

September 05, 2002

TEXTILES: Saving the Apparel Industry

By Katrina C. Arabe

Soft and stain-repellant pants are only the beginning. Nanotechnology also promises to change the way U.S. textile firms do business. Can it revive a struggling industry?

Nanotechnology has made many lofty promises—like curing disease—but its first heroic act could be saving the country's ailing textile industry. Burlington Industries, the now-bankrupt textile giant, is the industry's first nanotech believer—investing millions in its research arm, Nano-Tex, which has developed nanocloth, a soft and stain-repellant fabric. Brands such as Eddie Bauer, Lee Jeans and Dockers have already licensed Nano-Tex technology and are now marketing nano-enhanced pants. Most significantly, Burlington and Nano-Tex's partnership could transform the way a textile firm conducts business—emulating software companies and licensing its technology to other mill owners instead of running costly mills. This approach is "the only way the U.S. is going to compete in textiles," says James K. Weeks, business school dean at the University of North Carolina at Greensboro.

Indeed, things have been grim for the country's textile industry, which has been pummeled by cheap Asian imports, the economic downturn and changes in government trade policies. Burlington Industries, based in Greensboro, NC, has been especially hard-hit. Once the world's largest textile company, Burlington suffered a \$31 million loss in 1999 and filed for Chapter 11 bankruptcy protection last November, saddled with a nearly \$1 billion debt. Since its filing, the company has lost over \$81 million. In fact, since 2000 it has laid off 61% of its employees (11,600 workers) and closed down many of its mills. Chief executive and chairman George Henderson believes nanotechnology may enable the company's resurgence. "Have we hit a home run?" he says. "I don't know about that just yet, but I know we have a few extra base hits."

Even Henderson was skeptical at first when he saw the water-repelling capabilities of nano-enhanced cloth. It was October 1998, and he had agreed to watch a demonstration by chemist and Nano-Tex founder David Soane. He watched as Soane

took a water bottle and poured its contents onto a swatch of denim. The water beaded up and slid off the cloth, leaving the denim without even a hint of moisture. Henderson was not impressed—having seen many fabrics that repel water, all of which were uncomfortable to wear. He changed his tune, however, when he touched the fabric and discovered it was soft—like a worn-out pair of jeans. "At that point, I was intrigued," says Henderson. "I'd never seen that before." Burlington has since invested \$10 million in Soane's two-man startup and now owns a controlling interest in the privately held research company. Henderson became Nano-Tex's chief executive officer as well.

What makes nanofabric so extraordinary? Deep inside are billions of tiny "nanowhiskers" that render the cloth incredibly dense and nearly invulnerable to liquid penetration. Each nanowhisker—its chemical makeup is being kept a secret by Soane—is only 10 nanometers long. The presence of billions of these structures in a fabric does not take away from its softness and breathability. "This is so revolutionary that we see everything moving this way," says Kathy Collins, the head of marketing for Lee Jeans, which came out with nano-enhanced khakis for men this spring and began airing commercials this month. Aside from the makers of Lee Jeans, Nano-Tex has also made licensing deals with other pants manufacturers including Eddie Bauer, Savane, Dockers and Haggard. The firm has licensed its technology to seven mills, four of which are in the United States. "We're looking for ways to change our business model," says Henderson. "We want to offer something to our global partners and the mills in Asia."

Nano-Tex currently offers three treatments—Nano-Care, Nano-Touch and Nano-Dry. Nano-Care protects fabrics permanently from liquids and makes them resistant to stains from semi-solids such as ketchup and jelly. Nano-Touch makes polyester softer, giving it the feel and look of cotton, and while making the fabric more comfortable, this technology also maintains its durability and color retention. Nano-Dry is the innovation used in slacks now sold by Savane, Dockers and Haggard. It draws sweat drops away from the skin and holds them in the fabric. Nano-enhancement comes at a price, adding about \$5 to the garment's tag, estimates Henderson. He is planning to build nano recognition by requiring clients to place hangtags on clothes that let customers know they are purchasing apparel with Nano-Tex technology—comparable to the marketing of computers with "Intel Inside" stickers.

Competition is already brewing. DuPont is also marketing a new nanotechnology-

based process called Teflon fabric protection. It has already reached a licensing agreement with Dockers. Meanwhile, overseas, both China and Taiwan's governments are funding institutes that are attempting to improve fabric through nanotechnology. Henderson, however, is unfazed. The Burlington head says Nano-Tex is already making a profit and could generate \$2 billion in sales in the U.S. alone.

Sources: Burlington Industries Looks to Nanotech Textiles to Help its Revival

Paul Nowell

Associated Press, July 11, 2002

http://www.smalltimes.com/document_display.cfm?document_id=4132

The Next Wave

Michael Fitzgerald

Business 2.0, July 2002

<http://www.business2.com/articles/mag/0,1640,41550,00.html>

Industrial Market Trends, a comprehensive, daily industrial blog with a bi-weekly newsletter, publishes the latest industrial developments, best practices, market trends and opinions of our editors and readers. We welcome all our readers to post their opinions on any of our articles.

Copyright Thomas Publishing Company LLC

For more information: <http://news.thomasnet.com/IMT>