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PREPARATION OF WOOL CONTAINING FABRICS FOR DYEING PURPOSES

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This invention relates to a method for preparing wool containing fabrics for dyeing purposes.

The dyeing of wool containing fabrics in the piece is a problem which has not been solved yet in a satisfactory manner. The fabrics namely contain fatty and mineral spinning oils and lubricating oils from the looms. They further contain—this is especially the case with half-woolen fabrics—a certain content of size and often cellulose derivatives, when old material and rags containing artificial silk are used in the manufacture of the fabric, which contain furthermore dirt and other foreign substances. Until now the wool containing fabrics were subjected to a washing treatment with alkaline reacting washing liquids, in order to make them suitable for dyeing purposes. This washing treatment lasted several hours; it was, however, not satisfactory and the dyeing of the washed fabrics could not be carried out without difficulty, as the foreign substances interfering with the dyeing process were not removed by the washing. Furthermore the treatment of the fabric with alkaline reacting washing liquids chemically affected the wool fibres, thus diminishing the quality of the fabrics.

The above mentioned disadvantages are avoided, when working according to the invention, which consists in treating the wool containing fabrics with certain organic solvents for cellulose ethers and cellulose esters and washing the treated fabrics with common water. Not all the organic solvents for cellulose ethers and esters are suitable for the purpose of the invention, as only those solvents come in question, which are removable from the fabric by a treatment with water at temperatures below 60° C. Solvents which cannot be completely removed from the fabric by a treatment with water at temperatures below 60° C. are not suitable, as they would afford for removing them completely from the fabric temperatures changing the properties of the wool fibres of the fabric, thereby diminishing the quality of the fabric. The organic solvents for cellulose ethers and esters used for treating the fabrics do not only remove the cellulose derivatives from the wool containing fabrics, but also remove all the other fatty and oily matter from the fabric. By the washing with water following the treatment of the fabric with solvent, for removing all the solvent absorbed by and adhering on the fabric, size and dirt are also removed from the fabric.

When working according to the invention the wool containing fabrics are prepared for dyeing purposes by two successive and very simple steps, namely the treatment with certain organic solvents and the washing with water, thereby removing all the impurities and parts of the fabric, which are noxious for the dyeing. The fabric may then be dyed in the piece without troubles arising. The fabric is chemically and physically not damaged, as no noxious chemical substances and no temperatures above 60° C. are employed. The treatment of the fabric is finished in about 10 minutes, whereas the treatment with alkaline reacting washing liquids, used until now in the art, lasts at least two hours, without yielding satisfactory results.

Solvents adapted for the purpose of the invention are the liquid esters of aliphatic fatty acids such as methyl acetate, ethyl acetate and the like, liquid ketones such as acetone, methylethyl ketone and the like, and low-boiling chlorinated hydrocarbons such as isopropylchloride, methylenechloride and the like. Obviously also mixtures of these solvents may be used.

The removal of the solvents adhering on the fabric after the treatment with solvents takes place according to different principles. The esters and ketones used are water soluble and are therefore dissolved during the washing process following the treatment with solvents. The chlorinated hydrocarbons are not water soluble. They are therefore to be chosen in such a manner, that they are boiling at temperatures below 60° C. in contradistinction to the water soluble solvents, which may boil at higher temperatures. The washing of the fabrics treated with solvents not soluble in water has to be carried out with warm water of a temperature slightly

above that of the boiling point of the solvent used. The solvents adhering on the fabric are then evaporated and the vapors are condensed.

The solutions of the impurities and certain constituents of the fabric in the organic solvents may be worked up by distillation, thus recovering pure solvents, oily and fatty substances and if present cellulose derivatives.

Examples

1. A piece of cloth, made from carded yarn greased with oleine and consisting of wool and artificial wool is continuously drawn through one or several baths containing methyl acetate, which is if necessary slightly heated. The methyl acetate treatment is followed by a washing with cool water in one or several baths, through which the fabric is drawn after it has been squeezed, when coming out of the last methyl acetate bath. The time necessary for the whole treatment of the piece of cloth is about 10 minutes, after which the fabric is ready for dyeing purposes. The methyl acetate enriched with oleine is subjected to a distillation, thereby recovering methyl acetate as condensate and oleine as residue. The wash water is used so often, until it is enriched in methyl acetate. It is then also worked up by distilling off the methyl acetate.

2. A piece of half-woolen cloth made from wool, artificial wool and cotton and greased with mineral oil is treated in the same manner as in Example 1. The solvent used is a mixture of methyl acetate and methylenechloride. The washing is carried out very thoroughly in closed containers with water heated at 48° C. The solvents distilled off during the washing are condensed, whereas the solvent dissolved in the water is recovered after enrichment of the water by distillation. Duration of the treatment about 8 minutes.

3. A piece of cloth made from wool, artificial wool and waste material containing artificial silk is treated with a mixture of isopropylchloride and methylenechloride. By washing in a closed container with warm water of about 45° C. the mixture of the solvents adhering on the fabric is distilled off and recovered by condensation. The solution of cellulose acetate and spinning oil in the solvents is worked up to pure solvents, cellulose acetate and spinning oil. Duration of the treatment about 12 minutes.

4. A piece of cloth made from wool and artificial silk remanufactured from rags is treated with methyl acetate or acetone, thereby removing the oily matter and the cellulose derivatives from the fabric. The solvent adhering on the fabric is removed by a treatment with water. Duration of the treatment about 10 minutes.

I claim:

1. A method for preparing wool-containing fabrics for dyeing purposes, the said fabrics consisting at least in part of threads made from artificial silk; comprising the steps of treating the fabrics with a single liquid organic solvent, which possesses the property of removing any cellulose acetate which may be present in the artificial silk, and also the property of removing other fatty and oily impurities from the fabric, the said organic solvent being itself removable from the fabric by water at temperatures below 60° C.; and then washing the treated fabrics with water at a temperature below 60° C., in order to remove any of the organic solvent still remaining in the fabric.

2. A process for preparing wool-containing fabrics for dyeing purposes, as described in claim 1, in which the liquid organic solvent is chosen from the group consisting of methyl ethyl ketone, isopropyl chloride, and methylene chloride.

In testimony whereof I affix my signature.

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