

<http://magic-ays.com/Lake/Ladoga.htm>

# Sustainability is at the core of Lenzing's strategy sCore TEN

Tricia Carey, Director of Business Development / Denim

Peter Bartsch, Head of Corporate Sustainability, Lenzing AG

# Our core market: wood-based cellulose fibers

Produced from the raw material wood

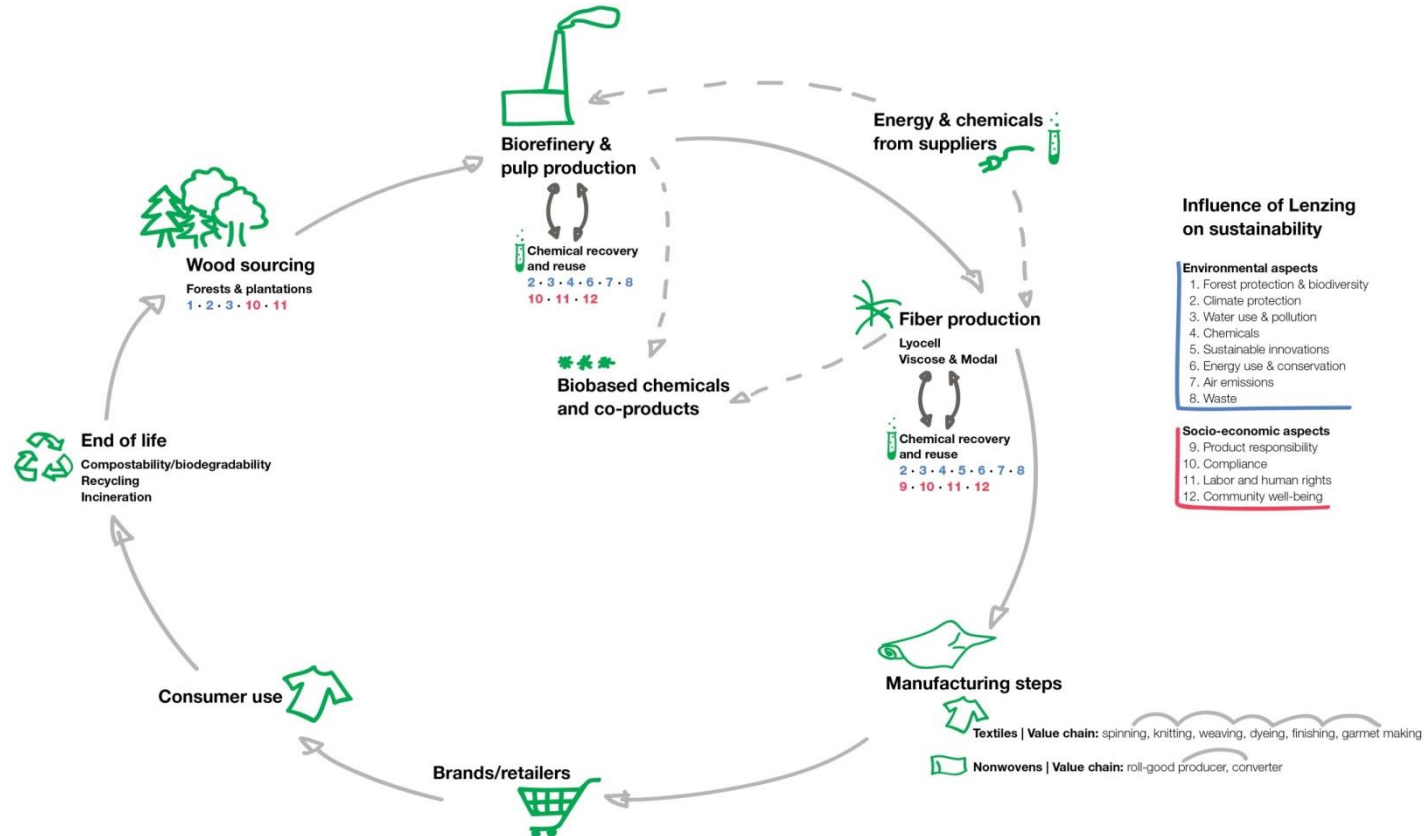
 TENCEL®

 LENZING  
Modal®

 LENZING  
Viscose®



# Lenzing collaborates throughout the value chain



# Sustainability trends/challenges

---



**POPULATION  
GROWTH**



**URBANIZATION**



**RAISING MIDDLE  
CLASS**



**AGEING  
POPULATION**



**RAISE OF EMERGING  
ECONOMIES**



**GLOBALIZATION -  
INTERCONNECTEDNESS**



**GROWING  
PUBLIC DEBT**



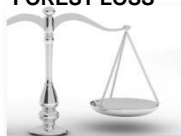
**CLIMATE  
CHANGE**



**WATER  
SCARCITY**



**BIO-DIVERSITY -  
FOREST LOSS**



**ECONOMIC  
INEQUALITY**



**MARINE  
LITTER**

- 9 billion people by 2050
- Growing water scarcity
- Accelerating climate change
- Competing uses of land: food vs fiber
- Increasing income inequality

# Motivation of our sustainability strategy

---

How can we help our customers and industry to be more sustainable and transparent?

# Sustainability Strategy “Naturally positive” <sup>(1)</sup>

---

## Our vision

- Our passion is to make sustainable fibers available to the growing world.
- This creates more positive impacts and benefits for people and the planet.
- It also ensures our economic success.



# Sustainability Strategy “Naturally positive” <sup>(3)</sup>

## The essence of “Naturally positive”

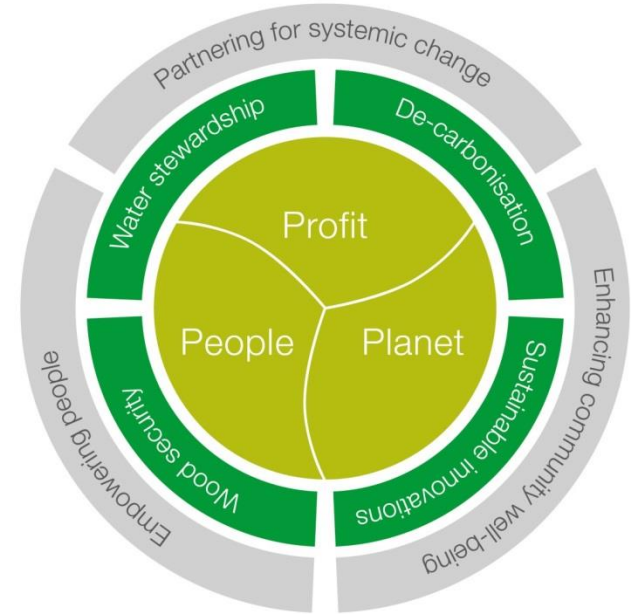
Four main challenges where the Lenzing Group substantially contributes to creating more positive impacts and benefits.

- Wood security
- Water stewardship
- Decarbonization
- Sustainable innovations

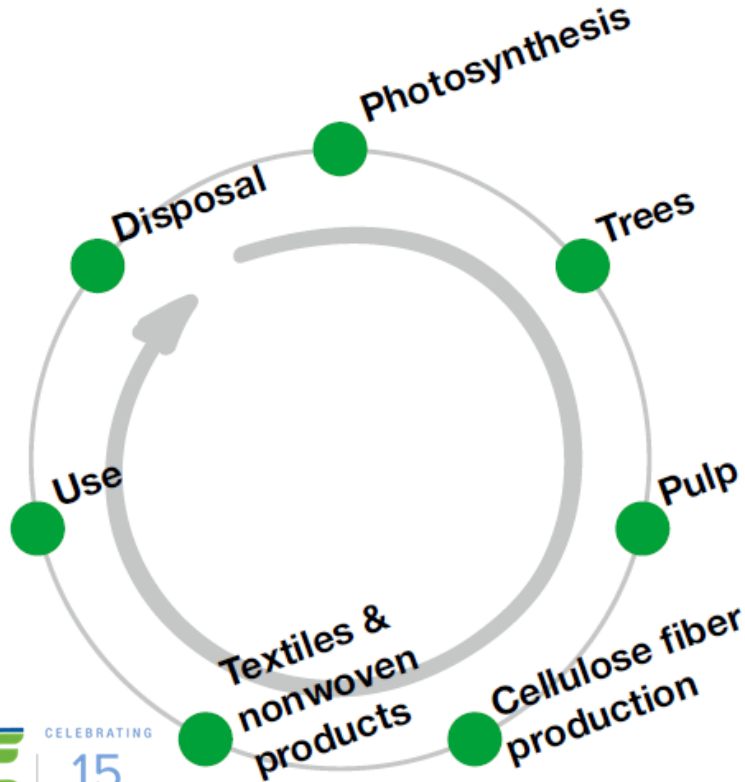
## Supporting areas

Successful strategy implementation requires supporting areas:

- Empowering people
- Partnering for systemic change
- Enhancing community wellbeing



# Lenzing's best practices to address sustainability challenges



- **Natural and renewable origin:** Cellulose from wood is our biobased and renewable raw material
- **Responsible sourcing:** Guaranteed by exclusively certified & controlled wood and pulp sources
- **Clean technologies:** Due to high resource efficiency and closed loops
- **Sustainable innovations:** Providing specialities and forward solutions that are better than market alternatives
- **Stakeholder engagement and collaboration:** provides benefits to our customers
- **End of life solutions:** Our biodegradable and compostable fibers avoid waste problems in society
- **Wholistic thinking and evidence:** Sustainability of fibers is confirmed by LCA, certifications and awards

# Lenzing demonstrates its sustainability leadership

---

- Lenzing Sustainability Report 2016 according GRI4 was published in April 2017
- Lenzing Sustainability Strategy “Naturally Positive” was published in April 2017
- CanopyStyle Initiative: Lenzing ranked as “THE Leader” of wood-based cellulose industry for its sourcing practices, sustainability commitments, innovations and its progress.
- Lenzing first-ever cellulose fiber producer that has completed a CanopyStyle (Rainforest Alliance) audit
- Higg MSI: All Lenzing fibers ranked best compared to generic fibers in the Material Sustainability Index (MSI) tool

# Lenzing demonstrates its sustainability leadership

---

- TENCEL® fiber listed as preferred fiber by Textile Exchange (Preferred Fiber Market Report 2016)
- Lenzing's Refibra™ fiber provides a recycling solution to our brand & retail customers and contributes to the Circular Economy. Certified by leading recycling standards Recycle Claim Standard (RCS) and Global Recycle Standard (GRS).
- EcoVero™ branded viscose fibers are a sustainable alternative to generic viscose.
- “OK Biodegradable Marine Certificate” proving that Lenzing fibers do not contribute to the marine litter issue.
- All Lenzing production sites are FSC® chain of custody (CoC) certified
- Lenzing became official member of FSC®
- Fairtrade approved Lenzing fibers as Fairtrade compliant



# Lenzing only Sources Certified and Controlled Wood and Pulp

Total wood input Lenzing production sites (2015)

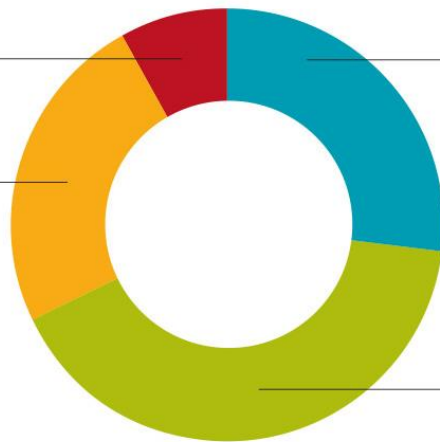
Basis: processed pulp

PEFC controlled source\*  
**8%**

FSC certified  
**27%**



PEFC certified  
**24%**



FSC controlled wood\*  
**41%**

\*) Controlled wood sources are sources that meet the minimum requirements accepted by FSC or PEFC. These include implemented due diligence systems comprised of risk assessments and on-site audits based on the respective wood certificate standard.

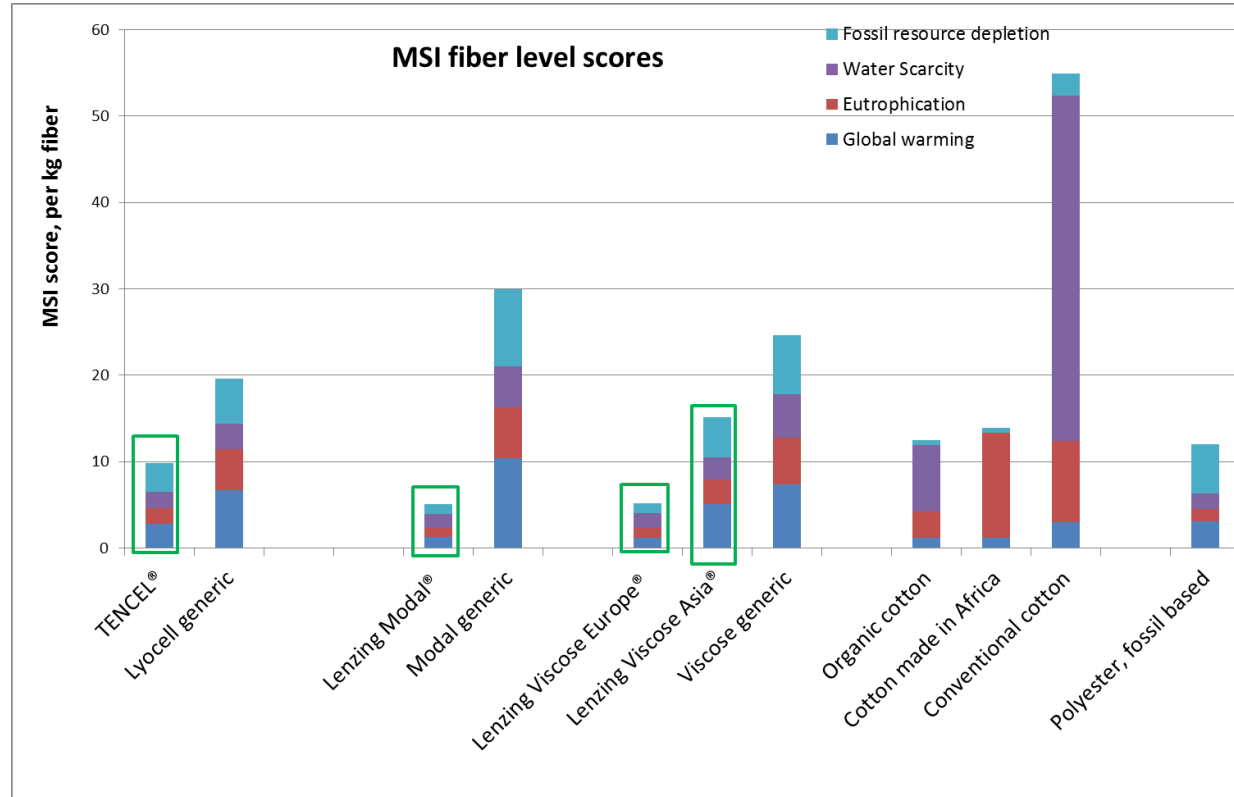
# Traceability of wood and pulp

## Certification status of Lenzing operations – Chain of Custody

Status: End of year 2016 table 3/2

Site	Country	Main Products	FSC® CoC Certification	PEFC™ CoC Certification
Lenzing Austria	Austria	Lenzing Viscose® Lenzing Modal® Lenzing FR®	✓	✓
Paskov	Czech Republic	Dissolving wood pulp	✓	✓
Purwakarta	Indonesia	Lenzing Viscose®	✓	✗
Nanjing	China	Lenzing Viscose®	✓	✗
Heiligenkreuz	Austria	TENCEL®	✓	✗
Grimsby	United Kingdom	TENCEL®	✓	✗
Mobile	USA	TENCEL®	✓	✗
Lenzing TENCEL® Austria	Austria	TENCEL®	✓	✓

# MSI benchmarking: Lenzing fibers have lower environmental impacts than generic cellulosics



# Sustainable Fiber Innovations

---

- TENCEL®
- Refibra™ lyocell
- Lenzing Modal® Black
- EcoVero™

# Net Benefit Products

---

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

Some examples: Lenzing Modal COLOR®, TENCEL®, Refibra™, EcoVero™

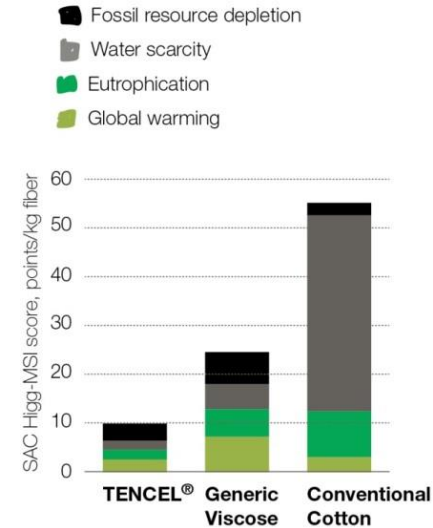
# TENCEL<sup>®</sup> fibers: lower environmental impacts

- MSI score<sup>1</sup> for TENCEL<sup>®</sup> fibers several times lower than for generic viscose and conventional cotton.
- Much lower impact on water scarcity of TENCEL<sup>®</sup> fibers compared to conventional cotton.

<sup>1</sup>Results calculated based on Higg MSI<sup>™</sup>, assessing impacts of materials from cradle-to-gate for a finished material. Figure only shows impacts from cradle to fiber production gate.

Source: Higg MSI of the Sustainable Apparel Coalition

Comparison of environmental performance of TENCEL<sup>®</sup> fibers vs generic viscose and conventional cotton cultivation, world average\*



\* Source: Higg-MSI

# What to do with fashion waste?

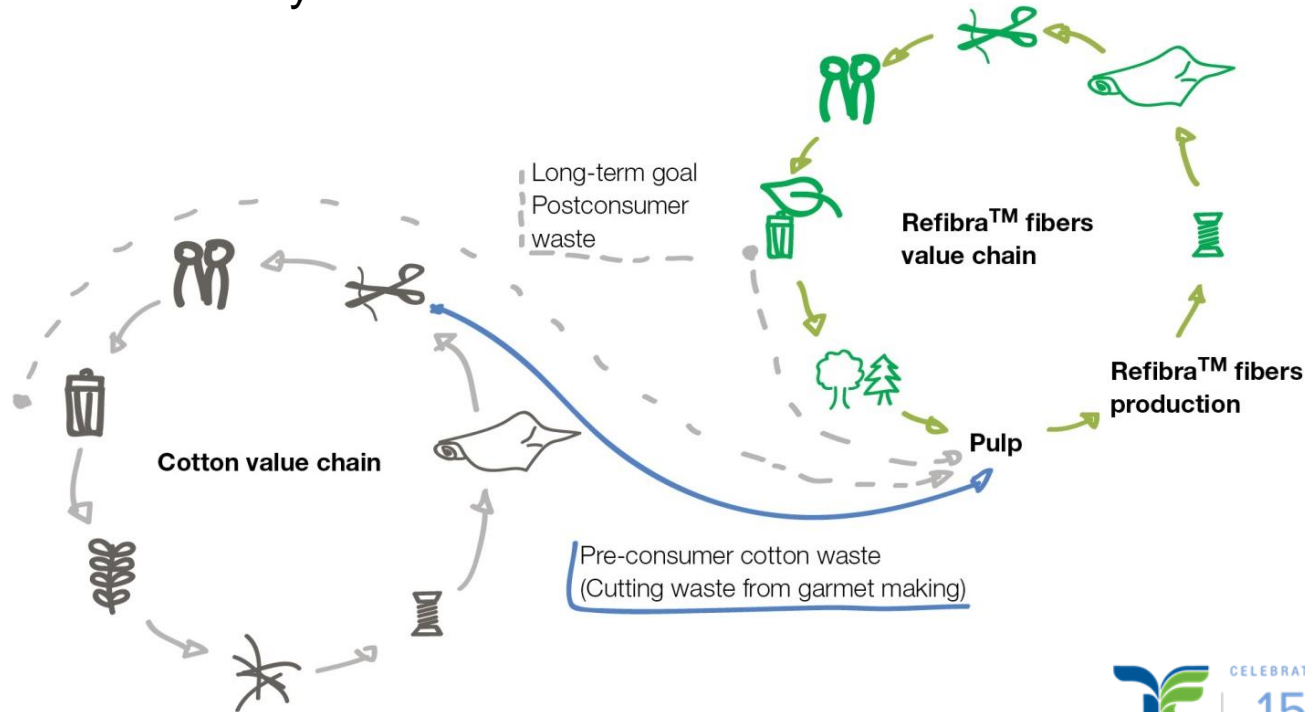
---

~50 million tons of apparel and footwear are discarded globally per year



# Lenzing's circular economy solution: Refibra™ fiber

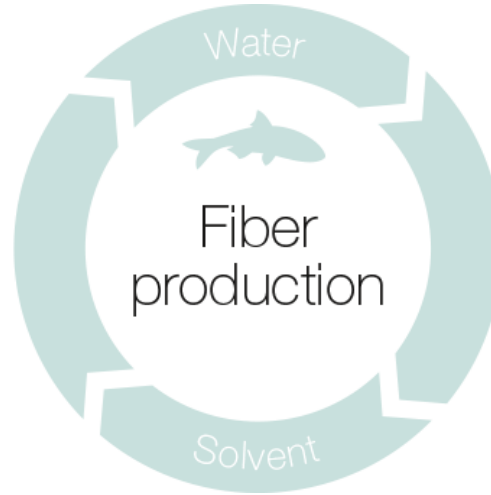
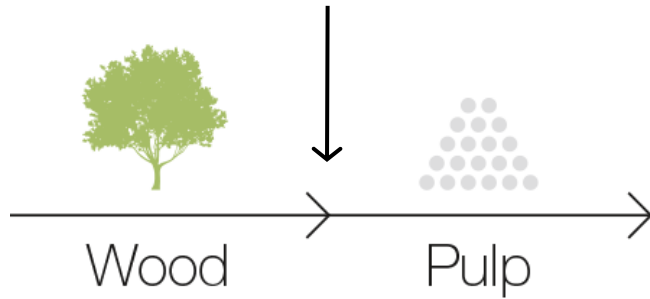
Refibra™ avoids waste problems in the society and provides a solution for circular economy



# Refibra™ offers better footprint by using waste as raw material and closed loop eco-responsible lyocell technology



Cotton scraps



**Refibra™**  
REBORN TENCEL® FIBER

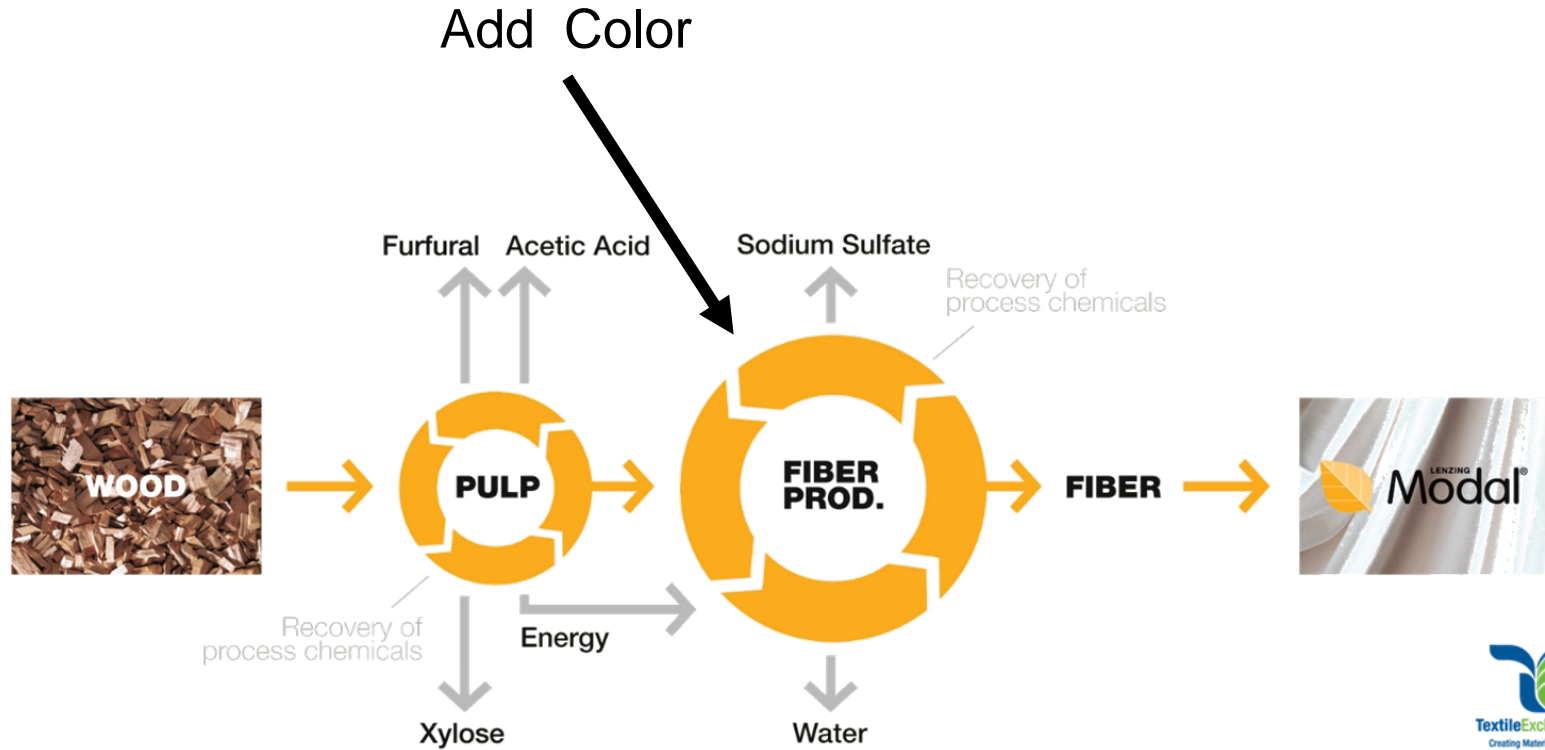
# Refibra™ fibers provide functionality and traceability

- Refibra™ is produced in the same process as TENCEL® fibers offering same opportunities to down stream value chain as virgin TENCEL® fibers
- Fiber characteristics are the same:
  - Smooth, gentle to the skin
  - Absorbent, best moisture management
  - Strong and robust, in the manufacturing process and the end product
- Due to a special production process Refibra™ fibers can be identified in all processing steps: yarn, fabric, ready made garment
- Refibra™ fibers are certified according Recycled Claim Standard (RCS)
- [www.lenzing-fibers.com/refibra](http://www.lenzing-fibers.com/refibra)



# Lenzing Modal® COLOR – Future Black

Dope-dyed fibers avoid resource intensive conventional dyeing



Colored pigments are incorporated into the fiber spinning mass solution



# THE COST AND ENVIRONMENTAL BENEFITS OF USING LENZING MODAL® BLACK

Lenzing Modal® BLACK is **Spun-dyed** which means that colored pigments are incorporated into the spinning mass solution prior to the fiber extrusion process. Being embodied in the structure, the entire body of the fiber is colored instead of only the surface as in conventional dyeing.

## WHAT ARE THE COST SAVINGS?

LENZING MODAL® BLACK FIBERS REQUIRE LESS INPUTS (CHEMICALS AND ENERGY)



WATER  
**64%**  
SAVINGS



CHEMICALS  
**90%**  
SAVINGS



ELECTRICITY  
**20%**  
SAVINGS



HEAT  
**62%**  
SAVINGS



WASTEWATER  
**64%**  
SAVINGS



## WHAT ARE THE WATER SAVINGS?

JUST CONSIDERING THE WET PROCESSING STAGES, WATER USE IS 64% LOWER

CONVENTIONALLY DYED MODAL FABRIC

SPUN-DYED MODAL FABRIC

**64% LESS WATER**

LENZING MODAL® BLACK FABRIC HAS AROUND 50-60% LOWER ENVIRONMENTAL IMPACT THAN CONVENTIONALLY DYED FABRIC

CONVENTIONAL SPUN-DYED



ABIOTIC DEPLETION



ACIDIFICATION



EUTROPHICATION



OZONE LAYER DEPLETION



PHOTOCHEMICAL OXIDATION



CLIMATE CHANGE

LENZING MODAL® BLACK FABRIC PROCESS RAW MATERIAL TO GARMENT

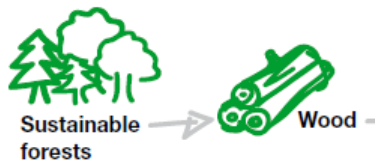
# EcoVero™

The new standard in eco-friendly viscose



# Sustainable wood sources

- EcoVero™ fibers are made from natural raw material wood
- Comes from sustainable forestry or forest plantations
- Lenzing practices a comprehensive wood & pulp sourcing policy
- Certified with FSC and PEFC



The mark of  
responsible forestry

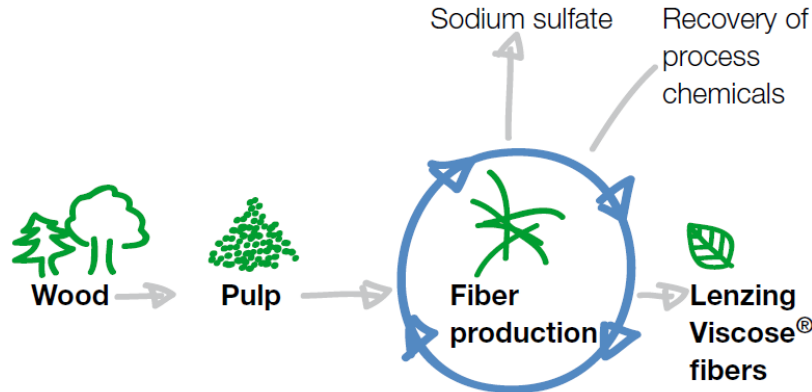


Promoting  
Sustainable Forest  
Management  
[www.pefc.org](http://www.pefc.org)



# Highest environmental standards

- Lenzing enforces strict environmental standards in the viscose production
- EcoVero™ is certified with the EU Ecolabel. The label is only awarded to products which have a significantly lower net environment impact versus comparable products in the market (other viscose fibers)
  - 50 % lower emissions
  - 50 % less water impact



# Supply chain transparency

---

- Due to a special production process EcoVero® can be identified in all processing steps:
  - Yarn
  - Fabric
  - Ready made garment
- Consumers can be sure that they are buying eco-friendly viscose EcoVero®



# Special marketing service

- EcoVero™ is part of Lenzing's branding service
- Marketing package is offered
  - Folders
  - POS material
  - Swing tags
  - Individual programs

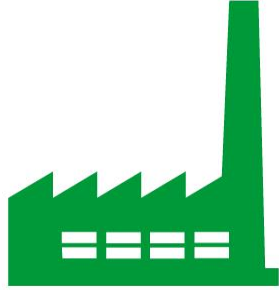


# Lenzing's solutions to sustainability challenges of textile industry

---



Responsible  
sourcing



Lower footprint



Sustainable  
Innovations



Transparency &  
Partnerships

# FOR MORE INFORMATION

---

Visit: [www.lenzing.com](http://www.lenzing.com)

[www.lenzing.com/sustainability](http://www.lenzing.com/sustainability)

[www.lenzing-fibers.carvedinblue.com](http://www.lenzing-fibers.carvedinblue.com)

Email: Peter Bartsch [p.bartsch@lenzing.com](mailto:p.bartsch@lenzing.com)

Tricia Carey [t.carey@lenzing.com](mailto:t.carey@lenzing.com)

We welcome your questions – THANK YOU!