



TENCEL™ Lyocell – feels so right

TENCEL™ Lyocell is a wood-based and biodegradable fiber made with highly resource efficient closed-loop technology. TENCEL™ Lyocell is a net-benefit product¹, which offers positive benefits to environment, society and value chain partners and as such a preferable alternative to resource-intensive fibers with higher environmental impact.








Dedicated to responsible sourcing

TENCEL™ Lyocell fibers are derived from various sustainably managed tree species, e.g. spruce, pine, birch, beech and eucalyptus, harvested from certified and controlled sources following the stringent guidelines of the Lenzing Wood and Pulp Policy.

As wood is the most important natural resource for TENCEL™ fibers, the focus lies on sustainable sourcing based on FSC® and PEFC™ certifications², responsible processing and highly efficient use of wood through biorefinery producing biobased products and bioenergy, e.g. at Lenzing Austria.

Lenzing promotes conservation solutions to protect ancient and endangered forests. In 2017, Lenzing was the first cellulose fiber producer to complete the verification audit of the CanopyStyle Initiative. In 2020, Lenzing’s efforts were recognized with the “Dark-Green Shirt”, the best ranking in Canopy Hot Button Report.

CanopyStyle Info Box

						
30-35 buttons	25-29 buttons	20-24 buttons	15-19 buttons	10-14 buttons	5-9 buttons	0-4 buttons

The CanopyStyle Initiative is led by environmental not-for-profit Canopy, which is working to protect the world’s ancient and endangered forests globally. This initiative collaborates with brands to implement sourcing policies that ensure ancient and endangered forests do not end up in textiles. Canopy has been so far supported by over 125 brands, designers and retailers by implementing strict sourcing policies.

¹ Lenzing’s net-benefit products offer positive impacts and benefits to environment, society, and value chain partners, which are significantly better than most competing alternatives in the market. Net-benefit products take a life-cycle perspective and thus include both upstream and downstream value chain processes. Net-benefit thinking describes the performance of our specialties and forward solutions that form part of the sCore TEN strategy.

² FSC-C041246, PEFC/06-33-92



Made by closed-loop technology

Environmentally sound production



EU Ecolabel : AT/016/001

The technology used for TENCEL™ Lyocell achieves a significant reduction of chemicals and emissions. Due to the conversion of cellulose into fiber through a closed-loop technology, this solvent-spinning process recycles process water and reuses the solvent at a recovery rate of more than 99.5 percent.

The benefit of the lyocell process is to derive the cellulose from pulp without relying on the chemically complex viscose process.

The raw material pulp is derived from renewable wood or – as in REFIBRA™ technology – to a certain amount from alternative sources such as cotton scraps. In contrast to the traditional chemical viscose process, the lyocell process directly dissolves cellulose in the organic solvent without the need to derivatize the cellulose. This means that no environmentally harmful substances are used and the overall production process for lyocell fibers is therefore simplified.

TENCEL™ Lyocell fibers are certified with the EU Ecolabel.

Carbon-zero TENCEL™ Lyocell



CarbonNeutral.com

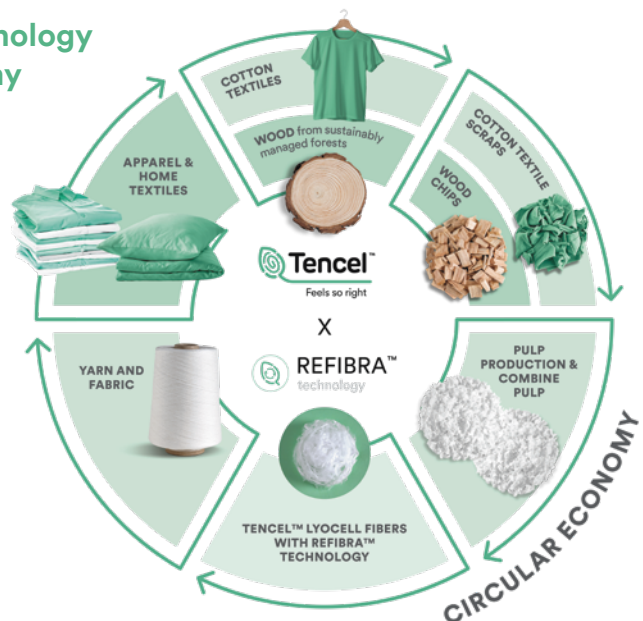
Climate change is one of the most pressing challenges of our generation.

As the first cellulosic fiber producer committed to Science Based Targets initiative, Lenzing wants to drive the change for a decarbonization within the textile industry: Carbon-zero TENCEL™ Lyocell sets a new standard in sustainability.

For carbon-zero TENCEL™ Lyocell the CO₂ footprint was reduced by using a cleaner energy mix and investments in increased production efficiency. Lenzing also engaged with suppliers to reduce the carbon footprint for chemicals and raw materials. The very low emissions that cannot be reduced yet have been offset by supporting high quality carbon reduction projects around the world, in communities impacted by the textile industry. TENCEL™ Lyocell fibers are certified as CarbonNeutral® products in accordance with The CarbonNeutral Protocol – the leading global framework for carbon neutrality.

TENCEL™ Lyocell fibers with REFIBRA™ technology Lenzing's latest innovation in circular economy

The pioneering REFIBRA™ technology involves upcycling cotton scraps from pre- and post-consumer cotton textile waste. These cotton scraps are transformed into recycled pulp and a substantial proportion of 30 percent is added to the wood pulp. Out of these combined raw materials new virgin TENCEL™ Lyocell fibers are produced.





Recycled Claim Standard

TENCEL™ Lyocell fibers produced with REFIBRA™ technology are available with Recycled Claim Standard (RCS). The RCS is used

as a chain of custody standard to track recycled raw materials through the supply chain and it verifies the amount of recycled material in a final product. This is achieved through input and chain-of-custody verification by a third party. It enables transparent, consistent, comprehensive independent evaluation and verification of recycled material content claims for products.

TENCEL™ Lyocell fibers with REFIBRA™ technology were successfully launched in 2017. This makes Lenzing the world's first manufacturer to produce cellulosic fibers partly using recycled raw material on a commercial scale, offering new possibilities for a circular economy.

Lenzing's five-year vision is to raise the industry bar by producing fibers with REFIBRA™ technology by having up to 50% recycled content until 2025, in order to make textile waste recycling as common as paper recycling.

Technology benefits of TENCEL™ Lyocell

- TENCEL™ with Micro technology allows especially lightweight fabrics, offering an even finer quality of lightness and exquisite softness.
- TENCEL™ with REFIBRA™ technology is a circular economy solution. It gives all the performance of TENCEL™ Lyocell with the added value of reusing cotton that would have gone to waste.
- Carbon-zero TENCEL™ Lyocell is an offer for a next generation of sustainable fibers. It is our solution for the textile industry to reduce carbon emissions while maintaining the same excellent fiber performance.

Application areas

TENCEL™ Lyocell has a wide range of application areas:



Denim



Active



Intimate
& casual knits



Footwear



Ready to wear /
Workwear



Home

Derived from nature, returns to nature

TENCEL™ Lyocell fibers³ are fully biodegradable under soil, freshwater and marine environment. Due to their biodegradability, TENCEL™ Lyocell fibers do not contribute to the marine litter and micro plastic pollution caused by synthetic materials.

TENCEL™ Lyocell is also fully compostable. It has been proven that it biodegrades comparably fast in all natural environments, whereas polyester and other synthetic fibers persist for a long time.



³ Applicable for all TENCEL™ Lyocell standard fibers



Life cycle assessment and impact of TENCEL™ Lyocell

TENCEL™ Lyocell facts



sustainable raw materials



resource-efficient manufacturing of pulp in biorefinery



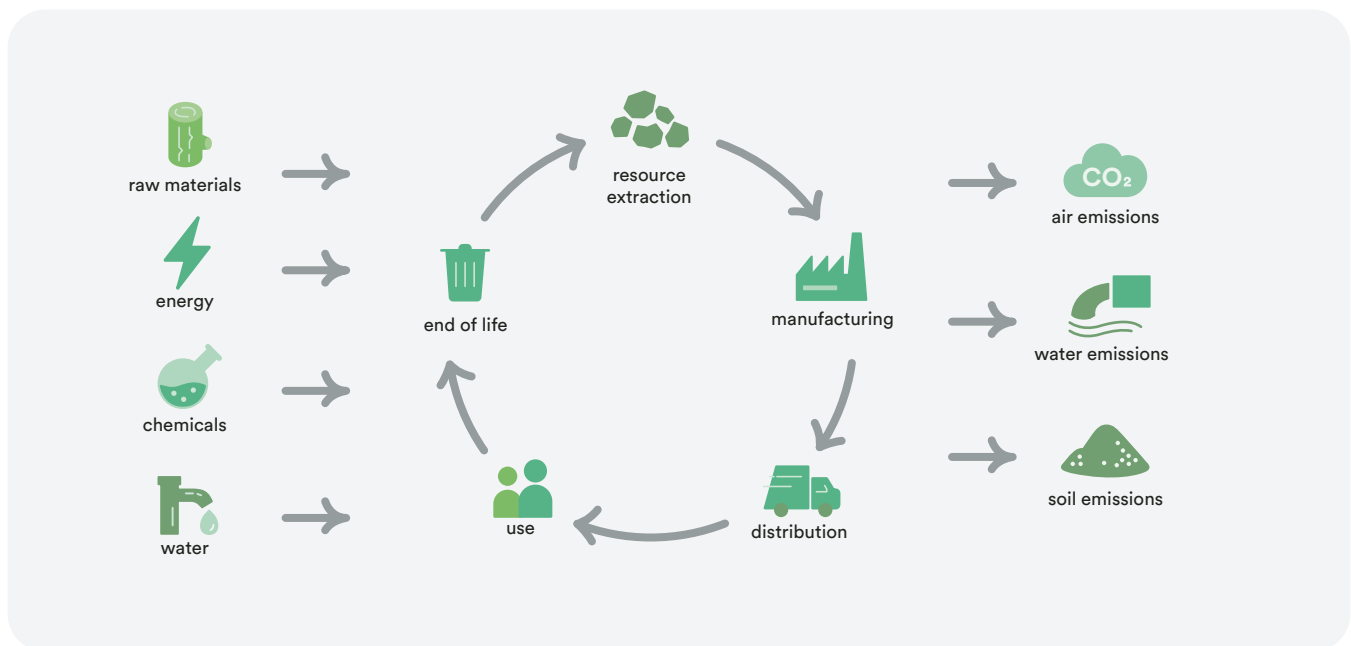
closed-loop fiber production with >99.5 % solvent recovery

Life cycle assessment

Life Cycle Assessment (LCA) is a systemic analysis tool to evaluate potential environmental impacts of products throughout their life cycle. The methodology of LCA is based on international standards and considers material and energy flows from and to product systems, such as use of resources or emissions to air.

An LCA study looks at all flows entering and leaving the product system's boundary and calculates potential environmental impacts related to the representative functional unit, such as 1 kg of TENCEL™ Lyocell fiber. Potential impacts are expressed in different categories such as Climate Change, Eutrophication or Abiotic Resource Depletion.

Lenzing uses LCA to identify areas for environmental optimization of products not only during fiber manufacturing but also within the supply chain. By conducting cradle-to-gate LCA for TENCEL™ Lyocell fibers, potential environmental impacts are discovered for all upstream and core process activities until the fiber leaves the factory gate.





Higg MSI of TENCEL™ Lyocell

The Higg Material Sustainability Index⁴ (MSI) uses LCA to evaluate environmental impacts of materials in the textile industry. The MSI reports the category indicators of Global Warming, Eutrophication, Water Scarcity, Abiotic Depletion of Fossil Resources, and Chemistry per functional unit (1 kg of fiber) and additionally provides the two inventory metrics of Water Consumption and Biogenic Carbon Content.



Global Warming
3.16 kg CO₂ eq.



Eutrophication
0.00242 kg PO₄³⁻ eq.



Water Scarcity
0.765 m³ world eq.



Chemistry
4 units



Abiotic Resource Depletion, Fossil Fuels
45.3 MJ



Water Consumption
47.9 kg



Biogenic Carbon Content
0.39 kg C | 1.4 kg CO₂

