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HYDRAZINE AS AN ANTI-STAINING AGENT FOR A PEROXIDE BLEACHING SOLUTION

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4 Claims. (Cl. 8—111)

ABSTRACT OF THE DISCLOSURE

Method of preventing so-called catalyst injury of textiles during bleaching with peroxidic bleaching agents engendered by presence of iron or iron alloy particles in such textiles which comprises treating such textiles with a hydrazine compound such as hydrazine hydrate and hydrazine salts before or during such bleaching.

The present invention relates to a method of preventing so-called catalyst injury of textiles during bleaching with peroxidic bleaching agents engendered by the presence of iron or iron alloy particles.

It is known that the presence of even small particles of iron or iron alloys during the bleaching of textiles with peroxidic bleaching agents cause so-called catalyst injuries. Fiber injuries occur in the neighborhood of the iron particles which cause the yarns to become more or less weakened depending upon the particular conditions concerned or become completely fragile. In woven fabrics holes can form at the injured locations.

One of the main sources of the presence of iron dust during bleaching is the grinding dust formed during the grinding of the steel needs of the carding machines or during grinding of the drums of such machines. However, iron from other sources can also reach the bleaching apparatus.

It was unexpectedly found that the occurrence of so-called catalytic injury can be prevented during the bleaching of fibers, yarns, woven fabrics, knitted fabrics and textile goods, especially those of cellulose or containing cellulose, with aqueous bleaching liquors containing peroxidic bleaching agents, when bleaching liquors are employed which contain additions of hydrazine, hydrazine hydrate or its salts, hexitols, such as, sorbitol, alkali metal or ammonium acetate or alkali metal or ammonium chromate or bichromate, either individually or in admixture. When peroxidic bleaching liquors containing such substances are employed in the presence of iron and steel particles catalytic injury only occurs to a very slight extent or is completely prevented.

Only very small quantities of such additional substances suffice to achieve the desired effect. In general, with the addition of hydrazine or its compounds 0.025 to 0.25 g. per liter of bleaching liquor suffice. As a rule, 1 to 3 g. of the hexitols or 1 to 5 g. of the acetates per liter of bleaching liquor suffice. In the case of the chromates and bichromates, additions of only 0.05 to 0.1 g. per liter suffice.

In many instances it suffices if the additional substances are not added to the bleaching liquors themselves but rather to the pretreating liquors which, for example, are used for desizing, wetting, washing and the like.

The peroxidic compounds employed in the preparation of peroxidic bleaching liquors are those usually employed, such as, for example, hydrogen peroxide, soduim peroxide, other alkali metal or alkaline earth metal peroxides, persulfuric acid or its salts, perboric acid or its salts, percarbonic acid or its salts, perphosphoric acid or its salts

or similar compounds which form hydrogen peroxide in an aqueous acid medium. Such peroxidic bleaching compounds, for example, can be employed in such quantities as to provide 0.5 to 7.0 g. of active oxygen per liter of bleaching bath.

The following example will serve to illustrate the invention.

Example

A woven cotton fabric, which in spots was strongly contaminated with iron dust originated in the grinding of cast iron drums of the carding machine was first desized by placing 100 g. of the fabric in one liter of an aqueous desizing solution containing 1 g. Degomma DK (pancreas-diastase), 1 g. NaCl and 1 g. hydrazine hydrate (24%) per liter and held in such solution at 55° C. over night.

As a control, a further 100 g. sample of the same fabric was desized in the same manner except that the hydrazine hydrate was omitted from the desizing solution.

On the next day both samples were taken out of the desizing solutions, squeezed out and thoroughly washed with water. The iron dust associated with the fabric which was desized in the solution containing the hydrazine hydrate showed no rusting phenomena whereas that associated with the fabric which was desized in the solution from which the hydrazine hydrate was omitted was strongly rusted.

Both samples were then given a peroxide bleaching by the impregnating-steaming process in which such samples were first impregnated with an aqueous bleaching liquor containing 33 cc. water glass 38°/40° Bé., 8 g. of solid caustic soda, 35 cc. H_2O_2 (35% by weight) and 2 g. of sodium dodecyl benzene sulfonate per liter, then squeezed out to 100% moisture content, and rolled flat on a glass tube and steamed in this condition at about 95–100° C. by direct supply of steam thereto for 2 hours. After such bleach the samples were rinsed with water. A good bleaching effect was achieved and they were completely free from seed shells. Neither rust formation nor catalytic injury was observed on the bleached sample which had been desized with the solution containing the hydrazine hydrate, whereas the bleached sample which had been desized without the addition of hydrazine hydrate exhibited strong rust formation at the spots to which the iron dust had adhered and also exhibited catalytic injury to the fibers which in some instances led to the formation of holes.

I claim:

1. In a process for bleaching textile fabrics with aqueous peroxidic bleaching liquors which fabrics have ferrous metal particles therein likely to cause catalytic injury to such fabrics during the bleaching with the aqueous peroxidic bleaching liquor, the step of treating said fabrics with at least one hydrazine compound selected from the group consisting of hydrazine hydrate and hydrazine salts in an aqueous medium at a point not later than said bleaching process with the aqueous peroxidic bleaching liquor, the amount of said hydrazine compound employed in said treatment being sufficient to prevent any catalytic injury to the fabrics caused by said presence of ferrous metal particles.

2. The process of claim 1 in which said textile fabrics are cellulosic.

3. The process of claim 1 in which the fabrics to be bleached are pretreated with at least one of said compounds.

4. In a process for bleaching textile fabrics with aqueous peroxidic bleaching liquors which fabrics have ferrous metal particles therein likely to cause catalytic injury to such fabrics during the bleaching with the aqueous peroxidic bleaching liquor, the step of treating said fabrics in an aqueous liquor containing about 0.02 g. to 0.25 g.

per liter of hydrazine hydrate prior to such bleaching to prevent any catalytic injury to the fabrics caused by said presence of ferrous metal particles.

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