

PRINTING – PART II

REF: TT/ MAY 2021/ WK 3

A) Reactive Printing

Reactive printing is a printing method in which the layer of applied paste consists of reactive dyes, a binder and a heat-activated additives (**Note: The heat-activated printing additives help in the fixation of the dye onto the fiber material**). It is then steamed, in which the reactive dyes combined with steam to permanently print into the fiber. After that, the printed fabric is passed through series of washing cycles to remove the excess dye. It has a higher color yield so produces rich color and better fastness properties. Reactive printing is used for most natural fibers such as cotton, silk, linen, hemp etc.

Reactive printing produces colors that remain durable following usage, outdoor exposure, and more. It is the reaction of the reactive dyes to the heat that creates the high-quality results of this printing process. This is the main reasons that reactive printing has become a popular method for printing on cotton fabrics.

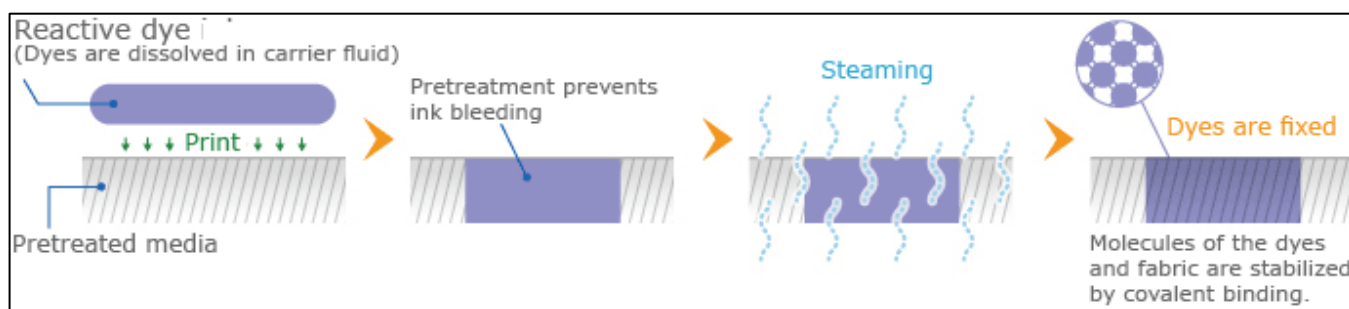


Fig 1.1 Reactive Printing Process

Ref: mimaki.com

Reactive dye

Reactive dye is a class of dye that makes a covalent bond with the fiber and becomes an integral part of the fiber. Reactive dyes are the type of dye, which has reactive group, and that reactive group reacts chemically with fiber polymer molecules and form covalent bond. This covalent bond is formed between the reactive group and amino group of cellulosic fiber polymer.



The different groups/components in a reactive dye are:

- **Chromophore** - This is an atom or group of atoms which is responsible for the color of a compound.
- **Water solubilizing group** – This is the ionic groups which improves the solubility of the dye. It is important as reactive dyes must be in solution for application to fibers.
- **Reactive group** – This part of the molecule reacts with the fiber.
- **Bridging group** - This group links the chromophore and the reactive group.

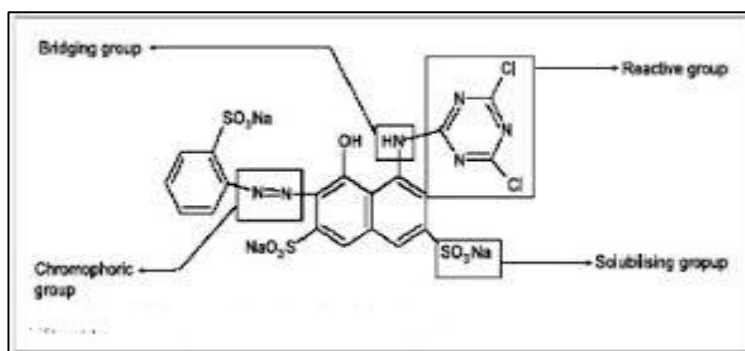


Fig 1.2 Components of a Reactive Dye

Ref: ptj.com.pk

Reactive dyes are classified on the basis of chemical constitution and also on the basis of reactivity. Depending on chemical constitution, the dyes are classified as Chlorotriazine dyes, Vinyl Sulphone dyes, Heterocyclic halogen containing dyes and Mixed dyes.

On the basis of reactivity, the reactive dyes are classified as:

- Cold Brand Reactive Dyes - These types of dyes contain reactive groups of high reactivity.
- Medium Brand Reactive Dyes - This type of dyes contains reactive groups of moderate reactivity.
- Hot Brand Reactive Dyes - This type of dye contains reactive groups of least reactivity.

Low to medium reactive group containing dyes are mainly suitable for printing of textiles.

References:

1. <https://www.cottonworks.com/>
2. <https://www.cottoninc.com/>
3. <https://textilestudycenter.com/>
4. <https://www.contrado.co.uk/>

.....To be continued.....

| UNSCRAMBLE THE JUMBLE WORDS |
|-----------------------------|
| IVEREATC |
| PHOREMOCHRO |
| DGBRIING |
| ROODOUT |

Last week's Answers: 1) ROLLER 2) SCREEN 3) DIGITAL 4) PASTE

Wishing you a great week ahead!

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