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AGENT FOR WETTING, EMULSIFYING, ETC.

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7 Claims. (Cl. 252—1)

The present invention relates to agents or media adapted for wetting, emulsifying and like purposes. This application is a division of Ser. No. 433,815, filed March 6, 1930, relating to the preparation of these agents.

More particularly, the instant invention comprehends sulphuric reaction products of the fatty alcohols such as those obtained from cocoanut and palm nut oils. The phrase "sulphuric reaction products" as used herein, includes sulphuric acid esters, sulphonic acids and mixtures or combinations of the same in any desired proportion.

The principal object of the present invention is to provide agents of the above nature which are excellently adapted for the many purposes herein later set forth, and which are producible from raw materials at low cost by a minimum number of operations.

These agents are most conveniently produced by reacting sulphuric acid or its equivalent with fatty alcohols, such as those produced from cocoanut oil by esterifying the fatty acids derived therefrom with lower aliphatic alcohols and reducing the mixture of esters to alcohols. Instead of using the whole mixture of alcohols from the cocoanut oil, it is preferred to employ only the lower boiling portion thereof such as the first 50 to 60% of a distillate collected during distillation of the mixture. This portion of the distillate consists principally of lauric alcohol.

The higher boiling fraction of the distillate consists mainly of myristic and octodecyl alcohols. The sulphuric reaction products obtainable from this fraction are also satisfactory for the purposes for which the product is intended but not to as high a degree as those derived from the lower boiling fraction.

In the production of the product, the whole distillate or either fraction thereof may be treated with any sulphonating or sulphating agent including concentrated or fuming sulphuric acid, sulphur trioxide, or chlorosulphonic acid, either alone or, if desired, together with a dehydrating media of organic or inorganic nature.

The nature of the reaction product as to whether it is an ester, a sulphonate or a mixture thereof is obviously dependent upon the intensity of the sulphonation or sulphating conditions, such as the character and quantity of the sulphonating or sulphating agent and the temperature maintained during the reaction.

Herein follow some examples of methods by which the products of the present invention may be prepared. It is to be understood, however, that the sulphuric reaction products as disclosed and claimed herein may be produced by other processes from lauric and related fatty alcohols.

Example 1

A mixture of fatty alcohols consisting principally of lauric alcohol is obtained from cocoanut oil by esterification of the fatty acids with ethyl alcohol, reduction of the ethyl ester, distillation of the reduced product and collection of the first 50 to 60% of the distillate. This mixture in a quantity of 100 kgs. is melted at a temperature of about 30° C. and treated with 50 kgs. of chlorosulphonic acid at the said temperature.

Example 2

A mixture of alcohols obtained as described in the above example, in a quantity of 100 kgs. is treated with 70 kgs. of fuming sulphuric acid at a temperature of 100° C.

The reaction products of the above processes are directly neutralized by means of soda lye and then separated by known methods from inorganic impurities, such as sodium sulphate or sodium chloride.

The true sulphonic acids of the fatty alcohols obtained by energetic sulphonation at elevated temperatures, as has been described in Example 2 above, are extremely valuable in the treatment of fibrous material, for the reason that they do not split off sulphuric acid even during the drying and calendering of the textile at elevated temperatures. Ordinary or unstable sulphuric reaction products of fats and oils used for sizing purposes break up splitting off sulphuric acid, with the result that frequently the fibers are injured.

The products of the present invention, and in particular those obtained from the mixture composed largely of lauric alcohol are very stable, are very soluble in water, and are excellent for moistening and foaming purposes in many commercial processes, such as those employed in the textile, leather, pharmaceutical, ceramic and metal working industries. The products are also suitable for use in manufacturing insecticides and dust binding agents and as a foaming agent in fire extinguishers, in which case 5% of the product is added to a 10% solution of sodium bicarbonate to be reacted in the extinguisher with sulphuric acid. In fact the products are useful in substantially all processes wherein there is involved moistening, permeating, emulsifying, cleaning, softening, introducing active substances or forming protective colloids.

Having thus described the invention, what is

claimed as new and desired to be secured by Letters Patent is:

1. A medium for wetting, permeating, and producing foam and dispersion which comprises the true sulphonates of primary lauric and primary myristic alcohols.

2. A medium for wetting, permeating, and producing foam and dispersion comprising true sulphonates of the alcohols obtained from cocoanut oil.

3. The true sulphonates as described in claim 2 after neutralization with soda lye.

4. A medium for wetting, permeating, and producing foam and dispersion comprising true sulphonates of the lower boiling alcohols obtained from cocoanut oil.

5. A true sulphonate of primary myristyl alcohol.

6. A true sulphonate of primary octadecyl alcohol.

7. A medium for wetting, permeating and producing foam and dispersion comprising a mixture of true sulphonates of primary myristyl alcohol and primary octadecyl alcohol.

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