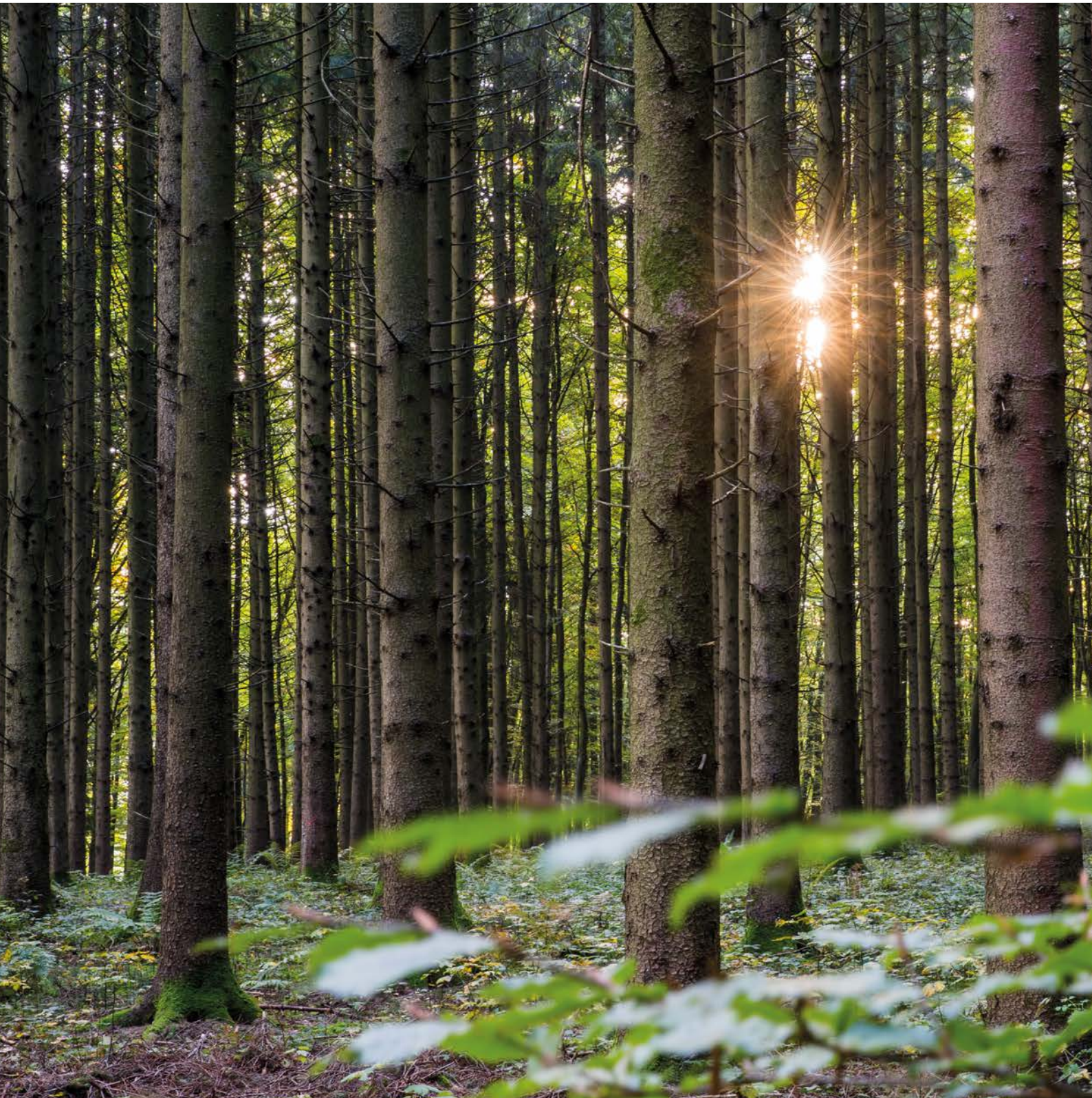




**superior softness
and sustainability
go hand in hand**

TENCEL™ Modal

 **Tencel™**
Feels so right





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the path to sustainability

the path to sustainability



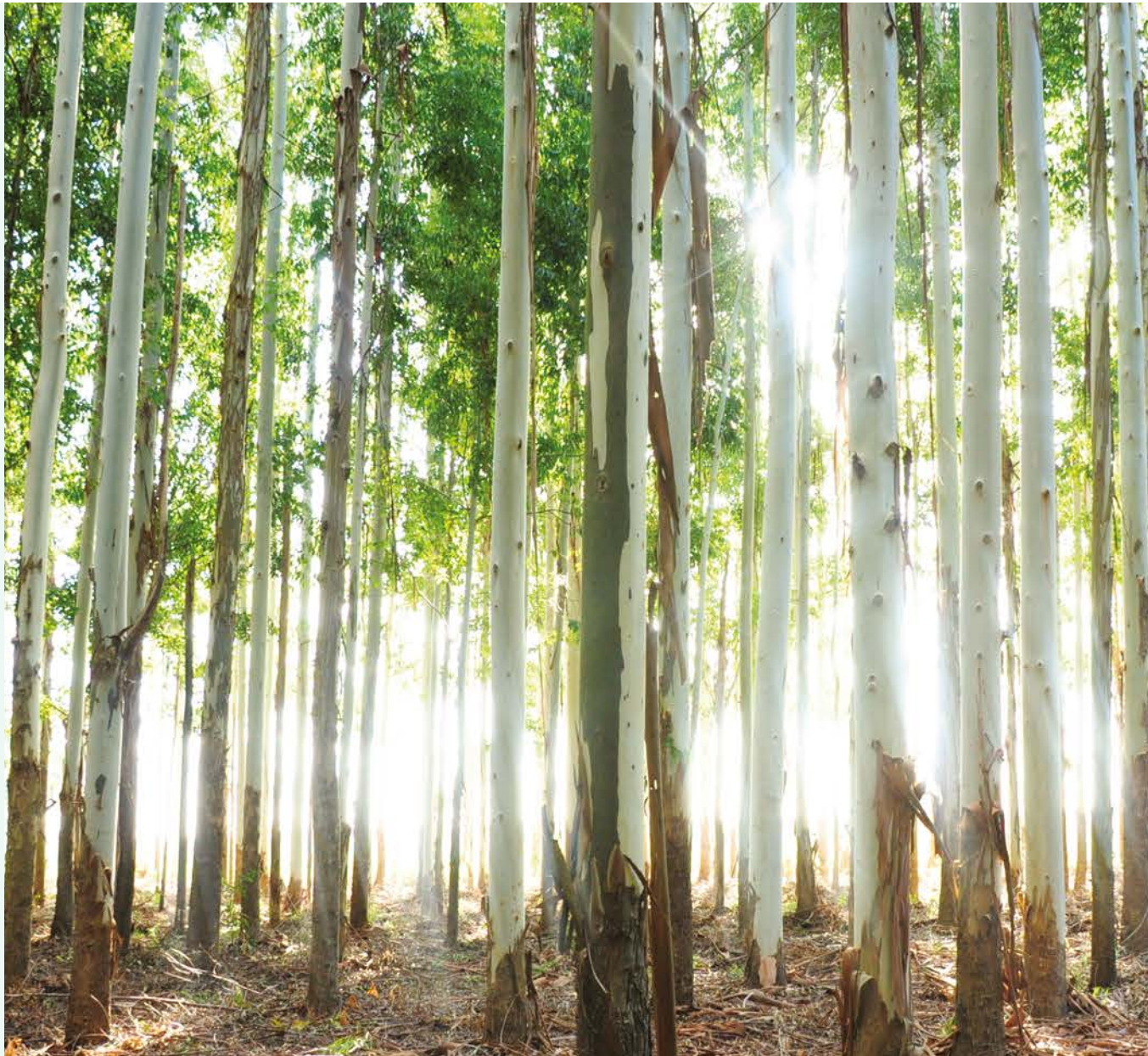
Today's consumers are increasingly demanding sustainable products. Being made from wood – a renewable resource – and suitable for numerous applications, TENCEL™ Modal fibers have the potential to contribute to a more sustainable future. In recent years, however, “dirty fashion” campaigns have highlighted undesirable practices in modal manufacturing by some producers, including unsustainable wood sourcing, water and air pollution, and a lack of transparency.



Fortunately, there is a more environmentally responsible way to produce modal fibers. As the pioneer of modal technology, the Lenzing Group is playing a leading role in transforming industry practices. Its TENCEL™ Modal fibers are produced in an eco-responsible and transparent way which addresses consumer concerns, helping to maintain the environmental balance by being integrated into nature's cycle. Brilliant in color and luster, TENCEL™ Modal fibers are known for being exquisitely soft and pleasant to the skin. Being plant-based and biodegradable, they offer a sustainable alternative to fossil-based synthetic fibers. Moreover, they also offer advantages over cotton production, which requires, for example, large volumes of water.

sustainability begins in the forest

sustainability begins in the forest



Sustainability begins at source – in the forest where Lenzing derives the wood for TENCEL™ Modal production.



botanic origin

TENCEL™ Modal fibers are mainly manufactured from beech wood, sourced from sustainably managed forests in Austria and neighboring countries. Beech wood forests are a natural and renewable source of raw material. A big share of the wood used at the Lenzing site comes from Austria, harvested from certified and controlled sources following the stringent guidelines of the Lenzing Wood and Pulp Policy.

TENCEL™ Modal fibers have earned United States Department of Agriculture (USDA) BioPreferred® designation.



sustainable wood sourcing

Lenzing uses wood derived from responsibly managed forests and certified to come from sustainable sources. The 2019 Hot Button Report of the Canadian non-profit environmental organization Canopy ranked Lenzing as one of the best performing wood-based cellulosic fiber producers worldwide for its sustainable sourcing practices.

100% wood utilization

As a responsible resource user, Lenzing makes full utilization of wood for TENCEL™ Modal production, extracting biorefinery products during the pulping process, with any residue being used for bioenergy.



biodegradable

The need for sustainable practices does not cease when a garment comes to the end of its useful life. All TENCEL™ standard Modal fiber types have been certified as biodegradable and compostable under industrial, home, soil, fresh water and marine conditions, thus they can fully revert back to nature.



environmentally responsible production

Lenzing seeks to minimize the environmental impact of its production processes by using resources efficiently and optimizing their value.

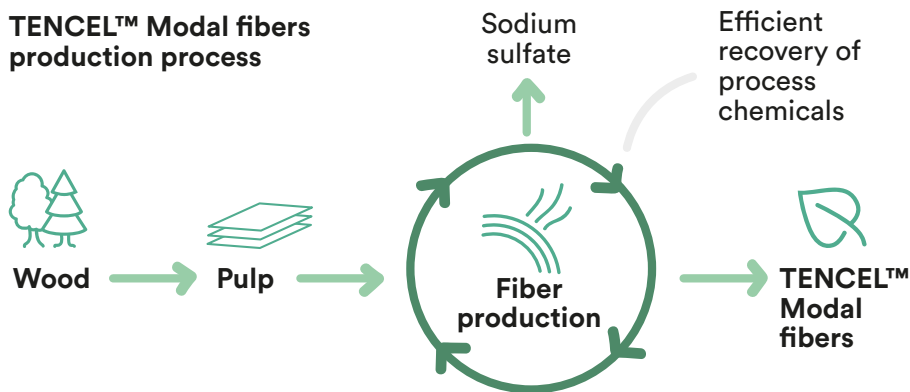




sustainable production

Fully integrated pulp and fiber production at the Lenzing site in Austria makes it possible to produce TENCEL™ Modal fibers in an eco-responsible way. At Lenzing, we strive to safeguard resources for future generations by the use of renewable energy from the pulp mill and by recovery of remaining components as co-products. Numerous Lenzing innovations have been integrated in the production of TENCEL™ Modal fibers to make the process environmentally sound, with efficient use of natural resources and low emissions.

TENCEL™ Modal fibers production process



application of technologies to enhance fibers

Lenzing applies various technologies to TENCEL™ Modal fibers to modify their characteristics. In addition to maintaining highly sustainable production practices, these enhance the functional advantages of the fibers. **Eco Soft technology** brings exquisite softness to all TENCEL™ Modal fibers. **Eco Color technology** brings vibrant long-lasting color to the fibers, with efficient resource usage and low environmental impact as compared with conventional dyeing. **Eco Pure technology** offers totally chlorine-free bleaching – only available from Lenzing – for even more eco-responsible production, delivering the cleanest of all modal choices.





Eco Soft technology



EU Ecolabel :
AT/016/001

TENCEL™ Modal fibers are produced by Eco Soft technology, an environmentally responsible choice offering exquisite softness to textiles. The technology uses an integrated pulp-to-fiber process that has high recovery rates of process ingredients and causes very low emissions to air.

It predominantly uses surplus renewable energy from the pulp mill, making this fiber an environmentally responsible choice as proven by the EU Ecolabel for textile products.




Eco Color technology

This eco-responsible technology offers long-lasting color fastness and design flexibility in textiles. Lenzing's Eco Color technology **uses up to 50% less water, 50% less energy and generates 60% less emissions** than conventional dyeing.

Fibers produced using the Eco Color technology have been certified with the EU Ecolabel, a label of environmental excellence awarded to products meeting high environmental standards throughout their life cycle. Fashion can be enjoyed with a clear conscience.

up to
50%
water savings 

up to
50%
energy savings 

60%
less carbon
footprint 



Eco Pure technology

Both pulp and TENCEL™ Modal fibers with Eco Pure technology are bleached by a totally chlorine-free process in an integrated production site with high environmental standards. Owing to the gentle bleaching process, textiles made predominantly of such fibers tend to be softer compared to conventionally bleached TENCEL™ Modal fibers.



responsible environmental choice

Totally chlorine-free bleaching in pulp and fiber delivers the cleanest modal production technology currently existing, making it the most environmentally responsible modal choice.



Austrian origin

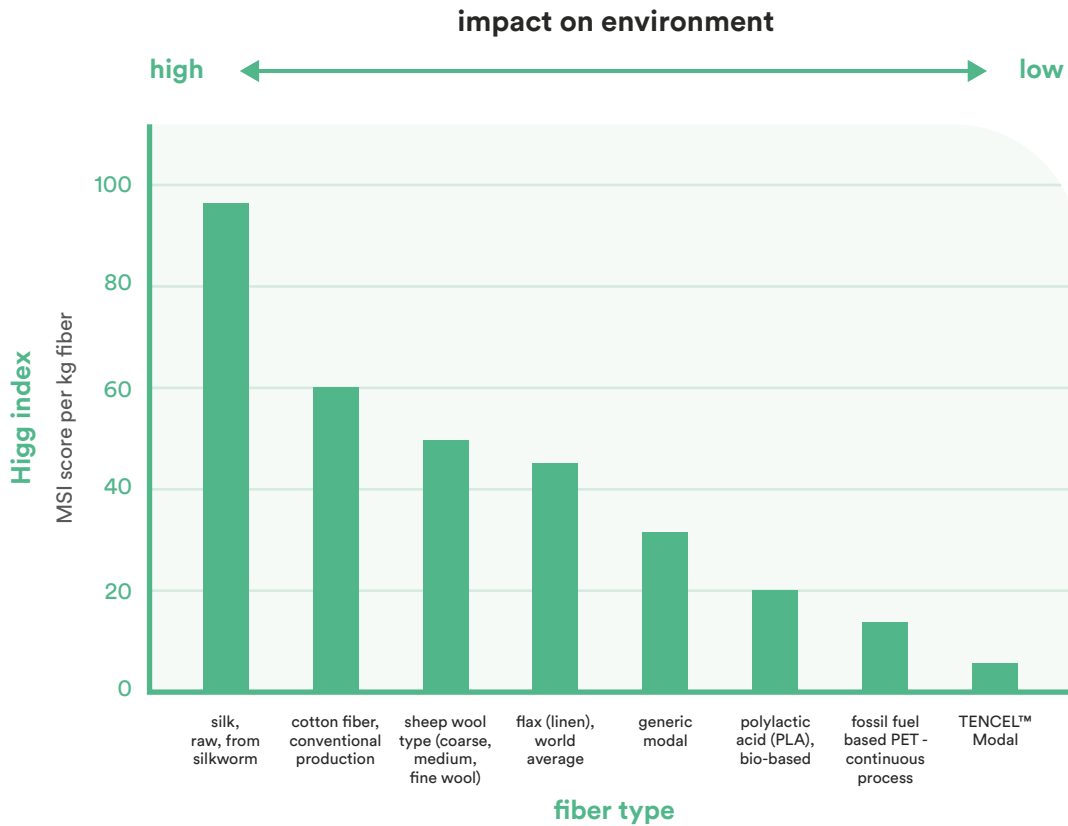
TENCEL™ Modal fibers with Eco Pure technology are produced exclusively in Austria. They are manufactured in an integrated production site with high environmental standards.



supply chain transparency

A special manufacturing system makes TENCEL™ Modal fibers with Eco Pure technology identifiable in all steps of textile processing like yarns, fabrics and final garments. This improves supply chain transparency.





Source: Sustainable Apparel Coalition

measured and certified quality and sustainability

The Higg Materials Sustainability Index (MSI) ranks TENCEL™ Modal among the most sustainable cellulosic fibers¹, with six times lower environmental impact than generic modal. In addition to the EU Ecolabel, TENCEL™ Modal fibers are also certified under OEKO-TEX® Standard 100.

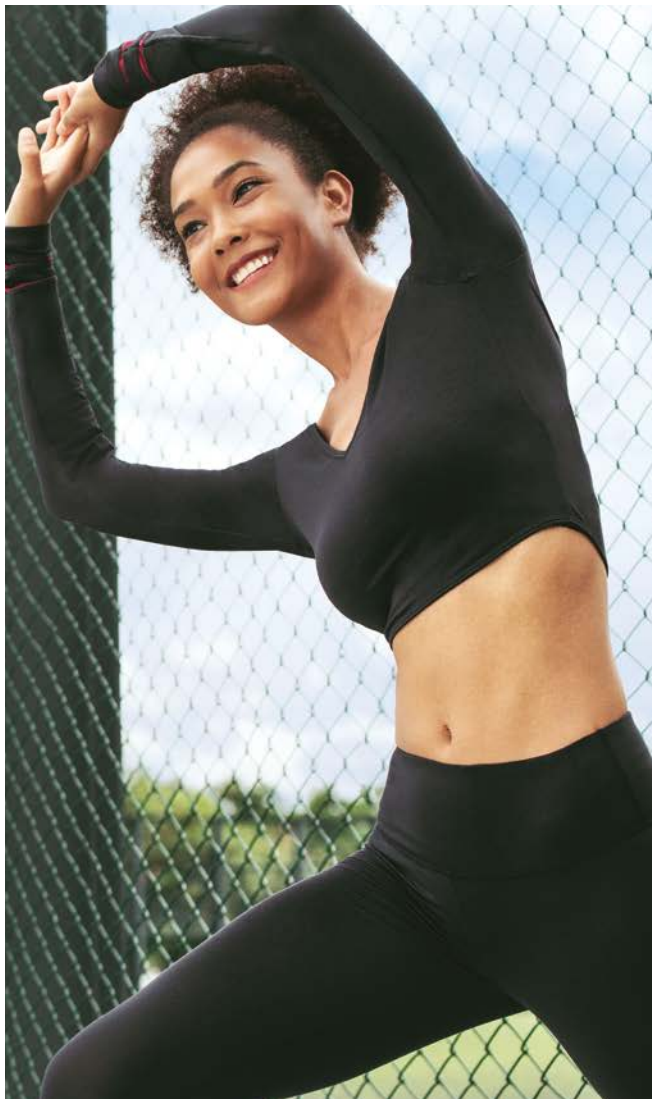


¹ These results were calculated using the Higg Materials Sustainability Index (Higg MSI) tools provided by the Sustainable Apparel Coalition. The Higg MSI tools assess impacts on the environment of materials from cradle-to-gate for a finished material (e.g. to the point at which the materials are ready to be assembled into a product). However, this figure only shows impacts from cradle to fiber production gate

leading the industry

science based improvement targets

Lenzing seeks continuous improvement in its environmental performance. We have set and pursue ambitious and meaningful Science Based Targets² for further improvements, in particular major reductions in CO₂ emissions.



environmentally responsible production | leading the industry

exceptionally fine fibers for soft and light fabrics

Lenzing's **Micro technology** produces even finer and lighter TENCEL™ Modal fibers, bringing impeccable long-lasting softness to textiles, and offering fine yarn counts for lightweight fabrics. The finest of these exquisitely fine fibers, TENCEL™ Modal x Micro Air fibers, are available only from Lenzing.

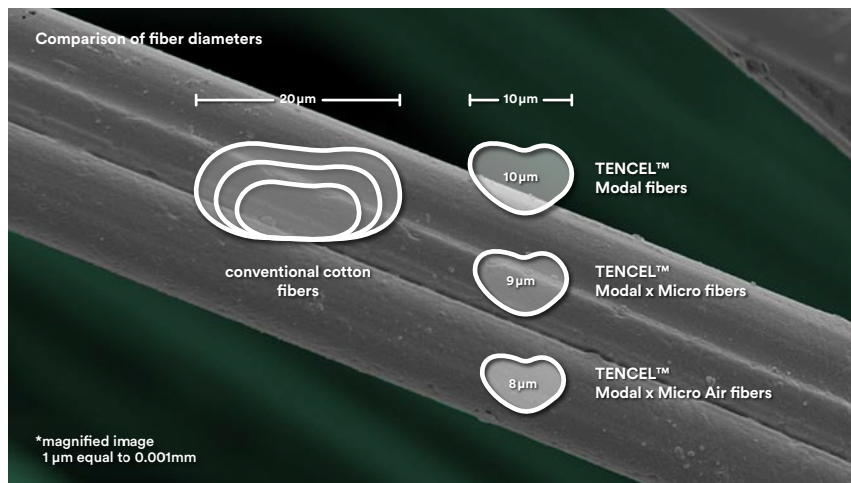
Combining technologies can deliver additional benefits. In handfeel panel tests a majority of respondents (experts and consumers) found TENCEL™ Modal fibers with Micro and Eco Pure technologies to be softer compared to TENCEL™ Modal fibers with Micro technology alone.



Micro technology

Applied to Lenzing's TENCEL™ Modal fibers, Micro technology offers a finer quality of lightness and exquisite softness, producing lightweight fabrics. These extra fine and light cellulosic fibers from sustainable wood sources pioneer a new dimension of exquisite softness and lightness, offering long-lasting natural comfort. Fabrics containing TENCEL™ Modal fibers offer efficient moisture absorption to ensure natural skin comfort.

TENCEL™ Modal x Micro Air fibers are Lenzing's finest and lightest wood-based fiber. With this 0.8 dtex fiber, finer yarn counts can be produced, leading to even finer and more lightweight fabrics for more luxurious products.



multiple performance benefits

Beyond their exceptional sustainability, TENCEL™ Modal fibers provide a range of benefits that make them an excellent choice for a variety of applications.

multiple performance benefits | meeting diverse consumer needs

meeting diverse consumer needs

The performance characteristics of TENCEL™ Modal fibers enable them to meet a wide range of consumer needs, from intimate garments to athletic wear.





versatile blending partners

Offering endless design possibilities owing to its diverse blending partners, TENCEL™ Modal fibers can be found in the collections of well-known brand manufacturers who have been loyal to this classic fiber for many years. Incredibly versatile, TENCEL™ Modal fibers can be blended with most fibers and processed using conventional machinery.

TENCEL™ Modal is a highly compatible blending partner for cotton, and owing to the fiber's sleek cross-section adds long-lasting softness to fabrics, enhancing their touch even after repeated washing. Blending fibers with TENCEL™ Modal fibers significantly improves softness and overall comfort.





color retention

Using Eco Color technology, color pigments are deeply embedded into TENCEL™ Modal fibers, which retain long-lasting color vibrancy more than conventionally dyed fiber, and are less prone to fade even after repeated washing.



soft and natural drape

TENCEL™ Modal fibers produced with Micro technology give the fabric a flowing drape, enabling more fluid garments to be created. Finer cellulosic fibers can result in a soft and natural drape in textiles.



contributes to breathability

TENCEL™ Modal fibers support body temperature regulating properties through their moisture management. Derived from natural material, the microscopic sub-structure of TENCEL™ Modal fibers is structured to regulate the absorption and release of moisture, contributing to fabric breathability that supports the body's natural thermal regulation.



contributes to performance

The TENCEL™ brand is a family of fibers well suited to sporting activities. Efficient moisture management is assured as a result of the internal fiber structure of TENCEL™ Modal fibers, which regulates the absorption and release of moisture. Used in the right fabric design, TENCEL™ Modal fibers increase moisture absorption and buffering and hence better breathability and thermal comfort, without compromising drying rate and wet cling.

the comfort of softness



multiple performance benefits | the comfort of softness



long-lasting softness

TENCEL™ Modal fibers exhibit a smooth surface and high flexibility, resulting in a naturally soft quality of the textile and ensuring comfort for wearers. Physical measurements and hand evaluations of softness show that fabrics made with TENCEL™ Modal fibers are twice as soft as cotton fabrics. The softness of TENCEL™ Modal fibers lasts longer and is able to withstand repeated wash and dry cycles compared to cotton.



featherlike touch and fine softness for comfort

For a pleasant fabric perception on the human skin, softness is one of the determining parameters. The finer the cellulosic fibers used in textiles, the softer they will be. TENCEL™ Modal fibers with Micro technology are very fine cellulosic fibers, which makes them delicate and supple. This can result in very fine yarns, which are processed into superbly light knitted and woven fabrics.



comfortable next to skin

Both dry and moist fabrics made of TENCEL™ Modal fibers with Micro technology were perceived in frictional strain tests as more pleasant on human skin than cotton and polyester fabrics. Furthermore, fabrics made of these fibers displayed a far lower frictional coefficient under humid conditions³, making them most recommendable for textiles worn next to the skin.

measurable softness

The degrees of softness of TENCEL™ Modal, TENCEL™ Modal x Micro and TENCEL™ Modal x Micro Air fibers can be measured by handfeel assessment as well as various physical test methods such as the Tissue Softness Analyzer, Phabro-meter and Ring pull-through.

In addition to their softness, the ability to absorb moisture makes TENCEL™ Modal fibers tension-free with lower electrostatic charging. In comparison with synthetics, there is an absence of electrostatic charge under normal atmospheric conditions, further contributing to wearer comfort.

versatile for a wide range of applications

The quality and versatility of TENCEL™ Modal fibers makes them an ideal choice for a broad variety of garments and home products.

versatile for a wide range of applications





versatile for a wide range of applications

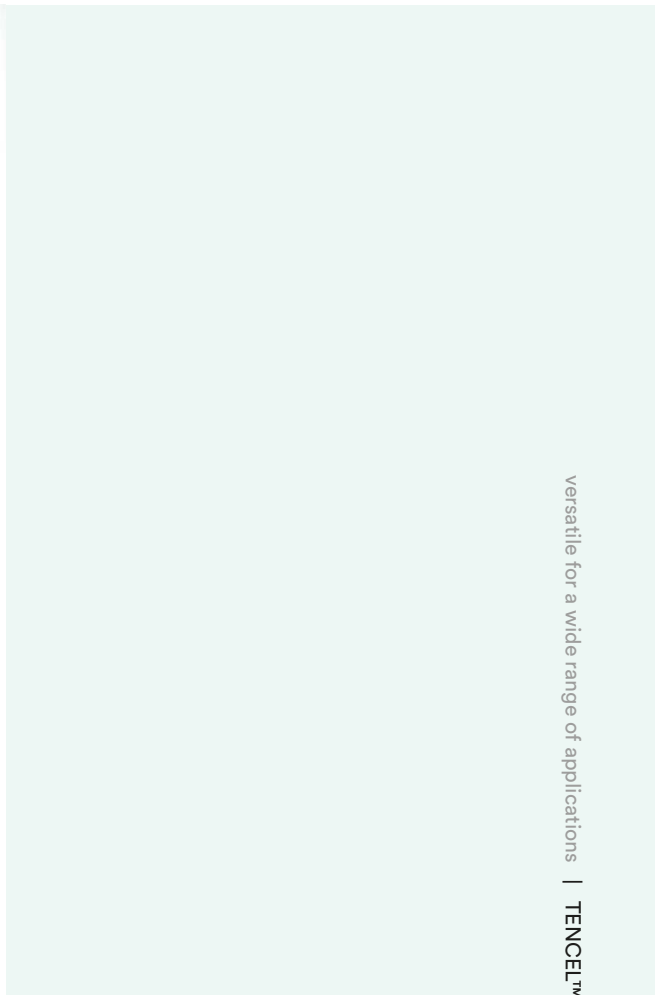
TENCEL™ Intimate

TENCEL™ Modal fibers of botanic origin lightly embrace your body with such a gentle touch of softness they practically go unnoticed.



versatile for a wide range of applications | TENCEL™ Intimate

When used in garments worn next to the skin, TENCEL™ Modal fibers offer an exquisitely gentle quality that creates a “barely there” feel, delicately embracing your body with long-lasting softness. Through efficient moisture management, TENCEL™ Modal cellulosic fibers contribute to more breathable fabrics for greater comfort.



versatile for a wide range of applications | TENCEL™ Intimate



botanic origin



comfortable next to skin



featherlike touch



fine softness for comfort



contributes to breathability



superb lightness



long-lasting softness



color retention



Eco Soft technology



Micro technology



Eco Color technology



Eco Pure technology



TENCEL™ Modal fibers of botanic origin are well suited to sporting activities with their natural comfort and versatility, enabling freedom to move with confidence.



versatile for a wide range of applications | TENCEL™ Active

The comfort and contribution to breathability of TENCEL™ Modal fibers make them valuable for use in athletic and outdoor apparel. They can be combined with other fibers to optimize fabric properties for the development of high performance sportswear.



botanic origin



contributes to performance



contributes to breathability



comfortable next to skin



color retention



Eco Soft technology



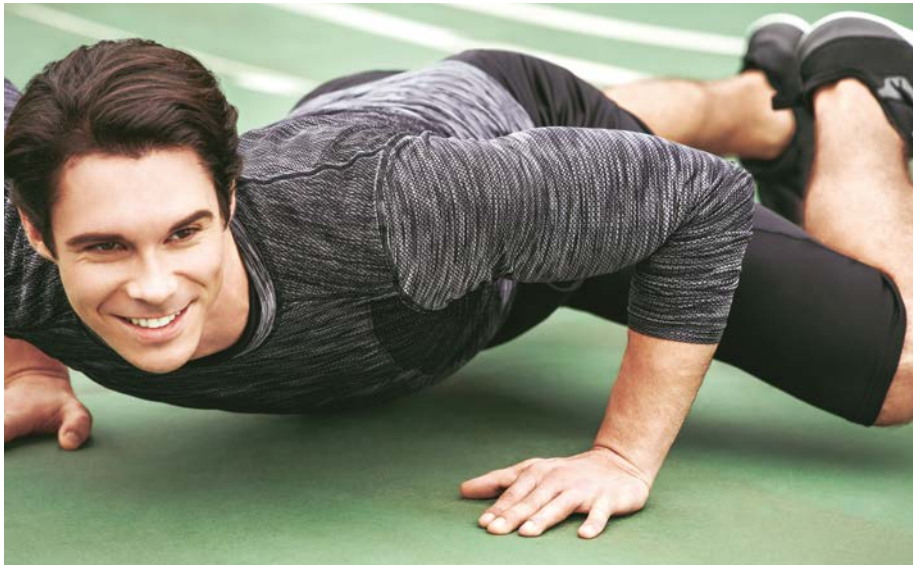
Micro technology



Eco Color technology



Eco Pure technology



TENCEL™ Denim

TENCEL™ Modal fibers of botanic origin are tailored to a sustainable lifestyle, liberating personal expression through movement by their natural comfort and versatility.





For 150 years, denim has been a fashion staple in cultures around the world. Its versatility allows it to be worn as work wear as well as fashion. TENCEL™ Denim gives customers peace of mind knowing their products are eco-responsible and have a low carbon footprint. Jeans made with TENCEL™ Modal fibers use innovative technology with low amounts of water.



botanic origin



color retention



contributes to
breathability



long-lasting
softness



Eco Soft
technology



Eco Color
technology



Eco Pure
technology



TENCEL™ Modal fibers bring the gentle essence of nature into your home to create a sanctuary of long-lasting comfort.

TENCEL™ fibers in home textiles offer you long-lasting natural comfort and pure living environments. TENCEL™ Modal fibers are naturally soft to the touch with an exquisitely soft handfeel, enhancing your quality of home life.

LENZING™ Modal Loft is a fiber specially developed for terry cloth applications. Terry towels containing this fiber remain voluminous even after several washes. Combined with a perceived soft hand, this gives them a luxurious feel. Furthermore, tests demonstrate that terry cloth containing 30% or above of LENZING™ Modal Loft has better loop security compared to other cellulosic fibers.

versatile for a wide range of applications | TENCEL™ Home





versatile for a wide range of applications | TENCEL™ Home



botanic origin



long-lasting softness



color retention



efficient moisture absorption



Eco Soft technology



Micro technology



Eco Color technology



Eco Pure technology

unequaled marketing support

Awareness of the TENCEL™ brand is growing, with close to one third of consumers now recognizing it as a sustainable fiber brand for apparel and home products. To enable supply chain partners to tap into this brand recognition more successfully, Lenzing provides a variety of marketing support services.





co-branding and brand licensing service

Through Lenzing's co-branding services, available with Certification, Licensing, and Swing Tags, licensees are enabled to strengthen their brand story with sustainability and comfort.

multi-language brand website

In addition to comprehensive information on TENCEL™ Modal fibers, the website incorporates a "where to buy" feature, enabling consumer education and promotion around the globe.

strong trademark protection

The TENCEL™ trademark has been registered or applied for in close to 200 countries worldwide, giving supply chain partners protection against counterfeiting, and consumers a mark of confidence assuring them they are purchasing a genuine sustainable product.

contact for further information

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Innovative by nature

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