_2O)_xH$$

resemble the soap molecule in long chain structure and also the alkyl aryl types, but there is no terminal polar grouping. The low cost of these types and the high scouring efficiency permit actual money value at today's market against the best tallow soaps in wool scouring, where curtailment of alkali in the rinse is important. Their action in peroxide bleaching baths, where they act as wetting agents and later as detergents, is of real value in continuous bleaching of fabrics. The same advantage is noted when they are used as wetting agents in desizing baths; they show no harmful action on the enzyme and later are present to perform the scouring function.

The use of non-ionic detergents in sulfuric acid carbonizing of wool, where wetting at low temperatures of cellulosic materials and minimum substantivity for wool are important factors, has been well established. The high stability of non-ionics in sulfuric acid also permits use in the popular parchmentizing finish for cotton fabrics known as the Heberlein process. The compatibility of non-ionics with cationic compounds opens the field to combination products possessing detergency and other specific uses such as mildew-proofing and mothproofing.

Another excellent example of non-ionic-cationic combinations is in urea-formaldehyde resin impregnation baths where the cationic softening agent acts as a lubricant and plasticizing agent for the resin and the detergent functions as a penetrant and later acts as a scouring agent for the uncured resin and catalyst.

Soap and synthetic detergents may be amalgamated into one group as far as the textile industry is concerned, and the correct selection of synthetic or soap will be made more readily once the exact facts are recognized.

☆ ☆ ☆ ABSTRACTS ☆ ☆ ☆

Oils and Fats

Edited by M. M. PISKUR

THE COMPONENT FATTY ACIDS AND GLYCERIDES OF DHUPA FAT. M. N. Baliga and M. L. Meara (The Univ. Liverpool). *J. Soc. Chem. Ind. 68,* 52-4(1949).

THE COMPONENT ACIDS OF SOME SEAL BLUBBER AND LIVER FATS. T. P. Hilditch and S. P. Pathak (Univ. Liverpool). *Biochem. J. 44,* 218-24(1949).

DEFATTING BONE LIQUOR FOR PREPARATION OF STANDARD GLUE. V. Smirnova and L. Zueva-Vniemp. *Myasanaya Industriya 1948,* No. 2, 85-7. Glue liquor contg. 0.02% fat, or 3.5% on the dry basis, was defatted by means of a dairy type centrifuge. Significant fat removal occurred when the speed was over 2,800 r.p.m. When the temp. of the liquor was 80°, 79.5% of the fat was removed, at 55-60°, 59.6% was removed. A system for processing bone glue-liquors was presented.

DETERMINATION OF C^{14} IN FATTY ACIDS BY DIRECT MOUNT TECHNIC. C. Entenman, S. R. Lerner, I. L. Chaikoff, and W. G. Dauben (Univ. California, Berkeley). *Proc. Soc. Exptl. Biol. Med. 70,* 364-8(1949).

BELLIER VALUE. A. Lacerda. *Rev. soc. Brasil. quim. 16,* 153-63(1947). The method is modified so that methanol is substituted for ethanol in the saponifying solution.

CANADIAN ERUCIC ACID OILS. III. SHORTENINGS FROM RAPE AND MUSTARD SEED OILS. H. J. Lips, N. H. Grace, and S. Jegard. *Can. J. Res. 27F.* 28-34(1949). Processed rape and mustard seed oils were hydrogenated at 50-lb. pressure and 284°F., using a commercial nickel formate catalyst, and were deodorized for one hour at 464°F. The stability of the hardened oils compared favorably with that of a standard commercial vegetable shortening. Taste panel tests indicated that both the rape and mustard shortenings were as satisfactory as the commercial reference material for the preparation of pastry and doughnuts. Special study of the rape product showed that it could be plasticized, and it gave good results in baking volume experiments.

MECHANISM OF FAT SPLITTING. L. Lascaray (Vitoria, Spain). *Ind. Eng. Chem. 41,* 786-90(1949). Comparison of experimental results obtained by fat splitting in an autoclave and by the Twitchell process shows the similarity of the reaction mechanism in both. The reaction rate increases with temperature and with amount of reagent, and changes with its nature, and the reaction is limited only by the ratio of fat to water. Fat hydrolysis is mainly homogeneous because an appreciable amount of water is dissolved in the oil phase. The splitting reagents increase the solubility of water in the oil phase and make this water more active by liberating hydrogen ions in it. Action of splitting reagents is due to their highly hydrated and ionizing functional groups.

WOOL GREASE DISTILLATION PRODUCTS. E. S. Lower. *Oil and Colour Trades J., Jan. 7 and 14, 1949,* 6 pp. The main products of the process are gas oil 10-15, crude oleo-stearene 55-70, dark colored distillate 5-10, and wool grease pitch 10-25%. The distillates all contain saponifiable esters, free fatty acids, unsaponifiable matter, sterols, higher alcohols, and hydrocarbons. At temperatures above 270° various products result from cholesterol.

PREPARATION OF MONOGLYCERIDES AND THE MONO ESTER OF POLYALCOHOLS. Pierre Savary. *Oleagineux 4,* 155-9(1949). Fatty acid was reacted with an excess [8(—OH)s to each (—COOH)] of glycol, glycerol, pentaerythritol and dipentaerythritol and the effect of temperature and catalyst on the production of esters recorded. With the use of soap as a catalyst the analyses of the results are close to those calculated according to the rule of random distribution.

THE ACTION OF FUMARIC AND MALEIC ACIDS AS FAT ANTIOXIDANTS AND EFFECT OF THE TEMPERATURE. W. Heimann. *Z. Lebensm.-Untersuch. u. Forsch. 88,* 586-93(1948). Maleic and fumaric acids were good antioxidants in tests on rape and olive oils in the dark and in sunlight. Maleic acid was more effective than fumaric acid. The antioxidant effects were strongest at room temp. storage, and were weakest but significantly apparent with storage at —15°.

TOXICITY OF HYDROQUINONE FOR LABORATORY ANIMALS. G. Woodard, E. C. Hagan, and J. L. Radomski (Food and Drug Admin., Washington, D. C.). *Federation Proc. 8,* 348(1949). Because of the interest in the proposed use of hydroquinone as an antioxidant for edible fats, experiments were undertaken to determine its toxicological properties. Approximate acute oral $LD_{50's}$ in mg./kg. of hydro-quinone in 2% aqueous solutions are: rats, 320; cats, 70; dogs, 200; and in rats for quinhydrone, 225; and quinone, 130. The approximate intravenous $LD_{50's}$ in rats are: hydroquinone, 115; quinhydrone, 35; and quinone, 25. The acute toxicity of hydroquinone is reduced in the non-fasted rat and is influenced by the concentration administered. Symptoms of hydroquinone poisoning develop 30-90 minutes after oral administration and consist of hyperexcitability, tremors, convulsions and, in addition, salivation in dogs and cats, emesis in dogs and pigeons, and incoordination of the hind limbs of dogs. Deaths occur within a few hours. Quinhydrone and quinone, however, do not produce the same symptoms of poisoning and deaths may be delayed several days. Oral administration of hydroquinone at 100 mg./kg. in the dog and at 70 mg./kg. in the cat produces mild to severe swelling of the area around the eye, of the nictitating membrane, and of the upper lip. However, dogs receiving 25 and 50 mg./kg. daily for 4 months have shown only slight eye involvement.

EFFECT OF GOSSYPOL ON THE BODY WEIGHT OF RATS. A. H. Free and H. M. Free (Miles Res. Lab., Elkhart, Ind.). *Federation Proc. 8,* 382-3(1949). Adult rats showed no significant weight change when given a daily supplement of gossypol that was one-half the toxic amount. Starvation experiments with rats indicated that the weight loss of animals receiving minimal lethal quantities of gossypol was much less than the weight loss of animals dying of starvation.

SPECTROPHOTOMETRIC STUDIES OF THE OXIDATION OF FATS. VIII. COUPLED OXIDATION OF CAROTENE. R. T. Holman (Univ. Minnesota and A. & M. College of Texas, College Station). *Arch. Biochem. 21,* 51-7 (1949). Studies, in which spectral changes in carotene-ethyl linoleate mixtures were related to oxygen uptake, indicate that carotene is nearly completely destroyed very early in the oxidation, before 10% of the ester is oxidized. During the phase when carotene is being rapidly oxidized, a transitory increase in absorption at 3375 Å is observed, the only spectral evidence of a product of carotene oxidation intermediate between carotene and the final products which absorb light in the regions of 2325 and 2700 Å. The products of autoxidation of carotene and of coupled oxidation of carotene are qualitatively similar.

FAT RANCIDITY IN EVISCERATED POULTRY. III. THE EFFECT OF VARIATIONS IN DIETARY FAT, ETHANOLAMINE AND CHOLINE ON THE STORAGE QUALITY OF MATURE TURKEYS. J. P. Hite, S. E. Kloxin, F. A. Kummerow, G. E. Vail, and T. B. Avery (Kansas Agr. Exper. Sta., Manhattan). *Poultry Sci. 28,* 244-8(1949). After 9 months of storage all birds except those which had received supplements of 2% hydrogenated fat, 10% alfalfa leaf meal, or 1% linseed oil were still acceptable, and after 12 months of storage, only those which had received the typical turkey ration plus ethanolamine or choline were still acceptable. IV. THE EFFECT OF VARIATIONS IN DIETARY FAT, ETHANOLAMINE AND CHOLINE ON THE CHARACTERISTICS OF THE FAT EXTRACTED FROM TURKEYS. J. P. HITE, S. E. Kloxin, and F. A. Kummerow, *Ibid.,* 249-53. The fat extracted from the skin tissue was found to contain no appreciable amount of linolenic or arachidonic acid except in samples taken from birds which had been supplemented with alfalfa leaf meal or linseed oil. Less linolenic and arachidonic acid were found in the fat extracted from groups which had been supplemented with ethanolamine or choline. Furthermore, the induction periods of the fat extracted from these groups indicated that it was more stable than the fat from the unsupplemented groups.

A FAT EMULSION FOR INTRAVENOUS FEEDING. S. R. Lerner, I. L. Chaikoff, and C. Entenman (Univ. California Med. School, Berkeley). *Proc. Soc. Exptl. Biol. Med. 70,* 388-91(1949). The preparation of a stable olive oil emulsion in which glycerol monostearate was employed as the emulsifying agent is described. Observations on its use for intravenous feeding in dogs are recorded.

EXPERIMENTAL PEANUT OIL PNEUMONIA IN RABBITS. W. G. Gobbel (Bay Brook, N. Y.). *Am. J. Diseases of Children 77,* 175-84(1949). The death rate at 72 hours in animals which received at least 2 cc. of intratracheal peanut oil is 6.6%. The immediate outpouring of fluid, erythrocytes and polymorphonuclear leukocytes in the alveolar spaces is thought to be due to the presence of free fatty acid in the peanut oil. The results of this experiment emphasize the absence of "marked toxicity" of peanut oil in the rabbit lung.

THE FATE OF C^{14}-LABELED PALMITIC ACID ADMINISTERED INTRAVENOUSLY AS A TRIPALMITIN EMULSION. S. R. Lerner, I. L. Chaikoff, C. Entenman, and W. G. Dauben (Univ. California, Berkeley). *Proc. Soc. Exptl. Biol. Med. 70,* 384-7(1949). In order to test the extent of utilization of fat emulsions in parenteral feeding, palmitic acid labeled with C^{14} at its sixth carbon was injected intravenously, in the form of the triglyceride, into fasted rats. From 36-59% of the administered C^{14} was expired as CO_2 in 24 hours. Considerable amounts of the administered fatty acids

were stored in adipose tissues throughout the body. The availability of intravenously administered tripalmitin for metabolic purposes is further shown by the finding that as much as 78% of the radioactive fatty acids recovered from the liver and small intestine had been incorporated into phospholipids.

AQUEOUS DISPERSIONS OF FAT-SOLUBLE VITAMINS. A. E. Sobel, A. Rosenberg, R. Geduldig, E. Engel, M. West, and B. Kramer (Jewish Hospital, Brooklyn, N. Y.). *Federation Proc. 8,* 253-4(1949). The suckling rats of the aqueous group showed higher vitamin A stores. The same preparations had been previously fed nursing women. Distinctly higher rises of A were found in the milk of the aqueous group. Thus, one might conclude that with aqueous dispersions (without and with other vitamins: Vifort) there is an increased total secretion of milk vitamin A. The higher blood levels obtained with aqueous dispersions fulfill the theoretical requisites for greater diffusion to the site of milk production.

THE EFFECT OF THE LEVEL OF DIETARY CALCIUM AND MAGNESIUM ON THE DIGESTIBILITY OF FATTY ACIDS, SIMPLE TRIGLYCERIDES, AND SOME NATURAL AND HYDROGENATED FATS. A. L. S. Cheng, M. G. Morehouse, and H. J. Deuel (Univ. So. California, Los Angeles, Calif.). *J. Nutr. 37,* 237-50(1949). In a series of tests with simple triglycerides an inverse relationship was obtained between the melting point and the coefficient of digestibility. A similar relationship was noted with hydrogenated lards of varying melting points. Although the presence of Ca and Mg in the diet does not influence the digestibility of low-melting fats, it markedly decreases that of higher-melting simple triglycerides and hydrogenated fats. The absence of Ca and Mg from the diet markedly increases the neutral fat-fatty acid fraction at the expense of the soap fraction. The effect of Ca and Mg was a progressive one, being greater the larger the proportion of these salts in the diet. In all cases except in the tests with tripalmitin and tristearin the elimination of Ca and Mg from the diet resulted in a decrease in stool weight of 50% or more.

THE IMPORTANCE OF PROTEIN AND FAT FOR HUMAN NUTRITION. K. Lang and H. D. Cremer. *Z. Lebensm.-Untersuch. u. -Forsch. 88,* 633-49(1948). A review. 144 references.

RELATION OF FAT AND PROTEIN INTAKE TO FATTY CHANGES, FIBROSIS, AND NECROSIS OF THE LIVER. C. A. Hall and V. A. Drill (Yale Univ. School Med., New Haven, Conn.). *Proc. Soc. Exptl. Biol. Med. 70,* 202-7(1949). Groups of rats were fed diets of 16% protein and 51% fat; 6% protein and 6% fat; and 4% protein and 6% fat. These diets resulted in a fatty infiltration of the liver, and in the long term experiments this was accompanied by a diffuse, progressive, hepatic fibrosis.

FURTHER EXPERIMENTS ON THE RELATION OF FAT TO ECONOMY OF FOOD UTILIZATION. IV. INFLUENCE OF ACTIVITY. A. Black, C. E. French, and R. W. Swift (The Pennsylvania State College, State College). *J. Nutr. 37,* 275-88(1949). The heat production, as well as the utilization of nitrogen, was not influenced appreciably by the level of fat in the diet. As the heat increment had previously been found to be greater on a low fat diet it was concluded that the energy expanded in all forms of activity must be greater in animals on a high fat diet, varying in a reciprocal manner with the heat increment. V. FLUCTUATIONS IN CURVE OF DAILY HEAT PRODUCTION. *Ibid.,* 289-301. Fluctuations in the curves of heat production for the 24-hr. day for albino rats receiving equicaloric diets containing 2 or 30% fat have been studied, using 12 rats on each diet. The heat production was measured by the carbon-nitrogen balance procedure at intervals of 3 hours each. Characteristic differences in the curves of heat production for the 2 diets were observed. The influence of activity at different times of the day is clearly evident, as is the difference in dynamic effect of the diets. It was found that the high fat diet resulted in a much lower heat increment than the low fat diet, again confirming earlier findings.

COMPARATIVE NUTRITIVE VALUE OF BUTTER AND VEGETABLE FATS UNDER CONDITIONS OF LOW ENVIRONMENTAL TEMPERATURE. B. H. Ershoff, J. N. Pagones, and H. J. Deuel (Univ. So. California, Los Angeles). *Proc. Soc. Exptl. Biol. Med. 70,* 287-90(1949). The fats employed were cottonseed oil, corn oil, margarine fat, and butter fat. Gain in body weight was significantly reduced in all rats under cold room conditions. No significant difference was observed, however, either under cold room or room temperature conditions, in gain in body weight on the various diets employed.

RELATIONSHIP OF BODY SPECIFIC GRAVITY TO BODY FAT AND WATER CONTENT. W. J. Messinger and J. M. Stelle (New York Univ., New York City). *Proc. Soc. Exptl. Biol. Med. 70,* 316-18(1949). Body fat and water can be calculated from body specific gravity with considerable accuracy. Use of an independent method of measuring body water clearly shows the close inverse relationship of per cent body fat and per cent body water. The proportion of water in the body is highly variable unless it is expressed in terms of fat-free tissue (lean body mass).

THERAPEUTIC EFFECT OF CHOLINE CHLORIDE IN DOGS WITH FAT EMBOLI PRODUCED BY BONE MARROW CURETTAGE. E. M. Monson and C. Dennis (Univ. Minnesota, Minneapolis). *Proc. Soc. Exptl. Biol. Med. 70,* 330-2(1949). Choline appears on the basis of plasma and urine examinations to have been of value in the management of experimentally produced fat embolism in dogs. Choline has been used in clinical cases of fat embolism with apparently very striking results. This is to be reported.

STUDIES ON THE FUNCTION OF BIOTIN IN THE DOMESTIC FOWL. J. R. Couch (Texas A. & M. College, College Station), W. W. Cravens, C. A. Elvehjem, and J. G. Halpin. *Arch. Biochem. 21,* 77-85(1949). Unsaturated fats (soybean oil and cod liver oil) did not appear to have an appreciable effect on egg production, hatchability, biotin content of egg yolks and whites, fat content of egg yolk, or the iodine number of egg yolk fat when hens were fed diets low or high in biotin, with or without 5% fat. The iodine values of egg yolk fat from hens fed low fat diets were lower than those from hens fed the same diets with 5% fat, or from those fed the practical diet. When biotin-deficient eggs were injected with the vitamin, hatchability was 89% for those injected at the beginning of the incubation period and decreased in a linear relationship to zero for those injected at 120 hr. of incubation. There are probably other functions of biotin which are not related to tendon metabolism, and which are not elucidated in the investigation reported herein.

EFFECT OF OATS, OAT PRODUCTS, AND FAT ON THE INTESTINAL SYNTHESIS OF BIOTIN IN MATURE FOWL. J. R. Couch (Texas A. & M. College, College Sta.), M. L. Sunde, W. W. Cravens, C. A. Elvehjem, and J. G. Halpin. *J. Nutr. 37,* 251-61(1949). Ground whole oats and oat groats supported the intestinal synthesis of biotin in the mature fowl when used to replace either 20 or 40% of sucrose in a low biotin diet. The synthesis, absorption, and deposition of the vitamin in the egg were directly related to the level of whole oats or oat groats used. The results obtained indicate that whole oats stimulated the synthesis of the vitamin to a greater extent than did the oat groats. Oat hulls did not favor the intestinal synthesis of biotin under the conditions of this experiment. An indication was obtained that 20% fat with dextrin favored the intestinal synthesis of biotin to a greater extent than 5% fat with dextrin.

EFFECT OF BIOTIN AND CHOLINE INTAKES ON LIVER STORAGE OF INGESTED CHOLESTEROL. R. Ikey, E. R. Vernon, S. Lepkovsky, and R. Pencharz (Univ. Calif., Berkeley). *Federation Proc. 8,* 234-5(1949). In the egg white-fed animals given ample biotin or placed on diet after biotin storage (at 80-90 gm.) decreases in liver cholesterol with the increases in choline intake were slight and inconsistent. Egg white-fed rats placed on diet at 45 gm. and allowed to develop borderline biotin deficiency stored maximum liver cholesterol (about 1.6%) with 0.5 mg. choline and 0.5 mg. inositol/gm. diet. One group of rats given 0.1 mg. choline/gm. diet stored less than half this amount. Without added biotin liver cholesterols of rats fed whole egg were as low as 0.3%; with ample biotin supplements they reached 1.7% in the same time.

INFLUENCE OF HIGH LEVELS OF FAT WITH SUBOPTIMAL LEVELS OF RIBOFLAVIN ON THE GROWTH OF CHICKS. R. Reiser and P. B. Pearson (A. & M. College, Texas, College Station). *Federation Proc. 8,* 242(1949). Chicks receiving moderately high levels of refined cottonseed oil (Wesson Oil) in diets low in riboflavin ceased to grow much sooner than those on a similar diet without added fat. The effect is not due to the development of rancidity in the high fat diets. The efficiency of utilization of the feed was lower on the cottonseed oil diets than on the low fat diets at low levels of riboflavin, but no differences were found in the riboflavin content of the livers.

SERUM LIPIDS OF ESKIMOS. EFFECT OF A HIGH FAT DIET (PEMMICAN) AND OF FASTING. R. G. Sinclair, G. M. Brown, and L. B. Cronk (Queen's Univ., Kingston, Canada). *Federation Proc. 8,* 251(1949). As part of a clinical and biochemical study of the Eskimos, lipids were determined in the serum of 126 persons. The average values for the serum lipids in this group were the same as in those without enlarged livers. In a small group of 2 men and 2 women who subsisted for 6 days exclusively on pemmican (75% of the calories from beef fat), the levels of all lipids increased considerably. A subsequent 4-day fast by 3 subjects caused a further appreciable increase in all lipids—total fatty acids, 55% increase, lipid P, 30%, and total cholesterol, 15%. A similar fast by a man who had been on his customary diet of meat and bannock caused an increase in total fatty acids but not in lipid P, total or free cholesterol. Little or no ketonuria developed after 6 days on pemmican; the subsequent fast caused a definite ketonuria.

THE LIPOTROPIC ACTION OF THREONINE. S. A. Singal, V. P. Sydenstricker, and J. M. Littlejohn (Univ. Georgia School Med., Augusta). *Federation Proc. 8,* 251(1949). That the lipotropic action of threonine was not the result of increased food intake was demonstrable in paired-feeding experiments. Here the liver lipids of rats on the casein ration supplemented with tryptophan was 14.4% as compared to 5.9% when threonine was also included. When the dietary fat was increased to 40%, the liver lipids were 21.8 and 10.1%, respectively. The livers of rats on an amino acid diet simulating the 9% casein ration supplemented with tryptophan contained 17.0% lipids. Supplementary threonine reduced the lipids to 5.3%.

INFLUENCE OF LIPOTROPIC COMPOUNDS ON THE LIPID AND PROTEIN FRACTIONS OF BLOOD PLASMA FROM CHILDREN WITH NEPHROTIC SYNDROME. C. C. Wang, H. H. Boyle, and S. Freeman (Children's Memorial Hospital and Northwestern Univ. Med. School, Chicago, Ill.). *Federation Proc. 8,* 264(1949). A total of 11 children with nephrotic syndrome and lipemia were treated during varying periods with one or more of the following compounds: methionine, inositol, choline. The lipotropic compounds did not produce a definite change in the protein fractions of blood plasma of these patients.

EFFECT OF ALPHA NAPHTHYLTHIOUREA (ANTU) ON SERUM CHOLESTEROL IN THYROIDECTOMIZED DOGS. W. Fleischmann, J. L. Stubbs, and W. P. McShane (Army Chem. Center, Maryland). *Proc. Soc. Exptl. Biol. Med. 70,* 246-8(1949). Chronic poisoning with alpha naphthylthiourea (ANTU) produces a reversible rise in serum cholesterol in thyroid-ectomized dogs maintained on a dose of thyroid hormone adequate to prevent thyroid deficiency. This indicates that the effect of ANTU or serum cholesterol is at least partly independent from its property as an antithyroid drug.

EFFECT OF CHOLINE AND INOSITOL ON HYPERCHOLESTEROLEMIA AND HYPERLIPEMIA IN THE CHOLESTEROL-FED CHICK. C. Bolene, J. Stamler, R. Harris, and L. N. Katz (Michael Reese Hospital, Chicago, Ill.). *Federation Proc. 8,* 13(1949). Addition of 2% cholesterol to the normal diet of the chick results in a hyperlipemia involving all lipid elements. Addition of lipotropic factors to such cholesterol-rich diets in the form of 1% choline plus 1% inositol resulted in a more marked hypercholesterolemia and hyperphospholipemia. These results suggest that these lipotropes act to mobilize liver lipids and produce a prolonged transport hyperlipemia. Choline and inositol failed to modify or prevent atherosclerosis in birds killed after 15 weeks on diet.

RAPID PRODUCTION OF EXPERIMENTAL ATHEROSCLEROSIS BY PRODUCING KIDNEY DAMAGE IN THE PRESENCE OF HYPERCHOLESTEROLEMIA. C. Moses, E. R. Thornton, and G. M. Longabaugh (Univ. Pittsburgh, Penna.). *Federation Proc. 8,* 114(1949). Rabbits and dogs were fed a standard prepared laboratory diet to which had been added daily 1 gm./kg. of body weight of cholesterol dissolved in ether. Following the development of hypercholesterolemia acute renal damage was produced by the administration of uranium or a nephrotoxic serum. The animals were killed from 3 days to 3 weeks later and approximately 80% of the rabbits and 60% of the dogs demonstrated aortic atheromatosis.

CHOLESTEROL STUDIES ON LYOPHILIZED CHICKEN SERUM. J. C. Forbes and C. H. L. Dillard (Med. Col-

lege Virginia, Richmond). *Federation Proc. 8*, 198 (1949). The results indicate that a large percentage of the cholesterol of lyophilized serum from old hens is extracted by cold chloroform in 3 hours, behaving in this regard very similarly to the serum of nephrotic patients and hypercholesterolemic rabbits. Old hens, however, show this high degree of cholesterol extractability even though the total cholesterol concentration is normal. The sera of young chickens and old roosters show a low value for this "readily extractable fraction."

SUSTAINED ELEVATION OF BLOOD CHOLESTEROL AND PHOSPHOLIPID LEVELS IN RABBITS GIVEN DETERGENTS INTRAVENOUSLY. A. Kellner, J. W. Correll, and A. T. Ladd (Cornell Med. Center, New York City). *Federation Proc. 8*, 359(1949). Sustained elevations of blood cholesterol and phospholipid were produced in rabbits maintained on a normal diet by the intravenous injection of the detergents Tween 80 and Triton A-20. A single injection of Tween 80 caused an increase in blood cholesterol and phospholipid to 2-3 times the baseline level, the values reaching a peak in 6-12 hours and returning to normal in 24-48 hours. Repeated injections of Tween 80 resulted in a sustained hypercholesterolemia with blood levels 5-15 times normal, and a parallel and somewhat greater increase in blood phospholipid levels. A single injection of Triton A-20 caused an increase in blood cholesterol and phospholipid levels to more than 5 times normal, with a peak at 2 days after injection and a return to normal after 5-12 days. A sustained elevation of blood cholesterol and phospholipid was maintained in 12 rabbits for 10 weeks by twice-weekly injections of Triton A-20. In most animals the blood serum became opalescent and then milky within a few hours after injection and cleared when the injections were stopped. Whether the increase in blood lipid depends on the actual presence of the detergent in the circulation, or on other factors, remains to be determined. INTRAVENOUS DETERGENTS IN EXPERIMENTAL ATHEROSCLEROSIS, WITH SPECIAL REFERENCE TO THE POSSIBLE ROLE OF PHOSPHOLIPIDS. *Ibid.*, 360. Rabbits were maintained on a normal diet without added cholesterol and were given twice daily intravenous injections of Tween 80 for 8-14 weeks. Controls were fed cholesterol but given no Tween 80. Despite the fact that the animals given detergent had considerably higher mean cholesterol levels than the controls, they had significantly less atherosclerosis. In the animals receiving detergent, the blood phospholipid levels were as high or higher than the corresponding cholesterol levels, whereas in the controls, the phospholipid levels were about half the cholesterol levels. Experimental atherosclerosis produced in rabbits by cholesterol feeding is usually accompanied by a great increase in blood cholesterol and only a slight increase in phospholipid. Other experiments in which rabbits were fed cholesterol and also given intravenous detergents indicate that despite a sustained hypercholesterolemia, the incidence and severity of atherosclerosis is decreased if the blood phospholipid is elevated concomitantly with the cholesterol. Intravenous detergents were ineffective in the resorption of atherosclerosis previously produced by cholesterol feeding. It seems probable that the cholesterol-phospholipid ratio is an important factor in experimental atherosclerosis, and that increased blood phospholipids may modify or prevent the development of atherosclerosis.

INFLUENCE OF ALLOXAN DIABETES OF CHOLESTEROL ATHEROSCLEROSIS IN THE RABBIT. H. C. McGill, L. E. Parrish, and R. L. Holman (Louisiana State Univ. School Med., New Orleans). *Federation Proc. 8*, 361 (1949). Contrary to anticipation the results indicated that the diabetic state induced by alloxan retards in both time and degree the development of cholesterol atherosclerosis in the rabbit. The experiments confirm the results of Duff and his co-workers.

BLOOD CHOLESTEROL VALUE OF NORMAL MEN IN RELATION TO THEIR BASAL METABOLIC RATE. A. Laurie Peeler, O. E. Hepler, V. M. Kinney, L. E. Cisler, and F. T. Jung (Northwestern Univ. Med. School and Passavant Memorial Hospital). *Federation Proc. 8*, 365(1949). No correlation was found between these basal metabolic rates and cholesterol values as shown by the correlation coefficient of —0.10. Both cholesterol and basal metabolic rates were repeated on 40 of the men after 2 38-day periods which included 2 weeks of vacation. The coefficient of correlation between the first and second cholesterol values was +0.73 which indicates that the blood cholesterol is maintained at a fairly stable level.

THE ASSIMILATION OF CHOLESTEROL BY MYCOBACTERIUM SMEGMATIS. H. Sobel and A. Plaut (Beth Israel Hospital, New York). *J. Bact. 57*, 377-82(1949). *Mycobacterium smegmatis* has been observed to consume cholesterol actively when this substance is in the solid phase or in solution as its succinate.

PATENTS

GREASES. J. C. Stamm (Standard Oil Co.). *U. S. 2,463,822-3.* In the preparation of Ca rosin soap grease, wherein the rosin soap is prepared by saponifying rosin oil with a Ca base, the improvement comprises heating a mixture of hydrocarbon oil and unpolymerized rosin with from about 0.25% to about 1.0% S, but in the absence of a hydrogenation catalyst, at a temperature of from about 400°F. to about 450°F. for about from 1 hour to 9 hours and saponifying the resultant hydrocarbon oil and rosin oil mixture with a Ca base.

ANTIOXIDANT. L. A. Hall and L. L. Gershbein (The Griffith Labs.). *U. S. 2,464,927.* An antioxidant composition for fatty materials comprises a vegetable carrier oil and a synergistic mixture of a tocopherol, a low molecular weight alkyl ester of gallic acid, and lecithin.

PHOSPHOLIPOID CARRIER FOR ANTIOXIDANT. L. A. Hall (The Griffith Lab., Inc.). *U. S. 2,464,928.* The method of incorporating a normally substantially fat-insoluble gallic acid ester in a fatty material comprises the step of dissolving the ester in a relatively large proportion of molten lecithin and then introducing the molten solution to the fatty composition likewise in a molten state and thoroughly mixing the materials.

STABLE EMULSIONS OF OIL AND GLYCERINE. F. W. Bernhart (Wyeth, Inc.). *U. S. 2,463,738.* A stable, substantially non-aqueous vitamin composition comprises an emulsion of a vitamin-rich oil in glycerol and a small amount of a prolamine as an emulsifying and stabilizing agent.

OXIDATION OF SOYA SITOSTERYL ACETATE DIBROMIDE. P. L. Julian, W. J. Karpel, and J. W. Armstrong (The Glidden Co.). *U. S. 2,464,236.* The invention

relates to an improved process for the oxidation of soya sitosteryl acetate dibromide to yield dehydro-iso-androsterone.

LUBRICANT DETERGENT. J. J. Giammaria (Socony-Vacuum Oil Co.). *U. S. 2,464,497.* The detergent constituent of this heavy lubricant oil is a coordinate metal complex containing organic bases of tertiary N compounds and fatty acids.

VINYL RESIN COMPOSITION CONTAINING A STEARIC ACID AMIDE OF ETHYLENE DIAMINE AS A PLASTICIZER. F. W. Duggan and R. P. Stambaugh (Bakelite Corp.). *U. S. 2,464,855.*

AMIDATION OF FATS. E. M. Meade (Lankro Chem. Ltd.). *U. S. 2,464,094.* Aromatic or fatty acids, or fats are reacted with amines in the presence of alkali or alkali alcoholates in the production of amides.

ALKYLENE GLYCOL ESTERS OF ALGINIC ACID. A. B. Steiner and W. H. McNeely (Kelco Co.). *U. S. 2,-463,824.* The method of modifying alginic acid to render it useful as an emulsifying agent comprises: esterifying at least a portion of the free carboxyl groups of said acid with an agent selected from the group consisting of 9,10-epoxystearic acid and 9,10-epoxystearyl alcohol.

Drying Oils

Edited by ROBERT E. BEAL

THE CHEMICAL STRUCTURE OF STAND OIL. J. Petit. *J. recherches centre natl. recherche sci. 1948*, 104-11. A review with 10 references. (*Chem. Abs. 43*, 1577.)

STYRENATED OILS. N. R. Peterson. *Can. Paint & Varnish Mag. 22*, No. 12, 34, 36-7, 47-8(1948). (*Chem. Abs. 43*, 1577.)

INVESTIGATION OF THE FATTY OIL OF ABYSSINIAN BASIL-WEED SEEDS. N. A. Valyashko and Z. A. Nepomnyaschaya. *Zhur. Priklad. Khim.* (J. Applied Chem.) *20*, 151-4(1947). Seeds of *Ocimum graveolens* contained 18.6% oil (I number 157.4). The oil film dried in 1.5 days compared to 18.75 days for linseed and was clean and brilliant. The hexabromide number on the saponified acids indicated 15.4% linolenic acid in the oil. (*Chem. Abs. 43*, 1582.)

APPLICATIONS FOR ALKYDS AND POLYESTERS. E. M. Beavers (The Rohm and Haas Co., Philadelphia, Pa.). *Ind. Eng. Chem. 41*, 738-40(1949). A review of modern uses.

ALKYD RESINS, DEVELOPMENT OF AND CONTRIBUTIONS TO POLYMER THEORY. R. H. Kienle (American Cyanamid Co., Bound Brook, N. J.). *Ind. Eng. Chem. 41*, 726-29(1949). The history of alkyd development is reviewed.

IODINE VALUES OF DRYING OILS. Th. Francois and Mme. J. Bourgignon. *Bull. mens. ITERG 1948*, No. 8, 33-5. Studies of the Wijs method, the Hanus method, the Wijs method with HgOAc catalyst, and the Hanus method with the same catalyst, on tung oil, abrasin oil, lumbang oil, ongokéa oil, oiticica oil, and dehydrated castor oil brought the conclusion that none of these methods is reliable for conjugated oils. (*Chem. Abs. 43*, 1992.)

THEORIES AND FACTS CONCERNING ALKYDS. K. A. Earhart (U. S. Industrial Chemicals, Inc., Baltimore, Md.). *Ind. Eng. Chem. 41*, 716-25(1949). Theory of reaction and the effect of extent of oil modification on film properties are discussed. Analysis of alkyds is unreliable in determining the properties of the resins since the end product may contain varying amounts of unreacted functional groups. Ingredients which promote cross-linking appear to affect the viscosity of the resin during the latter stages rather than during the entire reaction.

RELATION OF GLYCERIDE OIL COMPOSITION TO POLYMERIZATION. L. V. Anderson and J. V. Porter (Minnesota Linseed Oil Paint Co., Minneapolis, Minn.). *Ind. Eng. Chem. 41*, 741-49(1949). The viscosity increase of 30 linseed oils, high and low I number fractions of linseed oil, and of blends of linseed oil with soybean, corn, cottonseed, peanut, and olive oils and with high I number fractions of soybean oil, during thermal polymerization to 100 poise were studied. The reaction was carried out at 585°F. under vacuum. Three stages of the reaction were invariably found and rate constants are calculated for each stage and for each oil or blend of oils. Good correlation was found between a hypothetical rate constant representing the average slope of the reaction curve and a number obtained for each oil or oil blend from the formula

$$2(\%\ \text{linolenic}) + 1.6(\%\ \text{linoleic}) + 0.6(6\%\ \text{oleic}),$$

where the analyses were obtained both spectrophotometrically and by a modified SCN determination. Where linolenic acid predominates in the oil the first stage of the reaction is faster than the second and where linoleic acid is the chief acid the reverse is true. The effect of oleic acid is most pronounced in the third stage indicating that it plays an important part in the reaction. Evidence is given to show that ester interchange occurs at 585°F. to produce random distribution of fatty acids in the glycerides.

REACTIONS OF TERT-BUTYL HYPOCHLORITE WITH VEGETABLE OILS AND DERIVATIVES: SOYBEAN OIL. H. M. Teeter, R. C. Bachmann, E. W. Bell, and J. C. Cowan (Northern Regional Research Laboratory, Peoria, Ill.). *Ind. Eng. Chem. 41*, 849-52(1949). Chlorination of soybean oil and methyl esters of soybean oil fatty acids by a highly exothermic reaction with the hypochlorite introduced 7-45% of Cl when molar ratios of reagent to esters from 1 to 10 were used. Subsequent thermal dehydrochlorination produced 1-31% total conjugation consisting of diene, triene, and tetraene types. Maximum conjugation was obtained when 1-2 moles of hypochlorite were used. A continuous method of dehydrochlorination resulted in a larger amount of conjugation than batch methods but gave a darker product. Films of oils obtained by the process dried in 20-30 minutes without driers and gave fairly hard, clear films which were frequently wrinkled.

DETERIORATION OF DRIED OIL FILMS. A. C. Elm (New Jersey Zinc Co., Palmerton, Pa.). *Ind. Eng. Chem. 41*, 319-24(1949). A consideration of possible mechanisms of film breakdown based on current reaction theory indicates that drying oil films fail as a result of the rupture of intermolecular ether and peroxide linkages which are initially responsible for dry film formation by producing a tridimensional network of molecules. Other reactions may occur simultaneously but their effect on film deterioration is of minor consequence. There is strong evidence to indicate that yellowing of paint films is a result of the formation of a ketone structure at a methylene group in the α position to a double bond. The ketone formed from linolenic esters is a deeper yellow than that formed from linoleic esters.

TRANSFORMATIONS OF PAINT FILMS. II. INTERACTION BETWEEN THE PIGMENT AND THE OIL. A. V. Pamfilov and E. G. Ivancheva. *Zhur. Priklad. Khim.* (J. Applied Chem.) *21*, 104-12(1948). Analysis of pigmented oils in bulk and in dry films indicated that little reaction between the oil and pigment occurs in bulk except in the case of PbO, but in the dry films all pigments tested reacted to a considerable extent. The method of analysis does not prove the point and the results may have been affected by inability to remove very finely divided pigment from the oil or dry film. (*Chem. Abs. 43*, 1991.)

TRANSESTERIFICATION OF CHINA WOOD OIL WITH COLZA OIL OR CURCAS OIL. G. Reutenauer. *Bull. Mens. ITERG* (Inst. tech. études et recherches corps gras) *1948*, No. 8, 28-31. Mixing of equal parts of China wood oil and colza or curcas oils increases drying time from 1 day for the former to 6 days for the blends. Heating the blends for 6-10 hours at 200° with 0.02% Ca naphthenate reduces drying times to 1.5 and 2.5 days, respectively, but film adhesion is bad. Heating at 230 gives improved but slower drying films. (*Chem. Abs. 43*, 1992.)

PATENTS

FRICTION ELEMENT. R. B. Bennett and R. E. Sparks (American Brake Shoe Co., Wilmington, Del.). *U. S. 2,464,632.* The bonding agent for a friction element comprises a sulfurized bonding oil and a sulfurized oil-modified phenol-formaldehyde resin. The bonding oil and resin modifier consist of glycerol or pentaerythritol esters of conjugated 18 C drying oil fatty acids having Woburn I numbers of 125-180 and conjugation of 27.5% of the total unsaturation before sulfurization.

DRYING OIL ACID ESTERS AND PROCESS OF MAKING SAME. J. B. Rust (Montclair Research Corp., Montclair, N. J.). *U. S. 2,464,202.* A modified drying oil is obtained by heating a drying oil acids-polyhydric alcohol ester containing free OH groups, and a dicarboxylic acid monoester of a 3-4 C monohydric alcohol at 120-250° until the acid number is below 35. The product is color stable and fast drying.

Soap

Edited by LENORE PETCHAFT

FATTY ACIDS FOR SOAPS. Richard Rowe (Victor Wolf, Ltd., Manchester, England). *Soap, Perfumery & Cosmetics 22*, 257-9(1949). General article reviewing development in preparation of pure fatty acids, methods of obtaining them by improved distillation processes, packaging and storage of acids, soap-making process using the distilled fatty acids and advantages of using these materials rather than fat.

THE NEWEST TECHNICAL DEVELOPMENTS IN THE PRODUCTION OF SOAPS FROM OXIDATION PRODUCTS OF HYDROCARBONS. A. van der Werth. *Seifen-Öle-Fette-Wachse 74*, 299-301, 320-2(1948). Review with 20 references. (*Chem. Abs. 43*, 3218.)

SOAPS FOR THE LAUNDRY. Ralph B. Smith (New Jersey Laundryman's Association, Newark, N. J.). *Soap Sanit. Chemicals 25*, No. 3, 41-4(1949). A review of the methods of using soaps under varying laundry conditions and the need for establishing standard tests and methods for evaluating the various soaps and supplies used in the industry.

SYNTHETIC DETERGENTS, THEIR POWER OF DETERGENCY AND INFLUENCE ON THE FIBER IN COMPARISON WITH SOAP. Richard Neu. *Seifen-Öle-Fette-Wachse 75*, 4-8(1949). Review. (*Chem. Abs. 43*, 3218.)

DATA ON A LABORATORY METHOD FOR WOOL RAW STOCK DETERGENCY. E. A. Leonard and L. Beck (Alexander Smith & Sons Carpet Co., Yonkers, N. Y.). *Am. Dyestuff Reptr. 38*, 348-52(1949). The method for testing raw wool detergency in the laboratory has been used to demonstrate several process variables with respect to their effect on the scouring system. It is indicated that the temperature, type and concentration of detergent and builder, immersion time, and squeeze roll pressure all have an important bearing on the scouring effectiveness. Among the classes of synthetic detergents tested only a non-ionic polyethylene oxide condensate showed promise of competing economically with a combination of tall oil soap and soda ash for scouring raw wool stock.

FLUORESCENT BLEACHING. A. Landolt (Ciba Ltd., Basle, Switzerland). *Am. Dyestuff Reptr. 38*, 353-6 (1949). Two new "fluorescent bleaching" agents have been described, Uvitex RS and WS. The RS product is suitable for "bleaching" cotton, and WS for "bleaching" wool, nylon, natural silk and acetate rayon. The affinity of the two products for the fibers under varying conditions was illustrated by means of curves indicating degree of brightening attained.

SCOURING MINERAL OIL-LUBRICATED WOOL. Hans Rudolf Hirsbrunner. *Textil-Rundschau 3*, 342-52, 382-91, 423-29(1948). Wool lubricants containing mineral oils are more difficult to remove than those based on vegetable oils. Scouring is influenced by electrical charge, wetting and dispersing properties of the agent, and concentration and temperature of the liquid. Soaps emulsify best. The colloidal-chemical effects of scouring agents are compared. Mineral oils containing nonsaturated compounds show yellowing in storage and light. Nonscoured or insufficiently scoured wool showed inferior dyeing results after insulation, caused by oil residues. Adsorption of scouring and emulsifying agents also counteracts dye adsorption. Mineral-oil lubricants, based on pure material (e.g. spindle oil), blended with oleic or coconut acids proved best. Tests for determination of oil and soap residues, light discoloration (yellowing), and change in dyeing properties are suggested. 70 references. (*Chem. Abs. 43*, 2780.)

DETERMINATION OF THE RELATIVE EASE OF REMOVAL OF SOFTENERS FROM YARNS AND FABRICS. M. Kehren. *Melliand Textilber. 27*, 159-63(1946). *Chem. Zentr. 1947*, I, 381-2. The proper conditions for the removal of certain fiber lubricants were studied. Baths containing soda alone were not effective in removing mineral oil; synthetic detergents and emulsifiers such as Igepal W were useful. Raising the temperature to 35° was also helpful. Temperatures over 45° damaged woolen fabrics. (*Chem. Abs. 43*, 2779.)

LOW TEMPERATURE WOOL PIECE GOODS SCOURING WITH A SYNTHETIC ORGANIC DETERGENT-LABORATORY EVALUATION. O. M. Morgan and J. E. Walter (National Aniline Division, Allied Chem. & Dye Corp., Buffalo, N. Y.). *Am. Dyestuff Reptr. 38*, 374-7(1949). Wool piece goods containing mineral oil lubricants may be scoured over a wider temperature range, 50-120°F. with "Nacconol" NR and suitable salts, such as sodium chloride or sodium bicarbonate. At the lower temperatures more builder is required to pro-

duce equivalent scouring effects, but working at the lower temperatures does result in savings in steam, time, and labor.

COMPARATIVE EFFICIENCIES OF WETTING AGENTS ON WOOLEN CLOTH. Kermit S. LaFleur (Farnsworth Mill, Lisbon, Maine). *Am. Dyestuff Reptr. 38,* 367-8 (1949). The comparative wool-wetting efficiencies of commercial wetting agents and allied products which lower the surface tension of water have been determined and expressed both in terms of cost and concentration. When arranged in order of performance on an equal concentration basis, dioctyl sodium sulfosuccinate is most effective, and sodium rosinate is least effective of the types tested; while certain nonionic condensates (polyethylene ethers), sodium salts of secondary alcohol sulfates, alkyl and alkyl aryl sulfonates (petroleum and coal tar derivatives), primary alcohol sulfates, and fatty acid amide and ester sulfonates show intermediate effectiveness in that order.

A RE-EXAMINATION OF PRESENT WETTING TESTS. Sidney M. Edelstein (Dexter Chem. Co., New York, N. Y.) and Carl Z. Draves (General Dyestuff Corp., New York, N. Y.). *Am. Dyestuff Reptr. 38,* 343-7(1949). Four wetting tests — the official or Draves method, the canvas-disk method, the yarn-bundle method, and the canvas-square method — were re-examined, using four types of wetting agents: a sodium sulfonate of an organic ester, a sulfated fatty ester, a sodium alkylnaphthalenesulfonate, and an alkylarylsulfonate. The wetting curve slope of all cases were analyzed. In the case of agents of the same chemical type examination of wetting curve gives an accurate comparison of the agents. With agents of different chemical nature, however, more than one test method should be used and the results of the curve carefully interpreted.

ANALYTICAL STUDY OF THE SOAP-BOILING PROCESS. John Homberg. *Svensk Kem. Tid. 60,* 267-81(1948) (in English). The component fat acids of soaps from the various steps of the soap-boiling process were determined in order to study the fractionation of the individual soaps when the soap mass in the kettle forms separate liquid layers, one of which is of liquid crystalline structure. Fractionation occurs both on graining and fitting. Acids up to C_{16} are enriched in the lye and the nigre. Acids from C_{18} and upwards are enriched in the neat. In analyzing, the volatile acids were first separated by steam distillation and fractionally distilled. Saponification value and I value were determined on each fraction. The nonvolatile acids were prefractionated by low-temperature fractional crystallization from ether and acetone. Oxy acids were removed from each fraction by extraction with petroleum ether (b.p. 40-65). Me esters were prepared from the fractions and extracted with alkali to remove the rosin acids which were not esterified under the conditions used to esterify the fatty acids. The methyl esters were then fractionally distilled and I values and saponification values determined. Spectroscopical measurements were made on fractions containing polyunsaturated acids. The analytical data are given in 6 tables. One table shows the component acids of soaps in the saponified fat, lye, soap before fitting, heat soap, and nigre. (*Chem. Abs. 43,* 3218.)

POWDERED SOAP PRODUCTS I AND II. J. M. Vallance. *Soap Sanit. Chemicals 25,* No. 3, 37-40, No. 4, 40-2, 98(1949). Three classifications of powdered soap products are reviewed: high quality powdered soaps of some 88 to 98% anhydrous soap content, soap powders containing added alkaline soap builders, and scouring powders containing alkalies and selected abrasive materials. Specifications, soap stocks, formulations, manufacturing techniques, drying and packaging problems, and applications of these types are described in detail. Patent references to various phases are included.

PATENTS

PREVENTION OF FOAMING IN THE CONCENTRATION OF SURFACE-ACTIVE AGENTS. Robert Blackburn Scott, Jr. (E. I. du Pont de Nemours & Co.). *U. S. 2,462,999.* Foaming during the concentration of such surface-active agents as alcohol sulfates, betaines, quaternary ammonium compounds, and aliphatic sulfonates is prevented by the addition of a small amount of *n*-butyl trichlorsilane.

DEDUSTING GRANULATED SOAP. John W. Bodman (Lever Brothers Co.). *U. S. 2,465,346.* Production of dustiness in granulated soap is prevented by coating the soap particles with a hygroscopic alkaline earth metal such as $CaCl_2$ to inhibit dehydration of the soap but not to increase the hardness properties of the water.

PROCESS OF MAKING A DUST-FREE ALKALINE DETERGENT PRODUCT. Thomas E. Corrigan (Wyandotte Chemicals Corp.). *U. S. 2,463,680.* Alkaline detergents usually made by mixing together the individual components yield dusty products due to segregation of the components or their self-milling to form finer particles. This is prevented by mixing the components, rolling in a sheet and flaking to form a uniform product.

WETTING AGENTS WITH IMPROVED WETTING ACTION. Robert L. Smith, Duncan J. Crowley, and Pharez G. Waldo (Socony-Vacuum Oil Co., Inc.). *U. S. 2,463,497.* Improving the wetting action of mono-alkyl aryl sulfonates by the addition of polyalkylated aryl alkali metal sulfonates.

DEHYDROCHLORINATION OF CHLORINATED FATTY ACIDS AND ESTERS. George R. van Atta and William C. Dietrich (United States of America). *U. S. 2,466,340.* Chlorinated fatty acids and esters are dehydrochlorinated under the influence of high temperatures and catalysts to yield fatty acid products suitable for soap production.