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ITMA 2003 Review: Textile Printing

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ABSTRACT

This paper reviews the new developments shown at ITMA '03 in the textile printing area. New equipment and techniques were exhibited for flat screen printing, rotary screen printing, and transfer printing. However, the area of digital ink jet textile printing appeared to generate the most overall interest both from the exhibitors', as well as, the attendees' point of view. Most people interested in the textile printing area seemed to feel that ITMA '03 was highly successful.

Keywords: Textile printing, flat screen printing , rotary screen printing, transfer printing, digital ink jet printing

Textile printing is the area of textile processing used for applying color in a localized design or pattern to a textile material, normally fabric. Depending on the fiber composition and the construction of the fabric to be printed, as well as the proper selection of dyes or pigments, the printed patterns can exhibit good to excellent colorfastness. From a practical point of view, textile printing is the process which incorporates artistic design, engineering and chemical technology to produce unique patterns which can then be accurately repeated on large volumes of fabric.

In traditional textile printing, the colored images on the fabrics are produced by using textile print pastes which consist of highly concentrated thickened solutions of textile dyes or pigments. Unfortunately, as a consequence, the use of these print pastes can also lead to intensely colored waste products. Environmental issues are a major concern to most textile printers. The standard methods for textile printing are flat-bed screen, rotary screen and engraved copper roller. These methods are normally referred to as wet printing techniques because they all incorporate viscous print paste solutions for development of the color designs on the fabric.

A fourth major fabric printing method is known as transfer printing. This technique involves initially printing the design onto paper, then subsequently transferring the pattern from the paper onto a textile material. The most successful of this type of printing uses disperse dyes which can be sublimed, printing them onto paper, then transferring this printed image onto fabric by heating the paper above the sublimation temperature of the dyes while it is in direct contact with the textile material. This technique is limited to being used with only fibers which will readily accept the sublimed disperse dyes, most notably polyester, nylon and triacetate. There are also well-used methods which employ pigment formulations printed onto release