

# Abstracts

## Oils and Fats

Edited by  
M. M. PISKUR and SARAH HICKS

TALL OIL.—SEPARATION OF STEARIC AND ABIETIC ACIDS BY SELECTIVE ADSORPTION AFTER HYDROGENATION. G. Papps and D. F. Othmer. *Ind. Eng. Chem.* 36, 430-4, (1944).

THE OCCURRENCE OF SOME PREVIOUSLY UNREPORTED FATTY ACIDS IN PEANUT OIL. H. L. Wikoff, J. M. Kaplan, and A. L. Berman. *J. Biol. Chem.* 153, 227-35 (1944). Caprylic and lauric acids were isolated for the first time from peanut oil. The presence of myristic, palmitic, stearic, arachidic, behenic, linoceric, oleic, and linoleic acids, previously reported as occurring in peanut oil, was confirmed. The oleic acid found was the 9-10 isomer.

HIGH-VACUUM SHORT-PATH DISTILLATION—A review. K. C. D. Hickman. *Chem. Revs.* 34, 51-106 (1944).

SOLUBILITIES OF HIGH MOLECULAR WEIGHT SYMMETRICAL NORMAL ALIPHATIC SECONDARY AMINES. C. W. Hoerr, H. J. Harwood, and A. W. Ralston. *J. Org. Chem.* 9, 201-10 (1944).

THE PREPARATION AND PROPERTIES OF SULFONATED PEANUT OIL. J. B. Gallent. *Am. Dyestuff Repr.* 33, 148-9 (1944).

SOME ASPECTS OF THE CHEMISTRY OF ANTIOXIDANTS. F. Bergel. *Chemistry & Ind.* 63, 127-8 (1944).

WHEAT GERM OIL AS AN ANTIOXIDANT IN DAIRY PRODUCTS. P. H. Tracy and W. A. Hoskisson, J. M. Trimble. *J. Dairy Sci.* 27, 311-18 (1944). The ability of wheat germ oil to prevent oxidation has been detd. in fluid milk, frozen cream and powd. whole milk made by both the vacuum roll and spray processes. The amt. of wheat germ oil needed for best results is approx. 0.2% of the wt. of the fat. At higher levels (0.3%) the flavor of the oil is sometimes detectable. Wheat germ oil reinforced with citric acid was found to be more effective in retarding oxidation in milk powder than regular oil. While wheat germ oil is not as effective as gas packing with nitrogen in preventing the development of the oxidized flavor in powd. milk, a combination of the two will prolong the shelf life of the powder more than either one alone will accomplish.

THE AUTOXIDATION OF  $\beta$ -ELEOSTEARIC ACID. THE APPLICATION OF THE SPECTROPHOTOMETER TO THE STUDY OF THE COURSE AND THE KINETICS OF THE REACTION. R. W. Brauer and L. T. Steadman. *J. Am. Chem. Soc.* 66, 563-569 (1944). A method has been described for the study of the autoxidation of fatty acids in liquid soln. by  $O_2$  uptake measurements and by the simultaneous detn. of the absorption spectra of the autoxidizing solns. In order to destroy 1 mol of  $\beta$ -eleostearic acid, slightly less than  $\frac{1}{2}$  mol of  $O_2$  is required initially. Consequently, it has been assumed (a) that the initial uptake of  $O_2$  by  $\beta$ -eleostearic acid results in a dimerization involving the formation of some C to C bonds and (b) that a parasitic polymerization reaction is induced by the peroxides formed in the course of the reaction. The formation of dimeric products in the reaction has been verified by mol. wt. detns. The rate of  $O_2$  absorption by  $\beta$ -eleostearic acid becomes insignificant after an uptake of 2 mols of  $O_2$  per mol of  $\beta$ -eleostearic acid.

THE EFFECT OF  $\alpha$ -TOCOPHEROL AND  $\beta$ -CAROTENE IN THE OXIDATION OF PLANT AND ANIMAL FATS. C. R. Thompson and H. Steenbock. *Arch. Biochem.* 4, 15-23 (1944). Small addns. of  $\alpha$ -tocopherol had no effect on the induction period of either plant or animal fats as represented respectively by cottonseed and soybean oil, and lard and oleo oil. However, after the fats had been freed from antioxidants by chromatographing, the antioxidant effect of such addns. was easily demonstrable. These results, which were obtained by measuring the amt. of oxygen absorbed at 37°C., confirmed the findings of others based on peroxide titration after aeration at 60-75°C.  $\beta$ -carotene was found to be an active pro-oxidant. It shortened the induction period and accelerated the rate of oxidation after the end of the induction period of both plant and animal fats from which the antioxidants had been removed chromatographically. The pro-oxidant effect of carotene was greater with plant fats than with animal fats. Similarly it was greater with ethyl linolate than with ethyl oleate. These analogies are in harmony with the relative degrees of unsaturation of these substrates.

THE ROLE OF THE FAT SOLUBLE VITAMINS A AND D IN NUTRITION. J. Buckstein. *Am. J. Digestive Diseases* 11, 147-50 (1944).

EFFECT OF QUININE ON THE ABSORPTION OF FAT. A. Roy and P. B. Sen. *Ann. Biochem. Exptl. Med.* 3, 9-14 (1943). Quinine markedly affected the absorption of neutral fat when introduced into the alimentary tract of normal rats but was without effect when administered parenterally. A decrease of 23% in the rate of absorption of neutral fat from an intestinal loop (with bile excluded) occurred when quinine-HCl (5 mg.) was introduced with olive oil, bile salts, Na glycerophosphate and lipase; absorption of fat acids was reduced 8.5% under comparable conditions. The data presented indicate that quinine reduces neutral fat absorption by inhibition of lipase activity. Unlike monoiodoacetate which completely inhibits fat absorption, quinine does not prevent resynthesis of fat in the intestinal mucosa. The alkaloid apparently competes with the normal substrate for bile salts thereby causing a slight reduction in the absorption rate of free fat acids. (*Chem. Abs.*)

STUDIES OF THE COMPARATIVE NUTRITIVE VALUE OF FATS. II. THE COMPARATIVE COMPN. OF RATS FED DIFFERENT DIETS. H. J. Deuel, Jr., L. F. Hallman, E. Movitt, F. H. Mattson and E. Wu. *J. Nutr.* 27, 335-8 (1944). No differences were found in the compn. of rats which had received diets of mineralized skimmed milk powder and vitamin supplements together with butter or margarine fat, corn, cottonseed, olive, peanut or soybean oils over a 12-wk. period. However, it was noted that male rats have a slightly higher water and protein content and a lower lipid, ash and Ca content than the females.

III. THE EFFECT OF FLAVOR ON FOOD PREFERENCE. *Ibid.* 339-46. Rats prefer a diet of mineralized, vitamin fortified skimmed milk powder contg. butter to one where the fat is corn, cottonseed, olive, peanut or soybean oil, or margarine. The preference is appar-

only associated with flavor. The animals universally preferred a margarine or peanut oil diet contg. 4 p.p.m. of diacetyl to an unflavored diet, also, this low level in general is preferred to 8, 16 or 24 p.p.m. of diacetyl. Com. butter flavor is favored over diacetyl. It is concluded that flavor may play an important role in detg. food consumption of diets which are satisfactory from a nutritional standpoint. Although this would not be consistently demonstrated in all animals with flavored and unflavored margarine or peanut oil diets, 2/3 of the rats consistently chose in a ratio of 4 to 1 the flavored diet while no preference was evident in the remaining animals between the 2 diets. In no case was there a consistent preference for the unflavored diet.

ORIGIN OF OLEIC ACID FROM CARBOHYDRATES. K. Bernhard and F. Bullet. *Helv. Chim. Acta.* 26, 1185-9 (1943). By use of deuterium in the study of fat metabolism in rats, it was found that regeneration of the deposited fatty acids occurs in about 9 days in rats on a carbohydrate-rich diet. Of each of the 2 stably bound H atoms of the newly created satd acids, one is derived from body water. In contrast only  $\frac{1}{5}$  of the H atoms of oleic acid is taken from body water. Hence the synthesis of oleic acid could start from larger units. (*Chem. Abs.*)

THE CIRCULATION OF PLASMA PHOSPHOLIPIDS: THEIR TRANSPORT TO THORACIC DUCT LYMPH. W. O. Reinhardt, M. C. Fishler and I. L. Chaikoff. *J. Biol. Chem.* 152, 79-82 (1944). A rapid transfer of plasma phospholipids to thoracic duct lymph is demonstrated. Radiophospholipid was injected into the blood stream of the dog and subsequently recovered in lymph obtained from the thoracic duct. In the experiments recorded here, 9 to 20% of the injected radiophospholipids that left the plasma in 3 to 6 hrs. appeared in the thoracic duct lymph. Approx. these amts. would have been returned to the plasma if this lymph had not been diverted.

THE ADRENALS AND THE MOBILIZATION OF STORED FAT FORMED FROM DIETS CONTAINING DIFFERENT FATS. L. T. Samuels and R. F. Conant. *J. Biol. Chem.* 152, 173-79 (1944). Male rats 75 to 90 days of age were fed for 6 days on high fat diets, contg. either almost all butter fat or 17% tung oil and 73% butter fat. They were then fasted for 6 days. Some rats were adrenalectomized at the beginning of feeding and some at the start of the fasting period. Groups of both adrenalectomized and control rats were killed at the end of feeding and at intervals during the fasting period. The presence of tung oil in the diet increased the acetone body excretion in all animals both during feeding and in the subsequent fasting period. On fasting the ketosis increased, reaching a peak on the 3rd and 4th days. The ketosis was greater when the rats had been on a tung oil diet if normal or adrenalectomized rats were compared with similar rats fed butter fat only. An explanation of the data is offered on the assumption that the tung oil primarily affected the breakdown of fat in, and transport from, the liver, while adrenalectomy primarily affected the transport from the depots to the liver. Since the same type of differences appeared in fasting between controls and rats adrenalectomized after the last feeding as occurred between the two types of rats during feeding, it seems unlikely that changes in fat absorp-

tion were major factors in the differences in liver fat and acetone body excretion.

EFFECT OF FASTING ON THE BLOOD LIPIDS OF MICE. P. L. MacLachlan. *J. Biol. Chem.* 152, 391-4 (1944). On fasting, 3-month old, male, albino mice showed a statistically significant increase in the acetone-sol. lipid and total lipid of the blood. Changes observed in the blood phospholipid level, however, appeared to depend on the prefasting level. No significant changes from normal were found in the degree of unsaturation of the phospholipid and acetone-sol. lipid fractions. These results support the conclusion that there is no preferential or selective utilization of fat during fasting.

PREVIOUS DIET AND THE APPARENT UTILIZATION OF FAT IN THE ABSENCE OF THE LIVER. S. Roberts, L. S. Samuels and R. M. Reinecke. *Am. J. Physiol.* 140, 639-4 (1944). Adult male rats, force-fed a high fat diet for 3 to 6 weeks, and then fasted 24 to 30 hours, exhibited a much slower apparent glucose utilization rate after evisceration and survived twice as long as similar animals, previously maintained on a high carbohydrate diet. Unlike the carbohydrate-fed animals, the fat-fed group did not exhibit convulsions or a blood glucose level of practically zero at death. It is concluded that, in animals maintained on a particular diet for a period of time, the foodstuff predominantly burned by the extra-hepatic tissues during the early stages of fasting corresponds to the major constituent of the previous diet. This applies to fat as well as to carbohydrate.

THE INFLUENCE OF THE PROTEIN CONTENT OF THE DIET UPON FAT DIGESTIBILITY. R. H. Barnes, M. F. Primrose and G. O. Burr. *J. Nutr.* 27, 179-84 (1944). Comparisons of fat digestibilities in rats receiving diets contg. approximately 14 or 30% protein have shown that the lower protein intake is associated with a lower fat digestibility. A well absorbed fat such as lard is influenced only slightly while more poorly digestible fats such as lard containing hydrogenated fat and butterfat are more seriously affected. The differences in digestibility that are brought about by varying the protein intake emphasize the importance of standardizing the basal diets for all measurements of fat digestibility.

FAT REQUIREMENTS OF THE HEN. M. Wight Taylor, F. P. Jeffrey and W. C. Russell. *Poultry Sci.* 23, 155-7 (1944).

EFFECT OF FLAVOR ON NUTRITIVE VALUE OF FATS. R. K. Boutwell, R. P. Geyer, C. A. Elvehjem, and E. B. Hart. *Proc. Soc. Exptl. Biol. Med.* 55, 153-54 (1944). With *ad libitum* feeding and with lactose as the sole carbohydrate, the growth and appearance of albino male rats fed butter fat was superior to that of animals fed corn oil. Removal of the flavoring agents from butter fat by chromatographing of the addn. of one such agent, diacetyl, to corn oil had little effect on the comparative nutritive value of the two fats. Rats fed butter fat or corn oil on rations contg. dextrose as the sole carbohydrate grew at equal rates and were of normal appearance. Flavor played no part in these dextrose expts.

THE THIAMINE REQUIREMENT OF PIGS AS RELATED TO THE FAT CONTENT OF THE DIET. N. R. Ellis and L. L. Madsen. *J. Nutr.* 27, 253-62 (1944). When thiamine

was fed to pigs depleted of their stores of this substance, the response in appetite, growth, and general health was usually prompt and striking. Intermediate levels of thiamine produced the greatest response in the pigs fed the high-fat diet, followed in order by those on the intermediate and the low-fat. It was found that the level of thiamine required to produce a maximum rate of growth and otherwise maintain the pigs in good health fell within the range of 125 to 141  $\mu\text{g.}$  per 100 g. of carbohydrate and protein. These levels of thiamine, however, were insufficient to promote the storage of normal amts. in the meat tissue such as is found in com. pork cuts.

**ESSENTIAL UNSATURATED FAT ACIDS.** P. Karrer and H. Koenig. *Helv. Chim. Acta* 26, 619-26 (1943). A rat acrodynia caused by a fat-free diet can be cured by a group of straight-chain unsatd. fat acids, with 2 to 4 unsatd. linkages. A group of 5 similar acids has been tested for physiol. activity. (*Chem. Abs.*)

**DIVERTICULA OF THE COLON IN RATS FED A HIGH-FAT DIET.** J. L. Wierda. *Arch. Path.* 36, 621-6 (1943). Diverticula of the colon were found in each of 3 rats fed a high-fat diet for 90 weeks. (*Chem. Abs.*)

**THE EFFECTIVENESS OF LIPOCAIC IN PREVENTING FATTY LIVERS IN COMPLETELY DEPANCREATIZED DOGS MAINTAINED WITH INSULIN.** C. Entenman, M. L. Montgomery and I. L. Chaikoff. *Am. J. Phys.* 141, 221-6 (1944). Lipocaic (Dragstedt's preparation of pancreas) was tested for its ability to prevent the development of fatty livers in completely depancreatized dogs maintained with insulin. As judged by this test, lipocaic is a poor source of the anti-fatty liver factor of the pancreas. The administration of lipocaic equivalent to 100 grams of pancreas to completely depancreatized dogs failed to prevent the fall of cholesterol, phospholipids or total fatty acids of the blood below preoperative levels.

**EXTRINSIC FACTORS THAT INFLUENCE CARCINOGENESIS.** H. P. Rusch. *Physiol. Revs.* 24, 177-204 (1944). The incidence of tumors is high following the subcutaneous injection of carcinogens dissolved in vegetable oils (corn oil, cottonseed oil, sesame oil, arachis oil, olive oil, synthetic glycerides, lard, or paraffin), whereas fewer neoplasms are produced when fatty extracts of animal tissues are used as the solvents. Lard, an animal product, appears to be the single exception to this general rule.

## PATENTS

**AMINO FATTY ACID DERIVATIVES AND THEIR MANUFACTURE.** H. Martin, K. Glatthaar, and W. Stammbach (J. R. Geigy, A. G.). *U. S.* 2,343,071.

**IMPROVEMENT RELATING TO WETTING AND DISPERSING AGENTS.** W. W. Triggs (Nuodex Products Co., Inc.). *Brit.* 549,332. Soaps are added to paints, varnishes, lacquers and the like to render the products more fluid and homogenous.

**PROCESS FOR THE MANUFACTURE OF ARYL-ALICYCLIC FATTY ACID ESTERS.** K. Hoffmann and L. Panizzon (Ciba Pharmaceutical Products, Inc.). *U. S.* 2,346,027. A process of the character described comprises heating an  $\alpha$ : $\alpha$ -diphenyl glycollic acid ester with hydrogen under pressure in the presence of Ni catalyst to about 120-140°C., and sepg. the resultant product after the absorption of only 4 mols of H has taken place.

**SELF-EMULSIFYING PHOSPHATED AND PHOSPHITED OILS AS ANTISTATIC LUBRICANTS.** J. B. Dicket and J. G. McNally (Eastman Kodak Co.). *U. S.* 2,345,734.

**REVERSIBLE EMULSION AND APPLICATION THEREFOR.** J. H. Fritz and E. A. Robinson (National Oil Products Co.). *U. S.* 2,347,178. The active emulsifying ingredient comprises chiefly the monoamide formed by reacting oleic acid and ethylene diamine the monoamide being adjusted with acid to have a pH of about 6.0 or less in 2% aq. soln.

**EMULSION.** K. M. Gaver. (The Komel Corp.). *U. S.* 2,347,678. A new wetting and emulsifying product is an alkali metal starchate dispersed in water.

**WAX EMULSION.** K. M. Gaver (The Komel Corp.). *U. S.* 2,347,679. A new compn. of matter comprises an emulsion of wax in water wherein the particles of wax are coated with Na starchate deposited from an aq. colloidal suspension thereof.

**WETTING AND EMULSIFYING AGENT.** K. M. Gaver (The Komel Corp.). *U. S.* 2,347,680. A paint emulsion comprises varnish emulsified with an aq. soln. of Na starchate and having pigment dispersed therein.

**PROCESS FOR CULTIVATION OF FAT-FORMING MOLDS.** H. Damm (The Procter & Gamble Co.). *U. S.* 2,346,011. A process for producing an increased yield of fats comprises submersing the mold *Mucor racemosus* in a nutrient acidic soln., inducing fermentation of said soln. and growing said mold submerged therein while aerating the soln. by passing an oxygenating gas below the surface of said soln., thereby increasing the yield of fats as compared to surface growths.

**PROCESS FOR TREATING FAT-SOLUBLE VITAMIN CONTAINING OILS.** L. O. Buxton (National Oil Products Co.). *U. S.* 2,347,460. A process for obtaining high potency exts. from fish liver oils comprises contacting fish liver oil with methanol or ethanol at an elevated temp. cooling the mass to a temp. below about 0°, and recovering the alc. layer which seps. from the cooled mass.

**TREATMENT OF FAT-SOLUBLE VITAMIN MATERIALS.** L. O. Buxton (National Oil Products Co.). *U. S.* 2,347,461. The vitamins are coned. by adsorption methods.

**REFINING AND STABILIZING FAT-SOLUBLE VITAMIN-CONTAINING FATTY MATERIALS.** L. O. Buxton (National Oil Products Co.). *U. S.* 2,347,462. The oils are treated with dried tomato pulp at 100-200°.

**PROCESS FOR REFINING AND STABILIZING FAT-SOLUBLE VITAMIN-BEARING MATERIALS.** L. O. Buxton (National Oil Products Co.). *U. S.* 2,345,960. Similar to *U. S.* 2,345,578.

**REFINING AND STABILIZATION OF VITAMIN-CONTAINING MATERIALS.** L. O. Buxton (National Oil Products Co.). *U. S.* 2,345,961.

**REFINING VITAMIN OILS.** L. O. Buxton and L. T. Rosenberg (National Oil Products Co.). *U. S.* 2,344,124. A process of removing undesirable color, odor and taste bodies from fat-sol. vitamin-contg. marine oils comprises saponifying free fatty acids in a fish liver oil with morpholine, emulsifying the resulting mass in a medium, breaking the emulsion and separating the refined oil from the aq. phase.

**PAPER TREATMENT.** H. S. Mitchell (Industrial Patents Corp.). *U. S.* 2,344,470. The method of inhibit-

ing rancidity of fats and oils absorbed by paper wrappers from products in proximity thereto comprises wrapping such products in paper containing phosphoric acid.

**SEPARATION OF FATTY ACIDS FROM ROSIN ACIDS.** A. W. Hixson and R. Miller (The Chemical Foundation, Inc.). *U. S. 2,344,089*. In the fractionation of tall oil process of separating rosin acids from fatty acids dissolved in a liquefied, normally gaseous, hydrocarbon comprises in vaporizing part of the solvent to chill the sol.; thus causing the pptn. of the rosin acids as crystals, separating the crystals from the soln., and treating the soln. to recover the hydrocarbon and the fatty acids.

**COMPOSITION FOR COATING CONCRETE.** G. W. Whitesides. *U. S. 2,344,578-9*. A coating compn. adapted to be spread in the form of a relatively thin film over freshly placed concrete as a curing membrane, comprises a non-volatile, water-repellent, film-forming base of resinous material; a volatile solvent for the base; and a substantially water-insol. water-repellent, metallic fatty-acid soap mixed with the solvent and base in the form of a mechanical dispersion and in an amt. of between 1% and 5%.

**VITAMIN FORTIFICATION.** A. E. Briod and L. O. Buxton (National Oil Products Co.). *U. S. 2,345,571*. A process of producing a dry, vitamin-fortified product comprises treating cottonseed or soybean meal with acetic acid to liberate antioxidants in said meal, forming an aq. slurry of said material, dispersing a fat-sol. vitamin-contg. material in the aq. slurry and finally drying the mass.

**STABILIZATION OF OXIDIZABLE SUBSTANCES.** L. O. Buxton. *U. S. 2,345,576*. A process for obtaining antioxidants from oil comprises contacting the oil with isopropanol at a temp. above room temp. so as to form a soln. of the oil in the isopropanol, cooling the soln. to below 0°C. whereby layers are formed and sepg. the solvent layer contg. the highly active antioxidant ext. from the remainder of the oil.

**PROCESS FOR REFINING FATTY MATERIALS.** L. O. Buxton. *U. S. 2,345,577*. A process for refining fish

liver oils comprises contacting the oil with a vegetable meal in the presence of a solvent for said oil, said solvent contg. between about 1% and about 10% of a lower aliphatic monocarboxylic acid.

**STABILIZATION OF OXIDIZABLE ORGANIC MATERIALS.** L. O. Buxton (National Oil Products Co.). *U. S. 2,345,578*. Antioxidants are obtained from oil meals by extn. with isoPrOH and on cooling the solvent 2 layers are formed, the highly active antioxidant concs. in the solvent layer.

**STABILIZATION OF MOTOR FUELS.** L. O. Buxton. *U. S. 2,345,579*. Natural antioxidants of vegetable and fish oils are used.

**STABILIZATION OF MINERAL OILS.** L. O. Buxton. *U. S. 2,345,580*.

**SOLVENT EXTRACTING APPARATUS.** E. C. Pattee (National Distillers Products Co.). *U. S. 2,345,626*. Means of passing oil-bearing material counter-currently to solvent in a "U" shaped app. is described.

**CENTRIFUGAL HIGH VACUUM STILL.** K. C. D. Hickman (Distillation Products, Inc.). *U. S. 2,343,667*.

**TREATING OF LEATHER.** E. A. Robinson and R. E. Porter (National Oil Products Co.). *U. S. 2,347,712*. A method of fat-liquoring leather comprises incorporating into the leather a compn. which consists essentially of a blown fatty oil and a water-insol. liquid monohydric alc. ester of a higher fatty acid.

**PRINTING TEXTILES WITH PIGMENTS.** W. L. Morgan and N. L. Vaughn (Arnold Hoffman & Co.). *U. S. 2,346,041*. A self emulsifying base suitable for the formation of an oil in water emulsion textile printing paste by diln. with water comprises a binder selected from the group consisting of urea formaldehyde and ethyl cellulose 5%, lacquer solvents 77%, a water sol. soap of a fatty acid of at least 12 C. atoms 12.18%, fatty acid of at least 16 C. atoms .70%, and water 5.12%.

**LUBRICANT POUR DEPRESSOR.** E. Lieber (Standard Oil Development Co.). *U. S. 2,346,926*. Alkyl aryl ketones prepd. by reacting fat acid halides and aromatic ketones (Friedel-Crafts reaction) are used as pour depressor.

## Abstracts

### Soaps

Edited by  
ARMOUR AUXILIARIES LIBRARY

**LIQUID TOILET SOAPS.** Andrew Treffer. *Soap* 20, No. 4, 29-32, 73, 75 (1944). Replacements in the formulation of liquid toilet soaps have been needed due to the shortage of coconut oil. These substitutions have not lowered the detergency but have reduced the sudsing character. Sudsing qualities, which are in no way identical with detergent qualities, are most highly developed in soaps made from lauric and myristic acids. The sudsing qualities of the different soaps are usually determined by shaking 100 c.c. of a soap solution, containing 0.6 per cent fatty acid in a graduated cylinder for 30 seconds and observing for 3 minutes the setting of the foam, the amount of suds formed and the amount of solution transformed into suds.

The detergent value of a soap solution is determined by titrating 58.3 cc. tap water with the 1 per

cent soap solution to a permanent lather, lasting at least 5 minutes, in a 4 oz. oil bottle, and comparing the number of cc. obtained with the cc. hardness titration, found by using a standard soap solution. However, sulfonated products and synthetic detergents cannot be included in this determination as they act in an entirely different manner toward Ca, Mg, Fe soaps and paraffin oil.

The use of tall oil and rosin as substitutes in liquid soaps is discussed. The problems of rancidity and accurate control of pH are described and tests are given for determination of pH.

**ANALYSIS OF SOAP-SYNTHETIC DETERGENT MIXTURES IN BAR FORM.** Donald Berkowitz and Rubin Bernstein. *Ind. & Eng. Chem. Anal. Ed.* 16, 239-41. A procedure for the analysis of commercial soap-synthetic detergent mixtures is proposed which has given suffi-