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FABRIC TREATMENT

Camille Dreyfus, New York, N. Y.

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This invention relates to the treatment of fabrics, and relates more particularly to the treatment of fabrics made of or containing organic derivative of cellulose filaments, fibers or yarns for the purpose of avoiding or minimizing shrinkage thereof.

That fabrics made of filaments, fibers or yarns having a basis of an organic derivative of cellulose such as cellulose acetate, when exposed to water or aqueous baths and then permitted to dry, do not shrink as much as fabrics made of other fibers or filaments such as wool, natural silk, reconstituted cellulose, etc., is well known. However, organic derivative of cellulose fabrics do shrink somewhat upon exposure to aqueous media and, unless such fabrics are given a preliminary shrinkage treatment prior to their formation into finished articles such as garments, the finished garments are liable to shrink upon subsequent washing or scouring, thus causing annoyance and inconvenience and even rendering the garment useless for further wearing.

It is, accordingly, an important object of my invention to provide a process for the treatment of fabrics made of or containing organic derivative of cellulose filaments, fibers or yarns to prevent or minimize shrinkage of said fabric when washed, scoured or exposed to any aqueous medium and then dried.

Another object of my invention is the provision of an improved process for preventing or minimizing subsequent shrinkage in fabrics made of or containing filaments, fibers or yarns of an organic derivative of cellulose, upon exposure to aqueous media and drying, by treating the fabrics prior to the dyeing operation with a salt which normally has no swelling action on or which inhibits the swelling of the filaments, fibers or yarns of the fabric.

A further object of my invention is the provision of a process for the treatment of fabrics made of or containing filaments, fibers or yarns of an organic derivative of cellulose, prior to the jig dyeing of the fabric, with large amounts of neutral salts whereby subsequent shrinkage of the fabric upon exposure to aqueous media and drying is prevented or minimized.

Other objects of my invention will appear from the following detailed description.

I have found that shrinkage of fabric made of or containing filaments, fibers or yarns of an organic derivative of cellulose which has been exposed to water or other aqueous media and dried may be substantially avoided or materially re-

duced by treating the fabric with an aqueous solution of a neutral salt in the presence of a dispersing agent.

In accordance with my invention, I scour a piece of fabric made of or containing filaments, fibers or yarns of an organic derivative of cellulose for from $\frac{1}{2}$ to $1\frac{1}{2}$ hours at a temperature of 70 to 90° C. in a solution containing a large amount of a neutral salt and a dispersing agent. After this scouring, the fabric is jig-dyed in the usual manner, the dye bath, however, containing a large amount of the salt. Preferably, I pour the solution of dyestuff to be employed into the scouring bath after the scouring of the fabric has been completed. I have found that by treating the organic derivative of cellulose fabric in accordance with my invention, reductions of 25 to 50% and more in shrinkage of organic derivative of cellulose fabrics, upon exposure to aqueous media and dried, is obtained.

While I prefer to employ anhydrous Glauber's salt, Na_2SO_4 , in the process of my invention, any other suitable neutral salt may be used. I have found the sulphates, chlorides and nitrates to be particularly useful in the process of my invention, the sulphates giving the most satisfactory results, followed by the chlorides and then by the nitrates. I have also found that the sodium salts are most effective followed by the potassium and magnesium salts in this order. Optimum results are obtained by employing large amounts of these salts, amounts on the order of from 60 to 90 or more grams per liter of water employed in the scouring bath. Very satisfactory results are obtained by using 75 grams of anhydrous Glauber's salt per liter of water.

Any suitable dispersing agent may be employed in accordance with my invention such as, for example, the salts of sulphated fatty alcohols. The dispersing agents employed should in general be neutral in character, or stable in acid and alkaline media, and should not be precipitated by the salts. The amount of dispersing agent used in the scouring bath may be from 2 to 5 grams, and preferably 3 grams, per liter of water in the scouring bath.

The process of my invention is applicable to the treatment of fabric made of or containing filaments, fibers and yarns of any organic derivative of cellulose such as cellulose esters and cellulose ethers. Examples of cellulose esters are cellulose acetate, cellulose propionate and cellulose butyrate, while examples of cellulose ethers are ethyl cellulose and benzyl cellulose. Fabrics

of mixed esters of cellulose, such as cellulose aceto-propionate and cellulose aceto-butyrate, may also be treated profitably in accordance with my process.

The following examples illustrate my invention but are not to be considered as limiting it in any way:

Example I

A piece of satin fabric made of cellulose acetate yarns is scoured for 1 hour at 80° C. in an aqueous solution containing 75 grams per liter of anhydrous Glauber's salt and 3 grams per liter of "Gardinol" (fatty acid sulphate). The so-treated fabric is then jig-dyed in the usual manner in a dyebath containing 75 grams per liter of anhydrous Glauber's salt, and 3 grams per liter of "Gardinol" in addition to the dispersing agent normally in the dyestuff.

A piece of the same fabric is dyed in the usual manner without the use of the salt and after dyeing the two pieces are dried on a tenter and then given a washing treatment. The following shrinkage figures are obtained.

	Per cent shrinkage	
	Normal process	"Salt" process
Warp.....	1.9 1.3	1.4 1.0

Example II

A piece of satin fabric made of cellulose acetate yarns is scoured in a jig for 1 hour at 80° C. in an aqueous solution containing 75 grams per liter of anhydrous Glauber's salt and 3 grams per liter of "Gardinol." The solution of dyestuff is then added to the scouring solution and the fabric jig-dyed in the usual manner.

After dyeing the fabric is dried on a tenter and then given a washing. The treated fabric is found to shrink substantially less than a washed fabric not so treated.

It is to be understood that the foregoing detailed description is merely given 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 for treating fabrics containing yarns of an organic derivative of cellulose to minimize shrinkage in the fabric upon exposure to aqueous media and then dried, which comprises scouring the fabrics at a temperature of 80° C. in an aqueous bath containing 60 to 90 grams per liter of a neutral salt which inhibits swelling of said organic derivative of cellulose yarns and a dispersing agent.

2. Process for treating fabrics containing yarns of cellulose acetate to minimize shrinkage in the fabric upon exposure to aqueous media and then dried, which comprises scouring the fabrics at a temperature of 80° C. in an aqueous bath containing 60 to 90 grams per liter of a neutral salt

which inhibits swelling of said cellulose acetate yarns and a dispersing agent.

3. Process for treating fabrics containing yarns of cellulose acetate to minimize shrinkage in the fabric upon exposure to aqueous media and then dried, which comprises scouring the fabrics at a temperature of 80° C. in an aqueous bath containing 60 to 90 grams per liter of sodium sulphate and a fatty acid sulphate as dispersing agent.

4. Process for treating fabrics containing yarns of cellulose acetate to minimize shrinkage in the fabric upon exposure to aqueous media and then dried, which comprises scouring the fabrics at 80° C. in an aqueous bath containing 75 grams per liter of sodium sulphate and 3 grams per liter of a fatty acid sulphate as dispersing agent.

5. Process for treating fabrics containing yarns of cellulose acetate to minimize shrinkage in the fabric upon exposure to aqueous media and then dried, which comprises scouring the fabrics for one hour at 80° C. in an aqueous bath containing 75 grams per liter of sodium sulphate and 3 grams per liter of a fatty acid sulphate as dispersing agent.

6. Process for treating fabrics containing yarns of an organic derivative of cellulose to minimize shrinkage in the fabric upon exposure to aqueous media and then dried, which comprises scouring the fabrics at a temperature of 80° C. in an aqueous bath containing 60 to 90 grams per liter of a neutral salt which inhibits swelling of said organic derivative of cellulose yarns and a dispersing agent, and dyeing the fabrics in a dyebath containing a large amount of the same salt.

7. Process for treating fabrics containing yarns of cellulose acetate to minimize shrinkage in the fabric upon exposure to aqueous media and then dried, which comprises scouring the fabrics at 80° C. in an aqueous bath containing 75 grams per liter of sodium sulphate and 3 grams per liter of a fatty acid sulphate as dispersing agent, and dyeing the fabrics in a dyebath containing 75 grams per liter of anhydrous sodium sulphate with a dyestuff containing a fatty acid sulphate as dispersing agent.

8. Process for treating fabrics containing yarns of an organic derivative of cellulose to minimize shrinkage in the fabric upon exposure to aqueous media and then dried, which comprises scouring the fabrics at a temperature of 80° C. in an aqueous bath containing 60 to 90 grams per liter of a neutral salt which inhibits swelling of said organic derivative of cellulose yarns and a dispersing agent, and then dyeing the fabrics by adding a dyestuff solution to the scouring bath.

9. Process for treating fabrics containing yarns of cellulose acetate to minimize shrinkage in the fabric upon exposure to aqueous media and then dried, which comprises scouring the fabrics for one hour at 80° C. in an aqueous bath containing 75 grams per liter of sodium sulphate and 3 grams per liter of a fatty acid sulphate as dispersing agent, and then dyeing the fabrics by adding a dyestuff solution to the scouring bath.

CAMILLE DREYFUS.