Spring 2026

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TextilesLoop

The magazine for circularity in materials, manufacturing and design

Textiles Recycling Expo USA

Preview of all the key exhibitors in Charlotte

Traceability tech

Polyamide recycling

TEXTILE district

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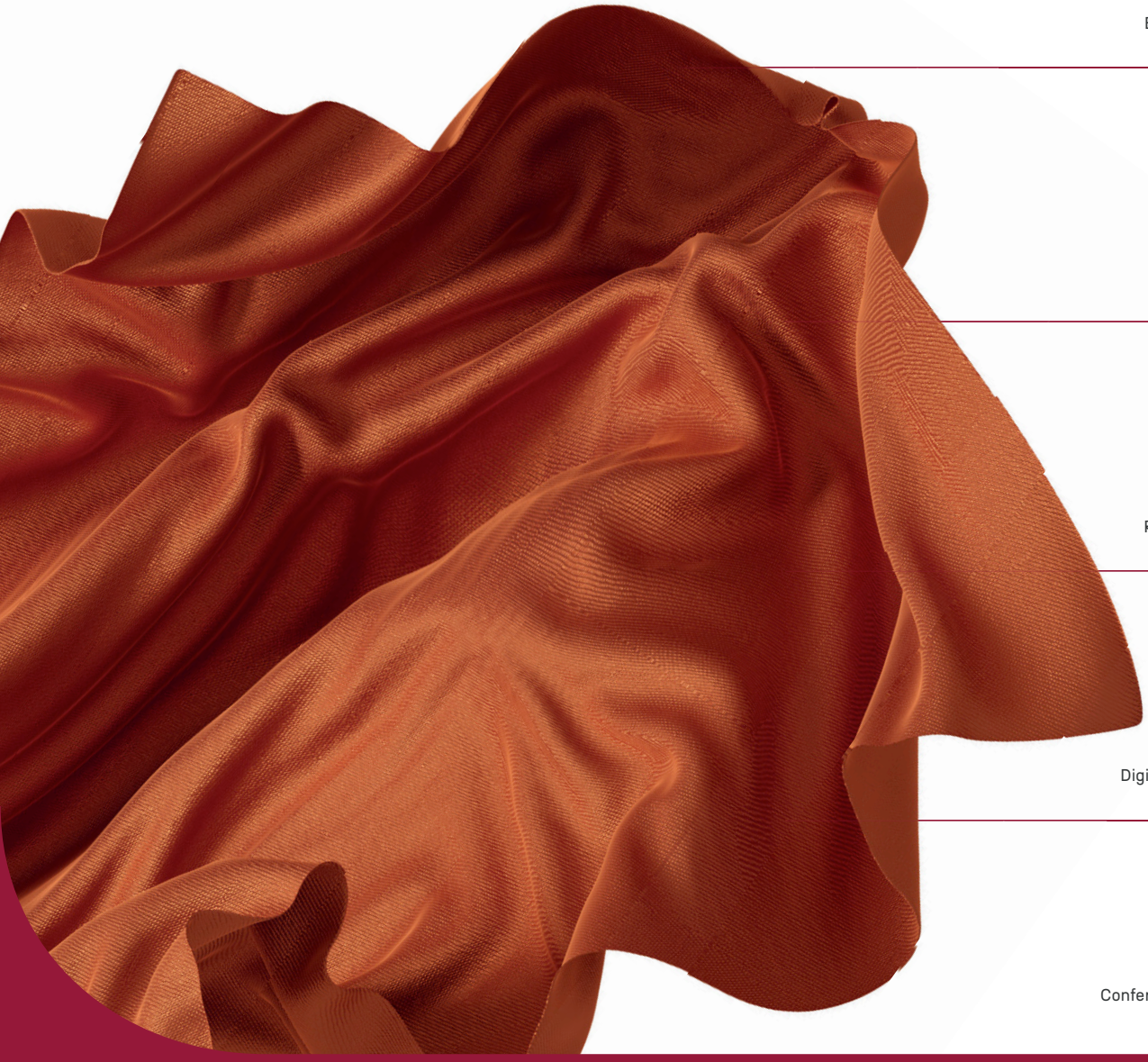
Sustainability in the textile sector



Eco-design, production

Selection, sorting

Recycling technologies

Digitalisation and Innovation

Conferences and industry updates

SECTOR

WASTE AS RESOURCE

Ecomondo, the **leading international event** in Europe and the Mediterranean basin for the **green**, **blue and circular** economy, presents the **Textile District**: a vertical hub dedicated to **sustainable innovation** across the textile value chain. A dedicated exhibition area featuring **high-level conferences**, intra-business and networking opportunities, designed to guide **industry professionals** within a dynamic and constantly evolving environment that looks to the future of the sector, addressing emerging challenges and **promoting innovative solutions** for a more sustainable and circular supply chain.

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NEXT ISSUE

Preview of Textiles Recycling Expo Europe 2026

Polyester Recycling

Dyes and Decolouring

Unifi reports on progress with Repreve and towards 2030 sustainability goals

Repreve yarn is produced from plastic bottles and textiles recycled from post-consumer waste. Image: Unifi
Inset: Meredith Boyd

Unifi, the maker of Repreve recycled fibre and resin, has released a sustainability report updating its achievements and new goals.

In its 2025 Sustainability Snapshot, the company celebrated the milestone of 1bn T-shirts' worth of textile and yarn waste transformed through the Repreve platform including Repreve Takeback, ThermaLoop Insulation, Repreve ReCirculate, and Repreve Nylon. This growth continued after Unifi launched globally available circular polyester products made from textile waste in insulation and white filament earlier this fiscal year.

The company has introduced a new goal, aiming to recycle 65bn plastic bottles by fiscal year 2030. This goal aligns with its previously established FY2030 goals, including transforming the equivalent of 1.5bn T-shirts' worth of textile and yarn waste. Repreve accounted for 31% of Unifi's FY2025 revenue and the company is targeting over 50% by FY2030.

Unifi – which is an exhibitor at Textiles Recycling Expo in Charlotte, North Carolina, on 29-30 April – uses its own recycling technology on post-consumer plastic and textile waste to make the Repreve products. Taking part in the conference during the exhibition, Meredith Boyd, Executive Vice President and Chief Product Officer, says in a pre-event interview: "We are very energized about our circular polyester products available globally at scale, Repreve Takeback recycled polyester and ThermaLoop Insulation that are made using our proprietary Textile Takeback augmented thermomechanical recycling process."

Read the full interview with Meredith Boyd at the Textiles Recycling Expo website.

The company recently launched a new product, Luxel yarn, which it says has a natural, linen-inspired texture with a smooth finish. Luxel is made with Repreve recycled polyester yarn, including 30% Repreve Takeback, embedded with FiberPrint tracer technology and verified by U-Trust to certify recycled content.

• ***https://unifi.com***

Selenis invests in new technology at HQ in Portugal

Polyester manufacturer Selenis has announced "a transformational expansion" of its headquarters in Portalegre, Portugal, which is set to double the site's production capacity and accelerate the industrial scale-up of its bio-based, medical-grade, and circular co-polyesters.

"This expansion is a bold step forward," said Duarte Gil, CEO of Selenis. "We are doubling our capacity to meet accelerating demand while ensuring we remain fully aligned with the evolving European regulatory framework. Circularity is no longer just a concept; it is our industrial reality."

The expansion at Portalegre involves the construction of a next-generation Continuous Polymerization platform, which will work alongside the company's established batch processing technology. Selenis said that by combining both systems, it will improve flexibility and enable a continuous and consistent production flow that optimises energy consumption per tonne of product.

Texnascis is a new brand dedicated to textile-to-textile recycling launched by Selenis at the end of 2025. It is hoped Texnascis will become the vehicle to deliver Selenis' mission to drive the textile industry towards a circular future by transforming textile waste into products for re-use.

Selenis and sister company Evertis are both members of the IMG group, an international enterprise headquartered in Portugal with operations around the world.

• ***www.texnascis.com***

Image: Selenis

From 3rd to 6th November at Rimini Expo Centre in Italy, an entire district on the sector's future at Italian Exhibition Group's ecological transition event

ECOMONDO
The green technology expo.

Ecomondo 2026 puts sustainability at the centre of the textile supply chain

The European textile sector is undergoing profound transformation. In 2025 the obligation to separate textile waste collection became operational throughout the European Union, but 2026 will redefine the rules and dynamics through two fundamental levers for the sector's circular transition: the introduction of extended producer responsibility (EPR) systems and the entry into force of the Ecodesign Regulation with the debut of the digital passport and ban on destroying unsold items.

This change requires investments, skills and collaboration between the various players involved, especially in a moment when new international scenarios and the reorganisation of supply chains are redefining industrial balances.

In Italy, Ecomondo, Italian Exhibition Group's international green, blue and circular economy event, scheduled to take place from 3rd to 6th November at Rimini Expo Centre, is a strategic hub for encounter, discussion and updating for the sector's protagonists with an entire exhibition district specifically for textiles which, for the first time this year, will occupy an entire hall.

From production and eco-design to the collection and selection of second-hand goods, up to the treatment and recycling of secondary raw materials, Ecomondo's Textile District will systematically address the issue of sustainability in textiles throughout every phase of the product's life cycle, including an analysis of regulatory framework developments.

The district will feature yarn and fabric producers, clothing, footwear, accessories, leather goods and home furnishing textile companies, pre- and post-consumer waste valorisation operators, waste collection, management and recycling companies, research centres, laboratories, consultancy companies, institutions and consortia, to reflect on the complexity of the circular challenge in textiles and with the aim of creating new synergies between the supply chain's various segments. The most innovative digital solutions and technologies, including artificial intelligence, will also have a specific area.

The exhibition area will be accompanied by highly relevant contents with meetings, conferences and vertical workshops playing a central role, developed with the much-appreciated contribution of the Ecomondo Textile Working Group, a spin-off of the event's Technical Scientific Committee, made up of members of the textile world from both the industrial and associative-institutional areas. The events scheduled in Rimini will offer industry professionals updated tools to address regulatory challenges, understand future challenges and opportunities, and share best practices at an international level.

The Textile District thus confirms Ecomondo's role as a place where change is not only observed from a global and European perspective, but actively contributes to defining it. An unmissable event for those who work in the textile industry at all levels to discuss the sector's future development and promote sustainability, technological innovation, traceability and transparency.

www.ecomondo.com | www.iegexpo.it

New EU rules curtail destruction of unsold clothes and shoes

The European Commission has adopted new measures under the Ecodesign for Sustainable Products Regulation (ESPR) to prevent the destruction of unsold apparel, clothing, accessories and footwear. The rules are designed to help cut waste, reduce environmental damage, and create a level playing field for companies actively attempting to adopt sustainable business models.

Every year in Europe, an estimated 4-9% of unsold textiles are destroyed before ever being worn, generating around 5.6m tonnes of CO_2 emissions, almost equal to Sweden's total net emissions in 2021. European Environment Agency said the problem is worse in online returns, estimating 22-43% of all returned clothing bought online ends up being destroyed.

"The textile sector is leading the way in the transition to sustainability, but there are still challenges," said Jessika Roswall, Commissioner for Environment, Water Resilience and a Competitive Circular Economy. "The numbers on waste show the need to act. With these new measures, the textile sector will be empowered to move towards sustainable and circular practices, and we can boost our competitiveness and reduce our dependencies."

Image: Annaspoka/Getty Images

The ESPR requires companies to disclose information on the unsold consumer products they discard. It also introduces a ban on the destruction of unsold apparel, clothing accessories, and footwear.

The Delegated and Implementing Acts will support businesses in complying with these requirements by clarifying derogations and facilitating disclosure. Instead of discarding stock, companies are encouraged to manage their stock more effectively, handle returns, and explore alternatives such as resale, remanufacturing, donations, or reuse.

The ban and the derogations will apply to large companies from 19 July 2026, with medium-sized companies expected to follow in 2030. The rules on disclosure under the ESPR already apply to large companies and will also apply to medium-sized companies in 2030.

• ***https://commission.europa.eu***

European pilot for textiles deposit-return system

A new EU-funded project has been launched to develop a deposit-return system for used textiles.

Known as TexMat, the initiative will reward consumers for returning reusable and recyclable items, while notifying producers when discarded textiles require waste management. Automated collection containers will sort items by assessing their quality and capturing key information about the materials through digital product passports, set to be introduced across the EU in the near future.

"TexMat has great potential to transform the collection and resale of used but still valuable garments, supporting second-hand markets while enabling consumers to monetise their textiles," said Elina Ilén, TexMat Project Leader at VTT Technical Research Centre of Finland. "By developing a cost-effective, robust, and user-friendly solution, we aim to relieve consumers of the need to evaluate which garments can be resold for reuse or recycling. Automated collection and sorting will also support textile waste management operators by quickly and accurately separating garments suitable for reuse from those destined for disposal, reducing reliance on manual work."

Image: Frantic00 / Shutterstock

The initiative, running until March 2029, brings together 14 industry partners from seven EU countries covering the full textile value chain, from materials and production to data, research, hardware, and software solutions. Pilot activities in the project will operate in Finland and Spain and will test the system in real-world settings, helping partners refine the innovations and explore how the system could be scaled.

• ***https://circulareconomy.europa.eu***

HKRITA THE HONG KONG 香港紡織及成衣研發中心 RESEARCH INSTITUTE OF TEXTILES AND APPAREL

Pioneering Sustainability: HKRITA's Circular Textile Innovations

In an era where the textile industry faces increasing pressure to reduce its environmental footprint, The Hong Kong Research Institute of Textiles and Apparel (HKRITA) is leading innovation and reshaping the global landscape towards waste reduction and circular economy principles.

Revolutionising Blended Fabric Recycling: The Green Machine

The Green Machine uses water, heat, and minimal green chemicals to separate cotton-polyester textiles. The recovered polyester fibres are respun into yarn, while the cotton is converted into cellulose powder for use in agricultural water retention agents, promoting both waste reduction and circularity.

More Detail

More Detail

Unlocking Value from Nylon Waste: Separation and Recovery Technology

This eco-friendly process extracts nylon from textile waste using a green solvent under ambient conditions. With 99.8% solvent recyclability, it minimises environmental impact and supports scalable, cost effective industrial applications.

About Us

Established in 2006, HKRITA contributes to the competitiveness of the textile and apparel industry by providing one-stop services in applied research, technology transfer and commercialisation. HKRITA also plays a vital and expanding role in driving sustainable improvements in the industry and thus bringing benefits to society as a whole.

Contact us to explore potential collaboration and discussion!

Email: info@hktita.com

Picvisa and Girbau integrate their technologies in new textile sorting plant

AI-based optical sorting technology provider Picvisa and Girbau, a laundry and automation solutions specialist, have announced a strategic collaboration to advance the full automation of post-consumer textile sorting lines.

As a first milestone of the alliance, the companies are committed to launching a new plant in Northern Europe integrating Sortech, Girbau's feeding and separation system, with Ecosort, Picvisa's textile sorting technology, into a single continuous and fully automated line.

Picvisa's Ecosort sensor-based systems are installed at various sites in Europe. Image: Picvisa

Sortech is a solution developed by Girbau to automate the separation and classification of garments in high-volume industrial environments. For this project, Sortech technology is applied beyond the laundry sector, having been adapted to the specific requirements of post-consumer textile sorting where growing volumes demand robust and scalable industrial processes.

Picvisa's Ecosort technology identifies and classifies used garments by textile composition, colour, and type, generating homogeneous, higher value-added fractions for both second-hand markets and textile recycling processes. The integration of Ecosort with an automated feeding system enhances process stability, increases line productivity, and enables more precise and consistent sorting while reducing reliance on manual labour.

This will be Picvisa's eighth Ecosort technology installation in Europe, strengthening its presence in industrial-scale post-consumer textile sorting plants. The project also represents Picvisa's second turnkey textile sorting plant in Europe, reinforcing its ability to design and deliver complete, integrated solutions.

"Applying our expertise to textile recycling is a natural step and a global opportunity for Girbau, aligned with our purpose of generating a positive impact on people and the planet," said Fernando Argiró, Director of Girbau Industrial.

- ***www.picvisa.com***
- ***www.girbau.com***

Sysav to divest Siptex facility

Sysav's board is in the process of divesting Siptex (Swedish Innovation Platform for Textile Sorting), saying this is a result of the market for sorted textile waste not developing at the pace anticipated when the investment was first implemented.

Located in Malmo, Sweden, the plant sorts textile waste by colour and fibre type using near-infrared technology. The research and development project ran until 2022, at which point the plant transferred entirely to Sysav's ownership and became its responsibility.

The investment in Siptex, the world's first large-scale automated plant for sorting textile waste by fibre type, was based on a business case where recipients of sorted textile waste were located within Sweden. However, since 2024 there has been no stable market, and Sysav said it does not believe that the situation will change in 2026–2027.

- ***www.sysav.se***

Australia launches new fashion and textiles strategy

In March, the Australian Fashion Council (AFC) and RM Williams launched the National Manufacturing Strategy for Australian Fashion and Textiles at Parliament House in Canberra, the first coordinated national roadmap to rebuild domestic manufacturing capability across Australia's textile, clothing, and footwear sector.

The ten-year strategy from 2026 to 2036 is the result of a lengthy consultation process led by the AFC and RM Williams, including 14 national consultations with manufacturers, brands, educators, and policymakers across the country.

It comes at a critical time for the industry. With 97% of Australia's clothing and textile products manufactured offshore, the sector remains vulnerable to ongoing global supply disruptions and trade volatility. Rather than compete against high-volume offshore manufacturing markets, the strategy is focused on closing structural gaps and accelerating advanced manufacturing allowing Australia to compete globally in premium, technology-enabled and traceable production, built on the country's natural fibre strengths.

- ***https://ausfashioncouncil.com***

Materials Matter:

How industry-leading recycling standards are evolving

A transition has started in materials standards. Adam Gardiner, Recycled Lead at Textile Exchange, explains what this means for companies in textile recycling

The fashion and textile industry has seen significant growth in recent years, with global fibre production reaching 132m tonnes in 2024 – equivalent to roughly 16 kg per person on Earth. This figure has more than doubled since 2000 and is expected to continue to grow, reaching a projected 169m tonnes by 2030.

This growth has occurred across all fibre groups in the industry. However, no fibre group has contributed more to this growth than synthetics, specifically polyester. Polyester is estimated to account for 59% of all global fibre production. As a material derived primarily from fossil fuels, polyester's growth presents significant challenges for the industry's environmental impact.

Polyester growth

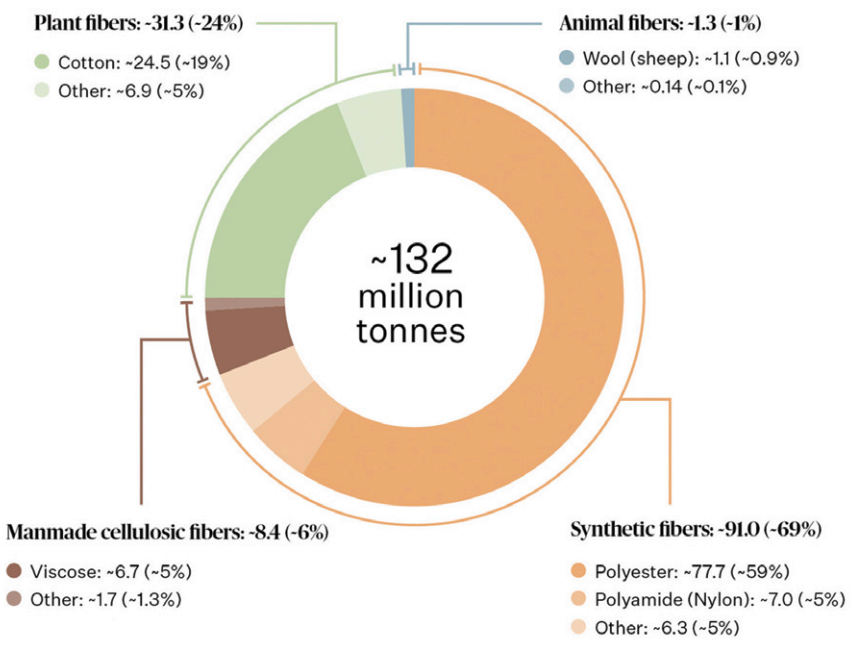
The industry needs to shift towards production systems that remove reliance on virgin fossil fuels. This could include technologies such as bio-based feedstocks or carbon capture, though recycled feedstocks are currently the most prevalent alternative. Recycled polyester production has seen consistent year-on-year growth in absolute volume over the last five years.

However, this growth has not kept pace with the overall increase in polyester use, meaning that recycled polyester now accounts for only about 12% of all fibre production. Approximately 98% of this polyester is derived from plastic bottles from the drinks sector, which has provided a consistent, readily available feedstock supporting sector growth. However, this system faces criticism for diverting waste away from other industries, whilst failing to address the growing volume of textile waste accumulating in landfills worldwide.

The industry has recently seen a wave of companies announcing new textile-to-textile (T2T) recycling capacity to begin to tackle this challenge. By 2030, global T2T recycling capacity is estimated to reach 3-5m tonnes. This rapid growth will be achieved through a range of recycling technologies developed by recyclers around the world. One factor that unites these recyclers is the requirement to certify and verify their production. Ensuring traceability throughout the supply chain is essential, making certification crucial to verifying recycled content claims.

For over a decade, Textile Exchange's system of material-specific standards has guided the fashion, textile, and apparel industry toward more sustainable production. For recycled materials, the Global Recycled Standard (GRS) and the Recycled

Global fibre production 2024



Source: Textile Exchange Materials Market Report 2025

Claim Standard (RCS) are two of the largest certification schemes. Now used by over 60,000 sites globally, these standards provide chain of custody for materials and, in the case of the GRS, a framework for environmental and social assessment.

Certification change

In 2025, Textile Exchange published the next step in its certification, the Materials Matter Standard. Materials Matter unifies and simplifies our current standards, building on the strengths of what came before while offering a more streamlined pathway forward.

At the heart of this global certification system, the Materials Matter Standard represents a significant evolution of Textile Exchange's standards system. It sets detailed requirements for the production and primary processing of raw materials – from how land, water, and energy are used, to how working conditions, animal welfare, emissions, chemicals, and waste are managed. Its purpose is to provide a common language and shared direction for the industry, while recognizing the unique contexts of different material producers, processors, and the communities and landscapes they depend on.

The Materials Matter Standard will become effective on 31 December 2026. From this date, tier 4 organizations can choose to become certified to the new standard or continue to be certified to the GRS and/or RCS. To ensure that the transition is as smooth as possible, Textile Exchange has ensured a two-year transition window from the date the standard criteria were published to the date they become mandatory. From 31 December 2027, the Materials Matter Standard will become mandatory, meaning recyclers and primary processors be audited to the new standard to maintain certification after this date.

Measuring six impact areas in recycling

For recyclers already certified to GRS or RCS, the Materials Matter Standard builds on familiar foundations while expanding the scope of measurable impact to support a shared vision for climate and nature across different materials and contexts. Through a holistic set of science-aligned criteria, it assesses up to eight impact areas, depending on the production system. For recyclers, the six assessed areas are emissions, water resources, energy use, human rights and livelihoods, chemical management, and waste reduction.

To support the transition, existing users of the GRS or RCS can access guidance that maps out what remains the same under the Materials Matter Standard and where it strengthens requirements. Textile Exchange has mapped the criteria of our current standards in comparison to the Materials Matter standard in a document Mapping Current Standards to the Materials Matter Standard, which can be found on our website.

Since 2021, Textile Exchange has been developing the Materials Matter Standard with certificate-holders in mind, through successive drafts informed by stakeholder input and real-world testing, which included gathering feedback from farmers and recycled producers. Since the standard criteria were published on 12 December 2025, Textile Exchange has been working to provide guidance and educational resources so standard users will be informed about the scope and intent of new criteria.

In this time, technologies in the recycling sector have continued to evolve through ongoing innovation. The emergence of advanced recycling systems offers opportunities for more complex feedstocks, but it also introduces further complications regarding chemical usage.

Chemical management

The Materials Matter Standard updates its approach to chemical management, making it more accommodating to new technologies while maintaining alignment with REACH chemical compliance guidelines. In partnership with the ZDHC Foundation – a global multi-stakeholder organization driving sustainable chemical management – Textile Exchange is developing recycled fibre guidelines that are referenced in the Materials Matter Standard. This will lead to simplified systems for recyclers and enable conformance with the new standard.

The certification bodies who assess recyclers and other certified organizations play a key role in this work. Recyclers should contact their corresponding certification body to learn more about how the Materials Matter Standard will impact them and how they can be certified.

Textile Exchange continues to publish multiple resources to support all users throughout this transition. Recyclers are encouraged to continue to monitor the Materials Matter webpage for updates and keep an eye out for engagement opportunities at virtual and in-person events hosted or attended by Textile Exchange in 2026 and beyond.

Find out how Materials Matter Standard could benefit your organization with more information at the Textile Exchange website:

- ***www.textileexchange.org/materials-matter-standard***

Tackling fibre complexity in polyamide recycling

Samsara Eco has an agreement with Lululemon to support its fibre portfolio with recycled materials. Image: Lululemon

To recycle nylon textiles, companies must deal with blended fibres and are turning to depolymerisation and dissolution processes to help them do so. Chris Saunders reports on polyamide projects

Polyamide, most commonly nylon 6 and nylon 66, is a cornerstone of modern textiles, its strength, abrasion resistance, and elasticity, making it indispensable for activewear, swimwear, and technical fabrics. At the same time, its fossil origin and overall durability make it a priority target for circularity initiatives.

Mechanical textile recycling, where post-consumer waste and production scraps are shredded, melted, and re-extruded into new filament, faces issues in recycled material performance, feedstock quality, and market economics. One challenge is polymer degradation, with each melt cycle impacting molecular structure, reducing tensile strength and elasticity. Additives are available to recyclers and compounders that compensate for the degradation, but often mechanically recycled polyamide is downcycled into lower-performance applications or blended with virgin polymer.

Chemical recycling is an alternative process which, theoretically, can enable infinite recyclability with no quality loss, but critics point out that chemical recycling projects are capital-intensive and have higher energy consumption than mechanical recycling plants. Feedstock issues are also important as chemical recycling can be affected by contamination from dyes, finishes, and elastane, while multi-fibre blends complicate purification and raise processing costs further. →

There is a particular challenge at the sorting stage from the complexity of textiles waste streams, as polyamide is commonly blended with elastane, polyester, or cotton, and treated with coatings, pigments, and softeners.

In March 2025, polyamide producer **BASF** announced the start-up of the world's first commercial **Loopamid** plant at its Caojing site in Shanghai, China. Loopamid is a recycled polyamide 6 entirely based on textile waste, and the new 500 tonnes/yr production facility supports growing demand for sustainable fibres. BASF uses a depolymerisation process in which the shredded polyamide waste undergoes a chemical process in a reactor that breaks down the long polymer chains into their original monomer building blocks. Then there are stages for purification and repolymerisation, before the polyamide can then be used for spinning and eventually the creation of new textiles.

"The technology behind Loopamid allows textile-to-textile recycling for polyamide 6 in a wide variety of fabric blends, including those with elastane," said Ramkumar Dhruva, President of BASF's Monomers division. "Loopamid not only makes a significant contribution to the textile circular economy, but also helps our customers achieve their sustainability goals."

To produce the Loopamid, BASF uses feedstock including cutting scraps, offcuts, and other production waste from textile manufacturers which are collected and provided to BASF by customers and partners. These materials represent a good example of how challenging it has historically been to recycle textiles because they typically consist of a mixture of materials, as well as various dyes and additives. Additionally, buttons, zippers, decorative features, and other accessories, must also be removed.

BASF said it is working closely with partners and customers to accelerate the development of collection and sorting systems and it plans to increase the ratio of post-consumer waste it uses in future. Both the plant and the Loopamid material it produces are certified according to the Global Recycled Standard (GRS), guaranteeing that the production processes comply with specific environmental and social criteria.

Inditex integrates Loopamid

Since the material's official launch in early 2024, Loopamid has been utilised by several major brands including **Inditex** brand Zara, which has made extensive use of the recycled polyamide for a jacket in a capsule collection. Following a 'design for recycling' approach, all parts, including fabrics, buttons, filling, hook and loop, and zipper, are made from Loopamid. BASF has also partnered with other groups active in the clothing sector to integrate Loopamid into various components.

"Driving innovation is key to advancing towards a more responsible industry," said Javier Losada, Inditex's Chief Sustainability Officer. "This collaboration is a great example of how, by collaborating together, we can use the new technology to transform textile waste into a new resource. This project is also a first step to move towards a circular solution, as the industry still needs to boost new collecting and recycling capacities in order to close the loop and scale recycling for post-consumer waste."

Inditex says it hopes to have all its textile products made from materials with a smaller environmental footprint by 2030, while BASF aims to double sales generated with solutions for the circular economy to €17bn within the same time frame. The polymer group was among the companies involved in the EU-funded **T-REX Project**, which concluded in May 2025 and delivered a comprehensive blueprint for scaling textile-to-textile (T2T) recycling in Europe. The project successfully processed post-consumer household textile waste into new, high-quality materials, proving that chemical recycling of garments is technically possible, and a detailed roadmap was created for stakeholders to establish a closed-loop system covering everything from design for recycling to consumer engagement. As well as positives in the project, it uncovered certain industry weaknesses such as high levels of material loss during pre-processing and sorting, and limited access to high-quality, sorted feedstock due to low collection rates. The project concluded that harmonising collection and sorting, implementing digital solutions, and establishing supportive policies to overcome high costs and feedstock limitations, are paramount.

Zara has used Loopamid recycled polyamide extensively in a capsule jacket. Image: Inditex

Process to separate elastane

Last year, polyamide fibre and yarn producer **Aquafil** launched a demonstration plant at its Slovenian facility designed to address the chemical separation of elastic fibres from polyamide in blended textile waste, often considered one of the most persistent challenges in the industry. A growing share of textile waste consists of garments made with mixed fibres which are notoriously difficult to recycle through mechanical means. The demonstration plant validated lab results and makes it possible to chemically separate elastane from polyamide in post-use textiles.

This innovation integrates Aquafil's well-established Econyl Regeneration System, which has been operating successfully for over a decade having been designed to recover nylon from both pre- and post-consumer waste such as carpets, fishing nets, and industrial plastics. The addition of chemically separated polyamide from blended textiles represents the next step for the technology. To scale up this innovation, Aquafil is working with a network of strategic partners to secure a stable flow of feedstock and establish an

Samsara Eco's EosEco technology is based on enzymatic recycling that enables transformation of textile waste to help create polyamide yarn. Image Samsara Eco

efficient collection and recycling infrastructure.

Recycled polyamide usually trades at a premium over virgin material, particularly for chemically recycled grades certified for high-performance use. This premium is difficult to absorb in price-sensitive segments such as fast fashion or mass-market hosiery. Demand for recycled polyamide is therefore strongest in sportswear and luxury fashion. It also features in corporate sustainability programs, where recycled content supports brand positioning and regulatory preparedness, with future demand shaped by extended producer responsibility (EPR) schemes and recycled content mandates, especially in the EU.

T2T project in SE Asia

Australian biotech company **Samsara Eco** and polyamide 66 producer **Nilit** are constructing a T2T production site in South East Asia. Samsara Eco, which has developed an enzymatic depolymerisation process, opened its first commercial-scale plant in Jerrabomberra, Australia, in September 2025, which serves as a foundation for this planned, larger Asian expansion. The anticipated new facility will be capable of recycling textile waste and producing high-quality recycled polyamide 66 for use in existing supply chains.

"Our vision is to deliver climate repair through infinite recycling," said Paul Riley, CEO and Founder of Samsara Eco. "One of the ways we're achieving this is by creating the first circular pathway for nylon 66. Discarded clothing made from nylon 66 such as activewear, and even products like car interiors, typically end up in landfill or are incinerated at the end of life, which has dire consequences for our planet."

The plant was originally planned to be operational by late 2026 but has now been pushed back to early 2028, and is being built with the help of engineering partner **KBR**. It will harness Samsara Eco's EosEco technology which combines biophysics, chemistry, biology, and computer science, to create a family of plastic-eating enzymes which break down textiles made from polyamide 66 into raw materials, which are then integrated into existing manufacturing processes. Crucially, EosEco has the ability to recycle various feedstock inputs, including coloured and blended textiles.

Samsara Eco has joined forces with Australia's **Deakin University**'s Recycling and Clean Energy Commercialisation Hub to fast-track technology that could recycle textiles that, if landfilled, would take centuries to eliminate from the environment. The collaboration will see Samsara Eco combine with Deakin's advanced chemical analysis and polymer processing expertise to better understand and find recycling solutions for specific additives like dyes, finishes, and coatings.

The company has a 10-year agreement with activewear brand **Lululemon** to support approximately 20% of its overall fibre portfolio with its recycled materials. This builds on previous collaborations between the two companies, such as launching the world's first enzymatically recycled polyamide 66 garment and a limited-edition Packable Anorak jacket, the first retail garment made from enzymatically recycled polyester.

European collaboration

Samsara Eco has also launched the Nylon Materials Collective with the **European Outdoor Group** (EOG), a collaboration designed to make high-performance, virgin-identical recycled nylon more accessible. The initiative intends to unite outdoor brands, supply chain partners, and materials leaders, to remove common barriers that can slow the adoption of recycled materials. Brands in the collective will have access to resources through pooled

Invista and Epoch Biodesign have signed an agreement aimed at advancing the development of post-consumer recycled nylon 66. Image: Epoch

volumes and also have the option to collaborate with supply chain partners, helping to reduce logistical complexities and speed up adoption and implementation.

"Outdoor brands inherently have a respect for the planet," said Sarah Cook, Chief Commercial Officer of Samsara Eco. "They understand the importance of establishing a circular, low-carbon future so we can all continue enjoying the beauty of the outdoors. The Nylon Materials Collective will make it easier for outdoor brands of any size, who might have smaller materials requirements or who typically buy at a fabric level to access and seamlessly integrate virgin-identical recycled materials into their future product lines."

In February, polyamide resin and fibre producer **Invista** and **Epoch Biodesign**, a UK-based enzymatic recycling technology specialist, announced the signing of a Memorandum of Understanding aimed at advancing the development of post-consumer recycled polyamide. The collaboration will combine Epoch's AI-engineered recycling enzymes with Invista's polymerisation expertise and global footprint with the end goal of producing customer-validated, virgin-quality polyamide 66 at commercial scale. Technical assessment and polymer qualification are already underway and will be followed by application performance testing.

"Invista is committed to exploring innovative technologies that can improve the sustainability and resilience of nylon 66 supply chains," said Invista Global Sustainability Director Ethel Garnier. "With this collaboration, both Invista and Epoch are applying their comparative advantage to develop solutions to a market need for recycled nylon 66."

Epoch Biodesign has joined the T2T Alliance, the leading industry association representing textile-to-textile recyclers in the EU's policy ecosystem (see *TextilesLoop* Autumn 2025 issue). Announcing the move in a LinkedIn post, the company said: "We're joining to make sure the voice of next-generation enzymatic recycling is heard in Brussels and to help design policies that make circular materials the default, not the exception."

Nylon and Lycra loop

Radici InNova, the R&D division of polyamide resin and fibre producer RadiciGroup, has developed a recycling process based on selective dissolution technology and capable of treating mixed textile waste. The Italian group joined **The Lycra Company** and Swiss lingerie brand **Triumph** in a project that validated the solvent-based process and used the recovered polyamide and elastane fibres to create a 100% recycled lingerie set. The patented process uses non-toxic, non-flammable, and environmentally compatible solvents. It can be applied to the main types of polyamide and is economically sustainable because it allows for the recovery of both polyamide and Lycra fibre, regardless of their respective proportions in the fabric.

"Thanks to this project, textile recycling enters a new dimension, demonstrating for the first time that it is possible to recover fibres from mixed fabrics and reuse them to produce new garments," said Stefano Alini, CEO of Radici InNova. "This is an unprecedented innovation that opens up revolutionary development opportunities for the textile industry. As RadiciGroup, we are proud to have conceived and achieved this important milestone together with our partners, and we are ready to take the next steps."

The project began four years ago. After the initial development phase, subsequent tests made it possible to recover samples of Lycra fibre from multi-material fabrics, which were then sent to The Lycra Company to verify their recyclability. The next step was to demonstrate feasibility in practice for which Triumph provided its own production surplus, a fabric containing 16% Lycra fibre. From this source material, Radici InNova succeeded in recovering both Lycra fibre and polyamide. The Lycra fibre was then re-spun by The Lycra Company, and

Triumph created a prototype lingerie set in a project with RadiciGroup and The Lycra Company that recycled polyamide and elastane fibre. Image: Triumph

RadiciGroup processed the recycled polyamide to produce new Renycle yarn. Triumph then used this to create a prototype lingerie set (bra and brief).

"This prototype marks an important proof-of-concept and demonstrates that textile waste can be transformed into new garments," said Triumph. The company said the next stage would be to explore whether it could evolve the prototype into a capsule collection, while continuing to assess requirements around identification, traceability and end-of-life pathways.

French startup **Rec** (recently rebranded from Ecollant) claims to have developed a process that recycles 100% of the polyamide found in tights, and is now extending its capabilities to sportswear, lingerie, and swimwear. The dissolution process recovers polyamide with properties identical to virgin polyamide, it said, and the company has secured an 1,800 m² site in Joigny which will initially produce 100 tonnes/yr of the recycled material. A second site is planned for around 2030.

"What sets us apart is our ability to achieve the level of purity required to produce robust yarns that can be used on an industrial scale," said Operations Director Agathe Rouzaud.

Rec has secured feedstock via collection specialists and hotel chains, and while the initial focus was on tights which are rich in polyamide, the company is now broadening its collection scope. Rec has tested materials through associations with Divine and Révélation, and now intends to focus on supplying manufacturers and brands, some of which have already committed to purchase agreements.

Lingerie developments

Another European lingerie brand, **Iluna**, selected Q-Nova by **Fulgar** for several pieces in a collection showcased at the recent MarediModa, considered the leading European trade fair for beachwear, lingerie, and athleisure fabrics, which took place in Cannes last October. Q-Nova is a polyamide 66 fibre obtained from regenerated raw materials through a low-impact mechanical process which significantly reduces the ecological footprint of textile production without compromising quality. Italian fibre producer Fulgar has been developing traceable solutions that 'respect the environment' for over a decade, and has built a considerable portfolio of sustainable yarns.

"Even such a precious and elegant detail as lace can be sustainable," said Daniela Antunes, Marketing Manager at Fulgar. "Q-Nova demonstrates that it is possible to combine aesthetics with environmental responsibility, bringing innovation even to the most delicate and sophisticated fabrics for a new way of understanding fashion, where elegance, innovation, and tangible values coexist without compromise."

Iluna also works closely with **Asahi Kasei**, which has offered its Roica elastane fibre in the fields of active wear, lingerie, and fashion, since 1971. Recent developments have focused on integrating enhanced stretch functionalities with sustainability, and Asahi Kasei has forged alliances with several partners throughout the value chain. Several relevant collections for Spring/Summer 2026 have been showcased recently, including designs from Brugnoli incorporating Roica V550 from the Eco-Smart family, which contains 58% pre-consumer recycled contents. Other companies, including Dresdner Spitzen, Innova Fabrics, Inter Jersey, Lauma Elastic, and Sitip Technical Textiles, have integrated Roica stretch fibres in forthcoming collections.

Asahi Kasei recently took its sustainability a step further by combining biomass balanced Roica with Sensi ByNature, a biomass balanced polyamide 66 yarn from Nilit, to produce a new fabric with even less environmental impact. Both companies utilise raw materials created through the biomass balance approach, using renewable feedstocks made from reclaimed and recycled organic waste that does not compete with food sources, and then allocating a percentage of renewable feedstocks to their products.

- ***www.basf.com***
- ***www.loopamid.com***
- ***www.inditex.com***
- ***https://trexproject.eu***
- ***www.aquafil.com***
- ***www.samsaraeco.com***
- ***www.nilit.com***
- ***www.kbr.com***
- ***www.deakin.edu.au***
- ***www.lululemon.co.uk***
- ***www.europeanoutdoorgroup.com***
- ***www.invista.com***
- ***www.epochbiodesign.com***
- ***www.radicigroup.com***
- ***www.thelycracompany.com***
- ***www.triumph.com***
- ***https://ecollant.fr***
- ***https://iluna.com***
- ***www.fulgar.com***
- ***www.asahi-kasei.com***

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Ellen MacArthur Foundation

Katherine Petrecca
General Manager, Sustainable Innovation
New Balance

Adam Gardiner
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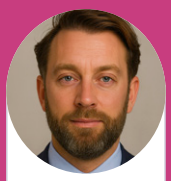

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Goodwill Industries International

Stuart Ahlum
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SuperCircle

Barbara Maida-Stolle
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Goodwill Industries of Northwest North Carolina

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Dr Sheng Lu
Professor and Director of Graduate Studies in the Department of Fashion and Apparel Studies
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Sr. Manager of Textile Recycling
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Morgan Ginn
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The Footwear Collective

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American Circular Textiles

Steve Bethell
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Bank and Vogue

Edd Denes
CEO
Accelerating Circularity

Carly Mick
Director of Sports Product Design
University of Oregon

Amelia Eleiter
Co-Founder and Chief Executive Officer
Debrand

Terri Riedle
Head of Partnerships, North America
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CTO and co-founder
Matoha

Madison PM Cline
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www.textilesrecyclingexpo.com/usa

The inaugural Textiles Recycling Expo USA has attracted major players offering circularity solutions

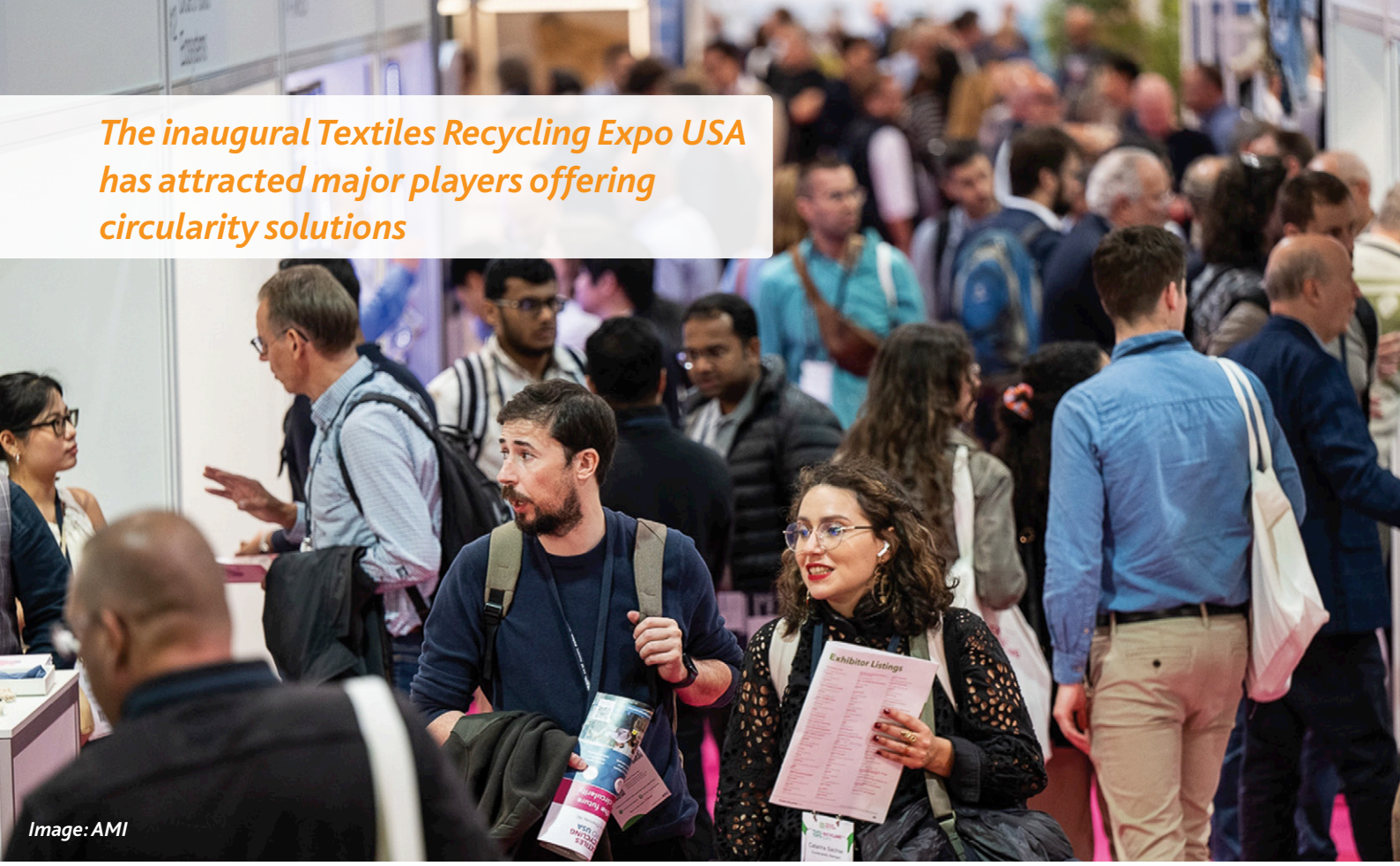

Image: AMI

Exhibitors line up for first focused US recycling show

The Textiles Recycling Expo USA takes place for the first time in Charlotte, North Carolina on April 29-30, and is significant as the country's first dedicated showcase for innovations to tackle the challenge of textile waste. The free-to-attend exhibition and conference is attracting leaders from brands, companies and organisations along the textile value chain, as well as stakeholders from non-profits, consumer groups and government.

The US event follows on from the successful debut event in Brussels, Belgium in 2025, and is organised by AMI (publisher of *TextilesLoop*), with the support of key organisations in North America, including Accelerating Circularity, Goodwill Industries International, The Secondary Materials and Recycled Textiles Association (SMART), American Circular Textiles and more.

The Textiles Recycling Expo USA features leading companies exhibiting their innovations in a wide range of areas, from sorting and shredding, to mechanical and chemical recycling, to AI and data optimisation. Read about the show's exhibitors on the following pages of this preview article.

The Textile Innovation Engine Showcase at the event is a dedicated space highlighting collaboration, innovation, and cutting-edge solutions in textile circularity and recycling technologies. It brings together pioneering organizations including NC State University, Material Return, Manufacturing Solutions Center (MSC), the Gaston Fiber Innovation Center, and Goodwill Industries of Northwest North Carolina.

Visitors to the Charlotte event are entitled to free attendance at the conference with its high-quality speaker program (see opposite). They can also enjoy other features – the VIP Lounge, sponsored by ReJu, is a premium space designed for retailers, global brands and industry leaders to connect, recharge, and maximize their show experience. A networking party, sponsored by Trützschler, offers an evening of relaxed conversations, fun activities, food and drinks as a chance to unwind and connect with industry peers in a social atmosphere.

TEXTILES RECYCLING EXPO USA

April 29-30, 2026 • Charlotte, NC

To register for a free ticket and to find out more information, visit the event website: **www.textilesrecyclingexpo.com/usa**

Opening times
Wednesday April 29th 2026: 9am - 5pm
Thursday April 30th 2026: 9am – 5pm

Venue
Charlotte Convention Center (Hall C2),
501 S College St, Charlotte,
NC 28202, United States

REGISTER FOR FREE TICKETS HERE

5REDO

5REDO is a sustainability consulting firm enabling organizations to measure, improve, and communicate their environmental performance. Specializing in life cycle assessment (LCA), techno-economic assessment (TEA), advanced data collection, and reporting, 5REDO's multidisciplinary team serves sectors such as textiles, packaging, and bioprocessing.

• ***https://5redo.ca***

A B Carter

A B Carter says it puts over 100 years of experience into the development and manufacture of products and solutions for the global spinning industry. Its vertically integrated manufacturing process ensures its products always provide the highest level of quality and consistency.

• ***www.abcarter.com***

Accelerating Circularity

Accelerating Circularity is an action-oriented nonprofit dedicated to driving commercial-scale textile-to-textile recycling. By uniting stakeholders in collaborative projects, it develops practical models and systems to enable circular supply chains throughout the textile industry.

• ***www.acceleratingcircularity.org***

Allertex of America

With over 40 years of experience, Allertex of America supplies machinery for nonwovens, technical textiles, and recycling markets. Its comprehensive offerings range from turnkey plants and process controls to ancillary spares that minimize downtime and optimize global manufacturing. Beyond core systems, it supplies high-value ancillary spares, including fire protection and specialized pinned lags.

• ***https://allertex.com***

American Truetzschler

American Truetzschler, the first international subsidiary of the Trützschler Group, has served the US and Canadian textile sector since 1969, operating from Charlotte, North Carolina. With more than 100 staff, it delivers spinning, nonwovens, and card clothing machinery.

• ***www.truetzschler.com***

Antex

Antex supplies man-made synthetic yarns and fibres to textile and automotive markets, with over 50 years of experience. Its extensive global reach and sustainable approach include solution-dyed, recycled, and recyclable products, including polyester, polyamide, and polypropylene.

• ***https://antex.net***

Bank & Vogue

Bank & Vogue is a major player in the second-hand goods market, focusing on wholesale, retail, design, and manufacturing. The company moves over 90m lbs of used goods annually worldwide, equating to roughly 500,000 individual items, and aims to prevent landfill waste and promote a closed-loop economy.

• ***www.bankvogue.com***

Birch Biosciences

Birch Biosciences is developing novel plastic recycling technologies using generative AI and advanced enzyme engineering to bring plastics into the circular economy.

• ***www.birchbiosciences.com***

Bonino Carding Machines

With over a century of expertise, Bonino Carding Machines designs and manufac-

Image: AMI

Free conference brings together US industry

As North America's first dedicated exhibition and conference focused exclusively on textile recycling, Textiles Recycling Expo USA will deliver a comprehensive two-day program from experts on turning circular ambition into scalable action. The conference is free to attend for all visitors to the expo.

Created in collaboration with Structural Partner Accelerating Circularity, the agenda has been carefully developed to address the most pressing challenges and opportunities across the US textile recovery and recycling landscape.

Goodwill Industries International joins as Impact Partner and sponsor of the Conference Theater – helping drive meaningful change across the industry.

Key themes for 2026 include:

- Policy, Regulation & Governance
- Collection, Sorting & Infrastructure at Scale
- Technology, Innovation & Textile-to-Textile Recycling
- Collaboration Across the Value Chain

The speaker lineup features influential voices from across the value chain, including leaders from Eileen Fisher, Lululemon, Debrand, Samsara Eco, Accelerating Circularity, Textile Exchange, FABSCRAP, Goodwill Industries International, ReJu, SMART, Fashion Takes Action, American Circular Textiles, the Ellen MacArthur Foundation, California Product Stewardship Council, WM, National Stewardship Action Council, Matoha, and many more.

The conference takes place on the show floor featuring over 85 exhibitors showcasing advanced recycling technologies, sorting systems, machinery, material innovations, and circular service solutions.

For more information and to register for the conference and exhibition, visit

• ***www.textilesrecyclingexpo.com/usa***

tures custom machinery for the textile and nonwovens industries. Its in-house solutions cover the entire process: recycling (cutters, rag tearing), preparation (bale openers, blenders), and carding for cotton, wool, and synthetics. Bonino's specialized equipment is tailored for each customer's requirements.

• ***www.bonino1913.it***

Borsoi USA

Borsoi Recycling engineers modular systems to process post-industrial and post-consumer textile waste, including complex, multi-layered materials, into valuable resources. Its AI-driven hyperspectral sorting, delayering, defibering, and selective separation technologies enable scalable circularity for fashion, furniture, and technical textiles.

• ***https://borsoi-filling-machines.com***

Brighi USA

Brighi's automated systems meet the diverse needs of manufacturers of pillows, decorative and outdoor cushions, multi-chamber cushions for sofas and armchairs, pet beds and upholstered items, quilts and duvets, and polyurethane blocks for mattresses.

• ***www.brighigroup.com***

Circ

Circ pioneers scalable textile-to-textile recycling with patented technology that separates polyester and cellulose from polycotton blends. Circ's first industrial-scale facility is in France. Its recycled Circ Lyocell and Circ Polyester are already in use through partnerships with high-profile brands, laying the infrastructure for a circular textile economy.

• ***https://circ.earth***

Cormatex

Cormatex is an Italian maker of textile machinery, serving global woollen spinning and nonwoven markets for over 35 years. Renowned for its commitment to green circular economy technologies, Cormatex's innovative Airlay Lap Formair system allows production of nonwoven products from various recycled wastes. It operates an R&D Center where an Airlay line has been installed, including all the special technologies the company developed for nonwoven production.

• ***https://cormatex.it***

Image: Lenzing

Circ expands its Fiber Club initiative

Polycotton recycling technology company Circ is scaling its Fiber Club initiative, launched last year, with a new group of brand partners, Madewell (under J Crew Group), Reformation, and European retailer C&A, along with supply chain partners Lenzing and Linz Textil.

Fiber Club was set up to address minimum order quantities and pricing challenges that have historically limited the adoption of new materials. Circ said that by aggregating demand across pulp, fibre, and yarn stages, this project for scaling next-gen materials is helping brands move from pilot testing to commercial product launches and long-term material commitments.

Brand partners will develop collections using Tencel lyocell with Refibra technology, made with 30% Circ pulp sourced from recycled polycotton textile waste. Circ provides the recycled pulp, which Lenzing converts into Tencel fibres. Linz Textil spins the fibres into yarn, and each brand nominates its own fabric and garment manufacturers to integrate into existing supply chains.

Circ said this model allows brands already working with Lenzing fibres to adopt Circ materials easily while expanding Circ's network of manufacturers capable of producing circular textiles at scale.

Cross Plains Trading

Cross Plains Trading, headquartered in Chatsworth, Georgia, provides textile and plastic recycling services. It represents industry groups from across the world, including Italian textile manufacturers, in the North American market for recycling and production of nonwovens.

• ***www.crossplainstrading.com***

Cycla

Cycla is a second hand clothing wholesaler connecting buyers and sellers globally, enabling its clients to efficiently and responsibly manage overstock and excess thrift products.

• ***https://cyclallc.com***

DataBeyond

Founded in 2018, DataBeyond is a leader in automated AI optical sorting and robotics for the recycling industry. Its systems leverage proprietary hyperspectral sensors, advanced databases, and robust AI models, which it says revolutionizes textile and waste sorting. Its technology is widely adopted, underpinned by intellectual property and strong investor backing, it says.

• ***www.databeyond.com***

Debrand

Debrand is a leading North American textile sustainability and circularity provider, supporting apparel and footwear brands. Its holistic ecosystem utilizes tech-enabled sortation and expert solutions for large-scale reuse, recycling, responsible disposal, and circular innovations.

• ***https://debrand.ca***

Dell'Orco & Villani

Dell'Orco & Villani is an Italian firm which has been designing and manufacturing machinery for textile recycling since 1964. The company produces robust, efficient systems for mechanical textile waste processing enabling the recovery and reuse of fibres, and also offers maintenance services, installation, and spare parts for single machines and complete plants.

• ***www.dellorco-villani.it***

Draper Knitting Co

Draper Knitting Company specializes in knitted high pile, jersey, double knits, napped fleece, single sided terry and nonwoven fabrics for fashion, performance, industrial and safety applications.

• ***https://draperknitting.com***

Emmebi Impianti

Emmebi Impianti offers high-technology air treatment solutions for the textile sector, specializing in filtration, humidification, and dust/fibre extraction systems. Emmebi's patented systems handle the heavy dust loads generated by textile processing, optimizing waste recovery and supporting mechanical recycling.

• ***www.emmebi-impianti.it***

Evogreen

JS Royal Home produces Evogreen, high-quality recycled polyester (PET) DTY and FDY yarns. Operating with North American headquarters in Charlotte, NC, it supports suppliers, retailers, and brands in achieving sustainability goals.

• ***www.goevogreen.com***

Fabscrap

Fabscrap provides a convenient and transparent recycling and reuse service, offers affordable and accessible materials as a valuable resource, and educates and empowers a diverse community of changemakers dedicated to sustainable practices.

• ***https://fabscrap.org***

Fibraloop

Fibraloop, based in Turkey, supplies high-quality pre-consumer and post-industrial textile waste to global recyclers and manufacturers.

• ***https://fibraloop.com***

Gneuss

Gneuss delivers advanced plastics and fibre recycling machinery, supported by over 100 patents and four decades in the field. Its Omni recycling machines are complete, compact recycling systems for the processing of PET or nylon reclaim, such as fibre waste, into high quality end products, such as staple fibre, POY, FDY or BCF. Gneuss' constant-pressure filtration and automation technology ensures operational reliability and superior material quality.

• ***www.gneuss.com***

Hangzhou Benma

Hangzhou Benma Chemfibre and Spinning specialises in the production of recycled fibres and high-performance spun yarns using post-consumer and industrial textile waste, promoting the reuse of valuable materials in the fibre supply chain.

• ***www.hzbmhq.com***

Trützschler puts Truecycled yarn into cars

Technology group Trützschler offers circular solutions with its Truecycled recycling installations that enable production of high quality yarn made from textile waste. It was involved in the development of recycled yarn with the German company Brain of Materials which is being used in Lotus electric cars.

The Wyron Truecycled yarn consists of 50% post-consumer textile waste and 50% recycled polyester. It is used for the back sections of car seats, providing a sustainable solution without compromising the standards expected by Lotus, said Trützschler.

The company says Truecycled covers every step from cutting and tearing textile waste to carding and drawing secondary fibers, and enables the efficient production of sustainable, reliable yarns that serve as a premium alternative to conventional materials.

The Lotus Eletre and Emeya models can be equipped with Wyron Truecycled yarn. Image: Lotus Cars

Helluva Container

Helluva Container specializes in supplying high-quality new and used Gaylord boxes, bulk bags, and logistics packaging throughout the US. With nationwide inventory and proactive stocking, Helluva ensures reliable packaging for companies managing textiles and recyclables. It also purchases used Gaylord boxes, advancing both cost savings and sustainability.

• ***https://helluva.com***

Just Porch It - Novafiber

Just Porch It provides an at-home pick-up service for unwanted textiles and other household items that fit in a bag.

• ***https://justporchit.com***

Kavurlar

Based in Izmir, Turkey, Kavurlar manufactures approximately 120 bale presses annually, supplying them to 67 countries. Its presses efficiently process all fibre types and are trusted for their engineering excellence and reliability. The company serves the textile, recycling, and material handling industries globally.

• ***www.kavurlar.com.tr***

Kipaş Mensucat

Kipaş Mensucat is addressing complex textile waste recycling through the fibR-e platform. The platform integrates patented molecular recycling technology developed by Meltem Kimya, which is an essential component of its approach, with thermo-mechanical recycling provided by Kipaş Textiles.

• ***www.kipastextiles.com***

Konica Minolta

Konica Minolta Sensing Americas delivers advanced optical technologies for precise colour and light measurement in textiles, manufacturing, and research. Its innovative products – including spectrophotometers, colorimeters, and light meters – enable strict product quality, reduce waste, and streamline operations.

• ***https://sensing.konicaminolta.us***

Looptworks

Looptworks is a Certified B Corp based in Oregon, specializing in textile-to-textile recycling solutions. Looptworks transforms pre- and post-consumer textiles into high-quality, recycled fibre products.

• ***https://looptworks.com***

MacroCycle Technologies

MacroCycle Technologies' patented SolvoGenesis upcycling process converts textile waste to virgin-quality recycled polyester. Unlike conventional chemical or mechanical recycling, its patented process directly upgrades polymer chains through macrocyclic intermediates in a non-toxic solvent. This preserves polymer integrity while removing dyes, cotton, elastane, and other contaminants.

• ***www.macrocycle.tech***

Margasa

Margasa builds complete installations for recycling all kinds of textile waste, as well as for opening, cleaning, and mixing all kinds of fibres. It also designs and manufactures full plants for the production of non-woven materials using the Airlay system.

• ***www.margasa.com***

Masias Maquinaria

Masias Maquinaria, with over 80 years in fibre processing innovation, supplies machinery enabling mattress and textile producers to recycle production scraps into valuable materials. It delivers turnkey projects across key sectors: comfort fabrics, non-woven fabrics, production waste recycling, and filling production for the garment industry.

• ***www.masiasmaquinaria.com***

Material Return

Material Return, based in North Carolina, partners with manufacturers and national brands to offer localized, custom circularity. By transforming regional textile waste into new products, it benefits local economies, workers, clients, and the environment.

• ***www.thematerialreturn.com***

Matoha

Matoha Instrumentation provides textile identification technology that directly scans garments, generating accurate, actionable data for sorters and recyclers in real-world operations. Its tools replace guesswork with robust, garment-level tracking and tracing. The company says that brands can gain insight into post-consumer reality, rather than relying on models or averages. In an industry full of ambition, it says it focuses on delivery.

• ***www.matoha.com***

Reju and its partner Goodwill of the Finger Lakes gathered with dignitaries in February to celebrate Rochester's growing leadership in textile circularity.
Image: Goodwill of the Finger Lakes

Reju chooses Rochester, NY as site for first US Regeneration Hub

Textile-to-textile company Reju has selected a site in Rochester, New York for its first US-based industrial facility. The planned Regeneration Hub will be located on Eastman Business Park where Reju's depolymerization technology will breakdown polyester in textile waste in to produce rBHET which can then be repolymerized into Reju PET.

"As our first Regeneration Hub in the United States, this site selection is a major leap forward in building a truly global circular system," said Patrik Frisk, CEO of Reju.

Reju has a demo plant Regeneration Hub Zero operating in Frankfurt, Germany, and it previously announced the site selection of Regeneration Hub One at Chemelot Industrial Park in Sittard, Netherlands.

The Reju site spans 18.9 acres on Eastman Business Park and is expected to have capacity to regenerate the equivalent of 300 million articles annually.

The project will be subject to a final investment decision by the board of Technip Energies, the parent company of Reju.

MyThriftXchange

MyThriftXchange operates a B2B online auction platform supporting the reuse, repurposing, and re-commerce of used clothing, textiles, and related products. Connecting global buyers and sellers, it ensures ethical, transparent trade and meets industry demands for convenient, secondary market access.

• ***https://mythriftxchange.com***

Pana Central Europe

Pana Central Europe is a leader in the design and manufacture of innovative containers for clothing collection as well as devices for storing and sorting textiles. The products stand out not only for their functionality and durability but also for their aesthetics. The company has developed efficient solutions for automating, optimizing and supporting the processes of collecting and sorting used clothing. The modular construction of the containers allows for significant optimization of transport and servicing costs, reducing emissions and environmental impact.

• ***https://pana-ce.com***

Petshka

Petshka transforms complex PET textile waste into high-performance, tailor-made polyester polyols. The company's materials engineers collaborate closely with industrial partners to unlock new value from waste and develop premium, sustainable solutions for foams, coatings, adhesives, elastomers, and insulation systems. These applications span multiple sectors, including automotive, construction, and textiles.

• ***www.petshka.com***

Picvisa
Picvisa is a European leader in AI-powered optical sorting for recycling, with over a decade of innovation in machine vision, robotics, and automated fibre identification. Its Ecosort Textile solution enables high-speed, accurate garment sorting by fibre content, colour, and texture, facilitating reuse, recycling, or fibre-to-fibre processes. Picvisa's technology supports the scaling of automated, circular textile recovery infrastructure for recyclers adapting to new sustainability and regulatory standards.
• ***https://picvisa.com***

Pierret Industries
Pierret Industries is a leader in feeding and cutting equipment for the textile and plastic industries.
• ***www.pierret.com***

Planet Aid
Planet Aid operates seven textile reuse facilities serving 14 states in the Mid Atlantic, Midwest and Northeast, collecting 67m lbs of clothing and shoes in 2024.
• ***www.planetaid.org***

Pure Loop
Pure Loop, a subsidiary of Erema Group, provides highly efficient recycling solutions with decades of experience and technological innovation. Based in Austria, its advanced systems deliver robust, reliable performance for processing a variety of plastics and textile waste.
• ***www.pureloop.com***

Recover Central America
Recover Central America, a joint venture with Intradeco, brings Recover's proprietary recycled cotton technology closer to CAFTA region textile hubs. Specializing in mechanical recycling, Recover transforms post-industrial and post-consumer waste into recycled cotton fibres.
• ***https://recoverfiber.com***

Recoyarns
Recoyarns, a Zhongyuan Runsheng brand, specializes in the production of high-end recycled polyester chips (PET) and polyester filaments (POY, DTY, FDY, ACY and ATY) for textile-to-textile applications. As well as mechanical recycling, the company has proprietary chemical/enzymatic recycling technologies for post-consumer recycling.
• ***www.recoyarns.com***

Redwave
Redwave is a leader in XRF sorting systems and turnkey recycling plant solutions. Headquartered in Austria, with US operations in Atlanta, it has over 1,000 machines deployed worldwide. Redwave's technology design allows for set up in most spaces, yields high throughput and is expandable from single machines to larger factory settings.
• ***www.redwave.com***

Reju
Reju, owned by Technip Energies and leveraging IBM-developed technology, specializes in advanced textile-to-textile recycling, focusing on post-consumer polyester textiles and PET waste. It aims to build a global system for closing the loop on PET-derived fibres and advancing circularity in the textile industry.
• ***www.reju.com***

Selenis Portugal
Selenis supplies innovative copolyesters and

recycled PET resins for textiles. Its Texnascis technology upgrades recycled monomers into new, high-quality fibres and fabrics. By offering flexible collaboration and integration across the value chain, Selenis enables partners to scale up recycled fabrics without major infrastructure investments.
• ***www.texnascis.com***

Sensoneo
Sensoneo provides software and hardware for smart waste management, serving 90+ countries with 160+ professionals worldwide. Implementing IT systems for Deposit Return Schemes (DRS) and deploying thousands of sensors, Sensoneo enables cities, businesses, and countries to optimize recycling performance, automate collection, and improve data reporting.
• ***https://sensoneo.com***

Smartex Solution (e.dye)
Providing sustainable solutions from green design to low environmental impact products, e.dye utilizes recycled/recyclable materials and proprietary dyeing with the e.dye Waterless & Clean Color System. The e.dye Digital Color System enables precise colour prediction and acceleration.
• ***https://e-dye.com***

Shredding Systems
SSI has been manufacturing leading industrial shredders and compactors since it was founded in 1980. It manufactures low-speed, high-torque 1, 2 and 4-shaft shredders suitable for waste plastics and textiles.
• ***www.ssiworld.com***

Syre Impact
Founded in 2023 by H&M Group and Vargas, and backed by other investors, Syre is building infrastructure for a future where every textile fibre is renewed instead of wasted. It says that its textile-to-textile recycling solution provides circular polyester with quality on par with virgin polyester, but with a superior sustainability performance.
• ***www.syre.com***

Texpin Makine
Texpin produces high-quality pinned lags and spiked/non-spiked aprons for rag-tearing, opening, and carding drums in recycling and textile machinery. Utilizing superior materials and engineering, Texpin supplies major machinery brands and guarantees durability and performance for customers in textile and nonwoven production globally.
• ***https://texpin.com***

Textile Innovation Engine of North Carolina
The Textile Innovation Engine collaborates with supply chain, market, education, and government leaders to accelerate research, commercialization, manufacturing, and workforce readiness.
• ***https://textileinnovationengine.org/***

Thortsen Magnetics
Thortsen Magnetics, a Bunting distributor, offers a wide range of permanent and electromagnets, metal detection equipment, shredders, material handling systems, and conveyors.
• ***https://thortsenmagnetics.com***

Thryfter Technologies
Thryfter is a live-stream app connecting buyers and sellers in the secondhand, textile grading, and retail industries. The platform fosters a dynamic, fun environment for B2B and B2C interactions.
• ***http://thryfter.com***

Unclaimed Baggage
Unclaimed Baggage, based in Scottsboro, Alabama, is the only US retailer of lost airline luggage contents, attracting over a million visitors annually. Its Reclaimed for Good foundation donates proceeds and goods worldwide. The Love Luggage initiative provides personalized suitcases to foster children.
• ***www.unclaimedbaggage.com***

Unifi
Utilizing proprietary recycling technology, Unifi transforms post-industrial and post-consumer waste into premium fibre products. With vertically integrated operations across the Americas and global sales, Unifi is supporting brands and industries in adopting transformative, traceable sustainability practices.
• ***https://unifi.com***

UpCycle Fiber
UpCycle Fiber says it is pioneering advanced recycling techniques that dramatically reduce textile waste while maximizing value.
• ***https://upcyclefiber.com***

US Extruders
US Extruders is a premier supplier of single-screw extruders and custom extrusion systems for plastics and rubber, known for innovation, reliability, and transparency. Its proactive inventory management and on-time delivery support top-quality manufacturing.
• ***www.us-extruders.com***

Valérius Têxteis
Valérius Têxteis is a Portuguese textile manufacturer focused on circularity and sustainable production. The company offers comprehensive textile solutions, including knitwear production, dyeing, and finishing, and supports innovation through eco-conscious designs and materials.
• ***www.valerius.pt***

Valvan
Based in Belgium, Valvan specialises in automated sorting and baling systems for the second-hand and recycling textile markets. Combining AI-driven smart technologies with machine vision, Valvan's systems enhance sorting precision and maximise material recovery. The company provides modular and turnkey installations, empowering textile recyclers to scale sustainably and efficiently.
• ***www.valvan.com***

Weima America
Weima builds custom shredders and compressors for plastics, paper, textiles, metals, and more. With over 40 years of expertise, its machines process scrap materials on site, reducing waste, lowering costs, and enabling internal material reintegration.
• ***www.weima.com***

Whitehouse & Schapiro
Whitehouse & Schapiro is a textile trading company based in Baltimore, Maryland. It trades clothing, shoes, purses, hard and soft toys, household items and more.
• ***www.webuyrags.com***

Zerma America
Zerma America specializes in size reduction machinery, from shredders to granulators and pulverizers, as well as auxiliary equipment like conveyors and separators. It offers both stand-alone and custom-built systems for plastics, textiles, and recycling.
• ***www.zerma-america.com***

Image: Shutterstock

Tracing textile origins and sustainability with new technology

Traceability is becoming a priority in the textile supply chain for reasons of provenance and circularity. David Eldridge finds out about technologies that can help in recycling

Supply-chain transparency has been a growing feature of the global textile industry, particularly in cotton. The trend for transparency and product traceability is relevant to all textile materials, as increased public concern has led to greater regulatory activity, notably the EU Digital Product Passport (see box on p27). This, in turn, has encouraged the development of tools – to collect and use data, gain certification, enable compliance and prove sustainability claims – by companies and organisations supporting the textile industry in its move to circularity through recycling.

Oritain, which uses analytical techniques to verify product and material origin, found in a study of 450 fashion industry professionals that 40% of businesses say they are fully or almost fully committed to end-to-end traceability, but more than half (56%) have no traceability activities or plans.

In the 2025 Future of Fashion Traceability report Oritain highlighted the risks to fashion companies with no traceability strategy, saying it expected to see a rise in US border enforcement of the Uyghur Forced Labor Prevention Act (UFLPA) to stop the entry of cotton goods made with forced labour. Other evolving regulations that require effective traceability, it said, are the EU's Deforestation Regulation, Transparency in Supply Chains Act, Digital Product Passports, and the potential Buying American Cotton Act.

Oritain said the impact of UFLPA has forced businesses to improve transparency, with nearly half of cotton-dominant businesses (46%) in the study saying they

Oritain has highlighted the risks to fashion companies that have no traceability strategy. Image: Oritain

now have supply chain visibility to Tier 4 level. In another key insight, it noted more than half of businesses (51%) increased their traceability investment in the past two years, and 56% plan to increase it in the next two years. But the size of business matters, with companies employing more than 250 people having larger increases.

"Enhancing supplier transparency and material traceability is essential for making more sustainable decisions, helping to reduce the environmental and social impacts of the textile industry," says **Fashion for Good** on its website. The fashion industry platform's work has covered digital platforms and physical tracers, developing pilot programmes with brands and manufacturing partners to validate traceability solutions.

The Tracing Textile Waste project, conducted in partnership with **Textile Exchange**, focused on standardising data for recycled textiles to improve traceability and support sustainable practices. The project involved partners Adidas, Target, Bestseller, Norrøna, Levi Strauss, Control Union, Reverse Resources, Recover and Usha Yarns.

"At present, the industry cannot tell whether the recycled fibres it is using come from plastic bottles or from another source, and the data that is collected is often not classified or standardized efficiently," said Textile Exchange last year when it released an update to its Reclaimed Materials Declaration Form (RMDF). Using the findings of the project, Textile Exchange's recalibrated RMDF captures and standardizes data points such as a fibre's composition, colour, origin or source. It will become part of Textile Exchange's Trackit system which is being further developed to build a multiparty system.

Adidas recycling certificate

Technology groups have created traceability and transparency solutions for the textile supply chain based on data optimisation, using digital tools including AI and blockchain, and physical markers in fibres. **TrusTrace** started out in Sweden in 2016 and works with a range of partners in brands, retail and manufacturing. Its traceability and compliance data management platform is used by industry companies for automated data capture and validation direct from their supplier network. It has launched an AI-driven upgrade to its platform which it says increases data reliability and insight quality. Shameek Ghosh, CEO of TrusTrace, said the upgrade enables companies to move from reactive crisis management to proactive strategies.

Adidas has been using TrusTrace since 2021. In an interview on the TrusTrace website, Sigrid Buehrle, SVP of Sustainability and ESG at Adidas, said the brand's initial focus was on transparency with its direct suppliers, through mapping their supply chain, and then it moved onto traceability. Starting with recycled polyester, it added verification steps, linking brand purchase orders to production steps, certificates, supplier declarations and quality reports, so that it could prove the use of recycled content.

"We built the tool with TrusTrace initially to ensure that we have the certificates for [our recycled polyester] products to support our recycled polyester ambition. Now we are expanding our approach to cotton, other recycled [materials], certified down, certified wool, and organic hemp," said Buehrle.

"Ideally, in the future, we should be able to work with the non-financial data as we do with the financial data," she said. "This would be my North Star – that's where we need to get to, with an effective data landscape and a standardised approach to data collection and evaluation."

TrusTrace has most recently established new partnerships with Swedish retail group Åhléns and fashion brand Asos. The latter is using the TrusTrace platform to support: supply chain mapping for end-to-end visibility from Tier 1 to Tier 5; product-level traceability; centralised compliance documentation for evolving regulations;

Image: Shutterstock

and analytics and reporting for supplier collaboration and ESG reporting.

Tracers in fibres

Physical tracers are an innovative technology being applied to textiles. **Haelixa** uses DNA markers to ensure product traceability and transparency across the supply chain, including for textiles. It recently formed a partnership with New Focus Textiles, which produces GRS-certified recycled cotton fabrics from post-industrial and post-consumer textile waste. The Haelixa DNA marker is applied directly to the cotton waste before shredding and remains intact throughout New Focus Textiles' mechanical recycling process.

"Derived from Swiss mountain herbs, the marker is permanent, cannot be removed or copied, and stays embedded throughout spinning, weaving, dyeing, and finishing," said Haelixa. The material can be tested at any point in the supply chain to confirm origin and verify recycled content. The company said this provides physical proof of recycled fibre identity, going beyond certification schemes that rely solely on documentation or chain-of-custody declarations.

"Recycled claims need solid evidence," said Patrick Strumpf, CEO of Haelixa. "By marking textile waste, manufacturers can scientifically prove the presence of recycled

EU gives textile sector a major challenge to be DPP-ready in a tight time schedule

The textile industry is one of the first sectors that the EU requires to implement Digital Product Passports (DPP) under the Ecodesign for Sustainable Products Regulation. It will be mandatory for all textile products sold in the EU to have a basic DPP from 2027. This year, the EU is setting up a digital registry to store all DPP data.

Stressing the time pressure for brands and retailers, DPP solution provider **Segura** said in a recent blog post: "Delegated acts defining specific DPP requirements are expected in late 2026/early 2027 for textiles and other product groups, typically followed by an 18-month compliance period."

It said that by 2030, the EU requires an advanced DPP which will be progressively extended to other stakeholders with information collected along the lifecycle. Then, by 2033 a full circular DPP for textiles to include all lifecycle data will be necessary.

"If DPPs need to be implemented from 2027 to be live by 2030, it doesn't leave much time to get a complete grip of each new product's traceability and circularity options," said Segura. It described the Europe-wide roll-out of new software as "a huge undertaking".

Segura suggests the following timeline for DPP readiness:

Jan-Mar 2026:	Identify and select a platform, map out your requirements and create a phased deployment plan aligned to your legislative requirements, targets and commitments;
Apr-Aug 2026:	Discover and map your upstream supply chain;
Sep-Dec 2026:	Collect missing ESG data and evidence, and identify risks;
Jan 2026-Apr 2027:	Take action to mitigate risks;
May-Sep 2027:	Prepare and implement a DPP solution.

Along with Segura, companies offering DPP, LCA and product data solutions include Renoon, TrusTrace, TEXroad, Retraced, Fairly Made, Intertek, Aware and Carbonfact.

The Haelixa DNA marker, which is sourced from herbs, is applied directly to textile waste. Image: Haelixa

content in new fibres, yarns, or garments and secure customers' trust."

Physical tracers can come in different forms. Luminescent pigments, for example, have been developed by **FibreTrace** in the UK. These are integrated directly into the recycled fibre at the source, at the recycling stage for T2T and at the point of PET conversion for B2T, making its recycled origin permanently verifiable. Real-time, on-site identification via a scanner takes place at each point in the the supply chain. FibreTrace has partnerships with a wide range of industry players, such as fashion brand Reformation, retail group Target and cotton company Cargill.

Blockchain supply chain

The digital platform developed by **TextileGenesis** uses blockchain technology to verify chain of custody at each stage of transformation. Its system enables digitalisation and traceability of any textile asset such as fibre, yarn, fabric or garment through the creation of digital tokens called Fibercoins. It can be used in conjunction with certification schemes; for example, Textile Exchange has licensed TextileGenesis to offer its eTrackit services.

Since start-up in 2018, TextileGenesis has been working with brands including Zegna, On and Lululemon, fibre producers Supima and Lenzing, as well as organisations in verification like Textile Exchange and US Cotton Trust. Multi-continent cotton recycler **Recover** has started a pilot project using the TextileGenesis platform to trace recycled cotton and polycotton inputs selected to test the platform across different supply chain configurations. The Fibercoin technology was used to generate digital tokens for every kilo of material, creating a verified chain of custody at each transformation stage. The pilot is designed to complement Recover's existing physical tracer and GRS certification, adding another layer of traceability and transparency.

Adoption of the TextileGenesis technology in the cotton sector extends to organic cotton as well as recycled material. Certification group **Oeko-Tex** has discussed its partnership with TextileGenesis to enhance its organic cotton certification. It said that digitalisation of Transaction Certificates will bring physical material movements and certification data together on a single platform and replace fragmented, paper-based processes.

A pilot project in 2025 traced selective organic cotton supply chains across India and Bangladesh, involving ginning, spinning mills, fabric mills and testing institutes. In the pilot, 11 supply chain actors were involved, 24 certificates were added and approved across 19 certified transactions that were successfully captured and validated. Oeko-Tex said the platform will be developed further, with the aim of scaling digital Transaction Certificates across additional organic cotton supply chains.

"Real-time transparency and interoperability will be essential going forward," said Oeko-Tex CEO, Dr Alfred J Beerli. "Our ambition is not only to keep pace with industry developments, but to actively help shape future-ready certification standards."

Projects cover traceability

There have been a number of EU collaborative projects to improve textile circularity that have included work programmes on traceability and data challenges, often in preparation for the introduction of digital product passports. These include: SORT4CIRC – AI and sensor-based systems for textile sorting; T-REX – blueprint for textile-to-textile recycling in polyester, polyamide and cotton; TRICK – blockchain technology for collecting, managing and verifying product data; STREP – closed-loop yarns with digital tracking; SOLSTICE – tools for textile circularity including a traceability system; ECHT – traceability of chemicals within the textile supply chain; and DigInTraCE – decentralized traceability framework applicable across many sectors.

The new **Autoloop** project, which has EU Horizon2020 funding, is using markers and digitalisation for the traceability part of an extensive programme that also focuses on advanced sorting and chemical recycling of textiles. In one of the work streams, material-embedded tracers developed by **Tailorlux** will be used to authenticate fibres, support ecodesign, enable future contactless detection at the sorting stage and improve product identification in digital product passports. **TEXroad**'s Data Hub connects all actors through real-time data exchange, DPP-compatible product information, standardised formats, interoperability across stakeholders and offers support for LCA, logistics, chain of custody and business development. The project, which concludes in August 2029, is co-ordinated by Fraunhofer UMSICHT in Germany and comprises a total of 14 partners from seven countries.

- ***https://oritain.com***
- ***www.fashionforgood.com***
- ***https://textileexchange.org***
- ***https://trustrace.com***
- ***www.adidas.com***
- ***https://haelixa.com***
- ***www.fibretrace.io***
- ***https://textilegenesis.com***
- ***https://recoverfiber.com***
- ***www.oeko-tex.com***
- ***www.autoloop-project.eu***
- ***www.tailorlux.com***
- ***www.texroad.org***
- ***www.segura.co.uk***

Re-centring circularity:
why reuse must remain at the heart of the global textiles economy

Alan Wheeler, CEO at the UK's Textile Recycling Association, discusses misconceptions around used clothing exports to Africa, and says that reuse must not be forgotten by policymakers

Image: Shutterstock/Pressmaster

Discussions about how to deliver a circular textiles economy tend to focus heavily on developing new recycling technologies. Fibre-to-fibre recycling will undoubtedly play an important role, but it is important that we do not lose sight of the circular solution that already operates successfully at global scale: reuse.

The used clothing trade is a minnow compared with the vast and ever-expanding global fashion industry. Of the estimated 120bn items of clothing placed on the market each year globally, only around 10% are ever collected by the used clothing sector, with the vast majority ultimately being discarded in the country where they were first purchased. Yet for the clothing that is captured by the reuse system, the environmental, social and economic benefits are significant. Put plainly, it remains by far the most sustainable part of the clothing supply chain.

By keeping clothing in use for longer and displacing the need for new production – where the largest positive environmental impacts occur – the used clothing trade delivers a wide range of other benefits including:

- Job creation and income generation for millions of people across Africa, Asia and Latin America. Many businesses operating in the sector are owned and run by women, making the trade an important contributor to economic inclusion and gender equality.
- Access to affordable clothing. In many lower-income countries the used clothing trade allows consumers to purchase durable garments at prices they can afford.
- Government revenue generation. Import duties, tariffs and VAT on second-hand clothing bales generate tax revenues in many countries, supporting public services and infrastructure.
- Strengthening the global circular economy. By extending garment lifecycles, the trade reduces demand for new production and lowers the overall environmental footprint of the textile industry.

Yet despite these benefits, the sector is increasingly misunderstood in policy discussions and public narratives. At a time when governments are designing new regulatory frameworks for textiles – including extended producer responsibility (EPR),

The proportion of a bale of used clothing that is not reused is small. Image: Shutterstock / De Jong

Kantamanto market in Accra, Ghana, is said to be "a prime example of a circular economy in practice". Image: Shutterstock / Adogla-Bessa

eco-design requirements and digital product passports – it is important to re-centre the discussion around what already works.

In the UK, businesses responsible for collecting, sorting and preparing used textiles for reuse and recycling are represented by the Textile Recycling Association (TRA), whose members account for over 75% of the established trade by volume and operate much of the infrastructure that underpins this circular system.

Already operating at scale

Every year an estimated 10 to 14bn used garments are collected, sorted and traded globally, extending the life of clothing and reducing the need for new production.

The UK has historically played a central role in this system. For many years it collected more used clothing per head of population than almost any other country, routinely recovering around 60% of clothing placed on the market through charity collections, textile banks and door-to-door collections.

According to the UK Textiles Situation Market Report (2024), approximately 1.4m tonnes of new textile products are placed on the UK market each year, with around 51% currently being collected for reuse and recycling. This decline reflects growing pressures on the collection and sorting sector, driven in part by the increasing volumes of very low-value clothing entering the market.

Once collected, textiles pass through detailed sorting processes that can separate material into 150 to 400 different grades, identifying reusable garments and separating items suitable for recycling.

Reusable clothing is then sold into global markets where demand exists. In colder climates such as Eastern Europe heavier garments are more popular, while in parts of sub-Saharan Africa lighter clothing suitable for warmer climates is preferred. These markets are driven by consumer demand, not by exporters seeking to offload waste.

Lower-grade materials that are no longer suitable for reuse are separated during sorting and repurposed into products such as industrial wiping cloths, insulation materials and other recycled textile products, while only a small proportion currently enters fibre-to-fibre recycling.

This reuse-led system remains one of the most mature and effective circular models operating within the global textiles economy today.

The forgotten R's of circularity

In policy discussions about textile circularity, the waste hierarchy is frequently cited but not always followed in practice. The circular economy framework prioritises reduce, reuse, repair, refurbish and remanufacture before recycling. Yet current debates often focus heavily on recycling technologies, sometimes overlooking these earlier interventions that preserve far more value.

In reality, many of these "forgotten R's" are already widely practised in parts of the world where the reuse economy is thriving.

Markets such as Kantamanto in Accra, Ghana, one of the world's largest second-hand clothing markets, provide a powerful example. Traders, tailors and repair specialists routinely extend garment life through repair, alteration and remaking. Items that might be considered waste in the Global North are frequently transformed into new garments or repurposed into entirely different products.

A report published by GIZ on behalf of the German Federal Ministry for Economic Cooperation and Development described Kantamanto as "a well-organised and closed system with clear rules, task distributions and hierarchies" and concluded that the market represents "a prime example of a circular economy in practice."

This ecosystem demonstrates how textile life extension can operate efficiently when the right economic incentives, infrastructure and skills are present. Rather than viewing such systems as problems to be solved, policymakers may have much to learn from them.

'This reuse-led system remains one of the most mature and effective circular models operating within the global textiles economy today.'

The global used clothing trade has come under increasing scrutiny in recent years, often accompanied by claims that large proportions of exported clothing quickly become waste. One frequently repeated statistic suggests that 40% of imported used clothing becomes waste in African markets, yet closer examination shows such figures often lack robust empirical foundations.

Addressing common misconceptions

Field-based research provides a more accurate picture. Studies examining the composition of imported bales consistently show that the proportion of material classified as waste is very small. The GIZ research examined flows through Kantamanto market in Accra and found that textiles identified as waste within imported bales accounted for around 1.2% of their contents. Research commissioned by the Mitumba Consortium Association of Kenya found that waste arising within imported bales is estimated to be around 2%. Research commissioned by the UK Foreign, Commonwealth and Development Office in partnership with UN Trade and Development (UNCTAD) examining markets in Tanzania and Uganda found comparable results, with waste levels typically around 1% of bale contents.

Stakeholders working directly within these markets emphasise that the vast majority of clothing entering these systems is actively traded and reused. Teresiah Wairimu of the Mitumba Consortium Association of Kenya explains: "Second-hand clothing is an important source of employment and affordable clothing in Kenya. Quality checks by the Kenya Bureau of Standards and sorting in exporting countries mean that clothing entering the market has already undergone several stages of sorting. In markets such as Gikomba and in second-hand shops across the country, traders stock clothing knowing there is demand and each item is likely to find a buyer."

Marvin Owusu of the Ghana Used Clothing Dealers Association says: "In Ghana, second-hand clothing is a vital industry. It provides affordable, quality clothing, supports millions of livelihoods, and helps tackle the waste created by overproduction in fashion. Very little of what arrives in bales can't be sold, reused, upcycled or downcycled. The reality is that the clothing we import is not waste; it is valuable, and it is in demand."

Images used in media reports can also distort perceptions. Photographs of textiles in landfill sites may suggest clothing dominates these waste streams, yet waste characterisation studies show that dumpsites are typically composed primarily of organic waste, plastics, paper, glass and metals, with textiles representing only around 2-6% of total waste.

These images therefore highlight broader challenges related to municipal waste management systems, rather than the functioning of the used clothing trade itself.

Getting the policy balance right

As governments develop policies to accelerate textile circularity, striking the right balance between supporting and investing in the reuse markets and recycling will be critical. Recycling technologies will require significant investment to reach scale, but policy frameworks should avoid creating unintended incentives that divert reusable clothing away from reuse markets prematurely. Well-designed policies should therefore recognise that reuse delivers the highest environmental value and should remain the priority within the circular hierarchy.

At the same time, innovation in sorting and recycling technologies will play an important role in ensuring that textiles that include good quality clothing and items that can no longer be reused remain within the circular economy. The Textile Recycling Association is a partner in the €5m Horizon Europe research project Sort4Circ, which brings together industry, technology providers and research organisations to explore how advanced sorting technologies can strengthen circular textile systems.

The project aims to develop automated sorting systems for post-consumer textiles that cut costs, improve efficiency, and create high-quality feedstock for re-use and recycling.

Alongside technological innovation, policy signals will also be essential to support the development of textile recycling markets. The Textile Recycling Association is currently the only UK trade association advocating the introduction of mandatory recycled content targets in new clothing, which will be essential to stimulate demand for recycled fibres and support investment in both mechanical and chemical textile recycling technologies.

This direction of travel is increasingly reflected in policy developments across Europe. The EU is exploring recycled content requirements for textiles as part of its Sustainable Products framework, while in the UK the government is expected to outline further measures to accelerate circularity in the forthcoming Circular Economy Growth Plan.

Recognising the value of the reuse systems that already exist – while simultaneously supporting innovation in recycling technologies – will be essential if policymakers are to build a genuinely circular textiles economy.

• ***www.textilerecyclingassociation.org***

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A range of technologies will be utilised, including automated optical sorting. Image: Tomra

SORT4CIRC aims to improve sorting with new technologies

SORT4CIRC is a new multi-partner project with EU funding which focuses on the challenges of textile sorting as part of recycling operations. Innovation in sorting and recycling technologies is expected to proliferate as the textiles sector moves towards a more circular economy, said Alan Wheeler, CEO of Textile Recycling Association, one of the project partners.

"Today, much of the sorting infrastructure still relies heavily on manual processes, which can be labour intensive, costly and difficult to scale," he said. "As the volume of collected textiles increases, more advanced sorting systems will be needed to efficiently separate garments suitable for reuse from materials destined for recycling. This is where new research and innovation initiatives are beginning to play an important role."

The SORT4CIRC project is a €5m Horizon Europe research programme running from 2026 to 2028, involving 14 partners from across Europe. Its purpose is to tackle challenges in post-consumer textile sorting and recycling. By combining multiple novel technologies, SORT4CIRC aims to develop automated sorting systems that cut costs, improve efficiency, and create high-quality feedstock for reuse and recycling.

"The ambition is not to replace existing reuse systems, but to strengthen them," said Wheeler. "Improved sorting technology could enable operators to identify reusable garments more efficiently while also producing higher-quality material streams for recycling when reuse is no longer possible."

The project brings together expertise from across the textile value chain to explore how technologies such as AI-driven visual recognition, spectroscopy and digital product passport systems could improve sorting accuracy and traceability. Constructor University in Germany is the lead co-ordinator.

- ***https://constructor.university***
- ***www.textilerecyclingassociation.org***

Circular diaper materials: Synthomer teams up with Woosh to develop recycling

A new partnership focused on circularity in diapers has been announced by materials group Synthomer and Woosh, a Belgian company dedicated to making diapers circular.

The collaboration combines Woosh's pioneering "give-back" diaper model and Synthomer's expertise in adhesives, an essential component in diapers. Together, the two organisations are working to break diapers down to their molecular level, extract high-quality materials, and use those materials to produce new diapers.

Alby Roseveare, CTO and Co-founder of Woosh, said: "The biggest technical barrier to circular diapers isn't collection anymore – it's materials. Synthomer brings the adhesive and polymer expertise we need to make circular diapers viable at scale. This collaboration accelerates what we've been working toward from day one."

Woosh is creating a closed-loop system that keeps used diapers out of landfills and incinerators without changing the habits of childcare providers and parents. Synthomer said its role in the partnership is twofold. "First, Synthomer is working to ensure that the adhesives used in diapers can be recycled safely and effectively, and, over time, made from materials that are not directly derived from oil. Second, Synthomer's position in the value chain gives it a unique ability to connect diaper manufacturers with upstream materials suppliers, helping to promote circularity at scale across the sector," said the company.

- ***www.synthomer.com***
- ***https://woosh.care***

Woosh is creating a closed-loop system that keeps used diapers out of landfills and incinerators. Image: Woosh

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Fashion for Good to use mass balance approach with biomass-attributed PET in textile applications

A Mass Balance Demonstrator project announced by Fashion for Good aims to implement and scale the mass balance attribution (MBA) chain-of-custody model for biomass-attributed PET in textile applications.

The mass balance approach enables renewable feedstocks to be combined by a chemical company with fossil feedstocks in the same infrastructure and chemical processes and by the time they become resin they are chemically indistinguishable. The renewable amount is then attributed as a share of the resin output.

The project will use biomass-attributed polyester (PET) but the approach could also be used for other fibres such as nylon.

The project is structured around four interconnected objectives:

- Producing biomass-attributed resin and yarns, generating real-world output that matches performance parity;
- Quantifying the climate impact with a comprehensive cradle-to-grave greenhouse gas (GHG) emissions model for the produced materials;
- Delivering a practical roadmap for scaling biomass-attributed PET in the apparel sector, identifying key supply chain actors, assessing lifecycle accounting approaches for different chain-of-custody models, and evaluating the techno-economic feasibility of market deployment.
- Informing climate frameworks and industry standards by sharing insights from the project with climate initiatives and standard-setting bodies.

Mass balance is a chain-of-custody model used by chemical companies. Image: Indorama Ventures

Brand and industry partners include: Bestseller, Beyond Yoga (Levi Strauss), On, Paradise Textiles, Environmental Resources Management, Indorama Ventures, ISCC, UPM Biochemicals and Textile Exchange.

Anders Schorling Overgård, Material Research Lead at Bestseller said the company expects to gain experience of MBA and bio-attributed polyester by taking part in the project. "Hopefully, as we collaborate with other great partners, this can initiate pathways that can support scaling of renewable feedstocks (or inputs) going forward," he said.

• ***www.fashionforgood.com***

Solstice shares mid-project results on four EU territories

Since its launch in May 2024, the Solstice project in Europe has been accelerating the transition from linear models to circular regional ecosystems in the textile industry. It focuses on four key territories; Grenoble-Alpes Métropole (France), Berlin (Germany), Prato (Italy), and Catalonia (Spain), and has already revealed both regional disparities and promising solutions to strengthen textile repair, reuse, and recycling infrastructure.

The European Union-funded project began with an in-depth territorial analysis led by Circle Economy to examine how local textile systems operate across the four regions. The findings revealed significant geographic imbalances. For example, circular services such as repair, reuse, and recycling, remain largely concentrated in urban centres, leaving suburban and rural areas underserved.

The analysis also confirmed that a uniform approach to circularity is ineffective as each territory operates within a distinct economic and infrastructural context. While Berlin and Grenoble are primarily consumption hubs focused on creative repair, Prato is defined by its industrial recycling capacity. Meanwhile, Catalonia collects high volumes of textile waste but still relies heavily on landfills due to a lack of reuse infrastructure.

Building on the territorial analysis, particularly regarding infrastructure access and public habits, Solstice launched targeted pilots designed to actively involve citizens in the circular economy.

In Berlin, the project introduced the Repair Deal via Circular Berlin, a pilot that encourages citizens to repair denim rather than discard it by combining a digital bonus system with local repair services. Meanwhile, the Municipality of Prato addressed engagement through an app called greenApes which maps local reuse services and rewards sustainable behaviours, allowing users to convert points into discounts or donations to social projects.

• ***www.solstice-project.eu***

Denim Deal pilot delivers circular denim in the Netherlands

The T2T recycling chain led to recycled fibres being spun and reintroduced into denim production. Image: Garcia/Denim Deal

The Denim Deal has completed a pilot scheme demonstrating how post-consumer textile waste collected in the Netherlands can be transformed back into denim, closing the loop within a national system and generating critical insights for scaling textile-to-textile recycling. The pilot resulted in the production of 800 circular denim pieces, now available in selected Garcia stores.

While volumes were intentionally limited, the primary value of the pilot lies in the learnings generated across cost structures, technical performance, and logistical barriers. These insights are essential for enabling future pilots at greater scale and advancing textile-to-textile recycling within the Netherlands.

The pilot was supported by Stichting UPV Textiel and brought together the full denim value chain, including Garcia, Sympany, Frankenhuis, Cibutex, Spinning Jenny, and Bossa. Together, the partners explored how Dutch post-consumer textiles can be collected, sorted, recycled, spun, and reintroduced into denim production.

Rather than focusing solely on product output, the pilot captured measurable insights around mapping cost breakdowns at every stage of the reverse supply chain, identifying process efficiencies, logistical bottlenecks, and structural barriers that affect the movement of post-consumer textiles through a national recycling system, and assessing fibre length versus end use, fibre quality in relation to opening technologies, feedstock availability and consistency, and the relationship between material input and usable output.

• ***www.denimdeal.net***

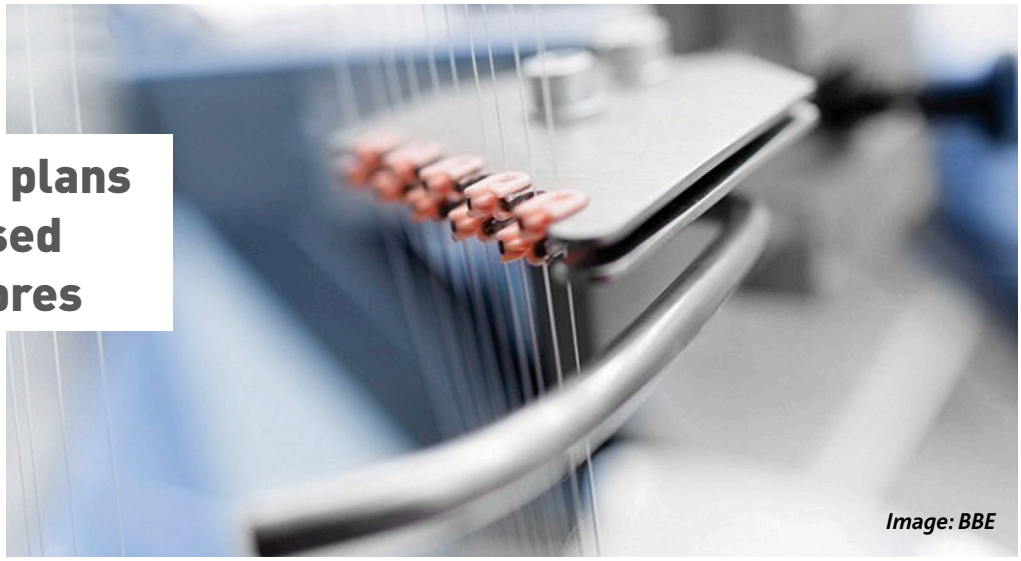

Image: BBE

German project plans to make bio-based polyethylene fibres

In the German BioPEtex research project, technology group BB Engineering (BBE) is collaborating with multiple partners to develop textile materials made from 100% bio-based polyethylene (PE). The project seeks to examine the use of the polymer in the fibre sector, where it has previously had limited adoption, and ultimately aims to develop textiles made from 100% bio-based PE that are both environmentally sustainable and economically viable.

BBE contributes its expertise in synthetic fibre production and recycling technologies to the project, which is funded by the German Federal Ministry of Research, Technology, and Space. It is responsible for the development of the texturising stage which significantly influences the functional and mechanical properties of the resulting textile fibres. Partners include the Institute for Textile Technology at RWTH Aachen University, Falke and Tecnaro.

"With our participation in the BioPEtex project, we don't just want to contribute to the development of sustainable solutions, we also want to focus on the economic benefits for our customers," said Dr Klaus Schäfer, Managing Director of BBE. "Bio-PE textiles offer companies the opportunity to reduce their production costs while tapping into new market segments."

PE is one of the most widely produced polymers globally. Known for its durability, hydrophobic nature, low weight, and chemical stability, it is primarily used in the packaging industry. Despite its widespread production, it has rarely been used for textile fibre manufacturing as it crystallises at relatively low temperatures, creating a narrow processing window for spinning and texturising. In addition, its low polarity makes dyeing difficult. On the positive side, it has very low density, strong chemical resistance, high dimensional stability and abrasion resistance, and water-repellent properties.

- ***https://biotexfuture.info***
- ***https://bbeng.de***

SKZ launches CloseT project to develop solvolysis process

With the CloseT research project, the SKZ Plastics Center – Europe's largest independent plastics institute specialising in research, testing, certification, and professional training – is working with the Fraunhofer Institute for Manufacturing Technology and Applied Materials Research in Germany to develop a new process for recycling mixed waste textile fibres.

The CloseT project focuses on using solvolysis, which involves recycling mixed textile fibres in a continuous process using a twin-screw extruder. "We want to create a sustainable alternative that not only conserves resources but also opens up new value chains," said Dr Hatice Malatyali, project manager at SKZ.

Sampling of reaction products in a recycling process. Image: Luca Hoffmannbeck/SKZ

Suitable synthesis routes are first developed in the laboratory before being transferred to the continuous process with a focus on the efficient separation of mixed fibres such as cotton and PET. Cellulose acetate is to be produced from the cellulose fibres obtained, while the degraded PET fractions are repolymerised to rPET.

"With this project, we are making an important contribution to reducing textile waste and strengthening the circular economy," said Prof Andreas Hartwig from the Fraunhofer Institute for Manufacturing Technology and Applied Materials Research.

- ***www.skz.de***
- ***www.ifam.fraunhofer.de***