



Influence of Cationization of Cotton on Reactive Dyeing

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ABSTRACT

Cationization of cotton is emerging as an effective tool that solves the environmental problems associated with dyeing of cotton with anionic dyes. In this research work, the cationizing efficiency of cationizing agent CIBAFIX WFF was estimated and it was found to be a better one than compared with normal or existing method of reactive dyeing of cotton. The influence of process conditions like concentration of cationizing agent, concentration of alkali and temperature of cationization bath on the color strength (K/S) and Total dye utilization percentage (T%) were analyzed and these process conditions are optimized. The optimized process conditions gives better K/S values and T% than the normal reactive dyeing of cotton. The effect of cationization on color strength and color fastness of various reactive dyes was found and cationization shows higher increase in lighter shades and lesser increase in dark shades than normal cotton dyeing. The impact on the environmental pollution and the dyed fabric quality were ascertained and compared with the existing dyeing system and the cationized cotton gives very less (nearly zero) environmental pollution. The cationized cotton shows similar kind of fabric quality as like normal dyeing of cotton. Cationization of cotton with cibafix WFF was found to be a successful and commercially viable process, since it is found to be cheaper than the normal dyeing process.

Keywords: Cationization, Cotton, Reactive Dyes, Cibafix WFF, Color Strength, % Exhaustion

INTRODUCTION:

The fiber reactive dyes are known as the best for cotton for its wide range of application and better fastness properties. However, all the reactive dyeing systems require huge amount of electrolyte and alkali to exhaust and fix the dye respectively.

These electrolytes are neither

exhausted nor destroyed and hence remain in the dye bath after dyeing. All the above, only 60-65% dye utilization is attainable even with the use of salt in the normal dyeing systems.

When alkalinity is introduced in the bath in order to facilitate the formation of covalent bond between the fiber and the functional groups of the reactive dye, the