Texile to Textile Recycling

YARN BACK™

ANTEX

For over 15 years we have been recycling our internal production waste as well as helping other companies in the textile sector recycle theirs

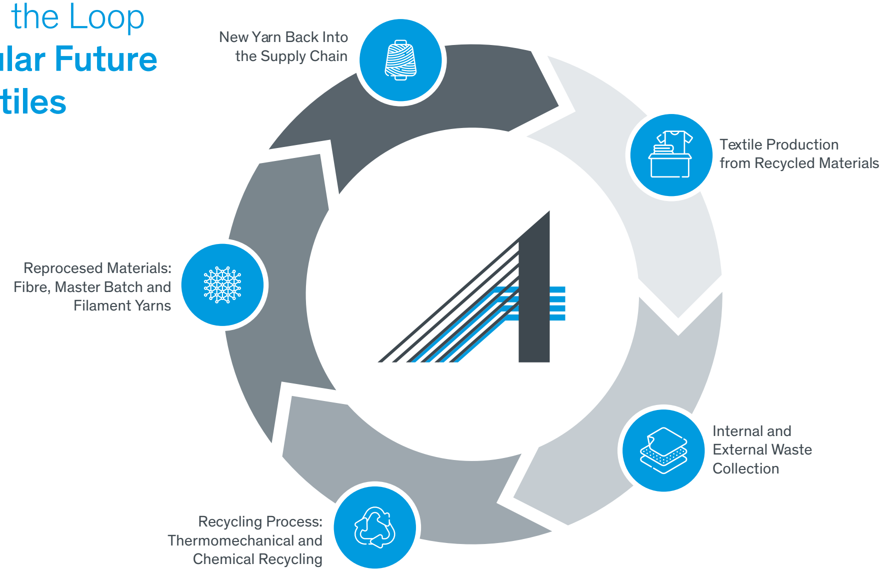
Reducing Waste Disposal and Shifting to a Circular Economy

A direct consequence of the current global trend of growing populations and evolving textile industry business models is the generation of large quantities of waste. These are produced during both the textile production processes and at the end of life of textile products.

At ANTEX, as part of the textile chain, we take accountability for our activity by reducing or recycling this waste. **Our end objective is to achieve Zero Waste production systems** and transition from a linear economy to a truly circular one.

Closing the Loop

A Circular Future for Textiles

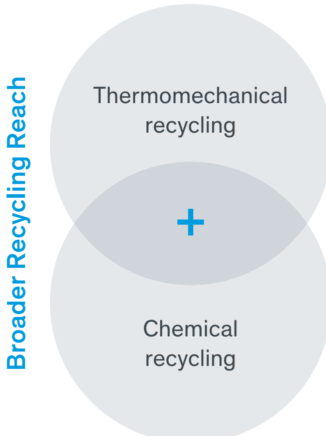


Thermomechanical Recycling

Best for clean, single-material waste

Thermomechanical recycling is a well-known technology **characterised by low energy consumption.** However, it has the following **limitations**: the type of input waste that can be recycled, the efficient removal of colours and chemicals, and the quality of the output material which may not meet the requirements of certain high-performance applications.

We use our internal thermomechanical processes to recycle our own waste as well as that of some of our customers. The end recycled product is then reintroduced into the production of fibre, master batch and filament yarns.



Overcoming the Limitations: Chemical Recycling

Best for complex, mixed-fibre or coloured textile waste

To address these challenges we have been collaborating with chemical recycling technological developments. These new technologies will **enable the textile industry to recycle more complex waste streams and produce high quality polymers** suited for the most demanding applications.

Depolymerisation: A Breakthrough for Complex Waste

Chemical recycling consists of a depolymerisation process that breaks materials down into monomers or base materials used in polymer production. The chemicals used in depolymerisation are subsequently recovered and reused.

This method is **highly suitable for textile recycling due to the complex nature of textile** waste which often includes multiple colours, compositions and contaminants.

Collecting & Sorting Textile Waste

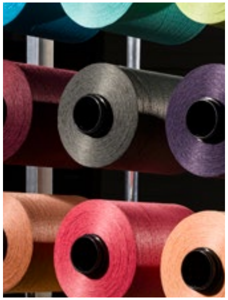
Post-consumer and post-industrial textile waste is collected and sorted, including mixed fibres, dyed fabrics, and multi-material garments.

Preparation & Pre-Treatment

Materials are shredded and contaminants such as non recyclable garment components and finishings are removed to prepare the feedstock for depolymerisation.

Depolymerisation

Fibres are chemically broken down into their base monomers or polymers. These raw materials are recovered for reuse.



New Yarn Production

The recovered monomers are repolymerised into high-quality materials used to produce new textile fibres and yarns.

Choosing the Right Recycling Technology: A Comparative Overview

	Thermomechanical Recycling	Chemical Recycling
Cost	LOW Shorter and simpler process.	HIGH Longer process and higher investment.
LCA	LOW Low energy consumption	MEDIUM Higher energy use than thermomechanical but lower than virgin. Technologies in development aimed at better reducing temperature and pressure.
Input Waste Flexibility	LOW Requires high purity input waste. Mix of polymers will affect the output polymer.	HIGH Most of the chemical recycling processes can handle contamination from other polymers, non-thermoplastic fibres and other materials.
Quality of Output Polymer	MEDIUM Lower polymer quality resulting in potential production variations.	HIGH Polymer with virgin polymer quality.
Difficulty in Scalabiity	LOW Simpler machinery.	HIGH A more complex and expensive process. In most cases will require de-polymerisation and re-polymerisation.
Availability	HIGH Technologies already developed for packaging waste and other plastics.	LOW Some industrial plants in production. Newly developed technologies in the process of industrialisation.
Removal of Chemicals	LOW Machine filters do not remove additives, colours and non- desired substances Potential non-compliance with chemical regulations.	HIGH Usage of filters during the de- and re-polymerisation processes successfully remove additives, colours and contaminants. Compliance with substance regulations.

Chemical recycling complements thermomechanical recycling by enabling the recycling of a broader range of waste, including both post-industrial and post-consumer waste.

ANTEX offers a wide range of yarns derived from textile recycled waste

Our production includes **ecru yarns** for DTY, ATY and twisted yarns, as well as **solution-dyed colours** made from textile recycled materials certified by GRS or RCS.

In addition to sourcing recycled materials from industry suppliers, we are **actively collaborating with emerging chemical recycling technologies** from around the world. Our aim is to support their product development and to facilitate the introduction and integration of these new technologies and products into the textile chain via our production plants in Europe, North America and South America.

As a long production chain generating waste at each of its distinct production stages, the textile industry must adopt solutions and treat and recycle all types of waste, both post-industrial and post-consumer.

The **successful development and industrial implementation** of these solutions and technologies requires **strong commitment and collaboration** among brands, consumers, technology developers, industry players and public organisations. It is a long and complex chain that can only succeed through the correct alignment and cooperation of all the parties involved.

Our recycling production process reduces waste, avoids the use of new resources and increases the use of recycled materials.

The path to true circularity.

We are certified to the GRS and RCS, which certifies recycled material from the source to final product.

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OUR CERTIFICATIONS: IATF 16949 · UNE-ISO 9001:2015 · GRS · Oeko-Tex® Standard 100 · Oeko-Tex® Standard 100 FR · PAS 2050 · ISO 50001:2018