

Quality Improvement and Shortcut of Preparation of CORONA Discharged Cotton Fabrics

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Abstract

Textile industry has an important impact in world economy and consequently on environmental quality of life.

Textile processing uses huge amount of water, chemicals and energy and it is quite easy to conclude about the enormous meaning of pollution control and rationalization of energetic demands.

CORONA treatment in the wet processing of cotton textile materials has a great potential concerning the improvement of all the operations included in it, namely in preparation, dyeing, printing or final finishing.

Physical and chemical surface changes in cotton structure are noticed after CORONA discharge. The increase in oxidation potential and the creation of channels through cuticle are referred as responsible for the variation in cotton properties after plasmatic discharge, specially concerning absorption of water and treatment baths.

Advantages as the use of less chemicals, namely alkalis, oxidants and other auxiliaries, the reduction of times and temperatures, less damages in the materials surely can have a strong impact in economical and ecological aspects of the process. Complete hidrophilization of cellulosic materials renders very easy the access of baths and consequently conditions to more efficient operations are found.

Bleaching processes aim to give textile materials the adequate whiteness degree, the removal of sizing agents, the increase of hidrophility and cleaning by extraction of seeds, husks and waxes. The use of hydrogen peroxide in alkaline medium is a flexible and more ecological process when compared with methods based in chlorinated compounds.

The present work concerns the study of half bleaching process when this operation is preceded by a CORONA discharge made on dry grey fabrics. The influence in the whiteness degree, hidrophility, starch removal and uniformity of properties of the cellulosic material after preparation is studied.

Key words: CORONA discharge, cotton, bleaching, uniformity, desizing, whiteness