

Biodegradability dominates functionality fair

The issue of biodegradability in textiles featured prominently alongside various performance materials and durability solutions, in a packed programme at the recent Performance Days functional fabric trade fair held in Germany. **Tony Whitfield** reports from Munich.



Fibres that can be produced from biopolymers are very attractive to the functional textile market, as they offer a suitable solution to waste disposal problems. This was reflected by the healthy attendance at the fair's workshops and 'hotspot tours' – designed to promote the use of biodegradable materials as an aid to sustainability in the sector.

However, while generally acknowledged as a growing field, the consensus from attendees was that a lot more needs to be understood about the broader topic of biodegradable textiles.

"When you think about soil quality, not everything we are currently producing is necessarily going to create the environment needed to grow crops that sustain the rising population," independent textile consultant Sophie Mather told us during the show.

"As the population rises, I believe synthetics are going to be our only answer. We can engineer synthetics to be far more sustainable than natural fibres – in terms of how much water is needed in production, for example – so I think designing or engineering something for recycling (or upcycling) is actually going to give us a better option.



PERFORMANCE DAYS

FUNCTIONAL FABRIC FAIR

"Communication is vital – too many people still come to me saying they want to play their part but don't know which brand or retailer they need to go to find out any information. I know many brands are proactive because I sit on committees and they tell me they are doing it; but some are obviously not communicating this properly to consumers."

Mather emphasised further distinctions need to be made, as "not all bio-synthetic fabrics are biodegradable," and designers must account for accessories such as trims, zippers, sewing threads and chemistries, which can all prevent a product from meeting the criteria.

"Furthermore, there has to be an alignment between end-of-use waste stream providers and localised authorities, because biodegradable products mean very little without an effective infrastructure for industrial composting," Mather added.

Raising awareness

Philip Schar from chemical systems company Bluesign also noted the suitability of finishes as a further obstacle for biodegradable textiles, as many common-use chemistries have not been designed with this in mind.

Schar said: "I think the driving force has to be the brand, because the brand can find out from its own customers if there is truly a market for biodegradable functional textiles; or indeed the brand can raise awareness by having end-of-life topics at its ethos. From there, it needs to talk to suppliers and source biodegradable materials to match design features for specific apparel.

"However, it doesn't matter whether you use synthetic or natural fibres, there is always the question of what happens with the chemicals used during the dyeing and finishing processes – as a lot of these chemicals are not biodegradable."

Bluesign says "there is no shortcut to detox the supply chain" but claims the latest release of its 'Bluefinder' (a patented platform which has amassed more than 8,500 "Bluesign approved" chemicals) considers the latest technology for risk evaluation – including the requirements of REACH and GHS – and is ready for the next generation of chemical assessment.

"Awareness about biodegradability is rising – we've seen that it is particularly on the radar amongst Scandinavian functional apparel brands – but I think the main reason why we are not currently seeing broader demand is because there are huge limitations in functionality and colouring in 'natural chemistry' products," Schar said.

Approval from the US Environmental Protection Agency (EPA) carries equal significance, says Juan Carlos Gonzales Reyes, European sales director for textile manufacturer at Burlington. "We cover several areas of innovation – not just in relation to the way we produce the fabric but also in relation to the chemicals, as you have to focus on the performance of the fabric for its target market.

"For example, we have a very strong association with 'No Fly Zone' – a patented insecticide technology based on permethrin, which is EPA approved for the United States. For DWR technologies, we offer fluorocarbon-free products or C6-based, depending on the performance levels required.

Workshop wonders

Performance Days is noted for its relaxed atmosphere and various workshops, which this time included presentations on raw material production processes and biodegradable fibres by Lenzing. Meanwhile, Best Pacific, suppliers of elasticated fabrics to the lingerie and activewear markets, presented its new range of athleisure fabrics, which are said to offer improved properties for activewear fabrics and concept garments.

Exhibitors such as Microban, which produces antimicrobial, odour control, and surface modification technologies, say this workshop approach is an endearing aspect at Performance Days, as it offers a multi-purpose platform in an intimate setting.

"We have three elements to our workshop and it's been a very positive experience," Lisa Owen, Microban's senior director of global textile business told us. "Firstly, we talk about why there is an increasing demand for odour control solutions – particularly in the active-wear market.

"Secondly, we focus on common myths in our industry and hope to try and set the record straight; and be good stewards with our 'top five myths in the antimicrobial industry' presentation. This is particularly interesting as it pertains to silver technology and claims about permanent odour control, which is really a false claim to make. We do offer silver as part of our portfolio but we try to do so responsibly; without overstating the merits.

"We also want to get the message out about our core portfolio of odour control technologies, which include antimicrobials but also new innovations like the Microban Scentry product range, which is an extremely durable non-antimicrobial odour capture."

Fellow presenter Sarah King, director of business development for German fibres manufacturer, Smartfiber, said she was delighted to be invited by Performance Days to speak about the importance of biodegradability in the functional material sector.

"This shows that the industry is changing and is looking more for natural and sustainably produced alternatives," she said.

"I've been working in the fashion industry all my career, so from a personal perspective, I'm happy to see this shift from both customers and brands. It's important that everyone understands the impact the fashion industry has on our environment. It's the second largest polluter after the oil industry – figures



suggest every year over 50 million tons of textiles end up on landfill globally, with most of it not able to either degrade or be recycled.

"Through forums like this one, we can help to educate and make designers and brands more and more aware of these issues. Hopefully, we can help them to change the way they think about a product's lifecycle and show them the alternatives that are available to adopt a more sustainable approach for their products."

Smartfiber manufactures fibres within a patented process to permanently incorporate natural additives (like zinc and seaweed) into cellulosic fibres. This is based on the Lyocell manufacturing process, which uses cellulose (wood pulp), normally processed from beech trees. Kings says the patented technology can permanently embed natural additives inside the fibre.

"We then add zinc oxide and seaweed (in powder form) to the liquid stage of dissolved cellulose. The solution is then spun into fibres, cured in water and processed into staple fibers. All process liquids and water are recycled and re-used. We only use pure and chemical free additives, which makes them fully biodegradable."

PFC-free DWRs

Swiss technology company HeiQ was another to take advantage of the workshops, to demonstrate its 'Real Silk' technology – which is a new platform for functional surface modification, along

with 'Dyefast', which is designed to allow faster dyeing of polyester fabrics using conventional dyeing equipment.

Eric Argast, the company's chief sales officer, also presented an informative demonstration based around 'Eco Dry' – the company's durable water repellent (DWR) technology. Argast did note, however, that "a lot of work needs to be done in the quest to find PFC-free DWRs that match the performance levels of the increasingly unpopular C4 and C6-based predecessors."

This theory was backed up by Bruno Terrier, research and technology manager at Huntsman Textile Effects, who said: "I am highly involved in finishing effects for new developments in smart textiles and a major trend is definitely PFC-free water repellents, provided that performance levels are met.

"There are different ways to reduce PFCs – we can try to optimise the recipes to reduce the amount of fluorochemicals and boost these with water repellent products, using extender chemistries.

"Medium term, I think C6 products are definitely going to disappear – they will only be used for technical textiles in certain areas where there is currently no alternative: good examples of this include workwear for chemical repellency, bulletproof vests, nonwovens that are not impacted by NGOs or pressure groups, and other areas where safety comes first.

"Requests for PFC-free fabrics with oil repellency are starting to rise, but this still has a long way to go – we are

definitely moving forward but it is going to take time."

Other major themes running through the show included smart textiles and wearable technologies, and methods for creating transparency within the global apparel and textile industry.

Performance ratings

The April 2017 edition of Performance Days attracted 1,520 visitors from 49 countries – with a total of 177 exhibitors from 24 countries (51.6 per cent of whom were from Asian countries). The figures show a small increase on the equivalent show last year.

"Feedback on the biodegradable focus topic suggests that we hit upon the right theme," said Stefanie Sacherow, the show's senior project manager.

"Environmental aspects are very important and will become an even bigger issue for all of us in the future – we have only limited resources and one planet.

Therefore, it has to be worth thinking about all angles and perspectives. One is to use material as long as possible – by recycling if possible. Another consideration is that production, recycling and waste at the end of use shall not pollute the environment.

Sacherow says biodegradable materials can solve the waste problem, and hopes the focus topic will give impetus for support from within the sportswear market. "We won't be surprised to see other fairs follow suit by giving more attention to this highly important subject." **T.EVO**