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TEXTILE MATERIAL OF LOW LUSTER AND
METHOD OF MAKING THE SAME

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1 Claim. (Cl. 8—20)

This invention relates to the preparation of textile material containing organic derivatives of cellulose, which textile material has a subdued luster.

An object of our invention is to subdue the luster of textile materials comprising organic derivatives of cellulose in an economical manner. A further object of our invention is to impart a subdued luster to textile materials containing organic derivatives of cellulose, which subdued luster is more permanent than those previously obtained.

Further objects of our invention are described in the following detailed description.

We have found that if a textile material containing a derivative of cellulose is subjected to the action of a mixture of a solvent for the derivative of cellulose and a nonsolvent therefor, in proper proportions, the luster of the same is reduced.

In accordance with our invention, we apply to a textile material containing an organic derivative of cellulose a substance containing a mixture of a solvent and a nonsolvent for the derivative of cellulose in any suitable manner.

The textile material whose luster is to be reduced may be in any form such as yarns, filaments, artificial bristles or straw, films, or fabrics or braids containing such yarns, bristles or straw.

The textile material, as stated, contains an 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. The textile material need not consist wholly of such organic derivatives of cellulose but may contain other fibres such as cotton, reconstituted cellulose, silk or wool.

To reduce the luster, a substance containing a mixture of a solvent and a nonsolvent for the derivative of cellulose is applied to the textile material. Examples of solvents for such derivatives of cellulose are acetone, ethylene dichloride, mixtures of ethylene dichloride and ethyl or methyl alcohol, mixtures of methylene chloride and ethyl or methyl alcohol, dichlor ethylene, diethylene dioxide. Examples of nonsolvents of derivatives of cellulose are xylene, benzene, toluene, mesitylene, water, alcohol, etc. Obviously since the various derivatives of cellulose have different solubility characteristics, the choice of liquids which are solvents or nonsolvents will depend on the specific derivative of cellulose employed.

As to the proportion of solvent and nonsolvent for the derivative of cellulose that is employed, this may be varied within wide limits, but it should preferably be such that the mixture as a whole is not a solvent for the derivative of cellulose in the textile material but has marked swelling power. By way of illustration, if the textile material contains an acetone soluble cellulose acetate, the use of a mixture of 60 to 80 parts of acetone and 40 to 20 parts of xylene gives very satisfactory results. The amount of the mixture employed is generally from 10 to 40% of the weight of the textile material to which it is applied.

The mixture of solvent and nonsolvent may be applied to the textile material in any desired manner. Thus in case yarn, bristles or straw are to be treated, it may be applied while the same is in transit either from the spinning machine, in which it is made, or from a packaging device. The mixture in this case may be applied to the moving yarn and the like by means of wicks, rollers or discs. In order to obtain yarn, bristles or straw having differential luster effects, the delustering mixture may be applied intermittently in any suitable manner. The yarn, bristles and the like may be made either by a dry spinning method or by a wet spinning method. In case fabrics are to be delustered, the delustering mixture of solvent and nonsolvent may be applied to the whole of either or both surfaces of the fabric, or it may be applied locally by spraying or brushing the mixture through stencils onto the fabric, or the mixture may be applied in the form of a printing paste by means of suitable engraved or embossed rollers.

When relatively smaller amounts of the mixed solvent and nonsolvent for the derivative of cellulose are applied and/or if relatively smaller proportions of solvent are employed in the mixture, the deluster effect is confined more or less to the surface of the filaments or yarn.

Textile materials when delustered in accordance with this invention have a beautiful appearance of subdued luster, and such delustering effect is more permanent than has been the case heretofore. The textile material that has been delustered in accordance with this invention is not readily rendered lustrous by such treatments as ironing at elevated temperature when it is damp.

Yarn of subdued luster in accordance with this invention is eminently suited for making hosiery, both men's and women's, where its luster pro-

duces a pleasing effect. The yarn may also be employed for making knit fabric, both circular knit and warp knit, for use in underwear and for other purposes, as well as for making woven fabrics of all kinds.

In order further to illustrate our invention the following specific examples are given.

Example I

Yarn of 150 denier containing 40 filaments made of an acetone soluble cellulose acetate is wound under 2 grams tension at the rate of 100 meters per minute onto a bobbin or other suitable package. On its way to the winding bobbin, and at a distance of about 3 feet or more from such bobbin, the yarn is brought in contact with a wick, roller or other furnishing device, which applies thereto a mixture consisting of 70% of acetone and 30% of xylene by volume. The amount of mixture applied is about 30% of the weight of the yarn.

The yarn so treated has a pleasing subdued luster and is more opaque than it was before treatment. Examination of the yarn under the microscope shows that this opacity is confined to the portion of the yarn at or near the surface. The yarn so treated, when ironed damp, does not reluster or gain its original appearance readily.

Example II

Cellulose acetate yarn is treated in the manner precisely as in Example I, except as a delustering medium, a mixture consisting of 40 parts by weight of acetone and 60 parts by weight of water is employed, and this is applied to the extent of 20% of the weight of the yarn.

Example III

The process of Examples I and II are repeated, but instead of applying the delustering agent to the yarn while it is passing from one package to another, the mixture of solvent and nonsolvent is applied to the yarn immediately after its formation in a spinning process. This spinning process may be either a dry or evaporative spin-

ning process or a wet or precipitating spinning process.

Example IV

Fabrics, films and like material made of cellulose acetate are covered with stencil sheets having any desired design cut therein. Either of the solvent mixtures described in Examples I or II are sprayed or brushed over the stencil. The result is that a design in a delustered pattern is produced on the fabric, films or like product.

Example V

To print delustered effects on a fabric containing cellulose acetate yarn, a printing paste containing the mixture of xylene and acetone of Example I is made by thickening such mixture with a suitable thickening agent such as calcium resinate, aluminum resinate or other suitable metallic soaps. Small amounts of oils, emulsified or dissolved, improve such thickened mass by suitably reducing the adhesive properties of the mass for the print rolls. This thickened mixture may be applied by any suitable printing machine, and there is obtained a printed pattern of subdued luster on a lustrous background.

Where water insoluble thickeners are employed, these may be removed by washing in suitable solvents therefor such as benzene and the like.

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 our invention.

Having described our invention, what we claim and desire to secure by Letters Patent is:

The method of reducing the luster of a textile material containing cellulose acetate comprising applying thereto a nonsolvent mixture of parts by volume of xylene and 70 parts by volume of acetone.

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