Circular fashion: Isko presents industrial process for separating cotton from polyester

By Matthieu Guinebault  -  9 July 2021

Turkish denim producer Isko has inked a licence deal with the Hong Kong Research Institute for Textiles and Apparel (HKRITA), whose ‘Green Machine’ is said to make it possible to separate cotton fibre from polyester. A complicated production process that is a necessary condition to making the fashion supply chain truly circular.

Through this partnership, Isko is looking to lay the foundation for a future range of 100% recycled materials. The Green Machine is still at the pilot stage of its development, and Isko wants to make its own contribution to it. The company is currently developing GRS (Global Recycle Standard)-certified fabrics, made for over 50% with recycled materials.

The Green Machine uses a hydrothermal treatment that is able to dissolve cotton, transforming it into cellulose powder which is then separated from the polyester fibres present in blended fabrics, leaving the fibres 98% intact. The treatment reportedly needs only two hours to work, making its adoption at scale a possibility. Besides water and heat, the machine only uses 5% of chemical products, which are said to be “green and biodegradable.”

“The Green Machine is a revolutionary recycling technology. Seeing this project becoming truly commercially viable is wonderful,” said Edwin Keh, general manager of HKRITA. The institute is backed by the H&M Foundation, and last year it signed an agreement with Indonesian textile producer Kahatex. “Our investment in this novel technology marks a new milestone towards our vision of total circularity,” said the CEO of Isko, Fatih Konukoglu.

Polyester recycling is a strategic solution since, in 2019, this fibre accounted for no less than 52.6% of the textiles produced worldwide, way ahead of cotton, whose share was 23.3%. Of the 57.7 million metric tons of polyester produced, only 14% were generated through recycling. Availability of recycled polyester was further reduced by the ban on exporting various types of waste to China, among them PET (chiefly plastic bottles), which is widely used in recycling.

Polyester recycling isn’t the only future prospect for the fashion supply chain in terms of circularity. Fashion for Good, the association which includes fashion groups like Adidas, C&A, Kering, Otto Group and PVH Corp., has
Good, the association which includes fashion groups like Adidas, C&A, Kering, Otto Group and PVH Corp., has announced it is working collectively on polyhydroxyalkanoates, or PHA fibres, a type of naturally produced, biodegradable polyester.

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