

6 june 2023

Polyester, "fibre to fibre" recycling: it can be done!

From upstream to downstream, circularity in textiles is feasible.

With no compromise on the quality and technical performance of the products.

This is an ambitious **research & development project**, built step by step, which demonstrates the **feasibility of polyester "fibre to fibre" recycling**. It started with **Sportstex**, a company specialized in the production of sportswear, and **RadiciGroup**, a Group with many years of experience in circular economy, wishing to collaborate for the **recovery of polyester textile waste** such as uniforms for football, volleyball and other sports.

The involvement of **Pure Loop**, a company specialized in recovery machinery, was immediate, with the aim of identifying the best available technology to obtain a new textile fibre.

To reach this goal, the **R&D teams** of the three companies carried out **various tests** to achieve a **recycled textile product with high technical features**. An initial result was obtained using a **mixed recovery technique**, "dosing" variable percentages of granules from recycled bottles (a more than consolidated practice at RadiciGroup) together with polyester granules from recycled fabrics. This experience allowed to gradually fine-tune the processes and to achieve, at the end, a yarn **100% derived from the recovery of textile waste**.



Once scaled-up, this virtuous **circularity system** will make it possible to easily produce **recycled polyester garments** that, at the end of their life, can be **recovered again**. **Shimano** was the first company to embrace this sustainability project branding the first **jersey** coming from this **supply chain collaboration**. A **cycling jersey** made with this process will be on display for the first time at **ITMA**, the most important international trade fair for textile and clothing technology, scheduled in **Milan from 8 to 14 June 2023**, in the booth of one of project partner companies (Booth Pure Loop H9/D304).

The research project has highlighted a new recycling way, which allows to obtain quality polyester fibres starting, for example, from pre-owned clothes, for a **textile "Closed Loop"**. Moreover, **Erdotex**, a company specialized in the sorting of used garments, will support the project. Thanks to specific "sorting" procedures, **Erdotex** will make it possible to feed this innovative recycling process, with the ambition of developing a real industrial process.

*«Achieving increasingly sustainable textiles is at the heart of the strategy of Radici InNova, the RadiciGroup company focused on innovation for circularity – underlines **Gianni Todaro, R&D Specialist Apparel and Technical, RadiciGroup Advanced Textile Solutions** – For some time now, we have been designing innovative solutions with high technical performance that respect the environment, working in synergy with our customers and suppliers and sharing our knowledge in the recovery of textile waste».*

«In recent years we have prioritized environmental stewardship, taking significant action to reduce our footprint. However, the "fibre to fibre" recycling brings our efforts to the next level. This approach enables us to create a fully closed loop system from products to consumers right here in Europe. Both our customers and European manufacturers will benefit from this innovation» says **Andreas Widmann, administrator of Sportstex and Cottontex**.

«Recycling has an enormous potential in the fibre and textile sectors. One thing I am sure about is that recycling will become a standard feature within the industry in the future. That is why I am very pleased that this pilot project, initiated by RadiciGroup, sees us taking an important step towards more sustainable production of fibres and textiles. We are proud of our contribution to the recycling technology part of this project with our ISEC evo FibrePro:IV," says **Merlijn van Essen, Sales Manager at PURE LOOP**.

Thanks to this project, the partner companies proved the feasibility of **circular economy and recycling projects** to valorise materials otherwise considered as waste, reducing the environmental impact of the textile sector. A good achievement that demonstrates how combining different skills can contribute to a greater respect of the environment and to the creation of a future based on circular economy.

RADICIGROUP – With approximately 3,000 employees, sales of €1.542 billion in 2022, and a network of production units and sales offices spanning Europe, North and South America, and Asia, RadiciGroup today is a worldwide leader in the manufacture of a vast range of specialty chemicals, polyamides, high performance polymers, and advanced textile solutions, including nylon and polyester yarns, recycled yarn, bio yarns from renewable sources, nonwovens, and personal protection equipment for the healthcare and manufacturing sectors. Its products build on advanced chemical know-how and the vertical integration of the polyamide supply chain. They are developed for applications in a wide variety of industry sectors, including the Automotive, Electrical/Electronic, Consumer Goods, Apparel, Furnishings, Building, Home Appliances and Sports sectors. Underpinning the RadiciGroup's strategy is an overriding commitment to innovation, quality, customer satisfaction, and social and environmental sustainability. With its macro business areas – Specialty Chemicals, High Performance Polymers and Advanced Textile Solutions – RadiciGroup is part of a broader industrial group encompassing textile machinery (ITEMA), energy (GEOGREEN) and the hotel business (SAN MARCO). www.radicigroup.com

PURE LOOP, a subsidiary of EREMA Group GmbH, specialises in combined shredder-extruder technology for the highly efficient recycling of clean production waste. The headquarters are in Ansfelden/Linz. PURE LOOP recycling solutions are characterised by optimum adaptation to the existing scrap material logistics as well as the highest level of return of recycled pellets to the production process. Customers also benefit from the experience, technological know-how and innovative strength of the entire EREMA Group. www.pureloop.com

SPORTSTEX Sportstex is the parent company of TEXmarket and Cottontex. As a European sportswear manufacturer, we focus on product development and production. Our slogan, "Your producer for your brand," means we're all about helping you build your brand. Our product range is wide, covering everything from cycling and running gear to athleisure, triathlon, winter, active wear, and team sports wear. Our group's turnover exceeds 50 million Euros, reflecting our commitment to quality and client satisfaction. With a dedicated team of over 1,250 employees, we are among the largest clothing manufacturers in Europe. We at Sportstex aim to deliver quality sportswear to meet your needs. www.sportstex.eu

ERDOTEX Erdotex Group is a leading company within the post-consumer textile environment, aimed at collection and sorting. Founded over 30 years ago, the group currently employs over 350 people and processes over 45 million kg's annually. With offices and facilities in the Netherlands, Germany, Belgium, and the UAE, it is able to serve globally. Erdotex Group has grown to become a trusted name in its field and can access through her partner network over 30 countries, offering a wide range of qualitatively sorted textiles and shoes for both reuse and recycling. Erdotex Group offers an extensive portfolio of products and services tailored to cater to the diverse needs of its customers and their markets.

SHIMANO Shimano is a globally renowned company that specializes in the manufacturing of cycling components and fishing tackle. With a rich heritage spanning over a century, Shimano has established itself as a leading name in the cycling industry, consistently delivering high-quality products and innovative solutions to cyclists around the world. The company's commitment to precision engineering, performance, and reliability has made it a trusted brand among professional riders, enthusiasts, and recreational cyclists alike. Our product portfolio includes: Bicycle Components, Fishing Tackle, Cycling Apparel.

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