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Behavior of Prepared-For-Print Fabrics in Digital Printing

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ABSTRACT

Engineered print design for sewn products can reduce material waste and facilitate customized design of textile products. But, digital printing systems must produce output reliably and consistently for integration into a production process. This study examined changes in dimension and grain alignment of digitally printed and post-treated prepared-for-print (PFP) cotton fabric. Following post-treatment, substantial shrinkage and some skewing of the printed design was found. Furthermore, dimensional change results from one fabric were not predictive of results for a second fabric. These performance concerns impact end product quality and adaptability to the production environment. Future work should focus on delineating an optimum set of pretreatment conditions for PFP fabrics that will result in proper grain orientation and minimal, predictable shrinkage.

Keywords: Digital textile printing, Print Design, Engineered Print, Ink jet printing, Prepared-for-print Fabric, Printing Quality

Introduction

Digital technology for printing on textiles makes it possible to step forward to mass customization, consumer designed products, and innovative aesthetic design possibilities. With the expanded capability afforded by powerful CAD systems and textile machinery improvement, engineered print design has been studied for mass customization and just in time production applications in apparel. Such engineered design can reduce material waste by supporting improved nesting of patterns for cutting and facilitating development of customized textile design without limitation in size of repeat or number of colors in the design. This technology can be applied to other industries as well, including home furnishings [1].

To reach their potential, digital printing systems must produce output reliably and consistently for integration into a production process. Digital textile printing technology has been adopted by the textile