Determination of Free Alkali in Potash Soaps (Soft Soaps)

Free KOH: Two g. of soap is weighed into a 500 cc. wide mouth Erlenmeyer, 200 cc. of 60 volume per cent neutralized alcohol is added, and the whole warmed on a steam bath until completely dissolved. Ten cc. of a neutral 10 per cent barium chloride solution is then added and the whole shaken well and rapidly cooled by immersion in cold water. The solution is then titrated with $\frac{N}{10}$ HCl in presence of phenolphthalein.

Per cent KOH = (0.28)(n); where n = cc. $\frac{N}{10}$ HCl.

Free Potassium Carbonate: The free potash is not directly titrated. On the contrary, the total free alkali is determined and the free potassium carbonate calculated by difference. Two g. of soap is weighed into a 500 cc. Erlenmeyer flask; 200 cc. of 60 volume per cent alcohol, neutralized as before, is added and the flask and contents are heated on the steam bath until complete solution. After rapid cooling, the solution is titrated with $\frac{N}{10}$ HCl, with phenolphthalein as an indicator to the same light pink color as the alcohol originally used. (One drop of $\frac{N}{10}$ HCl in excess should cause the light pink color to disappear.)

Total cc. $\frac{n}{10}$ HCl used = N

cc. $\frac{n}{10}$ HCl used for KOH = n

cc. $\frac{n}{10}$ HCl used for K_2CO_3 = N-n

Per cent K_2CO_3 = 0.69 (N-n).

Abstracts

Oils and Fats

Edited by
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THE NUTRITIONAL VALUES OF SHORTENING. *Bakers Digest 16*, 163-4 (1942). Generally speaking, both animal and vegetable fats and oils are of equal value in the human diet. This value, which is of the highest order, is determined by the following five major factors: (1) digestibility of the fats; (2) their content of essential fatty acids; (3) their vitamin and protein sparing action; (4) their melting points in their relation to fat utilization; and (5) their content of fat-soluble vitamins.

STUDIES ON HIGH MOLECULAR WT. ALIPHATIC AMINES AND THEIR SALTS. V. SOLUBLE AND INSOLUBLE FILMS OF THE AMINE HYDROCHLORIDES. E. J. Hoffman, G. E. Boyd, and A. W. Ralston. *J. Am. Chem. Soc. 64*, 498-503 (1942). Insoluble monolayers of octadecylamine hydrochloride spread on various sub-solns. have been investigated by means of the film balance. An increase in temp. causes octadecylamine hydrochloride films to become more expanded. The heat of spreading at an area of 35 A^2 per molecule was estimated to be 320 ergs $cm.^{-2}$. This value was compared with values for other insoluble films possessing different polar groups. The behavior of oxygen acid salts of octadecylamine has been studied.

MILK FATS FROM COWS FED ON FRESH PASTURE AND ENSILED GREEN FODDER. I. OBSERVATIONS ON THE COMPONENT FATTY ACIDS. T. P. Hilditch and H. Jasperson. *J. Soc. Chem. Ind. 60*, 305-10 (1941). The object of work reported in the present communication was to compare the component fatty acids of milk fat from cows fed solely on silage and hay during the winter season with that of milk fat from cows fed on fresh summer pasture grass. It has been found that the milk fat from the silage-fed cows closely resembles in composition that reported in earlier studies of cow milk fats from animals fed on winter diets of the usual type constg. of hay, roots, and farm-grown concentrates. The characteristic differences observed in the fat of milk from cows on summer and winter diets can not therefore be directly connected with change in the components of their feed. The possible mode of production of milk fat is further discussed in the light of the present results. Some further information has been sought as to the nature of the at present somewhat indefinitely characterized polyethenoid C_{18} acids of cow milk fats.

THE LIPIDS OF THE DUODENAL MUCOSA OF SWINE DURING THE ABSORPTION OF FAT. Raymond Reiser. *J. Biol. Chem. 143*, 109-14 (1942). There is no change in the phospholipid or cholesterol content of the duodenal mucosa of swine during absorption. There are no triglycerides in the fasting duodenal mucosa of swine and only small amts., if any, during absorption. About 2.5% of the dried wt. of fasting mucosa is free fatty acid and this amt. is approx. doubled 5 hrs. after the ingestion of oil. A theory is presented to explain the apparent differences presented by the histological and chemical studies of the absorbing mucosa.

THE INFLUENCE OF DIETARY FAT ON LACTATION PERFORMANCE IN RATS. L. A. Maynard and Edith Rasmussen. *J. Nutrition 23*, 385-98 (1942). Paired-feeding studies, involving equalized calorie intakes, are reported in which lactation performance was measured by the growth of standardized litters and by their composition. In one experiment a diet of natural foods containing approximately 4.5% fat was compared with a similar diet containing approximately 9% fat. The young from the mothers on the high-fat diet made better growth and contained more dry matter and fat in thirteen out of fifteen paired comparisons. Similar results were obtained for protein and calorie content. In a second experiment in which purified diets containing 0.3% and 18% fat were compared the data for the high-fat diet indicated a superiority in growth and in dry matter content in ten out of twelve comparisons, in fat and calorie content in all cases, and in protein in six out of nine cases. With the limited feeding practiced, the better lactation performance on the high fat diet

occurred in part, at least at the expense of the mothers' reserves.

THE INTERRELATION OF CALCIUM AND FAT UTILIZATION IN THE GROWING ALBINO RAT. C. E. French. *J. Nutrition 23*, 375-84 (1942). Excellent growth was obtained from diets containing 5, 15 and 28% fat, but 45% of fat in the diet resulted in less growth and in the excretion of a larger number of fecal pellets. The utilization of calcium decreased moderately and consistently in the order of the increasing fat content of the diets from 5 to 28% and then decreased considerably for the 45% fat diet. A more acid condition in the intestin resulted from the 5% fat diet than from the diets richer in fat. The utilization of calcium paralleled the acidity of the intestinal tract, the most efficient utilization accompanying the most acid reaction. The most efficient calcium utilization was obtained from the diet containing 1 gm. of fat to 0.06 gm. of calcium; and the efficiency of the utilization of calcium decreased in the order of the increase in the ratio of fat to calcium in the diets. The data are discussed in relation to various theories advanced to explain the physiological relationship between fat and calcium; and it is suggested that at least two factors are involved: (1) the acidity of the intestinal tract, and (2) the formation of readily absorbable bile-fatty acid-calcium complexes.

THE EFFECT OF THE LEVEL OF FAT IN THE DIET UPON UTILIZATION OF VITAMIN A. Kathleen Dietrich Muelder and Eunice Kelly. *J. Nutrition 23*, 335-44 (1942). Inclusion of 10% of fat in the basal diet aided absorption of vitamin A sufficiently to produce statistically significant gains in weight over a basal diet containing no fat, but not over a basal diet containing 5% of fat. For the levels of fat and units of vitamin A intake used in this experiment, unitage of vitamin intake was a more important factor in the production of highly significant gains in weight than level of dietary fat.

PATENTS

TREATMENT OF TALL OIL. E. Segessemann (Nat'l Oil Products Co.). *U. S. 2,276,517.* In a process of treating saponified tall oil of the type in which the unsatd. fatty portion has been satd. by hydrogenation, the step comprises chilling a soln. of such saponified hydrogenated tall oil in an org. solvent therefor to effect pptn. of fatty acid soaps.

WAX DISPERSION AND METHOD OF PREPARING SAME. Henry C. Thompson. *U. S. 2,274,509.* An aqueous wax dispersion for use in applying a film of wax to automobile finishes and the like, comprised carnauba wax, a dispersing soap formed of oleic acid having a titre of less than 8° C. a fixed alkali sufficient in amount to substantially completely saponify the oleic acid, and in sufficient quantity to give to the completed dispersion a slightly alk. reaction when tested with phenolphthalein, and a waterproofing booster comprising a dispersed insoluble casein compound.

ARTIFICIAL LEATHER. R. C. Medl (Hercules Powder Co.). *U. S. 2,273,973.* An artificial leather which is resistant to spewing at high temperatures and retains its flexibility at low temperatures consists of a flexible base web and a coating of pigmented composition consisting of about 40 parts of nitrocellulose, about 30 parts of butyl acetyl ricinoleate and about 30 parts of a mix. of castor oil and polymerized rapeseed oil.

PHOSPHATIDIC COMPOUND. Benj. H. Thurman (Refining, Inc.). *U. S. 2,272,616.* The process of producing phosphatidic compounds contg. alkali metals comprises reacting a phosphatide with an alkali metal salt in the presence of water, dehydrating the reaction products, and extracting said compounds from said products with a solvent therefor. These are used in soap to prevent Ca pptn.

PROCESS FOR RECOVERING STEROLS. Percy L. Julian and John W. Cole (The Glidden Co.). *U. S. 2,273,045.* The process of recovering sterols comprises extg. substantially dry, substantially oil-free soybean material contg. sterols and a basic substance with a water miscible volatile ketone, separating the extract from the insol. residue and concg. the ext. by evapg. the ketone in the presence of a basic substance.

PROCESS FOR RECOVERING STEROLS. Percy L. Julian and John W. Cole (The Glidden Co.). *U. S. 2,273,046.* In a process for recovering sterols a step comprises taking up a liquid concentrate contg. the sterols and impurities in heated glacial acetic acid, cooling the soln. thus formed to crystallize the sterols and recovering the crystals from the mother liquor.

STABILIZATION OF OILS. Sidney Musher (Musher Foundation, Inc.). *U. S. 2,273,062.* Seed material is heated with the oils to increase their stability.

PROCESS FOR REFINING OILS AND FATS TO CHECK THE DEVELOPMENT OF RANCIDITY. M. R. Coe and M. R. Coe, Jr. *U. S. 2,272,964.* A process for refining oils and fats contg. photosensitizing pigments to check the development of rancidity comprises percolating the oil or fat through a column of finely powdered sugar, whereby said pigments are absorbed in the sugar and removed from the oil or fat, and thence recovering the oil or fat product free of said pigments.

HYDROGENATED BUTTER METHOD. F. H. Penn. *U. S. 2,272,578.* A process for improving the storage and keeping qualities of butter comprises dehydrating the butter and hydrogenating the dehydrated butter fat in the substantial absence of air and moisture at a temp. of from about 35° C. to about 60° C.

SALTS OF CERTAIN METHYLENE DIAMINES WITH CERTAIN PETROLEUM SULFONIC ACIDS. M. DeGroote (Petrolite Corp.). *U. S. 2,270,681.* The products are used as demulsifiers for petroleum oils.

CORE OIL. Madison L. Sheely (Armour & Co.). *U. S. 2,272,483.* A core oil, comprising a C_{22} marine oil fatty acid composition having a baking time substantially less than the baking time of linseed core oil is described.

CORE OIL. Wm. J. Hough. *U. S. 2,270,947.* A core oil comprising a glycerine ester of the fat acid mixture derived from the liquor from the sulfate process treatment of pine wood comprising a major proportion of unsaturated fatty acids, a minor proportion of rosin acids and a small proportion of sterols is described.

NONDRYING WATER-WASHABLE LAPPING AND GRINDING COMPOSITION. Dean K. Murray and J. M. Olson (Minnesota Mining & Mfg. Co.). *U. S. 2,270,888.* A grinding and lapping composition comprises abrasive suspended in a complex comprising a water-emulsifiable modified mineral oil and a grease made from mineral oil and polyvalent metal soap, said grease having a melting point of from 170° F. to 220° F.

LUBRICANT AND METHOD OF PREPARING SAME. E. Lieber (Standard Oil Development Co.). *U. S. 2,270,319.* A lubricant consists essentially of a waxy lubricating oil and not more than 5% of tall oil.