Scepticism in the wider market about dyeable polypropylene may not have gone away entirely, but with one fibre manufacturer now producing high volumes of it, and outdoor apparel brands building fabric from the fibre into their latest collections, the evidence is becoming harder to deny.

Dyeable polypropylene offers 'endless possibilities'

It's real, it's passing every test it faces and, with fabric mills, apparel brands and consumers embracing it, it looks as though dyeable polypropylene's time has come at last.

Susan McGreal, US sales manager for apparel at FiberVisions, a manufacturer of polypropylene staple fibre that has recently scaled up production of its CoolVisions dyeable polypropylene fibre, says she's proud to see the day, but points out that turning this idea (an alternative to solution-dyed polypropylene) into a commercial reality has taken years of hard work.

Her colleague, technical director Dr Carl Wust, first worked on the concept eight years ago, and three years ago, a colour expert, Maureen Campbell, lent her expertise to the CoolVisions team to work specifically on making the fibre dyeable. By 2007, Ms McGreal had fabrics for apparel brands to see and feel, and by 2008, there were garments.

Now there is a published list of mill partners making fibre for knitters to weave and blend, and a growing list of sports and outdoor companies using the material in their product ranges. The mills have received, and are receiving, technical

Long-sleeved tops and long pants are popular applications for polypropylene. The ability to extend the colour range should make them even more popular now.

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assistance. FiberVisions has said it will continue to send its team of technicians in until the company's partners are comfortable making yarn out of CoolVisions on their own. If they can run ordinary polypropylene, they can run CoolVisions, the company says. They need no special equipment. They do need guidelines on temperatures, and access to the high-energy disperse dyes the fibre supplier has found to work, after trying a large number.

Pioneering sports brand

Among the garment brands, SportHill was the pioneer, using CoolVisions in its Zone 3 running tops, polypropylene on the outside, with fleece on the inside. Carl Wust explains that he wears one of these tops to referee junior soccer games in Georgia. He explains that it's enough for him to wear the SportHill garment, which is windproof in winds up to 55 kilometres an hour, over a base-layer top. He used to have to wear five layers, sometimes.

"Jim Hill, the founder of SportHill, has been working with polypropylene for years," says Susan McGreal, "and he's using CoolVisions again this year because he thinks that to be able to dye it is amazing."

She says that polypropylene, around for so long in navy and black, has never "made it into colours" in the past because manufacturers couldn't make the coloured yarn consistently enough. Her company has changed that. An important part of this has been to achieve 2a wash-fastness, a reference to the test the American Association of Textile Chemists and Colorists applies to dark colours. Dr Wust washes his referee's shirt twice a week, and has had no trouble with it. His colleague talks about competitors who have "promised the sun, the moon and the stars", but floundered because they were unable to stop the dye from running during wash-cycles. Now that CoolVisions can offer this—with all the necessary test documentation to back its claim up—she says the possibilities are endless.

Some customers on the garment manufacturing side reacted with caution at first. "They said it sounded from what we were saying like the fabric was really soft, and that their clients associated polypropylene with that slightly harsh feel, and liked it that way," Ms McGreal continues. "But when they felt the sample, it was so, so soft, they were amazed. They had in mind the idea of a synthetic, dry hand. Instead, here was this amazing, cottony hand that still had all the attributes of polypropylene."

As a result, there are new applications coming down the line involving some genuine industry leaders. For example, The North Face is preparing to include a cotton-CoolVisions blend flannel shirt in its autumn-winter collection for next year. Sooner than that, there will be dyeable polypropylene options in the 2009 autumn range of base-layer garments from New York-based Terramar.



Popular combination. Fleece on the inside and dyeable polypropylene on the outside is a blend that is working well.

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Fresh start

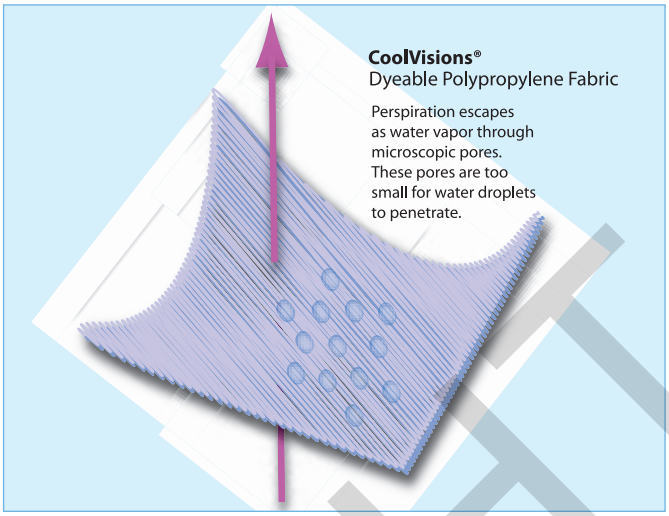
It's not yet operating on the same scale, but BASF is another major company to have made progress recently on dyeable polypropylene. Working with a small group of key yarn manufacturing partners, including Tri Ocean Textile from Taiwan and Chemosvit Fibrochem from Slovakia, it's supplying a BASF polymer, which the mills are using to produce polypropylene spun yarn.

In this case, the yarn is woven into fabric before dyeing takes place, which is possible, BASF says, thanks to a technique it has developed to engineer at fibre level a series of "anchor points" that, unlike traditional polypropylene fibres, can hold dyestuffs.

Manager for new business development in performance chemicals, Klaus Scheuermann, believes that another great attraction of polypropylene is its lightness. "It's the lightest fibre in the world, lighter than water," he insists. "Plus, its green credentials are good: you emit less carbon dioxide during the manufacturing process and, once it's made into a garment, you can wash it at lower temperatures and it dries really quickly."

He describes the product, which BASF has called MOOO>, as exceptionally good for outdoor applications. If you're in the mountains, you can put a polypropylene shirt under some water, with some ordinary soap, wring it out and it will be dry in minutes. Bacteria cannot grow there because there's not enough moisture for them. "I've tested this

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Inherently hydrophobic the polypropylene stays dry because it allows moisture to escape as water vapour through microscopic pores in the fabric, pores that are too small to allow water droplets in from the outside.

FiberVisions

myself on a cycling trip earlier in the summer," he says. "Now all we need is for retailers to pick up on this and include more polypropylene garments in their ranges."

Having material available in a range of eye-catching colours, including scarlet, brilliant orange, deep red and bright yellow—12 dyes in total have won BASF approval (it has worked on this with specialist chemical manufacturer DyStar)—should help put the message across.

Knitter heaven

Back at Terramar, Russ Pitman, vice-president of sales and marketing for the brand, explains that the company has been using polypropylene as a staple in its base-layer assortment for some time, in products such as a 100% polypropylene rib long-sleeved top and long pants for men in navy and black, and in black only for women. The material's ability to offer properties such as warmth and quick drying—wicking moisture away from the body as water vapour through microscopic pores that are too small to let water droplets through from the outside—has made these popular products, in spite of the limitations on colour.

Mr Pitman says retailers and consumers have reacted positively to samples they have had to touch and see. "It has a very soft, cottony hand," he explains, "so much so that when you tell people it's polypropylene, they don't believe you." But he also points to an important breakthrough that CoolVisions offers the mills Terramar works with.

He explains: "The new polypropylene is a lot easier on the knitting machines. Knitters hated polypropylene because it tore the hell out of their needles and they had to use a lot of oil during the process. That's one of the reasons why people have also said the material had a bit of a strong smell."

Increased confidence on the part of knitters will make it easier for companies such as his to source the material and offer the market polypropylene garments. "Consumers like the product, retailers like the product and manufacturers now have something they can produce. We think we are going to see more interest in polypropylene now, switching back from polyester, and we think we have a chance to give the market what it wants."

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