The bleaching agents for cotton are well known and any of the usual agents may be used. Examples of suitable agents are alkali metal perborates, percarbonates, persulfates, etc., and hydrogen peroxide which is preferred. Concentrations of 1 to 10 g./l. of the bleaching agents give a satisfactory whiteness.

Agents which impart a silk-like scrop effect to cotton are well known. Examples of scroping agents are polyglycol ethers of high molecular weight containing exchangeable hydrogen atoms such as hydroxyl, carboxylic acid, and amino compounds such as oleyl amine stearic acid, oleyl alcohol. Especially useful for the invention are mixtures of unsaturated fatty alcohols having 12 to 18 carbon atoms and alkyl polyglycol ether condensation products of 1 mole of fatty alcohols having 12 to 14 carbon atoms with 6 to 12 moles of ethylene oxide. Concentrations of 1 to 5 g./l. of the scroping agent give satisfactory results.

The stepwise heating of the bath is preferably effected in a closed pressure vessel in 2 to 5 steps, preferably 3 steps, for intervals of 10 to 30 minutes each. For example, the steps may be effected at temperatures of about 60° C., 80° C., and then 120° C. for time intervals of 10 to 30 minutes each. After the stepwise heating, the bath is cooled to below 100° C. and the cotton fibers are rinsed with warm water and then cold water, and then dried in the usual manner. Excess scroping agent is removed from the cotton fibers by the rinsing.

In the following examples there are described several preferred embodiments to illustrate the invention. However, it should be understood that the invention is not intended to be limited to the specific embodiments.

Example I

35 kg. of cotton linters were subjected to a preliminary wetting treatment in a solution of 1000 liters of water, 1 kg. of a condensation product of 1 mol of fatty alcohols having 12 to 14 carbon atoms and 8 to 10 mols of ethylene oxide and 3 kg. of 35° Bé. sodium hydroxide for about 20 minutes at 60° C. Then, 4 kg. of 35% hydrogen peroxide and 1 kg. of a mixture of 5 parts of unsaturated sperm oil fatty alcohols having 14 to 18 carbon atoms and 1 part of a condensation product of 1 mol of fatty alcohols having 12 to 18 carbon atoms and 8 to 12 mols of ethylene oxide were added to the said solution. The cotton was treated in this solution for ten minutes at 60° C. Thereafter, the temperature of the solution was increased to 80° C. over a period of 10 to 15 minutes, maintained for 20 minutes at 80° C., raised over 20 minutes to 120° C. in the closed vessel, and maintained at that level for an additional 20 minutes. Subsequently, the solution was cooled to 90° C., the cotton was removed and rinsed first in warm and then in cold water. After drying, an absorptive cotton fiber having a silk-like scrop was obtained.

Example II

50 kg. of raw cotton were subjected to a preliminary wetting treatment in a solution of 1000 liters of water, 5 kg. of 35° Bé. sodium hydroxide and 2 kg. of the condensation product of 9 mols of ethylene oxide with 1 mol of monophenol for about 20 minutes at 60° C. Then, 5 kg. of 35% hydrogen peroxide and 3 kg. of the condensation product of 6 mols of ethylene oxide with 1 mol of stearic acid were added to the said solution. The cotton was treated in this solution for 10 minutes at 60° C. Thereafter, the temperature of the solution was raised to 80° C. over a period of about 10-15 minutes, maintained at 80° C. for 20 minutes, raised to 120° C. with 20 minutes in the closed vessel and held at that level for an additional 20 minutes. The solution was then cooled to 90° C., and the cotton was rinsed in first hot and then...
cold water, and then dried to obtain a highly absorptive cotton fiber with a silk-like scroop.

The example was repeated except that the hydrogen peroxide and the condensation product were added to the preliminary wetting bath before the raw cotton was treated. A highly absorptive cotton with a silk-like scroop was again obtained.

Various modifications of the process of the invention may be made without departing from the spirit or scope thereof, and it is to be understood that the invention is to be limited only as defined in the appended claims.

I claim:

1. A process for the preparation of highly absorptive surgical cotton having a silk-like scroop which comprises treating the raw cotton material in a preliminary wetting step with an aqueous alkaline bath containing a non-ionic, polyoxysiloxene oxide condensation wetting agent at a temperature of 40° to 80° C., adding a bleaching agent and a scooping agent to the said bath, heating the resulting bath and raw cotton stepwise up to about 120° C., cooling the bath to below 100° C., rinsing the cotton with first warm water and then cold water, and drying the cotton to obtain the said highly absorptive surgical cotton.

2. The process of claim 1 wherein the bleaching agent and the scooping agent are added to the aqueous alkaline bath before the preliminary wetting step.

3. The process of claim 1 wherein the stepwise heating is effected in three steps at temperatures of about 60° C., 80° C. and 120° C. for 10 to 30 minutes each.

4. The process of claim 1 wherein the bleaching agent is hydrogen peroxide.

5. The process of claim 1 wherein the preliminary wetting step is effected at 60° C.

6. A process for the preparation of a highly absorptive surgical cotton having a silk-like scroop which comprises treating the raw cotton material in a preliminary wetting step with an aqueous sodium hydroxide solution containing the condensation product of 1 mol of fatty alcohol having 12 to 14 carbon atoms and 8 to 10 mols of ethylene oxide at about 60° C. for 10 to 30 minutes, adding to the bath hydrogen peroxide and a mixture of unsaturated sperm oil fatty alcohols having 14 to 18 carbon atoms and the condensation product of 1 mol of fatty alcohols having 12 to 18 carbon atoms and 8 to 12 mols of ethylene oxide, heating the resulting solution and cotton material for periods of 10 to 30 minutes at temperatures of about 60° C., 80° C. and 120° C., cooling the bath to below 100° C., rinsing the cotton material with warm water and then cold water and drying the cotton to obtain the said highly absorptive surgical cotton.

7. The process of claim 6 wherein the hydrogen peroxide and the mixture of fatty alcohols and condensation product is added to the aqueous sodium hydroxide solution before the preliminary wetting step.

8. A process for the preparation of a highly absorptive surgical cotton having a silk-like scroop which comprises treating the raw cotton material in a preliminary wetting step with an aqueous sodium hydroxide solution containing the condensation product of 1 mol of nonyl phenol and 9 mols of ethylene oxide at about 60° C. for 10 to 30 minutes, adding to the bath hydrogen peroxide and the condensation product of 1 mol of stearic acid and 6 mols of ethylene oxide, heating the resulting solution and cotton material for periods of 10 to 30 minutes at temperatures of about 60° C., 80° C. and 120° C., cooling the bath below 100° C., rinsing the cotton material with warm water and then cold water and drying the cotton to obtain the said highly absorptive surgical cotton.

9. The process of claim 8 wherein the hydrogen peroxide and the aryl condensation product are added to the aqueous sodium hydroxide solution before the preliminary wetting step.

10. The product produced by the process of claim 1.

11. The product produced by the process of claim 6.

12. The product produced by the process of claim 8.

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