Textiles
Intelligence

Press Release

January 2024 For immediate release

Barriers to recycling threaten global market for elastane (spandex) and spur innovation in alternative stretch fibres

Elastane (spandex) fibres face criticism because of the barrier they pose to the recycling of textile waste, and this criticism is spurring manufacturers to explore alternatives to elastane which are more easily recyclable, according to "Stretch fibres: expanding horizons beyond elastane"—a 34-page report from the global business information company Textiles Intelligence. If a breakthrough is made in this field, the global market for elastane could encounter considerable disruption.

Elastane fibres offer unparalleled levels of comfort and stretch in textiles and clothing applications and, as a result, they dominate the global market for stretch fibres. In the years since their development, elastane fibres have established a role as a key component in the manufacture of athleisure apparel, compression garments, hosiery, shapewear, sportswear, underwear and workwear. In other applications, elastane fibres are key in the manufacture of medical textiles, including bandages and diapers.

However, there are concerns that textile and clothing products made from blends containing elastane fibres are difficult to recycle at the ends of their useful lives. Generally, the percentages of elastane fibres in garments are small, but just 1% of elastane fibres in an otherwise all-cotton T-shirt is sufficient for the garment to be rejected at a recycling sorting plant.

As a result, it is critical that elastane fibres are removed from a garment in order to facilitate effective textile waste recycling at the end of the garment's useful life. But removal is complicated by the fact that existing solvents for separating elastane fibres from other fibres are toxic and hazardous in the environment. Such solvents include dimethylformamide (DMF) and dimethylacetamide (DMA).

The difficulties of recycling textiles and clothing containing elastane fibres are compounded by mounting evidence that the fibres contribute to microfibre pollution. Reportedly, fabrics containing elastane fibres tend to shed more microfibres than fabrics containing other fibres. Also, the amounts of microfibres released from such fabrics as a result of domestic laundering has been found to be particularly alarming.

In response to concerns associated with elastane fibres, manufacturers are exploring alternatives to elastane which are more compatible with existing recycling technologies and are less likely to cause microfibre pollution.

Such alternatives include stretch fibres which are made using bio-based materials. For example, Covation Biomaterials is producing a stretch fibre called Sorona which is made using propane-1,3-diol (PDO) derived from glucose obtained from corn while Fulgar is producing a stretch fibre called Evo which is made using a biopolymer derived from the oil of castor beans.

Looking ahead, it is likely that further advancements in the development of alternative stretch fibres will pose a risk to the global market for elastane—and they could cause considerable disruption.

In order to secure the future of the global market for elastane, research and investment will be pivotal. In particular, innovation in technologies for reducing microfibre shedding from fabrics which contain elastane fibres will be key, and the development of environmentally sustainable methods for separating elastane from textiles will prove to be critical.

Ends.

"Stretch fibres: expanding horizons beyond elastane" is available for purchase from the global business information company Textiles Intelligence and costs £255 (UK), Euro470 (Europe, Middle East or Africa) or US$615 (Americas or Asia Pacific). For further information or to purchase this report, visit https://bit.ly/3NowXEH or email us on subscriptions@textilesintelligence.com

The report is also available in Issue No 79 of *Performance Apparel Markets*. Other reports published in this issue include: "Fast track: alternative sustainable materials for performance apparel highlighted at Performance Days"; "Performance apparel markets: product developments and innovations, December 2023"; "Profile of Sheico Group: a leader in global markets for knitted performance materials and sportswear"; and "Performance apparel markets: business update, December 2023".

Performance Apparel Markets is published four times a year by Textiles Intelligence. Each issue provides an independent and worldwide perspective on the performance apparel industry.

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