TECHNICAL TUESDAYS

PRINTING – PART III

REF: TT/ MAY 2021/ WK 4

A) Reactive Printing (Continued.)

Other than Reactive dye and printing auxiliary like wetting agent, reactive printing paste contains the following:

1. **Urea** - Urea acts as solubilizing aid for reactive dye. When cold printed fabric is entered into the steamer, the water condenses onto the fabric. The mixture of urea and water provides the solvent required for dye-fiber reaction to take place. Thereby enhancing the brightness and intensity of the prints formed.
2. **Resist salt –** It is a mild oxidizing agent, used to protect against reduction of dyes in alkaline print pastes. It slows down dyes reaction time with the Soda Ash, producing better depth of shade.
3. **Alkali -** It helps in fixation of dyes into fiber molecule.
4. **Thickener** - Thickener is a substance which increases the viscosity of a liquid without changing it properties. In simpler words, these are used in printing pastes to impart stickiness and adhesiveness to the printing paste so that it can be applied on the fabric surface without spreading and bleeding and can maintain the designs under high pressure.

Main functions of thickener are:

- Gives the required viscosity to the printing paste.
- Holds the ingredients of the print paste onto the fabric.

Criteria for selection of thickeners are:

- The print paste auxiliaries and dyes should be compatible with the thickener.
- Thickener should be stable in the printing paste.
- The pH of the print paste must be considered because some thickeners like Sodium alginate are only usable within a certain pH range and form gels when strong alkalis are added.
- Good adhesion of the thickeners to fiber is required in order to avoid the loss of colors during mechanical handling. Otherwise particles of colored films may break off, leaving white spots in colored areas, so the thickener film should be flexible and should have good adhesion properties.

- The choice of thickener also depends on the method of application and on the fabric to be printed. Thus in screen printing chocking of the screen can occur if an improper thickener is used.

There are different types of thickeners available for printing, both natural as well as synthetic thickener.

DIFFERENT NATURAL THICKENERS	
Starch and its derivatives	Provides high color yield.
British gums	Good stability to alkali, used for vat printing and resist printing.
Locust Bean Gum	Works in wide alkali range.
Guar Gum	Excellent thickening property.
Alginates	Readily soluble, Stable in wide range of pH.
Gum Arabic	Used more as an adhesive and less as thickener.
Gum Tragacanth	Less sensitive to additions of electrolyte.

In printing with reactive dyes, sodium alginate or synthetic thickeners are generally used as thickening agents. Mixtures of sodium alginate and modified xanthan can be used as thickeners in the reactive printing of cotton, producing a good color yield, levelness, and outline sharpness

References:

1. https://www.cottonworks.com/
2. https://www.cottoninc.com/
3. https://textilestudycenter.com/
4. https://www.contrado.co.uk/
5. https://onlinelibrary.wiley.com/

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

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Last week`s Answers: 1) REACTIVE 2) CHROMOPHORE 3) BRIDGING 4) OUTDOOR

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arc@resil.com | www.resil.com.