Outlast Technologies has achieved a long-desired breakthrough in making its phase change material (PCM) temperature-controlling technology available in polyester fibre. The implications for extending the technology's use in sports and activewear are clear.



A combination of Outlast's heat management functionality and polyester's ability to absorb and transfer moisture opens up interesting possibilities in the world of sports apparel.

Andy Müller/Odlo.

Comfort can mean competitive advantage

At the end of last year, when Outlast Technologies introduced a new polyester fibre version of its heat management and moisture reduction technology, it said immediately that it had high hopes for the impact its latest innovation could make on the performance wear market. These hopes recently received a major boost when the new Outlast polyester fibre was named as one of the winners of the Innovation Awards at the 2011 Techtextil event in Frankfurt in May.

The polyester fibre has come to market four years after the introduction of the first Outlast viscose fibre and 11years after the introduction of its acrylic fibre with phase change material (PCM) functionality. The newest member of what the company calls its "fibre family" is a bi-component fibre with a PCM core and a polyester sheath. Staple fibres have launched in the market first, but will be followed by filament



Outlast succeeded in developing a PCM polyester fibre. It is a bi-component fibre with a PCM core and a polyester sheeth.

Outlast

fibres once the production process has been "fully refined", which Outlast is confident will be before the end of 2011.

"It's something we have been trying to do for many years," explains Volker Schuster, head of research and development at Outlast Europe. "If you take a staple fibre and cut it to make a shell at the core, the PCM you put into that core is going to leak out quite easily. Finding partners who could make the staple fibre with a core-shell in the right way to stop the leaking was difficult. But that was the challenge, and we've done it. We are able to make a masterbatch with special ingredients to create staple fibres with enough structure to hold the Outlast material. If you don't make a strong structure, you will lose the PCM."

He confirms that creating a method of producing Outlast polyester as filament fibres is the next step and that the target is to achieve this before the end of the year and to launch a filament version onto the market in 2012. "This will be especially good for sports," he adds, "where you nearly always have to use filament fibres. And if we are able to do this, it will be a short step to make a polyamide version, which would give us a complete piano keyboard to play."

Outlast works by absorbing heat from the wearer's body, storing it for longer than clothing usually does, and releasing it back to the body when required, so that a garment that includes the technology (first trialled as a possible means of protecting astronauts from temperature fluctuations) will make you feel cooler when you are hot and warmer when you are cool. To be able to combine the characteristics of a conventional polyester fibre (low moisture absorption, ability to transport moisture, improved wrinkle resistance, light in weight, water- and wind-resistance and durability) with this ability to balance temperature is an innovation that resonated strongly with the judging panel at the 2011 Techtextil Innovation Awards.

"The jury regarded this as an innovative concept," said the chairman of the panel, Dr Jan Laperre, director general of the Belgian textiles research institution, Centexbel, in presenting the award. "Comfort is an area in which companies can gain a real competitive advantage, especially in sports and personal protective equipment applications."

One of the partner companies Outlast has been working with so far is knitting firm A. Sampaio from Portugal. Paulo Palmeiras, who works in the commercial department there, says there has already been a positive reaction in the market to the staple fibre version. "Customers are using it to make baselayer garments for winter sports," he says. "It's good for that type of product because you don't have to worry about pilling. Fabric made from the filament yarns will open up new possibilities in other sports, such as cycling or running, but we already think Outlast polyester is good."

Volker Schuster confirms that, even at the time of the Techtextil award, several sports brands were already testing applications like the winter sports baselayers Mr Palmeiras mentions. "There has been particular interest from Japan," says the Outlast Europe research and development director. "They are very fibre driven there, which is good for us. Itochu is one Japanese brand that is already starting a number of products with our polyester. In Europe, we have a long history of coatings, but we are building up our contacts with people at European sports brands who are interested in fibres too."



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