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TREATING ARTIFICIAL SILK.

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This invention relates to a method of delusterizing and otherwise improving the character of textile fibers, threads, films, or fabrics, known as artificial silk, such as are produced from nitrocellulose, cupro-ammonium cellulose, cellulose acetate, cellulose xanthate (viscose), cellulose ethers and similar cellulosic starting materials, and to the resulting products.

Artificial silk products usually have a very high luster and a transparency which gives them an appearance unlike the more pleasing appearance of natural silk.

I have found that the character of artificial silk products may be improved by impregnating the same with an aqueous solution of a salt of titanium, and subsequently decomposing the salt in situ. Thus there is precipitated in or commingled throughout the fibers of the artificial silk a hydrated oxide or other insoluble compound of titanium which is white and very opaque, giving to the artificial silk a delusterized appearance, and producing such light absorption effects as are desirable.

As an example, the following is given. 4 grams of a water-soluble salt of titanium, such as for instance, titanium sulphate or an equivalent amount of titanium potassium oxalate or other suitable salts of titanium, are dissolved in 1000 grams of water. 100 grams of artificial silk are immersed in this solution and allowed to remain there until thorough impregnation is effected, and the solution is then heated to a temperature of from about 65° to about 100° C. Or, the artificial silk impregnated with the titanium salt solution is heated in an autoclave to decompose the titanium salt.

After the decomposition treatment, the artificial silk is washed to remove any soluble matter, and then dried.

The finished product, instead of having the very high luster of artificial silk, has a pleasing, semi-delusterized appearance. Instead of having the transparent appearance of ordinary artificial silk, it is white, and has an opacity which immediately distinguishes it. This opacity is due to the absorption of light by the precipitated titanium compound. The product, moreover, may be dyed readily.

Although the invention has been described by reference to the treatment of artificial silk with a solution of a salt of titanium of a specific strength, it is to be understood that the inventive concept includes the treatment of artificial silk with a solution of said salt of any suitable strength. In general, however, the use of fairly dilute solutions is desirable. Furthermore, it is to be understood that the invention does not reside in the use of any specific solvent.

Only a small amount of deposited insoluble titanium compound is required to give the effects described. Thus for instance, artificial silk so treated that there will be present as low as 0.5% of titanium oxide will be delusterized.

I claim:

1. Process of delusterizing artificial silk fibers which comprises impregnating the same with a dilute aqueous solution of a titanium salt which is thermally decomposable in the presence of water, and heating the impregnated fibers in the presence of water whereby there is deposited in and upon the fibers a water-insoluble titanium compound, the concentration of the titanium salt solution used being such as to increase the weight of the so-treated artificial silk fibers from about 4% to about 0.5%.

2. Process of delusterizing artificial silk fibers which comprises impregnating about 100 parts by weight of said fibers with a dilute aqueous solution containing not more than about 4 parts by weight of water-soluble salt of titanium which is thermally decomposable in the presence of water, and heating the impregnated fibers to a temperature of from about 65° to about 100° C., in the presence of water.

3. Process of delusterizing artificial silk fibers which comprises impregnating about 100 parts by weight of said fibers with a dilute aqueous solution containing not more than about 4 parts by weight of titanium sulfate, and heating the impregnated fibers to a temperature of from about 65° to about 100° C. in the presence of water.

4. As a new product, delusterized artificial silk fibers containing a finely divided, water-insoluble titanium compound in amount not greater than about 4% by weight.

5. As a new product, delusterized artificial silk fibers containing a finely divided hydrated oxide of titanium in amount not greater than about 4% by weight.

In testimony whereof, I affix my signature.

HENRY A. GARDNER.