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TEXTILE TREATING PROCESS AND COMPOSITION

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This invention relates to a method and means for simultaneously desizing and improving the wettability of textiles prior to dyeing the same.

A general object of the invention is to provide a bath comprising an improved admixture of materials through which the textiles may be passed in accordance with the usual desizing procedure, with the result that the textiles so treated will be efficiently and economically desized and will have their wettability simultaneously improved, whereby they will subsequently take the dye more uniformly and readily than heretofore.

In the heretofore usual practice in preparing textiles for the dye-bath, they are first passed through a hot dilute solution containing an active starch liquefying enzyme such as diastase until they are thoroughly wet, the excess of solution is removed by passing them through wringer rolls, and they are then kept warm for several hours, during which time the starch present on the fibres is more or less completely digested by the diastase, whereupon the goods are rinsed and dried and are ready for the drying operation.

The textiles so treated have been found to be frequently deficient in wettability. In other words, when they are introduced into the dye-bath, the dye solution does not immediately soak into the textile, but is more or less repelled by the surface tension forces on the surfaces of the fibres, with the result that the dyeing is frequently uneven and spotted.

In accordance with the principles of the present invention, the desizing treatment is combined with a treatment adapted to improve the wettability of the textiles, and this is accomplished by thoroughly mixing the diastatic solution with oleic acid preferably to form an emulsion, and using such emulsion as the desizing bath instead of the heretofore usual diastase solution. It is found that goods desized in such a bath and treated otherwise by the usual process indicated above possess a high degree of wettability when introduced into the dye-bath, with the result that the dyeing is even and the penetration of the dye is more rapid than heretofore.

Although the amount of oleic acid or the like which may be used to improve the wettability may vary, it has been found that an emulsion of about 3% of oleic acid in a diastatic solution having a Lintner value of about 300° produces desirable results.

The treatment is preferably carried out by passing the textile through a heated treating bath prepared as described, removing the excess of liquid from the textile, holding the textile at a temperature of about 60°–65° C. for an hour or more, according to the liquefying power of the solution and the amount of sizing, and thereafter rinsing and drying the textile.

The action of oleic acid is particularly desirable in that it does not, after emulsification with the textile liquid, adversely affect the Lintner value thereof. Certain other substances, such for example as trichlorethylene, naphthalene-sulfonic acids, pine oil, hexanol and tetralin, have been found to give good wetting properties, although when used alone they adversely affect the enzyme, but mixtures thereof with each other or with oleic acid may be used with good results.

The action of such substances appears to be that, during the digestion of the starch on the fibres by the action of the diastatic enzyme, some of the molecules of the substances attach themselves so firmly to the colloidal surfaces of the fibre that they are not dislodged by the subsequent rinsing and remain on the fibres in a thin layer having a thickness in the order of molecular dimensions, so that when the dried textile is wetted by the dye solution, the solubility tendencies of the carboxyl group of the molecules of the substances on the fibres are then satisfied and tend to spread the water of the dye solution quickly and evenly into the textile.

For the purposes of the present invention the substances acting to improve the wettability of the textile, and which may be mixed with oleic acid without substantial deleterious effect upon the diastase containing solution emulsified therewith, may be considered to form an empirical class con-

sisting of the following: trichlorethylene, naphthalene-sulfonic acids, pine oil, hexanol and tetralin.

Since certain changes may be made in carrying out the above process without departing from the scope of the invention, it is intended that all matter contained in the above description shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

Having described our invention, what we claim as new and desire to secure by Letters Patent, is:

1. The process of simultaneously desizing and improving the wettability of textiles, which includes passing the textile through a solution containing an active starch liquefying enzyme and having mixed therewith oleic acid and a substance of the empirical class consisting of trichlorethylene, naphthalene-sulfonic acids, pine oil, hexanol and tetralin.

2. The process of simultaneously desizing and improving the wettability of textiles, which includes passing the textile through a hot diastatic solution having mixed therewith oleic acid and a substance of the empirical class consisting of trichlorethylene, naphthalene-sulfonic acids, pine oil, hexanol and tetralin; maintaining the treated textile at a warm temperature until the starch adhering to the fibres is digested more or less completely by the action of the diastase, and then rinsing and drying the textile.

3. The process of simultaneously desizing and improving the wettability of textiles, which includes passing the textile through a hot diastatic solution having emulsified therein oleic acid and a substance of the empirical class consisting of trichlorethylene, naphthalene-sulfonic acids, pine oil, hexanol and tetralin; maintaining the treated textile at a warm temperature until the starch adhering to the fibres is digested more or less completely by the action of the diastase, and then removing the excess of the treating solution and rinsing and drying the textile.

4. The process of simultaneously desizing and improving the wettability of textiles, which comprises preparing a treating bath comprising an emulsion of a diastase containing solution and about 3% of a mixture of oleic acid and a substance of the empirical class consisting of trichlorethylene, naphthalene-sulfonic acids, pine oil, hexanol and tetralin, heating the bath, passing the textile through the heated bath, removing the excess of liquid from the textile; maintaining the treated textile at a warm temperature until the starch adhering to the fibres is digested more or less completely by the action of the diastase, and then rinsing and drying the textile.

5. The process of simultaneously desizing and improving the wettability of textiles, which comprises preparing a treating bath comprising an emulsion of a diastatic solution having a Lintner value of around 300° with about 3% of oleic acid, heating the bath, passing the textile through the heated bath, removing the excess of liquid from the textile; maintaining the treated textile at a warm temperature until the starch adhering to the fibres is digested more or less completely by the action of diastase, and then rinsing and drying the textile.

6. A new composition of matter, comprising an emulsion of a diastatic solution, a small amount of oleic acid and a substance of the empirical class consisting of trichlorethylene, naphthalene-sulfonic acids, pine oil, hexanol and tetralin.

7. A new composition of matter, comprising an emulsion of a diastatic solution having a Lintner value of around 300°, and about 3% of oleic acid.

In testimony whereof we affix our signatures.

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