ABSTRACTS

Soaps

Edited by M. L. SHEELY

PAN CHARGE AND PHYSICAL PROPERTIES. Archibald Rayner. *Soap Perfumery and Cosmetics, 12,* 345 (1939). Contrary to general ideas, solid fats, such as tallow, palm oil etc. do not yield particularly hard soaps, nor are the soaps given by certain liquid oils such as olive oil, oleine, etc. particularly soft, and hardness is primarily conferred by coconut and palm kernel oils, and softness by liquid oils containing high proportions of acids more unsaturated than oleic acid, e.g. cotton and soya oil. There is a vast difference in the solubility of soaps from solid fats, fats of the coconut oil class, and those from liquid oils — those of the coconut oil class being most soluble both in hot and cold water. The solubility of soaps from tallow and palm oil, etc., is exceedingly low, even in warm water, and the critical point appears to be between 100° C. and 110° F. — a range over which solubility is trebled. In the case of 63 per cent soaps, the factors governing durability or relative rate of wastage are both solubility and hardness, and in cold water, hardness tends to be a greater factor than solubility, but in hot water any differences in hardness tend to be swamped by solubility considerations. The I. N. S. factor and Solubility Ratio factor have been found to be of no value in forecasting either hardness or solubility to the extent which has been suggested. The durability of toilet soaps compared with 63% soaps has been found to be surprisingly low, particularly in cold water, and it is suggested that this is caused by rapid disintegration due to the physical condition within such a soap and in hot water the wastage still compares unfavorably when the greater actual soap content of toilet soaps is taken into consideration.

CHEMICAL TESTING METHODS IN INDUSTRY. Determination of the fat contents in soap products. H. Leue. *Fette u. Seifen 46,* 113-4 (1939). The flasks used in the analysis are similar to volumetric flasks, the necks of which are graduated and the mouths are in the form of a small funnel. The remainder of the app. comprises a special steam bath. The fat acids are released with organic acids and measured in the neck of the flask. The results check well with analytical methods. The method is recommended for plant control work.

CHEMISTRY'S CONTRIBUTION TO THE REVIVAL OF THE WOOL INDUSTRYS: A NEW WOOL OIL. *Textile Colorist, 61,* No. 723, 169. When phenol ("carbolic acid") is hydrogenated, there is formed a fully saturated compound called cyclohexanol, which has been employed on its own as a solvent and cleanser for textiles. Cresol, or methylphenol when hydrogenated, similarly gives methyl cyclohexanol.

$$CH_3—C_6H_4—OH+2H_2=CH_3—C_6H_6—OH$$

Treatment with oleic acid or its acid chloride results in the formation of the ester, an oily mass which is almost unaffected by oxidation. In fact, when exposed to a curent of warm air in the Mackey apparatus, the temperature rises only to 215° F. in 2 hours whereas olive oil itself heats up to nearly 500°. The superiority of this oil for spinning has been reported upon before and its freedom from tendency to gum on the cloth or to impede washing and ultimately, dyeing.

TALL OIL: NEW GERMAN REFINING PROCESS. *Perfumery and Essential Oil Record, 30,* 122 (1939). Increasing interest is being taken in this material in Germany both for soap making and varnish manufacture. A recently introduced method of refining under the Dorken patent (inventor, Dr. Hans Heller) separates the "tall" oil into refined resin acids for soapmaking, and fatty acids and unsaponifiables for varnish manufacture; it also provides for esterifying the fatty acids with glycerine, glycol, penta-erythrite or other alcohols for yield of additional products such as artificial resins. Other acids such as phthalic acid may be included in the esterification (Chem. Zeit. 1/2/39.). The scarcity of linseed oil in Germany has stimulated continued research with tall oil. It is produced in large quantities in the pulp and paper industry of Finland and Sweden, and consists on the average of 45-60% fatty acids and 30-45% resin acids, together with 70.1% unsaponifiable, the latter including certain sulphur compounds, possible mercaptans, which are responsible for the unpleasant áshy smell. This odour together with brownish-black colour and high percentage of unsaponifiable have made an efficient refining process a primary essential. Several such processes have been introduced in the last 10 or 15 years, but mainly from a soap-making point of view. Its use for varnish manufacture has given a new orientation to research, and is the main purpose of Heller's work. Among these earlier methods are the hydrogenation process of Melamid worked by Riebeck Montan Werke A. H. under German patents 361,734 and 429,272, whereby the fishy odour is certainly removed but the fatty acids are not hardened; and the Levi process Ger. patent 424,031 wherein the tall oil is dissolved in a hydrocarbon such as benzine, or petroleum ether, or more recently in the U. S. A. in furfurol, and the pitch-like dark-coloured matter may be separated and removed; but though worked since 1926-27, the method has not proved a complete success.

PATENTS

WAX TREATMENT OF HEMP ROPE. *U. S. 2,139,343.* Robert C. Williams and Hugh M. Bone to Ironsides Co. A method of treating hemp rope with a wax coating having the normal lubricating properties of wax comprises applying an aq. NH_4 fatty acid soap emulsion of the wax to the rope, and then volatilizing the aq. NH_3 content therefrom to leave a wax coating contg. an amt. of fatty acid insufficient to plasticize and thereby change the original lubricating characteristics of the wax. The emulsion contg. fatty acid 14 and ammonia water 3½% and such an amt. of wax that the residual fatty acid does not plasticize to affect the lubricating qualities of the wax.

MANUFACTURE OF SOAP. *U. S. 2,146,770.* Julius A. Schwantes to Colgate-Palmolive-Peet Co. The improvement in the manufacture of soap which comprises forcing milled soap through a foraminous plate into an evacuated chamber to remove air and other gases, and plodding the soap, while maintaining it under the vacuum, to produce soap free from striations.