

Abstracts

Soaps

Edited by M. L. SHEELY

COMPOSITION AND DETERGENCY OF FAT AND NIGRE SOAP. R. L. Datta et al. *Indian Soap Journal* 6, 17-18 (1939-40). A fat charge comprising mowha, coconut, and groundnut oil and tallow was saponified. A portion was grained out to a neat soap. The nigre with all alkali and salt was grained to a neat soap. Both neat soaps and fitted soaps were tested for detergency. Optimum concentration for detergency was 0.15% for the original soap and nigre soap, and 0.25% for the fitted soap.

Analysis showed some separation of low molecular acids and fatty acids of lower titre in the nigre. It was deduced that some low molecular fatty acids favoring wetting and some highly unsaturated fatty acids favoring emulsification had passed into the nigre, thereby maintaining its detergency at the level of the original soap mixture and lowering the detergency of the fitted soap to a considerable degree.

SAPONIFYING AGENTS. Benjamin Levitt. *Chemical Industries* 46, 726 (1940). Triethanolamine is now used in special cases as a saponifying agent for fats and oils, along with the more common alkalis. One of the most important properties of triethanolamine soaps, not possessed by potash and soda soaps, is solubility in oil. They are thus able to produce oil-in-water emulsions. In addition to this property they are easy to prepare and possess buffered alkalinity and high emulsifying power.

Besides triethanolamine (which is actually a mixture of mono-, di-, and triethanolamine), ethylene diamine, morpholine, triisopropanolamine, monoamyleneamine, guanidine carbonate and others may be used. Morpholine is said to be valuable in the formation of coating emulsions. Upon drying, morpholine volatilizes from the emulsion film, leaving it practically water-resistant.

SUPERFATTED TOILET SOAPS. *Perfumery and Essential Oil Record* 31, 177 (1940). Though originally introduced towards the end of the last century to counteract the effects of alkali liberated by hydrolysis, now known to be quite trivial, the addition of superfatting materials to toilet soaps still continues, and although the practice is so old and the choice of suitable material so limited, one still finds fresh patents on the subject published in the literature. The substances most favored for the purpose for many years were lanoline, petroleum jelly and spermaceti, though occasionally beeswax was employed. Later the use of the alcohols separated from waxes, e.g. stearyl alcohol, lauryl alcohol, have been employed. Other substances patented for the same purpose are hydroaromatic compounds such as decylphenol. It has often been questioned how far the superfatting of a toilet soap is desirable. Nowadays toilet soaps seldom contain any appreciable free alkali, either caustic, or carbonate, and no protective greasy film on the skin should be required. It certainly appears rather paradoxical to require the raw materials for a toilet soap to contain only trifling amounts of unsaponifiable matter, and then, after saponification, to add comparatively large amounts of unsaponifiable matter. It is further questionable whether any appreciable amount of the superfatting material remains on the skin seeing that soap removes greasy matter by its emulsification.

EXPERIMENTAL PROOF OF ADSORBED SOAP FILMS. R. Brill and F. Rieder. *Agnew. Chem.* 53, 100-3 (1940). In studying the mechanism of the detergent action of

soap, it was desired to det. whether the soap is adsorbed on the goods and on the soiling particles in molecular or in micellar form. Electron-diffraction experiments on the adsorption of Na stearate on thin nitrocellulose films established the presence of soap films formed by molecular adsorption. The adsorbed mols. stand vertically on the surface and form two-dimensional hexagonal crystals. Films formed from solutions of the concentration of 1:1000 probably consist of several layers of molecules, but more dilute solutions may possibly give unimolecular soap films. The adsorbed films could easily be washed off but the films were much harder to wash off after aging for several days or if the adsorption took place at higher temperature (85°) (*Chem. Abs.*).

OFFICIAL METHODS OF SOAP ANALYSIS. Alejandro Schiller. *Industria y quim.* 3, 20-1 (1940). Improvements on the methods for the determination of moisture (I) and total fat acids (II) are suggested. In order to avoid losses of (I) 5 g. of soap in small pieces is mixed with 20 g. impalpable pumice and 3-5 ml. alc. The mixture is warmed to 80°, until the soap is dissolved and thoroughly mixed with the pumice. The alc. is evapd. in 30-40 min. The residue is dried to const. wt. Losses of (II) occur when the emulsion of the ethereal and the aqueous layer are separated by a few drops of alc. The evaporation of water from the residue at 80° also causes losses of volatile acids. The losses of (II) are avoided by filtering the ethereal solution of (II) through a filter half filled with anhydrous Na₂SO₄, washing the filter with petroleum ether and evaporating the filtrate at low temperature. (*Chem. Abs.*)

PATENTS

DETERGENT COMPOSITION. Robert Maxwell to E. I. du Pont de Nemours and Co. *U. S.* 2,202,741. A solid detergent in bar form, the solid components of which consist of sodium dodecylsulfate, sodium sulfate, and, as a binder, sodium starchglycolate, or water dispersible alkali metal salts of carboxyalkyl ethers of polymeric carbohydrates or their low-substituted ethers or esters, said carbohydrates containing at least ten simple carbohydrate units. Carbohydrates falling in this classification include cellulose, starch, glycogen, and inulin, as well as their low-substituted derivatives such as ethers and esters, for example, methyl cellulose or methylstarch.

REFINING FATS AND OILS. Aktiebolaget Separator. *Brit.* 520,285. A process for the refining of vegetable or animal oils or fats, whereby a concentrated soap-stock with only a low content of water and impurities (oil) is recovered, consists in neutralizing the oil and precipitating the soap by the addition of salt and separating the oil, soap and aqueous solution in a centrifugal separator designed so that the three components are discharged separately and continuously. The soap is precipitated by the addition of salt before, during, or after the addition of the alkali used for neutralization; conveniently the salt is added to the alkaline solution to be used in amount between 8% and 26% (advantageously 14%) of the water phase, so that the specific gravity of the aqueous phase is between 1.058 and 1.2 (advantageously 1.1).