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PROCESS FOR THE TREATMENT OF SULPHONATED FATTY ALCOHOLS AND THE PRODUCTS PRODUCED THEREBY

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It is known that the products produced by the treatment of fatty alcohols with sulphuric acid possess valuable wetting out properties for use in the treatment of textile fibers and fabrics.

The addition of these compounds to liquids employed in the treatment of textile fibers and fabrics has a tendency to produce more uniform results, this property, however, being due chiefly, and in some cases entirely, to the greater uniformity of the wetting of the fibers.

It is well known, however, that the principal source of unevenness in the dyeing, and other treatments, of textile fibers is the hardness of the employed water, due to the presence of calcium and magnesium salts which form insoluble compounds with soap and with many dyes, the presence of these insoluble salts causing uneven results.

It is necessary, therefore, to prevent the formation of these insoluble compounds by retaining the objectionable calcium and magnesium salts in solution during the dyeing and other treatments.

As many of the wetting out products produced by the sulphonation of fatty alcohols do not possess the property of thus rectifying the hardness of the employed water, and the others possess this property in a minor and inefficient degree only, it has been found necessary in textile treatments to perform two separate and different operations, one to enhance the wetting of the fibers by means of one of these sulphonated products and the other to correct the hardness of the water, many processes having been suggested to accomplish the latter.

It is evident, therefore, that a very considerable saving in time and expense could be accomplished if both of these desirable results could be obtained with one product and at the same time; and hence, the value of my invention is evident, in that by the use of the products of my invention the wetting is enhanced and the prevention of the precipitation of the calcium and magnesium salts are simultaneously accomplished in one operation, said operation, further, being capable of performance with the dyeing, or other treatments, of the fibers.

I have found that if these sulphonated products of fatty alcohols be treated with alcohol, there results a product having the unexpected property of preventing the precipitate of the calcium and magnesium salts present in the water employed in textile treatments more completely than other products adapted for this purpose, even when the thus untreated sulphonated products allow of the precipitate of marked quantities of these salts under corresponding conditions.

Among the products particularly suitable for use in my invention are oleic alcohol, cetyl alcohol, stearic alcohol and lauric alcohol.

While my invention is not directed to any particular method, or methods, of producing the sulphonated products of fatty alcohols, I give the following as one process for the production of a sulphonated fatty alcohol adapted for application in the following of my process:

256 parts oleic alcohol are treated with 190 parts sulphuric acid 98% at a temperature of 32° C. The thus produced sulphonated product is neutralized with sodium hydrate, or potassium hydrate at a temperature below 36° C. to an acidity of 0.6%, calculated upon oleic acid and 6.7 pH for a 1% solution at 50° C.

I give the following as an example of my invention:

100 grams of the sulphonated product of oleic alcohol are warmed for a short time with 50 grams of ethyl alcohol.

I have found that if 1.1 gram of the product of the above example be dissolved in 100 grams of water at 50° to 60° C., and 10 c. c. of a 2½% solution of calcium chloride be added, (an amount in excess of the amount present in the hardest water), the solution remains absolutely clear without any evidence of cloudiness or precipitate of a calcium salt at 50°–60° C. for many hours, and possesses highly improved wetting out properties over the sulphonated products alone.

If, on the other hand, the same sulphonated product of oleic alcohol alone be subjected to the same treatment, a heavy cloudiness appears, evidencing the precipitation of these salts.

The oleic alcohol in the above example can be substituted by a corresponding amount of other fatty alcohols, such as cetyl alcohol, stearic alcohol and lauric alcohol.

It will thus be seen that by the process of my invention, I produce products possessing the two valuable properties of a highly improved wetting out property and the property of preventing the precipitation of calcium and magnesium salts present in the water employed in their application, and that these attributes of my products are particularly adapted for textile treatments, in that they simulaneously overcome in a simple bath the two most objectionable features incident to such treatments.

I do not limit myself to the particularly men-

tioned quantities, temperatures, materials or steps of procedure, as these are given simply as a means for clearly describing the process and products of my invention.

What I claim is:

1. The method of improving the calcium and magnesium tolerance of sulphonated higher fatty alcohols which comprises warming them for a short time with 50% of their weight of ethyl alcohol.

2. A wetting composition consisting of a sulphonated higher fatty alcohol of 12–18 carbon atoms and ethyl alcohol.

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