TECHNICAL TUESDAYS

PIGMENT PRINTING – PART I

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Introduction

Pigment printing is the most popular printing method. In this printing, a fabric is being printed with a paste made of an insoluble pigment mixed with a binder and a thickener. The insoluble pigments, which have no affinity for the fiber, are fixed on to the textile with binding agents.

These printing develop brighter shades than the other styles of printing. Pigment printed fabrics have high light fastness properties. Due to a simple printing and fixation process, pigment printing is suitable method for making small batches. The advantage of pigment printing is that the process can be completed without subsequent washing sequences. This makes the method fast and resources conserving.

The disadvantage of pigment printing is that the polymer layers that enclose the pigments on the surface of fabric can break easily, and so its rubbing fastness rating is poor. The surface of the fabric is covered by the binder film giving undesirable hand feel. Solvents like kerosene, spirit etc are often used in pigment printing which causes environment hazards.

Pigment Printing Process

A pigment printing system consists of three essential components. A thickening agent, a binder and auxiliaries like fixing agents, plasticizers, defoamers, etc.

- ***Pigment dispersion*** - Pigments are dispersed in the presence of a suitable non-ionic surfactants. Generally, the pigment pastes are aqueous based and contain the dispersing agent, binders and cross-linking agents.
- ***Binding*** - The binders used in pigment printing systems are film-forming substances made up of long-chain macro molecules which, when heated with a suitable acid-donating catalyst, form a three-dimensional structure in the pigment. Binders form soft and transparent plastic and feel harsh on the fabric. That's why pigment printed fabric have more harshness than other types of printed fabrics. Thickeners and auxiliaries give the required print thickening power. Binder actually

hold the pigment color and sandwich it between fabric surface and plastic coating and this coating help color to stay onto the fabric.

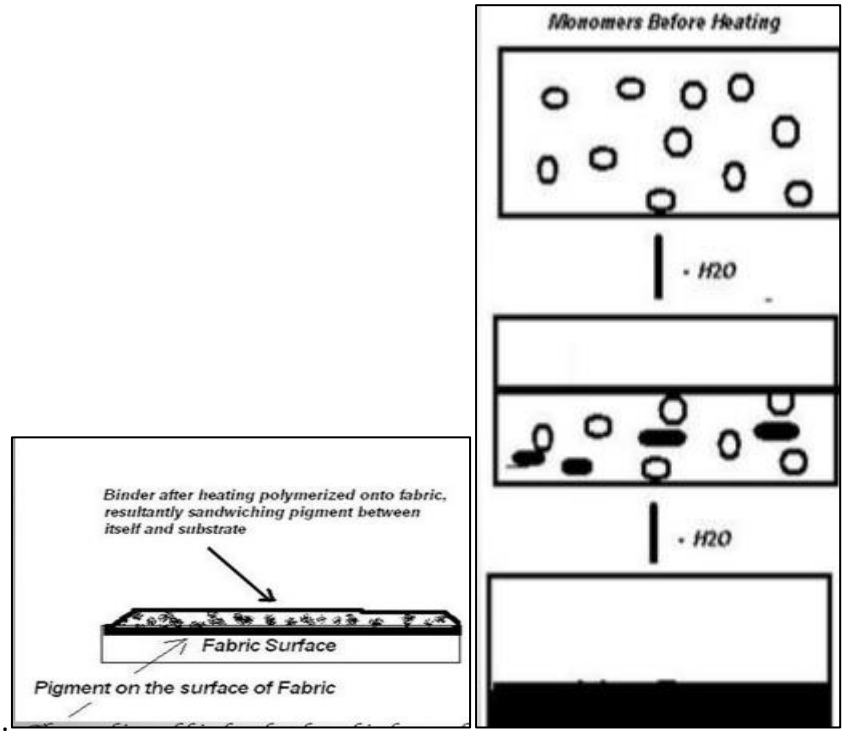

Fig 1.1 Working of Binder

- ***Fixer*** - In addition to binder another component is also added to the pigment printing paste, which is fixer. Fixers are mostly formaldehyde based, which helps in strengthening of binder to hold on pigment.

To be continued….

Wishing you a great week ahead!

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