

## Simultaneous Dyeing and Finishing of Textiles

### BACKGROUND

In the textile industry, fabric is first dyed and then separately finished with a cross-linking agent to obtain the desired colour and improved properties. Typically, direct dyed cotton fabric requires an after-treatment with a cationic fixing agent to achieve the desired wash-fastness standard. Formaldehyde, which is potentially hazardous, carcinogenic and reduces strength of the fabric, is used in processing to treat fabric, presenting handling difficulties.

One-step dyeing and finishing, which would be advantageous to this high volume industry, has not been adopted due to the inability to achieve combined deep shades, good wash fastness, retention of physical properties of the fabric, and good crease recovery with zero-formaldehyde use.

### THE TECHNOLOGY

A University of Manchester research group has developed a simultaneous dyeing and finishing process. The process involves use of an alternative cross-linking agent, does not use formaldehyde, and can be considered environmentally friendly and cost effective. The process can be conducted without need for altering of pH, can make use of a variety of dyes, and achieves good results in terms of depth of shade, enduring wash fastness, crease recovery performance, cross-linking and tensile strength.

### APPLICATIONS

The process is applicable to dyeing and finishing of cellulosic fibre or fabric, suitable for cotton or cotton blend fabric, or other cellulosic or proteinic fibre such as silk, wool or hair. The process is compatible with dye bath immersion, pad-dry-cure, pad-dry-steam-cure.

### SUMMARY OF BENEFITS

- Simultaneous dyeing and finishing
- Safe, environmentally friendly process avoiding need for special handling
- Process can be conducted in acidic solution
- Wide range of dyes can be used (including direct, reactive, disperse, basic, acid) without problematic poor wash fastness and depth build-up caused by some dyes
- Good or better than normal tensile strength
- Good wash fastness even after repeated wash cycles
- Good crease recovery
- Economical
- Softener can be incorporated.

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## INTELLECTUAL PROPERTY

The University of Manchester is the proprietor of know-how pertaining to this process.

## OPPORTUNITY

We are seeking development / license partners, for collaboration leading to scale-up and industrial application of this process.

## CONTACT

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