

DYE FIXING AGENT – PART I

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Introduction

Dye fixing agents are chemical compounds that fix dyestuffs onto the fabric surface. Fixing agents are cross-linking agent which forms a strong bridge between the cellulose and the dye, thereby anchoring the latter to the fiber.

Unfixed dyestuff remains on the surface of the fabric, once the dyeing process is complete. These unfixed dyes cause color migration during washing or when the fabric is in wet condition. Fixing agents are applied to those dyed fabrics to fix these unfixed dyestuffs on the fabric surface. It improves wet fastness properties like wash fastness, water fastness etc. and therefore the fabric quality.



Dye fixing agents are mainly divided into cationic fixing agent and resin type fixing agent.

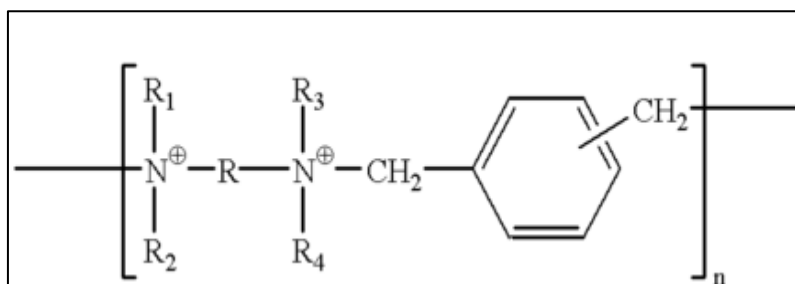


Fig 1.1 Cationic dye fixing agent

By combining the cationic and the anionic group in the dye molecule, it will form into ionic bond and close water-soluble groups, thus the cationic dye-fixing agent will improve wet fastness of fabric.



Direct dyes and dye fixing agents

Direct dyes are used in various sections of textile industry due to their ease of application and low cost. However, these dyes possess poor wet fastness properties. In fact the main disadvantage of direct dyes is their poor wash fastness. Sulfonic acid groups are present on the direct dye molecule to impart solubility in water. However, these Sulfonic groups reduce the affinity of the dye towards the cellulosic substrate. This decreased affinity is due to two factors:

- Both the cellulosic fiber and the direct dye have negative charges in the aqueous medium
- The sulfonate group increases the dye water interaction and therefore decreases the dye-fiber attraction.

The sorption of direct dye by cotton is not a permanent irreversible process. The dye could be removed from the cotton fiber after few washes. Darker shades can be reduced in depth after only a few washes. To improve the wet fastness characteristics of cellulosic textiles dyed with direct dyes, an after treatment using dye fixing agent is done. The after treatment follows the completion of the dyeing process.

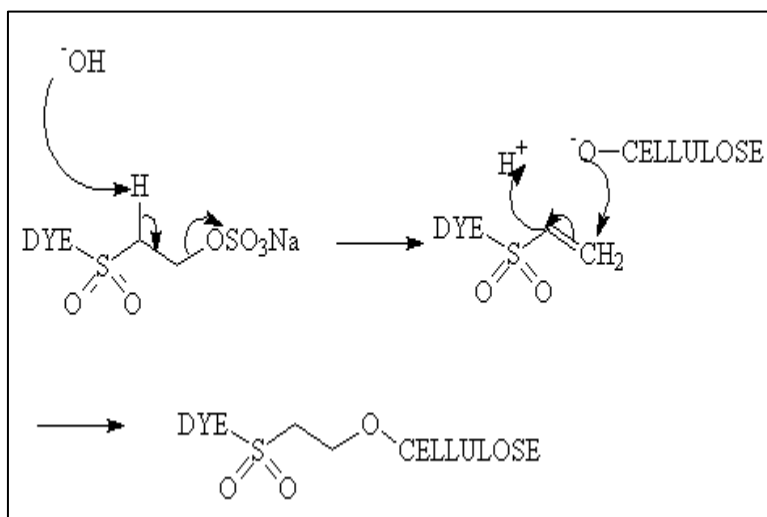


Fig 1.2 Direct Dye and Cellulose

Wishing you a great week ahead!

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