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PROCESS FOR MILLING FABRICS CONTAINING WOOL AND CELLULOSE ACETATE

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7 Claims. (Cl. 26—19)

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This invention relates to obtaining improved fabrics containing blends of wool and cellulose acetate staple fibre, and more particularly to obtaining a milled finish on these fabrics.

The process of milling fabrics involves the application of friction and pressure to the fabric while it is running in a hot soapy, acid or alkaline solution. A heavily milled cloth presents a close compact fibrous surface which obscures the weave. It has also been found that when fabrics of this nature are dyed and finished an unpleasant harsh cold and "papery" handle results. This unpleasant handle may be due to insufficient or irregular shrinking of the fabric. As disclosed in the specification of British application No. 356,681 cellulose acetate fibre has the property of reducing the tendency to shrink of fibres associated therewith which are made from materials that tend to shrink when exposed to water or other aqueous liquids.

The object of the present invention is to provide a process of obtaining a milled finish on a fabric consisting of a blend of wool fibres and cellulose acetate staple fibres.

A further object is to provide fabrics having a heavily milled finish and a soft handle from blends of wool fibres and cellulose acetate staple fibres.

We have now found that we can obtain a satisfactory milled finish on a fabric containing a blend of wool fibres and cellulose acetate staple fibre if the latter contains a plasticiser. The plasticiser may be introduced into the cellulose acetate staple fibre either before or during the milling operation. For instance a fabric obtained from wool and cellulose acetate staple fibre may be treated with an aqueous solution or dispersion of a substance which plasticises cellulose acetate prior to the milling operation, or the plasticiser may be added to the milling solution. The milling operation may be carried out on the dyed fabric and in this case the plasticiser may be added to the dyeing solution. If desired the plasticiser can be incorporated in the cellulose acetate fibre during its formation or at any other time previous to blending it with wool.

The plasticiser used for carrying out the process of our invention is preferably a high boiling liquid organic solvent or softener for the cellulose acetate. Water-insoluble plasticisers are particularly useful for carrying out our process. The amount of plasticiser used depends on the type of plasticiser, the proportion of cellulose acetate present in the fabric and the liquor to fabric ratio of the treating bath. From 20 to 30 parts

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by weight of plasticiser to 100 parts by weight of cellulose acetate is a convenient proportion, but lower or higher quantities of plasticiser, for instance up to 80 or 100 parts by weight, may be used when a greater milling effect is required.

Examples of suitable plasticisers which may be used in our invention include dimethyl phthalate, tricresyl phosphate, glycerol monolactate triacetate, dimethyl cyclohexanol oxalate, triacetin, diacetone alcohol, ethyl lactate and cyclohexanone.

The following examples will serve to illustrate the present invention which is by no means restricted to the examples:

Example 1

A length of woven fabric constructed from equal parts of wool and cellulose acetate staple fibre is scoured with 0.5 per cent solution of soap on a combined scouring and rotary milling machine. The fabric is then impregnated at 40° centigrade with 40 volumes of an aqueous emulsion containing five grams of dimethyl phthalate per litre, which has been emulsified by the addition of 1.0 gram of triethanolamine oleate, and is then squeezed until it contains its own weight of liquid. The fabric is then impregnated with a soap solution containing 100 grams per litre and a milling operation is carried out for seventy-five minutes at a temperature of from 35° to 40° centigrade. The fabric is then thoroughly washed and dried. It will be found that the fabric has shrunk in width and length to a much greater extent than a similar fabric milled under similar conditions but omitting the pretreatment with the dimethyl phthalate. Moreover the fabric has a softer handle.

Example 2

A piece of fabric knitted from wool and cellulose acetate staple fibre is impregnated with 40 volumes of a solution containing 20 grams per litre of diacetone alcohol in thirty minutes at room temperature, and then squeezed until it contains its own weight of solution. It is then impregnated with a solution containing 50 grams per litre of sodium oleate and again squeezed until it contains its own weight of liquid. It is then milled for thirty minutes in the milling stocks at ordinary temperature. On comparing the fabric with a similar fabric milled without the pretreatment it will be found that considerably more area shrinkage has taken place.

What we claim is:

1. A process of obtaining on a woven or knitted

fabric containing a blend of wool fibres and cellulose acetate staple fibres, a close compact fibrous surface which obscures the original structure, which comprises milling said fabric in the presence of a plasticiser for the cellulose acetate staple fibres.

2. A process of obtaining on a woven or knitted fabric containing a blend of wool fibres and cellulose acetate staple fibres, a close compact fibrous surface which obscures the original structure, which comprises milling said fabric in the presence of a water-insoluble plasticiser for the cellulose acetate staple fibres.

3. A process of obtaining on a woven or knitted fabric containing a blend of wool fibres and cellulose acetate staple fibres, a close compact fibrous surface which obscures the original structure, which comprises milling said fabric in the presence of from 20 to 30 parts by weight of a plasticiser for cellulose acetate for 100 parts by weight of cellulose acetate staple fibre.

4. A process of obtaining on a woven or knitted fabric containing a blend of wool fibres and cellulose acetate staple fibres, a close compact fibrous surface which obscures the original structure, which comprises treating the fabric with

a solution of a plasticiser for the cellulose acetate and thereafter subjecting the plasticiser-containing fabric to a milling operation.

5. A process of obtaining on a woven or knitted fabric containing a blend of wool fibres and cellulose acetate staple fibres, a close compact fibrous surface which obscures the original structure, which comprises treating the fabric with an emulsion of a plasticiser for the cellulose acetate and thereafter subjecting the plasticiser-containing fabric to a milling operation.

6. A process of obtaining on a woven or knitted fabric containing a blend of wool fibres and cellulose acetate staple fibres, a close compact fibrous surface which obscures the original structure, which comprises subjecting the fabric to a milling operation in a milling solution containing a plasticiser for the cellulose acetate.

7. A process of obtaining on a woven or knitted fabric containing a blend of wool fibres and cellulose acetate staple fibres, a close compact fibrous surface which obscures the original structure, which comprises milling said fabric in the presence of dimethyl phthalate.

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