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The Next Small Thing

Taking fabric innovation down to the molecular level, Nano-Tex builds market share ... and repels stains

EMERYVILLE, Calif. — Donn Tice routinely trashes his clothes.

It's not that he's lacking in self-esteem, only that, working from a nondescript, two-story loft building, here, just north of Oakland, he's in the habit of subjecting his outfits—dress shirts, ties, blazers and slacks, just for a start—to daily attacks from wine and other potentially outfit-decimating materials.

He does this in the interest of science as well as commerce. Tice, chief executive of Nano-Tex, performs these deeds with confidence that the invading hordes will be repelled and his outfits will remain pristine.

So far, he's yet to be disappointed. He is banking that a successful stain repellent—one that is easy for mills to apply, impossible for consumers to detect and environmentally friendly to produce—will be a boon to the entire apparel industry. And that stain repellent, he says, is his company's Nano-Care—one of the four fabric treatments it currently licenses to mills and manufacturers around the globe.

Based on successful alliances with both retailers and manufacturers, Tice believes consumers (and perhaps loved ones who do their laundry) will eagerly replace portions of their wardrobes, elevating the apparel supply chain and the appearance of consumers in the process. Provided that consumers, who instinctively believe light-colored clothes attract, rather than resist, red wine (or mus-

Majority ownership of Nano-Tex shifted in November when the financier Wilbur Ross purchased Burlington out of bankruptcy and, last week, folded it into International Textile Group. Back in 1998, Soane approached George Henderson, then CEO of Burlington, for research and development seed money; and that investment worked out so well for both parties that, the following year, Burlington purchased a 51 percent stake in Nano-Tex.

Nano-Tex was part of what appealed to Ross about Burlington. "It intrigued me from the beginning," he says. "It fascinated me that it works as well as it does with no degradation of the fabric. I think we will see other applications of nanotechnology in fabrics."

Nano-Tex treatments have also won raves from two major retailers—Gap and Eddie Bauer—that have incorporated Nano-Care in their private-label men's wear. The company also has licensing deals with Levi Strauss, Nike, Lands' End, Perry Ellis, L.L. Bean and, more recently, the new line of casualwear being marketed by Tiger Woods. There's even a line of stain-repellent Brooks Brothers neckties.

"The Eddie Bauer shirt with Nano-Care that we offered during the holidays exceeded our expectations by 30 percent," reports Scott Branscum, the retailer's divisional vice-president for men's merchandise. "I see the value of this at retail

"The Eddie Bauer shirt with Nano-Care that we offered during the holidays exceeded our expectations by 30 percent. I see the value of this at retail growing." —Scott Branscum, Eddie Bauer

tard, or chocolate or olive oil), can be persuaded.

In his 15 months at the helm of Nano-Tex, Tice, formerly CEO of Winterland, has gamely conducted the wine test time and again—always, he says, with the same satisfying results.

"There's a good reason for that," says polymer chemist David Soane, Ph.D., upon hearing an account of the test. "I had a brainstorm and figured out how to change the properties of the fabrics. It's a modification of the fabric on a level so small that it can't even be called 'micro.' It's called 'nano.'" (A nanometer is one-billionth of a meter.)

Soane explains that his product effectively changed the fundamental properties of a fabric by manipulating its molecular structure, the principle behind the burgeoning field of nanotechnology. He invented Nano-Care in the late '90s, seizing upon textiles as an area ripe for innovation and less subject to government scrutiny than other industries.

He also found a field where nano treatments were appreciably different from the status quo. Whereas other protective treatments (most notably the Scotchgard introduced by 3M nearly 40 years ago) create an invisible layer on top of a fabric, Nano-Tex treatments are literally *part* of the fabric.

In addition to Nano-Care for cottons, which is the most widely known product, the company currently markets Nano-Pel as a stain-repellent for wools, synthetics and silks, as well as Nano-Dry, a wicking material for synthetic fabrics, and Nano-Touch, an enhancement process designed to make synthetics feel as soft as cotton.

In the case of the stain repellents, a clear, odorless chemical is applied to fabrics or garments in a water-based solution—usually at a textile mill. After being heated, the compound takes the form of tiny polymers that attach themselves to each fiber, forming billions of nano-whiskers. As a result, other molecules—typically spilled food and drink—are unable to latch on to the fibers in the garment and simply slide off, like water off a tin roof.

Now, five years after Soane's "brainstorm" and two years after it debuted on a pair of Eddie Bauer pants, Nano-Tex appears to be gathering momentum.

growing. I worked in the stores during the holidays and I actually heard customers say they were coming to us because we had the Nano-Care shirts."

Similarly, a spokesperson for Gap said its "Stress Free" oxford shirt was a major holiday hit: "Based on the response, we are now rolling out another shirt for fall 2004."

Marketing challenges remain. Tice needs to build the number of companies licensing the product from its current total of 40, and consumers need to be convinced that the properties merit the average premium of about \$10 paid for them.

Tice, who once helped Procter & Gamble introduce a light version of Dreyers Ice Cream, feels he's got the bases covered.

"We're at the beginning of a wave that can only get bigger," he says. "We are changing the apparel business in a fundamental way and giving consumers a reason to buy new clothes."

Although the company has licenses around the globe, Tice positions nanotechnology as a shot-in-the-arm for the U.S. textile industry: "U.S. mills had a one- to two-year jump on the technology—they were on the front end, which is a big-time advantage."

Still, Nano-Tex operates regional offices in Milan, Istanbul, New Delhi, Hong Kong and Osaka, in addition to its base in Emeryville, and business development and marketing offices in Greensboro, N.C.

High on this year's agenda is the search for new and improved treatments. As Ross stated last week, "The remaining textile industry is spending precious little on real R&D."

"We're trying a lot of things and we have a lot of failures. But we are committed to building on the platform Dr. Soane developed," says Dave Offord, Nano-Tex's chief scientific officer. In addition to testing for repellency and durability, Nano-Tex has to consider whether treated fabrics will smell bad, rip easily or create a rash.

"If all we had to do was keep the clothes stain-free, it would be easy," says Offord, "but there's more to it than that." ■