

feels comfortable,
naturally



TENCEL™ Home
Bed and Bath

 **Tencel™**
Feels so right



TENCEL™ cellulose fibers bring the gentle essence of nature into your home.



- 4 TENCEL™ Home introduction**
- 6 botanic origin**
- 7 sustainable production and biodegradable**
- 8 carbon neutral**
- 9 Higg MSI of TENCEL™ fibers**
- 10 fiber tenacity comparison**
- 11 TENCEL™ Home – Bed**
- 18 TENCEL™ Home – Bath**



TENCEL™ branded lyocell and modal fibers help to maintain the environmental balance by being integrated into nature's cycle:

- The fibers are derived from the renewable raw material wood.
- The certified biobased fibers are manufactured using an environmentally responsible production process.
- The fibers are certified as compostable and biodegradable and thus can fully revert back to nature.
- The fibers are identifiable in yarns, fabrics, and final garments thanks to a special identification technology designed to confirm fiber origin, thus improving supply chain transparency.

TENCEL™ Lyocell fibers

TENCEL™ Lyocell fibers are known for their natural comfort and environmentally responsible closed loop production process. They deliver quality, performance and versatility. Their physical properties lead to their high tenacity profile, efficient moisture management and gentleness on skin.

TENCEL™ Modal fibers

Brilliant in color and luster, TENCEL™ Modal fibers are known for being exquisitely soft and pleasant on skin. TENCEL™ Modal fibers also exhibit high flexibility, resulting in a naturally soft quality for the home textile products.



technologies

REFIBRA™ technology

The pioneering REFIBRA™ technology involves upcycling cotton scraps from garment production, which are then transformed into cotton pulp. A substantial proportion – up to one third – of this is added to wood pulp, and the combined raw material is transformed to produce new virgin TENCEL™ Lyocell fibers to make fabrics and textiles.

Based on the same award-winning efficient closed loop production process as standard TENCEL™ Lyocell fiber, REFIBRA™ technology is Lenzing's first step to contribute to the circular economy in the textile industry.

Micro technology

Among Lenzing's lyocell and modal fiber portfolio, Micro technology offers an even finer quality of lightness and exquisite softness, producing lightweight fabrics, based on their fine titer. Using Micro technology, TENCEL™ Lyocell and Modal Micro fibers pioneer a new dimension of exquisite softness and lightness, offering long-lasting natural comfort.

Eco Soft technology

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

Eco Color technology

This eco-responsible technology offers long-lasting color fastness and design flexibility in textiles. Spun-dyed TENCEL™ Modal fibers provide efficient ecological advantages, substituting for the resource-intensive conventional dyeing process. They retain long-lasting color vibrancy more than conventionally dyed fiber, and are less prone to fade even after repeated washing.

Eco Clean technology

Both pulp and TENCEL™ Modal fibers with Eco Clean technology are bleached by a totally chlorine-free process. Owing to the gentle bleaching process, textiles made predominantly of such fibers tend to be softer compared to conventionally bleached TENCEL™ Modal fibers.

key benefits



botanic origin



carbon neutral



contributes to sleep comfort



gentle on skin



long-lasting softness



minimal static charge



moisture management



sheen



strength



sustainable production

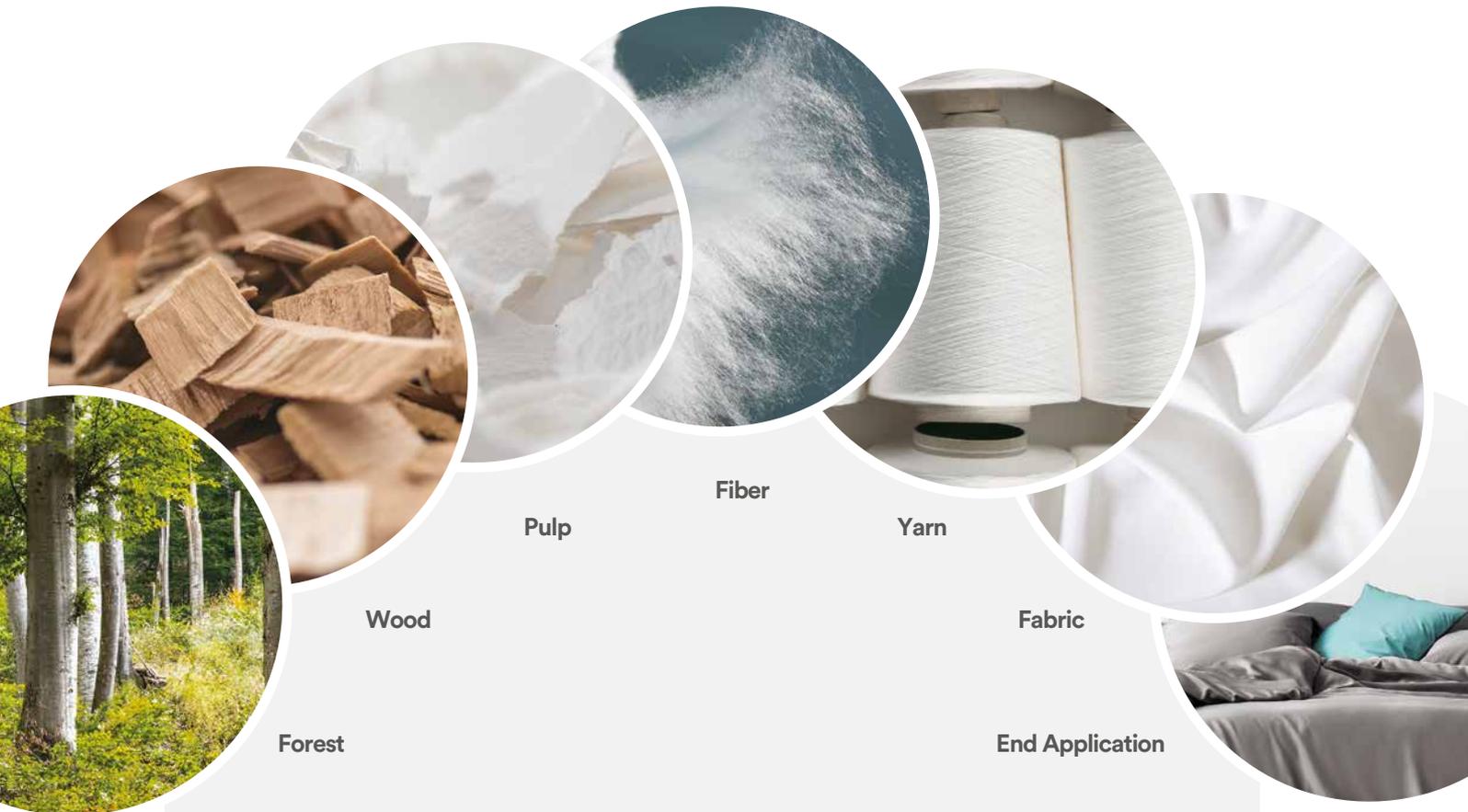


unfavorable for bacteria and dust mite growth

botanic origin

TENCEL™ Lyocell and Modal fibers are manufactured from the renewable source of raw material, wood, harvested from certified and controlled sources following the stringent guidelines of the Lenzing Wood and Pulp Policy.

Moreover, wood and pulp used by the Lenzing Group comes from sustainably managed forests. TENCEL™ Lyocell and Modal fibers are available with FSC® (FSC-C041246) or PEFC (PEFC/06-33-92) certification upon request and have also earned United States Department of Agriculture (USDA) BioPreferred® designation.



sustainable production

TENCEL™ Lyocell fibers have gained a commendable reputation for their environmentally responsible closed loop production process, which transforms wood pulp into cellulosic fibers with high resource efficiency and low ecological impact. This solvent-spinning process recycles process water and reuses the solvent at a recovery rate of more than 99%. This economically viable manufacturing process received the European Award for the Environment from the European Commission in the category “The Technology Award for Sustainable Development”. TENCEL™ Lyocell fibers have been certified as Bio-based by the U.S. Department of Agriculture (USDA). Moreover, all Lenzing fiber production sites operate according to a certified Environmental Management and Occupational Health and Safety system (ISO14001, ISO45001).

The production of **TENCEL™ Modal fibers** uses an environmentally sound process that is integrated with numerous Lenzing innovations, such as the use of renewable energy from the pulp mill and the recovery of remaining components as co-products, in keeping with Lenzing's endeavor to safeguard resources for future generations.

biodegradable

Derived from the raw material wood – a product of nature – all TENCEL™ standard lyocell and 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.



OK biodegradable
MARINE



OK biodegradable
SOIL



OK biodegradable
WATER



OK compost
HOME



OK compost
Industrial





carbon neutral

Carbon-zero TENCEL™ Lyocell and Modal fibers contribute to reducing carbon emissions.

Acting on Lenzing's commitment to the Science Based Targets initiative¹ and supporting the UN Sustainable Development Goals², carbon-zero TENCEL™ Lyocell and Modal fibers are third party certified as carbon neutral by means of carbon emission reduction and respective compensation measures³. These fibers contribute to protecting the environment and reducing climate change, as they are developed according to three environmental pillars:

- lower carbon emission levels from production to reduce carbon footprint,
- increased use of renewable energy sources at Lenzing production sites, and
- support of verified global carbon reduction projects to compensate for fiber-related emissions that are not yet avoidable.

¹ The Science Based Targets initiative (SBTi) is a collaboration between CDP, the United Nations Global Compact, World Resources Institute (WRI) and the World Wide Fund for Nature (WWF). The SBTi defines and promotes best practices in science-based target setting and independently assesses companies' targets. Find out more: <https://sciencebasedtargets.org/>

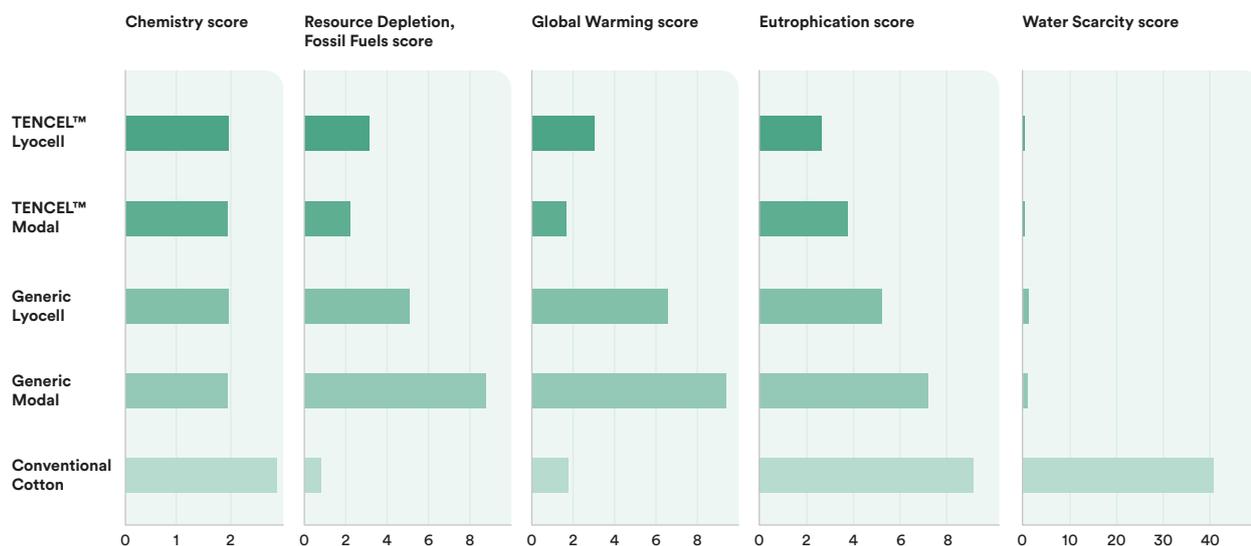
² The 17 SDGs are a shared blueprint for peace and prosperity for people and the planet. Find out more: <https://sustainabledevelopment.un.org/>

³ Details of the certification are available on the TENCEL™ website. Find out more: www.tencel.com/true-carbon-zero

Higg MSI of TENCEL™ fibers

The Higg Materials Sustainability Index (MSI)⁴ 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.

	TENCEL™ Lyocell	TENCEL™ Modal
 Global Warming	3.16 kg CO ₂ eq.	1.77 kg CO ₂ eq.
 Eutrophication	0.002 kg PO ₄ ³⁻ eq.	0.004 kg PO ₄ ³⁻ eq.
 Water Scarcity	0.765 m ³ world eq.	0.427 m ³ world eq.
 Chemistry	4 units	4 units
 Abiotic Resource Depletion, Fossil Fuels	45.3 MJ	29.8 MJ
 Water Consumption	47.9 kg	58.6 kg
 Biogenic Carbon Content	0.39 kg C 1.4 kg CO ₂	0.39 kg C 1.4 kg CO ₂



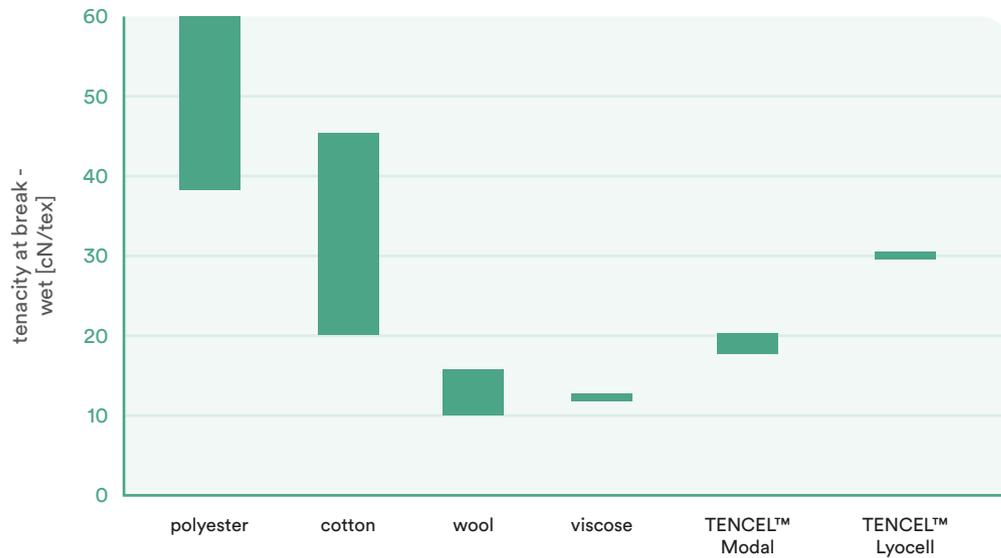
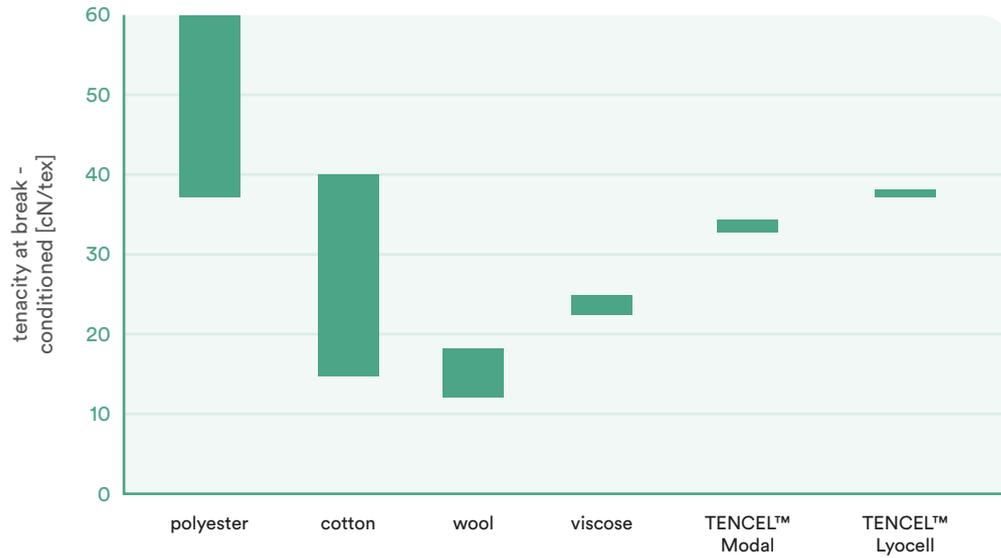
Note: These results were calculated using the Higg Materials Sustainability Index (Higg MSI) tools provided by the Sustainable Apparel Coalition. The Higg MSI tools assess impacts of materials from cradle-to-gate for a finished material (e.g. to the point at which the materials are ready to be assembled into a product). However, these figures only show impacts from cradle to fiber production gate. TENCEL™ branded fibers' Higg MSI scores were calculated based on Higg MSI database v3.4 (June, 2022).

⁴ For more information on Higg MSI methodology, please visit howtohigg.org

among the strongest man-made cellulose fibers

TENCEL™ Lyocell fibers are versatile and distinguished by their high tenacity profile among man-made cellulose fibers. TENCEL™ Lyocell is tailor-made and available in several linear densities. Whether fine or coarse, it remains strong across a variety of home applications.

tenacity at break





TENCEL™ Home – Bed



pillow

filling:

- LENZING™ Lyocell Fill
- LENZING™ Lyocell Fill RB

shell fabric:

- LENZING™ Lyocell Micro
- LENZING™ Lyocell Standard
- LENZING™ Lyocell RB



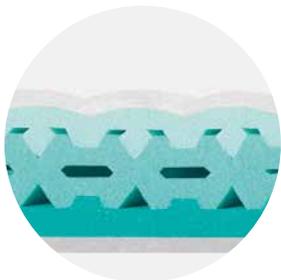
fitted sheets

woven:

- LENZING™ Lyocell Standard
- LENZING™ Lyocell Micro
- LENZING™ Lyocell RB

knitted:

- LENZING™ Lyocell LF
- LENZING™ Lyocell LF RB



mattress

ticking:

- LENZING™ Lyocell Standard
- LENZING™ Lyocell Micro
- LENZING™ Lyocell RB

padding:

- LENZING™ Lyocell Fill
- LENZING™ Lyocell Fill RB

core:

- LENZING™ Lyocell Powder





**duvet cover /
flat sheets**

LENZING™ Lyocell Standard
LENZING™ Lyocell Micro
LENZING™ Lyocell RB

comforter / quilt

filling:
LENZING™ Lyocell Fill
LENZING™ Lyocell Fill RB

shell fabric:
LENZING™ Lyocell Micro
LENZING™ Lyocell Standard
LENZING™ Lyocell RB

mattress pad

filling:
LENZING™ Lyocell Fill
LENZING™ Lyocell Fill RB

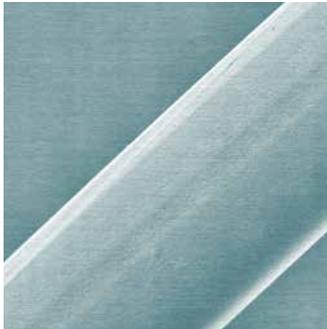
shell fabric:
LENZING™ Lyocell Micro
LENZING™ Lyocell Standard
LENZING™ Lyocell RB

The versatility and efficient moisture management of TENCEL™ fibers and TENCEL™ x REFIBRA™ technology allow them to be used in every part of your bedding, for example, TENCEL™ fibers can be incorporated into filling for comforters and pillows.

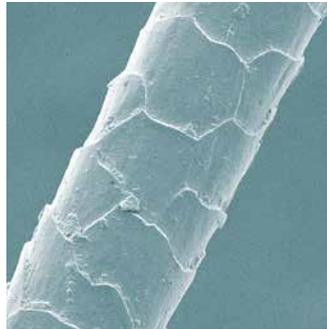
Soft, attractive, and comfortable, TENCEL™ fibers have been demonstrated to give a feeling of restful relaxation during sleep. Pleasant dreams!

gentle on skin

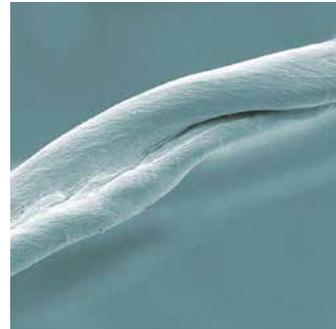
When viewed under an electron microscope, TENCEL™ Lyocell fibers exhibit a smooth fiber surface, giving bedding textiles a pleasant feel and ensuring long-lasting comfort even after many washes.



TENCEL™ Lyocell



wool



cotton



moisture management

TENCEL™ fibers offer you natural comfort and pure living environments. TENCEL™ Lyocell fibers support body temperature regulating properties through their excellent moisture management. Derived from natural raw material, the microscopic fibrils of TENCEL™ Lyocell fibers are structured to regulate the absorption and release of moisture, thus contributing to fabric breathability that supports the body's natural thermal regulation.

TENCEL™ Lyocell fibers demonstrate high moisture absorption. Tests show that TENCEL™ Lyocell fibers keep your sleeping environment comfortably dry even in humid conditions.



TENCEL™ Lyocell



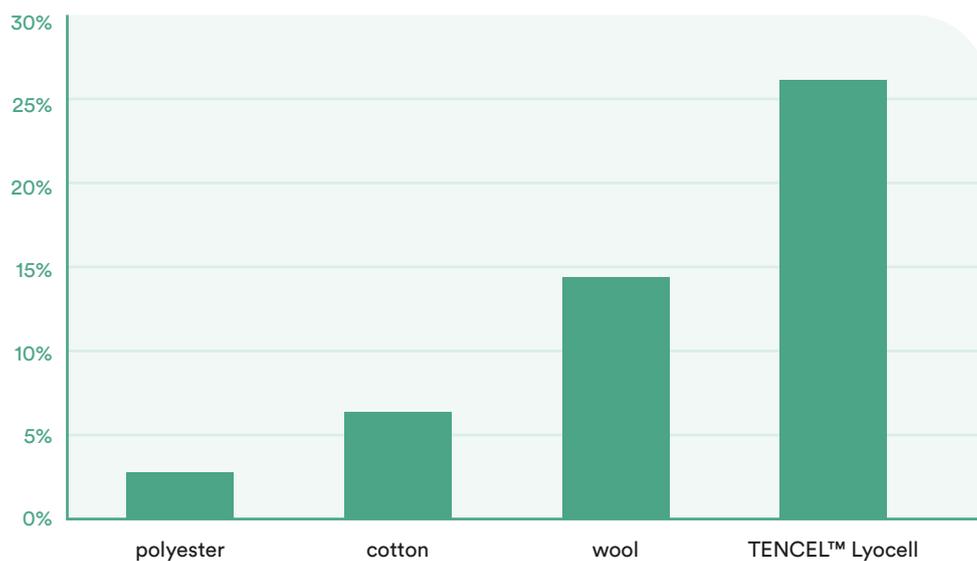
polyester



cotton

Source: Mohammad Abu-Rous, doctoral thesis, Leopold-Franzens University Innsbruck, 2009

absorption of vapor with an extreme air humidity



Source: Lenzing internal test.

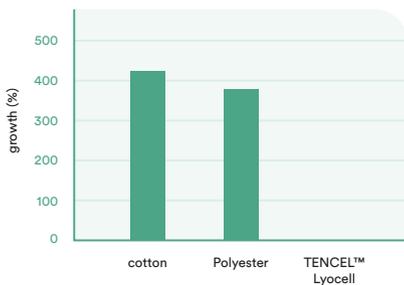
unfavorable for bacteria and dust mite growth

Through moisture management, TENCEL™ Lyocell fibers absorb moisture efficiently, as measured by the Vapor Uptake test and Water Retention Value scale. In comparison to polyester and synthetics, and even to cotton, there is less available moisture formed on the surface of the fiber for bacteria to grow. Consequently, TENCEL™ Lyocell fibers provide a less favorable environment for bacterial growth.

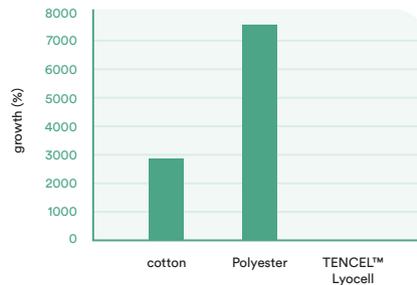
Particularly on three of the odor-relevant bacteria types tested (Staphylococcus epidermidis, Pseudomonas aeruginosa, Escherichia coli), a significantly lower growth rate was observed on TENCEL™ Lyocell compared to cotton and polyester under moderate humidity conditions.

The high moisture absorption ability also generates a less favorable ambience for dust mites compared to cotton, as proven by NF G 39-011, the only normed European test for dust mite growth.

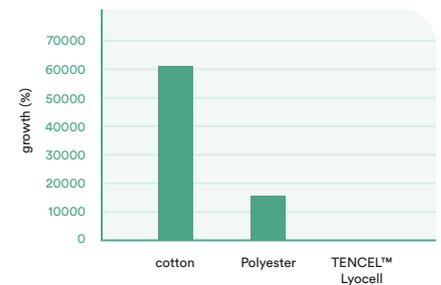
Staphylococcus epidermidis



Pseudomonas aeruginosa



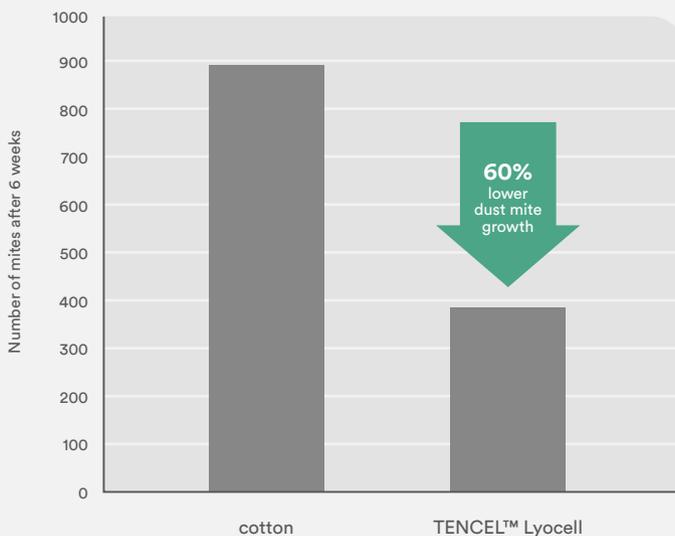
Escherichia coli



Source: Hohenstein Institut für Textilinnovation GmbH, Germany Report no. 18.8.6.0007, 2018



natural protection against dust mites



fiber	start	end (6 weeks after)	growth (%)
cotton	50	886	1672
TENCEL™ Lyocell	50	388.7	677

Source: Laboratoire T.E.C. Report No. 2277/1117R. Tested according to the Standard NF G 39-011)

contributes to sleep comfort

TENCEL™ Lyocell fibers absorb moisture efficiently to help make your sleeping environment dry and pleasant, which is one of the important factors contributing to good sleep comfort. This aligns with the body's natural thermal regulating mechanism, giving you a feeling of restful relaxation during sleeping. With satisfactory sleep quality, you may feel refreshed when you wake up. Beddings made with TENCEL™ Lyocell fibers thus contribute to stable sleep phases in the night.



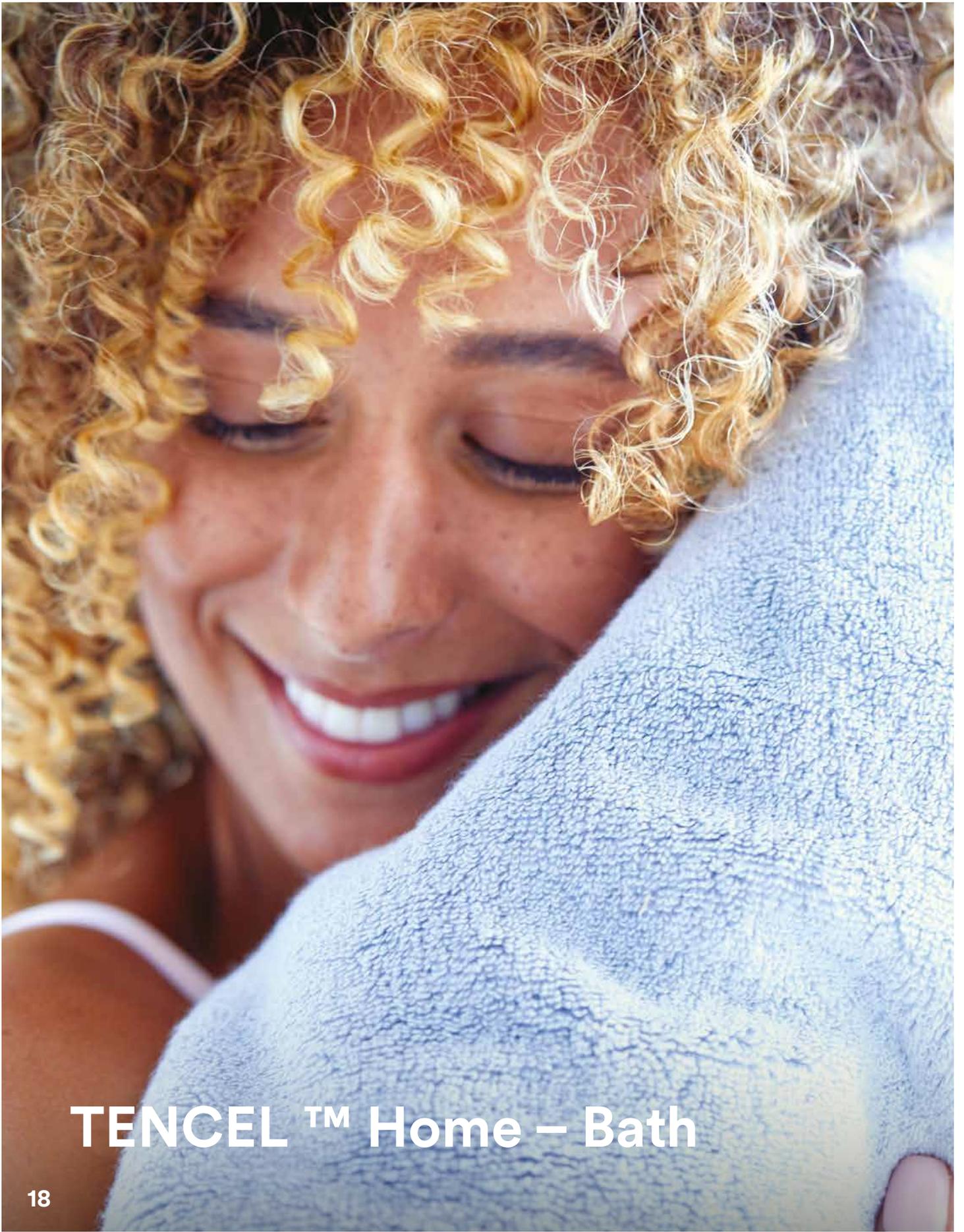
better spa oil stain removal

The smooth surface and open-pore structure of TENCEL™ Lyocell fibers allow detergents to reduce oil adhesion, making the fibers well suited for fabrics with frequent exposure to spa and massage oils such as bed sheet fabrics used in the wellness sector.

Spa oil removal after an industrial washing and drying process from bed sheet fabrics made entirely of TENCEL™ Lyocell fibers was investigated by optical evaluation as well as reflectance analysis. Optical evaluation (dry contrast photography) showed that after industrial washing and drying process the fabrics made entirely of TENCEL™ Lyocell fibers were consistently visually similar to their original state. The results from the reflectance analysis, where the relative light intensity diffusely reflected from spa oil-stained surfaces was measured, confirmed that spa oil stains were effectively removed.

minimal static charge

The ability to absorb moisture makes TENCEL™ Lyocell and Modal fibers tension-free with lower electrostatic charging. In comparison with synthetics, there is an absence of electrostatic charge under normal atmospheric conditions.



TENCEL™ Home – Bath

towels of exquisite and long-lasting softness

TENCEL™ Modal fibers in home fabrics are exceptionally soft on your skin and efficiently absorb moisture. In comparison to cotton, TENCEL™ Modal fibers remain soft over time and are able to withstand repeated wash and dry cycles, allowing fabrics to retain their softness.



efficient moisture absorption – excellent for towels

Fabrics containing TENCEL™ Lyocell and Modal fibers offer efficient moisture absorption.



Towel made with TENCEL™ Lyocell and Modal (left) absorbs the moisture immediately. On cotton (right) the water droplets stay where they are.

color vibrancy

The efficient dye uptake and smooth fiber surface of TENCEL™ Lyocell fibers make the colors appear brighter and perceptibly more intense than those of cotton fabrics.



contact for further information

HEAD OFFICE

Lenzing: Lenzing Aktiengesellschaft, Werkstraße 2, 4860 Lenzing, Austria
Tel: +43 7672 7010, Fax: +43 7672 701 3880, E-mail: fibers@lenzing.com

GLOBAL OFFICES

India: Lenzing Fibers India Pvt Ltd.

Shrivarshi Shrivastava, 5th Floor (rear side), 1045, Avinashi Road, 641018 Coimbatore, Tamil Nadu, India
Tel: +91 422 4292 800, E-mail: india@lenzing.com

Hong Kong: Lenzing Fibers (Hong Kong) Ltd.

Unit 801-806, 8th Floor, Lu Plaza, 2 Wing Yip Street, Kwun Tong, Kowloon, Hong Kong
Tel: +852 3718 5600, Fax: +852 3718 5601, E-mail: hongkong@lenzing.com

Istanbul: Lenzing Elyaf A.Ş.

Huzur Mah. Maslak Ayazağa Cad. No: 4 | Blok Ağaçlı Ofis, 34396 Sarıyer / İstanbul, Turkey
Tel: +90 212 349 7171, Fax: +90 212 349 7181, E-mail: turkey@lenzing.com

Jakarta: PT. South Pacific Viscose

Sampoerna Strategic Square, South Tower, 22nd Floor, Jl. Jend. Sudirman Kav. 45-46, Jakarta 12930, Indonesia
Tel: +62 21 577 1630, Fax: +62 21 577 1640, E-mail: jakarta@lenzing.com

New York: Lenzing Fibers Inc.

530 Seventh Avenue, Suite 808, New York, NY 10018, U.S.A.
Tel: +1 212 944 7400, Fax: +1 212 944 7816, E-mail: newyork@lenzing.com

Seoul: Lenzing Korea Yuhan Hoesa

19th Floor, 2 Wiryeseong-daero, Songpa-gu, Seoul, 05544, Korea
Tel: +82 2 782 6131, Fax: +82 2 782 6132, E-mail: seoul@lenzing.com

Shanghai: Lenzing Fibers (Shanghai) Co., Ltd.

Unit 06-08, 15th Floor, Garden Square, 968 West Beijing Road, 200041 Shanghai, China
Tel: +86 21 3315 2438, Fax: +86 21 6341 0007, E-mail: shanghai@lenzing.com

Singapore: Lenzing Singapore PTE Ltd.

111 Somerset Road, TripleOne Somerset 13-35|38, Singapore 238164, Singapore
Tel: +65 65 506 730, E-mail: singapore@lenzing.com

Taiwan: Lenzing Taiwan Fibers Ltd.

7th Floor, 53 Dongxing Road, Xinyi District, Taipei City 11070, Taiwan (R.O.C.)
Tel: +886 2 8768 1023, Fax: +886 2 8768 2933, E-mail: taipei@lenzing.com

Thailand: Lenzing (Thailand) Co., Ltd.

599 Moo 2 ThaToom Sub-District, SriMahaPhot District, PrachinBuri Province 25140, Thailand
Tel: +66 37 624 123, E-mail: prachinburi@lenzing.com

www.tencel.com

TENCEL™, LENZING™ and REFIBRA™ are trademarks of Lenzing AG
©2022 Lenzing AG

Media Owner, Publisher and Producer: Lenzing Aktiengesellschaft, Werkstraße 2, A-4860 Lenzing, Austria

Lenzing AG is the sole owner of the Lenzing Trademarks (in particular TENCEL™, LENZING™ and REFIBRA™) and goodwill associated therewith and has valuable rights in and to the Trademarks. Any information, texts, pictures, drawings, descriptive and visual elements, claims or photographs (including all marketing materials) contained in this Brochure are protected by copyright and are the sole intellectual property of Lenzing AG, its affiliates or third parties providing the information for the benefit of Lenzing AG.

Despite careful research and diligent in-house and external studies conducted with the utmost care, Lenzing AG assumes no liability whatsoever for the accuracy, precision, quality, compliance with current legal requirements, or legal ability to use content globally of the information made available in this Brochure. This applies in particular to any claims contained in this Brochure, which refer to Lenzing fibers only. Lenzing AG expressly reserves the right to change, add to, or delete individual pieces of information, parts of individual pages, and / or the entire Brochure, and / or to cease publication of the Brochure either temporarily or permanently. Subject to typographical and printing errors.

Nothing herein shall be construed as assigning, transferring or granting any right in or license to use Lenzing Trademarks, Brands, Branded Offer names, Technology names, copyright protected material, or any marketing claims contained in this Brochure. Any use of Lenzing Trademarks, Brands, Branded Offer names, Technology names, copyright protected material, or marketing claims contained in this Brochure requires a prior license from Lenzing AG.

For further information, please visit our homepage www.tencel.com.



scan for
digital version

Lenzing

Innovative by nature

ver 2.0 / 11-2022