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PROCESS FOR THE PRODUCTION OF ARTIFICIAL SILK AND THE LIKE

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12 Claims. (Cl. 106—40)

This invention relates to a process for the production of artificial silk and the like.

The improvement processes in the artificial silk industry such as dyeing, scrooping, etc., have hitherto been carried out by subjecting the finished artificial silk filaments to a treatment with suitable agents such as dyestuff solutions, scrooping agents, etc.

According to the process of this invention for the production and improvement of artificial silk, films and the like in one operation the reagents serving for the improvement in admixture with suitable surface active substances namely higher aliphatic alcohols or their sulphonation products, that is to say those containing more than five carbon atoms in the molecule, or mixtures thereof are not added to the finished filament material or the formed structure, but are allowed to act on the crude cellulose product serving as basis, or added to the spinning solution before the spinning.

Thus, for example instead of dyeing the finished acetate silk, the raw cellulose acetate can be dyed with suitable dyestuffs under addition of one or more of the said surface active substances and then by dissolving the dyed acetyl cellulose the spinning solution can be prepared from which the dyed structures are directly obtained by spinning.

The dyeing process can also be carried out in the spinning solution to which the suitable dyestuffs and surface active substances are added.

In like manner, instead of scrooping finished artificial silk, the scrooping agent may be added to the spinning solution. For example, to a spinning solution containing acetyl cellulose dissolved in an organic solvent, a small quantity of octadecyl alcohol may be added and the solution spun in known manner. During the process of spinning the scrooping agent is precipitated on and in the fibres and extraordinarily soft and pliable filaments are directly obtained without further after-treatment.

Other impregnating agents of a different kind can also be incorporated in the described manner in the raw material or in the formed structure during its formation by introducing suitable reagents into the still undissolved raw material or adding them to the spinning solution.

This method of working which may be employed in all the known processes for the production of artificial filaments, films and the like, possesses the advantage of a considerable saving of labour by the omission of the after-treatment and the drying following thereon. The action of the reagents which takes place not only on the surface, but also in the interior of the fibres is a very intensive and uniform one and accordingly extraordinarily good effects are obtained with relatively small quantities of reagents, dyestuffs, impregnating agents and the like.

It should be understood that the term "sulphonation" is used herein in its broad sense and that the sulphonation products proposed include as well as the true sulphonic acids or sulphonates, also the sulphuric acid esters or sulphates and mixtures thereof.

I claim:

1. A process for the production and improvement in one operation of artificial silk, films and the like obtained from cellulose products, wherein the reagents serving for the improvement, in admixture with higher aliphatic hydrocarbon derivatives of the general formula

ROX

wherein R is an alkyl radical containing more than 5 carbon atoms and X is an H atom or an SO_3H radical, are allowed to act on the cellulose products serving as a basic material for the production of the formed structures.

2. A process as claimed in claim 1 wherein said reagents, in admixture with the said higher aliphatic hydrocarbon derivatives, are allowed to act on the crude undissolved cellulose product.

3. A process as claimed in claim 1 wherein said reagents, in admixture with the said higher aliphatic hydrocarbon derivatives, are added to the spinning solutions before the spinning.

4. In the production of artificial silk, films and the like from cellulose derivatives, the step comprising adding a compound of the general formula

ROX

wherein R is an alkyl radical containing more than 5 carbon atoms and X is an H atom or an SO_3H radical, together with a scrooping agent to the cellulose derivative before the spinning operation employed in the production of the artificial silk, film, or the like is effected.

5. In the production of artificial silk, films and the like, the step comprising incorporating in a mass from which the silk or film is to be produced a mixture of a higher aliphatic alcohol having more than 5 carbon atoms with a sulphonate of such an alcohol.

6. Artificial silk, films and the like containing in their structure a mixture of a higher aliphatic

alcohol and a sulphonation product of such an alcohol.

7. A process whereby artificial silk threads, films and the like obtained from cellulose products may be formed with improved properties which comprises, adding to the cellulose product before the spinning or forming operation employed in making the threads, films or the like, the reagent serving for the improvement together with a higher aliphatic alcohol having more than 5 carbon atoms in the molecule.

8. A process whereby artificial silk threads, films and the like obtained from cellulose products may be formed with improved properties which comprises, adding to the cellulose product before the spinning or forming operation employed in making the threads, films or the like, the reagent serving for the improvement together with a sulphonation product of a higher aliphatic alcohol having more than 5 carbon atoms in the molecule.

9. A process whereby colored artificial silk threads, films and the like obtained from cellulose products may be formed with improved properties which comprises, adding to the cellulose product before the spinning or forming operation employed in making the threads, films or the like, a suitable dyestuff together with a compound of the general formula ROX, wherein R is an alkyl radical containing more than 5 carbon atoms and X is an H atom or an SO_3H atom.

10. A process whereby artificial silk threads, films and the like obtained from cellulose products may be formed with improved properties which comprises, adding to the cellulose product before the spinning or forming operation employed in making the threads, films or the like, the reagent serving for the improvement together with octadecyl alcohol.

11. Artificial silk fibers, films and the like composed of cellulose acetate each containing within its structure a compound of the general formula

ROX

wherein R is an alkyl radical containing more than 5 carbon atoms and X is an H atom or an SO_3H radical.

12. Artificial silk fibers, films and the like composed of cellulose acetate each containing within its structure a small quantity of octadecyl alcohol.

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