ABSTRACTS

Soaps

Edited by **M. L. SHEELY**

Quick-drying stamp-pad inks. C. E. Waters. *J. Res. Nat'l Bureau Standards* **20,** 543 (1938).—Inks for use with rubber stamps are generally made by dissolving dyes in a mixture of glycerol and water. They will not dry on the pad, because glycerol is practically nonvolatile at ordinary temperatures. When an impression is made on paper, the ink "dries" by being absorbed. If the paper is absorbent, the ink may penetrate rapidly enough, but no well-sized paper it may take many seconds, or even a few minutes, for the ink to be absorbed. If many papers must be stamped in quick succession, the danger is incurred of blurring the impressions. Alcohol is one of a number of volatile organic liquids that can be added to ink made with glycerol and water, to make it sink rapidly into paper. Alcohol has the drawback of being much more volatile than water, and if ink containing it is put on a stamp-pad, much of the alcohol may be expected to evaporate soon, and the ink will no longer be quick-drying.

It has been found that Butyl Carbitol, the monobutyl ether or diethylene glycol, is not only as efficient as alcohol for making glycerol-water ink sink rapidly into paper, but it is so slowly volatile that a pad can be exposed to the air for weeks, yet the ink will still be absorbed quickly.

Lignin sulfonates as raw materials for the manufacture of soft soap. H. Meier. *Seifensieder-Ztg.* **65,** 275-7 (1938).—The use of "Zewapowder Sap" in soap making is recommended.

The manufacture of glossy transparent soft soap. R. Krings. *Seifensieder-Ztg.* **65,** 335-8, 356-7 (1938).—Methods for making transparent soft soaps for both winter and summer uses are given.

Preparation of higher fatty alcohols. *Perfumery and Essential Oil Record* **29,** No. 4, 155 (1938).—A new method for the preparation of higher fatty alcohols under much lower pressures than usual is described by Ueno in J.S.C.I., Japan, 1938, 62-3B, Sup. Bind., consisting in the hydrogenation of copper soaps followed by fractional distillation. A good deal of work has already been done in this field, for these higher fatty alcohols have now become so essential in the production of new detergent and wetting agents of the Gardinol type that they form the subject of numerous investigations and patents. These, however, are mainly based on high pressure hydrogenation of fatty acids and esters (including glycerides or ordinary fats and oils) to higher alcohols. The methods employed involve the use of pressures of 150-300 atm. and temperatures of at least 250°, conditions which are relatively violent or drastic, much more so than ordinary fat-hardening as carried out today with highly efficient catalysts.

It is obviously desirable to reduce the pressure, and therefore Ueno and his collaborators have tried direct hydrogenation of copper soaps of coconut oil and obtained favorable results. Copper soaps are already known as catalysts for hydrogenating fatty oils to higher alcohols; but in the present work the copper soaps themselves are reduced by direct hydrogenation at pressures less than 100 atm., whereby reduction products were obtained containing about 70 per cent higher alcohols, and thus the method could be applied on a commercial scale.

The copper soaps used were precipitated by adding a copper acetate solution to an ordinary coconut oil soap solution, and after thoroughly exhausting and drying the copper soaps were directly hydrogenated with hydrogen in an autoclave of 250 c.c. capacity in the usual way; taking 30 g. of the copper soap with each experiment and varying the initial hydrogen pressure from 30 to 70 atm. It was found that the saponification number of the product increased with decrease in initial pressure, thus suggesting that waxy esters were produced during hydrogenation. The product obtained under a reaction pressure of 100 atm. was subjected to a fraction distillation under diminished pressure, the products of which were oily, fragrant, transparent liquids consisting mainly of higher fatty alcohols.

Detergents and their application to the textile industry. J. B. Crowe. *Am. Dyestuff Reptr.* (Proc. Am. Assoc. Textile Chem. Colorists) **27,** P94-7 (1938).—A discussion of sol. soaps, insol. or metallic soaps and synthetic detergents or soaps. Theories of detergency are briefly outlined and the probable mechanics of the cleaning process indicated. Selection of a detergent for any purpose is dependent on the process, and on the composite qualities of the detergent chosen rather than on 1 or 2 factors considered separately. (*Chem. Abs.*)

PATENTS

Stabilization of soaps. *Soap Perfumery and Cosmetics Buyer's Guide and Cyclopaedia,* page 26 (1938). P. I. Smith recommends well-known ingredients such as borax, sodium thiosulphate, salicylic acid and benzoic acid as soap preservatives. Attention has recently been directed to the favorable effect of 0.1 per cent tin chloride or 0.1 to 0.2 per cent methyl p.-hydroxy benzoate or 0.1 to 0.2 per cent p.-phenyl phenolate, in counteracting rancidity. Mucilaginous ingredients such as agar-agar, gelatin or Colloresin FS, a tylose-like product (0.05 to 0.1 per cent), are also claimed to improve the keeping qualities.

Austrian Patent 143,655 claims the use of glycerin or other suitable alcohols in admixture with water-soluble phosphoric acid salts, in particular trisodium phosphate, in soaps containing liquid oils such as groundnut, sunflower, sesame or olive in a percentage of up to 53 per cent of the fat weight. According to English Patent 440,910, octyl phenols and their derivatives are applicable in soaps and vegetable oils both as preservatives and germicides.

Soaps are protected against rancidity according to American Patent 2,029,506 by the addition of 0.01 to 0.25 per cent of p.-tertiary amyl or butyl phenol. According to German Patent 619,928, up to 3 per cent aliphatic high-molecular halogenated hydrocarbons acts as a preservative for oils, fats and soaps.

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Recommended preservatives for liquid soaps are a mixture of acetone and potassium lactate; also alcohols and phenol ketone in presence of amines and reducing agents.

Soaps with exceptional disinfectant qualities are obtained, according to English Patent 453,830, in the following manner. Fluorinated carboxylic acids and alcohols prepared by reacting hydrofluoric acid with acids or alcohols containing at least 10 carbon atoms and one or more aliphatic double bonds (but no triple bonds) are transformed into water-soluble derivatives and applied to the production of disinfectant soaps. Fluor-stearic acid, fluorstearyl alcohol and fluorundecanic alcohol and undecylenic acid. Ricinic acid, prepared by splitting off water from ricinoleic acid and linseed oil fatty acid, is another starting material.

In passing, attention may be directed to the novel medicinal soap tablets claimed in English Patent 457,975. Medicinal and cosmetic agents normally incompatible with soap are inserted in cavities or channels in the soap tablet, which is covered internally with an insoluble layer (prepared from lacquer, hardened gelatin or insoluble metallic soaps), which is formed, for example, by adding a solution of a zinc salt to the cavities before charging.

Coating articles such as metal parts with ferric stearate, to prevent oil spreading. Katherine B. Blodgett (to General Elec. Co.). U. S. 2,108,641, Feb. 15.—Articles such as watch parts are provided with a continuous coating film of even thickness consisting of ferric stearate which is nonwettable by oil. (*Chem. Abs.*)

Washing and cleansing agents. Henkel and Cie. Brit. Pat. No. 480,231.—The inventors claim a method for cheapening and improving the manufacture of soaps and cleansing agents by mixing soaps produced from hardened fats with water-soluble salts of ether-carboxylic acids, both the soaps and water-soluble salts being obtained from cheap raw materials. The salts are derivatives of compounds of the general formula: $R{\cdot}Ar{\cdot}O{\cdot}R^1{\cdot}COOH$, where R is an aliphatic or cycloaliphatic radicle containing at least four carbon atoms, Ar is an aromatic radicle, and R^1 is an organic radicle; whilst the soaps may be obtained from fatty acids having 16 or more carbon atoms. The new products are easily soluble in cold or moderately warm water, lather readily, and have excellent washing and cleansing power. The fatty acid salts are those of palmitic, stearic and the like acids or mixtures, and may include only to a small extent the lower molecular or unsaturated acids. Generally they may be hardened or hydrogenated oils or fatty acids, such as whale oil or other marine animal oils, or cheap vegetable oils. such as soya bean oil, linseed oil, castor oil, sunflower seed oil, etc.

The ether carboxylic acids are derived, for example, from hydroxy acids such as hydroxy-acetic, hydroxy-propionic, hydroxy-butyric, etc., acids, or from aromatic hydroxy acids, and the products may consist of mixtures of the soaps described with alkali-, ammonium-, triethanolamine- and other salts of phenoxy-acetic, cresoxy-acetic, or naphthoxyacetic acid, substituted or not in the aromatic radicle by an alkyl or secondary alkyl radicle. (*Perfumery and Essential Oil Record.*)

Making foam. The Pyrene Co., Ltd., and Arthur F. Ratner. Brit. 474,479, Nov. 2, 1937.—In producing foam, particularly for use in extinguishing alc. fires, a satd. fatty acid soap and a hydroxy fatty acid soap are added to the foam-forming ingredients as stabilizing agents. A dry foam-forming powder may contain $Al_2(SO_4)_3$, $NaHCO_3$, liquorice, Na laurate and Na ricinoleate. An alk. soln. for reaction with a soln. of $Al_2(SO_4)_3$ may contain $KHCO_3$, saponin, Na stearate and Na ricinoleate. (*Chem. Abs.*)

Fat acids. Kurt Albert G.m.b.H. chemische Fabriken. Fr. 820,492, Nov. 12, 1937.—Fat acids of animal or vegetable fats or oils are obtained by re-esterifying the glycerides with nondistillable artificial resin acids or with the acid residues from the distn. of colophony or artificial resin acids and distg. off the liberated fat acids. (*Chem. Abs.*)

Preparation of a transparent milled soap. Henkel & Cie, G.m.b.H. Ger. Pat. Application H. 145,939, a. 13/12/35.—The process consists in chilling a thin layer of soap, containing castor oil soap and charges of fat free from resin, in saponification at the ordinary temperature, and then in avoiding any increase of temperature in later operations.

Ex. 1: Saponify 60 kg. of tallow, 12 kg. of olive oil, 18 kg. of coconut oil and 10 kg. of castor oil with 46 kg. of 32.5% caustic soda. Run the white soap at 90° on to cooled cylinders. Dry and mill the transparent soap strips. Ex. 2: Treat, as in ex. 1, 60 kg. of tallow, 12 kg. of olive oil, 10 kg. of castor oil, 8 kg. of coconut oil, 10 kg. of palm-kernel oil fatty acids, 2.5 kg. of glycerol. A transparent soap is obtained which, with the addition of a small quantity of glycerol, is even clearer than that of ex. 1. Ex. 3: Treat 68 kg. of tallow fatty acids, 20 kg. of palm-kernel oil fatty acids, and 12 kg. of castor oil fatty acids with caustic soda lye containing 16 kg. of 75% sugar solution. (*Recherches.*)

Soap manufacture without heat. Robert G. Gerber. Brit. Pat. Specification 18,247/37.—The invention covers a process for finely emulsifying fatty substances, treating them with an accelerating preparation (sodium peroxide) which is also an oxidizer, adding water and then submitting them to the action of a concentrated alkaline lye. (*Perfumery and Essential Oil Record.*)

Distillation of fatty acids. Colgate-Palmolive-Peet Company. Belg. 421,962; French 822,709. — The process consists in the vaporization of the hot liquid in a high vacuum, separating the liquid carried over and non-volatilized matter from the hot vapors, without lowering the temperature of the vapors, and preheating the feed liquid. Finally, the high-boiling liquid is vaporized by a current of superheated steam. (*Recherches.*)

Distillation of glycerol. J. Baudot. French 822,840, a. 27/8/36, g. 8/1/38.—The production to be distilled is preheated and introduced in the form of a fine spray, together with superheated steam, into a receptacle in which a relative vacuum is maintained. (*Recherches.*)