

IMPROVEMENT OF LIGHTFASTNESS OF REACTIVE INK JET PRINTED FABRICS
USING UV ABSORBERS

Vamshi Naarani, MS

University of Nebraska, 2005

Advisor: Yiqi Yang

Digital printing technology has become a new world of mass customization for a growing number of artists, designers and interior decorators. Bright prints with broad color gamut, hassle free printing process, and good hand properties of the printed goods made the dye based inks popular. Apart from the machinery challenges, print stability and durability such as good light and weather fastness have become important issues for the major demands of apparel, upholstery and outdoor applications. Limitation of dye quantity in the inks because of their purity constraints in turn leads to poor lightfastness properties of the dye-based inks.

An attempt to improve the lightfastness of reactive prints was made by adding UV absorbers into the inks. UV absorbers decrease the dye susceptibility to UV degradation and increase its fade resistance to sunlight or UV rays. Different classes of UV absorbers (water soluble and water insoluble) with different concentrations were used without disturbing the ink's flow characteristics and properties. Two kinds of UV absorber application processes: direct applications through ink and post-printing process by padding were included to see the effective method of application.

UV absorber's addition showed significant improvement in lightfastness results and had very good wash and crock fastness properties. The printed samples met almost all of the textile industry norms. This, definitely, would be a simple and cost effective method for lightfastness improvement of reactive ink jet printed fabrics.