

PRINTING – PART I

REF: TT/ MAY 2021/ WK 2

Introduction

Textile printing is the process of applying color to fabric in definite patterns or designs. In other words, printing is localized application of a dye or pigment onto a fabric to form a pattern or a design. Unlike in normal dyeing, in which a dye solution is used to apply the dye; in printing a thick dye paste is used. The reason of using a thick paste is - If a drop of dye solution is poured onto the surface of a fabric, it quickly spreads into an irregular shape due to capillary effect. To hold the colors in position, thick dye paste is used. This requires the use of thickening agents, which prevent color migration. The paste holds the dyestuff until it is fixed after printing and then the unwanted paste ingredients are removed during washing-off.

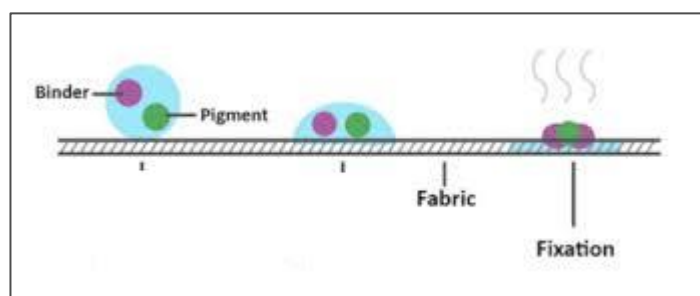


Fig 1.1 Textile Printing Mechanism

Ref: splashjet-ink.com

Difference between Dyeing and Printing

DYEING	PRINTING
Uniform coloration throughout the fabric	Color is applied in the form of shape/design
Non - Localized application	Localized application
Similar front and back side of the fabric	Different front and back side of the fabric
Applied in aqueous medium of low viscosity	Applied in paste form
Thickener is not used	Thickener is used
High MLR	Low MLR



Evolution of printing

Textile printing is an ancient art, the first commonly used textile printing method originated in China, where block printing was discovered. Block printing is the process of dyeing fabric using some form of carved material. Historically, wood or copper and occasionally rubber have been used. Later, a printing technique using rollers or cylinders emerged. This is a process whereby the fabric is carried along a rotating central cylinder and pressed by a series of rollers, each of which is engraved with the design. Each roller is supplied with a different color through the feed rollers. Some roller printing machines were able to print as many as 6 colors at a time, making them much faster than the block printing process. After that screen printing process was developed. Screen printing is a printing technique where a mesh is used to transfer ink onto a substrate. Traditionally, the process was also called silk-screen printing because silk mesh screen was used in the process.

The modern textile-printing techniques of flat-bed screen, rotary screen, and engraved copper roller are referred to as wet printing techniques. In each of these techniques; a print paste is applied onto the fabric. For wet printing processes, once the fabric has been prepared and delivered to the printing plant, the basic steps in the printing process are –

- Preparation of the print paste
- Printing the fabric
- Drying the printed fabric
- Fixation of the printed dye or pigment
- Washing-off

Now, the next generation printing called “digital textile printing” has emerged. Digital textile printing is ink jet based method of printing onto fabric, which uses computer-controlled lasers to inject the ink directly into the fabric. This allows the printing of very detailed designs very fast and efficiently.

The best thing about digital printing technology is that there is no limitation on the usage of colors or repeat size. Multiple color shades can be printed on the fabric at a time, which is not as the case of traditional printing techniques. Hence, the process is time saving and cost effective.

References:

1. <https://www.cottonworks.com/>
2. <https://www.cottoninc.com/>
3. <https://textilestudycenter.com/>

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



UNSCRAMBLE THE JUMBLE WORDS
LLERRO
REENSC
TALDIGI
STEPSA

Last week`s Answers: 1) DEWATERING 2) UNDERGROUND 3) EFFICIENCY 4) GOVERNMENT

Wishing you a great week ahead!

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