

Reactive Inks for Textile Decoration

Introduction

Reactive dyes are widely used throughout the textile printing industry for the decoration of cellulosic materials (cotton, viscose, linen), silk and wool. With Sensient's optimized chemistry and process, reactive dyes offer outstanding color and fastness properties allowing for extensive adoption in fashion and home textiles applications where high quality is essential. Today Sensient exclusively uses monochlorotriazine (MCT) dyes, rather than commonly used vinyl sulphonic (VS) alternatives, in order to deliver the highest in quality, purity and stability of ink, ensuring color consistency batch after batch of ink and of printed textile without taking risks with your printer.

Benefits

Reactive dye printing produces intense color combined with excellent application fastness for fashion, bedding and other home textiles. When applied digitally further benefits of design freedom and detail, reduced water and reduced energy consumption are realized.

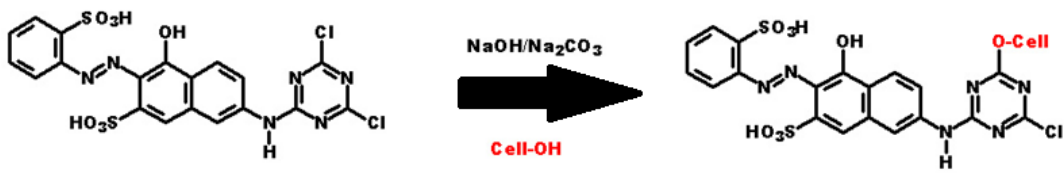
Sensient's focus is on innovation and offering value to our customers, giving them a competitive advantage in their business by enabling them to deliver outstanding quality prints to their buyers.

Sensient's Xennia[®] Amethyst range of digital reactive inks offers the ultimate performance in color combined with outstanding production reliability, fastness and compliance to textile standards.

How reactive printing works

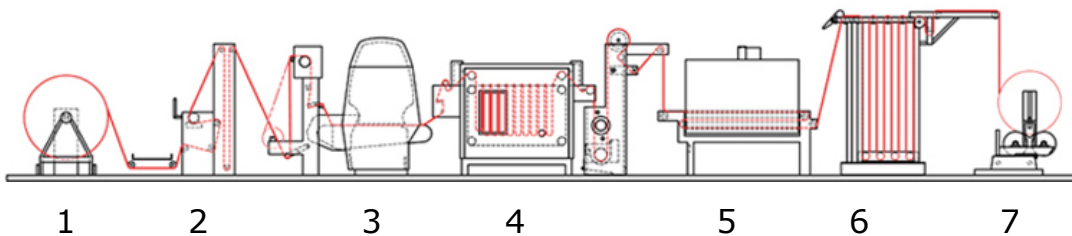
Reactive dyes work specifically on certain substrates due to the chemical fixation of the dye to the fiber producing a chemical bond rendering the dye and fiber as one. For the reaction to occur, the fixation must be completed under controlled pH conditions in atmospheric steam. An example of the fixation is shown in Figure 1 where Cell-OH represents cotton and NaOH/Na₂CO₃ is the pH control salt:

Figure 1 Fixation mechanism of reactive dye to cotton



Once the fabric has been “prepared for print” (fabric undergoes a series of preparations such as singeing, de-sizing, scouring, bleaching, mercerization) it can be digitally printed on using the process outlined in Figure 2:

Figure 2: Reactive printing process



1. Unwinding of the fabric roll
2. Pre-treatment
 - Application of chemicals by padding, stenter or Foulard to control pH, drop spread, fiber swelling
3. Printing
4. Steaming
 - Carried out at atmosphere at 102-104°C for 8-10 minutes
5. Washing
 - Using rinsing with water plus surfactants to remove any chemicals and unfixed dye
6. Drying
7. Wind-up for transfer to cut and sew

For further details on the reactive printing process, pre-treatment recommendations and dye choices and implications, please contact the Sensient Marketing Team who will be happy to assist you.

This information is provided as a convenience and for informational purposes only. No guarantee or warranty as to this information, or any product to which it relates, is given or implied. Sensient disclaims all warranties express or implied, including merchantability or fitness for a particular purpose as to (i) such information, (ii) any product or (iii) intellectual property infringement. In no event is Sensient responsible for, and Sensient does not accept and hereby disclaims liability for, any damages whatsoever in connection with the use of or reliance on this information or any product to which it relates.

© 2017 Sensient Technologies Corporation. All rights reserved. SENSIENT, SENSIENT TECHNOLOGIES, WE BRING LIFE TO PRODUCTS, ELVAJET SENSIJET, XENNIA, the SENSIENT, ELVAJET and XENNIA logos are registered trademarks of Sensient Technologies Corporation. Unless otherwise indicated, all other trademarks, service marks and logos and images that appear on this document are owned by Sensient Technologies Corporation or its subsidiaries or affiliates.