Green for go – new polymers make their mark

Biophyl has begun to make an impact on the clothing market. German underwear manufacturer Bruno Banani has become one of the first apparel manufacturers to use Biophyl by putting it into a collection called Jump&Run.

Biophyl is the name under which Advansa now markets fibres and yarns that contain Bio-PDO, polymers that come, not from petrochemicals, but from corn sucrose. A distinctive kink in the molecular structure of these polytrimethylene terphthalate (PTT) polymers that DuPont has developed and brought to market under the brand name Sorona, makes it possible for spinners to produce from them fabric with a soft hand, stretch-recovery, good dyeability and easy-care qualities. While PTT has been around for over 50 years, it is the synthesis of PDO via a bioplastic route that could give it the edge.

Both Advansa and DuPont expect great things from this development because they feel these products can put a dent in the market-share of nylon and standard polyester. So much so that DuPont is reported to have claimed that Sorona will be the first billion-dollar biotech product from outside the pharmaceutical market.

The view of Luciano Colosanto, Advansa's market manager for Biophyl, is that attitudes in the market towards products that can help reduce humanity's dependence on hydrocarbons have changed, and for a series of reasons. All the big brands are embracing the idea of eco-textiles; "no one can escape," he says.

The reaction of his company and its partners is, he explains, to put together products that are more ecological on the one hand, but that are also commercial. Another fundamental is that they have to work. "If a product is too expensive, nobody will buy," he continues. "And



Calvin Klein Golf introduced a new jacket in autumn 2007 made with fabric spun from DuPont's Sorona polymer, which Advansa has brought to market under the brand name Biophyl. DuPont says Sorona will be the first billion-dollar biotech product from outside the world of pharmaceuticals.

Calvin Klein Golf



One of the big advantages of Biophyl is that it's partly derived from corn sugar and, therefore, can help sports and outdoor brands improve the green credentials of their products.

DuPont

if I bring to market an eco-product that you can't wash, or dye or iron, it doesn't work and it's no use. That's why, when adidas introduced 'A Better Place', a programme for more environmentally friendly products, it decided that only fabrics that work could be included, no matter how green they are. There are different ways to get somewhere with this, and we think Biophyl can help."

He insists that the manufacture of Biophyl products means carbon-dioxide emissions that are more than 60% lower. This figures comes, in part, from using propanediol that is fermented from corn sugar; this fermentation is a bio-process, which uses less energy than the chemical processes involved in making polyester in the traditional way. At the same time, you can dye Biophyl at a lower temperature than standard polyester, at between 100 and 120 degrees centigrade, compared to approximately 130.

From a spinner's point of view, Biophyl has already started making an impact. Jõao Mendes of Portuguese knitted fabrics specialist A. Sampaio & Filhos says his company has been using the fibre "from the very beginning", halfway through 2008, and has had samples of the fabric it can produce from it for around nine months now.

For him, one of the big pluses with Biophyl is that the hand-feel is better than with normal polyester. "It feels more like polyamide," Mr Mendes says, "but it has the usual advantages of polyester, such as dyeing fastness."

He says the brands and manufacturers to whom Sampaio supplies fabric are growing more aware of sustainability, that these things often start by being a trend, and end up as a necessity. Sampaio likes to be first, he adds, as long as the new fibres suppliers are offering are ones the Portuguese spinner can believe in. He insists: "We were always one of the first. You select what you believe in and bring it to your clients in a creative way."

Mr Mendes says that most of the companies that have looked so far at fabrics spun from Biophyl are mostly in the outdoor and winter sports markets. "Applications so far are mostly next-to-skin," he continues, "but there are also some polar fleece possibilities."

Back at Advansa, Luciano Colosanto says Piave Maitex and Maglificio Corno are among a growing list of other knitters who have joined Sampaio in making fabric from Biophyl. Another prominent Italian fabric manufacturer, Carvico, launched a new beachwear fabric at ispo Winter 2009 at the start of this year.

And, although he prefers not to name them, he says there are also plenty of big brand names waiting to follow Bruno Banani's lead and launch finished products that contain Biophyl. Huge household names from the world of sports and outdoor are on the list, as is a second major name from the world of intimate apparel, which supports claims that these fibres and fabrics can replace nylon in underwear or swimwear. "Biophyl polyesters are polyesters with a nylon touch," Mr Colosanto insists, "and, precisely because they are a type of polyester, they have some elasticity."

It is these qualities, alongside Biophyl's green credentials, that have caught the eye of the big sports brands that have stepped forward so far. Luciano Colosanto says that, in most cases, the projects these sports brands have launched are "still in development phase", but he fully expects to see the Biophyl name appear in their future collections.