

Pigment Inks for Textile Decoration

Introduction

Pigment printing accounts for 50% of the fabrics decorated globally today, however digital printing of textiles with pigmented inks has really only emerged in the last few years. Pigment can be a universal printing technology, as there is no chemical fixation of the colorant. Sensient has developed a series of high quality pigmented digital inks for a range of industrial printheads

Benefits

Pigment inks produce strong color combined with excellent application fastness over a wide range of application areas including fashion, home and outdoor textiles where high light resistance is key. When applied digitally further benefits of design freedom and detail along with simple and low-cost set-up allow customers to create value in settings ranging from a home garage to an industrial textile mill. Pigment printing is a dry process requiring only thermal fixation. It does not need post washing, resulting in a more sustainable and cost controlled technology.

Sensient's focus is on innovation and offering value to our customers, giving them a competitive advantage in their business by enabling them to deliver outstanding quality prints to their buyers.

Sensient's ElvaJet® P range of digital pigment inks is a pioneer within the industry, offering the ultimate performance in color combined with outstanding production reliability, fastness and compliance to textile standards.

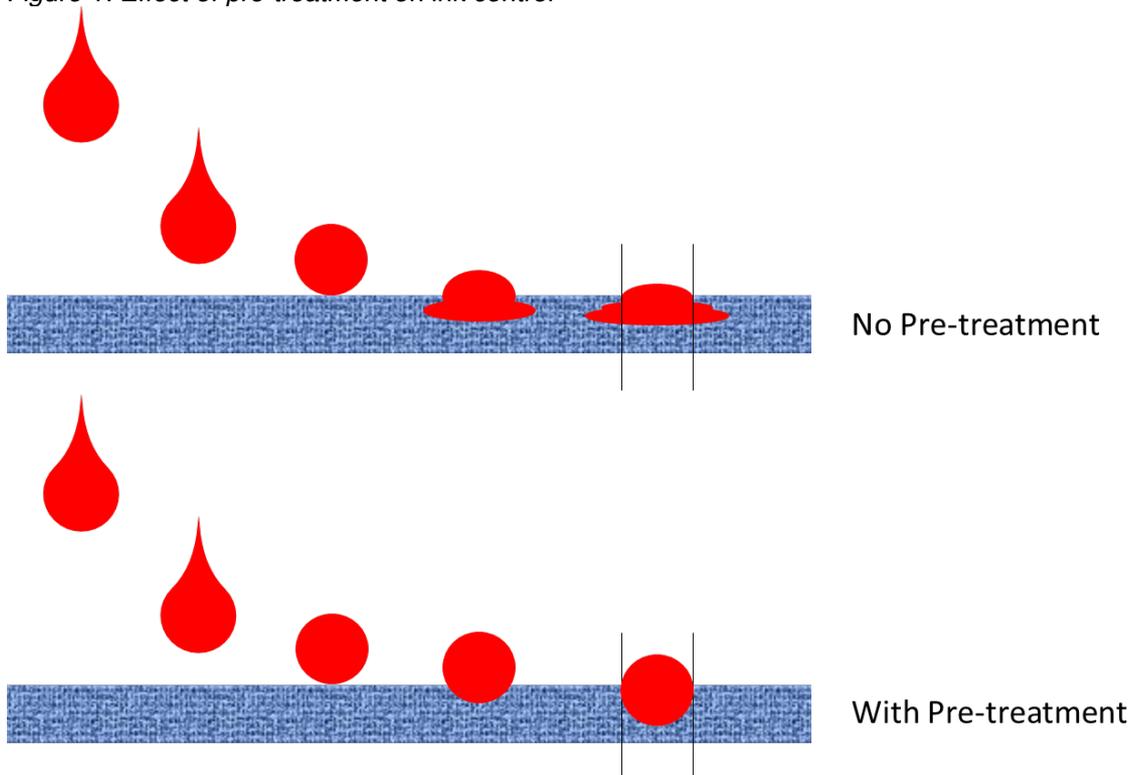
How pigment printing works

The first big challenge of inkjet printing using pigments is to stabilize the heavy, solid pigment particles in a low viscosity liquid and getting enough pigment within this fluid to give a vibrant color when printed. Essentially we are trying to combat the gravitational pull on the particles and as such the chemistry of stabilization is key to the ink performance. This is no issue in screen inks where the high viscosity limits any pigment settling and the materials restrictions are much less. The second challenge is incorporating a sticky resin to fix the pigment to the fibers whilst having it jet uniformly and reliably through a nozzle half the width of a human hair. Sensient's outstanding chemistry toolbox makes this possible, delivering stability, fastness and strong color performance.

Pigments are attached to the fibers by mechanical bonding typically by using a resin. It can best be thought of as a polymer resin encapsulating the pigment at the surface of the textile and as such one minor limitation of pigment printing is the effect on the handle of the final fabric.

Typically, pigmented ink will still require a light pre-treatment of the fabric. For Sensient this pre-treatment is not to aid the fixation by loading binder onto the fabric, but to manage the drop control and image quality once the ink lands on the textile surface. Control of the drop means control of the image quality and the impact can be seen in Figure 1 below. Pre-treatments rarely contain chemicals that require a post washing process.

Figure 1: Effect of pre-treatment on ink control



Recommended Fixation Conditions:

Heat = 165°C (330°F)

Time = 150s

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