

## UNITED STATES PATENT OFFICE

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## PROCESS FOR DYEING CELLULOSE ACETATE SILK

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The present invention has for its object to provide for an improved process for dyeing cellulose acetate silk.

I have found that cellulose acetate silk can be dyed in a very excellent and improved manner with a great number of insoluble or difficultly soluble compounds when dyeing is carried out in the presence of sulfite cellulose waste liquor.

The compounds dyed with the aid of the aforesaid sulfite cellulose waste liquor may be coloring matters or colored organic compounds in general, insoluble or difficultly soluble in water, as well as components of dye-stuffs, such for example as amino compounds which afterwards are diazotized on the fibre and coupled with suitable components, or naphthols or similar components which afterwards are to be developed with diazo compounds.

For dyeing, the compounds to be brought on the fibre may be first made into a concentrated solution or paste, generally of a colloidal nature, or otherwise finely dispersed in a concentrated form by an addition of sulfite cellulose waste liquor either alone or in association with one or more of the so-called synthetic tans, such as substances of the nature of phenol- (or cresol-) formaldehyde-sulfuric acid condensation products, or phenol-sulfonic acid-sulfur condensation products, carbazol sulfonic acids, crude anthracene or other high tar hydrocarbons sulfonic acids, or sulfonated mineral oils and the like, and a dye-bath prepared by diluting such concentrated preparation, or the dyebath may be directly prepared with the compounds to be brought on the fibre while adding sulfite cellulose waste liquor either alone or with the addition of a sulfonic acid of the aforesaid character.

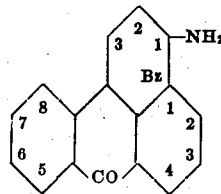
The following example will serve to further illustrate my present invention which however is not restricted thereto. The parts are by weight.

*Example*

2 parts of 8-nitro-2-amino-naphthalene are well mixed with 20 parts of concentrated sulfite cellulose waste liquor of between 25 and 30° Bé. and passed into 2000 parts of water

of ordinary temperature. 100 parts of acetate silk are dyed in the bath for one hour at the said temperature, rinsed and dried, handsome golden yellow shades being obtained.

As examples of coloring matters difficultly soluble in water which may be employed for dyeing cellulose acetate silk in the manner hereinbefore described may be mentioned, for instance the condensation product of 3-chloro-6-nitro-1-amino-benzene and formaldehyde (see U. S. Patent 932,266, dated August 22, 1909), 1,4-diamino-anthraquinone, 1,4,5,8-tetra-amino-anthraquinone, 3-aminobenzanthrone, Bz 1-aminobenzanthrone corresponding to the formula



alpha naphthylamine (diaz) + meta-phenylene-diamine, beta amino-alpha-naphthraquinone, 8-nitro-2-amino-naphthalene, 5-nitro-1,4-diamino-anthraquinone, methyl violet base, alpha naphthylamine (diaz) + para-hydroxybenzoic acid.

What I claim is:

1. The herein described process for the production of tints on acetyl cellulose, which comprises treating the acetyl cellulose with a colloidal preparation from an intermixture of insoluble amino-azo-dyestuffs having an affinity for acetyl cellulose with waste sulfite liquor.

2. The herein described process for the production of tints on acetyl cellulose, which comprises treating the acetyl cellulose with a colloidal preparation from an intermixture of aminoanthraquinones having an affinity for acetyl cellulose with waste sulfite liquor.

3. The process of producing dyeings on cellulose acetate silk which comprises employing a substance suitable for dyeing acetate silk difficultly soluble in water, the said substance containing in its molecule at least one aromatic nucleus and at least one nitrogen atom which is fixed to an aromatic nucleus and

otherwise connected with atoms of elements selected from the group consisting of carbon, nitrogen and hydrogen, in conjunction with sulphite cellulose waste liquor.

- 5 4. The process of producing dyeings on cellulose acetate silk which comprises employing a substance suitable for dyeing acetate silk, difficulty soluble in water selected from the group consisting of amino-azo-dyestuffs  
10 and amino-anthraquinones in conjunction with sulphite cellulose waste liquor.

In testimony whereof I have hereunto set my hand.

RICHARD METZGER.

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