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TREATING TEXTILE MATERIAL AND PRODUCT THEREOF

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4 Claims. (Cl. 8—2)

This invention relates to the treatment of textile materials made of or containing organic derivatives of cellulose and relates more particularly to the treatment of such materials with hot aqueous fluids.

This application is a division of my application Serial No. 616,573 filed June 10, 1932, now Patent No. 2,041,868, patented May 26, 1936.

An object of my invention is to protect textile materials comprising organic derivatives of cellulose against impairment of desirable properties when subjected to hot aqueous fluids. A further object of my invention is to diminish or prevent the tendency of pile of organic derivative of cellulose yarn to agglomerate when fabric having a pile of organic derivative of cellulose yarn is subjected to hot aqueous liquids. Other objects of this invention will appear from the following detailed description.

Fabrics having a pile made of yarn of cellulose acetate or other organic derivative of cellulose present serious difficulties when subjected to finishing treatments such as dyeing, scouring, degumming, etc. which involve treatment with hot aqueous liquids. I have found that when such fabrics are treated with hot aqueous liquids, the pile yarns tend to agglomerate into tufts, with the result that the appearance of the fabric is not uniform and the value of the fabric is greatly impaired through the lack of uniform lustre or sheen demanded of velvets or other pile fabrics.

I have found that if readily ionizable salts are present while such pile fabrics are treated with hot aqueous fluids the agglomeration of the organic derivative of cellulose pile yarn into tufts is avoided, thus making possible the finishing of fabric made of organic derivative of cellulose pile to form a fabric having substantially uniform sheen.

I have further found that if such neutral salts are present in a bath employed to degum the natural silk in a mixed fabric containing both organic derivative of cellulose yarn and natural silk yarn; they protect the organic derivative of cellulose yarn against the deleterious action of the hot soap solutions employed for the degumming.

In accordance with one aspect of my invention, I treat fabrics containing both yarns of organic derivative of cellulose and natural silk yarns in the gum at elevated temperatures with a degumming bath containing a readily ionizable salt or other compound. In accordance with another aspect of my invention, I treat fabric having a pile made of yarns of organic derivative of cellulose with hot aqueous baths containing such salts or compounds, in order to avoid the agglomeration of the pile into tufts.

The textile material may contain or be made of any suitable organic derivative of cellulose such as organic esters of cellulose and cellulose ethers. Examples of organic esters of cellulose are cellulose acetate, cellulose formate, cellulose propionate and cellulose butyrate, while examples of cellulose ethers are ethyl cellulose, methyl cellulose and benzyl cellulose. This invention however will be described more specifically in connection with the treatment of textile materials made of or containing the acetone-soluble type of cellulose acetate. If an acetone-soluble cellulose acetate of relatively high acetyl value, say 57 to 59% determined as acetic acid, is employed in making the textile material, particularly good results are obtained due to the greater resistance of such cellulose acetate to the agglomerating action of hot aqueous liquids.

The degumming bath employed may be the usual soap solutions used for this purpose and usually the temperature of degumming will be on the order of 90 to 100° C.

Any suitable readily ionizable salt may be employed to prevent agglomeration of the organic derivative of cellulose yarn. Examples of such salts are the sulfates, chlorides, nitrates, chromates and acetates of sodium, potassium, magnesium, ammonium or aluminum. The amount of these salts present will vary with the specific salt used, the temperature of treatment and other considerations. Generally the salts will be present in the aqueous liquid in a concentration of 0.5 to 10%. Materials other than salts may be used for this purpose, an example of which is cane sugar.

Since the ionizable salts tend to reduce the alkalinity of the soap solutions used for degumming and therefore diminish the power of the bath to degum the natural silk, I prefer to add such an amount of alkali or alkaline salt to the soap solution containing these salts as to impart to it the degree of alkalinity of soap baths ordinarily used for degumming natural silk and having a pH value of above 8 and preferably below 10, when yarns of cellulose acetate or other organic esters of cellulose are present and it is desired to avoid substantial saponification of the same. By raising the degree of alkalinity of the degumming bath in this manner, the time required for degumming is reduced. Alkalies or strongly alkaline salts such as sodium hydroxide,

potassium hydroxide, sodium carbonate or potassium carbonate may be used for this purpose, but in order to render possible a more delicate control of the alkalinity, I prefer to use less strongly alkaline salts such as disodium phosphate, dipotassium phosphate or borax.

The treatment of pile fabric such as velvets by subjecting the same to hot finishing baths, such as are employed in dyeing, scouring, degumming, etc., that contain these salts or substances is of great importance not only in the case where degumming of the natural silk yarn present in the backing of such fabric is to occur, but is of importance in the treatments of all kinds of fabric having a pile of organic derivative of cellulose yarn, whether the backing is also made of organic derivative of cellulose or whether it is made of silk, cotton, regenerated cellulose, wool or any other fibres. The presence of these salts prevents the agglomeration of the pile into tufts and consequent formation of "bald" spots in such fabric.

In order further to illustrate my invention, but without being limited thereto, the following specific examples are given.

Example I

This example is given as illustrating the use of my invention for both degumming natural silk in a mixed natural silk and cellulose acetate fabric and also for protecting the cellulose acetate pile against agglomeration.

A degumming bath is made up containing:

	Grams per litre
Olive oil soap	50
Disodium phosphate ($Na_2HPO_4.12H_2O$)	25
Sodium sulfate (anhydrous)	25

A velvet having a pile made of yarn of acetone-soluble cellulose acetate and a back of natural silk in the gum is treated with this degumming bath at a temperature of 93 to 100° C., say 95° C., for 1½ to 2½ hours. The fabric is then subjected to any desired finishing treatment such as washing, dyeing, steaming, etc. The silk is completely degummed, and yet the cellulose acetate pile is free of agglomeration and the fabric presents a uniform lustre or sheen.

Example II

This example is also given to illustrate the use of my invention both for degumming natural silk in a mixed natural silk cellulose acetate fabric and for protecting the cellulose acetate pile against agglomeration.

A degumming bath is made up containing:

	Grams per litre
Olive oil soap	50
Cane sugar	50

A velvet having a pile made of yarn of acetone-soluble cellulose acetate and a back of natural silk in the gum is treated with this degumming bath at a temperature of about 95° C. for 1 to 2 hours. The fabric is then subjected to any desired finishing treatment such as washing, dyeing, steaming, etc. The silk is completely degummed, and the cellulose acetate pile is free of agglomeration and the fabric presents a uniform lustre or sheen.

It is to be understood that the foregoing detailed description is given merely by way of illustration and that many variations may be made therein without departing from the spirit of my invention.

Having described my invention, what I desire to secure by Letters Patent is:

1. Process of degumming natural silk contained in a pile fabric which comprises subjecting a fabric having a back containing natural silk yarn and a pile containing organic derivative of cellulose yarn to the action of a hot degumming bath, which bath contains sugar in a concentration of at least 0.5%.

2. Process of degumming natural silk contained in a pile fabric which comprises subjecting a fabric having a back containing natural silk yarn and a pile containing cellulose acetate yarn to the action of a hot degumming bath, which bath contains sugar in a concentration of at least 0.5%.

3. In the method of treating a pile fabric having a pile comprising yarns of organic derivative of cellulose wherein the fabric is subjected to a hot aqueous fluid, the step of inhibiting the agglomeration of the organic derivative of cellulose pile yarn by treating the fabric with an aqueous fluid containing sugar in a concentration of at least 0.5%.

4. In the method of treating a pile fabric having a pile comprising yarns of cellulose acetate wherein the fabric is subjected to a hot aqueous fluid, the step of inhibiting the agglomeration of the cellulose acetate pile yarn by treating the fabric with an aqueous fluid containing sugar in a concentration of at least 0.5%.

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