

Lenzings initiative to drive circular economy in the textile world



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The current way of doing

TAKE



MAKE



DISPOSE



Adopted from T. Kinden, circle economy

The current way of doing

50 to 70 tonnes of industrial waste
per 1 tonne of household waste

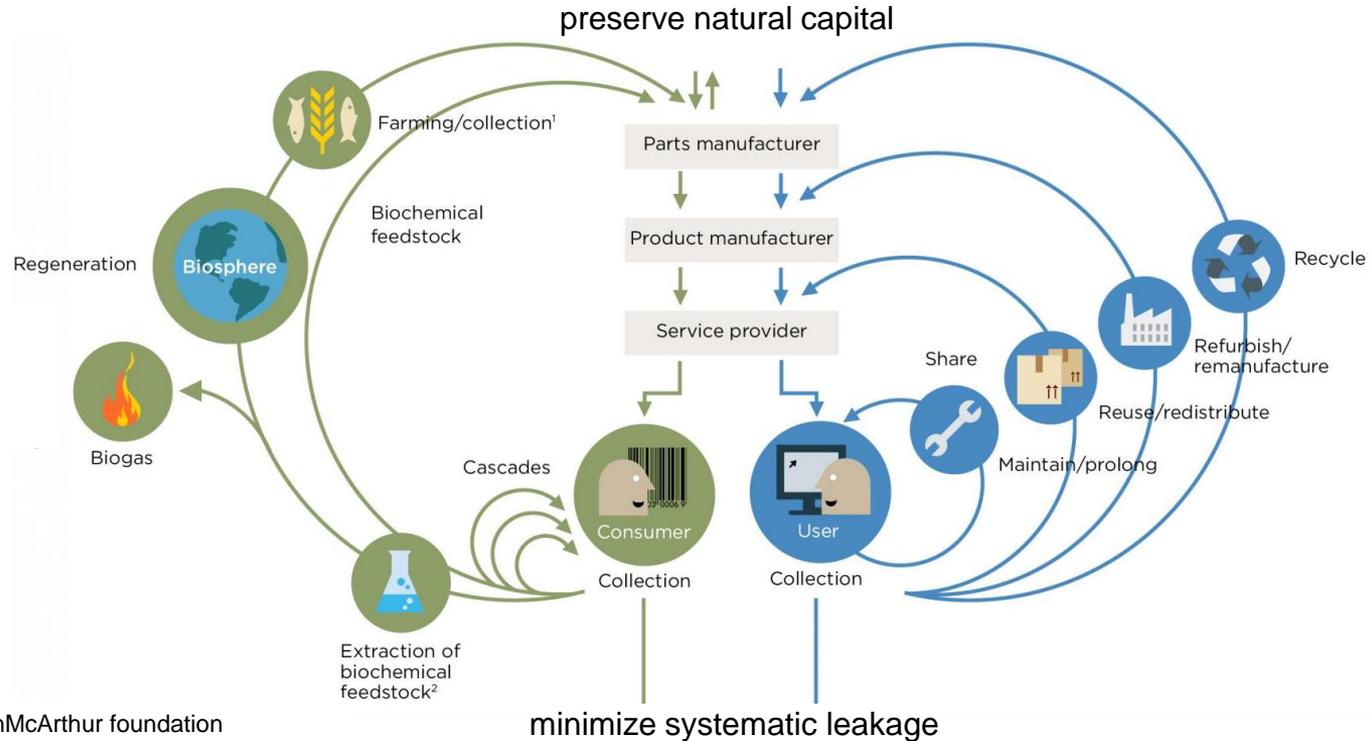


Source: Günter Pauli, Blue economy, image: Oliver Berg, dpa

Circular economy

A circular economy aims to **maximize value and eliminate waste** by improving the design of materials, products, systems and business models.

Circular economy



Source: EllenMcArthur foundation

What to do with fashion waste?



Current recycling of cellulosics

Respinning



Wipers

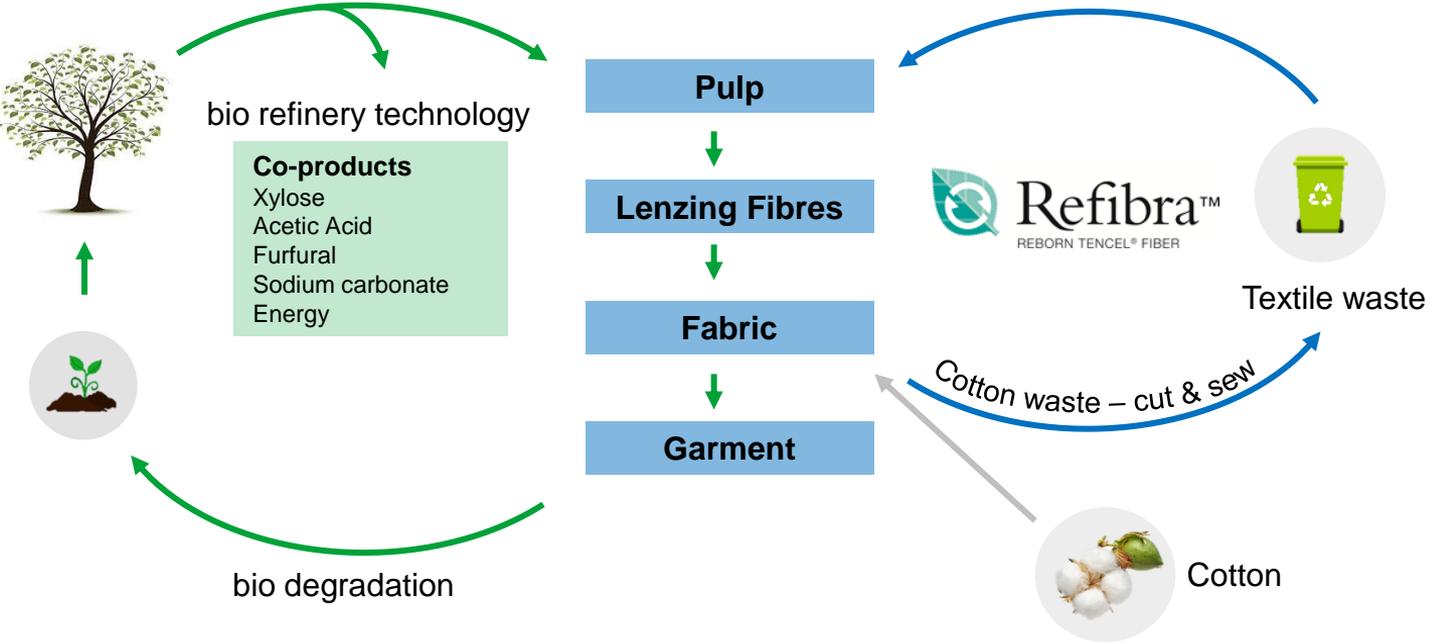


Shoddy

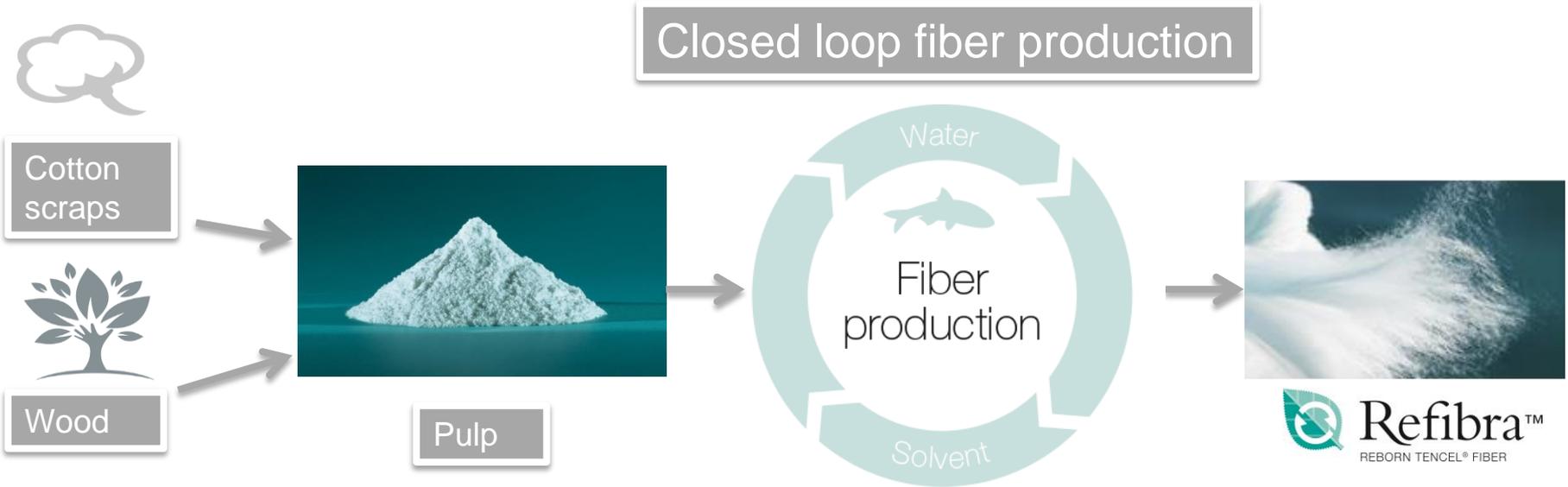


Mechanical treatments cause fiber damage and quality deterioration

The Lenzing Butterfly diagram

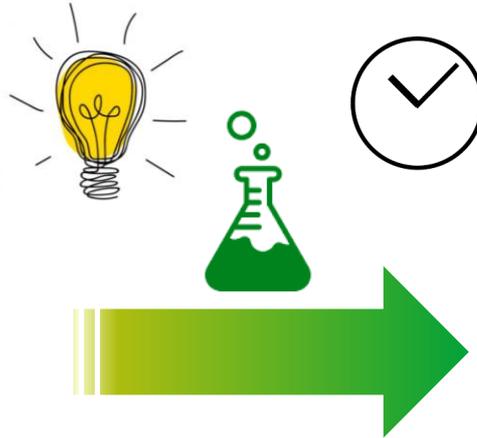


What is Refibra™?



Refibra™ the challenges

Colored cotton rags



- Dye removal
- DP adjustment

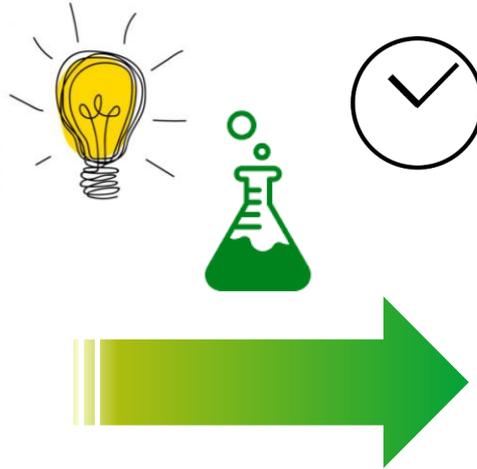
Lyocell grade pulp



Technology patented and patents pending

Refibra™ the challenges

Lyocell grade pulp



Refibra™

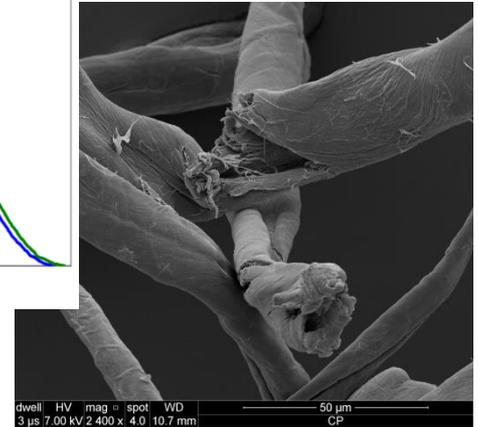
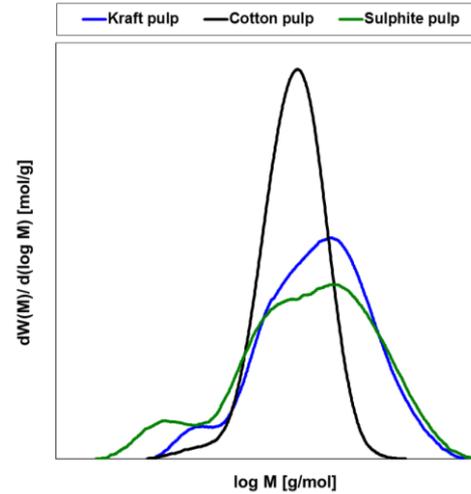


Technology patented and patents pending

Cotton cellulose \neq wood pulp

Special characteristics need to be taken into account while fibre making:

- Sharp molecular weight distribution
- Lower content of hemi cellulose
- Different fibre morphology
- Higher cristallinity
- Lower porosity



No change in fiber characteristics

- Refibra™ is produced in the same process as TENCEL®
- 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



Certification & Licensing

- Lenzing's special manufacturing process allows robust and fast identification in the downstream value-chain. The system makes it possible to identify the Refibra™ fiber in the finished textile.
- This guarantees transparency in the overall textile value chain.
- The Refibra™ fiber itself is part of the global Lenzing Branding Service and the brand is licensed once the textile has undergone a certification process
- Refibra™ fibers are certified according Recycled Claim Standard (RCS)



Summary

- Major breakthrough for the 'Circular economy' with new business model
- Technology: Recycling and upgrading of cotton scraps to new virgin fibers
- Transparency
 - Identification of Refibra™ fibers due to a special production process – from fiber to garment
 - Refibra™ fibers are certified according Recycled Claim Standard (RCS)



Lenzings circular economy solution



Refibra™

REBORN TENCEL® FIBER

