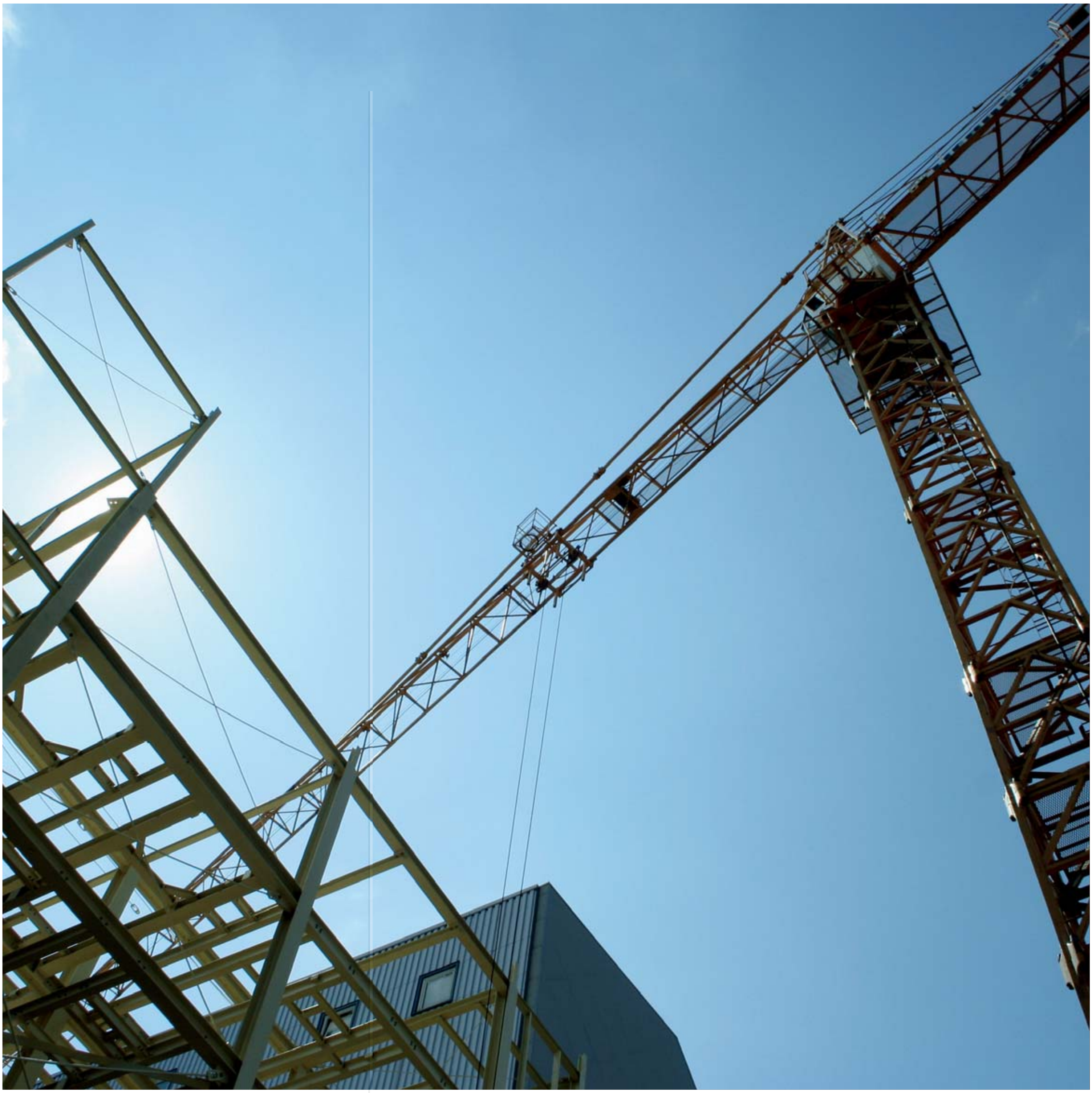

Responsibility for Economic Success

Continuous increase of production capacity.

Profound knowledge of international fiber markets.

Core competence in wood, cellulose and fiber chemistry as the basis for active research.

Innovative products for promising new business opportunities.

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Responsibility for Economic Success

Business development in the Lenzing Group

Growth and innovation are at the core of the Lenzing business development process.

Continued Investment in the Future

Our long-term prosperity is secured by continuous investment in the future. We are committed to providing the resources and expertise required for developing new business streams through the Corporate Innovation Group and to accomplishing the goal of strategic growth by mergers, acquisitions and organic development.

The Lenzing Group has committed resources and expertise to the fields of innovation, strategic planning and business development in order to provide momentum for progress.

These teams work together with the market development and Research and Development groups of the individual business units. It is their task to deliver the medium term strategic objectives which have been identified in the business planning process.

Production Capacity as a Key Factor

The continuous development of our manufacturing capacity is a key feature of our development process. Production capacity at the Lenzing site alone has almost doubled in the last 10 years. Concurrently, our capital investment program has focused on improving productivity and efficiency in every aspect of our manufacturing processes.

Intellectual Property Rights Portfolio

New products and new production technologies require protection by a corresponding intellectual property rights portfolio. This portfolio secures our competitive edge in manufacturing and marketing. It offers specific opportunities for company growth through expansion, collaboration and licensing revenue.

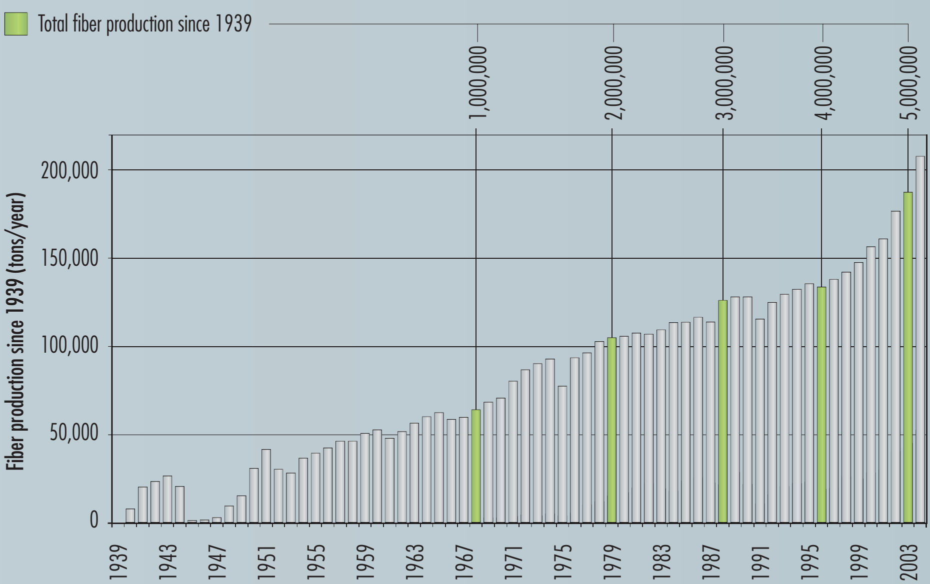
International Research Network

The Lenzing research center is the key to our sustainable innovation process. Developing an international collaboration network with academic research partners keeps us in touch with the latest developments in science and state-of-the-art technology. It supplements those internal development activities with long-term and fundamental research potential.

Our knowledge of the international fiber markets and our core competence in wood, cellulose and fiber chemistry are the basis for active research, which identifies new applications, additional market segments and products for promising new businesses. Substantial efforts are undertaken to increase the utilization of wood, our major raw material, by converting its non-cellulose constituents to value adding chemicals.

Production Capacity

Lenzing Site



Fiber
Total fiber production since 1939

Responsibility for Economic Success

Cellulose Fibers

Global Fiber Consumption

The annual global demand for fibers amounted to 62.4 million tons in 2004, which represents an average per-capita consumption of 9.8 kg. Fiber demand for textiles and nonwovens will continue to grow by 3-4% p.a. triggered by both the growth in population and the improved standard of living in the developing and newly industrializing countries.

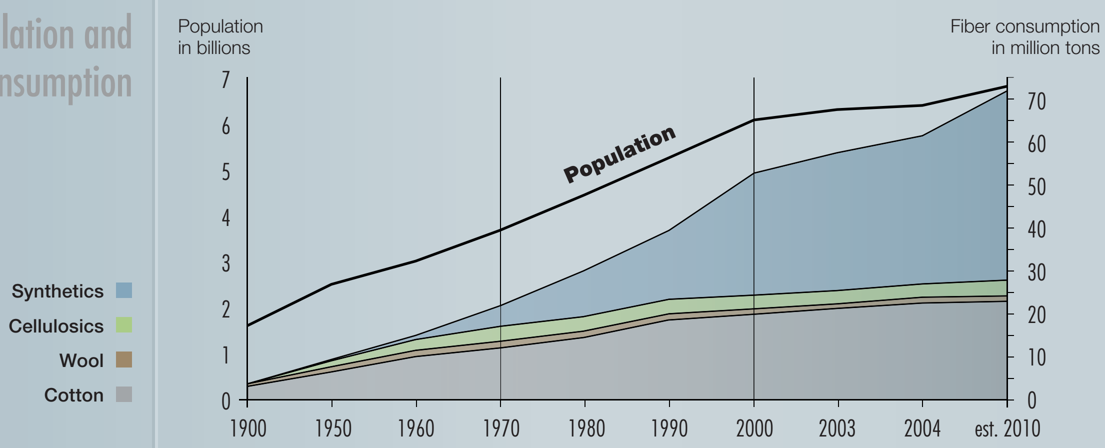
Fiber Materials

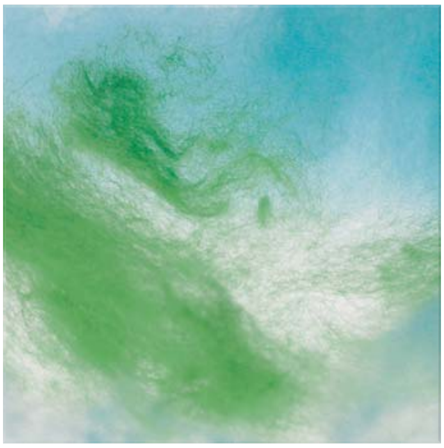
Fiber materials are split into:

- Natural fibers originating from plants or animals such as cotton, wool or silk
- Synthetic fibers based on mineral oil such as polyester, polyamide or acrylics
- Man-made cellulose fibers based on wood such as viscose, modal, lyocell or cellulose acetate.

Synthetic fibers account for 57% of the global fiber production, natural fibers for 38% and man-made cellulose fibers for 5%. In textile products synthetic fibers provide durability and easy care properties whereas cellulose fibers provide wear comfort and moisture management. Therefore blends of synthetic and cellulose fibers are well established for many applications.

World Population and Fiber Consumption




Cotton

Cotton is still the dominating cellulose fiber in the textile industry. However, the agricultural area for growing cotton has not significantly changed during the past 50 years and competes with the demand for fertile land for food production especially in the developing and newly industrializing countries. An increase in cotton yield has only been achieved by means of artificial irrigation, the extensive use of fertilizers, pesticides, herbicides and defoliants and the genetic modification of cotton plants. In view of the predicted increase in demand for cellulose fibers, cotton production will probably not be able to cover this demand by pursuing the same strategy as in the past. Additional land will not be available due to the priority for food production, artificial irrigation already leads to a shortage of water and the extensive use of pesticides creates significant environmental problems and health concerns and will not allow a substantial further increase in the yield.

There is, however, an increasing share of world cotton acreage planted with genetically modified cotton which leads to higher yield and reduced production costs. It remains to be seen whether this trend will continue in the coming years, as there is a multitude of consumer concerns with regard to GM products, especially in industrialized countries.

Man-Made Cellulose Fibers: Viscose, Modal and Lyocell

This gap between demand and supply of cellulose fibers can be filled by viscose, modal and lyocell. These fibers consist of pure cellulose – like cotton – but they are derived from the natural raw material wood. During industrial production of man-made fibers wood is processed into wood pulp in the first step and then converted into viscose and modal fibers according to the traditional viscose process or into lyocell fibers by means of the novel lyocell process. Unlike cotton, man-made cellulose fibers can be manufactured in a broad variety of physical dimensions tailor-made and in consistent quality for the downstream industry.

Viscose is appreciated for its softness and its water retention capability, which is twice that of cotton. Due to its purity viscose is the dominating cellulose fiber in nonwoven hygiene applications. Modal – the second generation cellulose fiber characterized by its superior textile care properties – is the preferred material for high quality lingerie and knitwear. Lyocell represents the latest generation of cellulose fibers for various textile and nonwoven applications. It is characterized by a unique nanofibrillar structure, which provides superior moisture management properties. TENCEL® is the brand name for lyocell fibers produced by Lenzing.

Responsibility for Economic Success

Ecological Aspects of Cotton

The average yield for cotton is about 700 kg/ha. The annual growth of a natural European forest – sustainably managed – produces twice the amount of cellulose per ha. So even without artificial irrigation, fertilizers and pesticides the biosynthesis of cellulose in a natural forest is much more efficient than in a cotton plantation.

Traditionally, high amounts of pesticides are used to achieve high yields in cotton production. It has been estimated that up to 25% of the world's pesticide production is used to grow cotton. In recent years new technologies such as genetic modification were introduced for pest control. In the United States – one of the major cotton producing countries – more than 70% of the cotton plants are genetically modified. More environmentally sound concepts like organic cotton or green cotton, which avoid the use of pesticides and fertilizers, are not able to produce fibers at competitive prices and their market share is insignificant.

Viscose, modal and lyocell fibers are manufactured by industrial processes, which consume a significant amount of process water. Specific figures for Lenzing fibers are between 100 m^3/t for lyocell and up to 500 m^3/t for viscose and modal. However, compared to the amount of water used for the artificial irrigation of cotton, these figures are still very low. For cotton farming figures between 7,000 m^3/t in Israel and 29,000 m^3/t in Sudan are reported. Extraction of water from Lake Aral for artificial irrigation will probably make the lake disappear in the near future.

Ecological Aspects of Viscose, Modal and Lyocell Fibers

A couple of decades back the industrial production of viscose was associated with significant pollution problems. The technologies applied in the Lenzing fiber plants have made the production processes clean by recycling of waste streams, recovery of by-products and introduction of efficient purification systems for aqueous and gaseous emissions. Tremendous efforts were made and novel technologies had to be developed to reduce the environmental impact of pulp and viscose fiber production. By integration of pulp and fiber production on the Lenzing site 80% of the process energy is provided by biogenic fuels (see chart "Fuel Mix at Lenzing AG" page 64). The new lyocell process has been designed as a closed loop process from the very beginning in order to minimize emissions and was awarded the "European Award for the Environment".

Ecological Aspects of Synthetic Fibers

Synthetic fibers are manufactured from synthetic polymers, which are based on mineral oil. Oil is not only the major raw material, significant amounts of oil and gas are also used as fuel. While total energy consumption for synthetic and cellulosic fibres is of similar magni-



tude, a substantial proportion of the fuels for cellulose fibers at the Lenzing site is derived from biomass. Another important difference between synthetic and cellulose fibers is biodegradation. Cellulose fibers are completely biodegradable under aerobic and anaerobic conditions and are decomposed by naturally occurring micro-organisms into CO_2 and water while synthetics are not accessible to microbial degradation.

The Role of man-made Cellulose Fibers in Nonwovens

Whereas the European textile industry went into decline and migrated into low-cost countries, the European nonwovens industry has been enjoying steady and sustainable growth for the last 20 years.

Viscose and lyocell are the dominating cellulose fiber materials, providing absorbent properties to a wide variety of nonwoven products, from dry or premoistened wipes and hygiene products to highly sensitive applications, such as surgical drapes and gowns, wound care products or tampons. The particular advantage of man-made cellulose fibers in all these nonwoven applications lies in their exceptional purity, their superior absorbency and their softness and opacity. For many single-use products disposability is a crucial factor as well. Nonwovens manufactured from pure cellulose fibers by hydroentanglement or needlepunch technology are fully biodegradable.

Comparison of the Absorbency of Fiber Types:

(water retention acc. to DIN 53814)

Fiber Type	Water Retention (%)
Polypropylene	0
Polyester	< 5
Cotton	38 – 45
Modal	60 – 65
Lyocell/TENCEL®	60 – 70
Viscose	90 – 100