



Cycling apparel uses TrapTek activated carbon technology.

One of the biggest success stories in the fast-growing performance apparel sector has been quietly taking place at a high-tech knitting facility in eastern Tennessee. While most consumers may not know the United Knitting story, this relatively young company has cultivated a strong reputation in the performance wear industry.

United Knitting was formed in 1982 when a group of eight employees from Amtex, then a Ti-Caro company, pooled their resources and created the new venture. Dyersburg purchased the company in 1994 and in 2001, when Dyersburg was in bankruptcy prior to its folding, Georgia-based Mallen Industries partnered with United Knitting management to buy the company.

Jerry Miller, United Knitting's president and COO, says the company was founded with performance in mind and that has enabled the company to thrive during difficult times for textiles in the U.S. "We are always looking for new polymers, yarns, finishes or manufacturing processes to add value for our clients," Miller told *Knitting International*.

United operates one plant in Cleveland, Tennessee, where it houses knitting and dyeing and finishing operations, and also works with a tight bunch of contract U.S.-based knitters.

"I like to control the final product," Miller says. "Dyeing and finishing is so critical, especially in stretch fabrics. We do have an amount of fabric knit on the outside by some real good partners. They are almost like an extension of our own plant."

Coconut shells

One of United's latest performance fabric developments is the use of TrapTek, a technology developed by a Colorado-based R&D firm that uses activated carbon derived from discarded coconut shells to provide an array of high-performance enhancements such as evaporative cooling, odor absorption and UV protection. The company has engineered over 40 products incorporating the TrapTek technology.

End uses for United Knitting TrapTek fabrics include cycling, running, yoga, team sports, hunting, performance underwear for multiple use, technical tees and other active areas.

COCONUTS ACTIVATE ACTIVEWEAR

United Knitting is forging ahead in the performance apparel sector using technologies such as activated carbon derived from coconuts. By John W. McCurry.



Jerry Miller, the president of United Knitting which specializes in technical fabrics.

In terms of machinery, United Knitting is a Monarch house and employs both single and double-knit equipment. Miller says United is primarily a 28 to 36 cut operation. Other equipment includes machinery by Sclavos, Thies TRDs and Gaston County dye machines. Tenter frames are made by Kenyon.

Miller says United's recipe for success also centers around speed, innovation, and flexibility. The company production runs range from 400 yards to no limit.

"We have some very big running products, too, based on being able to do lots of colours. We did 9,000 lab dips last year. I worked for Burlington, Dyersburg and Sara Lee and what we do today is in no way like what we would run in those big conglomerates. Big is not good. It might be good if you are running underwear. But if you are doing technical fabrics, you've got to do what the Asians are not doing. You've got to look for weaknesses and go after it."

Miller says a recent trend is that some apparel companies are seeking a supply base in the U.S. "Some big brands want a supply base that can show innovation and show they are a stable company."

With United Knitting involved in virtually every new fabric technology, Miller was asked to speculate on the next big things in performance fabrics. He says sustainability is a growing issue with companies being concerned about "green" products. Another area with great potential is in flame retardant fabrics, and United Knitting is currently working on products in that area. "There will be continuing interest in freshness and antimicrobials," Miller says. "We have eight different systems, depending on what you want to do."

While Miller expects United Knitting to continue to thrive in coming years, he

laments about the sad state of the U.S. knitting industry in general, with plants continuing to close. "If you can do the right things and have the right people and equipment, low debt and work hard, there's an opportunity. I'm optimistic about our future, but not about the industry."

Miller says his biggest concerns are about the long-term viability of U.S. yarn suppliers and the rising cost of natural gas and raw materials. "United Knitting cannot keep a lot of yarn mills running. We're not big enough. I've got to have innovative yarn made in the U.S. That was my biggest concern five years ago and still is. There's a lot of very good yarn made here."

Activated carbon fabrics

Sometimes the best innovations come from something very simple. Discarded coconut shells seem an unlikely instigator of high-performance qualities in sports apparel, but that's exactly the basis of TrapTek's innovation, which will be hitting the market this year.

Since its founding in 2000, the Longmont, Colo.-based research and development firm has quietly gone about refining its technology, lining up manufacturing partners and preparing its unique product for its initial foray into high-performance apparel. That all changed in November when the company got some eye-opening publicity as *Time* magazine honored its technology as one of the top innovations of 2005. Company officials hope to build on that momentum as they

seek to develop and strengthen partnerships along the fiber, fabric and apparel supply chain.

"Everybody saw the *Time* article and all of a sudden we had all kinds of interest from companies wanting to partner with us," says Brad Poorman, TrapTek president. "Everybody is looking to differentiate their products." The real thing we are offering is that we build all of the desired features into the fabric rather than use a whole bunch of chemical treatments to achieve the same attributes."

TrapTek's founder Greg Haggquist, took the coconut carbon technology, long used in water filters, and developed a way to embed it in textiles. "We were looking for a special type of activated carbon and coconut had all the qualities we needed," Haggquist recalls. All of the activated carbon TrapTek uses comes from coconut shells, a raw material readily available in the U.S. and overseas markets.

"The antimicrobial market has been based mostly on trying to kill off bacteria to eliminate or reduce odours," Haggquist says. "Activated carbon absorbs odours."

TrapTek offers versatility to the textile industry and can be used in knitted as well as woven products. The company already has an impressive list of global partners. It got its entrée into performance apparel through cycling specialist Cannondale, which debuted its L.E. Carbon category.

Cannondale is now using carbon fiber in its entire array of products including shorts, tops, gloves and socks. But believes that cycling apparel has a long sales cycle and it will really hit the ground running for Spring 2007. **KI**

United Knitting is a Monarch plant and is a 28 - 36G operation.

