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## Canada: Hanes Tries on New Hemp-Based Fibers for Size

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A new fiber derived from the part of hemp plants typically discarded offers numerous environmental and performance benefits over cotton and is being tested by Hanesbrands.

The Crailar fibers look, fit, dye, wash and are soft like cotton, but they also shrink less, are stronger and hold dyes longer, said Ken Barker, CEO of Naturally Advanced Technology (NAT). Yarns and fabrics made from the fibers can even be processed on existing cotton machines.

The fibers are derived from the hemp plant's stiff and rough outermost part, which is generally discarded when turning hemp into clothing. Although it is illegal to grow industrial hemp in the United States, it is legal in Canada, where NAT is based.

NAT takes those long, strong filaments from the plant and, using a wash developed with the National Research Council of Canada (NRCC), turns them into fibers that are soft and strong. The wash, a proprietary enzyme mixture, removes the glue-like lignin and pectin from the raw hemp fibers.

Yarns made from the fibers can be used in knit and woven fabrics like clothing and home furnishings, or in nonwoven fabrics like face wipes and industrial cleaning wipes. NAT has been working with various companies to test out how Crailar works in different applications.

Hanesbrands has conducted trials blending Crailar into products and recently made a purchase of 10,000 pounds of the material for further tests.

Although Crailar costs more than conventional cotton, the Hanesbrands tests showed that the material's shrink-resistance and dye-retention properties would reduce manufacturing costs to a point that would even out the higher initial cost of Crailar.

Hanesbrands started working with Crailar in late 2008, first testing to make sure the fibers could be used on modern equipment. When that proved successful, Hanesbrands started additional tests in June 2009. By making a blend of 80 percent cotton and 20 percent Crailar, Hanesbrands made items that had 50 percent less shrinkage and increased strength and moisture wicking.

Although the tests are keeping Crailar at 20 percent of the overall material in products, Barker said that it is possible to bump that up to 50 percent or higher.

Crailar is being tested in other applications like industrial yarns and wipes by Patrick Yarns and Georgia Pacific.

And because the fibers come from hemp plants, they provide even more environmental benefits than organic cotton does over conventional cotton and other fibers. Hemp plants don't need fertilizers or pesticides, nor do they need any irrigation. They can grow 14 feet within four months and one acre of hemp can absorb five times as much carbon dioxide as an acre of forest.

"Hemp right now grows voraciously," Barker said. "From a productivity and efficiency perspective, hemp has a biomass yield unlike anything else." Whereas cotton growers can get about a ton of material per acre, hemp growers can get between three and five tons per acre.

Barker said that the entire process can be certified organic and has already been certified by Ecocert and other groups in Europe and North America. The enzymes used in the wash are all naturally-occurring, he said, and the only byproduct is drinkable water.