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AGENT FOR AND PROCESS OF SIZING
TEXTILE FIBERS

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This invention relates to agents for sizing textile fibers and process of preparing them.

The loose ends which project from a textile thread can be smoothly laid on the surface of the thread by treating the threads with sizing agents. During this operation the sticking together of the several threads must be avoided as much as possible. As sizing agents there are principally used starch (either alone or mixed with fat, wax or paraffin and the like), dextrin, glue or similar substances.

The textiles sized according to the processes hitherto known in most cases can be freed from size only by special operations. Thus, for instance, the sizes containing starch must be treated with a ferment decomposing starch or with an oxidizing agent or a substance of hydrolytic action. The sizing agent which is suitable for cotton cannot be applied with the same good effect to other textile fibers.

Now, we have found that an excellently well sized material is obtained by treating textile fibers with compounds of high molecular weight of the type of polyvinyl alcohol. The size is absorbed by the fiber already after a short treatment and may be applied equally well to various textile fabrics; in each case there is obtained a perfectly well sized thread. The alcohol may be applied at temperatures of 10° C.-90° C.

As polyvinyl alcohols there may be used products of various lengths of chain and various chemical constitution obtained by any of the usual methods. Processes of preparing them are, for instance, described in "Berichte der Deutschen Chemischen Gesellschaft", 1927, pages 1658-1663. According to the desired effect of the products they may also be prepared from polyvinyl ester of various degrees of viscosity.

The polyvinyl alcohol may be applied either alone or mixed with additional material used for sizing, such as oil, fat wax or the like. The thread remains very pliable if a sulfonated oil is added to the sizing bath. The material sized and dried according to the present process is free from dust, whereas this is generally not the case with material prepared with a size containing starch.

The material can very well easily be freed from the size, for instance by simply rinsing it in hot water, to which may be added a small quantity of soap, without applying any other auxiliary means.

Material which is not at all or not entirely freed from the size can be dyed without any difficulty since the size and the fibrous material used are dyed equally.

The following examples serve to illustrate the

invention but are not intended to limit it thereto, the parts being by weight:

(1) a. Cotton is treated for a short time in a bath in which there are dissolved polyvinyl alcohol in the proportion 1:30 and about 10 per cent of a sulfonated oil (calculated upon the quantity of the polyvinyl alcohol). The material is then squeezed uniformly and dried at about 45° C.-50° C.

In order to free the woven material from the size it is rinsed in hot water at 80° C., advantageously with addition of 1-2 grams of soap per liter.

b. Cotton yarn is passed through a bath in which polyvinyl alcohol is dissolved in the proportion 1:30; the material is then squeezed uniformly and dried at about 45° C. to 50° C.

The yarn sized according to (a) or (b) is introduced into a dyebath at about 45° C. without previous washing and the bath is slowly heated to 80° C. The material is then dyed with the usual additions, rinsed and dried.

(2) a. Artificial silk yarn is treated for a short time in a bath in which there are dissolved polyvinyl alcohol in the proportion 1:50 and 10 per cent of a sulfonated oil (calculated upon the quantity of polyvinyl alcohol). The material is then squeezed uniformly and dried at about 45° C.-50° C. It may be freed from the size by means of hot water, advantageously with addition of 1-2 grams of soap per liter, at 40° C.-50° C.

b. Artificial silk yarn is passed through a bath in which polyvinyl alcohol is dissolved in the proportion 1:50; the material is then squeezed uniformly and dried at about 45° C.

The yarn sized according to (a) or (b) is dyed by introducing it at about 40° C. into a dyebath and raising the temperature slowly to 60° C. it is dyed with the usual admixtures and then rinsed and dried.

(3) a. Woollen yarn is passed through a bath in which polyvinyl alcohol is dissolved in the proportion 1:30 and 10 per cent of a sulfonated oil (calculated upon the quantity of polyvinyl alcohol); the material is then squeezed uniformly and dried at about 45° C.-50° C. It may be freed from the size by rinsing it in hot water at 70°-80° C. advantageously with addition of 1-2 grams of soap per liter.

b. Woollen yarn is passed through a bath in which polyvinyl alcohol is dissolved in the proportion 1:30; it is then squeezed uniformly and dried at about 45°-50° C.

The yarn sized according to (a) or (b) is introduced into a dye-bath at about 45° C. with-

out being washed previously and heated slowly to 80° C. It is dyed with the usual admixtures, then rinsed and dried.

We claim:

- 5 1. A process of sizing textile fibers which comprises treating the fiber with a solution of a polyvinyl alcohol.
2. A process of sizing textile fibers which comprises treating the fiber with an agent containing
- 10 polyvinyl alcohol and a sulfonated oil.
3. An agent for sizing textile fibers which comprises a polyvinyl alcohol and a sulfonated oil.
4. A process of sizing textile fibers which comprises treating the fiber with a sizing composition
- 15 tion comprising a polyvinyl alcohol and a material of the group consisting of oils, fats and waxes.
5. A textile sizing composition comprising a polyvinyl alcohol and a material of the group consisting of oils, fats and waxes.
6. As a sizing agent for textile fibers, a solution of a polyvinyl alcohol.
7. A process of sizing textile fibers which comprises treating the fiber with a textile sizing composition comprising an effective amount of a polyvinyl alcohol.
- 10 8. A textile sizing composition comprising an effective amount of a polyvinyl alcohol.

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