

New Technology Helping Manufacturers Go Green

by Robert McAllister, Technology Editor

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Apparel companies have been warming up to organic cotton and other green fabrics. With the help of new technologies, they're also starting to adopt more green manufacturing.

Textile plants are among the largest producers of air pollutants as well as wastewater. They also contribute to pollutants in waterways and are large users of energy. The electricity needed to dye 2,200 pounds of fabric, for example, uses the same amount of energy as lighting 1,000 lights for two months, according to one supplier.

Technology providers, along with apparel/textile producers, are trying to put a dent in those statistics. Much of the waste and energy usage with garment manufacturing comes during the finishing and printing processes. The machines required employ inks and dyes that contain PVC and other toxins. Recently, suppliers have come up with ways to eliminate or reduce the use of water as well as reduce the release of PVC, greenhouse gases and other volatile organic compounds (VOCs) into the environment.

Rancho Cucamonga, Calif.–based **Colorep Inc.** is among those leading the way. The company has developed a new process of dyeing fabrics and other materials by using air instead of water. It's a sustainable alternative to traditional cationic- or vat-dyeing processes, explained Paul Raybin, manager of business development and sustainability strategies for Colorep.

The company has recently begun licensing the technology to printers and dyers. It recently received \$24 million in private financing to further its initiative. It also acquired Harrisburg, Va.–based rival **TransPrint USA** to enhance distribution and its resource base.

Colorep's **AirDye** system does not require the construction of new plants or the purchase of new machinery. Instead, the system is implemented through a retrofit process using a "closed loop" system that does not allow any effluents to escape into the environment.

The system uses up to 70 percent less energy than traditional dyeing processes, explained Raybin.

The company has several patents on the system. The AirDye process applies non-plastisol (PVC)–based inks within the fiber of garments rather than as a layer on top of the fabrics. That creates a permanent application and retains color fastness.

The company is targeting apparel/textiles as well as home furnishings and promotional applications. It has a separate division called **Eco-Banner** for retail and advertising signage made using recycled materials and AirDye technology.

Within the apparel and textile industries, the AirDye system works on any polymer-based fabric, making it appropriate for activewear and other applications. The AirDye dyes have several advantages over traditional ones, according to Raybin.

"You don't get the cracking and peeling problems you do with plastisol [inks]," he said. "Also, if the fabric is designed with moisture-wicking characteristics, it can't achieve that through the plastisol, but

it can through AirDye.”

Costs to licensees are structured on a case-by-case basis and vary based on the amount of retrofitting required.

The response to the system has been positive, especially in Europe, Raybin said.

Other suppliers, such as Cerritos, Calif.–based printing-systems supplier **Insta Graphic Systems**, are also jumping on the bandwagon. The company has recently released a line of PVC-free heat-transfer machines for sublimation and four-color processing in addition to PVC-, solvent- and thalylate-free litho transfer. The litho machine produces high-resolution, photographic-quality images. Insta’s other decorative and “tagless” heat-transfer products are solvent-free and non-toxic.

Framingham, Mass.–based **Avery Dennison** has also developed a line of eco-based heat-transfer units used for tagless labels and other applications. The company’s halo-free and **Eco Stretch** transfers use water-based inks, adhesives and recyclable carriers while meeting Oeko-Tex 100 Class 1 certification requirements. The company has also developed a line of green labels made from recycled materials, organic cotton and bamboo.

“The retail and brand-fashion industry is actively seeking these products to complement sustainable garments and to convey the right messages to their customers, who are increasingly discerning about the products they buy,” said Josh Dunn, manager of sustainable products for Avery.

Jan Springer of Pico Rivera, Calif.–based **JanTex Inks** is in the process of getting the company’s water-based inks GOTS (global organic textile standard) certified. The process should be completed by the end of the summer, helping the company market its eco-friendly products.

“The thing with the [eco movement] is that it’s going to be expensive,” Springer said.

Scott Edwards of Vernon, Calif.–based **Chris Stone Inc.** agreed, adding that eco products are getting lots of press but have a way to go before reaching the mainstream.

The company has a line of fabrics, which have been dyed with low-impact dyes.

“There’s some interest in it,” he said. “It appears to be more of a niche right now. We’re seeing interest in it from our Canadian customers. It will grow.”

Springer said the big companies such as the Nikes and Wal-Marts of the world can set the tone for smaller companies by adopting more green products and business practices.

“They are the ones that will call the shots, and it will trickle down from there, but eventually it’s going to come down to consumers,” he said.