Lenzing Group

Capital Markets Day 2012
Business Unit Textil – Dieter Eichinger
## Textile fibers - Overview

<table>
<thead>
<tr>
<th>Natural fibers</th>
<th>Man-made fibers</th>
<th>From natural polymers</th>
<th>From synthetic polymers</th>
<th>From anorganic substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein-based</td>
<td>Cellulose-based</td>
<td>Cellulose-based</td>
<td>Protein-based</td>
<td>Polyester</td>
</tr>
<tr>
<td>Wool</td>
<td>Cotton</td>
<td>Viscose*</td>
<td>Casein</td>
<td>Polyamide</td>
</tr>
<tr>
<td>Silk</td>
<td>Flax</td>
<td>Modal*</td>
<td>Collagen</td>
<td>Elastan</td>
</tr>
<tr>
<td>Angora</td>
<td>Hemp</td>
<td>Lyocell*</td>
<td>Ardein</td>
<td>Polypropylene</td>
</tr>
<tr>
<td>Cashmere</td>
<td>Jute</td>
<td>Cupro</td>
<td>Zein</td>
<td>Polyurethane</td>
</tr>
<tr>
<td>etc.</td>
<td>etc.</td>
<td>Acetate etc.</td>
<td></td>
<td>Acryl*</td>
</tr>
</tbody>
</table>

* Lenzing fibers

![Lenzing Logo](image.png)
Cross section of fibers

Cotton | Lenzing Modal® | Lenzing Viscose® | TENCEL®
Differentiation through innovation in the textile chain
Textile value chain: Yarn
Air jet and Lenzing fibers

- Lenzing Fibers have the best quality to be processed on high end spinning machines like Air Jet.

- Cooperation with leading machinery manufactures guarantee Lenzing Fibers first choice at customer level.

Up to date Air Jet spinning systems: Rieter J 20 und Murata MVS 870.
Comparison of Air jet and ring spinning

<table>
<thead>
<tr>
<th></th>
<th>Air jet</th>
<th>Ring</th>
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<tbody>
<tr>
<td>Total Spindles</td>
<td>800 spindles</td>
<td>19,152 spindles</td>
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<tr>
<td>80 spindles x 10 machines</td>
<td></td>
<td></td>
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<tr>
<td>Spinning Speed</td>
<td>480 m/min</td>
<td>17,000 rpm</td>
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<tr>
<td>Blow Room</td>
<td></td>
<td></td>
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<tr>
<td>Carding</td>
<td></td>
<td></td>
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<tr>
<td>Pre Drawing</td>
<td></td>
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<tr>
<td>Lap Former</td>
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<tr>
<td>Combing</td>
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<tr>
<td>Drawing</td>
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<tr>
<td>MVS</td>
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<tr>
<td>Roving</td>
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<tr>
<td>Spinning</td>
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<tr>
<td>Winding</td>
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</tbody>
</table>

50% Space saving

Low operation costs
1/2 of man power

4 mechanics 7 operators
8 mechanics 17 operators
Spinning technologies

Ring spinning/compact spinning
- Less waste in comparisons to cotton

OE spinning
- Productivity, perfect for cellulose fibers

Air jet spinning
- Productivity, product performance, lower hairiness, perfect for cellulose fibers
Spinning systems: Ring, compact, OE

- Ring
- Compact
- OE
- Air jet
Lenzing’s focus to air jet can only cover a part of the capacities

Market share spin system

- OE: 15%
- Airjet: 1%
- Ring: 84%

LAG fiber sales to spin system

- OE: 35%
- Airjet: 21%
- Ring: 44%

LAG market share in viscose spinning technology segments

- Ring share of spun yarn capacity: 50%
- OE share of spun yarn capacity: 40%
- Airjet share of spun yarn capacity: 10%

Spinning capacities dominated by Ring spinning system, air jet only 1%
Textile value chain: Fabric
Value chain fabric

Woven fabric

Knitted fabric
High thread count with TENCEL® for bed linen

TENCEL® gives better touch and luster in comparison to cotton!
Even with lower thread counts.

For cotton in US the higher the thread count the more expensive the bed linen.

Thread count is simply the number of threads per square inch of fabric. These consist of vertical threads (warp) and horizontal threads (weft) woven together. Construction refers to how the thread count is achieved (# of warp and weft yarns, # of picks in the weft, use of 2 ply yarns etc.)
Physiology performance for protective wear with Lenzing FR®

The loading capacity of Lenzing FR® is at its highest at the anaerobic threshold point. With Lenzing FR®, one can record a higher performance with 16 watts or in practice run for one minute longer.

Better performance in extreme situations can save lives.
Value chain fabric

Woven fabric

Knitted fabric
Finest fabrics through finest fibers (0,8 dtex):

The market trend shows a trend for finer fabrics. Lenzing Fibers offer a wide variety of fine fibers. In combination with long-staple cotton (high end cotton) Lenzing Fibers increase the softness factor as the test shows.
Value softness for lingerie retailers

Lenzing Modal® makes lingerie: Soft and silky!

The finer the fiber the softer the fabric: Finest Lenzing Modal® fibers are MicroModal® and MicroModal® AIR.
Moisture management for seamless knits with TENCEL®

Seamless technology for knits:
TENCEL® is suitable for this technology
Textile value chain: Finishing

Spinners → Weavers Knitters → Dyers Finishers → Textile product → Retailers → Consumer

Push → Pull

LENZING
Innovation in dyeing & finishing

Savings (cold pad batch)

T-Shirt made of 100% TENCEL® A100

1/2 Dyestuff
1/2 Chemicals
1/2 Energy
1/2 Water
2/3 Processing time

Trouser made of 100% TENCEL®

1/3 Dyestuff
1/2 Chemicals
1/2 Energy
1/2 Water

- Research on the right dyestuff and chemicals saves money for the textile chain
- Development of new chemicals and processing routes
- Cooperation with chemical companies
Reduced resources and environmental impact in dyeing possible

Cotton  TENCEL®

Kisco Test with Synocol 1%

Yellow  Red  Deep Red  Navy Blue

100% cotton  100% cotton  100% cotton  100% cotton
21%  22%  22%  22%
Denim made out of TENCEL® stand aggressive finishing

Strong aggressive and mechanical finishing requires robust raw material.

TENCEL® is the only man made cellulose fiber which survives the traditional denim process.
Textile value chain: product
New products, new applications

Product developments in new applications:

Workwear
- Laundries
- Corporate wear

High active wear
- Textiles for professional sports

Cosmetic textiles
- New end uses for textiles with TENCEL® C
New products, non textile

New products in non textiles:

- Automotive sustainable raw material
- Plastic reinforcement sustainability better processing longevity
- Construction sustainability
New products, hometextile

Home/Interior products:

- Fabrics for upholstery
  strongest cellulose fiber available for that application – best abrasion resistant

- Carpets
  no mites and moths
New products for public transport with Lenzing FR®

New fiber for public transport:
- Flame resistant
- Moisture management
- Seat comfort
- Passes tests
More value for the textile chain

New fiber Lenzing Modal® COLOR:

- Save of water and dyestuff up to 70 %

Lenzing Modal® COLOR is first presented in Paris, September 2012
Edelweiss technology for sustainability

- Lenzing is the inventor of the fiber Modal®
- Lenzing Modal® is produced in Austria
- Lenzing Modal® is CO2 neutral
- Beech wood is the DNA of Lenzing Modal®
- 95% of the chemicals in the Lenzing Modal® process are recovered
- Full integration
Textile value chain: Retailer and consumer

- Spinners
- Weavers Knitters
- Dyers Finishers
- Textile product
- Retailers
- Consumer

Pull
Push
Value sourcing knowledge

Global offices help to service global retailers:

- Supply chain management
- Merchandising organization
- Innovation meetings – transport product ideas
- Sourcing know-how (www.expo-tex.com)

Click on www.expo-tex.com our new online fair
Value branding

2012 - over 350 mio of Lenzing fiber brands in the market
Product value for all.

Thank you!