A Matter of Fiber Veracity

By Glenna B. Musante

Rayon image on monitor from *AATCC Fiber ID Supplement.*

In January, the US Federal Trade Commission concluded three years of aggressive, pre-litigation research into fake bamboo product claims, levying a hefty $1.26 million in fines against four US retailers for selling textile products billed as bamboo that were actually rayon.

The announcement of the fines marked the conclusion of a federal investigation triggered by a college textiles professor, and served as a clear warning to retailers that false claims about textile products sold in the US are cause for prosecution.

Beyond the lawsuits, the fines represent what some say is the bare tip of a global trend that bleeds far outside US borders. From dishonest "eco-friendly" labeling of textiles produced using environmentally harsh chemical processes, to misleading product names and bogus fiber blends, the global textile industry is grappling with a multitude of problems tied to fiber misrepresentation.

While some may hope this problem will fade away, regulatory entities like the FTC are cranking up efforts to clamp down on misleading fiber practices, often with the help of textile industry insiders concerned about the public's right to know the truth about the sustainability claims tied to the textile products they buy.

Bamboo, by Any Other Name…..

Ironically, the products highlighted in the FTC case, reportedly sold under "green" marketing claims, were made from rayon—a fabric derived from a process so harmful to the environment that its manufacturing has been all but outlawed in the United States.

In a statement released by the FTC, the four retailers cited in the suit violated the Commission's Textile Products Identification Act, which lists clear and specific standards for labeling textile products, and under those rules even rayon made from bamboo must be called rayon. Another irony? Much of the FTC's evidence was gathered using basic testing procedures taught in introductory textiles courses.

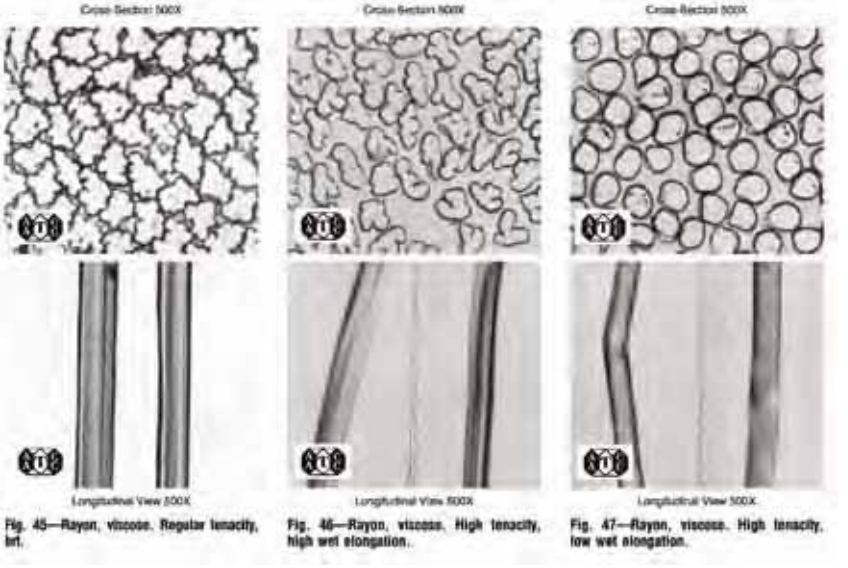
In addition to bringing an end to three years of legal wrangling, the settlement also concludes an investigation that began in 2009 after Ian Hardin, a professor in the textile program at the University of Georgia (UGA), began noticing a flurry of bamboo-related products for sale in stores and catalogs.

Hardin, who recently retired to Emeritus status at UGA, says several claims associated with the items seemed shaky. "They were advertising this wonderful new bamboo fiber that was soft and took up dye well, and also had some antimicrobial qualities," he says. "Any textile chemist would have looked at this and said something is wrong."

For starters, he explains, bamboo is a bast fiber, and like other bast fibers, such as linen or hemp, bamboo-based textiles are rough and do not dye well unless highly processed. In contrast, qualities such as softness and dyeability are common characteristics of rayon.

Following a scientist's instincts, Hardin bought several samples over the internet and tested fiber cross sections in his lab. Within minutes the prognosis was clear—the fibers of these so-called eco-friendly products were rayon. And rayon, as any textile chemist with a diploma would know, is derived from one of the industry's most caustic, environmentally harmful manufacturing processes.

Manufacturing rayon in the United States isn't illegal, per se, says Korin Felix, one of two staff attor-



Rayon photomicrographs from *AATCC Technical Manual 2013, page 74.*

OUR PRIMAGREEN® IS YOUR PROFIT.

There's now an enzyme for every step of your textile process: desizing, ecoscouring, biobleaching and biofinishing that can also help reduce the environmental impact of your operations.

Our advanced PrimaGreen® enzymes can also help you increase your profit through:

- Reduced consumption of water
- Reduced energy usage
- Less use of conventional processing chemicals
- Increased product quality

Contact us at textiles@dupont.com. Visit us online at primagreen.dupont.com for product solutions and more.

PrimaGreen®

POWERED BY DUPONT GENENCOR SCIENCE

Illegal Hair

Skip Palenik, a world-renowned microparticle analyst perhaps best known for helping solve a long list of serial murders—and the founder of Microtrace, a respected microparticle analysis lab—also sees the occasional textile fiber misrepresentation case. One he worked on led to a tightening of the US rules related to importing products containing animal hair.

A few years ago, The Rainforest Café asked Palenik to analyze hair that was being used on imported souvenir magnets sold in the restaurant's gift shop. It was reportedly rabbit, but after careful analysis by Palenik, turned out to be from cats and dogs kept in what he described as less than humane conditions. Later, he says, the US Humane Society took action, lobbied Congress, and a law was passed banning the import of textiles made from cat or dog fur.

neys for the FTC who worked on the bamboo case. "But the production process is so chemistry intensive, it can be difficult to manufacture in the USA without violating EPA [United States Environmental Protection Agency] regulations."

As described by Stan Hovis, a fiber analyst who works in the textile technical center at Gaston College, rayon production involves taking wood pulp and dissolving it in sulfuric acid. Other chemistries and steps are involved as well, and by the time the pulp has become rayon, he adds, all microscopic characteristics of the original wood are gone.

Hardin concurs. "Rayon is probably the least environmentally friendly fiber you can buy." By the time a manufacturer has finished converting pulp into rayon, "you can't tell which wood it came from," and any natural antimicrobial properties would have been long stripped away.

Follow the Money

According to Hovis, the marketing of rayon as bamboo is just one misleading fiber claim of many currently being made by a few manufacturers and marketers hoping to make a profit off sustainability.

"Nobody does anything unless there's money behind it," says Hovis. He adds that sellers all along the textile supply chain can potentially charge more for environmentally-friendly products, and this includes dyes, yarn, fabric, and final end products. With that in mind, his advice to retailers and consumers alike when buying any textile product or ingredient bearing an eco-friendly claim is "buyer beware."

He adds that fiber misrepresentation has also been reported recently in connection with products that have flame resistant (FR) qualities. Explaining that some FR materials are made from bundles of high performance fibers, Hovis points out that some high performance fibers are more expensive than others, and buyers of FR products need to make sure that the final product they've bought is made from the same fiber mix as the products tested before purchase.

For example, an FR jacket that tests well with a 60/40 blend of fibers—with the more expensive fiber being predominant—may not test as well as one with a 40/60 mix. He recommends that wholesalers and retailers continue testing products after purchase to make certain product claims are accurate.

Other examples Hovis has seen, and tested, include products described as 100% cotton that are actually made from a cotton/polyester blend.

"It depends on the current going price of cotton and the current going price for polyester," he says. For example, if cotton is selling at a higher price than polyester, some manufacturers may weave polyester fibers into the fabric, hoping to cut costs. But, Hovis adds, doing so could easily lead to a law suit.

Tracking That Seed

The recent growth of what appear to be false claims tied to organic cotton represents yet another example of fiber misrepresentation following the laws of supply and demand.

Consumers concerned about the environment are willing to pay more for products made from organic cotton, says Richard Shaw, a fiber development manager for Bayer CropScience. This, in turn, has led to an increase in conventionally-grown cotton being mislabeled as organic.

*Environmental claim based exclusively on the fact that textiles finished with Capstone® repellent and release products for Teflon® fabric protector utilize short-chain molecules that cannot break down to PFOA in the environment. Capstone® repellent and release products meet the goals of the U.S. EPA 2010/15 PFOA Stewardship Program.


His proof? Currently, he says, more organic cotton is being sold "than has ever been grown around the world."

This presents a particularly tricky problem for the textile industry to monitor, the experts say, because there are no tests available at this point that can accurately verify whether or not a final product is made from organic or conventionally grown cotton.

Bayer CropScience ran into a significant fiber counterfeiting issue shortly after the company developed FiberMax, a genetically engineered cotton seed grown throughout the USA, but primarily in Texas, with reportedly better yields and longer fibers (while being grown with less water) than some other breeds of Texas cotton.

"Our cotton was better adapted to Texas," Shaw says. "It quickly caught the eye of the industry," and before long, "the numbers indicated three times more FiberMax being sold than produced."

This created a potentially hazardous problem for the brand, so FiberMax adopted a third party certification program that has been in place since about 2004. The program tracks each bale of FiberMax back to the farm where the cotton was grown.

Taking another step in the direction of supply chain transparency, Bayer CropScience will soon launch a new line of FiberMax-based cotton clothes through a partnership with denim industry kingpin, Andrew Olah, bearing hang tags with links to a database that identifies the farm where that cotton was grown.

Market research conducted by Bayer CropScience indicates buyers place a high value on transparency and fiber traceability. Says Shaw, "Consumers would like to have some notion of where their goods are from, including the labor practices and political practices."

Hot Potato!

With regard to fiber identification in the marketplace, the important fact to keep in mind, says Felix, is that retailers are ultimately liable for any false product claims, at least for products sold in the USA. "The law requires that you, as a seller, can substantiate all claims you are making whether express or implied," she says. Calling rayon bamboo, even if that rayon was made from bamboo pulp, implies that the product is something that it's not.

It is also not enough to say that you didn't know, says Felix, adding, "We sometimes bring lawsuits if

Find Your Factory

Consumers, designers, brand managers, and retail buyers interested in finding out where a garment has been manufactured won't have to wait for FiberMax and Andrew Olah to usher out their new joint line of cotton clothes with hangtags that show where the fiber was grown.

According to Richard Shaw of FiberMax, anyone can do that now, at least in the USA. Every time an item of clothing is sold in the United States, a tag is sewn into an inside seam that has an identification number for the factory where it was made.

Shaw learned about this one day while walking through a store with denim industry superstar, Olah. Olah took out his smart phone and scanned a number he found in an item's seam.

The number took him to a database that identified the factory where the garment was made.

Intertek, an international firm that provides testing, inspection, certification, auditing, and other services to the textile industry, has developed a new subscription-based database called "Find My Factory" designed to connect consumers to "real factories in real time." The Find My Factory Apps for iPhone and Android digital mobile devices take users to a database of more than 30,000 factories.

Each listing reportedly includes a physical address, contact names, product categories manufactured, the number of employees, and more.

a seller can't substantiate a claim." The overriding principle is that the business selling a product is legally on the hook for making sure that all claims are correct. "We appreciate that most businesses are trying to do this correctly," she says, "but what you have to remember and keep in mind is that you are responsible."

This applies to sticking with textile product names approved by the FTC, as well as being sure that labels and advertising claims are all accurate.

The good news? Verifying fiber identity is fairly easy.

According to Hardin, virtually any textile college graduate who has taken an introductory course in textile testing should be able to conduct the basic procedures involved with confirming a fiber's true nature. Much of the work can be done using a microscope, and the fiber identification images available in the *AATCC Technical Manual*. The manual also provides two test methods—TM20-2011 and TM20A-2012—that identify qualitative and quantitative methods for acutely determining fiber composition. Meanwhile, testing labs are available to help with the tougher fiber ID challenges.

Fiber misrepresentation may continue to be a perennial issue the textile and retail industries need to monitor, and having access to a trained fiber analyst or testing lab can help ward off lawsuits. After all, says Shaw, "Fiber counterfeiting does go on. I'd say there's a lot of concern about it."