



AUTOMATION OF SORTING REVOLUTIONIZES TEXTILE RECYCLING

SUCCESS STORY

Innovative automated sorting solution to achieve circularity on the textile industry.

ANDRITZ

From rags to riches: Textile recycling enters a new era

Textile recycling in Europe is now evolving with a sense of urgency as it becomes clear that the discarding of clothing garments and apparel represents a major threat to the environment. New government regulations in Europe mean that the whole fashion and clothing industry has to completely rethink how textiles are managed at end-of-life. ANDRITZ has been aware of the situation for some time and has been working on solutions and innovations to counter the challenge. In its latest move, the company has partnered with textile experts in France to launch a major revolution in automated sorting for further recycling into new products.



It is estimated that around 7.5 million tons of textiles are discarded in Europe every year. Currently only 2.2 tons are collected, with the rest going to landfill or incineration. Due to new regulations, the volume of textiles collected is estimated to rise by 4.5 – 7.2 million tons by 2030. Source: Scaling Textile Recycling in Europe - turning waste into value, McKinsey, June 2022.

“The new regulations mean that by 2025, all European countries will no longer be able to dispense

of clothing by landfill or burning,” says Alexandre Butté, General Manager, ANDRITZ Laroche. “All of these countries will have to have collection systems in place by that time.”

ADDRESSING THE CHALLENGES

Nouvelles Fibres Textiles was formed by two seasoned entrepreneurs in the textile industry in France, Eric Boel, who is General Director, Les Tissages de Charlieu (LTC), and Etienne Wiroth, who is General Director,

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CHARLES JUNKER

Sales Director,
ANDRITZ Laroche

Synergies TLC. Both companies are specialists in their areas, with LTC being a “living heritage” in the weaving of textiles for clothes and bags. LTC is a specialist in the automation of the weaving production process and has long experience in the use of recycled textile raw material. Synergies TLC focuses on collected textile sorting and is involved in numerous research and innovation projects aimed at optimizing the sorting process of used textiles. “The goal with Nouvelles Fibres Textiles is to trigger the circular economy at an industrial scale when it comes to the sorting and recycling of textiles in France,” explains Boel. “The technology used in the new demonstration plant, supplied by our partners, ANDRITZ and Pellenc ST, represents the missing link to the industrialization of textile recycling.”

Wiroth adds, “Up until now we have been exporting 50% of our recovered textiles to countries such as Pakistan and India. This is because in France we haven’t yet had the technology to economically sort collected textiles by composition and color. This new automated approach to sorting will make all the difference to the recycling of textiles in France.”



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TEXTILE WASTE

Around 7.5 million tons of textiles are discarded in Europe every year



WASTE SORTING MACHINES
Clips sorted by color to be processed

Textile sorting: A mammoth task for all partners

Although the recycling of textiles is nothing new in the industry, the main challenge has been the automating of the sorting process.

This sorting is a demanding task, simply because of the range of composition, colors, and sizes involved. Nouvelles Fibres Textiles decided to take on this mammoth task, but it needed help; this is where ANDRITZ, with its vast experience in the textile recycling industry and the building of complete manufacturing lines, joined the challenge, together with the specialist provider of waste sorting machines, Pellenc ST. All four companies are now in partnership on the project that will see the line running on 60% commercial operations with 40% of time set aside for R&D.

"This truly is an equal partnership between four specialist companies," says Butté. "First of all, we have the expertise in collecting and manual sorting from Synergies followed by Les Tissages de Charlieu and its long experience and knowhow in weaving yarns made out of recycled fibers. Then ANDRITZ comes in with its deep knowledge of providing technology and complete lines for textile recycling and production. The loop is then completed by Pellenc ST and its dedicated high-tech machines purpose-built for the sorting of textiles."

Jean Henin, General Manager, Pellenc ST adds, "Pellenc ST brings in the vital component of sorting technology that will separate the collected textiles into the different materials, including cotton and polyesters, as well as being adapted to the multiple sizes and colors to handle with Post Consumer Textile Wastes feedstock. The automation of the sorting completes the vision that will make the whole process of recycling textiles much more economically viable."

Andreas Lukas, Senior Vice President and Division Manager Nonwoven and Textile at ANDRITZ, says of the project, "The partners of Nouvelles Fibres Textiles knocked on our door at ANDRITZ Laroche two years ago and we sat around a table and discussed the challenges they had. It helped that they were already a satisfied ANDRITZ customer. It so happened

that we were also looking into finding similar solutions in sorting, which meant there was already concrete synchronicity of ideas and ambitions. This project is a perfect demonstration of collaboration across many different networks."

This truly is an equal partnership between four specialist companies.

ALEXANDRE BUTTÉ
General Manager,
ANDRITZ Laroche



Charles Junker, Sales Director, ANDRITZ Laroche, adds, "Due to the experience of ANDRITZ and its partners, we have been able to bring the plant online in a short space of time; just 15 months since the signing of contracts. It also illustrates how quickly we can move when full capacity lines are required in the future.

"The plant is also in the perfect location. This area of France has textile recycling in its DNA with a deep history of manufacturing and recycling. In addition, the Amplepuis site is only a short drive from ANDRITZ Laroche, which means we can offer our technical support, as well as carry out combined R&D work on the new line with our existing 2,000 m2 technical center dedicated to fibers processing."



Bale of mixed textiles before automated sorting by color and/or composition

First step in a long journey

The new automated textile sorting and recycling plant represents the first step in a journey that will see millions of tons of discarded textiles collected, sorted, and recycled for making new products in the future.

As a signal to the opportunities ahead, Nouvelles Fibres Textiles has already laid the foundations for a full-scale recovered textile preparation plant with an annual capacity of approx. 25,000 tons of postconsumer textile waste in the near future.

Benoit Rombaut, Technology Director, ANDRITZ Laroche, says, "The line is the first and important milestone of a long journey. In France, due to tightening regulations and the increased collection rate of 60% of all textiles manufactured, there is now around 240,000 tons of textiles for recycling. In three years' time this will rise to 300,000 tons. This means that we need at least another 12 high-capacity sorting and recycling lines to cope with the demand."

ADVANCED TECHNOLOGY ANDRITZ SCOPE OF SUPPLY

ANDRITZ supplied the entire textile sorting line, including a material reception and distribution module, composition and color sorting module (complete with Pellenc ST infrared sorting technology), conveyors dedicated to preset flows, a cutting module, and a module for non-textile parts removal and the first stage of tearing.

Aiming to process 1,000 tons per year, the line is able to handle whole garments as well as scraps or production offcuts. It is designed to process all types of textile materials including cotton, polyester, polyamide, viscose, wool, and silk.



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**SORTED TEXTILE
WASTE**

Nouvelles Fibres Textiles, a startup with a unique line for autonomous garment sorting

ANDRITZ one-stop-shop for textile circularity

ANDRITZ has vast experience in the recycling of textiles, with both mechanical and chemical solutions.

Now with its expertise in sorting, complete lines from collected textiles to full recycling is possible, representing a revolution in circularity for the industry. "At ANDRITZ we are completing our goal with the new line," says Butté. "We can now provide a one-stop-shop for our customers and provide complete lines for textile recycling, from sorting to mechanical or chemical recycling.

"We provide lines that can sort garments by composition and color, refine them, remove buttons and zips, and then create clean fiber to be used for spinning/yarn production, nonwovens and composite materials, all from under the one roof of ANDRITZ recycling solutions."

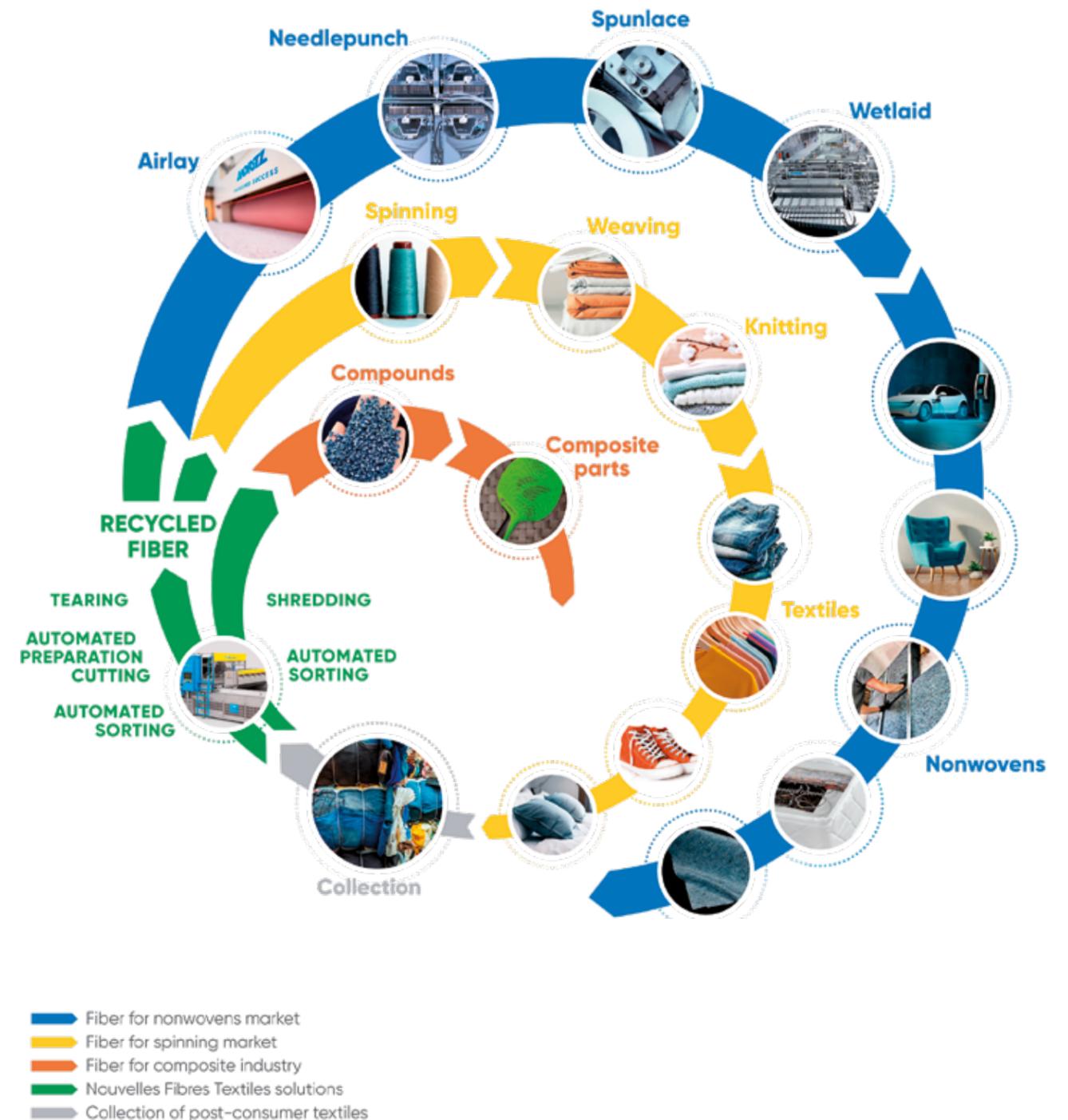
Michael Waupotitsch, Vice President Textile Recycling sums up the company's ambitions in the recycled textile sector going forward, "ANDRITZ intends to be a full line technology supplier offering complete packages from one place. Our aim is to become the market leader in this area, and be the first choice for our customers whether they are new or existing.

ANDRITZ intends to be a full line technology supplier offering complete packages from one place.

MICHAEL WAUPOTITSCH
Vice President Textile Recycling,
ANDRITZ Graz



Nouvelles fibres textiles' circular and sustainable ecosystem



PARTNERING FOR PROGRESS

ANDRITZ and Pellenc ST have joined forces to transform textile sorting by combining ANDRITZ's end-to-end fiber processing solutions with Pellenc ST's 30+ years of expertise in advanced sorting technologies. This synergy led to the creation of the Nouvelles Fibres Textiles R&D center in Amplepuis, France, dedicated to recycling post-consumer textile waste on an industrial scale.



GET THE MOST OUT OF YOUR INVESTMENT

At ANDRITZ Nonwoven and Textile we know that your business depends on satisfied customers and efficient processes. That's why we support you in every aspect of your nonwoven and textile production. Take advantage of technology that lets you produce consistent quality for decades to come. Profit from the highly efficient use of energy and raw materials that our production provides. You can rely on our responsive service teams who will protect your investment and optimize your processes. Experience how innovative approaches and digital services give you more control than ever before. With ANDRITZ, the leading supplier for the nonwoven and textile market, you get the most out of your investment.

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