

Stand up for future generations

#alettertoachild



Highlights of the year



Strategic milestones

Strategic growth projects fully on track: Brazil and Thailand

Lenzing launches 3rd party certified carbon-zero TENCEL™ branded fibers

Second pilot plant completed for TENCEL™ Luxe filament yarn

Brand visibility increased – environmental initiatives continue to raise awareness of sustainable solutions

The Nonwovens initiative for eco-responsible consumption #ItIsInOurHands celebrates its first anniversary, and succeeded in driving awareness about fossil based plastic in wipes.



Achievements

Financing agreements for construction of pulp plant in Brazil concluded as planned

Lenzing achieves highest Hot Button category, the dark green shirt, for the first time

New level of transparency in the textile industry: Lenzing introduces blockchain-enabled traceability platform

Lenzing is the only first-time discloser recognized with prestigious double 'A' score for global climate and forests stewardship by CDP

Lenzing is founding partner of the Renewable Carbon Initiative

Progress on afforestation and conservation project in Albania – erosion control measures finalized, about 3,600 trees planted



Awards

Building Public Trust Award 2020 from PwC for the best climate reporting in the Austrian ATX²

Austrian State Prize for Innovation for LENZING™ Web Technology³

Pegasus⁴ business award, Upper Austria: second place for Lenzing (Austria) in the innovation category

2020 High Performer Award for Lenzing Fibers Inc. from the EPA Smart-Way® Transport Partnership⁵

EUREM Award⁶ for Lenzing AG in the large enterprises category

Quality Supplier of Wood-based Cellulosic Fibers, jointly issued by China Chemical Fibers Association and China Cotton Textile Association⁷

Pursuer of Excellence in Sustainability 2020 award as an Annual Responsible Investment Practitioner⁸ from WWD China and China National Garment Association

SABRE Asia-Pacific and PRWeek Global Awards for Lenzing's efforts to educate consumers about environmental issues through the #FeelsSoRight campaign



Ratings

- CDP Climate: 'A' rating
- CDP Forest: 'A' rating
- EcoVadis: Gold status
- ISS ESG: Prime status ('B-' rating)
- MSCI: 'A' rating
- Sustainalytics: 22/100¹- medium risk level
- Vigeo Eiris: 59/100 – 'robust' performance level
- Lenzing again member of VÖNIX stock exchange index ('B+' rating)

Lenzing Group: Sustainability key performance indicators

Lenzing Group: sustainability key performance indicators

Table 01

Key performance indicator		2018	2019	2020
Economic value creation ^a	Value creation	EUR 587.6 mn	EUR 575.7 mn	EUR 406.4 mn
	Distribution of value creation			
	Employees ^b	EUR 368.2 mn	EUR 389.2 mn	EUR 349.6 mn
	Retained earnings	EUR 15.5 mn	EUR 114.9 mn	EUR -10.6 mn
	Public sector ^c	EUR 62.3 mn	EUR 60.4 mn	EUR 44.8 mn
	Shareholders (dividends) ^d	EUR 132.8 mn	EUR 0.0 mn	EUR 0.0 mn
	Lenders ^e	EUR 8.8 mn	EUR 11.2 mn	EUR 22.5 mn
	ROCE (return on capital employed) ^f	10.3 %	5.3 %	-0.6 %
	Adjusted equity ratio ^f	59 %	50 %	45.8 %
	Revenue	EUR 2,176.0 mn	EUR 2,105.2 mn	EUR 1,632.6 mn
	EBITDA (earnings before interest, tax, depreciation and amortization)	EUR 382.0 mn	EUR 326.9 mn	EUR 196.6 mn
Sales volume fibers [t]	915,000 t	899,000 t	787,000 t	
Raw material security	Proportion of wood source certified or controlled by forest certification	>99 %	>99 %	>99 %
	Proportion of suppliers with EcoVadis rating [%]	63 %	89 %	84 %
	Share of own pulp	60 %	62 %	62.4 %
Sustainable innovations	R&D expenditure, calculated according to the Frascati method [EUR]	EUR 42.8 mn	EUR 53.2 mn	EUR 34.8 mn
	Specialty fiber share based on revenue ^g	45.5 %	51.6 %	62 %
Decarbonization	Specific ^h primary energy consumption [GJ/t, 2014 = 100 %]	99 %	98 %	97 %
	Specific greenhouse gas emissions ⁱ [tons of CO ₂ eq./t, 2014 = 100 %]	98 %	92 %	85 %
	Specific sulfur emissions [kg/t, 2014 = 100 %]	71 %	67 %	61 %
Water stewardship	Specific water intake [m ³ /t, 2014 = 100 %]	96 %	93 %	96 %
	Specific water emissions after wastewater treatment [kg COD/t, 2014 = 100 %]	93 %	86 %	100 %
Employees	Number of employees ^j	6,839	7,036	7,358
Occupational safety	Lost workday cases [LWC, per 1,000 employees]	5.7	4.4	4.2
	Lost Time Injury Frequency Rate (LTIFR based on 200,000 worked man-hours) for employees incl. supervised workers and contractors		0.51	0.43 ^k

a) Value creation within the Lenzing Group is calculated as the company's business performance minus the cost of materials, other expenses, depreciation and amortization. The distribution of value creation shows the extent to which it is distributed among stakeholders such as employees, the public sector, and lenders.

b) Personnel expenses less municipal taxes.

c) Based on the proposed distribution of profits.

d) Income tax expenses plus asset taxes and similar taxes plus municipal taxes.

e) Financing costs less net foreign currency gain/losses from financial liabilities.

f) The financial indicators are derived primarily from the IFRS consolidated financial statements of the Lenzing Group. Additional details are provided in the section "Notes on financial performance indicators of the Lenzing Group" in the glossary of the Annual Report and in the consolidated financial statements of the Lenzing Group.

g) Lenzing's speciality fibers are net-benefit products that offer positive impacts and benefits to society, the environment, and value chain partners.

h) Specific indicators are reported per unit of production by the Lenzing Group (i.e. pulp and fiber production volumes).

i) Includes both scope 1 and 2 emissions of all greenhouse gases, expressed as CO₂ equivalents. It was observed that the system boundaries of different wood-based fiber producers differ from the Lenzing Group's boundaries. In particular, upstream production of chemicals that are consumed in Lenzing's facilities belongs to scope 3, according to the GHG protocol, so they should not be included here. However, some Lenzing Group sites produce chemicals themselves, namely H₂SO₄ and CS₂, leading to a higher energy demand and scope 1 and 2 CO₂ emissions for the Lenzing Group. This is relevant for all indicators. Scope 1 emissions are calculated from emission factors from EU ETS. Scope 2 emissions are calculated using a market-based method.

j) Employees (incl. apprentices, excluding supervised workers) in Austria, the Czech Republic, United Kingdom, USA, China, Indonesia, India, Taiwan, Thailand, Turkey, Korea, Singapore, and Brazil.

k) Contractors for the major projects in Thailand and Brazil are not included.



A letter to a child

We asked our employees
to write a letter.

To the most important people
in their life.

Their children and grandchildren.

**It is a message to
our future.**



#alettertoachild

*It is exactly this responsibility
and our inherent motivation
that we are trying to express
in our multimedia campaign
#alettertoachild.*

At Lenzing, we look beyond products and take responsibility for our children and grandchildren. This has been our brand promise for more than 80 years. More than ever, this promise is reflected in our actions during the COVID-19 pandemic. Lenzing quickly took steps to keep operations running and to reduce the effect of fiber prices and demand for fibers, which had come under pressure. These efforts always focused on protecting our employees and strengthening long-standing partnerships with suppliers and customers. Lenzing managed to stay fully on track even during these challenging times and did not lose sight of its strategic goals, including the ambitious climate goals, but rather continued to implement them with great discipline.



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Dear Haasini Girace, my little Wonder

You have been teaching me a lot and we grow up with you every day as you explore, uncover and point out to us so many things with your curious nature and fresh perspective.

I was wondering what future we may offer you. You may wonder why your dad was wondering about these

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The Lenzing Group

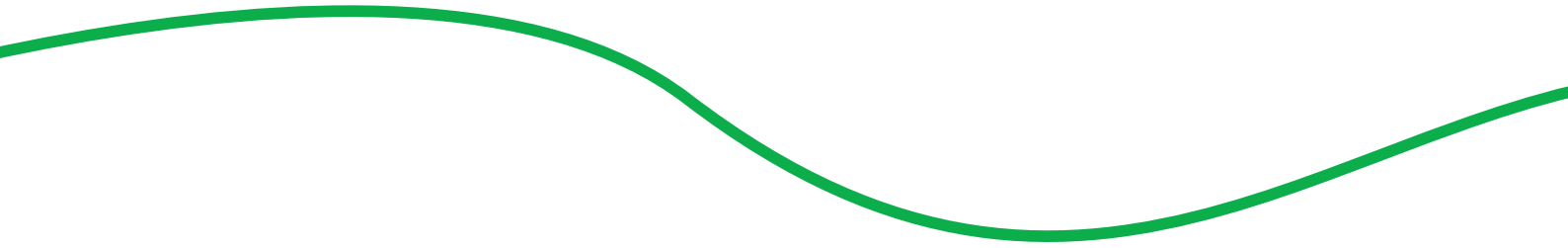


or the air pollution caused by industry, cities, cars. Forests are the lungs of our planet. We must never forget that!

Where I work, we try to make sure that the tree population does not decline. I don't want people to act without thinking about the consequences. What do we do in our company? We make fibers from wood. Soon you will be able to feel them in your own room.

When you read this letter, you will be a little older and you will have your own opinion. I look forward to your view

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About this

Report

This report is the combined, consolidated, non-financial report for the Lenzing Group⁹ (according to §267a UGB) and for Lenzing Aktiengesellschaft (according to §243b UGB).

Since Lenzing operates on a global level with Group-wide approaches in various areas of operation, all descriptions of management approaches and concepts concerning the material topics identified apply to both the Lenzing Group and Lenzing Aktiengesellschaft. For those indicators where meaningful figures can be provided, separate data for Lenzing Aktiengesellschaft can be found in the annex (in accordance with the legal requirements stipulated by the Austrian Sustainability and Diversity Improvement Act (NaDiVeG¹⁰) and the AFRAC recommendation).

The description of non-financial risks has been integrated into the Annual Report 2020, while compliance is covered by the Corporate Governance Report. Additional information concerning certain topics is provided on the Lenzing Group website. References can be found under the appropriate headlines.

This report covers all the fully consolidated legal entities of the Lenzing Group¹¹. The Nanjing Faboer Waste Water Treatment Co., Ltd., Nanjing, China was acquired in 2020.

The contents of this report reflect the topics that are relevant and material to sustainable development at the Lenzing Group. The management approaches for each material topic can be found in the relevant sections. Data relating to human resources apply to the entire Lenzing Group. Specific environmental indicators have been calculated using data from all the production sites of the Lenzing Group. They account for 100 percent of the company's worldwide production volume. The construction sites in Brazil and Thailand are fully consolidated but are not yet in operation. Relevant data were included wherever available. 2014 was chosen as the base year for the presented data because Lenzing's first GRI report including the Lenzing Group sustainability targets was issued in 2017 with data covering 2016, 2015 and 2014.

This report mainly covers data from 2020. Wherever possible, it also presents a series of data over three years (2018, 2019, and 2020)¹² to make the information transparent, relevant, and comparable.

In November 2020, the organizational structure within the Lenzing Group was changed. The functions and departments listed in the management approaches already correspond to the new organization.

This report has been prepared in accordance with the Global Reporting Initiative (GRI) standards: Core option. A detailed GRI content index can be found in the annex of this report. In accordance with the legal requirements, the reporting cycle for Lenzing's sustainability performance is annual.

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All focus papers mentioned in the report can be found here: <https://www.lenzing.com/investors/publications>



Letter

from the CEO

Ladies and Gentlemen,

For Lenzing, like for so many others, 2020 was overshadowed by the COVID-19 pandemic. Lockdowns in virtually all markets had a savage impact on the entire textile and apparel industry. We focused our efforts on maintaining our sustainable business trajectory and ensuring the health and safety of our employees and partners up and down the value chain.

For all the urgency of the fight against COVID-19 and its effects, we must not forget pressing ecological challenges such as the climate, biodiversity and resource conservation. Sustainability is and remains the dominant issue of our time. At Lenzing, we believe meeting these challenges is an integral part of our strategic principles and our responsibility to future generations. It is this responsibility and our own ambition that we have tried to express in our #alettertoachild multimedia campaign.

That is why we continued to work resolutely to achieve our strategic goals despite the difficult market conditions in 2020. Our hard work has paid off: Key projects in Brazil and Thailand – the construction of a dissolving pulp plant and a lyocell plant – are still on schedule. They will not only support our transformation into a supplier of environmentally compatible specialty fibers but will also significantly help us to achieve our ambitious climate targets.

The new site in Brazil will export more than 50 percent of the electricity it generates to the public grid as renewable energy and will have a positive net carbon footprint once it starts operations. Lenzing takes its responsibility for the 44,000-plus-hectare biomass plantation very seriously and applies the strictest standards to its cultivation. The site in Thailand enables sustainable

biogenic energy production with its model infrastructure and will play a big role in advancing our goal of growing based on sustainably produced specialty fibers.

Our pursuit of science-based targets actively tackles the problems caused by climate change. In 2019, Lenzing made a strategic commitment to slash its greenhouse gas emissions per ton of product by 50 percent compared to 2017 by 2030. By 2050, we intend to be climate neutral. We want to do our part to slow the rate of global warming and achieve the goals of the Paris Agreement and the European Commission's Green Deal. In the year under review, Lenzing made additional significant progress toward its targets by integrating the production sites and instituting profound organizational measures.

Two other milestones from the reporting year that exemplify the responsible path that Lenzing and its partners have taken towards climate neutrality are the introduction of the first CarbonNeutral® product certified fibers under the TENCEL™ brand and the establishment of the Renewable Carbon Initiative, which aims to accelerate the transition to renewable carbon.

Climate protection and sustainable action are fundamental elements of our strategy and increasingly integrated in our core business. As part of that effort, we follow stricter transparency requirements laid down by investors and other stakeholders. We work hard to communicate our sustainability performance even more clearly based on the ESG approach. To that end, we established a dedicated ESG committee in 2020, which I chair. We also established a working group focused on adopting the recommendations of the Task Force on Climate-Related Financial Disclosure (TCFD) in order to credibly demonstrate our economic resilience as a business leader.

We are thrilled that our achievements are increasingly being noticed and garnering the recognition they deserve:

- Lenzing underwent its first-ever assessment by CDP, a not-for-profit environmental organization, in 2020 and was the only new entrant on its forest and climate A Lists.
- In Canopy's Hot Button ranking, Lenzing made it to the highest category for the very first time. The Canadian environmental organization highlighted our continued leadership in sustainable procurement and innovation on fiber inputs this year.

- ISS ESG, one of the most highly recognized sustainability rating agencies, raised Lenzing's sustainability rating in 2020 from "C+" to "B-" – the highest rating in the "Paper & Forest Products" category. This puts Lenzing in the top 10 percent of rated companies. The Group's "Prime Status" was also confirmed.

The successful issue of a EUR 500 million hybrid bond in November 2020 is further evidence of the capital market's strong confidence in our company.

All the awards and accomplishments – enumerated under "Highlights of the year" – speak to how passionately our employees embrace our principles of sustainable action at every level. I want to take this opportunity to express my sincere gratitude for their full-throated support for our sustainability trajectory and their extraordinary commitment, flexibility and solidarity during the COVID-19 crisis. Special thanks also go out to our customers and partners for their partnership and cooperation.

Sincerely

Stefan Doboczky

Dear Haasini Grace, my little wonder :-)

You have been teaching me a lot and we grow up with you everyday as you explore, uncover and point out to us so many things with your curious nature and fresh perspective.

I was wondering, as you give so much happiness, what future we may offer you. You may think why your dad was wondering about these questions. We are living in a beautiful area. However, I am worried about the ecological health of the world. We humans have caused wide spread destruction of forests, squandered resources, polluted waters, air and entire Ecosystems.

I was born and brought-up in India. I have witnessed poverty and environmental destruction first hand. Now a days, my Job is to improve the state of the world.

I work for a company called the Lenzing group. This company has a bold vision to limit the adverse effects of climate change. It also produces in Ecofriendly facilities and the products will not harm the environment at the end of their useful life. This progress has been achieved through incredible human spirit and collaboration, which gives me hope.

Do the things that you love to do because life is precious and short. Don't forget that you always have a 'choice'.

We wish you health, happiness and success in life. We love you no matter what and we are always there for you ♡

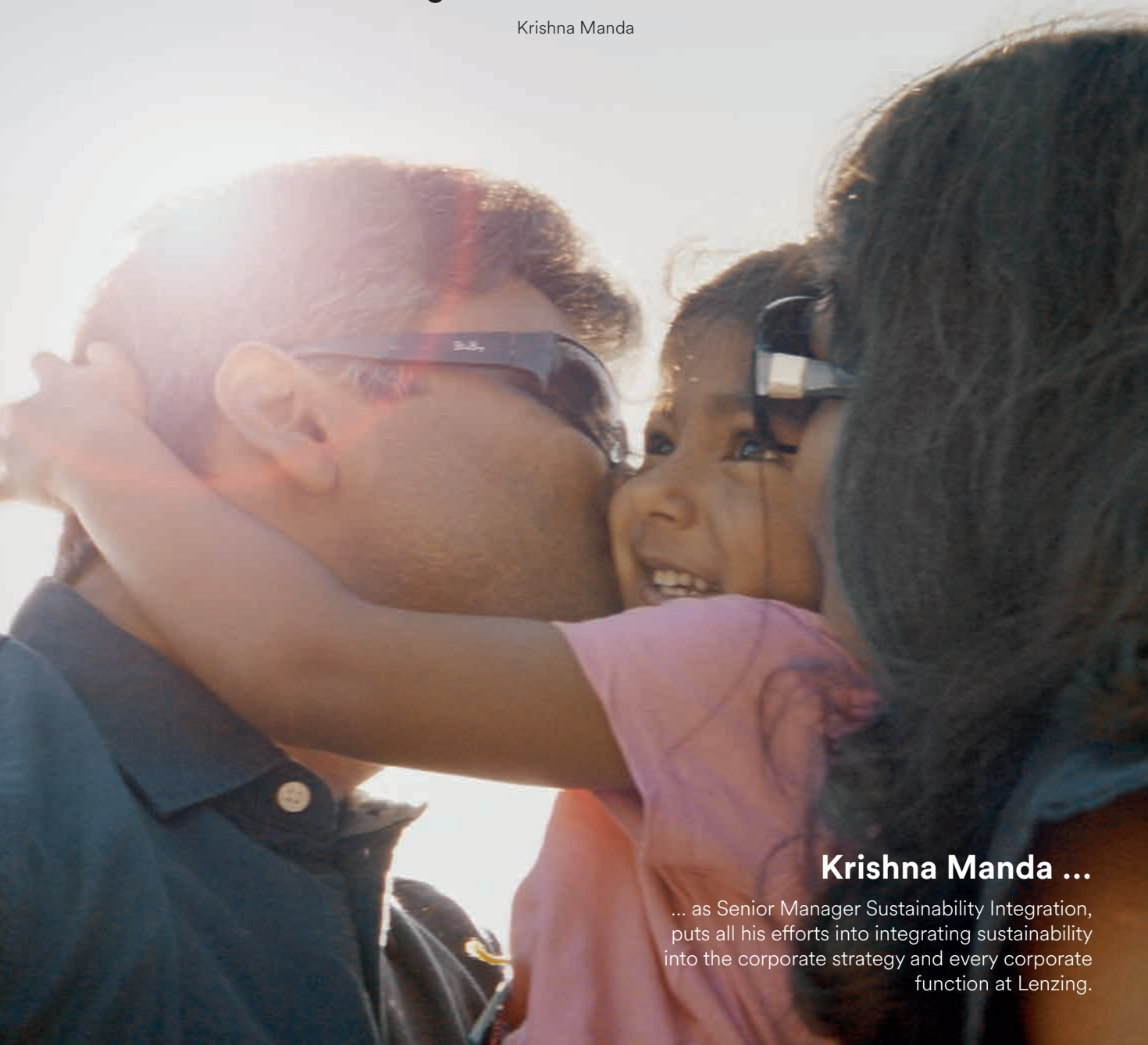
Yours dad,
Krishma



A *letter* to Haasini Grace

**We are living in a beautiful area.
However, I am worried about the
ecological health of the world.**

Krishna Manda



Krishna Manda ...

... as Senior Manager Sustainability Integration, puts all his efforts into integrating sustainability into the corporate strategy and every corporate function at Lenzing.

Impacts of the COVID-19 pandemic on the Lenzing Group

The COVID-19 pandemic had a devastating impact on the textile and apparel industry in 2020, causing unprecedented disruption to operations and supply chains. Thousands of factories and stores worldwide were temporarily closed. In contrast, demand for hygiene products (wet wipes, disinfectant wipes, etc.) increased.

Lenzing also faced an extremely adverse market environment and responded by focusing on ensuring its employees' health, continuing maintaining long-term partnerships and its sustainable business trajectory. It has tackled the challenge well thanks to its practical corporate culture and mindset.

Close contact with partners along the value chain has enabled Lenzing to respond promptly and nimbly to ever-changing market requirements.

The disciplined execution of the sCore TEN corporate strategy with its focus on specialties had a positive impact. Current expansion projects in Brazil (dissolving pulp plant) and Thailand (lyocell plant) remain on schedule despite the challenging market environment.

Beyond the core business

Protective masks were in short supply worldwide when the pandemic arrived in Austria. As a multinational corporation, Lenzing leveraged its business contacts to help the Upper Austrian provincial government procure enough masks for the Red Cross.

In the second quarter of 2020 Lenzing and Palmers Textil AG founded the joint venture Hygiene Austria LG GmbH to meet the population's increased demand for high-quality hygiene and protective equipment. The new company, which is accounted for using the equity method and in which Lenzing holds 50.1 percent and Palmers 49.9 percent, started producing and selling mouth-nose and FFP2 masks in May 2020. In a next step, the product range was extended to include masks for children. An additional distribution channel was established with the launch of an online shop (<https://hygiene-austria.at>) in the third quarter.

It was also important to support local communities and populations by providing masks and disinfectant, especially at the Asian sites.

"The pandemic has not changed Lenzing's attitude toward sustainability. On the contrary, sustainability has been and will continue to be included in all corporate decisions."

Stefan Doboczky, CEO

Lenzing Group: a brief portrait

Based in Austria, the Lenzing Group (Lenzing Aktiengesellschaft and its subsidiaries) is one of the world's leading producers of dissolving wood pulp and cellulosic fibers, with production sites in major markets and a global network of sales and marketing offices.

Lenzing Group

Table 02

	2018	2019	2020
Employees	6,657	7,036*	7,358
Revenue	EUR 2,176.0 mn	EUR 2,105.2 mn	EUR 1,632.6 mn
EBITDA	EUR 382.0 mn	EUR 326.9 mn	EUR 196.6 mn
Total assets	EUR 2,630.9 mn	EUR 3,121.1 mn	EUR 4,163.0 mn
Equity	EUR 1,533.9 mn	EUR 1,537.9 mn	EUR 1,881.4 mn
Liabilities	EUR 1,097.0 mn	EUR 1,583.2 mn	EUR 2,281.6 mn
Total number of operations	17	17	18
thereof production sites	7	7	9**
Sales and marketing offices	10	10	9
Sales volume fibers	915,000 tons	899,000 tons	787,000 tons

* Employees (excluding apprentices and supervised workers) in Austria, the Czech Republic, United Kingdom, USA, China, Indonesia, India, Taiwan, Thailand, Turkey, Korea, Singapore, and Brazil

** Including construction sites in Brazil and Thailand

For more information on detailed financial figures, please see annual report.

Processes and technologies in the Lenzing Group

Lenzing's product portfolio extends from dissolving wood pulp as the basic raw material to standard fibers and innovative specialty fibers as well as energy, biobased biorefinery products, and co-products. Lenzing's own pulp production at its sites in Lenzing (Austria) and Paskov (Czech Republic) is based on a biorefinery concept, completely utilizing the raw material wood.

The Lenzing Group combines comprehensive expertise in operating pulp and biorefinery processes with decades of experience in three major fiber process technologies:

- Viscose (rayon)
- Modal
- Lyocell

Three new process technologies based on the Lyocell process have been developed in recent years: REFIBRA™ (textile) or Eco Cycle (nonwovens) technology, Eco Filament technology, and LENZING™ Web technology. For more information, please see the "Net-benefit

concept" chapter or the "Responsible Production" focus paper at www.lenzing.com/responsible-production. Lenzing's high-quality fibers are supplied to the textile and nonwovens industry as well as for industrial applications.

Nature of ownership

Lenzing Aktiengesellschaft is a publicly listed company. Its shares are quoted on the Vienna Stock Exchange. In 2020, its ownership structure was as follows:

The Austrian B&C Group was the majority shareholder of Lenzing AG with an investment of 50 percent plus two shares as of December 31, 2020. Bank of Montreal (BMO) and Impax Asset Management each held approx. 4 percent of the Lenzing shares. The free float equaled approx. 42 percent on the reporting date and was distributed among Austrian and international investors. The Lenzing Group did not hold any treasury shares as of December 31, 2020.

Interview with the Managing Board



Stefan Doboczky
Chief Executive Officer

Stefan Doboczky, Chief Executive Officer of the Lenzing Group, talks about the impact the COVID-19 pandemic is having and what Lenzing is doing to stay on a sustainable business trajectory.


To the generation of my children:
We are committed to the generation of our children. Committed to offering them an environment where they will find all the opportunities we also had. Committed to creating an environment that is livable, in every corner of the world, and where they will receive the necessary education and gain experience to later take over responsibility for this beautiful and unique planet from us. To accomplish this it is essential to meet the climate targets. In this effort, every individual and every company must have the courage to break with convention.

COVID-19 and the restrictions on large swaths of public and economic life have plunged the world economy into a deep recession. The crisis has had a very negative impact on the entire textile and apparel industry. How has Lenzing dealt with this unprecedented situation?

Stefan Doboczky: Lenzing took immediate steps to keep our operations running and address downward pressures on fiber prices and fiber demand. Our top priority is and remains the safety of our employees and the strengthening of long-term partnerships with suppliers and customers. This is how, even in these challenging times, Lenzing managed to stay on course and not lose sight of its strategic goals, including its climate targets, and press ahead with determination. And that's something we can be proud of today.

The pandemic exposes the strengths and weaknesses of our society. What is your assessment of the Lenzing Group after 2020?

Stefan Doboczky: Our strategy and our sustainable, diversified business model have served us very well during this period. However, we have also demonstrated our strong entrepreneurial mindset and ability to execute good ideas very quickly. We implemented many highly useful projects during an efficiency enhancement program. We also took advantage of the opportunities offered by



digitalization and remote working. But there are some areas where we could improve our agility and responsiveness even more. These are areas we will systematically address after the pandemic.

For all the urgency of the fight against COVID-19 and its effects, we mustn't forget pressing ecological challenges such as climate change, biodiversity and resource conservation. What has happened on the sustainability front in this highly unusual year?

Stefan Doboczky: The pandemic will not force Lenzing to compromise on sustainability. On the contrary, sustainability is and remains the dominant issue of our time. At Lenzing, we believe meeting the challenges you mentioned is integral to our strategic principles and our responsibility to future generations. That is why we continued to work resolutely to achieve our goals despite the difficult market conditions in 2020. Our hard work has paid off. Our key projects in Brazil and Thailand not only support our transformation into a supplier of environmentally compatible specialty fibers but will also significantly help us to achieve our ambitious climate targets.

The Science Based Targets initiative confirmed the Lenzing Group's targets for 2019. Lenzing remains the first manufacturer of wood-based fibers whose climate targets have been scientifically recognized.

Stefan Doboczky: Our pursuit of science-based targets actively tackles the problems caused by climate change. In 2019, Lenzing made a strategic commitment to slash its greenhouse gas emissions per ton of product by 50 percent by 2030. By 2050, we intend to be climate neutral. We want to do our part to slow the rate of global warming and achieve the goals of the Paris Agreement and the European Commission's Green Deal.

We have 10 years left to implement the United Nations' Agenda for Sustainable Development. What can we do to help achieve the global development goals?

Stefan Doboczky: The SDGs are a guideline for all of us – people, government, industry and civil society should all do their part to reach the goals. Lenzing has defined areas of activity as part of its sustainability strategy and sets specific goals within these areas, such as reducing CO₂ emissions and protecting and preserving forests. In doing so, we are directly contributing to SDGs. We must present a united front as Europe and capitalize on the positive momentum generated by the European Green Deal.

What significance do social aspects such as gender equality, fair educational opportunities and respect for human rights have for Lenzing?

Stefan Doboczky: Inclusion and diversity are key issues in our strategy. We are working very hard on these issues and have achieved many positive results, especially in cultural diversity.

The pandemic has greatly changed how we work. How do you see the future of work?

Stefan Doboczky: Mobile, remote and home-based working are here to stay, for companies and employees alike. We have seen that this new approach to work can improve the everyday lives of many employees without any loss of productivity while maintaining a healthy work-life balance.

What's next for 2021?

Stefan Doboczky: The business trajectory in 2020 has clearly shown how crisis-proof Lenzing has become. While not immune, Lenzing is significantly more resilient than it was just a few years ago and than many of its competitors in the industry. We will therefore continue to rigorously execute our strategy to be even more resilient to market fluctuations in the long term and fortify our position as a leading supplier of specialty fibers.


Value creation in the Lenzing Group

The Lenzing Group is committed to the ecologically responsible production of fibers made from the renewable raw material wood grown in sustainably managed forests and plantations. As an innovation leader, Lenzing partners with global textile and nonwoven manufacturers and drives many new technological developments.

Value chain for Lenzing's products

Figure 01





The Lenzing Group's high-quality fibers form the basis for a variety of nonwoven and textile applications ranging from elegant ladies' clothing and versatile denims to high-performance sports apparel, luxurious bed linen, and sustainable footwear. Due to their consistently high quality, biodegradability, and compostability, Lenzing fibers are also highly suitable for hygiene products and agricultural applications.

The business model of the Lenzing Group goes far beyond that of a traditional fiber producer. Together with its customers and partners, Lenzing develops innovative products along the value chain, creating added value for consumers. The Lenzing Group strives for the efficient utilization and processing of all raw materials and offers solutions to help redirect the textile sector towards a closed-loop economy. In order to reduce the speed of global warming and to accomplish the targets of the Paris Climate Agreement and the Green Deal of the EU Commission, Lenzing has a clear vision: namely to make a zero-carbon future come true.

Value chain

Lenzing stands at the beginning of a long value chain in the textile and nonwovens industry that comprises several processing steps. The Lenzing Group's business model is based on intensive collaboration and innovation support across all stages of this value chain. As a raw material producer, the company is exposed to largely the same risks and opportunities as the value chain as a whole.

Supply and sourcing

The principal raw materials for producing Lenzing's fibers are wood and process chemicals. The company uses dissolving wood pulp from its own production operations and from external suppliers.

Dissolving wood pulp and cellulosic fiber production

Production takes place in two stages: first, the production of dissolving wood pulp and second, the production of fibers based on dissolving wood pulp. Lenzing's own dissolving wood pulp is produced in two biorefineries at sites in Lenzing (Austria) and Paskov (Czech Republic). Lenzing strives for state-of-the-art sustainable production technology. That entails high chemical recovery rates and, where possible, closed loops for process chemicals, water, and energy in pulp and fiber. Bioenergy and biobased biorefinery prod-



ucts are generated as well. Lenzing combines its comprehensive expertise in pulp and biorefinery technologies with decades of experience in cellulosic fiber production.

Manufacturing

As shown in figure 01 under "Manufacturing steps", the customers in Lenzing's downstream value chain use the fibers to manufacture textile, nonwoven, or industrial products.

Lenzing works closely with value chain partners from direct customers to retail level in the textile and nonwovens sector and for industrial applications in order to provide expertise in processing and the development of innovative applications.

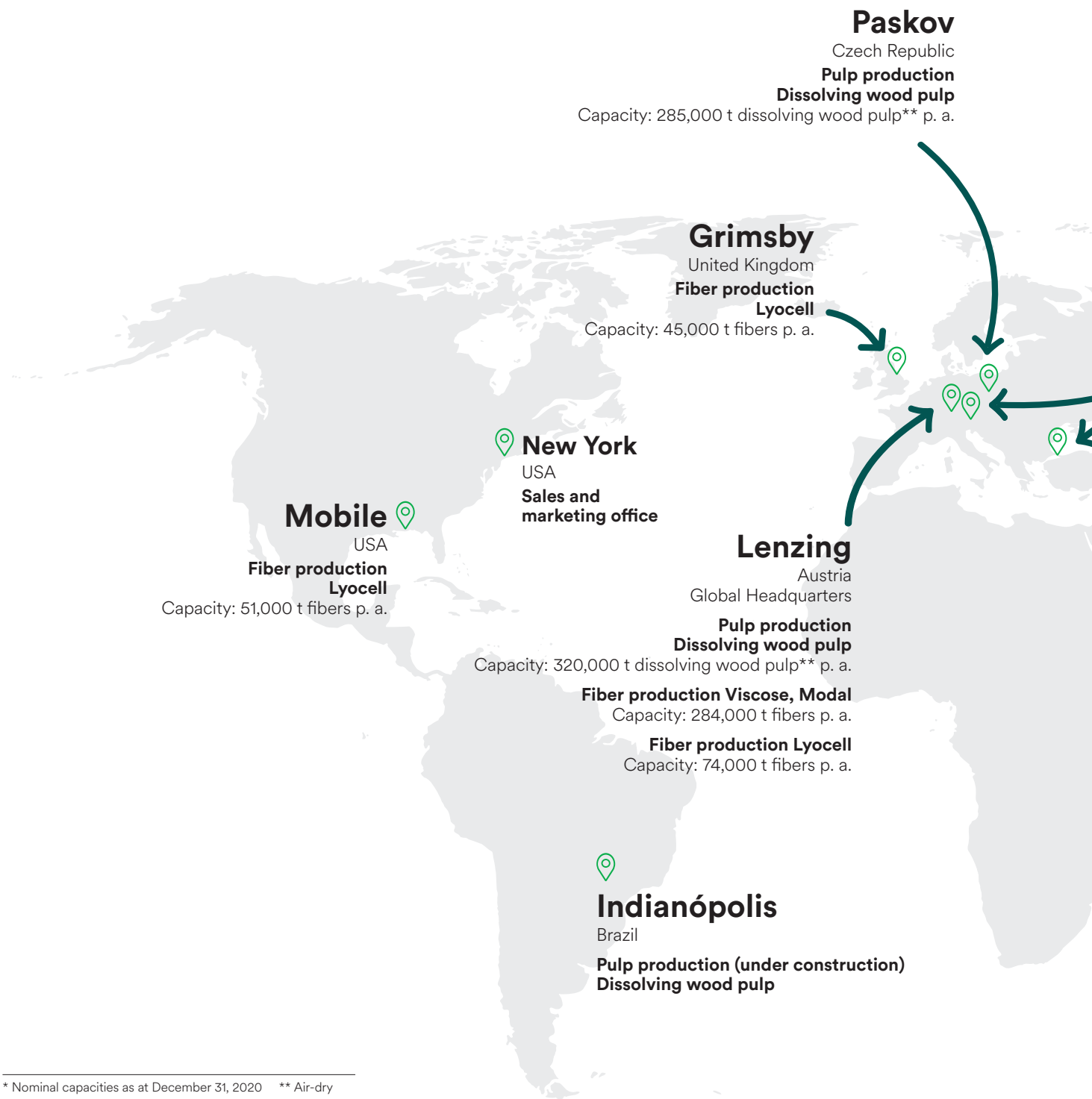
Distribution and use phase

Finished products are distributed after manufacturing and enter the consumer use phase.

End of life

All Lenzing standard fibers are compostable and biodegradable in freshwater, marine, and soil conditions. However, the compostability and biodegradability of final consumer textile and nonwoven products depend on material composition (e.g. fiber blend) and processing in the value chain.

The *locations* of the Lenzing Group*



* Nominal capacities as at December 31, 2020 ** Air-dry

Lenzing strategically focuses on stable and profitable growth.





Managing sustainability

look like when you are older. The Earth's raw materials are limited, so it is important to use them carefully.

I work for a fiber company that thinks sustainably and takes great care in using our precious resources. Our fibers are originally made from wood. They are biodegradable and compostable and they don't pollute waters. Our work is all about our responsibility towards future generations, including your children and grandchildren.

My wish for your future is that it may be carefree and without any worries for you and your future sibling.

Managing sustainability

20

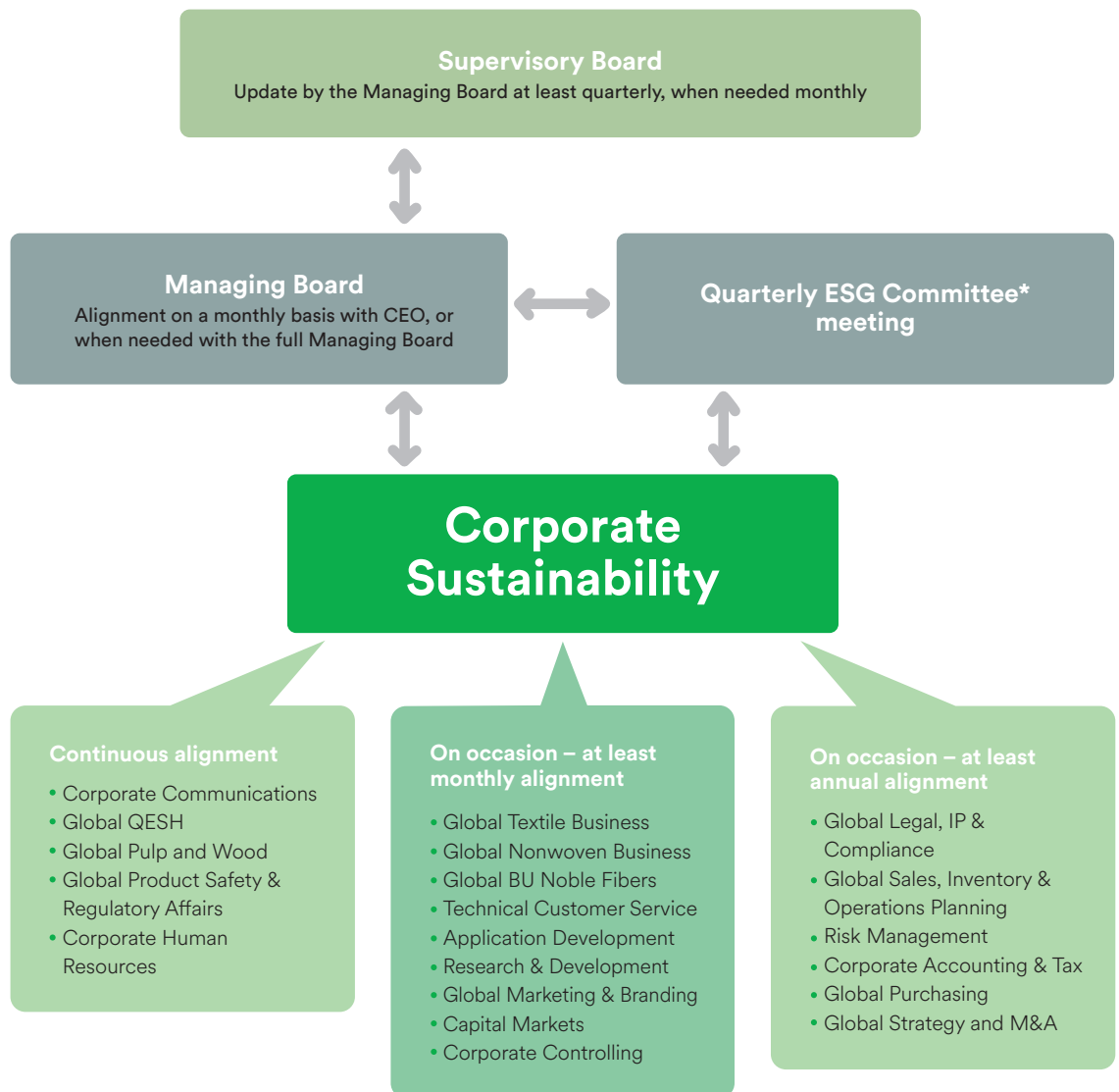
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Governance structure for sustainability

Corporate Sustainability reports directly to the Chief Executive Officer on the Managing Board.

Sustainability organization

Figure 02



* ESG Committee is an internal committee to accelerate sustainability agenda. Members are Managing Board, Global Strategy and M&A, Corporate Sustainability, Global Wood & Pulp, Corporate Audit & Risk, Capital Markets, Global QESH, Global HR, Corporate Controlling, Global Procurement, Global Textile Business, Global Nonwoven Business, Corporate Communications, Research & Development

For information on the Lenzing Group's governance structure, please refer to the Lenzing Group's Annual Report 2020 (Corporate Governance Report, page 72).

Risk management

Dissolving wood pulp and fiber production require highly complex chemical and technical processes that pose potential risks to people, including internal staff, visitors, neighboring communities, and parties dealing with Lenzing's products along the value chain. Furthermore, these processes constitute risks for the environment at and around the production sites as well as potential negative impacts such as water contamination or foul odors for value chain partners processing Lenzing fibers. Any potential impacts could negatively affect the success of the Lenzing Group and its reputation. For more information please see Risk Report in the Lenzing Group's Annual Report 2020.

Compliance

For a detailed description of compliance management, please refer to the Lenzing Group's Annual Report 2020.



Materiality analysis

Lenzing's "Naturally positive" sustainability strategy is based on a comprehensive materiality analysis.















The formal update of the materiality analysis was planned for 2020 and had to be postponed due to the COVID-19 pandemic. Informal stakeholder discussions indicate that the material issues did not change significantly. For more information on Lenzing's materiality assessment, please see the "[Materiality Analysis](#)"¹³ focus paper.

Occupational safety and health as well as employee training and development are core issues for a responsible company. Consequently, these issues are described in addition to those identified in the materiality analysis. Anti-corruption and compliance are covered in the Lenzing Group Corporate Governance Report 2020.



Materiality Matrix*

Table 03

Material aspects	Where to find	NaDiVeG	Page
 Wood sourcing	Raw material security	Environmental matters	62
 Sustainable innovations	Sustainable innovations	Environmental matters	104
 Energy use	Decarbonization	Environmental matters	79
 Air emissions	Sustainable innovations	Environmental matters	115
 Climate change	Decarbonization	Environmental matters	78
 Water use & pollution	Water stewardship	Environmental matters	96
 Chemicals & toxicity	Sustainable innovations	Environmental and social matters	113
 Product responsibility	Sustainable innovations	Environmental and social matters	119
 Sustainable materials	Sustainable innovations Additional information: net-benefit concept	Environmental matters	108
 Waste and circular economy	Circular economy	Environmental matters	40
Further sustainability aspects	Where to find	NaDiVeG	Page
 Labor practices	Empowering people	Employee-related matters	126
 Management practices	Management approaches	All non-financial matters	40, 62, 78, 79, 96, 104, 108, 113, 115, 119, 126
 Value chain transparency	Circular economy	All non-financial matters	46
 Human rights	Empowering people	Respect for human rights	126
 Society	Enhancing community wellbeing	Social matters	142

* Listed in decreasing priority according to materiality analysis

Strategy

Corporate strategy

In 2015, Lenzing's strategy sCore TEN was announced and has since proven an excellent guiding path for the company's transformation. The update of the corporate strategy in 2020 confirmed the validity of the path Lenzing is following and the Group reemphasized that it will continue to stay the course started in 2015. However, on some fronts a further update was made including the new vision statement and an updated mission statement:

Vision

We make a zero-carbon future come true.

Mission

Lenzing is a sustainable solutions company that turns CO₂ and sunlight into highly functional, emotional and aesthetic products in order to give individuals in all parts of our planet a natural choice.

Sustainability strategy

Our sustainability vision

Our passion is to provide truly sustainable solutions for a growing world. We create a positive impact for the people we work with, the consumers we serve, and the society and environment in which we operate. In doing so, we are commercially successful.

Our sustainability mission

We are change agents and collaborate with our suppliers and value chain partners to catalyze change for the better. We actively contribute towards improving environmental performance throughout the value chain and, consequently, in final products. We promote social wellbeing. Creation of more positive impacts and benefits is the guiding light for our innovation and business practices.

The sustainability strategy of the Lenzing Group: "Naturally positive"

"Naturally positive", the Lenzing Group's sustainability strategy, was developed from the results of the materiality analysis and is firmly rooted in the Lenzing Group's sCore TEN strategy. Within the dimensions People – Planet – Profit, this strategy defines those sustainability areas where Lenzing can do the most to create a more sustainable world. It is the basis for Lenzing's approach to contributing to the United Nations' Sustainable Development Goals (SDGs).

Strategic focus areas of sustainability in the Lenzing Group and the corresponding SDGs

Figure 03



Three strategic principles

1

Driving systemic change

Complex global challenges call for a collaborative approach to designing systemic solutions that involve many stakeholder groups. As a leader in wood-based cellulosic fibers, Lenzing has a particular responsibility and an ambition to help raise the bar for sustainability in the textile and nonwovens industries. Transparency is a prerequisite for fostering trust and building long-term relationships. With its contributions to developing industry-wide methods, tools, and approaches, Lenzing is helping the industry to progress on its sustainability roadmap by overcoming critical challenges.

2

Advancing circularity

According to Lenzing's circular economy vision, "We give waste a new life. Every day", Lenzing drives the industry towards a fully-fledged circular economy by striving to give waste a new life in all aspects of its core business and by co-developing circular solutions with potential partners in and outside the current value chain to close loops wherever possible. This vision is based on Lenzing's determination to create value with as little virgin resources as possible and reduce the use of fossil carbon in the company and the value chain while improving sustainability performance.

The company unites the cellulosic fiber cycle of its wood-based products (biological cycle) with its innovative technologies that focus on closing loops in the production and recovery of raw materials and chemicals (technical cycle).

3

Greening the value chain

Lenzing's responsible practices and innovative products enable its customers and value chain partners to improve their environmental performance and achieve their sustainability targets and commitments. Responsible sourcing practices, water stewardship, decarbonization, and sustainable innovations are the basis for Lenzing's efforts in greening the value chain. The sustainability targets for air emissions, water emissions, pollution, and climate protection are the cornerstones of Lenzing's responsible entrepreneurship and act as innovation drivers.

Strategy

Strategic focus areas

Lenzing identified seven focus areas within the three principles described above where the Lenzing Group substantially contributes to creating positive impacts and benefits:

- Raw material security
- Decarbonization
- Water stewardship
- Sustainable innovations
- Partnering for systemic change
- Empowering people
- Enhancing community wellbeing

Supply chain transparency is an essential first step in credibly implementing the sustainability strategy.

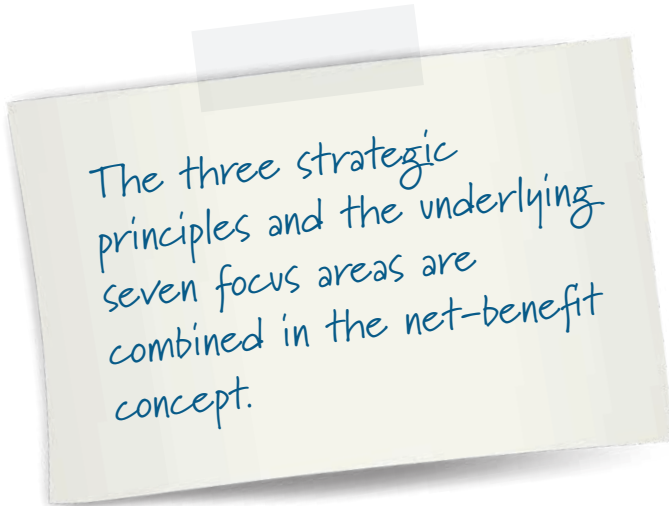
Lenzing sets targets in these areas to further advance its performance and positive impact. These focus areas contribute directly to the UN Sustainable Development Goals (SDGs) described on page 34. Management approaches for all material topics are listed in each chapter for the corresponding focus area.

For further information on Lenzing's Sustainability Strategy, strategic principles, and focus areas, please see the "[Sustainability Strategy](#)" focus paper¹⁴.

Net-benefit concept

Lenzing's net-benefit concept brings all the three strategic principles together. It guides and shapes all major decisions.

Lenzing's net-benefit products offer positive impacts and benefits to environment, society, and value chain partners that exceed those of most competing alternatives in the market. Net-benefit products take a life cycle perspective and thus include both upstream and downstream value chain processes. Customers can replace resource-intensive and polluting products with Lenzing's alternatives, thus improving their product footprint and reducing supply chain risks.



The three strategic principles and the underlying seven focus areas are combined in the net-benefit concept.

Products and technologies with a net benefit



Carbon-zero TENCEL™ branded fibers

Lenzing launched new carbon-zero TENCEL™ branded lyocell and modal fibers. These new fibers are CarbonNeutral® product certified in accordance with The CarbonNeutral Protocol – the leading global framework for carbon neutrality.

The fibers help lower carbon emissions across the supply chain. Four key levers – energy reduction, use of renewable energy, new technology innovation, and supplier engagement – are deployed to achieve Lenzing’s carbon net-zero target in the long run. The three pillars “Reduce”, “Engage”, and “Offset” actively contribute to the reduction of the product’s carbon footprint by reducing as much emissions as possible within the current technological and economic feasibility, engage supply chain partners to reduce their emissions and offset remaining unavoidable emissions, whose share will reduce periodically when further implementing other pillars due to improvements. These products have the lowest CO₂ footprint in their (fiber) category and thus can contribute to the fulfillment of our customers’ SBT.



LENZING™ ECOVERO™ specialty viscose fibers and VEOCEL™ specialty viscose fibers with Eco Care technology

LENZING™ ECOVERO™ branded specialty viscose (for textiles) and VEOCEL™ specialty viscose fibers with Eco Care technology (nonwovens) have 50 percent less greenhouse gas emissions and water impact than standard viscose (according to Higg MSI scores¹⁵).



TENCEL™ Modal with Eco Color technology

Fibers with this technology incorporate pigment during fiber production and thus help avoid conventional energy-intensive dyeing steps. A fabric made from this product has 60 percent lower CO₂ emissions than conventionally dyed fabrics¹⁶.



Lenzing fibers with recycled content – REFIBRA™ or Eco Cycle technology

In line with Lenzing’s circular economy vision, “We give waste a new life. Every day”, the current generation of innovative fibers, manufactured in a commercial large-scale, use pre-consumer cotton scraps, post-consumer garments, and wood from sustainably managed forests as a raw material. The cotton material is recycled into pulp which is blended (up to 30 percent) with dissolving wood pulp to produce high-quality lyocell fibers for textile and nonwovens applications. This technology diverts tons of cotton scraps and post-consumer garments from entering landfills or incineration. They are produced with high resource efficiency. By Lenzing’s own calculations, Lenzing fibers with recycled content require 95 percent less water to produce and have a lower land use than conventional cotton.

Strategy



TENCEL™ Luxe filaments

The TENCEL™ Luxe branded lyocell filament aims to become a key milestone for eco-couture fabrics in the premium luxury market. The closed-loop lyocell production process ensures minimal environmental impact due to low process water and energy use and raw materials consumption. TENCEL™ Luxe branded filaments produced with the Eco Filament technology avoid conventional yarn spinning, which is energy-intensive and predominantly based in regions that rely heavily on fossil-based electricity. For example, at the industry level, spinning processes contribute to 28 percent of the total CO₂ emissions of the textile value chain (excluding use phase)¹⁷.



LENZING™ Web Technology

The LENZING™ Web Technology is an innovative R&D development technology platform that allows a wide range of novel sustainable nonwoven materials to be produced from the raw material wood. The patented nonwoven web formation process – Lenzing holds more than 25 patent applications – starts with dissolving wood pulp and produces a directly formed cellulosic nonwoven fabric made of 100 percent continuous lyocell filament. This technology enables fiber and nonwoven production in only one step and sets new standards for the efficiency, circularity, and ecological sustainability of cellulosic nonwoven fabrics. The flexibility of this technology and possible integration with other nonwoven technologies will enable the development of a wider range of new cellulosic materials and composite structures for highly engineered end use applications.



Pulp

Dissolving wood pulp is the raw material for Lenzing's fibers, produced in the company's own biorefineries¹⁸. Lenzing's biorefinery process ensures that 100 percent of wood constituents are used to produce dissolving wood pulp for fiber production, biorefinery products, and bioenergy. All pulp produced at Lenzing pulp production sites, including the future pulp production facility in Brazil, is totally chlorine-free. The biorefineries at the Lenzing and Paskov sites help the Group shrink its carbon footprint and consequently also enable Lenzing's customers to obtain low-carbon products. For more information, please see chapter "Raw material security".

Lenzing's net-benefit products offer positive impacts and benefits to the environment, society, and value chain partners.



Lyocell

Lyocell fibers from Lenzing are derived from renewable wood and produced in a closed-loop 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 percent. Lenzing's lyocell fibers show around 50 percent less greenhouse gas emissions than generic lyocell (according to Higg MSI scores).



Modal

Modal fibers from Lenzing are produced using an integrated production process in which the raw material pulp is manufactured at the same site as the fiber itself. 100 percent of the raw material beechwood is converted into cellulose and other biobased biorefinery products. Beech forests grow naturally without the use of chemical fertilizers or artificial irrigation. The pulp production is energetically self-sufficient while supplying a significant amount of bioenergy for the entire fiber production process at the production site. Lenzing's modal fibers therefore generate around 80 percent less greenhouse gas emissions in production than generic modal fibers (according to Higg MSI scores).



LENZING™ Acetic Acid Biobased

Lenzing's biorefinery technology converts wood into pulp, energy, and biobased biorefinery products. One of the biobased biorefinery products is LENZING™ Acetic Acid Biobased, which has a 85 percent smaller carbon footprint than conventional fossil-based acetic acid. LENZING™ Acetic Acid Biobased causes significantly lower greenhouse gas emissions than average production worldwide, according to a study conducted by an independent life cycle assessment (LCA) consultant.

Strategy

Targets: Lenzing raising the bar

Lenzing set Group sustainability targets for the most important challenges in each of its strategic focus areas. Additional ambitious targets were defined in the reporting year to strengthen Lenzing's path to a sustainable future. To increase transparency, the corresponding implementation measures are described.

Sustainability targets

Table 04

Sustainable innovations		Target year
Target 1	To improve the Lenzing Group's specific sulfur emissions by 50 percent by 2022 (baseline 2014)	2022
Measure(s)	Lenzing implements a sulfur recovery plant (CAP) upgrade at the Purwakarta plant (Indonesia)	2022
Target 2	To offer viscose, modal and lyocell staple fibers with up to 50 percent post-consumer recycled content on a commercial scale by 2025	2025
Measure(s)	All fibers with recycled content offered by Lenzing contain a share of post-consumer waste	2022
	Lenzing increases the recycled content from 30 to 40 percent for fibers produced with REFIBRA™ technology for textiles and with Eco Cycle technology for nonwovens	2023
	Lenzing introduces its viscose and modal fibers with REFIBRA™ and with Eco Cycle technology with a minimum of 30 percent recycled content	2023
Target 3	To innovate a new circular business model by closing the loops for post-consumer materials and partner with 25 key supply chain companies by 2025	2025
Target 4	To achieve aspirational MMCF level for ZDHC wastewater and air emission guidelines at Lenzing viscose facilities by 2024	2024
Measure(s)	Lenzing commits to implementing ZDHC MMCF wastewater guidelines at all viscose sites	2020
	Lenzing implements ZDHC MMCF wastewater guidelines and reports viscose site data on ZDHC gateway	2021
	Lenzing achieves ZDHC MMCF aspirational level for wastewater at Lenzing site	2021
Water stewardship		Target year
Target 5	To improve the Lenzing Group's specific wastewater emissions (COD) by 20 percent by 2022 (baseline 2014)	2022
Measures	Lenzing implements a wastewater treatment plant upgrade at Purwakarta plant (Indonesia)	2022
	Lenzing implements a new wastewater treatment plant at Grimsby (UK) plant	2022
Raw material security		Target year
Target 6	To implement a conservation solution of 20 ha in Albania in combination with a social impact project by 2024	2024
Measure(s)	Lenzing reforests 20 ha of degraded land in Albania	2024
	Lenzing establishes a training center for local communities in Albania	2024
	Lenzing supports interdisciplinary vocational training and school partnerships in Albania	Yearly
Target 7	To implement conservation solutions on 15,000 ha at the new pulp site in Brazil by 2030	2030
Measure(s)	Lenzing takes responsibility for 13,000 ha protected land in Brazil	2020
	Lenzing increases the protected area in Brazil from 13,000 ha to 15,000 ha	2030
Target 8	To engage in further conservation, biodiversity protection, and restoration activities in regions where forests are at risk or should be improved by 2025	2025

Partnering for systemic change		Target year
Target 9	To assess the sustainability performance of 80 percent of the Lenzing Group's "most relevant suppliers" by 2022	2022
Target 10	To improve transparency by implementing the Higg Facility Environmental Module (FEM 3.0) at all sites by 2019	2019
Measure(s)	Lenzing conducts self-assessments	2019
Target 11	To implement and annually update FEM in all pulp and fiber production facilities and share verified modules with customers from 2023	2023
Measure(s)	Lenzing implements SAC membership requirements	2021
Target 12	To achieve digital fiber traceability by having 500 value chain partners with blockchain technology by 2021	2021
Target 13	To increase physical traceability of TENCEL™ x REFIBRA™ and LENZING™ ECOVERO™ to 100 percent of Lenzing's specialty fibers for textiles by 2021	2021

Decarbonization		Target year
Target 14	To reduce scope 1, 2, and 3 (purchased goods and services, upstream and downstream transport, and fuel and energy-related activities) greenhouse gas emissions 50 percent per ton of fiber and pulp sold by 2030 (baseline 2017)	2030
Target 15	To achieve net-zero CO₂ emissions by 2050 (scope 1 and 2)	2050
Measure(s)	Lenzing achieves 100 percent green electricity for four sites	2024
	Lenzing phases out coal at the Nanjing plant (China)	2022
	Lenzing installs on-site photovoltaic power generation at the Lenzing plant	2022
	Lenzing increases the share of renewable energy consumed by the Lenzing Group and supplies excess bioenergy from the pulp production facility in Brazil	2023
	Lenzing achieves scope 1 and 2 carbon neutrality at its new lyocell fiber production site in Thailand by using 100 percent bioenergy	2023
	Lenzing engages 20 key suppliers, by spending and CO ₂ impact, in order to reduce its scope 3 emissions and incentivize the suppliers that help Lenzing offer more low-carbon-footprint fibers	2022
	Lenzing engages and enables 50 percent of customers to fulfill their SBT ambition by providing information on low-GHG-footprint specialty products such as TENCEL™ and LENZING™ ECOVERO™ branded fibers	2021
	Lenzing runs a campaign to reach 50 percent of TENCEL™ customers to promote use of innovative new carbon-zero TENCEL™ products	2021

Empowering people		Target year
Target 16	To have a continuously valid third-party audited accredited social certificate for every Lenzing Group production (fiber or dissolving wood pulp) site by 2023	2023
Measure(s)	Lenzing implements and annually updates Facility Social Labor Module (FSLM) at all pulp and fiber production facilities and shares verified modules with customers from 2023 onwards	2023
Target 17	To enable a good life for people amplified by means of products offered by Lenzing and by respecting human rights, employee wellbeing, and diversity	Continuous
Measure(s)	Lenzing implements training courses for 75 percent of workforce on diversity, discrimination, nondiscrimination policy, and human rights	2025
	Lenzing establishes a working condition policy	2021
Target 18	To continuously support the development of local communities near Lenzing production sites and support social welfare programs to 2025 and beyond	Continuous

Color code status (2020)

- On track
- Achieved
- New*
- Delayed
- Stopped
- Not achieved

* target has been formulated and published in 2020, refers to 2020 as baseline

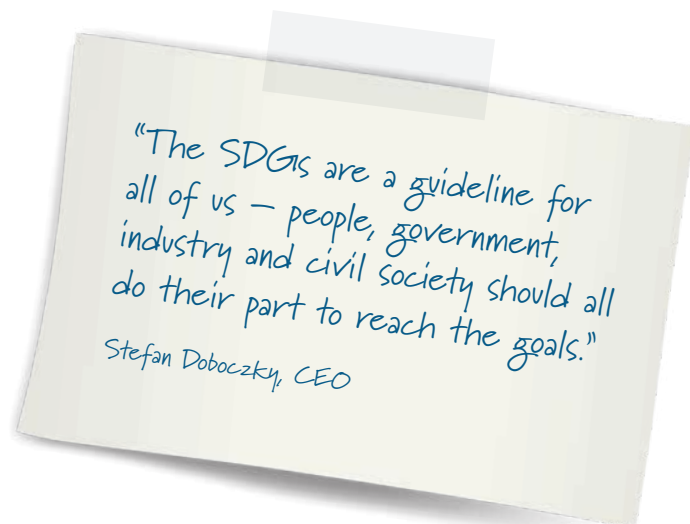
United Nations Sustainable Development Goals (SDGs)

The SDGs are a collection of 17 goals adopted by all Member States of the United Nations in 2015 to address global economic, social, and environmental challenges and achieve a more sustainable future by 2030. Progress is being made in many areas but with just 10 years to go, the UN is calling for a 'Decade of Action' to accelerate sustainable solutions and address the world's biggest challenges.

In 2020, the SDGs celebrated their fifth anniversary in the middle of a pandemic. Sustainable development plays an important role in addressing global challenges such as the current health crisis by aiming to provide access to healthcare and clean water for all.

One of the priorities of the post-COVID-19 period must be to maintain the downward trend in global greenhouse gas emissions that began during the pandemic last year. This unforeseen occurrence may be seen as an opportunity to entrench the decline in emissions, in order to achieve the climate change targets of the Paris Agreement.

Lenzing recognizes its responsibility and sees its pioneering role in the textile and nonwovens industries as an opportunity to contribute to the achievement of sustainable development goals. For more information on Lenzing's approach to the SDGs, please see the "[Sustainable Development Goals](#)" focus paper.







Circular economy



proud when I think about where I work. We produce fibers that should make your future a little better.

No matter what you end up doing one day, whether you become an influencer, environmental activist or model. Each of you can help to make the world a better place in her very own way. To protect our world. To contribute your share.

The same applies to the older ones among us. There is an Indian proverb that describes this idea quite well:

Circular economy

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My dear Nina,

I am writing this letter because I want you to know how important you are already to your family.

There are things that I am concerned about: the environment and humanity or even just the question what kind of life we would like to offer you later on.

Unfortunately we cannot take living in such a beautiful place for granted. There are places in the world where things are quite different. All the plastic in the oceans or the air pollution caused by industry, cities, cars. Forests are the lungs of our planet. We must never forget that!

Where I work, we try to make sure that the tree population does not decline. I don't want people to act without thinking about the consequences. What do we do in our company? We make fibers from wood. Soon you will be able to feel them in your own room.

When you read this letter, you will be a little older and you will have your own opinion. I look forward to your view of the world.

With lots of love from your Mom ♡

Alexandra Herber ...

... is right where things happen when strategic decisions are made at Lenzing. In her role as a Corporate Assistant, she also plays an important part in the resulting projects.

A *letter*
to my baby

You will understand that love, health and a family that is there for you are simply the most important things that exist.

Alexandra Herber



What is circular economy?

Management approach

Material topic: Waste and circular economy

Importance for Lenzing

Advancing circularity in the industry and of course within Lenzing is one of the three core principles of Lenzing's "Naturally positive" sustainability strategy

Improvement of resource efficiency in order to stay competitive in terms of costs and upcoming legal requirements

Providing new business opportunities

Preparedness for the upcoming challenges (climate change, textile recycling, etc.)

Opportunities

Creating new product offerings and business models to help the industry to change

Optimizing the eco-footprint of our products

Optimizing the value we generate by the eco-friendly products we supply

Lowering emissions by closing energy and material loops

Valorizing biorefinery products

Decreasing use of virgin raw materials

Driving innovation on recycling on optimizing closed loop processes

Boosting innovation efforts in recycling technologies and processes

Risks

Transitional risks due to changing legislation and stakeholder expectations (NGOs, customers)

Increasing footprint due to new, less efficient production steps and waste streams

Guiding principles

sCore TEN specialization strategy and net-benefit thinking are a guiding light for circular economy innovations

"Naturally positive" sustainability strategy with "Advancing circularity" as one of its three major principles and "Partnering for systemic change" focus area

Group Environmental Standards

Lenzing Waste Management Guideline

Due diligence processes and (ongoing) measures

Environmental management system based on ISO 14001:2015 (including risk assessment and internal audits to ensure effectiveness of the measures implemented)

Objectives

Advancing circularity in the Lenzing Group

Strategy to grow with REFIBRA™ and Eco Cycle technology

Increasing Lenzing's specialty and forward-solution portfolio (net-benefit products)

All sites need to comply with the internal Group Environmental Standards

Establishing best practices to improve waste management and reduce the risks related to waste management

Developing new biobased biorefinery products

Enhancing sustainability performance of biobased biorefinery product portfolio (e.g. carbon-neutral LENZING™ Acetic Acid Biobased)

Supporting, contributing to and implementing EU Circular Economy Action Plan (CEAP) and EU Textile Strategy

Helping to reduce waste streams in the textile and nonwovens value chains

Achievements/activities in the reporting year

High-profile recognition of Lenzing's initiatives in World Economic Forum and Sustainable Markets Initiative & Council

Strategic investments in pulp and fiber projects fully on track despite COVID-19

New Business Lead function for "Circularity Initiative" implemented

Targets approved for textile recycling

Lenzing intensified collaboration with leading stakeholders and initiatives

Contribution to supply chain transparency to facilitate circular economy projects

Partner in newly founded Christian Doppler Laboratory for a recycling-based circular economy

Responsible

Board members for pulp and commercial areas

Supporting

Corporate Sustainability

Global Textile Business

Global Nonwoven Business

Global BU Noble Fiber

Global Pulp and Wood

Research & Development

Global Quality, Environment, Safety & Health (QESH)

Head of Circularity Initiative

Site Managers



Circular economy is a thriving economy that can benefit everyone within the limits of our planet. Our finite resources need to be used and preserved so that future generations can enjoy them, too.

Circular economy is built on the idea that closed loops allow maximum value to be extracted from resources. Products last longer, and waste from one process can be used as a raw material in another process, which re-

duces the need for virgin resources, avoids waste, increases resource efficiency and thereby minimizes environmental impacts. Circular economy broadly covers two areas: biological materials and technical materials.

Lenzing's circular economy *vision*

The three pillars of the vision

We use regenerative and recycled raw materials to protect the planet

An important element in Lenzing's circular economy vision is its use of wood, a renewable raw material harvested from sustainably managed forests. In its biorefineries, Lenzing converts 100 percent of the wood it receives to make high-value products and bioenergy. We are using an increasing amount of alternative cellulose feedstock, in particular from textile waste, as a raw material. Lenzing proactively participates in conservation projects to protect the world's ecosystems.

We think circular to design out waste and pollution in all our processes

In addition to using raw materials highly efficiently, Lenzing reduces its waste by closing loops in production. By implementing circular thinking and high environmental and social standards in Lenzing's operations, procurement and innovations, we minimize the impact on ecosystems and society not only for Lenzing, but also throughout the value chain. Lenzing proactively develops and drives innovations in recycling, such as our REFIBRA™ and Eco Cycle technologies, to deliver solutions to the issue of global textile waste.

We innovate processes to use and reuse materials again and again

We continuously improve our biorefinery concept by optimizing the cascading use of biomass in order to minimize the utilization of virgin resources. We set standards in the industry by further closing the loops in the technologies we use.

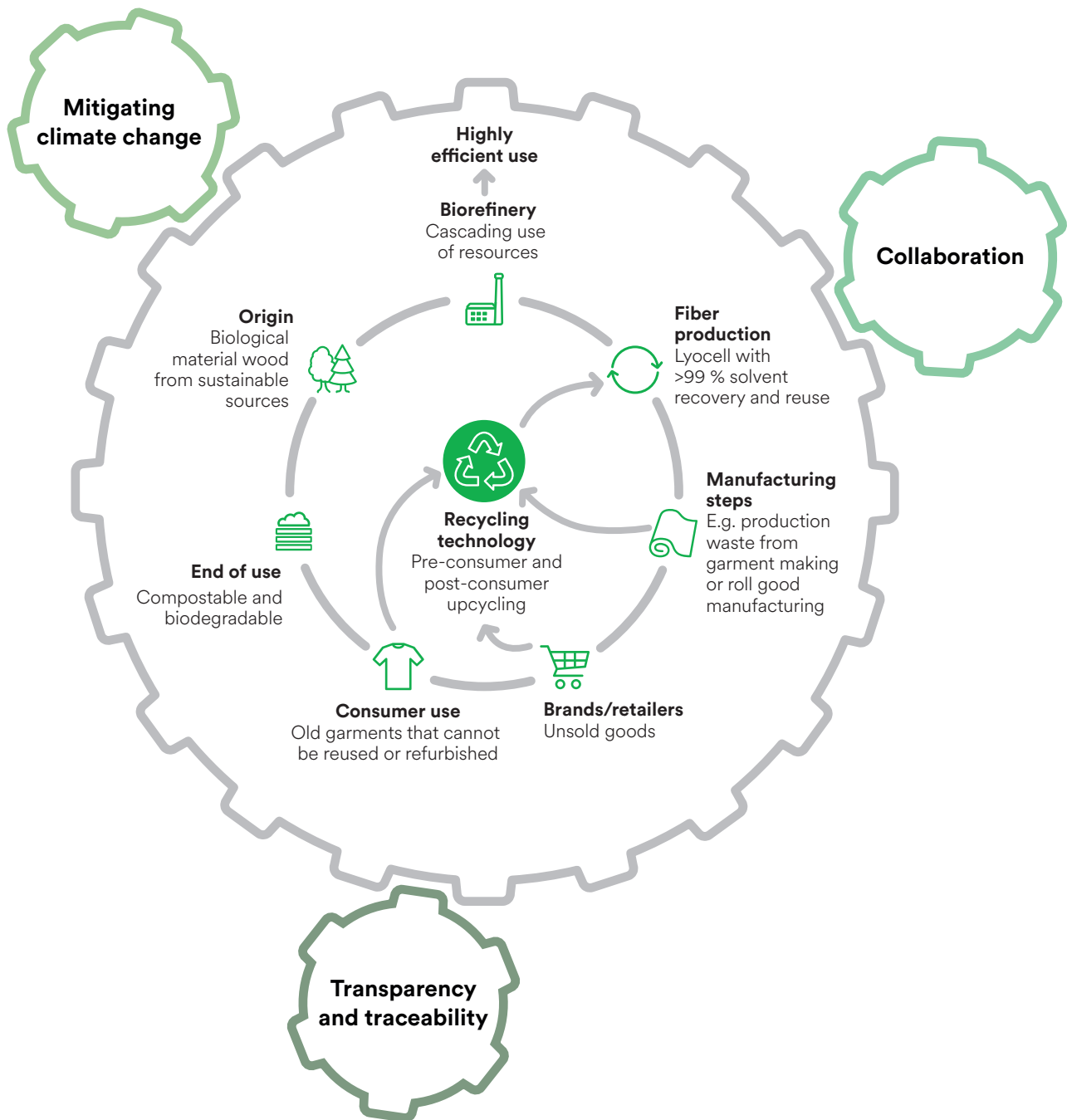
We develop recycling technologies at a commercial scale to increase resource efficiency and reduce waste in the value chain. Lenzing implements close digital connections (blockchain technology) and relevant tools (E-Branding Service) to enhance transparency across the network to give customers and end users confidence and to facilitate the transition from a linear to a circular supply chain.

We give waste a new life. Every day

Lenzing drives the industry towards a fully-fledged circular economy by striving to give waste a new life in all aspects of our core business and by co-developing circular solutions with potential partners in and outside the current value chain to close loops wherever possible. This vision is based on our determination to create value with as few virgin resources as possible and reducing the use of fossil carbon in the company and the value chain while improving sustainability performance.

The Lenzing Group's circular economy model

Figure 04



Lenzing's circular economy practices

Lenzing embeds different elements of the circular economy in its business model, practices and innovations. They include:



Natural circularity



Resource-efficient technologies and products



Developing commercial-scale recycling technologies



Transparency and traceability of supply chains



Climate change and circular economy



Partnering for systemic change

Natural circularity

Natural circularity covers the biological cycle, which is based on two aspects: renewable origins and biodegradability/compostability of natural materials. Lenzing's products are made from wood sourced from sustainably managed forests and plantations as described in the "Raw material security" chapter. Lenzing fibers are compostable and biodegrade at the end of their use¹⁹. Due to this safe disposal at the end of life into the natural environment, the cellulose material loop has a potential to close and align with biological cycle.

Resource-efficient products and technologies

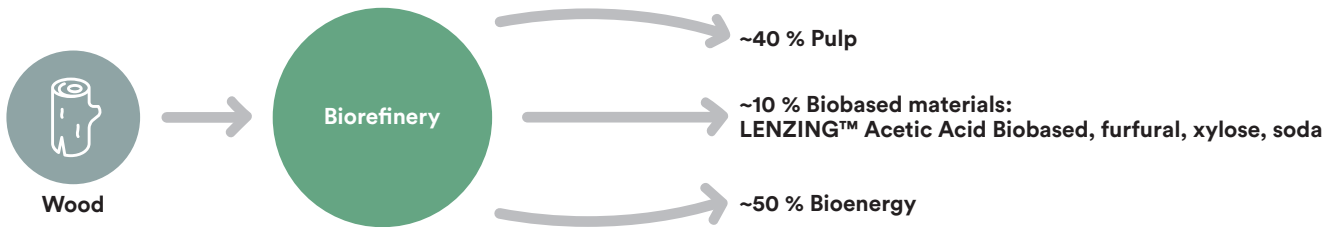
Cascading use of biomass

Lenzing's biorefinery technology converts wood into pulp, energy, and biobased co-products. The Lenzing Group operates two biorefineries: one in Lenzing (Austria) and one in Paskov (Czech Republic). The surplus renewable energy (steam and electricity) that is produced is supplied as renewable energy to use on-site for fiber production and other purposes. This is a prime example of the cascading use of biomass and 100 percent utilization of wood without creating any waste.

Highly efficient use of the raw material wood at the Lenzing Group's biorefineries

Wood and biorefinery products are calculated as "absolute dry", and pulp as "air-dry"

Figure 05



Closed-loop production

Lenzing's lyocell process is a unique closed-loop solvent-based production technology that allows the manufacturing of cellulosic fibers without chemical conversions. The process follows a basic dissolution concept and allows to recover and recycle more than 99 percent of the solvent. This avoids waste, ensures high resource utilization and results in less water consumption and fewer emissions.

In the viscose and modal fiber production Lenzing sets standards for further closing the loops. The carbon disulfide and hydrogen sulfide are recovered from the process, converted, and returned to the production process as raw materials.

Management of production waste

There are several contexts in which waste is generated in facilities, such as the packaging of procured goods, production processes, et cetera. Lenzing follows a waste hierarchy and avoids waste wherever possible. For more information on the management of waste, please see chapter "Waste management", page 54.

Lenzing's circular economy practices

Developing commercial-scale recycling technologies

Lenzing has developed a recycling technology named REFIBRA™ to address the enormous textile waste challenges that industry and society face. This technology utilizes a substantial proportion of cotton waste as well as dissolving wood pulp as raw materials. Lenzing continued to offer TENCEL™ x REFIBRA™ branded lyocell fibers with up to 30 percent recycled content in 2020. Along with dissolving wood pulp, cotton scraps are used for the closed-loop commercial-scale production of lyocell fiber. This creates high-quality fibers with the same properties as fibers from virgin dissolving wood pulp. Recycling technology has also been introduced for nonwoven products.

VEOCEL™ Lyocell fibers with Eco Cycle technology enable the use of recycled content in sensitive applications that have the same fiber properties and fiber quality. Furthermore, Lenzing runs an active research and development project to further improve the utilization of post-consumer textile waste for the production of fully biobased and biodegradable fibers. Some important steps towards the broad, industrial-scale use of post-consumer cellulosic waste have been achieved within this project and turned into patent applications.

The application range of TENCEL™ x REFIBRA™ has been widened to cover key textile applications from wovens and knits up to special applications such as pillows or waddings. Supported by these efforts, the TENCEL™ x REFIBRA™ market presence has been increased, despite the difficult market environment caused by COVID-19, with broadening collections and 30 brands already offering garments or products containing TENCEL™ x REFIBRA™. Some of these brands also use the option of closing the loop to return garment production waste back to Lenzing as a raw material base for garments and home textile products made with TENCEL™ x REFIBRA™ fibers.

Lenzing is developing new applications to support circularity not only for textile and nonwovens but also for other industries such as agriculture and packaging. For example, biodegradable vegetable nets for packaging can replace similar non-biodegradable products.

In line with its vision, “We give waste a new life. Every day”, Lenzing strives to make textile waste recycling a common standard process like paper recycling. Lenzing set a target and measures to make this vision a reality this reporting year: Lenzing plans to offer viscose, modal and lyocell staple fibers with up to 50 percent post-consumer recycled content on a commercial scale by 2025. For more information, please see chapter “Targets: Lenzing raising the bar”, page 32.

Transparency and traceability of supply chains

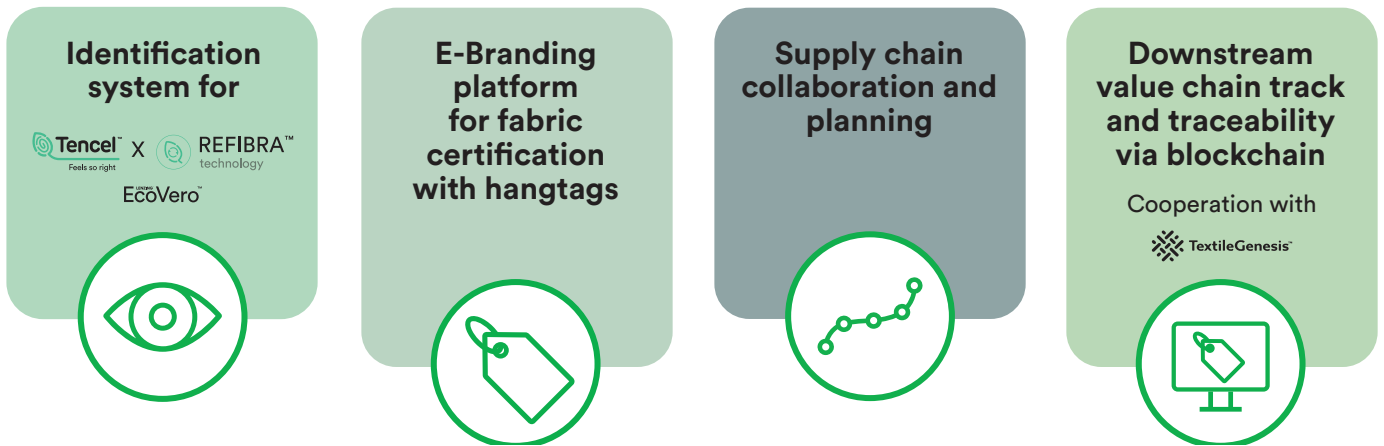
Transparency provides a foundation for credible sustainability performance, especially the circular economy that will be part of the upcoming EU system of due diligence for supply chains. Gaining a deeper understanding of Lenzing's suppliers and downstream customers is critical for minimizing the Group's overall environmental impact and putting it on the right track to achieve a low-impact, carbon-neutral footprint by 2050. Traceability also gives customers and end users confidence. Close digital connections across the network help close the loops efficiently and holistically and facilitate the transition from a linear to a circular supply chain.

Lenzing's fiber identification system and E-Branding Service are the basis of its overall approach to transparency, while the TextileGenesis™ blockchain project uses the data for maximum traceability. The supply chain collaboration and planning project will complement these pillars.

Lenzing follows a four-pillar approach to a more sustainable and transparent supply chain:

The Lenzing Group's building blocks of transparency

Figure 06



Fiber identification system

Lenzing has developed a technology for fiber identification. The system was successfully implemented for LENZING™ ECOVERO™ branded viscose fibers and TENCEL™ x REFIBRA™ branded lyocell fibers. It relies on the physical identification of fiber origin at different stages of the product such as the fabric and garment level. This enables full fiber origin traceability and counterfeiting protection. It thus protects the brands and retailers by providing assurance that their products do not contain fibers made from wood from controversial sources and guaranteeing that the fibers are produced in state-of-the-art production facilities that meet high standards for resource efficiency and environmental and social responsibility. Lenzing intends to expand the use of this technology to all TENCEL™ branded fibers and its LENZING™ FR portfolio.

Supply chain transparency through the Lenzing E-Branding Service

Many consumers know that not all textiles offered on the market are produced in an environmentally friendly and socially sustainable way. Given the complexity of supply chains, they depend on information on the packaging or label to make informed decisions.

Ingredient Branding to communicate raw material sustainability

Lenzing has adopted an ingredient branding approach in which it collaborates with brand partners in the value chain who convey the valuable properties of the fiber to the end consumer. Retailers, in turn, need supply chain partners who can positively support them in communicating a believable and consistent sustainability story. Lenzing has seized this opportunity with its branding platform.

E-Branding Service

Since the launch of the E-Branding Service in 2018, the number of applications for licenses and swing tickets processed by the E-Branding Service Team has grown more than 75 percent. It has helped the TENCEL™ and LENZING™ ECOVERO™ brands grow their combined licensed product base by 33 percent from 2019 to 2020.

Lenzing's circular economy practices

The Lenzing E-Branding Service is an online platform that provides customers along the value chain with access to Lenzing's product brands.

Registered Lenzing textile partners can apply for fabric certifications, license agreements, or Lenzing labels. In addition to the supply chain disclosure, certification also includes fabric testing by Lenzing, i.e. only fabrics that really meet the defined standards are accepted.

After acquiring the license to use the requested Lenzing brand on the final product, partners may use the associated product logos in their communications to the end consumer. Ready-made Lenzing labels can also be provided to identify the product on request.

In addition to enabling end consumers to make conscious purchase decisions, the platform aims to protect the Lenzing brand portfolio (TENCEL™, LENZING™ ECOVERO™, VEOCEL™, TENCEL™ x REFIBRA™). It helps Lenzing and its partners defend the brands against counterfeiting and assures the end consumer that the product is exactly what the label promises.

Target groups for the Lenzing E-Branding Service are all partners along the value chain, starting with direct customers (i.e. those who buy Lenzing fibers) to fabric manufacturers/converters and manufacturers of the end products to retailers who ultimately position the goods at the point of sales including online stores.



Informed decisions for end consumers



Service for the supply chain partners



Transparent communication in complex environments



Minimize risk for brand counterfeiting



The product is exactly what the label promises

Supply chain collaboration and planning

Lenzing's supply chain collaboration and planning project is about generating a digital image of its extended supply chain, enabling end-to-end planning, agility, and responsiveness with the objective of reducing material and environmental impacts. Although the project is still in its development phase, Lenzing believes that the project – armed with the right partners, connectivity, control, autonomy, and a spirit of collaboration – will drive supply chain transparency.

Downstream value chain track and traceability via blockchain technology

Building on several successful pilot projects in 2019 with the innovative start-up TextileGenesis™, Lenzing introduced the digital platform for the textile supply chain traceability in the reporting year – a milestone for the Lenzing Group. The digital platform was launched in November 2020 for TENCEL™ and LENZING™ ECOVERO™ branded fibers.

The platform provides customers, partners, and consumers with an overview of the entire textile supply chain. The COVID-19 pandemic confronted the fashion and textile industries, which were already transforming, with even more need for change. Supply chain traceability has become a top priority for apparel and home brands²⁰. Lenzing's new blockchain-enabled supply chain traceability platform supports the entire supply chain in meeting increasing demands for transparency and sustainability.

Phased onboarding and new digital certificates

After conducting a 12-month pilot program and field trials with four leading sustainable brands (H&M, ARMED-ANGELES, Mara Hoffman and Chicks) and supply chain players from ten countries in three regions, Lenzing has started the phased global roll-out of its blockchain-enabled supply chain traceability platform.

Lenzing's supply chain partners in South Asia (India, Bangladesh, Pakistan and Sri Lanka) completed the onboarding process in 2020 as part of the first phase. Several hundred supply chain partners in China and Turkey will also complete the program at the beginning of 2021, enabling full supply chain traceability from fiber to production and distribution.

TextileGenesis™ platform: Fibercoin™ technology to ensure traceability along the supply chain

By using innovative Fibercoin™ technology in the TextileGenesis™ platform, Lenzing and other brand partners can now issue digital tokens (blockchain assets) in direct proportion to the physical shipments of TENCEL™ and LENZING™ ECOVERO™ branded fibers. These digital tokens provide a unique “fingerprint” and authentication mechanism, preventing adulteration, providing a more secure and trustworthy, digital chain of custody across the entire textile supply chain, and, most importantly, ensuring the materials are sustainably produced.

TextileGenesis™

is a pioneering supply chain traceability platform for the fashion and textile industry that is enabled by blockchain technology. Fibercoin™ traceability technology creates real-time digital accounting of sustainable fibers along the entire supply chain from fiber to retail, creating an entirely new level of traceability for brands and retailers. The platform is custom-built for all sustainable fibers such as man-made cellulosic fibers, wool, recycled polyester, and organic cotton.

Lenzing's circular economy practices

Climate change and circular economy

Lenzing has an approved science-based target (SBT) and will reduce the CO₂ emissions from its operations and supply chain in line with the Paris Agreement. Circularity and climate change are two sides of the same coin. Lenzing strives to find synergistic solutions like the successful Lenzing biorefinery concept so that innovations and solutions to circular economy challenges would contribute to reduce the climate-related impacts. Lenzing fibers with recycled content are based on the same closed-loop lyocell technology and thus have comparable physical properties as TENCEL™ branded lyocell fibers.

Partnering for systemic change

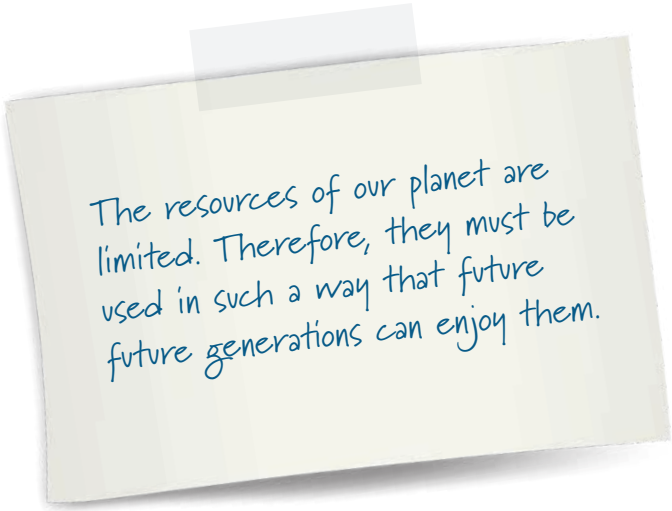
Collaboration is essential to the transition to a circular economy. Partnering for systemic change is one of the basic principles of Lenzing's "Naturally positive" sustainability strategy for jointly achieving targets with Lenzing's major stakeholders.

Make Fashion Circular (an initiative of the Ellen MacArthur Foundation)

The Make Fashion Circular initiative was established by the Ellen MacArthur Foundation in 2018 with the aim of accelerating the transition to the circular economy. Lenzing contributed to this ambitious initiative by providing an industrial perspective and insights and drawing on its experience in the textile industry and its pioneering TENCEL™ Lyocell fibers with REFIBRA™ technology. Lenzing contributed to the creation of a common vision in different working groups and participated as a panelist at the Foundation's digital webinar series.

Policy Hub on the circular economy for the apparel and footwear industry

In 2019, Lenzing became a member of and since May 2020 it has co-chaired the Policy Hub on the circular economy for the apparel and footwear industry. The company actively contributed to the industry's understanding of barriers and challenges to the circular economy in areas such as waste and recycling technologies, transparency, and sustainable product initiatives. Lenzing actively participated in a dialog with civil society and EU policy makers in exchanging information on barriers and possible solutions for advancing circularity.



The resources of our planet are limited. Therefore, they must be used in such a way that future generations can enjoy them.

EURATEX

EURATEX is the European Apparel and Textile Confederation, representing the interests of the European textile and clothing industry at the EU institutional level. Lenzing has contributed to EURATEX and also to the latest project ReHubs to further drive circularity in the textile industry.

ReHubs will enable the creation of a new European market of secondary raw materials, saving additional waste-related costs. These recycling hubs will create and spread knowledge about products' recyclability and product design to improve cooperation between makers and buyers across the industry value chain.

By successfully overcoming R&D challenges, ReHubs will not only tackle the issue of landfill and incineration but will also provide an opportunity for Europe to strengthen its long-term autonomy for raw materials and provide a healthy recycling ecosystem across Europe. ReHubs will create new green jobs. Estimates indicate that around 20 jobs could be created for every 1,000 tons of textiles collected, sorted, and recycled, ultimately creating up to 120,000 jobs in the European Union.

Platform for Accelerating the Circular Economy

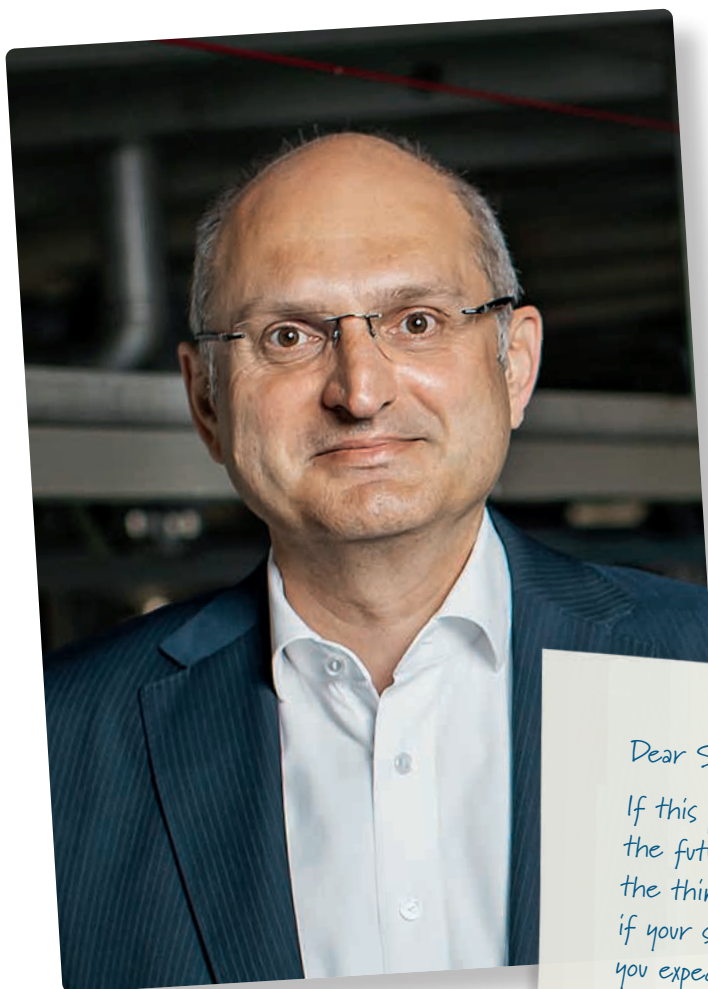
The Lenzing Group advances systemic change in the textile industry in another spin-off of the World Economic Forum, the Platform for Accelerating the Circular Economy (PACE)²¹. The vision of this initiative, now hosted by the World Resources Institute, is a circular economy that is designed to prevent waste and pollution, keep products and materials in use, and regenerate natural systems.



Accelerating Circularity initiative

Accelerating Circularity's mission is to design and implement systems in which textile waste is repurposed as a raw material, and is no longer incinerated or sent to landfill. With this model, materials will be constantly reused or recycled, and textile waste will itself become a valuable resource. Lenzing is pleased to be a Board representative of an organization that envisions a textile world that is restorative and regenerative by design; one that creates shared value, enhances equality, and promotes the wellbeing of communities.

Interview with the Managing Board



Thomas Obendrauf
Chief Financial Officer

Thomas Obendrauf, Chief Financial Officer of the Lenzing Group, talks about the financial impact the COVID-19 crisis is having and the challenges related to climate reporting.

Dear Sara,

If this pandemic has taught us anything, it's that the future is hard to predict. Yet, rest assured, the things that matter will find new paths. Even if your studies at university are currently not what you expected, it will be worth it. But new ways have been found – be it online libraries or Zoom supervisions.

Working at Lenzing is the same: We work longer hours, deal with lockdown regulations and social distancing. But we continue, because we believe in Lenzing's contribution to sustainability and the environment. And the effort will pay off!

How has the COVID-19 crisis affected Lenzing's financial situation?

Thomas Obendrauf: Store closures in the retail sector caused demand for textiles and apparel to plummet worldwide in the first two quarters of 2020. In the USA and major European markets, revenues at some brick-and-mortar stores dropped by more than 80 percent. Demand and capacity utilization did not recover and significantly increase until the third quarter. As a result, revenue declined 22.4 percent compared to the previous year. The speedy implementation of a broad set of measures mitigated this negative effect and allowed us to come out on top overall.

What has Lenzing done on the expense side to counteract the impacts of the COVID-19 crisis?

Thomas Obendrauf: In order to soften the effect of the pressure on fiber prices and fiber demand, Lenzing intensified measures for structural earnings improvement in the reporting period, thereby reducing its operating costs significantly. Personnel expenses declined due to a hiring stop and use of furlough schemes at the Austrian locations. We also cut other operating expenses significantly by lowering marketing and consulting expenses as well as other discretionary spending in a targeted fashion.

Let's look beyond the 2020 financial year. How is climate change going to impact corporate business models, and what role will the TCFD framework play?

Thomas Obendrauf: Climate change is a challenge that affects everyone – governments, companies, every person as a consumer. Transparency and reporting are necessary for sound decision-making. However, this is a highly complex subject area, which makes standards and guidelines all the more necessary. The TCFD framework will require a more differentiated assessment of climate risks to corporate business performance and bring about an entirely new way of thinking.

What challenges will Lenzing be facing from EU sustainable initiatives and the EU Green Deal?

Thomas Obendrauf: I believe the Lenzing Group is very well positioned in this respect. Sustainability is at the core of our business model. We will have to define and communicate crystal-clear goals and visions for the core points of the EU's Green Deal as well. That will entail adjustments to internal tools and processes. Future investments will require a more detailed assessment of the social and environmental impacts.

Funding has been secured for the key strategic project in Brazil. What does the package look like?

Thomas Obendrauf: IFC, a member of the World Bank Group, and IDB Invest, a member of the IDB Group, are supporting LD Celulose's investment program. Finnvera, an export credit agency, and seven commercial banks are also involved in providing approximately USD 1.1 bn in financing.

Lenzing broke new ground in financing operational growth by placing a green bond in 2019. It carried out another successful corporate action in 2020.

Thomas Obendrauf: We successfully placed a hybrid bond for EUR 500 million with an annual coupon of 5.75 percent at the end of November. The bond was oversubscribed several times. The success of this issue underscores Lenzing's creditworthiness and the confidence the capital market has in our company. The transaction strengthens our balance sheet and brings us one step closer to a diversified financing structure.

Waste management

Circular economy means that today's waste is tomorrow's raw material. What is left over from one process is used as a raw material for another process, thus reducing the need for virgin resources, avoiding waste, increasing resource efficiency, and minimizing environmental impacts.

Waste management is described in Lenzing's internal Waste Management Guideline, which was launched in 2018. The guideline was further developed in the reporting year and resulted in a full consolidation of Group waste data. It is an integral part of Lenzing's environmental management system. Activities relating to waste management – e.g. collection, separation, storage, transportation, and treatment of waste – are planned and performed based on possible utilization as well as an understanding of their environmental impact and risks.

Waste management is further detailed through the site waste management systems, which also concern external service providers. The company's approach to waste management uses a management hierarchy as its guiding principle. This means that Lenzing plans and prioritizes waste management as follows:

- 1 Prevention and reduction
- 2 Reuse and recycling
- 3 Energy recovery
- 4 Landfill

Waste by type and disposal method (in kg)

Table 05

	2018	2019	2020	2018	2019	2020
	Hazardous waste			Non-hazardous waste		
Reused						
Recycled	3,552,223	2,910,015	196,172	71,784,983	75,454,644	65,857,370
Composted						
Recovered including energy recovery	49,499,256	69,454,243	52,189,106	9,435,416	29,392,435	32,834,326
Incinerated (mass burn)						
Deep well injection						
Landfill	2,014,090	2,724,040	2,261,530	14,870,358	13,882,404	12,650,638
On-site storage						
Other (to be specified by Lenzing)	100,666	225,994	48,049	997,077	316,016	377,900
Total waste	55,166,235	75,314,292	54,694,857	97,087,834	119,045,499	111,720,234

Recyclable fractions of waste are separated. Unrecyclable fractions are disposed of in accordance with local legislation. Lenzing recovers energy from unrecyclable fractions in facilities such as incinerators wherever possible. Landfilling of waste is subject to strict national regulations. Hazardous waste is either treated or disposed of according to the applicable regulations. Compared to 2019, total waste generation decreased also due to reduced capacities of fiber production during COVID-19. Lenzing uses licensed contractors to dispose of waste. Audits of these service providers are conducted in site-defined intervals. Any contractor found to be non-compliant has its contract terminated. There were no cases of this happening in 2020.

Waste is categorized according to national legislation. In Europe, the end-of-waste criteria defined under the Waste Framework Directive may be applied to certain waste streams resulting in the declassification of those waste streams when criteria are met. There may also be long delays in obtaining the related data and information when an external party, such as an authorized waste management company, determines the management option of a waste stream. All these factors may result in significant fluctuations in waste reporting from year to year.

Best practice at the Lenzing site: Incineration of municipal solid waste with energy recovery

- **Electricity and heat from residual materials**
- **Maximum utilization of energy sources**

Lenzing contributes significantly to sustainable management at its production site in Austria. It operates a state-of-the-art plant for thermally recovering energy from sorted and prepared waste materials at the Lenzing site in collaboration with Energie AG (Austria). Annually, around 300,000 tons of sorted plastic waste, rejects, biological sludge, and overflows from waste processing plants are taken to a thermal processing plant and transformed into heat and electricity. The energy is used year-round with a high level of energy efficiency.

The circulating fluidized-bed technology used in the plant creates optimum conditions for incinerating the materials. This technology, together with the sophisticated dry and wet waste-gas purification plant and downstream catalyzer, guarantees a high level of environmental compatibility. Air with a low CS₂ concentration is captured from the viscose fiber plant and used as combustion air for the waste incineration plant, thereby achieving another major improvement in air quality at the Lenzing site.

Operating the incineration plant with residual materials allows Lenzing to replace approximately 85 million m³ of natural gas per year. This has considerable environmental relevance in addition to the benefits for the national economy. According to the Emissions Trading Scheme (ETS), incinerators that use more than 50 percent municipal solid wastes are excluded from the ETS. Therefore, CO₂ emissions from these incinerators are not considered fossil CO₂, and consequently energy from external waste is included under renewables in table 12.

End

of life in the natural cycle: Biodegradability of LENZING™ fibers

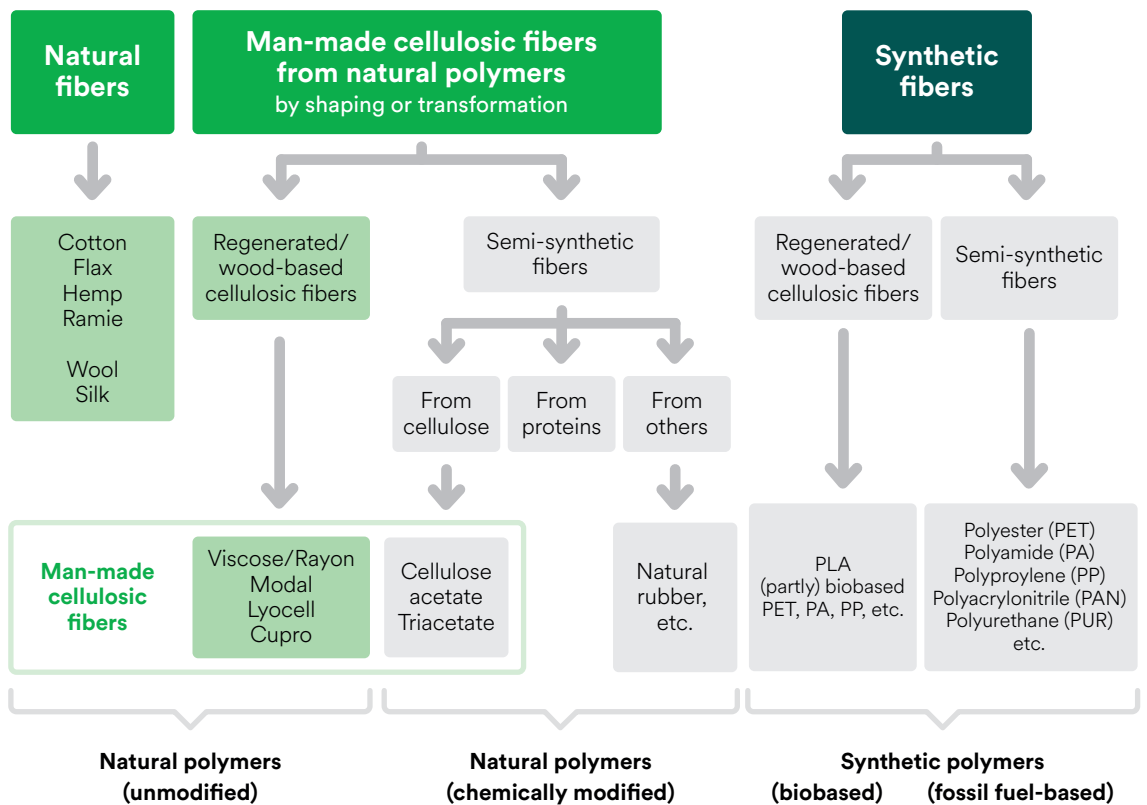
Cellulose is a major component of plant biomass and one of the most abundant polymers produced in nature. Natural recycling by biodegradation is indispensable to natural material cycles. Natural polymers are thus fundamentally biodegradable.

LENZING™ standard fibers are shaped from natural cellulose in an industrial process. The final fiber product consists of the unmodified natural polymer cellulose. Two groups of fibers consist of unmodified natural

polymers: on one hand the natural fibers, but also the regenerated/wood-based cellulosic fibers. Both groups of fibers are fundamentally biodegradable. (figure 07) Other fiber types can be difficult to biodegrade, such as conventional fossil-based synthetics, some of the biosynthetic fibers, and some semi-synthetic fibers made from chemically modified natural polymers. For a systematic view of fiber biodegradation see the compilation of “Biodegradable Polymers in Various Environments” put together by the Nova Institute²².

Fibers on the world market*

Figure 07












* Modified from BISFA 2017²³

Biodegradation of LENZING™ fibers in various environments*

Valid for all standard fibers from Lenzing

Figure 08

	Environment	Temperature conditions	Biodegradability of LENZING™ fibers	Reference
Speed of biodegradation ↑ ↓	 Anaerobic digestion (thermophilic)		✓	ASTM D5511 & ISO 15985
	 Industrial composting		✓	EN 13432, ISO 14855
	 Home composting		✓	EN 13432, ISO 14855
	 Soil		✓	EN 13432, ISO 14855
	 Freshwater		✓	EN ISO 14851
	 Marine water		✓	ASTM D6691

* Modified from Ellen MacArthur Foundation (2017). The New Plastics Economy: Rethinking the future of plastics and De Wilde B., Mortier, N., Verstichel, S., Briassoulis, D., Babou, M., Mistriotis, A. and Hiskakis, M. (2013). Report on current relevant biodegradation and ecotoxicity standards, In: KBBPPS Knowledge Based Bio-based Products' Pre-Standardization, Work package 6 Biodegradability.

Nevertheless, the biodegradability of all LENZING™ standard fibers was tested at the laboratory operated by Belgium's Organic Waste Systems (OWS), one of the world's leading biodegradability and compostability testing companies. The assessment was performed to existing and applicable international standards, reflecting all relevant natural and artificial environments where biodegradation can take place (see page 58).

Certificates from international certification organization TÜV AUSTRIA Belgium indicate that LENZING™ standard fibers quickly biodegrade within the standards' time limits in all tested environments (soil, industrial compost, home compost, fresh water, and marine environment).

Materials and consumer goods, such as textiles and garments or hygiene products are made from wood-based cellulosic fibers (e.g. viscose, modal, and lyocell) using similar processing roots as those used for natural cellulosic fibers like cotton. The dyeing and finishing steps in particular follow the same processes and use the same chemicals. The products therefore exhibit very similar biodegradability properties as those made from cellulosic natural fibers in the use and post-use phases. It should be noted that fiber material biodegradability is a necessary but not sufficient condition for producing a biodegradable final product. Processed products need to be tested and certified in their final form in order to make any biodegradability claims.

End

of life in the natural cycle: Biodegradability of LENZING™ fibers

Study

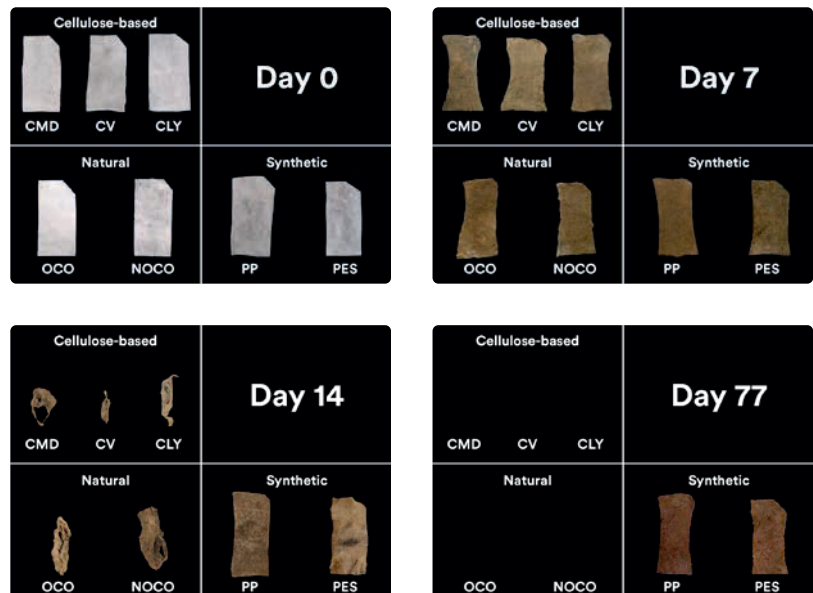
Microplastics

Small plastic particles of 5 mm or less in size – known as “microplastics” – are perceived as a major pollution problem in freshwater bodies and the sea. While recent industry initiatives and legislation intend to promote the development of less polluting alternatives, Lenzing, as a producer of wood-based cellulosic fibers, laid the foundations for biodegradable products more than 80 years ago.

The Lenzing Group collaborates in industry and multi-stakeholder initiatives – including the Microfiber Consortium of the European Outdoor Group, the Cross Industry Agreement of the textile and detergent industries, and the “Textile Mission” project within the German research program on plastics in the environment (Plastik in der Umwelt) – by providing fiber and textile intermediate materials for testing and the development of new textile constructions and giving feedback on drafts of reports and guidance documents.

Biodegradation of fibers in the ocean

Preliminary results by the working group led by Dimitri Deheyn (Scripps Institution of Oceanography of UC San Diego) were presented at the 2019 Global Fiber Congress in Dornbirn. Deheyn’s group is doing novel research on the (bio)degradation of different natural, wood-based, biobased, and synthetic materials in real conditions in the ocean. The story of the research approach was featured in an article in the New York Times²⁴. As first research findings showed at the end of the 77-day-long test, all natural and wood-based cellulose materials are completely decomposed, whereas synthetic materials remained basically unchanged. Further ongoing studies are assessing decomposition on the sea floor and in closed aquaria where samples of fabric material can be observed under steady controlled flow and analyzed through imagery over time to observe actual molecular level degradation (mineralization)²⁵.



Decomposition of nonwoven fiber samples in marine conditions (surface water). Legend: CMD, Modal. CV, viscose. CLY, lyocell. OCO, organic cotton. NOCO, conventional cotton. PP, polypropylene. PES, polyester. From: Royer and Deheyn, Dornbirn 2019²⁶

European Union Plastics Regulations

Lenzing believes that the EU's published Directive 2019/904 Single-Use plastics Directive (SUPD)²⁷, which aims to reduce the impact of plastic products on the environment, does not apply to LENZING™ fibers since they consist of unmodified natural polymer cellulose, and therefore do not meet the plastics definition in the Directive. Also, the proven biodegradability of LENZING™ fibers works towards the same end as the SUPD: avoiding plastic pollution. Consequently, the SUPD is a potential catalyst for nonwovens applications of LENZING™ fibers. However, the plastics definition has come under debate, with some stakeholders pushing to expand it to include viscose fibers. The European Commission had not yet made a decision by the editorial closing date of this publication. Also, there is some fundamental criticism about treating biodegradable materials, especially bioplastics, as a one-to-one replacement for single-use fossil-based plastics. Lenzing is aware of the need to reduce overall linear material flows and adopt circular approaches. Lenzing is watching developments closely and providing evidence and positioning as appropriate. A decision on the interpretation of the plastics definition in the Commission guidelines document was postponed several times and was not made in 2020.

Enabling eco-responsible consumption and avoiding plastic waste

#ItsInOurHands campaign for biodegradable wet wipes

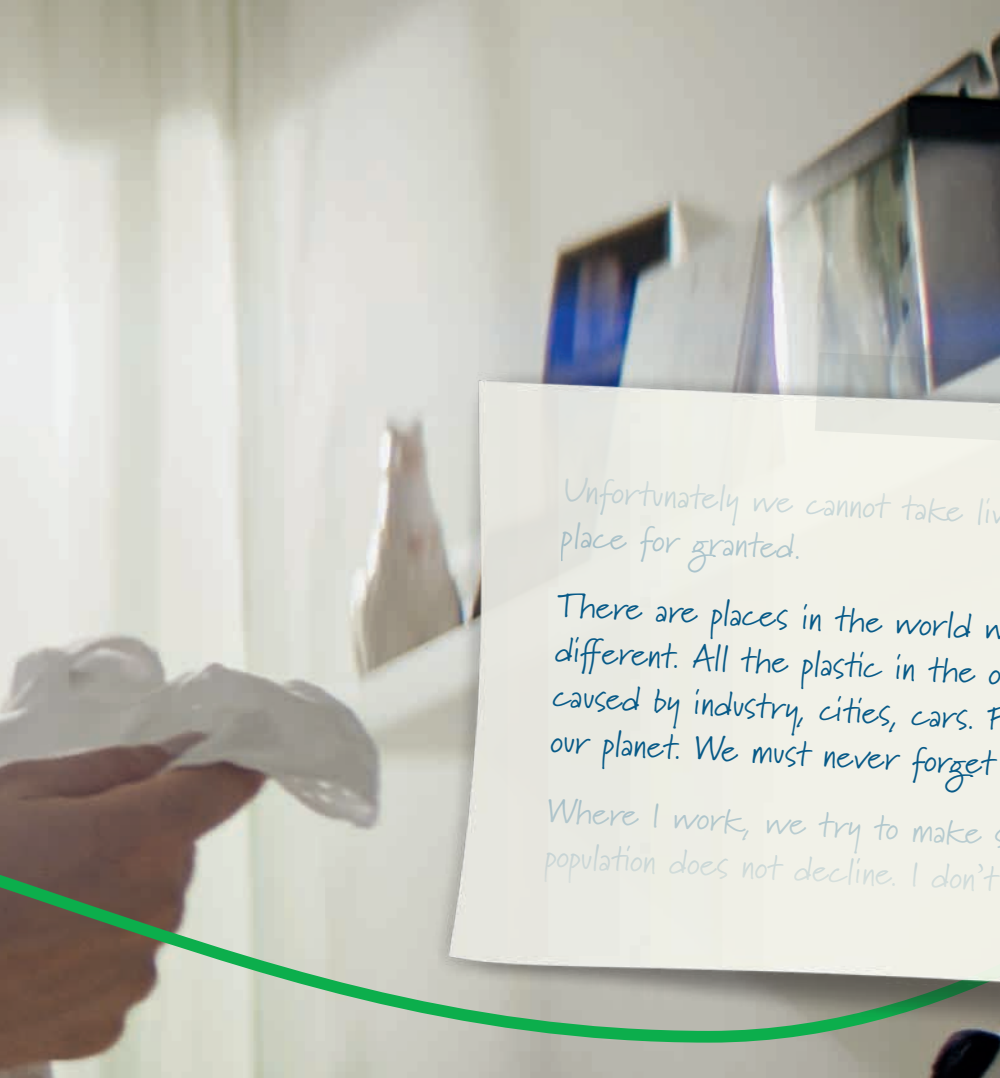
The eco-responsible initiative #ItsInOurHands celebrated its first anniversary in 2020. The initiative, launched by the VEOCEL™ brand in cooperation with eco-pioneers such as Plastic Free World, succeeded in driving awareness and facilitating debate about the presence of fossil-based plastics in hygiene products. It has taken a leadership role for sustainable solutions and responsibility in the nonwovens industry. The movement invites brands, organizations, influencers, consumers, experts, and public figures to share facts and discuss solutions to make our daily lifestyle sustainable in the future at www.ItsInOurHands.com and on social media.

Even before the transposition of the Directive 2019/904 (EU Single-Use Plastics Directive) the VEOCEL™ brand and the #ItsInOurHands initiative are providing consumers with guidance for making conscious buying decisions: Products featuring the VEOCEL™ ingredient branding follow strict certification criteria, verifying that these products contain 100 percent biodegradable fibers. Twenty brands worldwide already feature the VEOCEL™ logo to provide this transparency to their consumers.

All LENZING™ standard fibers are proven to be biodegradable.



Strategic focus areas



Unfortunately we cannot take living in such a beautiful place for granted.

There are places in the world where things are quite different. All the plastic in the oceans or the air pollution caused by industry, cities, cars. Forests are the lungs of our planet. We must never forget that!

Where I work, we try to make sure that the tree population does not decline. I don't want people to act

Strategic focus areas

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Raw material security

Management approach

Material topic: Wood and pulp sourcing

Importance for Lenzing

Wood is the most important raw material for Lenzing

Opportunities

Wood as a natural and renewable raw material offers expanded business prospects

- As a replacement for fossil-based products
- Due to its contribution to climate change mitigation through carbon sinks in forests and wood products, and substitution of fossil-based products

Wood is an alternative to agricultural products (e.g. cotton)

Using wood from sustainably managed forests supports biodiversity

Risks

Sourcing of environmentally and socially controversial wood and pulp

Can be linked to deforestation

Loss of biodiversity in forest ecosystems

Potential reputation loss endangers business

Sourcing can be affected by climate change

Climate and market impact on wood and pulp availability, price and quality

Guiding principles

Centrally managed wood and pulp procurement

Strict Wood and Pulp Policy

CanopyStyle Initiative

Global Lenzing Supplier Code of Conduct

Preference for long-term contracts and direct contacts

Due diligence processes and (ongoing) measures

Regular audits on wood certification standards (FSC^{®28}, PEFC^{™29})

Internal audit management system

Wood and Pulp certification to FSC[®] and PEFC[™] standards

Additional third-party verification as part of the CanopyStyle Initiative and through internal supplier audits

Objectives

Ensure compliance with customer sourcing policies

Assessment of sustainability performance of the Lenzing Group's most relevant suppliers

Partnership with pulp suppliers on sustainability

Sustainable management of plantations in the LD Celulose joint venture

Achievements/activities in the reporting year

100 percent of wood suppliers assessed

CDP Forest 'A' rating

Afforestation and social impact project in Albania continued

Dark green shirt for the first time in Canopy's Hot Button Report

Integration of plantations managed by LD Celulose, Brazil into the Lenzing Group

Transportation of some inbound materials shifted from road to rail to improve carbon footprint

Project start to buy "green caustic soda" produced with renewable energy

Responsible

Board Member for Wood and Pulp

Supporting

Corporate Sustainability

Global QESH



Procurement management

Wood purchasing, pulp purchasing and chemicals purchasing are handled by three different teams within the Lenzing Group (Wood Procurement, Pulp Trading GmbH, and Global Purchasing). Lenzing aims to minimize purchasing risks such as major price fluctuations and supply bottlenecks through reliable, long-term supply relationships and active supplier management.

Supplier selection and evaluation is based on environmental, social, and governance standards (ESG) as well as economic criteria.

The most important materials procured are (in order of annual procurement volume): wood, dissolving wood pulp, caustic soda, sulfuric acid, sulfur, carbon disulfide, sulfur dioxide, and magnesium oxide.

All of the Lenzing Group's suppliers must comply with the Lenzing Global Supplier Code of Conduct. Wood and pulp suppliers additionally have to comply with FSC® or PEFC™ standards.

Supplier assessment

All suppliers are evaluated for sustainability in the production chain. Lenzing conducts regular audits as well as specific evaluations of both new and established suppliers for sustainability and compliance with environmental and safety standards. Suppliers are interviewed regularly and evaluated under environmental and safety aspects with the support of external experts. A final assessment is then conducted. It affects the overall supplier assessment and constitutes a major criterion for long-term cooperation with suppliers. Past supplier assessments have found no violations of environmental, social, or ethical standards that could have led to the cancellation of existing supplier contracts.

Lenzing's most relevant suppliers are those that have an increased risk due to their size and volume. They represent 80 percent of global purchasing volume including dissolving wood pulp but excluding wood. The EcoVadis online tool is used to evaluate these non-wood suppliers. Evaluations of the non-wood suppliers found no violations of environmental, social or ethical standards that could have led to the termination of existing supply contracts in the reporting year.

Wood and pulp suppliers are evaluated using a due diligence system based on FSC® Controlled Wood criteria.

All wood suppliers – in 2020, about 400, many of them private owners – in all sourcing countries are scored once a year against FSC® Controlled Wood and PEFC™ Controlled Sources criteria.

Demand for fibers decreased sharply in the second and third quarter of 2020 due to the COVID-19 crisis. As a consequence, the Lenzing Group temporarily produced less own pulp and procured less wood. Many small deliveries from small suppliers who deliver only once a year were therefore not required, lowering the number of suppliers from about 700 in 2019 to about 400 in 2020. The suppliers who remained tended to supply larger volumes and have long-term delivery contracts.

Strategic dissolving wood pulp suppliers are evaluated periodically. In 2020, no audits were conducted due to the COVID-19 pandemic.

Sustainable sourcing of wood and dissolving wood pulp

Wood and dissolving wood pulp are Lenzing's most important raw materials. The Lenzing Group assumes responsibility by focusing on sustainable sourcing covered by certifications, responsible consumption, and highly efficient use of these valuable resources. Lenzing sources wood and dissolving wood pulp from semi-natural forests and plantations (as defined by the Food and Agriculture Organization of the United Nations³⁰), not from natural or ancient and endangered forests.

Precise figures for the absolute amount of wood purchased and dissolving wood pulp sourced are not provided for confidentiality reasons. As an indicative estimate, total fiber sales of nearly 1 million tons require a pulp input of about the same amount. The amount of wood required to produce this dissolving wood pulp cannot be stated exactly, especially given all the different processes and species that our suppliers use. Assuming a dissolving wood pulp yield from wood of 40 percent, a rough estimate for the total wood input would be 2.5 million tons (dry matter), split up between Lenzing's own production and purchased dissolving wood pulp.

Wood as a natural and renewable raw material plays an important role in replacing fossil-based products and helps mitigate climate change through carbon sinks in forests and wood products. For more information on climate effects of and on wood and pulp sourcing, see chapter "Decarbonization" – especially "Avoided emissions", and the "[Wood and Pulp](#)" focus paper.

Raw material security

The Lenzing Group's Wood and Pulp Policy

In its Wood and Pulp Policy³¹, Lenzing is committed to procuring wood and dissolving wood pulp exclusively from non-controversial sources.

Controversial sources include wood which has been harvested

- illegally,
- from forests of high conservation value, including ancient and endangered forests, and endangered species habitats,
- from plantations established after 1994 through significant conversion of natural forests or converted to non-forest use,
- from forests or plantations growing genetically modified trees,
- in violation of traditional, community, and/or civil rights, or
- in violation of any of the ILO³² Core Conventions as defined in the ILO Declaration on Fundamental Principles and Rights at Work

Regular risk assessments, audits, on-site visits, and independent third-party certification of sustainable forest management programs ensure compliance with the policy. All suppliers have agreed to Lenzing's sourcing policy in personal communication.

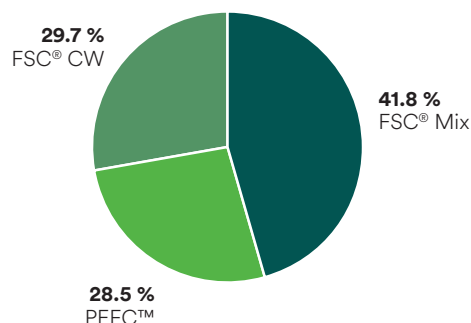
If Lenzing discovers that it has sourced wood or dissolving wood pulp from controversial sources, it will first engage the supplier to encourage practices consistent with Lenzing's Wood and Pulp Policy. If the response is unsatisfactory, the supplier will be delisted with a reasonable lead time. Very few such cases have occurred in recent years. There were none in 2018 and 2019 and three in 2020. For more information, please see chapter "Wood and dissolving wood pulp certifications".

Societal aspects, especially human rights

Lenzing's Wood and Pulp Policy refers to societal aspects, especially human rights, in wood sourcing covered by the wood certification systems used by Lenzing, FSC[®] and PEFC[™]. Together with national laws, and the Lenzing Code of Conduct they ensure that traditional, community, and civil rights are observed, and that labor conditions meet or exceed ILO Core Conventions³³.

Certification status in the Lenzing Group 2020

Figure 09



Certification status of total wood input at Lenzing fiber production sites via own and purchased dissolving wood pulp. Basis: dissolving wood pulp by weight.

Wood and dissolving wood pulp certifications

Lenzing’s wood procurement management system ensures that all wood is sourced from legal and sustainably managed sources. Lenzing demonstrates that wood sourcing complies with its high standards through verification based on FSC® and PEFC™ certification systems (figure 09). More than 99 percent³⁴ of wood and dissolving wood pulp used by the Lenzing Group is either certified by FSC® and PEFC™ or inspected in line with these standards (figure 10). Also, the additional CanopyStyle verification audit was renewed in 2019, and the final audit report, which was published in the second half of 2020, confirmed a leading result of low risk of sourcing from ancient and endangered forests.

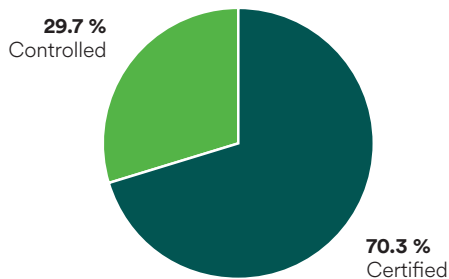
The following figures show the certification status of all wood input into Lenzing’s production, whether obtained directly through own procurement for in-house dissolving wood pulp mills or indirectly through dissolving wood pulp suppliers. All Lenzing Group production sites are FSC® CoC (Chain of Custody) certified.

PEFC™ is used for wood sourced from Central Europe, based on strict, rigorously enforced national forestry laws. FSC® certification of forests is not widespread in this region. Therefore, most wood sourced is procured with a PEFC™ certificate and receives FSC® Controlled Wood status at Lenzing sites after a due diligence process. The Lenzing site has held the PEFC™ Chain of Custody (CoC) certification as its main certificate for more than a decade. This is complemented since 2016 by an FSC® CoC certificate that covers all Lenzing production sites. Therefore, all wood input to the Lenzing Group is either certified or controlled by the FSC® certification system (figure 11).

Pulp suppliers can hold more than one forest-related certificate. Most of the pulp suppliers located in North America do also carry the Sustainable Forest Initiative (SFI) certification, which is also a national member of the global PEFC™ certification scheme and fully endorsed by them.

Overall certified and controlled wood in the Lenzing Group

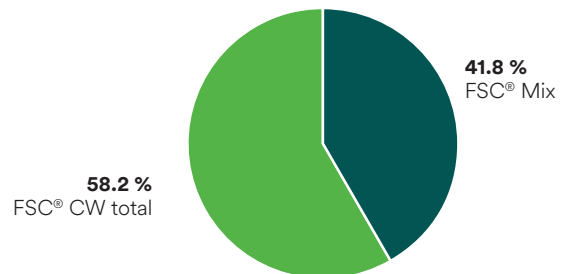
Figure 10



Overall certified and controlled wood for the fiber production in the Lenzing Group. All pulp and wood input (>99%) is either certified or controlled through the FSC® system. “Certified” is the sum of “FSC® Mix” and “PEFC™” and represents the amount of pulp available to make fibers with the corresponding Chain of Custody certificate.

FSC® Mix and FSC® certified and controlled wood in the Lenzing Group

Figure 11



FSC® Mix and FSC® certified and controlled wood for the fiber production in the Lenzing Group. “FSC® CW total” is all controlled wood, FSC® Controlled Wood, plus PEFC™ certified wood that has been accepted as FSC® Controlled after the Lenzing due diligence process. The share of FSC® Mix represents the amount of pulp available to make fibers with the FSC® Mix Chain of Custody certificate.

Raw material security

For detailed explanations of the certificates and Controlled Wood, see the 2017 Lenzing Sustainability Report³⁵ and the “Wood and Pulp” focus paper.

Since forestry operations in Central Europe are generally small-scale, many small forest owners harvest wood for additional income and do not participate in a certification process. Therefore, Lenzing needs to procure reliable but limited quantities of such wood other than that certified to FSC® or PEFC™. This proportion of wood is inspected in line with these standards. Since the site in Lenzing (Austria) was FSC® certified in 2016, this proportion of purchased wood previously reported as PEFC™ Controlled Source is now also FSC® Controlled Wood (figure 09, “Certification status”).

Regular formal audits are conducted; however, ongoing, day-to-day, informal, personal contact between Lenzing’s procurement team and suppliers is even more important. Supplier contracts can be terminated in response to severe sustainability findings. This has been occasionally done in the past when suppliers did not remedy certain issues. No such cases occurred in 2018 and 2019. In 2020, three contracts were suspended due to findings. Two were then reactivated after the issues were resolved. One supplier was delisted.

Strict forestry laws and enforcement in Central Europe also require all forest owners to pursue sustainable management. Lenzing’s Wood and Pulp Policy and Supplier Code of Conduct forms part of all its contracts.

Wood procurement faces annual surveillance/recertification audits of the FSC®/PEFC™ systems. This time the external FSC® audit, conducted by “PreferredbyNature” (formerly known as NepCon), our certification body, was performed partly online due to the COVID-19 situation. It was monitored by Assurance Service International (ASI)³⁶, which is an assurance partner for leading sus-

tainability standard systems and initiatives around the world. ASI has been appointed by numerous voluntary sustainability standards such as Aquaculture Stewardship Council, FSC®, Marine Stewardship Council (MSC), Roundtable on Sustainable Palm Oil (RSPO), Sustainable Biomass Program (SBP), and others to oversee and improve the integrity and credibility of their certification schemes worldwide.

The audit added another level of stringency and provided an additional assurance that the Lenzing Group has good traceability in wood procurement.

Regional wood supply in Europe

The Lenzing site (Austria) uses mainly beech wood plus small amounts of other hardwoods and spruce, whereas the Paskov plant (Czech Republic) utilizes spruce. Lenzing is committed to the cascading use of wood, and primarily makes use of timber generated from small trees through thinning and from those parts of large trees which are unsuitable for high-grade products, such as furniture or construction.

The percentage of broadleaf forest, especially beech, is increasing³⁷ in wood-sourcing countries as forests are being returned to a more natural mix of tree species, contributing to climate change resilience. The area devoted to spruce cultivation is decreasing, although stocks are still increasing in all sourcing countries due to low felling rates. Utilization of beech wood to manufacture fibers provides relatively high value creation versus wood use for energy generation, making it an important economic factor for the regeneration of forests with more deciduous species. This transition is also crucial for adapting forest ecosystems in Central Europe to climate change through greater species diversity^{38, 39}.

Sustainability criteria have long been an important factor in supplier selection. As Austria, Germany, the Czech Republic and Slovakia have strong political commitments to sustainable forestry, their state-owned forests are an important source of wood for Lenzing sites and cover about 25 percent of wood purchases.

In order to ensure short transportation distances and short delivery times, almost all the wood required originates regionally, meaning, either from the country where the pulp is produced or from directly neighboring countries. Regional⁴⁰ wood accounted for 98 percent

of the supply for the Lenzing site from 2015 to 2017. Due to sourcing issues caused by updated FSC® risk assessments in some Central European countries, the regional supply rate temporarily decreased to 92.5 percent in 2018 and 91.5 percent in 2019. In 2020, it was 94.4 percent. For the Paskov site, the regional supply rate increased from 93 percent (2015-2017 average) to 99 percent in 2018 and 100 percent in 2019 and 2020.

Wood sourcing for the Lenzing Group's own pulp mills in Lenzing (Austria) and Paskov (Czech Republic)

Beech and spruce by country, 2018-2020. "Other countries" for the Lenzing site for 2018 are Estonia, France, Switzerland, Poland, Romania, Russia and Ukraine; for 2019 France, Switzerland, Poland, Romania and Russia; and for 2020 Poland, France and Switzerland

Figure 12



Regional wood supply originates from the country where the pulp mill is situated and from neighboring countries from which wood can be transported directly without crossing a third country.

Raw material security

Wood from Belarus, Estonia, Poland, Romania, Russia, and Ukraine was exclusively sourced with FSC® certificates. No wood was sourced in Belarus, Romania, Estonia, Russia and Ukraine in 2020. The Paskov site stopped receiving wood from Belarus in 2018. For underlying figures, please see Annex.

Lenzing's wood logistics system moves large quantities of material and is therefore highly cost-optimized. Continuous improvement in this area also minimizes emissions from logistics by preferring train transports whenever possible.

Dissolving wood pulp in the Lenzing Group

Processing wood into fibers requires a special quality of pulp for an intermediate step. This special intermediate is called dissolving wood pulp. In 2020, the Lenzing Group's own dissolving wood pulp production at its sites in Lenzing (Austria) and Paskov (Czech Republic) was 62.4 percent (2019: 61.8%, 2018: 60%) of the planned dissolving wood pulp volume required for the planned fiber production. Sufficient quantities of wood are purchased for this purpose. In addition to its own dissolving wood pulp production, Lenzing procures dissolving wood pulp in the global market, mostly under long-term supply contracts.

The Lenzing Group's long-term strategy is to increase its own dissolving wood pulp capacities from the current level so it can supply up to 75 percent of its requirements. It took an important first step toward achieving this target by debottlenecking the Lenzing site in a process that finished in 2019, thereby increasing capacity from 300,000 tons to 320,000 tons p.a. Capacity increased to 285,000 tons at the Paskov site through a project that was finalized in the first half of 2020.

By far the biggest step in Lenzing's strategic approach to strengthen its dissolving wood pulp position occurred in December 2019, when the company announced plans to build a 500,000 ton dissolving wood pulp plant in the state of Minas Gerais (Brazil). It started to implement this investment in a joint venture with the Brazilian Duratex Group. Lenzing holds a 51 percent stake, Duratex 49 percent. The expected industrial capital expenditure (CAPEX) in the joint venture will be approx. USD 1.38 bn (based on exchange rates at year-end 2019).

The new production facility was designed with sustainability in mind. It will be among the most productive and energy-efficient facilities in the world, meet the European Union's Best Available Technology (BAT) standard⁴¹, and export more than 50 percent excess bioelectricity generated on-site as renewable energy into the public grid. The produced pulp can be 100 percent FSC® certified and will be totally chlorine-free (TCF). This site is planned to start up in the first half of 2022.

To address major environmental impacts of its operations, LD Celulose has continued a program named "Torre de Fluxo" in its sphere of influence. Duratex has participated in this cooperative initiative since 2008, which is coordinated by the Forest Research and Studies Institute (IPEF), the French Agricultural Research Center (Cirad), and the Higher School of Agriculture "Luiz de Queiroz" at the University of São Paulo (Esalq/USP). The program works to periodically collect data on carbon, water, and nutrient flows from plantations. The intention is to gather more information for research on the best responsible management practices that combine productivity and sustainability. In 2019, Lenzing's joint venture partner Duratex renewed its participation in the program for another seven years.

The main dissolving wood pulp production regions for the global market are Europe, North America, South America, China, and South Africa. For further information about the Lenzing Group's current own production and purchased dissolving wood pulp, see table O6. Lenzing's purchased dissolving wood pulp is mainly produced from eucalyptus but also comes from acacia, aspen, birch, maple, and southern pine. The actual tree species vary depending on the region. Lenzing ensures that the bleaching process of all purchased pulp is totally chlorine-free (TCF) or elemental chlorine-free (ECF).

Wood and dissolving wood pulp supply in the Lenzing Group

Dissolving wood pulp supply, from own production and dissolving wood pulp market (2016-2020)

Table 06

Wood sourcing region	Central Europe	Europe	South Africa	North America
Wood sourcing countries	See figure 12	Mainly Scandinavia and Baltic states, Russia	South Africa	USA
Forest type according to FAO*	Semi-natural forest	Semi-natural forest	Plantation	Semi-natural forest
Wood species (most important)	Beech, spruce, birch	Birch, aspen, beech	Eucalyptus sp., Acacia sp.	Southern pine, maple, aspen
Forest certificates	PEFC™, FSC®	PEFC™, FSC®	FSC®	FSC®, PEFC™, SFI
Wood procurement by	Lenzing Group Wood Procurement	Dissolving wood pulp suppliers		
Dissolving wood pulp produced by	Lenzing Group dissolving wood pulp mills (Paskov and Lenzing)	Dissolving wood pulp suppliers: GP Cellulose GmbH (USA), Rayonier Advanced Materials (USA), Sappi Ltd. (South Africa, USA), Södra Skogsägarna ek för (Sweden)		
Pulping process	Sulfite	Sulfite/Kraft		
Bleaching process	Totally chlorine free (TCF)	Elemental chlorine free (ECF)		

* Carle, J., and Holmgren, P. (2003). Working paper 79. Definitions Related to Planted Forests. In: Food and Agriculture Organization of the United Nations (2003). Forest Resources Assessment Program Working paper series.

Local wood supply in Brazil

In preparation for the pulp factory construction, the LD Celulose joint venture secured FSC®-certified plantations⁴² covering over 44,000 hectares to provide the necessary biomass. Around 70,000 hectares of plantation will be managed once full production capacity is reached. These plantations operate completely in accordance with the guidelines and high standards of the Lenzing Group for sourcing wood and pulp. This underlines Lenzing's commitment to leading wood and pulp certification schemes.

An essential aspect that compelled Lenzing to enter into a joint venture with Duratex in Brazil was its track record and reputation for environmentally responsible forest management, its tradition of respect for the environment, its experience in responsible and productive forest management, and its extensive knowledge of the Brazilian Forestry Code (of 2012), which is one of the most stringent in the world. Lenzing makes a point of only working with certified

and controlled wood sources to ensure supply chain sustainability. This sustainability is being maintained at LD Celulose with Duratex's forest management expertise.

Duratex has a long history of responsible forest management and shares this expertise in the joint venture. The Duratex Forest Management Plan was adopted, which is responsible for ensuring compliance with Forest Stewardship Council (FSC®) certification criteria. The FSC® certificate provides the assurance that LD Celulose's forest management work takes account of aspects such as respect for the rights of indigenous people, the wellbeing of the professionals who work in the forest and local communities, the reduction of environmental impact, and the promotion of native forest conservation and restoration efforts.

Raw material security

The forest unit responsible for supplying LD Celulose's wood is in Triângulo Mineiro in the State of Minas Gerais. The area that is being transformed into LD Celulose forest unit has been used for cattle raising, intensive agricultural activities, and eucalyptus forestry since the 1970s. No native (primary) forest will be converted. The plantations are more than 800 km from the region that comprises the Amazon rainforest.

Lenzing actively collaborates with Canopy to ensure that the wood sourcing is in line with sustainable practices. All these measures, together with the Due Diligence System (DDS) and the certification of the supply chain, ensure that wood sourcing is in line with Lenzing's Wood and Pulp Policy and sustainable practices. Addressing the situation in Brazil, the measures are also set up to avoid using resources from the Amazon region.

Currently, and until the pulp mill is in operation, timber harvested from the plantation is sold to the market as logs for saw mills, chips for particle board, and biomass fuel for drying processes.

Biodiversity in sustainably managed forests and plantations

Global biodiversity loss has recently moved into the focus of the sustainability debate in many industries, including the textile and nonwoven sector. The World Economic Forum identifies nature loss as one of the top three systemic risks to the economy, people, and planet. Numerous initiatives have been established to address this issue, while others have adopted workstreams dedicated to biodiversity. The Lenzing Group has joined the Advisory Group of the Textile Exchange Biodiversity Benchmark.

Textile Exchange (TE) Biodiversity Benchmark


Textile Exchange Biodiversity Benchmark was launched on December 2, 2020. The benchmark is part of the TE Corporate Fiber and Materials Benchmark (CFMB) Program and is connected to TE's "Climate+" strategy. The role of the benchmark is to address biodiversity loss and support improvements in the industry's sphere of influence through knowledge-sharing. The methodology for companies to set targets for nature is being developed through the Science Based Targets Network (SBTN). It has taken an initial big step by surveying companies about integrating biodiversity into their business strategies and operations, making commitments, setting targets, and aligning with the Sustainable Development Goals (SDGs)⁴³.

For wood-based cellulosic fibers, the main potential impact on biodiversity may arise from an intensified utilization of wood resources.

The Lenzing Group addresses this through one of two approaches, depending on the global region: Sustainable and multi-functional forest management is applied in the northern hemisphere by Lenzing's wood and pulp suppliers in Europe and North America. Plantation forestry is conducted mainly in the southern hemisphere by Lenzing's pulp supplier in South Africa and by the new in-house operations in Brazil.

Plantation forestry

Plantation forestry can reduce deforestation pressure on natural (primary) forest areas by providing wood at very high yields per unit area as an alternative to sourcing it from natural forests. FSC® certification entails management criteria to protect biodiversity⁴⁴, as determined in detail in the national standards. Management practices include a certain percentage of reserved conservation areas.



In South Africa, some 80 percent of the land set aside for plantation forestry is certified to FSC® standards. The focus in conservation and biodiversity protection is on two natural ecosystems: grasslands and wetlands. Both are included in conservation and regeneration programs run by plantation operators on their own and/or managed land. Approximately 25 percent of this land is not planted with trees but conserved for biodiversity⁴⁵.

In the joint venture project with Duratex in Brazil, wood will be sourced from FSC®-certified plantations of over 44,000 hectares. The trees are mainly Eucalyptus species, with a small proportion of pine phasing out. A breeding and clone selections program is continuing to improve the yield and robustness of the trees. LD Celulose does not use genetically modified organisms (GMOs).

LD Celulose's forests are in areas that were converted to agriculture many decades ago. There are generally large areas nearby for planting soy and coffee or grazing livestock. Some areas under LD Celulose's management are destined for the Legal Reserve and Permanent Preservation Areas, as the law requires. The conservation unit closest to the LD Celulose planting area is Páú Furado State Park, which is about 30 kilometers from the plantation. That means this conservation unit is not impacted by LD Celulose's activities. The managed land contains a proportion of conservation area dedicated to biodiversity protection that goes beyond legal requirements and FSC® standards. The managed area belongs to the Cerrado biome and is located about 800 kilometers from the Amazon region.

LD Celulose is aware of the diversity of flora and fauna found in its forest areas, with 1,383 plant and 1,059 animal species registered since the 1970s when Duratex started its biodiversity research projects. Biodiversity research projects are undertaken in these areas through partnerships with universities⁴⁶ in addition to internal programs. LD Celulose monitors fauna and flora in the forest areas and areas directly influenced by the mill site. These programs are carried out annually in the dry and in the rainy season and aim to monitor possible impacts on local biodiversity. The programs are also required by the Brazilian environmental agency. There have been no significant impacts on biodiversity to date.



Brazilian environmental law determines the maintenance of Permanent Preservation Areas (APPs) and Legal Reserve areas. APPs are specific areas of vegetation such as ciliary forests, areas of vegetation adjacent to water courses, and areas of vegetation on slopes. Legal Reserve areas correspond to the obligation to preserve at least 20 percent of a property in a rural area. LD Celulose voluntarily preserves a larger percentage of area (table 07).

LD Celulose's forestry unit is supervised by ecology and environmental specialists who were also responsible for identifying a High Conservation Value Area (HCVA) in the area managed by LD Celulose that contain *Pseudopaludicola facureae*, a species of frog found only in this region of Minas Gerais. The forestry unit constantly works to identify any area that needs to be classified as HCVA to ensure the protection of animal and plant species. See the "[Wood and Pulp](#)" focus paper for more details.

Table 07 gives an overview of land use in the area managed by LD Celulose. The productive area which is not currently certified is not yet planted with trees and is planned to be certified in due time.

Raw material security

Quantitative description of areas managed and influenced by LD Celulose

Table 07

	Total area (ha)	Productive area (ha)	Conservation area (ha)	Infrastructure (ha)
Managed by LD Celulose	66,101	50,325 (100 %)	13,153 (26 %)	2,623
FSC® Certified		43,835		

Biodiversity in European semi-natural forests

Biodiversity protection has long been an objective of sustainable forest management. Sustainably managed semi-natural forests are multifunctional in that they provide not just timber but also many ecosystem services such as water regulation as well as maintaining biodiversity. For considerations relating to biodiversity in European semi-natural forests, and other environmental sustainability aspects of wood sourcing, including climate protection and water resources, see the Lenzing Sustainability Report 2017, pages 45-46, and the “[Wood and Pulp](#)” focus paper.

Stakeholder activities in wood and pulp procurement

CDP Forest

The Lenzing Group contributed to Carbon Disclosure Project (CDP) in the areas of Climate and Forest for the first time in 2020. It received a double ‘A’ score for tackling climate change and acting to protect forests. Only 16 companies worldwide have an ‘A’ rating for forests. Through its significant demonstrable actions in these areas, Lenzing has taken a leading position on corporate environmental ambition, action, and transparency. The CDP forest score confirms that the production of Lenzing’s wood-based cellulosic fibers avoids contributing to deforestation, by combining a stringent wood sourcing policy, forest certification, and dedicated commitment to the CanopyStyle initiative.

Carbon Disclosure Project: double ‘A’ score

“We are particularly proud to be the only first-time discloser who has achieved an ‘A’ score for tackling climate change and acting to protect forests. The double ‘A’ score reaffirms our long-term sustainability strategy and is an exciting acknowledgement of our efforts in transparency and sustainable raw material sourcing,” says Stefan Doboczky, CEO of the Lenzing Group. “This recognition will boost our visibility among a broad group of important stakeholders.”

Forest Europe and national forest strategies

The Forest Europe political process was initiated in 1990 by the Ministerial Conference on the Protection of Forests in Europe, which comprises 46 states, to promote sustainable forest management in Europe. A set of indicators grouped into six different criteria was developed to measure the sustainability performance of European forests and set targets for improvement⁴⁷. Current efforts focus on adaptation to climate change⁴⁸, water protection, and biodiversity⁴⁹. As a major buyer of wood in Europe, the Lenzing Group supports these targets, which aim to ensure the continued and improved function of forests in their ecosystems while maintaining the long-term availability of wood as a raw material.

The Austrian bioeconomy strategy

The Austrian bioeconomy strategy was published in 2019⁵⁰. The current phase calls for the developments of an action plan. Lenzing is represented in the bioeconomy platform and provided input on the strategy and the development of the action plan in 2019 and 2020 through workshops and an online consultation. The action plan aims to balance the need for mobilizing timber as a raw material for the bioeconomy with assuring and improving the vitality and resilience of forests through adequate forest management. The strategy is prominently placed in the government working program and its implementation is assured. One area of the action plan of particular relevance to Lenzing is the continued development of the biobased circular economy, where Lenzing will contribute accordingly.

Canopy

Lenzing cooperates with Canadian NGO Canopy and maintains a continuous dialog with members of the CanopyStyle initiative to ensure responsible wood sourcing and protect the world's ancient and endangered forests from ending up in textiles and fibers.

Canopy publishes the Hot Button Report, an annual ranking of all wood-based cellulosic fiber manufacturers based on their wood and pulp sourcing performance, transparency and innovation. In recent years, Lenzing has shown continuous improvement in all of these criteria: Lenzing's Wood and Pulp Policy has been aligned with the CanopyStyle initiative for years, and in 2020, geographical locations of pulp suppliers were publicly disclosed in more detail (see <https://bit.ly/3tpvjqN>). Regarding alternative cellulose sources, Lenzing is the first company to produce and market lyocell fibers on a commercial scale using pre-consumer cotton scraps and post-consumer garments (for more information, please see chapter "Developing commercial-scale recycling technologies"). Furthermore, Lenzing takes an active part in the Zero Discharge of Hazardous Chemicals (ZDHC) initiative and proactively advances track and traceability of its fibers within the value chain.

In Canopy's latest Hot Button Report⁵¹, published in November 2020, Lenzing received its first-ever dark green shirt and improved its score from 26.5 buttons in 2019 to 30.5 in 2020, continuing its long record of top rankings.

In addition to activities related to its own supply chain, Lenzing supports conservation solutions in other regions, such as afforestation in Albania and support for the protection of ancient and endangered forests in Canada (Broadback Forest Quebec, Vancouver Island) and Indonesia (Leuser Ecosystem).

Wood K plus

Many Austrian companies, including Lenzing, and scientific bodies have joined forces in the "Kompetenzzentrum Holz", which is a leading research institute in wood and wood-related renewable resources in Europe.

A strategic dissertation supported by the Lenzing Group, finalized in 2020, aimed to achieve a deeper understanding of societal perceptions of sustainability in the global sourcing of wood. Sustainable forest management as a concept appears to be contested in the debate on environmental and social governance. The project systematically analyzes perceptions of this concept in scientific literature, in sustainability reports of large corporations, and in NGO communications. For more information, please see the "[Wood and Pulp](#)" focus paper and the resulting publications^{52, 53, 54, 55}.

Greenhouse Gas Protocol: Update on carbon removals and land sector initiative

The Greenhouse Gas Protocol has launched a process to develop new standards or guidance on how companies should account for the following activities in their greenhouse gas inventories: carbon removal and sequestration, land use, land use change, bioenergy. One starting point for the initiative is the criticism of carbon neutrality for bioenergy and emissions from biogenic sources. In Lenzing's view, sustainably managed forests and plantations are key elements for climate change mitigation through carbon sequestration in the forest, harvested wood products, and replacement of fossil-based materials that have high carbon footprints. Moreover, sustainably managed semi-natural forests are the most successful way to protect biodiversity and enable people to enjoy the benefits of forests in the form of recreation or micro-climate benefits ("ecosystem services"), for example.

Raw material security

The outcome of these ongoing considerations will have a decisive impact not only on the wood-based fiber industry but on the entire wood-based bioeconomy. Lenzing has signed up for the review group to comment when the technical working groups have drafted the first documents.

Sustainable chemicals sourcing

The most important chemicals used – amounting to approximately 85 percent of the overall purchase volume – are caustic soda (NaOH), carbon disulfide (CS₂), sulfuric acid (H₂SO₄), sulfur (S), sulfur dioxide (SO₂), softening agents, flame retardants, modifiers, N-methylmorpholine N-oxide (NMMO), titanium dioxide (TiO₂), and zinc sulfate (ZnSO₄). Figures for chemical sourcing are not provided for confidentiality reasons.

Supplier assessments using the sustainability criteria provided in EcoVadis tool are described in the Sustainability Report 2017, page 63. The target of assessing 80 percent of the most important suppliers (by purchasing value) was reached in 2019. New targets are in development. Nevertheless, additional suppliers continue to be assessed (table 08). Global Purchasing developed its suppliers with respect to sustainability. The overall EcoVadis Score achieved by the Lenzing Group's suppliers (50.1) is much better than the average EcoVadis Score (42.9).

Number of suppliers responding to Ecovadis questionnaire since the introduction of the assessment in 2017 Table 08

Year	Suppliers who responded
2017	82
2018	93
2019	102
2020	152

Regionality* of purchased chemicals Table 09

	regionally*	non-regionally
2018	93 %	7 %
2019	91 %	9 %
2020	95 %	5 %

* regionally: same country and neighboring countries

80 percent of all purchased chemicals are sourced from fewer than 40 suppliers. Relationships with these suppliers are highly stable. Around 90 percent of the chemicals are sourced regionally⁵⁶ for the Lenzing Group as a whole (table 09).

Caustic soda purchasing

All Lenzing Group sites have procured caustic soda produced exclusively using mercury-free technology since mid-2018. The shift to membrane technology for caustic soda also improves energy efficiency and therefore shrinks the carbon footprint for this important raw material. Lenzing started a project to buy caustic soda produced with renewable energy. Since caustic soda is a major driver of indirect (scope 3) greenhouse gas emissions, this will improve the product and corporate footprints.

Transport and logistics

As it implemented its decarbonization strategy, Lenzing shifted the transportation of some inbound materials from road transport to rail transport to improve its CO₂ footprint i.e. transportation of sulfur purchased from one supplier was shifted from road to rail with a volume of approx. 400 tons starting in November 2020 and approx. 15,000 tons per year in the following years.

High Performer Award from the EPA Smart-Way® Transport Partnership⁵⁷

This award was given to site in Mobile (USA). SmartWay Partners submit efficiency and air quality performance data to the US Environmental Protection Agency (EPA) annually. EPA aggregates and divides the data into five ranked performance ranges. Smart-Way High Performers are partners whose efficiency and/or air quality performance falls within the top-ranked performance range. About five percent of the participating shippers (Lenzing's site in Mobile is categorized as a shipper) are designated as High Performers.

Afforestation and conservation project in Albania

Albania's forest areas have some of the greatest need for improvement in Europe. New forest management approaches were recently implemented by the government to address environmental problems and fulfill the current needs of society with respect to the sustainable use of natural resources.

The Lenzing Group initiated a forest conservation project in Albania in 2018. It aims to support the development of rural areas in Albania in the broader region of Shkoder (Ana e Malit) and Diber (Peshkopi) by using natural resources sustainably and fostering alternative income sources for communities. The following three project pillars have been defined:

1. **Afforestation of 20 hectares of degraded area in Ana e Malit**
2. **Modular pilot training in forest management for communities**
3. **Interdisciplinary vocational training in forestry**

50 percent of Ana e Malit's reported forest area is actually covered by forest vegetation. Annual floods make life difficult for the population, most of whom earn their living from agriculture. Tree planting, taken together with erosion control measures, will help reduce annual floodings on the long-term.

Cooperation with local community and NGOs

The project is co-financed by the Austrian Development Agency. It brings together Albanian and Austrian forest experts to increase forest management skills amongst communities, enables knowledge transfers between vocational schools and, last but not least, afforests 20 hectares of degraded communal land in rural Albania. The project also actively integrates the local community, students at the forestry school in Shkodra, and employees of an Eco-Social Farm.

Modular pilot training in forest management for municipalities

A local training center for forest management will develop modular training courses on forestry knowledge and specific issues such as safety and fire protection in collaboration with Austrian experts and Lenzing employees.

Actions in 2020

To protect human health during the COVID-19 pandemic, training courses were delayed and some meetings did not take place or were adapted to comply with COVID-19 regulations.

3,665 trees planted (1,875 Mediterranean pines, 500 oak, 990 hazelnut, 300 olive)

Erosion control measures finalized

All training modules finalized: four forest management, five fire prevention and four safety in forestry work training courses were held (despite COVID-19 restrictions while observing social distancing regulations)

Promotional leaflet for forest school including future job profiles and career opportunities for graduates (based on job market analyses for forestry and wood processing sector in Albania)

Three groups of students from the Austrian School in Shkodra further developed their thesis based on the idea of designing a tool to track the growth and failure rate of seedlings in the reforestation area. Finalization will be delayed due to COVID-19 restrictions.

Dearest Greta - my great adventurer,
dearest Paul - my little lion,

Sometimes it seems as if we humans have lost sight of what matters most. Things that we should really care for, such as looking after each other, making sure that everyone has equal opportunities in life or protecting our environment - unfortunately these are all things that we cannot take for granted.

But the time has come for us to stand up and make a difference.

The thought of working towards a future that will one day offer your children and grandchildren all opportunities in this region and for them to enjoy this same beautiful nature we have today motivates me every single day.

Never forget that the two of you are our greatest gift. You make us proud and forever grateful. We will always love you unconditionally, no matter what!

And now, off you go, you little rascals! Stand up and use your wonderful selves to make this world a little bit more livable and lovable.

We love you so much!

Your Mom

Michaela Bisjak ...

... a manager in personnel development, encourages and supports Lenzing's employees in unfolding their full potential based on their wishes and talents.

A letter to Greta and Paul

The time has come for us to stand up
and make a difference.

Michaela Bisjak



Decarbonization

Management approach

Material topic: Climate change

Importance for Lenzing

Global warming presents risks to society and material risks to companies all over the world

Being a role model and innovation driver assures Lenzing's business success

Combating global warming is important for Lenzing to protect its supply of raw materials

Opportunities

Driving the transition to a fossil-free production through a circular business model and innovation along the whole value chain

Offering end consumers a truly sustainable option: textiles and nonwovens made from wood-based cellulosic fibers that help mitigate climate change

Future-proofing Lenzing's growth: implementation of carbon-neutral technologies and low-carbon products

Becoming more resilient to the changing regulatory (e.g. tax) and business environment

Strengthening credible sustainability leadership among all stakeholders, securing product differentiation and price premiums

Collaborating with stakeholders and supply chain partners

Attracting impact investors

Risks

Risks of wood unavailability due to forest degradation (diseases, pests, etc.) as a direct consequence of higher average temperatures

Potential regulatory, technology, market and corporate reputational risks

Lenzing cannot contribute to its customers' CO₂ targets if Lenzing's fibers no longer meet customers' definition of sustainable raw materials

Any climate-related disruption to one of the production sites will influence the business model and its success

Guiding principles

"Naturally positive" sustainability strategy with "Decarbonization" and "Partnering for systemic change" as focus areas

Implementation of science-based target (SBT)

Commitment to UN Fashion Charter

ISO 9001:2015, ISO 14001:2015, and OHSAS 18001:2007 system certifications for the Lenzing Group

Group Environmental Standard

Due diligence processes and (ongoing) measures

Environmental management system based on ISO 14001:2015 (including risk assessment and internal audits to ensure effectiveness of the measures implemented)

TCFD reporting framework

Establishment of governance and steering committee

Definition of roadmaps for Group-level and site-level targets

Objectives

Reduction of specific CO₂ emissions by 50 percent per ton of product by 2030

Net-zero CO₂ emissions by 2050

Achievements/activities in the reporting year

Development of Group-level and production site-level roadmaps

Implementation of TCFD reporting

CDP Climate 'A' rating

Two new products have been launched with climate benefits

Responsible

Chief Executive Officer

Supporting

Corporate Communications

Corporate Sustainability

Corporate Controlling

Global Purchasing

Corporate Audit & Risk

Global QESH

Global Strategy and M&A

Perform.Improve.Team

Site Managers

Management approach

Material topic: Energy use

Importance for Lenzing

Fiber and dissolving wood pulp production are energy-intensive processes, part of the carbon strategy, and a cost factor

Opportunities

The biorefinery concept enables Lenzing to produce surplus renewable energy by recovering heat

Reducing primary energy consumption by increasing energy efficiency

Substituting fossil-based energy sources

Risks

Fossil-based energy and energy-intensive technologies carry potential regulatory, technology, market, and corporate reputational risks

Implementation of regional and national emission trading schemes

Energy shortage could compromise Lenzing's operations

Financial impacts of potential cost increases in energy prices

Inefficient energy conversion technologies have a potential impact on CO₂ emissions

Guiding principles

"Naturally positive" sustainability strategy with "Decarbonization" focus area

Lenzing Group sustainability targets

Due diligence processes and (ongoing) measures

Environmental management system based on ISO 14001:2015 (including risk assessment and internal audits to ensure effectiveness of the measures implemented)

TCFD reporting framework

Higg FEM

EU BAT

Objectives

Switching from fossil-based to renewable energy sources

Energy consumption reduction

Energy mix optimization by optimizing fiber production portfolio

New technology development

Achievements/activities in the reporting year

Start of construction work for a new air emission purification system at the Lenzing site (Austria)

Construction of dedicated gas pipeline and boiler improvements at the Nanjing site (China)

Continuous improvement of energy consumption

Initiation of large-scale photovoltaic project at the Lenzing site (Austria)

Responsible

Board members for wood and pulp and operations

Supporting

Global Engineering – Utility and Infrastructure Engineering

Global Purchasing

Global QESH

Perform.Improve.Team

Site Managers

Decarbonization

Achievements in 2020

1. Development of Group-level and production site-level roadmaps towards net-zero emissions
2. Implementation of TCFD in the global organization started
3. Improved climate change transparency and disclosure with CDP Climate – achieved leadership status with 'A' rating
4. Supplier engagement kick-started with key chemicals suppliers
5. Two new products with climate change benefits launched
6. Two production sites in Austria used renewable electricity
7. One production site (Nanjing, China) is well-placed to transition from coal to natural gas
8. Implementation of air purification and sulfur recovery plant in Lenzing, Austria, started (reduces scope 3 emissions)
9. A few pivotal projects were set up with dedicated responsibilities and budgets
 - a. Technology innovation: project launch with academic partners to decarbonize heating demand by developing high-temperature heat pumps with renewable electricity that replaces fossil fuel use for heating needs
 - b. An on-site renewable electricity generation project is in development

Lenzing had its ambitious science-based target (SBT) approved in November 2019 and has started implementing it. The following section provides information about the implementation in a few key areas

Lenzing's responsibility and science-based target

In line with the Paris Agreement and the UN SDG 13, the Lenzing Group set an ambitious science-based target of reducing CO₂ emissions (scope 1, 2 and 3) by 50 percent per ton of product by 2030 compared to a 2017 baseline. Lenzing also aims to achieve net-zero CO₂ emissions by 2050 (scope 1 and 2).

This target has been scientifically verified and approved by the Science Based Targets initiative, making Lenzing the first wood-based cellulosic fiber producer to have an approved SBT. Since the target is science-based, Lenzing's approach to combating climate change is considered to be in line with the Paris Agreement. Lenzing's decarbonization strategy is therefore based on reducing its emissions, not offsetting them, i.e. compensating for CO₂ emissions elsewhere.

Governance

A cross-functional project team was set up under the leadership of the Chief Executive Officer. The CEO's ownership ensured that the project progressed adequately. The project management team includes a steering committee to enable alignment across all decision-makers and functions, expedite decisions, and ensure buy-in from different owners of capital projects, sites, and functions.

A dedicated global project manager is operationally responsible for facilitating the implementation process at Group level and supporting functions and production sites globally.

To ensure engagement and empowerment, production sites and functions are responsible for developing and implementing roadmaps and so can effectively manage their portfolios and specific agendas in the medium and long term.

Strategy, targets, and roadmaps

Lenzing's corporate strategy, sCore TEN, includes a climate change target that serves as a milestone for the long-term science-based target (SBT) and ensures the inclusion of climate change in the business strategy and decision-making.

To effectively achieve the SBT, the global project manager developed a high-level SBT roadmap for the Group with potential site-level targets. These scenarios and site targets were aligned with the CEO, the steering committee, and other decision-makers of key functions and regions. This has provided guidance and direction and facilitated the development of roadmaps by each production site and function.

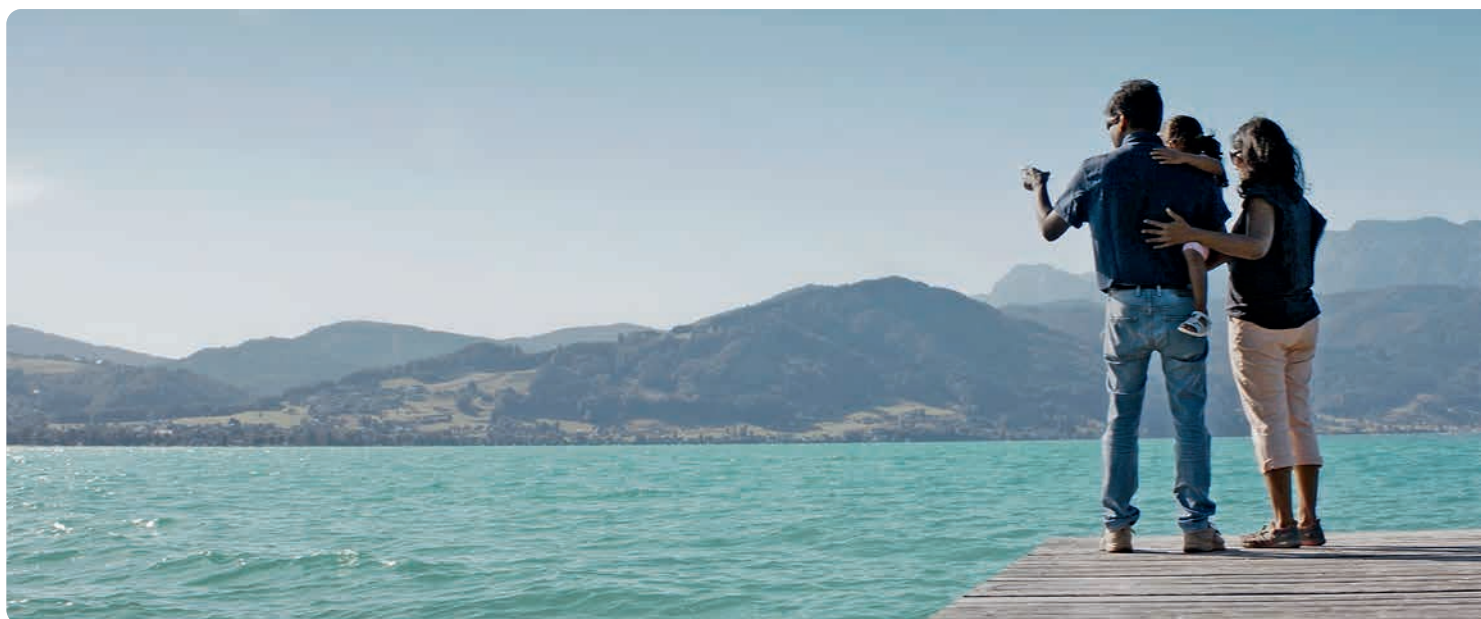
With the support and facilitation of the global project manager, each site manager and the corresponding team developed a site-specific roadmap to implement the agreed targets. This has ensured that the line function and team responsible for implementation takes ownership of the roadmap development and thus can plan for its effective implementation. The production sites have considered the facility context (e.g. production set-up, fuel mix), improvement potentials in different areas, site strategy, and expectations of different stakeholders.

Science Based Targets initiative

The Paris Agreement was adopted by consensus at the 21st United Nations Climate Change Conference (COP21) in Paris in 2015. The agreement's aim is to combat climate change by keeping the increase in global temperatures above pre-industrial levels well below 2 degrees Celsius this century and to pursue efforts to limit the increase temperature even further to 1.5 degrees Celsius.

The Intergovernmental Panel on Climate Change (IPCC) published its new Special Report in 2018 giving more clarity on the carbon reductions required to keep the increase below 1.5 degrees Celsius. According to this report, global carbon emissions need to reach net zero by 2050.

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 for consistency with the level of decarbonization required according to the latest science to keep global temperatures from increasing more than 2 degrees Celsius above pre-industrial temperatures.



Decarbonization

Integration in functions and projects

Research and Development: A project was launched with academic partners to decarbonize heating demand by developing high-temperature heat pumps with renewable electricity that replaces the use of fossil fuel for heating. This project has received the requisite financial support and resources. All new product innovations need to go through sustainability evaluations to ensure the new products (e.g. TENCEL™ Lyocell Filament) offer benefits over conventional products by using life cycle assessments.

Operations: All production sites have been engaged to develop their targets and roadmaps. Please see the above section on strategy, targets, and roadmaps for more information. Some emission reduction projects implemented globally during the reporting period include:

- Two production sites in Austria have bought 100 percent renewable electricity from the public grid.
- The production site in China continued to transition its energy generation plant from coal to natural gas. This will substantially reduce the site's CO₂ emissions and improve Lenzing products' CO₂ footprint.
- At the Lenzing site, an on-site renewable photovoltaic electricity generation plant was prepared for commissioning in 2021.
- At the Lenzing site, an air purification and sulfur recovery project is also being implemented. The plant will be commissioned in the first quarter of 2021. In addition to the increase in the recycling rate, there will be a reduction in scope 3 CO₂ emissions due to the avoided sulfuric acid purchase. Furthermore, the use of sulfur in the air purification plant leads to a reduced use of natural gas at the site and thus to lower scope 1 CO₂ emissions.

EUREM AWARD – Lenzing's heat recovery project recognized

About the award

The EUREM Award recognizes the best projects of the European Energy Manager (EUREM) training courses. This training program has been running for several years in more than 20 countries in Europe, South America, and Africa. The international training program "EUREM – European Energy Manager" comprises several modules and calls for the development of a project that aims to save energy at the participant's company.

About the project

Lenzing won the award for an innovative project that recovers heat from wastewater for heating the inlet air. The new heat recovery plant can supply most of the heat needed, which would be enough to heat around 3,250 single-family homes.

After completion, the Lenzing site will be able to reduce CO₂ emissions by more than 3,700 tons per year. The project makes a significant contribution to increasing energy efficiency and combating climate change in addition to lowering costs. The next set of ventilation systems is already being designed. They will also be heated by heat recovered from wastewater streams.

Business management and sales: A process has been launched to identify and support the development of new product offerings with climate change benefits. See below in "Business value" for more information.

Procurement and supplier engagement: Supplier engagement has been carried out with key chemical and pulp suppliers to reduce Lenzing's scope 3 emissions. These engagements and partnerships intend to develop raw materials with lower GHG and other impacts. Lenzing is focused on maintaining long-term relationships, helping suppliers achieve improvements, and being part of their change journey by buying their green products.

Strategy, mergers and acquisitions: Every capital project, both brownfield and greenfield developments, needs to align with the climate change strategy and targets. In this regard some projects have been assessed for their benefits and contribution to climate change impact as part of the Managing Board's decision-making. Internal carbon pricing for key projects is used to support this process.

Finance and controlling: Climate change metrics have been integrated into the capital allocation and periodic management reporting process of operations.

Monitoring and reporting

The CEO and steering committee monitor project progress reports quarterly.

A Group-wide TCFD process has been implemented to identify, prioritize, quantify, and mitigate climate change risks in operations and the supply chain.

To improve transparency and measure Lenzing's progress against key industry-leading disclosure platforms, Lenzing has submitted CDP climate disclosures and been rated 'A' for its leadership-level performance.

A process has been created in the Finance and Controlling department to facilitate management reporting and align corporate priorities on key topics like climate change with proper capital allocation. This process defines which projects need to get financing and thus removes obstacles to their timely implementation by supporting management's decision-making.

Lenzing's climate risks and opportunities

This year, Lenzing took its ambition of being a climate-resilient company further and addressed the recommendations of the Task-Force on Climate-Related Financial Disclosures (TCFD). The TCFD's recommendations provide guidance to companies on integrating climate risks and opportunities into financial and non-financial reports and eventually aligning climate risks with the enterprise risk management. The TCFD gives their recommendations in four areas: (1) governance, (2) strategy, (3) risk management, and (4) metrics and targets. Lenzing focused on risk management, metrics and targets in its 2020 analysis.

There are two different categories of risks at the bottom of the TCFD recommendations: On the one hand, there are political, legal, technological and market risks, known as "transition risks". On the other, there are acute and chronic risks, known as "physical risks". Transitional risks arise from transitioning to a low-carbon economy (e.g. regulatory changes), whereas physical risks are environmental risks leading to negative acute or chronic impacts on a company (e.g. water scarcity or extreme weather events).

In 2020, a Group-wide TCFD assessment process was implemented with the goal of identifying, prioritizing, quantifying and mitigating climate change risks and seizing opportunities in Lenzing's operations and in its supply chain. The process was designed to allow the integration of identified risks and opportunities into the enterprise risk management. To manage climate-related risks and opportunities, Lenzing established a high-level ESG committee with the Managing Board and leaders from functions such as sustainability, business management, strategy, investor relations, controlling, and risk management. The team began by conducting a TCFD analysis and evaluating potential impacts along the Group's supply chain. This yielded a risk and opportunity inventory. The collected risks and opportunities were then qualitatively assessed in two climate scenarios:

- 2 °C Global Warming Scenario (IEA ETP 2DS) – high mitigation scenario
- 3 °C Global Warming Scenario (SSP2-RCP6) – most likely scenario (due to current policies)

Decarbonization

Risks and opportunities were evaluated within the scenario analysis for their short-term (1-2 years), mid-term (2-5 years), and long-term (5-30 years) consequences. The qualitative analysis was then used to extrapolate and qualitatively assess key risks and opportunities in order to estimate their potential financial impact and probability of occurrence. Lenzing then derived a KPI scorecard with indicators and targets on the key climate-related risks and opportunities based on the TCFD recommendation for metrics and targets.

From 2021 on, the Group intends to allocate identified risks to risk owners in the business areas and update the risk portfolio if necessary.

The following table describes key climate risks and opportunities and elaborates on Lenzing's response and mitigation measures. A TCFD Index in the Annex of this report shows the link between the TCFD recommendations, the contents of this report, and other external publications such as CDP Climate.

Characterization: Transition risks

Table 10

Risk/opportunity description	Lenzing's response
Emerging regulations on carbon pricing	
<p>Increasing regulation, especially on green taxation and carbon pricing, constitute a relevant risk for Lenzing. In the countries where Lenzing operates, carbon-intensive processes, regulations on greenhouse gas emissions have already been implemented (energy efficiency improvements, regulated emission allowances) and stricter regulations that would increase the costs of greenhouse gas emissions are under development.</p>	<p>Lenzing is implementing stringent energy efficiency measures in order to reduce its potential exposure to green taxation. In 2019, Lenzing set a science-based target (SBT) to reduce its greenhouse gas emissions (scope 1, 2 and 3) by 50 percent per ton of pulp and fibers sold by 2030 (compared to a 2017 baseline). Lenzing is thereby mitigating the risks from emerging carbon pricing regulations. Lenzing is pursuing the vision of becoming the first net-zero player by 2050 through its decarbonization strategy.</p>
Increased biomass costs	
<p>Wood is the Group's most important natural resource for manufacturing biobased fibers. Despite its sustainable sourcing policy and backward-integrated production, wood prices are at risk of increasing due to climate change, growing global biomass demand, and alternative land use. Growing competition for land use and natural resources is affecting long-term structural biomass prices.</p>	<p>In order to mitigate the risk of increasing biomass costs and improve supply chain security, Lenzing is building a modern dissolving wood pulp plant (DWP) with integrated plantation and forest operations in Brazil. The new plant will improve the Group's cost position, and, being designed to be sustainable, will set a milestone in Lenzing's strategy to achieve carbon neutrality.</p>
Reputational risk in the textile sector	
<p>The textile industry, where Lenzing's products are commonly used, is being scrutinized for its sometimes unsustainable and resource-intensive raw material consumption and production processes. Polyester and conventional cotton in particular face structural issues that could lead to negative media coverage and further stigmatize the sector, which could, in turn, influence the Group's revenue.</p>	<p>Lenzing responds to potential negative media coverage on the fashion and textile industry by proactively disclosing information on its business practices and environmental footprint. Lenzing works through certain communication channels to underline its contributions to a low-carbon economy and the net benefits created by its speciality products compared to average industry-standard products in the market.</p>

Characterization: Physical risks

Table 10

Risk/opportunity description	Lenzing's response
Chronic physical climate risks	
Climate models indicate that rising global mean temperatures will lead to increased chronic climate hazards. The Group's operations and supply chain will increasingly be impacted by extreme weather events, water scarcity, and other physical hazards. Increasing work-related heat stress could cause reduced work capacity, lower labor productivity and decreased economic output for Lenzing.	Lenzing's Group Policy for Safety, Health and Environment (SHE) outlines a clear roadmap to ensure no accidents cause harm or damage to people or the environment. Lenzing is conducting case studies to mitigate the potential implications of rising mean temperatures on labor productivity in which technical, organizational, and personal measures are elaborated.

Characterization: Transition opportunities

Table 10

Risk/opportunity description	Lenzing's response
Increased demand for low-emission products and product innovation	
As consumer needs and preferences shift toward low-emission products, the development and expansion of low-emission goods and services is expected to possess substantial growth potential. Lenzing applies life cycle-based thinking, sustainable sourcing, efficient use of biomass, and partnerships with stakeholders along the value chain in order to contribute to more sustainable consumption and production patterns. All these factors mean that Lenzing's products offer net benefits.	Lenzing has embarked on an ambitious growth strategy to benefit from expected higher demand for responsibly resourced/low-emission products. Lenzing plans to invest more than EUR 1 bn in new lyocell fiber production and dissolving wood pulp facilities in the coming years. The investment plans will help Lenzing to further reduce its Group-wide carbon emissions and enhance the security of the Group's raw material supply. Sustainability will be the key driver of construction and operation in all projects. Lenzing is also evaluating each innovation for sustainability improvements.
Decarbonization strategy de-risks operations	
The Lenzing Group considers rapid decarbonization to be a major business opportunity to de-risk its operations, build resilience, launch products with climate benefits, and harvest energy efficiency gains. Lenzing will substantially reduce its greenhouse gas emissions in the coming years through a number of corresponding measures (decarbonization strategy) and science-based targets (50 percent reduction of greenhouse gas emissions per ton of product by 2030 compared to 2017). Furthermore, Lenzing strives to reach net-zero greenhouse gas emissions by 2050.	Lenzing's science-based target has been approved by the SBT initiative, making Lenzing the first wood-based cellulosic fiber producer to have an approved SBT. Lenzing's decarbonization strategy is based on reducing its emissions, not offsetting them. To reach the target, Lenzing set up a cross-functional steering committee to make necessary decisions under leadership of the Group's CEO. Lenzing's greenhouse gas abatement activities will be a series of measures reducing carbon emissions both inside its operational boundaries and along its supply chain.

Decarbonization

Business value

To create traction for climate change target implementation, it needs to be linked with business value such as creating new revenue streams, launching new products, and attracting new investors and long-term impact investors who will ensure sustainable growth and resilience for the company. The following initiatives have been accomplished recently.

Attracting new and impact investors

In 2019, Lenzing successfully positioned a bonded loan bound to its sustainability performance. The success of the EUR 500 million hybrid bond issued in the reporting year is a vote of confidence in Lenzing by the capital market.

Launch of new premium product – carbon-zero TENCEL™ fibers

Lenzing has successfully launched two specialty (lyocell and modal) fibers with low climate change impacts. These carbon-zero TENCEL™ branded fibers will help Lenzing's customers, especially brands and retailers, to reduce their scope 3 emissions from raw material production and fulfill their scope 3 science-based target commitments. For more information, please see the "Net benefit concept" chapter, page 28.



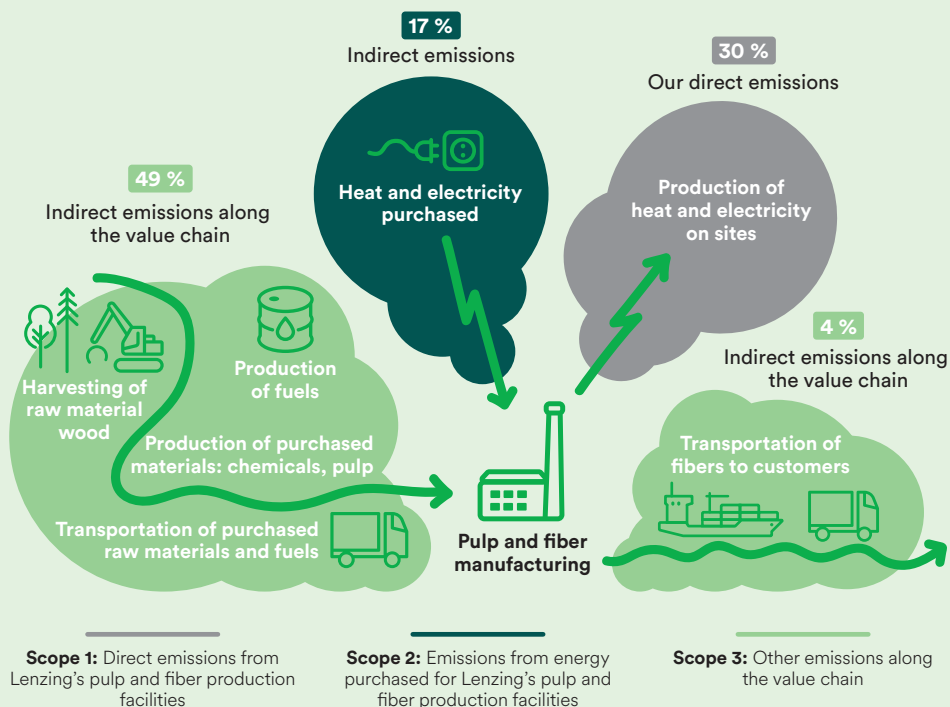
The Lenzing Group's current carbon footprint

Lenzing's scope 1, 2 and 3 emissions

The GHG Protocol classifies emissions into 3 scopes: Scope 1 emissions cover all direct emissions from a company's activities or activities under their control, including fuel combustion on site, for example, from burning coal and own vehicles. Scope 2 emissions cover indirect emissions from electricity and heat purchased and used by the company. Scope 3 emissions are defined as all other indirect emissions from the organization's activities occurring from sources that it does not own or control and covering emissions along the value chain⁵⁸, for example, purchased goods and services such as chemicals and logistics.

The Lenzing Group's carbon footprint

Figure 13



Decarbonization

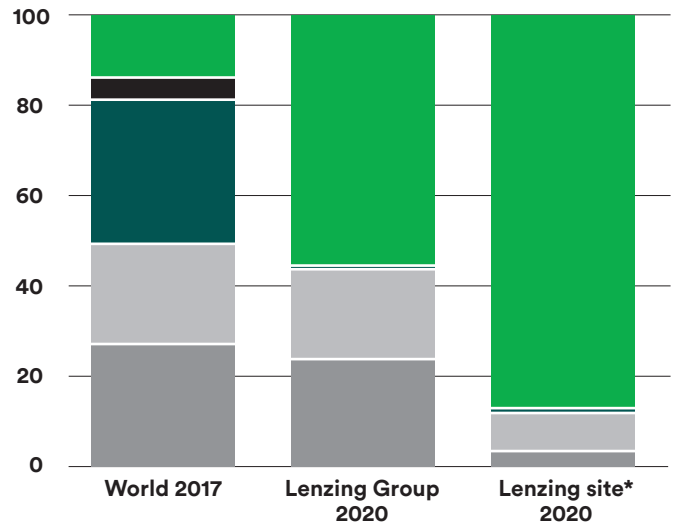
Despite Lenzing's business model, which is firmly rooted in the use of wood from sustainable forests and plantations that sequester carbon, the company does not assume that this alone is enough, given current climate science. A company may claim carbon neutrality while continuing its own high-carbon activities as long as it offsets its carbon emissions. Thus, Lenzing goes further by drastically reducing the current fossil-based emissions from its own production and supply chain and innovating new technologies for further decarbonization to pave the way towards carbon neutrality by 2050. The Group advocates this bold approach to its industry rather than being complacent about the inherent climate advantage of the wood-based fibers business model.

Fuel sources used in the Lenzing Group Table 11

Facility	Main fuels used
Lenzing, Austria	Biomass and waste, natural gas, coal
Heiligenkreuz, Austria	Natural gas and biomass
Paskov, Czech Republic	Biomass and biogas, natural gas
Grimsby, UK	Natural gas
Mobile, USA	Natural gas
Nanjing, China	Coal, natural gas
Purwakarta, Indonesia	Coal, natural gas

Energy sources of the world, Lenzing Group and Lenzing site Figure 14

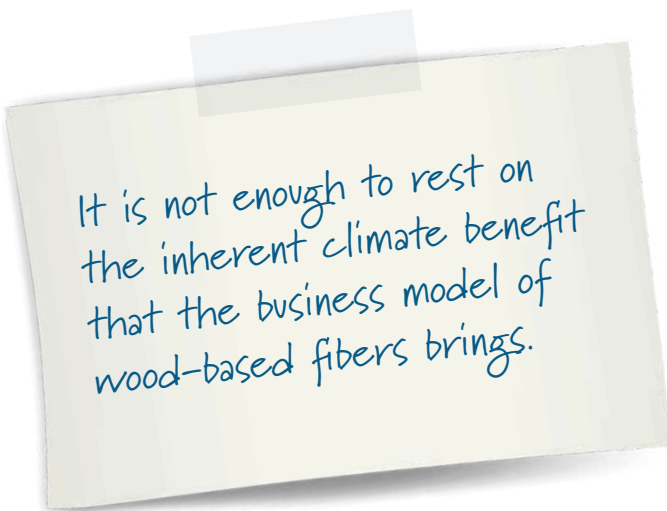
- Renewables (biomass, wind, solar, hydro, waste, etc.)
- Nuclear
- Crude oil
- Natural gas
- Coal



* incl. RVL

Sources: World Energy Outlook 2017, Lenzing AG

Includes own energy consumption and energy from providers, excluding grid power, which is a minor fraction of total scope 1 and 2 energy consumption in the Lenzing Group. The production sites in Paskov, Grimsby, Mobile, and Heiligenkreuz do not use coal as a fuel source in their own operations, whereas the Asian sites, i.e. Nanjing and Purwakarta, predominantly use coal.



The production volume of pulp and cellulosic fibers is directly linked to the amount of consumed energy and, hence, emissions related to energy use. In 2020, the COVID-19 pandemic and the correspondingly challenging market environment forced temporary shutdowns of production lines or even whole sites, which led to a significant decrease of primary energy consumption (table 12). However, pulp production was not affected as hard as fiber production, thus no such changes occurred for the consumption of renewable energy, mainly prepared by Lenzing's biorefinery systems. The resulting increase in the share of renewable energy shows not only at the pulp production sites but also at the Group-level (figure 14).

In the same way, specific consumption of primary energy follows the downward trend of the company's decarbonization strategy, which is based on reduction of energy consumption and improving the energy mix (see also figure 14). For example, in 2020 the Lenzing sites obtained renewable electricity from the public grid, which now applies for both Austrian production sites for the first time. Constantly implementing optimization steps and energy consumption reduction measures also positively influence emissions of CO₂ (table 13) despite the effects of unstable market conditions on production, especially of fibers. In line with its science-based target approved in 2019, Lenzing reports scope 3 emissions from the current reporting year onwards.

Primary energy consumption of the Lenzing Group

Table 12

	2014	2018	2019	2020
Primary energy consumption* (million GJ)	43.10	42.62	42.26	37.99
Fossil primary energy (million GJ)	23.39	22.44	22.21	18.30
Renewable primary energy (million GJ)	19.71	20.18	20.05	19.70
Specific primary energy consumption** (index in percentage based on GJ/t, 2014 = 100 %)	100.0 %	98.8 %	98.1 %	97.3 %

* Lenzing reports both direct and indirect energy use. According to the GHG protocol, scope 1 covers direct energy consumed within the Lenzing Group and scope 2 covers the energy bought from energy suppliers and national grids. Primary energy here includes all forms of energy such as electricity and steam. All energy sources such as fossil (coal, oil, natural gas) and renewable (biomass, waste fuels, water, wind, etc.) are included.

** All specific indicators in this chapter are reported per unit of production (pulp and fiber). This is applicable for all specific indicators in this report except for CO₂ emissions.

Decarbonization

Greenhouse gas emissions of the Lenzing Group (million tons CO₂ eq.)

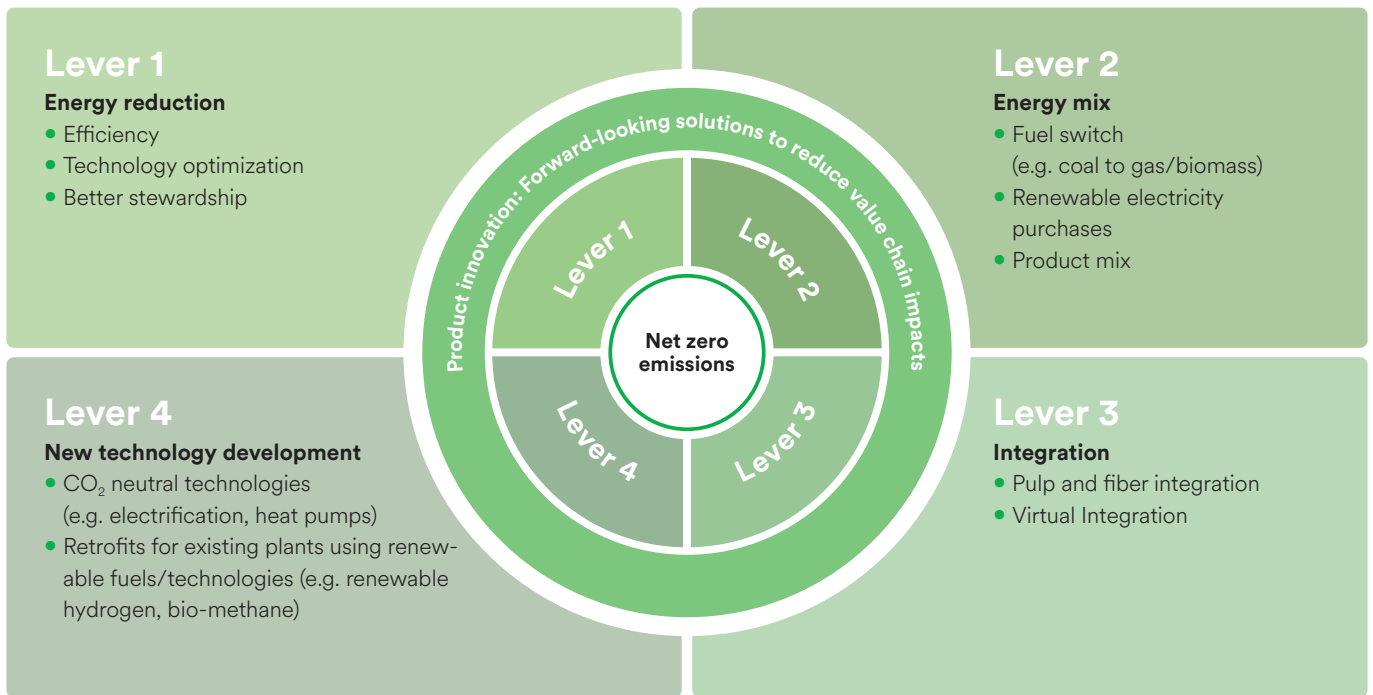
Table 13

	2017	2018	2019	2020
Direct emissions, scope 1	1.16	1.15	1.10	0.88
Indirect emissions, scope 2	0.63	0.60	0.53	0.50
Total scope 1 & 2 GHG emissions^{a)}	1.78	1.75	1.64	1.38
Indirect emissions, scope 3 ^{b)}	1.90	1.99	1.92	1.52
Total scope 1, 2 & 3 GHG emissions	3.68	3.74	3.56	2.89
Total biogenic CO₂ emissions, scope 1			1.86	1.52
Greenhouse gas emissions intensity^{c)}				
Specific emissions, scope 1 & 2 (tons CO ₂ eq. per ton product sold)	1.67	1.58	1.44	1.40
Specific emission index, scope 1 & 2 (index in percentage based on t CO ₂ eq./t, 2017 = 100 %)	100.0 %	94.4 %	86.1 %	83.5 %
Specific emissions, scope 3 ^{b)} (tons CO ₂ eq. per ton product sold)	1.78	1.79	1.70	1.54
Specific emission index, scope 3 ^{b)} (index in percentage based on t CO ₂ eq./t, 2017 = 100 %)	100.0 %	100.6 %	95.2 %	86.4 %
Specific emissions, scope 1, 2 & 3 ^{b)} (tons CO ₂ eq. per ton product sold)	3.46	3.37	3.14	2.94
Specific emission index, scope 1, 2 & 3 ^{b)} (index in percentage based on t CO ₂ eq./t, 2017 = 100 %)	100 %	97.6 %	90.8 %	85 %

- a) Includes both scope 1 and 2 emissions of all greenhouse gases (CO₂, CH₄, N₂O, HFCs, PFCs, SF₆, NF₃), expressed as CO₂ equivalents. Scope 1 emissions are calculated based on emission factors from the EU Emission Trading System and scope 2 emissions are calculated according to a market-based method. Scope 2 emissions according to the location-based approach are 0.56 mn tons CO₂ equivalents in 2020.
- b) Scope 3 includes categories 1, 3, 4 and 9 – which covers 93 % of total scope 3 emissions in 2017
- c) Intensity indicators (i.e. specific CO₂ emissions) are reported based on pulp and fiber sold as in SBT.

Levers to meet science-based target

Figure 15



Lenzing will deploy different levers based on technical feasibility for scope 1 and 2 emissions. They can be broadly grouped under four categories (see figure 15). Innovation is the Lenzing Group’s core competence and what allows it to launch new products that reduce climate-related impacts on the downstream value chain. Those avoided emissions are currently outside the scope of the science-based target methodology, so Lenzing will not claim them as part of the company’s target achievement. However, the following levers are key to achieving the committed target:

- The first lever addresses energy efficiency. Relevant measures include replacing inefficient pumps, optimizing current technologies, planning efficiently, and further reducing losses to save energy. Better stewardship ensures efficient running of equipment with strict maintenance scheduling and immediately responses to malfunctions and leaks. Additionally, energy efficiency improvements will be supported by cross-learning and taking advantage of synergies among the Lenzing sites and industry peers.
- The second lever concerns fuel. Reducing and avoiding the use of fossil fuels by switching from high-carbon fuels to low-carbon or carbon-neutral fuels (scope 1) as well as scaling up the procurement of renewable grid electricity (scope 2) will make a major contribution to target fulfillment.
- Third, Lenzing seeks future growth with integrated pulp and fiber production facilities. “Integrated” means that pulp and fiber production are combined at one and the same site. This has two effects: It provides renewable bioenergy for fiber production and also saves energy by avoiding pulp drying and pulp transportation. This will ensure economic growth while reducing the Group’s CO₂ emissions. Other opportunities will be explored, including virtual integration, i.e. using surplus renewable electricity produced at one production site at another site in a different location.

Decarbonization

- The fourth lever focuses on developing technologies to decarbonize heat generation. As most of the energy for fiber production must be supplied in the form of steam, the decarbonization of heating will present the biggest challenge for Lenzing. Electrification-based solutions will therefore play an important part. For example, a heat pump based on renewable electricity can partially switch the power source for generating heat from fuel to electricity. Similarly, alternative fuels need to be developed, such as hydrogen produced with renewable electricity or bio-methane generated from organic waste.

For scope 3 emissions reduction, Lenzing is engaging suppliers such as pulp and chemicals producers and transportation service providers. Lenzing has intensified its dialog with suppliers in a collaborative approach. This dialog is part of the EcoVadis-based supplier sustainability assessment tool, which helps to understand the targets and progress that suppliers make annually. In addition, Lenzing periodically conducts conversations with key suppliers to find different options and approaches.

Avoided emissions: Forward-looking solutions and value chain contributions

The Lenzing Group is also committed to reducing emissions all along the value chain. Table 14 shows in detail how Lenzing is contributing to climate protection along the value chain. Please see table 09 in Sustainability Report 2019, and the [website](#) for the comprehensive list of contributions in the value chain.

Wood and pulp sourcing is at the root of Lenzing’s business model. This part of the value chain harbors important climate change risks, on the one hand, as well as large mitigation opportunities through carbon removal and replacement of fossil-based materials, on the other.

In addition to CO₂-abatement activities to reduce direct and supplier emissions, Lenzing will contribute to decarbonization of its customers by actively developing products that reduce their value chain emissions. For product innovation examples please refer to the “Net-benefit concept” chapter.

How forests and wood products affect climate change mitigation

Table 14

Topic relevant to climate change	Details	Contribution of the Lenzing Group
CO ₂ sequestration in sustainably managed forests	Sustainably managed forests absorb more carbon in the forest and in harvested wood products, thus acting as a net sink on a long-term perspective. In Europe, forest areas and carbon stock are increasing.	Wood sourcing from sustainably managed forests and active engagement with pulp suppliers for improvements, and other stakeholder activities (e.g. research in Kplus WOOD)
Substitution of raw materials with higher climate impact	Fibers which cause a lower carbon footprint in their manufacturing process and life cycle	Replacing synthetic or natural fibers of higher carbon footprint with low-footprint Lenzing fibers
Adaptation of forests to climate change	Share of beech in Europe increases, but uses are limited. Adaptation by higher species diversity can be faster in managed forests	Economic valorization of beech wood for dissolving wood pulp production in Lenzing (higher value added than fuel wood use)
CO ₂ emissions from deforestation	Ensure that no deforestation occurs in the supply chain	Lenzing’s Wood and Pulp Policy forest certificates (FSC®, PEFC™), transparency through CDP Forest, implementing Canopy pathway, ranked with Dark Green Shirt in the CanopyStyle Initiative

Stakeholder engagement and policy interventions

Lenzing strongly believes that its own efforts should be complemented by engagement with industry stakeholders and civil society because the climate crisis needs collaboration to bring about systemic change. Lenzing signed the UN Fashion Charter in 2018 and is an active member of its working groups to develop solutions to industry challenges. Lenzing also supports World Resource Institute (WRI) and Apparel Impact Institute (AII) efforts to develop a high-level roadmap for the apparel and footwear industry.

A supportive policy framework and incentives are needed to realize measures such as fuel switching. Natural gas is currently more expensive than coal in many parts of the world. Sustainable biomass fuels are not sufficiently available in the required amounts. Similarly, renewable grid-based electricity is not widely and economically available in many parts of Asia. To advance low-carbon solutions, a level playing field is needed, such as global carbon pricing and elimination of fossil fuel subsidies. Industry and local governments should ramp up efforts to generate more renewable electricity to supply current facilities and cater for future growth.

UN Fashion Charter

The Fashion Industry Charter for Climate Action under the auspices of UN Climate Change is a broad stakeholder movement in the textiles, clothing, and fashion industry aiming at a holistic commitment to climate action. Signatories commit to climate targets and ultimately to fully decarbonizing the fashion industry value chain in alignment with the Science Based Targets initiative.

The targets are to achieve net-zero greenhouse gas emissions no later than 2050 and reduce emissions by 30 percent by 2030. An initial report describing how to achieve the aims, the "Climate Action Playbook"⁵⁹, was published in September 2020. It points out major greenhouse gas reduction opportunities in fiber production, the fashion industry's main raw material.

Lenzing was a founding member of the initiative and contributes actively to the working group on raw materials, contributing its longstanding experience with the production of sustainable wood-based fibers and assessment of environmental impacts through life cycle analyses (LCA). The working group is currently finalizing a report called "Identifying Low-Carbon Sources of Cotton, Polyester and MMCF Fibers", which will be issued in two parts at the beginning of 2021. The report will contain an overview of existing LCA studies and identify opportunities for improvement by switching energy sources, changing technology, and innovating.

World Economic Forum (WEF)

As a partner of the World Economic Forum, the Lenzing Group supports various initiatives, among them the CEO Climate Leaders Alliance's ambition to mitigate the effects of climate change. As a member of the "Shaping the Future of Advanced Manufacturing and Production" platform, Lenzing promoted the blockchain project that was initiated together with TextileGenesis™ to trace fibers from their origin to the final garment sold at fashion brand stores at various stakeholder meetings in Davos and in the Sustainable Development Impact Summit of the World Economic Forum.

Lenzing also serves on the steering committee of the Nature Climate Solutions Alliance, a multi-stakeholder group convened by the World Economic Forum and the World Business Council for Sustainable Development (WBCSD), whose aim is to scale up affordable natural solutions for climate change mitigation to help meet the goals of the Paris Agreement. It wants to raise ambitions to expedite voluntary action, encourage compliance markets, and strengthen the narrative of natural climate solutions for business and governments.

Roadmap to Zero

Lenzing contributed to the development of the "Roadmap to Zero" publication, which intends to catalyze industry action against climate change with proven approaches and measures. This document was prepared by the World Resources Institute (WRI) along with the Apparel Impact Institute (AII), a spin-off from Sustainable Apparel Coalition (SAC), which identifies, funds, scales, and measures the apparel and footwear industry's proven environmental impact solutions⁶⁰.

Lenzing is a founding partner of the Renewable Carbon Initiative

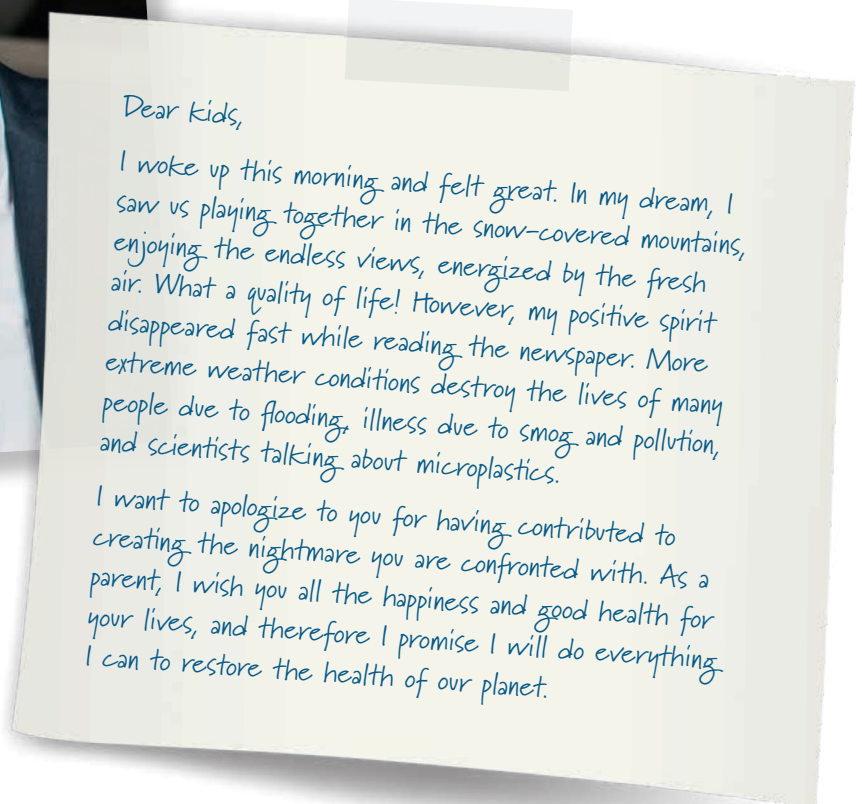
Eleven leading companies from six countries, among them the Lenzing Group, founded the Renewable Carbon Initiative (RCI) in September 2020 under the leadership of nova-Institute (Germany). The aim of the initiative is to support and speed up the transition from fossil carbon to renewable carbon for all organic chemicals and materials. Besides Lenzing, these ten companies are founding members of the RCI, which also form the Core Advisory Board: Beiersdorf (Germany), Cosun Beet Company (The Netherlands), Covestro (Germany), Henkel (Germany), LanzaTech (USA), NESTE (Finland), SHV Energy (The Netherlands), Stahl (The Netherlands), Unilever (UK) and UPM (Finland). The newly launched Renewable Carbon Initiative strives to herald the end of the fossil age for all organic chemicals and materials by 2050. Within the RCI Lenzing will especially focus on further greening up the textile and nonwoven businesses.

Interview with the Managing Board



Robert van de Kerkhof
Member of the Managing Board


Robert van de Kerkhof, member of the Managing Board, on the impacts of COVID-19 on sales and customers and on the trends that will remain long after 2020.



What consequences did the COVID-19 crisis have for customers and sales?

Robert van de Kerkhof: 2020 will be a year to remember. We have all gone through experiences that we had never seen before. Unfortunately, many of the experiences are negative, such as the significant restrictions to our social lives due to shop closures, travel restrictions or working-from-home arrangements. Some of us have contracted COVID-19 ourselves or even lost family or friends. We must not forget these experiences and

should do everything we can to prevent future generations from experiencing them, too. However, some aspects have been positive. Spurred by a newfound focus on our health, we witnessed explosive growth in consumer awareness of sustainability in 2020. More brands than ever are launching sustainable collections to satisfy changing consumer preferences and are actively encouraging customers to make environmentally responsible purchase decisions. These trends are laying a crucial foundation for the future of our industry.



The current situation is also putting pressure on many of Lenzing's customers and partners along the textile value chain.

Robert van de Kerkhof: The pandemic has severely affected the textile and apparel industry. By current estimates, more than 30 percent of business in the fashion industry has been wiped out. The industry has its hands full trying to cope with this unprecedented situation. Lenzing will continue to support its partners in the spirit of customer intimacy and long-term partnership.

The Lenzing team's outstanding efforts garnered a number of prestigious awards in 2020.

Robert van de Kerkhof: We are proud of what we have accomplished and are pleased that our achievements have gained so much recognition. Echoing that, we recently received another encouraging honor as Lenzing was placed on the Carbon Disclosure Project's prestigious "A List" for efforts tackling climate change and protecting forests. I want to highlight this award because it is an inspiring achievement and a testament to our collaborative ambition, action and transparency across the globe.

Do you think the increased importance of the hygiene and nonwovens industry due to COVID-19 will continue beyond 2020?

Robert van de Kerkhof: Many of our hygiene value chain partners have seen strong demand throughout the pandemic. This has fueled relentless determination in the face of adversity, not just for our brand but among our co-branding partners as well, to continue innovating and researching sustainable materials that will see us emerge stronger from the pandemic. The consumer need for sustainable innovation in our industry provides the VEOCEL™ brand with an important opportunity to pave the way forward and ensure a more sustainable future for our planet.

Lenzing launched the #ItsInOurHands initiative at the end of 2019. How has it done so far?

Robert van de Kerkhof: Our goal is to raise and reinforce consumer awareness of fossil-based fibers in wet wipes and encourage the industry to adopt our VEOCEL™ brand of wood-based, biodegradable fibers. A year later, we have achieved a reach of 40 million with a dedicated website and targeted media outreach. Our fibers are being used by 20 brands of high-quality wet wipes. That is quite an accomplishment considering that there is currently no labeling requirement for plastic in wet wipes. Although labels will be required on products such as wet wipes that contain single-use plastics under the EU's Single-Use Plastics Directive, this will not be implemented nationally before mid-2021. Lenzing can already reassure consumers that any product bearing the VEOCEL™ logo contains biodegradable cellulosic material.

In 2020, Lenzing continued to work hard to achieve its science-based targets despite the pandemic. Has there been progress at the product level, too?

Robert van de Kerkhof: We are working closely with our partners and evolving our product offering to further drive the decarbonization of the textile value chain. The launch of the first CarbonNeutral® fibers under the TENCEL™ brand in September 2020 is a milestone on our shared path towards CO₂ neutrality. The new CO₂ neutral fibers are certified as CarbonNeutral® products for the textile industry in accordance with the Carbon-Neutral Protocol.

Water

stewardship

Management approach

Material topic: Water use and pollution

Importance for Lenzing

Water is a precious resource and its increasing scarcity in many parts of the world constitutes a threat to people and to economic development

Dissolving wood pulp and fiber manufacturing require large amounts of water

Lenzing is committed to mitigating any environmental harmful impacts

Showing compliance with local regulatory and state-of-the-art technology

Opportunities

Better product water footprint through larger proportion of Lenzing pulp

LCA-based communication of Lenzing's products with improved water footprint helps value chain partners fulfill their water targets

Development of industry benchmarks and contribution to multi-stakeholder initiatives such as ZDHC

Risks

Physical risk of water scarcity affecting operations and stakeholders

Water pollution can affect the health of employees and community residents as well as the surrounding environment

Guiding principles

"Naturally positive" sustainability strategy with "Water stewardship" focus area

Lenzing Group sustainability targets

Lenzing Group ISO 14001:2015 certification

Group Policy for Safety, Health and Environment

Group Environmental Standard

Global Code of Business Conduct

Global Supplier Code of Conduct

Wood and Pulp Policy

Higg FEM

Due diligence processes and (ongoing) measures

Environmental management system based on ISO 14001:2015 (including risk assessment and internal audits to ensure effectiveness of the measures implemented)

Continuous development of Group Environmental Standard

ZDHC MMCF roadmap

Regular Global QESH meetings with management review

Objectives

Minimizing environmental impacts through impact assessment (LCA) and continuous improvement

All sites must comply with the Group Environmental Standards

As part of the Group sustainability targets, Group COD emissions must be reduced by 20 percent by 2022 (baseline 2014)

Achieve "aspirational" level for ZDHC MMCF wastewater guidelines at viscose facilities by 2024

Achievements/activities in the reporting year

Update of life cycle methodology to assess water footprint of products and technologies

Further development of EKD reporting to comply with updated GRI indicator requirements

ZDHC MMCF wastewater guideline implemented at viscose production sites

Responsible

Board member for operations

Site Managers

Supporting

Global QESH

Perform.Improve.Team

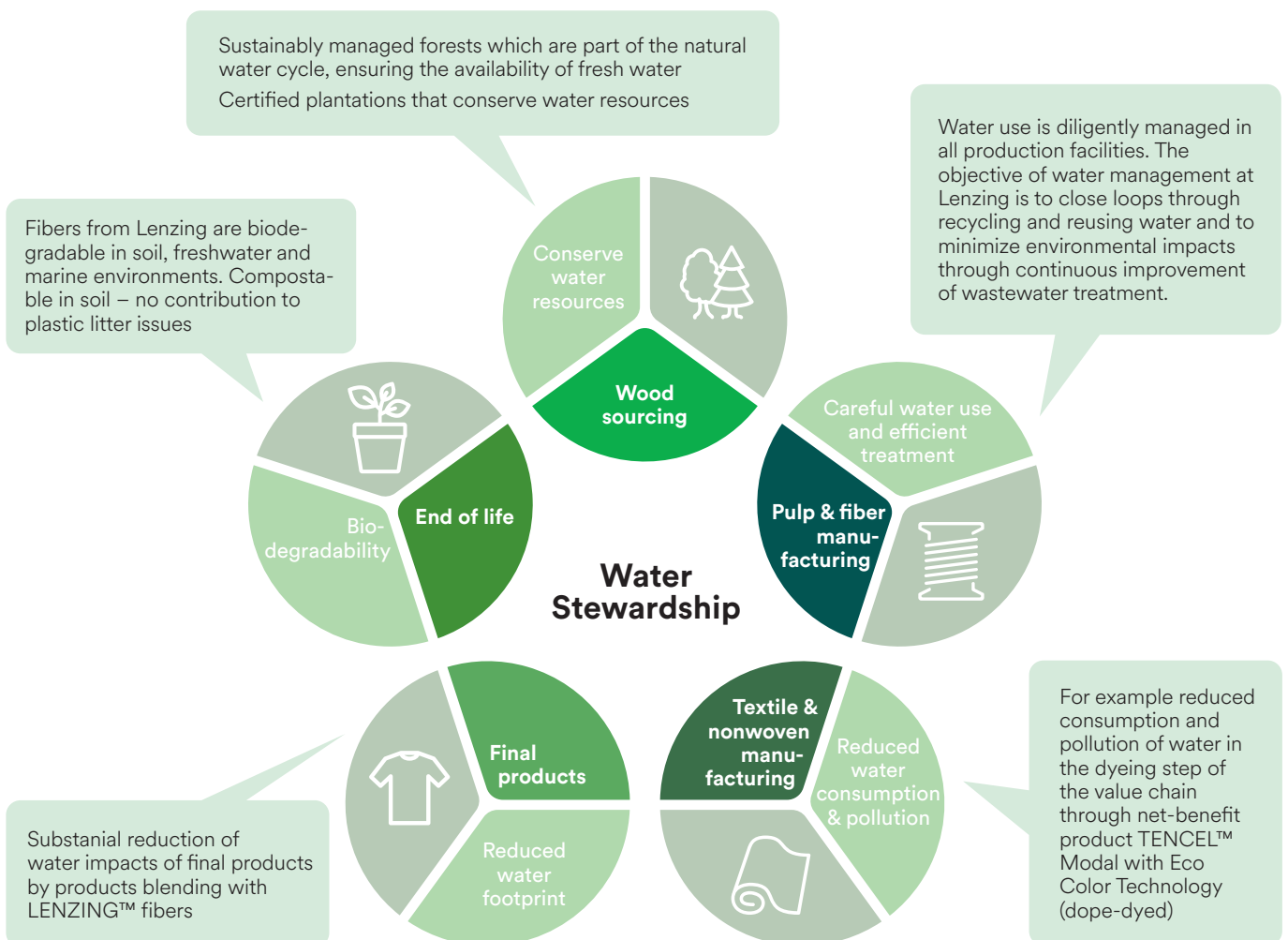
Lenzing considers water a most valuable resource, enabling production of dissolving wood pulp and cellulosic fiber products. Water stewardship is therefore key to carefully interacting with this natural resource. With water being a precious resource, its increasing scarcity in many parts of the world constitutes a threat to people, the environment, and sustainable economic development. For example, poorly managed wood plantations can put pressure on the regional water balance. Lenzing procures certified wood from sustainably managed forests and therefore mitigates the potential impacts of water stress. On the other hand, some materials used in the textile supply chains occasionally create high water impacts through water

consumption and water pollution. Key issues in water stewardship are the efficient use of water in production and the use of state-of-the-art wastewater treatment technologies.

Lenzing provides fibers with a lower water impact than other cellulosic fibers in order to satisfy the growing future demand for fiber and innovates products that omit downstream value chain steps. This substantially reduces water use and impacts. At the end of their life, Lenzing's fibers are biodegradable and compostable in marine and freshwater environments and therefore do not contribute to microfiber pollution as fossil raw material-based fibers do.

Water stewardship in the Lenzing Group

Figure 16



Water

stewardship

The Lenzing Group considers water-related issues in the upstream and downstream value chain of its products. The life cycle assessment (LCA) methodology is useful for identifying hot spots and supports strategic decision-making. Lenzing aims to contribute to the sustainable use of water wherever it can exert a direct or indirect influence. This includes the consumption of fresh water as well as the discharge of process water and effluents, both of which are covered by the Lenzing Group's Environmental Standard. Figure 16 illustrates Lenzing's contribution in this context at different stages of the value chain. Lenzing helps its customers reduce their water-related impacts by providing solutions with LENZING™ fibers to replace water-intensive fibers and/or avoid the most polluting steps in the value chain.

Water consumption

All Lenzing production units are located in regions with high water availability, so no operations take place in water stress areas. Nevertheless, the objective of water management at Lenzing is to recycle and reuse as much water as possible. For example, the Paskov pulp plant (Czech Republic) has a closed-loop cooling water system and therefore requires little make-up water to compensate for losses. Furthermore, integrated pulp and fiber production saves water by skipping the process of drying and re-moisturing market pulp. Pulp and fiber production facilities obtain water from adjacent water bodies (mainly rivers and groundwater) and municipal local suppliers. During manufacturing, water serves as a cooling and process agent.

Water withdrawal* (in megaliters)

Table 15

	2014**	2018	2019	2020
Surface water	103,000	89,507	87,954	82,359
Freshwater	-	89,507	87,954	82,359
Other water	-	-	-	-
Groundwater	14,000	15,008	14,002	12,730
Freshwater	-	15,008	14,002	12,730
Other water	-	-	-	-
Sea water	-	-	-	-
Freshwater	-	-	-	-
Other water	-	-	-	-
Produced water	-	-	-	-
Freshwater	-	-	-	-
Other water	-	-	-	-
Third-party water	-	7,676	7,185	6,849
Freshwater	-	7,676	7,185	6,849
Other water	-	-	-	-
Total	117,000	112,191	109,141	101,938

* freshwater ($\leq 1,000$ mg/L Total Dissolved Solids)
other water ($> 1,000$ mg/L Total Dissolved Solids)

** Adoption of latest GRI indicators requires a readjustment of environmental data collection. Thus, distinguishing amounts of "freshwater" and "other water" is not applicable before 2018.

Lenzing continues to decrease its overall water consumption. This was due to a combination of efficiency measures and reduced capacities due to COVID-19 (table 15). In terms of specific water use Lenzing faced a slight increase. Shutdowns and start-ups of production plants cause less yields of marketable fiber products but still need water, hence, specific water use increased (table 16).

Specific* water use in the Lenzing Group

Index in percentage based on m³/t, 2014 = 100 %

Table 16

	2014	2018	2019	2020
Specific water intake/extracted	100 %	96.3 %	92.9 %	96.2 %

* Specific indicators are reported per unit of production by the Lenzing Group (i.e. pulp and fiber production volumes).

The spinning bath in the lyocell process contains water and the solvent NMMO to dissolve the cellulose polymer prior to spinning. In the viscose process, a mix of process chemicals and water is used. In both production technologies water is recycled by separating it from process chemicals and/or solvents with very high efficiency. This is the state-of-the-art technology at all Lenzing facilities. This allows to save water and to pro-

vide optimal pre-treatment for water discharge, to optimize fiber properties and quality. Due to the recovery systems, Lenzing gains marketable by-products and the reusable process chemicals. A final wastewater treatment reduces effluent charge aiming to avoid potential harms to receiving water bodies by exceeding local quality requirements.

Water discharge (in megaliters)

Table 17

	2014*	2018	2019	2020
Water discharged by destination				
Surface water	-	39,747	40,026	37,796
Groundwater	-	0	0	0
Seawater	-	0	0	0
Third-party water	-	60,188	59,198	57,800
thereof third-party water sent for use to other organizations	-	0	0	0
Water discharged by water quality				
Freshwater (≤ 1,000 mg/L Total Dissolved Solids)	-	71,280	69,802	67,694
Other water (> 1,000 mg/L Total Dissolved Solids)	-	28,655	29,422	27,902
Total water discharge	108,000	99,935	99,224	95,596

* Adoption of latest GRI indicators requires a readjustment of environmental data collection. Thus, distinguishing amounts of "freshwater" and "other water" is not applicable before 2018.

Water

stewardship

Substantial amounts of water are consumed by the inherent moisture uptake of cellulosic fibers and the evaporation in the cooling process. The lyocell process requires more than one-third less water than the viscose fiber production. The expansion plans of Lenzing in lyocell fibers will further reduce the Lenzing Group's specific water consumption in the medium term.

The decrease of the water consumption was caused by reduced production due to COVID-19.

Water consumption (in megaliters)

Table 18

	2014	2018	2019	2020
Total water consumption	9,000	12,256	9,917	6,342

Wastewater (water effluents)

Sustainable pulp and fiber production comes with strict criteria not only for air emissions but also for water effluents and wastewater treatment. National or regional legislation as well as several industry standards and certification schemes – such as EU BAT, EU Eco-label, ZDHC – identify priority substances of concern and give guidance for reducing emissions and hence avoiding harmful impacts on water bodies. Lenzing has decades of experience in the safe handling and treatment of process chemicals used during manufacturing, including water-related issues. Lenzing has been leveraging this extensive knowledge to develop and shape today's industry standards through multi-stakeholder initiatives such as ZDHC. Discharge limits are included in the environmental permits issued for all sites by relevant authorities based on national legislation. Additional intragroup discharge limits that reflect best practices may apply under internal environment standards.

Process water is treated by biological wastewater treatment plants (WWTPs). The Lenzing Group has wastewater treatment plants at all its sites except Grimsby (United Kingdom). However, the wastewater situation at Grimsby complies with all local laws and regulations as well as the EU Water Framework Directive. Planning has begun for the construction of a wastewater treatment plant at the Grimsby site in cooperation with the local government with a view to applying new technology from an ongoing R&D project.

Lenzing's site in Purwakarta (Indonesia) is making good progress in improving its wastewater after a project was launched in 2018. The project aims to debottleneck the capacity of one of the two existing wastewater treatment plants by 2022. The sewage collection and treatment system is planned to be upgraded and comply with future requirements. The project also involves building a utility water treatment system and improving the existing stormwater drainage systems. Dedicated teams are currently working on basic engineering for the project, which is expected to be implemented by the target deadline in 2022.

Organic chemicals from waste streams from the pulp production process are extracted early on in the biorefinery process at the Lenzing site (Austria), which significantly reduces the chemical oxygen demand (COD) of effluent water. This is one example of best practices where potential waste streams are converted into useful products, thereby avoiding pollution and reducing the amount of waste to be treated at the wastewater treatment plant.

To improve the wastewater management in China, Lenzing took control of the wastewater treatment plant in November 2019. Since then, the management of our Chinese site in Nanjing has become responsible for the operation of the wastewater treatment plant and its further optimization. With ongoing improvements and data monitoring, the wastewater treatment plant complies with the Group Environmental Standard and the discharged emissions are reported in the Group's environmental data.

The Group Environmental Standard is designed to reflect benchmarks and emission thresholds of best available technologies for pulp and fiber production. The ambitious framework of the standard aims for continuous improvement – yet, some requirements have not been met by particular sites. However, no infringements of regulatory discharge limits occurred during the reporting year.

Sulfate emissions mainly originate from the viscose process; COD emissions originate from pulp and all fiber production processes. Their reduction is part of the Lenzing Group's sustainability targets (for details, see page 32). Total emissions and specific emissions of COD, sulfates, and amines increased in 2020 over 2019 due to unstable operating conditions during the COVID-19 pandemic, which necessitated multiple shutdowns and start-ups of production lines (table 19 and 20).

Absolute emissions to water

Table 19

	2014	2018	2019	2020
COD after WWTP (t)	6,110	5,713	5,286	5,510
SO ₄ ²⁻ after WWTP (t)	173,648	159,156	152,519	177,003
Amines after WWTP (t)	198	226	208	233

Especially the discontinuous operation of fiber production leads to higher specific emissions to water. During the start-up and shutdown phases of production lines less marketable fibers are produced while wastewater is still generated. The Lenzing pulp bleaching process runs totally chlorine-free (TCF) with oxygen-based substances at both the Lenzing and Paskov pulp plants and goes beyond the Best Available Technology standards of the European Union.

Specific* emissions to water

Index in percentage based on kg/t, 2014 = 100 %

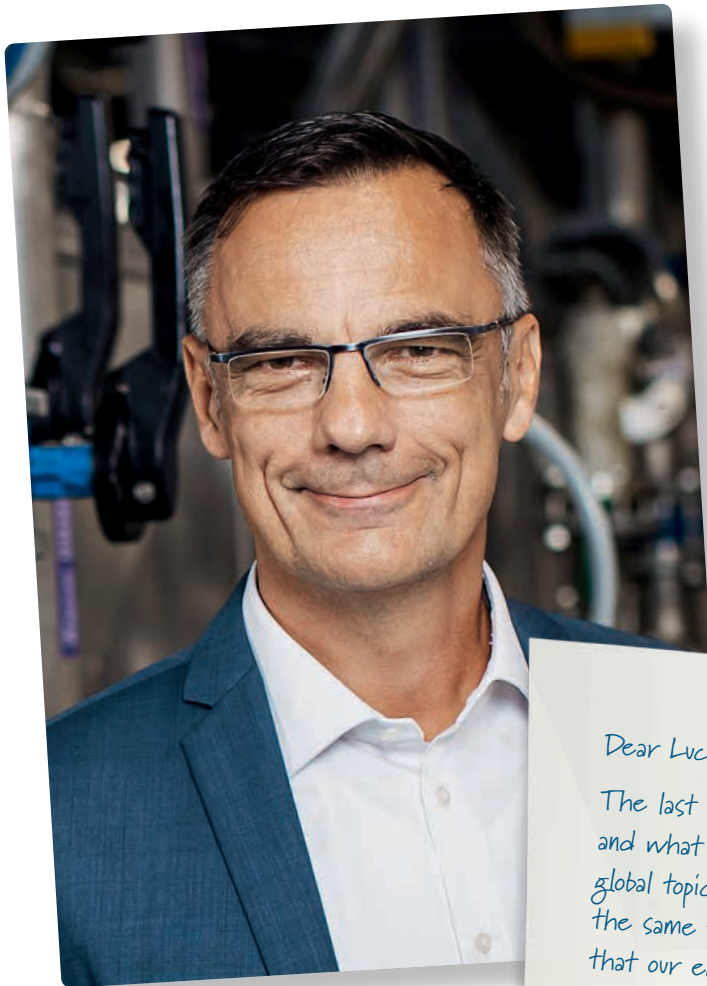
Table 20

	2014	2018	2019	2020
COD after WWTP	100 %	95.3 %	86.2 %	100.0 %
SO ₄ after WWTP	100 %	92.3 %	87.5 %	113.0 %
Amines after WWTP	100 %	114.5 %	104.4 %	130.7 %

* Specific indicators are reported per unit of production by the Lenzing Group (i.e. pulp and fiber production volumes).

Microplastics are perceived as a major pollution problem in freshwater bodies and the sea. Various reports recognize that increased use of biodegradable fibers would help reduce emissions of microplastic emissions. For more information, please see the "Circular economy" chapter.

Interview with the Managing Board



Stephan Sielaff
Member of the Managing Board

Stephan Sielaff, member of the Managing Board, on the importance of innovation, continuous improvement, health and safety.

Dear Lucca, dear Vincent,

The last year reminded us of what really matters and what is worth appreciating, while important global topics were pushed into the background at the same time. From our family vacations, we know that our earth is unique and beautiful, and we must all play our part in protecting this world, both as a community and as individuals. The growing awareness and commitment among many people and also among you make me confident that we will soon see positive changes. I am also trying to do my part and would like to encourage you to continue on this path.



What role does sustainability play at your department as a member of the Managing Board in the fibers segment?

Stephan Sielaff: Sustainability and environmental protection are core issues today, even in technology. Lenzing relies on state-of-the-art sustainable production technologies. That means high recovery rates and closed loops for chemicals, water and energy in pulp and fiber production whenever possible. Our ability to combine these aspects with high product quality sets us apart from the competition. A company's sustainable success hinges not only on environmental protection but also on continuous improvements in occupational health and safety.

Where does Lenzing currently stand in terms of health and safety, and why are these issues so important to the company?

Stephan Sielaff: Health and safety are the cornerstones of the Lenzing Group's corporate strategy and integral and indispensable components of our corporate culture. Our motto is: Leave home healthy, come home healthy. We are convinced that accidents are fundamentally preventable. That is why we gear our activities toward protecting our employees and continually upgrade our safety standards with the involvement of our employees. Prevention is the key to maximum safety.

What protective measures has Lenzing taken in the fight against the pandemic?

Stephan Sielaff: Lenzing has navigated this critical time very well thanks to its corporate culture and its very own Lenzing spirit. Above all, we want to protect what matters most: our employees, our customers' and partners' trust, and, of course, our operations. We set up crisis teams at all sites in addition to our global crisis management team in order to quickly and efficiently adapt our protective measures to current requirements. For example, we implemented technical measures such as temperature checks as well as psychological programs to support suffering families in addition to wide-ranging social distancing and pandemic containment measures. There were also regular information events and accompanying communications on the current situation and the protective measures that we have in place. Testing opportunities were offered to all employees at the Austrian sites to provide quick answers to questions about suspected infections.

Lenzing will continue to expand production capacity for environmentally friendly specialty fibers. It is currently focused on building the lyocell plant in Prachinburi (Thailand). Has the crisis had a negative impact on construction progress?

Stephan Sielaff: We are currently building the world's largest production plant for lyocell fibers in Thailand and are fully on track regardless of the pandemic and its effects. We are investing approximately EUR 400 mn in this new plant with a nominal capacity of 100,000 tons. Construction started in the second half of 2019; production is scheduled to begin towards the end of 2021. Like the pulp project in Brazil, this new lyocell plant will not only support us on our transformative path to becoming a supplier of environmentally friendly specialty fibers but will also make a significant contribution to achieving our ambitious climate targets.

Sustainable innovations

Management approach

Material topic: Sustainable innovations

Importance for Lenzing

Sustainable innovations are at the heart of Lenzing's sCore TEN strategy and ensure the future success of the company

Opportunities

Differentiating factor
Being prepared for unforeseen challenges
Meeting market and stakeholder expectations
Being a pioneering company

Risks

Loss of leadership in innovation carries potential regulatory, financial, market, and corporate reputational risks

Guiding principles

sCore TEN strategy
"Naturally positive" sustainability strategy with "Sustainable innovations" focus area
Life cycle thinking
Net-benefit concept

Due diligence processes and (ongoing) measures

Project management system PRO² (Product & Application Innovation and Process & Technology Innovation)
Management review (ISO 9001:2015)

Objectives

Leadership in technology, innovative net-benefit products, and new business models
Securing economic growth
Differentiation from competitors
Networking and cooperation with relevant partners (academia, associations, companies, and NGOs)

Achievements/activities in the reporting year

Launch of carbon-zero TENCEL™ fibers
Introduction of fiber identification system for VEOCEL™ Beauty
Austrian State Prize for Innovation for LENZING™ Web Technology
Specialty fibers based on REFIBRA™ technology
Founding member of the Renewable Carbon Initiative⁶¹
1,369 patents and patent applications filed, in 180 patent families and 55 countries
Close cooperation between innovation centers and other internal departments
Numerous R&D partnerships with customers, companies, universities, and institutes (national and international)
Partner of new Christian Doppler Laboratory for a recycling-based circular economy

Responsible

CEO
VP Research & Development

Supporting

Global Business Management
Global Strategy and M&A
Head of Global Technology
Perform.Improve.Team

Sustainable innovations represent one of the strategic focus areas of Lenzing's "Naturally positive" sustainability strategy. At the same time, it is a cross-functional issue that intersects with most of the other strategic focus areas.

Sustainable innovations include substantial efficiency improvements for existing technologies and technological breakthroughs that lead to net-benefit products. Lenzing innovation includes also driving systemic change through forward-looking solutions, business models, and a multitude of collaborative activities.

The central hub and innovation center is the Research and Development (R&D) department at the company's headquarters in Lenzing (Austria), which features extensive infrastructure. The center includes pilot plants and laboratories that use small-scale processes to better understand the landscape of the subsequent value chain.

R&D expenditures, calculated according to the Frascati method (minus funding received), decreased from EUR 53.2 mn in 2019 to EUR 34.8 mn in 2020 (2018: EUR 42.8 mn). This significant decline is due to COVID-19, but also to the fact that investments in the pilot plants were already largely completed. These R&D expenditure figures underline Lenzing's commitment to drive sustainable innovation. At the end of the reporting year, 212 people carried out research in the Lenzing R&D department (2019: 213; 2018: 204). Another indicator for the Lenzing Group's innovativeness are the 1,369 patents and patent applications (in 180 patent families) that Lenzing holds in 55 countries worldwide. R&D expenditures were 2.1 percent of the Group's revenue.

Sustainability drives innovation

Sustainability acts as guiding principle for innovation and product development. Every process, product, or application innovation is evaluated for sustainability at the very start. At Lenzing, sustainable thinking drives innovation. Key considerations include the life cycle perspective and the net-benefit principle over the entire value chain. They are implemented in the project management tools used by the company.

Lenzing's innovation portfolio addresses key topics for the future. Sustainable innovations and proactive partnerships are the basis for Lenzing's strategic efforts to green the value chain. Sustainability targets for air emissions, water emissions, pollution, climate protection, and circular economy are the cornerstones of Lenzing's responsible entrepreneurship and act as innovation drivers.

100 percent cellulosic wipes

A strong driver of sustainable innovations in the reporting year was the debate about plastic pollution in the environment. The Directive (EU) 2019/904 (Single-Use Plastics Directive) aims to reduce the environmental impact of plastics. The nonwovens industry has worked to find ways to shift away from wipes made from crude oil-based material to those made out of more sustainable materials. Lenzing believes the next logical step for achieving this transition is to use wipes made of 100 percent cellulosic material. For more information, please see page 59.

Development focused on replacing synthetic fibers with cellulosic ones while retaining the original product's properties but making it renewable, biodegradable, and compostable.

The experimental results show that 100 percent cellulosic wipes are feasible and can achieve or exceed most required properties, such as moisture absorption, good wiping properties, high bulk (thickness), high opacity and sufficient strength. This innovation was based on the established carded-spunlace and wetlaid-spunlace technologies.

Sustainable

innovations

LENZING™ Web Technology

Every day, millions of hygiene products and wipes worldwide end up in garbage and sewage. Most consist of up to 80 percent polyester or other fossil, non-biodegradable materials. LENZING™ Web Technology is a patented system developed by Lenzing to offer a biodegradable and compostable alternative: LENZING™ Web Technology uses a unique self-bonding mechanism where filaments are integrated directly into a fabric during the spinning process. The process allows a wider adjustment of the filament diameter. Together, all these advantages constitute a new technology platform that undergirds a broad product range with an enormous variety of surface textures and greater dimensional stability than conventional nonwoven technologies can achieve.

Following the outbreak of the COVID-19 pandemic, the next logical step was to refine LENZING™ Web Technology for the production of personal protection equipment.

In order to use this technology for other applications such as industrial applications or face masks, it was necessary to gain a deeper understanding how protective masks are designed. Based on these findings, the process parameters were adapted for the production of suitable nonwovens with appropriate porosity and strength. The obtained samples were tested and finally a specific jet beam was designed and constructed that was suitable for the production of protective masks with the required quality.

State Prize for Innovation

In October 2020, the LENZING™ Web Technology won the coveted “State Prize for Innovation”, the highest recognition for particularly innovative achievements in Austria.





Efficient heat pumps

Sustainable innovations for continuous improvement aim for resource and energy efficiency and consequently CO₂ reductions. One example of Lenzing's activities in the reporting year is a project that focused on heat pumps for industrial applications. This technology will be a key component of tomorrow's energy infrastructure and can make a valuable contribution to increasing the efficiency of industrial processes and avoiding CO₂ emissions. As part of these efforts, Lenzing joined the LEAP⁶² project within the NEFI (New Energy for Industry⁶³) model region.

The project addresses the need for waste heat recovery and develops innovative measures using heat pump systems for low-pressure steam generation. Heat pumps are a future-proof heat supply system that relies on waste heat. Steam supplied with heat pumps is up to 64 percent more energy-efficient than steam generated with natural gas. CO₂ emissions will be reduced to zero while energy costs, especially when considering CO₂ prices, remain attractive. Lenzing will be a role model for an efficient, decarbonized supply of steam and thus encourage greater use of heat pumps in industrial processes.

For more information on innovative technologies and products, please see "Net-benefit concept" section on page 28.

*At Lenzing,
sustainable thinking
drives innovations.*

Sustainable

innovations

Management approach

Material topic: Sustainable materials and life cycle assessment (LCA)

Importance for Lenzing

More and more stakeholder inquiries about the environmental performance of Lenzing products

Transparency is essential for fostering trust and building long-term partnerships

Integrating different perspectives, understanding global trends, and mitigating risks

Opportunities

Strengthening of market position for sustainable net-benefit products and specialty fibers

Communicating sustainability benefits of Lenzing's products

Involvement in creating future standards for environmental communication (Product environmental footprint, product category rules, etc.)

Gaining expertise in life cycle thinking to proactively demonstrate sustainable development

Supporting current and future customers in achieving their sustainability targets

Risks

Producing sustainable materials/products but not being able to communicate

Loss of reputation from not being transparent

Growing competition and loss of leadership

Potential regulatory, technology, market, and corporate reputational risks

Guiding principles

sCore TEN strategy – customer intimacy

Partnering for systemic change as part of the Lenzing sustainability strategy

Sustainability Policy

Group Policy for Safety, Health and Environment

Group Environmental Standard

Wood and Pulp Policy

Branding Strategy

Higg FEM

Due diligence processes and (ongoing) measures

LCA updates with independent party

Alignment with Material Sustainability Index (MSI) of the Sustainable Apparel Coalition (SAC)

Objectives

Commitment to systemic approaches by applying life cycle thinking

Use of life cycle assessment to support decision-making in business

Achieve sustainability vision of making sustainable fibers available to the growing world

Achievements/activities in the reporting year

Completion of LCA update for standard and specialty fiber portfolio

Launch of low-carbon-footprint fiber products with corresponding offsets of remaining emissions

Upgrade in ESG rankings by MSCI, EcoVadis, etc.

Strategic growth projects fully on track: in Brazil and Thailand

Lenzing's fibers listed as "preferred fibers" in Textile Exchange's Preferred Fiber Report

Lenzing contributing to leading multi-stakeholder initiatives

Broad range of third-party certifications

Responsible

VP Global Nonwoven Business

VP Global Textile Business

VP Global Purchasing

Supporting

Corporate Sustainability

Global QESH

Research & Development

Research collaborations

Scientific collaboration is deeply rooted at Lenzing's R&D. This includes participation in big, institutionalized cooperative research centers such as the Austrian Wood K plus competence center. Wood K plus is a leading research institute for wood and wood-related renewable resources in Europe. Lenzing is its largest industrial partner. Recent topics addressed by the competence center include advanced biomass utilization, lignin and hemicellulose utilization, and the use of enzymes in the production process. Lenzing is also a partner in the new Christian Doppler Laboratory for an efficient, recycling-based circular economy. The laboratory aims to provide the scientific knowledge base for efficiently recovering secondary raw materials from different municipal solid waste streams.

Scientific collaboration also includes "cooperative" research projects. These are projects in which Lenzing teams up with universities, research organizations, and companies on specific research topics. In another project, Lenzing is investigating cellulose-based separator paper for batteries together with partners from Europe and Korea. The PSSP project – a collaboration with the Research Center for Non Destructive Testing and a number of Upper Austrian industrial companies – addresses the development of new measurement methods for the chemical industry.

Bilateral research is also important to Lenzing's approach to scientific collaboration. Noteworthy examples include its collaboration with the Scripps Institution of Oceanography, University of California San Diego, USA, on the biodegradability of cellulose-based materials in maritime environment or its collaboration with the Linz Institute of Organic Solar Cells (LIOS), Johannes Kepler University Linz, on the dielectric properties of cellulosic fibers.

Impacts of COVID-19

R&D work and focus were stamped by the outbreak of the COVID-19 pandemic, too. Some cooperation had to be stopped temporarily as the development partners are located in regions heavily affected by COVID-19 (such as Northern Italy or India). However, the prioritization of the projects was adjusted according to the new situation.

Alternative sources of raw materials for fiber production

Any plant-based material can potentially serve as a source of cellulose and hence dissolving wood pulp for fiber-making. Lenzing has undertaken extensive research into many different alternative non-wood cellulose sources. Studies have been conducted on sources such as annual plants like hemp, straw, and bamboo. In general, annual plants have a higher growth rate per hectare than trees. Additionally, certain species have a higher cellulose content. Some of them are already available in large quantities, especially in the form of agricultural waste. This can produce an attractive cellulose yield per hectare; however, the advantages over wood, the traditional source of cellulose, need to be assessed case by case.

In its research, Lenzing identifies promising new cellulose sources and carefully considers their availability, technical feasibility, and economic scalability as well as the overall ecological impact with respect to Lenzing's climate target and circularity approach.

For more information, please see the "[Wood and Pulp](#)" focus paper.

Non-wood-based cellulose may be challenging to use for a number of reasons. Dedicated research into the ecological and economic aspects for industrial-scale production is necessary.

Availability

Alternatives such as bamboo, straw, and various annual plants do not yet meet Lenzing's needs in terms of availability in the required quality and amount. Many sources from annual plants are only available in the harvesting season and are difficult to store for year-round use. Annual plants are thus especially suitable for seasonal production campaigns. Despite specific benefits and high annual growth per hectare, the material is very bulky and more costly to transport. This favors obtaining the raw materials locally and keeping production capacities small.

Environmental sustainability

The conversion of forest to agricultural land for annual plants is a worldwide phenomenon that increases the pressure on all kinds of forests. Its drawbacks can be seen with oil palm production, for example. Sustainably managed forests store much more carbon per hectare than annual crops. Therefore, this trend adversely affects the CO₂ balance of the entire value chain. The carbon balance must be thoroughly calculated while including all co-products from annual plants.

Important factors for the environmental impact of the process include energy consumption and use of process chemicals in pulp production. They depend heavily on the actual process and vary significantly from one annual plant to the next.

Dissolving wood pulp can be made with cotton linters, which are used for viscose production in some regions. However, the pulping process uses substantial amounts of chemicals and energy. As most cotton linter pulp facilities are not state-of-the-art, resource use, emissions, and waste can be high for cotton linter pulp.

Another important factor in the sustainability performance of annual plants is the management of the agricultural areas. Highly productive sites need far more fertilizers and pesticides than forests, causing other environmental issues. For example, the overall environmental profile of large-scale bamboo plantations is known to be unsatisfactory.

Technical feasibility

Apart from not causing additional environmental issues, fibers produced with alternative feedstock must meet the same quality criteria as wood-based fibers. The biorefinery process for wood-based fibers is closely aligned with the raw material. This keeps quality and efficiency high and yields climate-neutral bioenergy as a co-product. With non-wood feedstocks, less bioenergy may be generated as a co-product, requiring additional energy sources for processing the feedstock into dissolving wood pulp, resulting in a potentially negative environmental impact.

Annual plants contain more mineral components and organic substances that have to be removed to produce high-quality dissolving wood pulp. This purification typically requires the use of aggressive chemicals and causes waste issues. It is a big challenge to develop new sustainable technologies for these materials while maintaining product quality and ecological friendliness. On the other hand, in woody plants such as trees, these components are concentrated in the bark, which is easily removed in the first stage of the process.

Paper industry experiences with these sources are of limited use since dissolving wood pulp has to meet very different quality and purity requirements. While modern breeding and harvesting concepts have been developed, a new biorefinery process for annual plants still has to be adapted to the special requirements, not to mention circulation management for process chemicals and treatment of impurities originating from the plants. So far, no established industrial process meets these prerequisites.

Based on current data, large-scale, sustainable, renewable production of cellulose is still best done using wood from sustainably managed forests instead of the above-mentioned alternatives. At the same time, it is Lenzing's aspiration as an innovation leader to overcome these challenges and find new solutions. The most promising approach has turned out to be cotton upcycling. Lenzing came up with the first industrially implemented solution: REFIBRA™ technology, which uses a large amount of textile waste as feedstock and represents an important step towards achieving a circular economy.

Process innovations to improve efficiency and sustainability

Process innovations focus on improvements to pulp and fiber production processes. Lenzing is constantly working on resource efficiency, occupational safety, process stability, and quality. Ongoing developments in pulp production aim to enhance the biorefinery concept, thereby optimizing wood consumption. Another issue is the reduction of sulfur emissions through technological improvements and aftertreatment systems.

Clean technology investments in the Lenzing Group

State-of-the-art lyocell plant in Thailand (in construction)

Lenzing's lyocell technology is based on a closed-loop process that transforms dissolving wood pulp into cellulosic fibers with high resource efficiency and low ecological impact. The process has a solvent recovery rate of more than 99 percent, which lowers water and chemical use. The lyocell plant under construction in Thailand is the world's biggest-capacity plant with improved efficiencies due to economies of scale and process innovation within the Lenzing Group. The state-of-the-art lyocell fiber production is an effective answer to the growing demand for fiber while at the same time offering a highly sustainable fiber material. The expansion of clean technology within the Lenzing Group reflects the company's commitment to improving the ecological footprint of the global textile industry.

Air purification and sulfur recovery plant in Lenzing (Austria)

The new air purification and sulfur recovery plant will not only optimize the company's self-sufficiency for sulfur and enhance its process reliability but also improve its environmental performance as part of a forward-looking strategy. Applying this state-of-the-art technology will improve exhaust emission values and reduce fossil fuel use by generating steam, which will, in turn, be converted into electricity. As a result, it also supports the energy self-sufficiency of the company's production plant at the Lenzing site while reducing its annual CO₂ emissions by 15,000 tons. The new plant, which will go into operation in 2021, represents an important contribution to implementing the sustainability strategy and clean technologies.

Continuous improvement

As part of a reorganization drive in the reporting year and as an umbrella for all continuous improvement activities, Lenzing has institutionalized its continuous improvement approach and set up a Perform.Improve.Team to enable, facilitate, and execute projects and provide governance for the entire company. Its activities cover a broad range of areas, from financial performance to safety, quality, and environmental performance. Apart from developing know-how and methods, its approach is based on triggering behavioral changes, people empowerment, and purpose-driven leadership practices. Efforts began in 2020 to build a network of continuous improvement managers across sites, departments, and cross-functional areas.

EU BAT

Two of the three Lenzing viscose production sites meet or exceed the defined EU BAT performance standards, i.e. they fall within the limits of all the key parameters covered by EU BAT: zinc to water, COD, sulfate to water, energy consumption, sulfur to air, hazardous waste. In line with its internal Group Environmental Standard, the Lenzing Group is determined to achieve EU BAT performance for its site in Indonesia as well (target 1). This target should be achieved by 2022.

The company is making continuous improvements in other areas of its business, too. Lenzing is fully committed to the roadmap laid out by the Zero Discharge of Hazardous Chemicals (ZDHC) multi-stakeholder initiative. Data reporting was delayed due to COVID-19 and the ZDHC internal lab qualification process. Lenzing's first report is expected to be done in the first half of 2021.

EU Ecolabel

The EU Ecolabel was established by the European Commission in 1992. It is an environmental quality label awarded to products and services that have less impact on the environment and on health throughout their entire life than comparable goods. Products bearing the EU Ecolabel are therefore among the most environmentally friendly in the industry. Independent experts, scientists and NGOs devised the guidelines and criteria for awarding the EU Ecolabel in collaboration with the EU member states. The criteria are determined scientifically and consider the entire product life cycle. Regular revisions ensure that the criteria reflect new developments and that assessments remain current. EU Ecolabel criteria for textile products were recently updated. For the Lenzing Group, this means that strict criteria have to be met in pulp and fiber production, with regard to emissions released into the air and water as well as the handling of chemicals. The Lenzing Group can provide viscose, modal, and lyocell fibers with EU Ecolabels.

EU Ecolabel criteria

Table 21

EU Ecolabel criteria	Limit
Man-made cellulose fibers criteria	
Pulp: wood sourcing	Sustainable forestry: > 25 % e.g. FSC®, PEFC™ or equivalent schemes Legal forestry: the rest
Pulp: bleaching agent	Elemental Cl free
Pulp: OX on finished fiber	≤ 150 ppm
Pulp: sourcing	50 % input from mills with energy or chemicals recovery
Staple fiber: sulfur emission to air	30 g/kg
Chemicals and processes criteria	
Restricted substance	Spin finishes: 90 % of the component substances readily biodegradable
Substitution of hazardous substances	Should satisfy restrictions concerning certain hazard classifications

Management approach

Material topic: Chemicals and toxicity

Importance for Lenzing

Chemicals are among the most important raw materials for pulp and fiber production

Minimizing usage through closed loops and good operational practices

Control of environmental impact

Safe use of chemicals/safe chemical processes

Occupational and community safety and health

Product liability

Opportunities

Compliance with stakeholder expectations (e.g. Zero Discharge of Hazardous Chemicals)

Opportunity to reduce impact on Lenzing scope 3 carbon footprint through good supplier motivation efforts

Risks

Negative health and environmental impacts

Regulatory changes and changing classification of chemicals

Negative environmental and social impacts can inflict reputational damage

Guiding principles

Heartbeat for Safety and Health initiative

SHE Policy

Higg FEM

Group Environmental Standard

Due diligence processes and (ongoing) measures

Environmental management system based on ISO 14001:2015 (including risk assessment and internal audits to ensure effectiveness of the measures implemented)

EcoVadis supplier assessment

Regular Global SHE meetings with management review

Integral part of internal communication (SHE issues prioritized)

Objectives

Compliance with a uniform environmental standard "One Lenzing"

Assessment of the sustainability performance of the Lenzing Group's most relevant suppliers

Continuous improvement of recovery rates

Group sustainability targets

Achievements/activities in the reporting year

Safety and health KPIs

Emission KPIs

Lenzing contributing to leading multi-stakeholder initiatives (ZDHC, SAC, EU BAT)

Number of EcoVadis-evaluated suppliers increased

Overall EcoVadis Score of the Lenzing Group suppliers higher than the average EcoVadis Score

Project start to buy "green caustic soda" produced with green energy

Responsible

Global Purchasing

Global QESH

Site Managers

Sustainable

innovations

Chemical management

A Group-wide chemical management process is currently under development, with customization provided by an external IT consultant. It includes a hazard and exposure assessment for each chemical product in order to demonstrate its safe use for workers and the environment. The process was established in 2020 and will be rolled out to all the sites in stages to ensure all Group sites follow the same approach.

Stakeholder activities

Zero Discharge of Hazardous Chemicals (ZDHC)

The Zero Discharge of Hazardous Chemicals (ZDHC) multi-stakeholder collaboration initiated special focus and task teams for wastewater, sludge, solid waste, and air emissions in the textile industry. Lenzing has been part of the Cellulosic Fibers (MMCF⁶⁴) Task Team on wastewater, sludge/solid waste, and air emissions since 2018. In 2020, ZDHC published guidelines on wastewater, air emissions, and responsible fiber production for man-made cellulose fiber manufacturers. In line with its commitment to “Partnerships for Systemic Change”, the Lenzing Group has taken a proactive approach and will implement the wastewater program at its production sites based on the guideline’s recommendations, starting with its viscose operations in Purwakarta (Indonesia), Nanjing (China), and Lenzing (Austria). In addition to setting an example by continuously improving its own performance, Lenzing aims to drive improvements in industry standards by participating in guideline development and the definition of emission standards based on EU BAT.



Management approach

Material topic: Air emissions

Importance for Lenzing

Managing air emissions to reduce potential risks to society and the environment

Compliance with legislation and stakeholder needs

Opportunities

Further improvement and development of closed-loop processes and recovery technologies

Showing leadership in pulp and fiber production with a low environmental impact

Risks

Air emissions carry potential regulatory, technology, market, and corporate reputational risks

Air emissions can affect the health of employees and community residents as well as the surrounding environment

Guiding principles

"Naturally positive" sustainability strategy with "Sustainable innovations" focus area

Sustainability targets for the Lenzing Group
Group Policy for Safety, Health and Environment
Lenzing Group ISO 14001:2015 certification

Group Environmental Standard
Global Code of Business Conduct
Global Supplier Code of Conduct
Higg FEM

Due diligence processes and (ongoing) measures

Environmental management system based on ISO 14001:2015 (including risk assessment and internal audits to ensure effectiveness of the measures implemented)

Regular Global QESH meetings with management review

Objectives

All sites must comply with the Group Environmental Standard based on EU BAT by 2022

Group-wide EU Ecolabel certification

Achievements/activities in the reporting year

Lenzing contributions to leading multi-stakeholder initiatives (ZDHC, SAC, etc.)

Continuous improvement activities to further reduce air emissions

Responsible

VP Global QESH

Reduction of sulfur emissions

Sulfur and sulfur compounds are indispensable for the standard viscose fiber manufacturing process. Lenzing has dramatically reduced sulfur emissions over the decades by closing loops and installing recovery systems. Although all of the Lenzing Group's viscose fiber producing sites (Lenzing, Austria; Nanjing, China; and Purwakarta, Indonesia) are equipped with waste gas purification and recovery technologies, some carbon disulfide (CS₂), hydrogen sulfide (H₂S), and sulfur dioxide (SO₂) is emitted from the process itself and from on-site energy production. The planned carbon disulfide absorption plant (CAP) project in Indonesia is on schedule. It will be essential for reducing specific sulfur emissions by 50 percent (target 1).

The COVID-19 pandemic tremendously hit the textile market having effects especially on the production of

viscose fibers. Hence, a significant decrease in absolute sulfur emissions is observable from 2019 to 2020 (table 22).

The decrease in specific emissions is due to the lower share of viscose in the total production volume (table 23).

Lyocell fiber production generates only trace emissions since NMMO, an organic solvent, remains in the water/solvent cycle throughout the entire process and is recovered at a rate of more than 99 percent.

For more information about important steps taken in 2020, see the "Targets: Lenzing raising the bar" chapter.

Absolute emissions to air*

Table 22

	2014	2018	2019	2020
Sulfur emissions (t) (CS ₂ , H ₂ S emissions expressed as sulfur)	34,787	24,559	23,280	19,187
SO ₂ emissions (t)	3,908	2,996	2,684	2,135
NO _x emissions (t)**			619	587

* Sulfur emissions were calculated using mass balances. SO₂ emissions are based on measurements.

** Improvement in reporting NO_x emission started in 2019, currently excluding data from Indonesian production facility

Specific* emissions to air

Index in percentage based on kg/t, 2014 = 100 %

Table 23

	2014	2018	2019	2020
Sulfur emissions	100 %	70.5 %	66.7 %	60.9 %
SO ₂ emissions	100 %	76.6 %	68.4 %	60.3 %

* Specific indicators are reported per unit of production by the Lenzing Group (i.e. pulp and fiber production volumes).

Product quality and safety

Lenzing operates a quality management system based on ISO 9001:2015. It forms the basis for all work processes and reinforces efforts to achieve complete customer satisfaction.

All Lenzing fiber products undergo health and safety testing. However, the ultimate responsibility for consumer health is borne by the companies that manufacture finished products from Lenzing fibers.

The Product Safety and Regulatory Affairs team (part of Global Quality Environment Safety and Health) ensures that raw materials incorporated into final products are thoroughly checked and are appropriate for the specific application.

Product Safety and Regulatory Affairs ensures that Lenzing is up to date with changes to applicable standards and regulations. The classification (Classification, Labeling and Packaging, CLP Regulation) of titanium dioxide powder, which is used as a dulling agent in some fibers, was communicated to Lenzing's nonwoven customers in order to discuss the potential need for product changes. Various external factors prevented the continuation of the activities reported in last year's sustainability report to transition all the remaining fiber finish components from animal to vegetable origins.

The lyocell process uses the solvent N-methylmorpholine-N-oxide (NMMO) to dissolve wood pulp. Lenzing does not manufacture NMMO, but as a main importer of the substance and as part of its own sustainability efforts, Lenzing chose to become the lead registrant for the solvent under the European REACH chemicals regulation (Registration, Evaluation, Authorisation and Restriction of Chemicals) in 2016. Lenzing therefore commissioned appropriate new toxicity studies to supplement various existing studies initiated by manufacturers of the chemical since 1981.

The studies included repeated dose toxicity and reproductive toxicity tests. The results of these, and of further additionally performed in vitro tests on different cell cultures, gave indications of a possible reproductive toxicity effect with the consequence of a reclassification of NMMO as a reproductive toxicant of category 2 (the lowest possible GHS/CLP category) in relation to its potential effects on male fertility.

What does this mean for Lenzing's lyocell production, Lenzing fibers and our customers?

No negative implications are known or expected.

Lenzing's occupational health, safety and quality policy and implemented management approaches ensure that health risks to employees in production are fully controlled and that our fibers meet all relevant safety, quality and legal requirements when delivered to our customers.

Additional assessment by independent external experts confirms the safety of our fibers for all anticipated product applications and our full legal compliance with regard to the reclassification of NMMO.

In short, Lenzing can demonstrate:

- safe use of NMMO within all our production processes at all our sites;
- the safety of our Lyocell products for all anticipated end uses; and
- our full compliance regarding relevant legal and regulatory obligations applicable to our use of NMMO.

Research and development projects serve to assess potential risks to human health and the environment in connection with the use of new materials. New chemicals are only permitted for large-scale technical use if they are safe and can be used in compliance with all relevant regulations.

Third-party certifications for LENZING™ fibers

The STANDARD 100 by OEKO-TEX®, Annex 6, certification confirms that LENZING™ fibers have been tested for numerous regulated and non-regulated harmful substances and are therefore harmless to human health.

By monitoring raw materials and production processes, Lenzing ensures that its fibers comply with all relevant regulations, guidelines, and standards. LENZING™ standard fibers are certified for food-contact applications under European and U.S. regulations.

Lenzing uses external third-party certifications to prove the compatibility of its products in their fields of application. Information on all the Lenzing Group's product certifications are available at: <https://www.lenzing.com/sustainability/product-benefits/>

Quality improvements

Lenzing has continued to achieve major significant quality improvements in the reporting year, include significant improvements to spinning faults in Lenzing's lyocell operations and Asian viscose factories. However, due to the COVID-19-related drop in commercial demand and multiple line shutdowns and restarts, these improvements are not reflected in the quality-related KPIs, which are generally poorer than in 2019.

The total number of complaints was higher in 2020 than in 2019 – another indication of the weaker market situation. A tight focus was placed on the main root causes for justified complaints. Lenzing is confident that all of its products perform well in their respective applications.

The Heartbeat for Quality initiative continued in the year under review. Particular attention was paid to Event Action Reporting (EARs), root cause analyses of loss situations, and the development of Six Sigma experts for quality improvement opportunities. As part of the strategy that was renewed in 2020, the initiative focused on the introduction of online monitoring – which was supported by the creation of a special Perform.Improve.Team. Investments in the year under review and will continue until 2021 – and enabled the implementation of new monitoring systems on several production lines.

Management approach

Material topic: Product responsibility

Importance for Lenzing

Impact on user safety and health along the value chain

Product responsibility and customer satisfaction are key for the Lenzing Group's long-term success and business growth

Opportunities

Leading the market in product consistency, application performance, and service

Achieving business and sustainability targets by monitoring and improving manufacturing processes

Risks

Impact on user safety and health

Loss of market position due to increasing competition or new technologies

Guiding principles

Lenzing's sCore TEN strategy

Group Policy for Safety, Health and Environment

Lenzing Group ISO 9001:2015, ISO 14001:2015, OHSAS 18001:2007 certifications at all pulp and fiber production sites

Group Environmental Standard

Global Code of Business Conduct

Global Supplier Code of Conduct

Clean and Hygiene Guideline

Due diligence processes and (ongoing) measures

Environmental management system based on ISO 14001:2015 (including risk assessment and internal audits to ensure effectiveness of the measures implemented)

Product certifications such as Standard 100 by OEKO-TEX®, EU Ecolabel, etc.

Application-specific certificates (e.g. food-contact, biodegradability) under European and US regulations

Monitoring of standards and regulations by Product Safety and Regulatory Affairs

Regular updates to process chemicals and regulations

Assessment of risks to people and the environment associated with use of new materials

Approval process certifying legal compliance of new chemicals for large-scale technical deployment

Objectives

Quality leadership

Strengthening specialty/premium fiber sales, sales of pulp, biorefinery and co-products business

Achievements/activities in the reporting year

Collaboration along entire value chain to support customers for clean processing of Lenzing fibers

Roll-out of the Clean and Hygiene Guideline across all sites

Responsible

Global Quality Management & Technical Customer Service

Supporting

Global Business Management

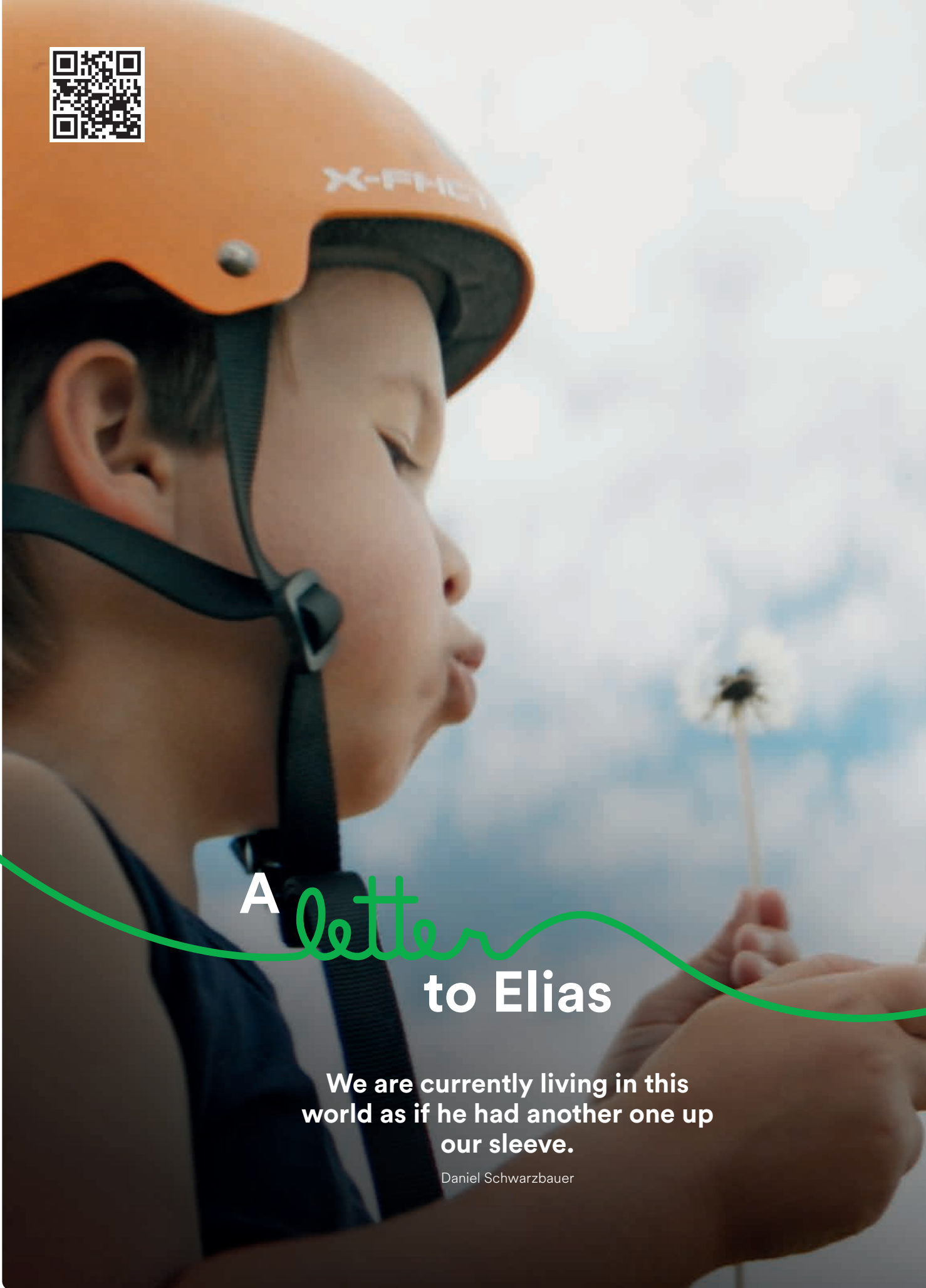
Global Engineering

Global Safety, Health, and Environment

Global Technology

Global Pulp and Wood

Research & Development



A letter to Elias

We are currently living in this world as if he had another one up our sleeve.

Daniel Schwarzbauer

Dear Elias,

You are nearly four years old now and you are discovering the world with endless curiosity.

I like thinking about how we spend time together as a family, enjoying the outdoors or the mountains, and I hope that you never lose touch with nature.

We are currently living in this world as if we had another one up our sleeve. That's why I often wonder what this world will look like when you are older. The Earth's raw materials are limited, so it is important to use them carefully. I work for a fiber company that thinks sustainably and takes great care in using our precious resources. Our fibers are originally made from wool. They are biodegradable and compostable. Our work is all about our responsibility towards future generations, including your children and grandchildren.

My wish for your future is that it may be carefree and without any worries for you and your future sibling. Don't let anyone get you down and go your own way. Stay as you are because you are just right!

Love, Dad

Daniel Schwarzbauer ...

... helps to ensure, with great passion and knowledge, that the high-tech machines in Lenzing run as smoothly as possible. A high level of system availability, quality and efficiency are the foundation and benchmarks for his area of work.

Partnering for systemic change

The world is more interconnected today than ever before. Improving access to technology and knowledge is an important way to share ideas and foster innovation. The complex global sustainability challenges we are facing, such as the COVID-19 pandemic, climate change, widespread biodiversity loss, plastic pollution, etc., call for a collaborative approach to designing systemic solutions.

Transparency is a prerequisite for fostering trust and long-term relationships. Guided by the United Nations, Sustainable Development Goal SDG 17, Partnerships for the Goals, the Lenzing Group regularly engages with a wide range of stakeholders and business partners in order to integrate different perspectives, understand global trends, and mitigate risks. Lenzing strives to identify and develop cross-industry business cases to make progress in instituting circularity at Lenzing and throughout the industry. With its contributions to developing methods, tools and products, Lenzing helps the industry to progress on its path towards a more sustainable future. For example, Lenzing's launch of carbon-zero TENCEL™ fibers contributes to reducing the carbon footprint of customers' supply chains.

Engaging in a dialog means respecting stakeholders, contributing Lenzing's expertise and knowledge, and taking the opportunity to learn from partners' perspectives. Each dialog starts with providing transparent information, supporting stakeholders to form an educated opinion and assess risks, and avoiding misunderstandings by building trust. Furthermore, stakeholder relationships built on trust and openness help solve existing tensions and avoid potential conflicts.

The ongoing stakeholder dialog was considerably affected by the COVID-19 pandemic in the reporting year and was predominantly conducted online. Despite some cancellations and delays, the Lenzing teams made great efforts to continue their activities online with virtual workshops and webinars with customers, one-on-one discussions, training sessions, interviews, surveys, education, joint product development, web platforms, roadshows, regular media relations, online trade shows and conferences, press interviews, risk assessments, and audits.

Various business functions are involved in reaching out to individual stakeholders. In addition to the Lenzing Sustainability team, the Managing Board, managers of the different business functions, and key account managers are all important players who drive the company's proactive approach towards ongoing stakeholder dialog.

Key stakeholders in 2020

The Lenzing Group's key stakeholders are the people and entities who are potentially affected by its operations, business conduct, and strategic targets. Lenzing regards them as strategic partners who have a significant interest in and impact on areas that matter the most to Lenzing.

One very special stakeholder group is Lenzing's staff. Transparency, collaboration, and sharing of information make them key testimonials to the Lenzing Group's sustainability performance. For the special challenges COVID-19 presented for the Lenzing staff in the reporting year, please see chapter "Empowering people".

Key stakeholder groups

Figure 17



Main topics discussed in 2020:

- COVID-19 pandemic
- Climate change, CO₂ climate target (science-based target)
- Proposed EU Single-Use Plastics Directive
- Responsible sourcing, in particular sustainable sourcing of wood and pulp
- Circular economy
- Waste, emissions and water management
- Transparency and traceability of supply chain
- Raw material assessments (definition of sustainable raw materials)

For more information on stakeholder dialog, please see the "[Stakeholder Engagement](#)" focus paper.

Interview with the Managing Board



Christian Skilich
Member of the Managing Board

Christian Skilich, member of the Managing Board, on the sustainability of the Brazilian construction project and the burning issue of biodiversity.

Dear Nikolaus,
With all the efforts we are making today, we will slow down climate change and leave behind a better world. I am convinced of that. But I also know that we cannot manage it all by ourselves. We can all contribute our share – and that's also our responsibility. So never live just for today, but always also think about tomorrow!



The world's largest dissolving wood pulp plant of its kind is currently under construction in Brazil. How is this key strategic project for Lenzing coming along?

Christian Skilich: The project is on schedule and making very good progress despite the pandemic. The expected construction cost for this giant project is USD 1.38 bn; one of its milestones was the conclusion of the financing agreements in Q2 2020. Commissioning is still planned for the first half of 2022.

How does the project advance Lenzing's sustainability goals?

Christian Skilich: The new plant strengthens backward integration and thus Lenzing's growth in specialty fibers in line with our corporate strategy. Also, the new site in Brazil will export more than 50 percent of the electricity it generates to the public grid as renewable energy and will have a positive net carbon footprint once it starts operations. Lenzing takes its responsibility very seriously as the owner of a 44,000-plus-hectare, FSC®-certified biomass plantation and applies the strictest standards to cultivation as well.

What global developments have you observed surrounding the perception of forests as a shrinking, and thus increasingly valuable, source of raw materials?

Christian Skilich: The forest ecosystem is both a living space and an economic area. It also plays a crucial role in the fight against climate change as a carbon sink. We need to carefully balance all these roles to protect the forest and its important functions for us and future generations. Lenzing assumes responsibility by striving for sustainable procurement based on environmental certificates and responsible, efficient use of valuable natural resources. Used sustainably, wood-based products have positive effects on carbon footprints since they replace products manufactured with more CO₂ emissions and can replace fossil fuels by being used for energy at the end of their life.

Biodiversity is at least as important as climate change. The two issues are closely linked. How can Lenzing help preserve biodiversity?

Christian Skilich: We honor our commitment to environmental protection and resource conservation by only using wood and fiber pulp from certified, sustainable sources – thereby making a significant contribution to the responsible preservation of biodiversity. The use of wood from sustainable forestry supports biodiversity in our forests. Also, Lenzing has been working for many years with NGOs, customers and partners along the downstream value chain to raise public awareness of biodiversity and take active measures to preserve it.

Empowering

people

Management approach

Material topic: Labor practices/human rights (NaDiVeG)

Importance for Lenzing

People are at the core of the company's business success

Lenzing is ethically and legally responsible for occupational health and safety, which ensures the wellbeing of Lenzing's staff and neighbors

Opportunities

Good labor practices promote staff safety and wellbeing and ensure healthy and satisfied employees

Enabling personal success and contributing to the growth and success of the company

Lenzing is a first choice employer in the global fiber industry

Diversity promotes the quality of business decisions and contributes to the company's resilience

Competitive advantage through a committed workforce

Development of a corporate culture that is characterized by openness and mindful interactions

Risks

Occupational safety risks for in-house employees and supervised workers

Negative effects on employee and contractor health, employee development, surrounding communities, upstream and downstream value chain partners

Risk of discrimination and other possible negative impacts on human and labor rights

Potential regulatory, technology, market, and corporate reputational risks

Guiding principles

Local labor laws

Policy on Human Rights and Labor Standards

Lenzing Global Code of Business Conduct (COBC)

Lenzing Global Supplier Code of Conduct (SCOC)

Wood and Pulp Policy

Policy for Safety, Health and Environment (SHE)

Sustainability Policy

Product Safety Policy

HR Strategy

sCore TEN culture and leadership model

Diversity concept

Personnel development measures and tailor-made training programs

Lenzing Group health management system ("House of Health")

Quality Policy

Due diligence processes and (ongoing) measures

SHEARS System

Regular meetings of health and safety committees at every production site

Safety walks and talks at all Lenzing sites

Regular Global SHE meeting with management review

Objectives

Global roll-out and implementation of guiding principles

Contribution to SDG 3, 5, 8, and 10

Commitment to a sustainable and healthy leadership style

Continuous development of corporate culture

To have a continuously valid third-party audited accredited social certificate for every Lenzing Group production (fiber or dissolving wood pulp) site by 2023

To enable people to live even better lives with Lenzing products and by respecting human rights, employee wellbeing, and diversity

To continuously support the development of local communities near Lenzing production sites and support social welfare programs to 2025 and beyond

Achievements/activities in the reporting year

No cases of human rights abuses

Eye-to-eye partner for local unions, works councils, and other workforce representatives

No strikes at any Lenzing production facility

Annual performance reviews

Employees training programs

Regional social projects

Employee health programs

eMotion programme with "Moveeffect" app

IOSH training (leading, managing and working safely) Start design/review and roll out of Lenzing Corporate Values, Leadership Principles

Implementation of Global Performance and Talent Management

Responsible

SVP Global Human Resources

VP Global Safety

Supporting

Corporate Communications

Corporate Sustainability

The Lenzing Group's corporate culture is characterized by long-term partnerships, close collaboration, and mutual respect based on open dialog and transparency. Sustainability has been integrated into Lenzing's global human resources (HR) strategy, HR policy, and HR processes as a company value.

The Lenzing Group is committed to conducting business in a manner that respects the rights and dignity of all people. Lenzing respects internationally recognized human and labor rights for all employees and business partners.

Labor rights are subject to national laws. Employees at all Lenzing sites receive fair wages thanks to a highly regarded internal global grading system, collective bargaining, the activities of union representatives, and national protections for human rights. The EcoVadis supplier assessment tool includes fair labor rights in the upstream supply chain. The wood certification systems used by Lenzing ensure that labor conditions meet or exceed the requirements of ILO Core Conventions. The Lenzing Group's own labor practices also form part of the EcoVadis assessment.

Employees

Pandemic-related restrictions dramatically affected employees at all the sites. They suddenly had to work under very different conditions, whether at home or while strictly observing social distancing in production. Their flexibility and cooperativeness have been instrumental to the company managing the pandemic so successfully.

Global pandemic – global crisis management

As part of Group-wide crisis management, Lenzing reacted quickly, efficiently and innovatively to protect employees and their families and avoid production downtime. It set up local COVID-19 crisis teams at every production site and at all sites under construction to supplement global crisis management efforts. Meetings were held at least once a week in the year under review to evaluate proposed measures throughout the Group and decide whether to implement them.

A Lenzing Corporate Action Plan was created to align corporate pandemic safety measures with national regulations and policies. The company's measures were generally stricter and implemented earlier than national regulations. Also, they were never significantly relaxed within the company even though individual countries did ease their lockdowns at times. The action plan includes multiple measures that were ultimately implemented at specific sites only.

- Social distancing and anti-transmission measures (working from home, maintaining a distance of at least 2 meters, face masks, travel bans or restrictions)
- Technical measures (temperature control checks at entrances, surface disinfection)
- Information on personal hygiene practices for avoiding infections
- Psychological support (hotline, assistance for employees and families in need)

"Lock-in" schemes were also developed for the Lenzing Group's production sites to keep operations running at all times.

All employees at the Austrian sites were offered testing (antigen, PCR) to quickly confirm or rule out suspected infections. Online staff meetings were held regularly – every two weeks in the first few months – so that employees could hear about the current situation from the Managing Board and have an opportunity to ask questions or express concerns. Local crisis teams set up additional online meetings to explain new measures and answer employees' questions.

Empowering

people

One of the first actions that Lenzing took was to instruct employees to work from home wherever possible. It quickly built the necessary infrastructure so that remote workers could have the best technical working conditions possible.

The Austrian sites signed up for the government's furlough program, which allows companies to quickly respond to the changed business conditions without layoffs. Lenzing was also forced to temporarily slow production and even close plants at some sites.

Employee survey

Lenzing had to act swiftly and comprehensively at the start of the pandemic in a way that affected all employees' jobs and personal lives. After the first wave of measures were adopted, a survey was conducted to take Lenzing employees' temperature and identify trouble spots.

The survey was completed by every third person invited to take it, i.e. more than 1,000 team members worldwide. Their responses, together with over 360 individual text responses, showed Lenzing employees' great interest in shaping their working conditions for the future.

COVID-19 has forced many to work from home, significantly changing how people work almost overnight. The company is very proud of how teams and individuals around the world have responded to the challenges of the pandemic. Nearly nine out of ten team members are satisfied with working from home. The survey findings will be used to strike a balance between employees' individual needs and the company's business priorities. To accomplish that, the company is investigating other flexible working arrangements for the future.

International workforce

The Lenzing Group's workforce is becoming increasingly international. Despite the company's firm roots in Europe, an international corporate culture has evolved in the Lenzing Group based on strong collaboration between its sites in Asia, Europe, and America. The management team actively supports the internationalization of the workforce at all levels. At the same time, Lenzing remains an agile, hands-on company committed to service excellence while still preserving a familial atmosphere.

Diversity

Respect, diversity, and inclusion are fundamental pillars of the sCore TEN corporate strategy and integral, indispensable elements of the Lenzing culture. A diversity program was adopted on February 19, 2018. These rules are taken into consideration in staffing positions on the Supervisory and Managing Boards and are also principles applied more broadly in the overall recruitment process. It is in the interest of the Group to further grow diversity in experience, cultural background and gender. The percentage of Austrian personnel decreased from around 50 percent in 2019 to about 47 percent in 2020 as Lenzing continues to expand internationally. The number of female managers increased by 29 percent in 2020 versus the year before and the total number of female employees increased by almost 8 percent, almost twice the rate of the growth of the male employees.

In the Lenzing Group's Policy on Human Rights and Labor Standards, Lenzing undertakes to respect and support fundamental labor rights principles such as protection from discrimination, harassment, and inhumane treatment. This encompasses protection against employment decisions based on personal characteristics or beliefs that are not related to the ability to do one's job, including gender, age, race, color, national origin, ethnicity, social background, sexual orientation, family responsibility (including pregnancy), disabilities, political opinion, sensitive medical conditions, marital status, and any other discrimination in working conditions.

Employees in numbers

Compared to previous years, the ongoing progress and development of our two future projects in Brazil and Thailand is a major contributor to increasing employee headcount numbers in 2020. The main reasons for employees leaving in 2020 are an increase in retirements and mutual termination of contracts. This is reflected in all figures of the following tables.

Workforce 2020

Table 24

General information required	2018	2019	2020
Total number of employees	6,839	7,036	7,358
Female	946	1,010	1,090
Male	5,893	6,026	6,268
thereof in Austria	3,387	3,513	3,482
thereof in Indonesia	1,763	1,735	1,614
thereof in Czech Republic	406	416	410
thereof in China	743	751	839
thereof in USA	205	209	210
thereof in UK	190	200	203
Others (India, Thailand, Turkey, Korea, Singapore, Thailand, Taiwan and Brazil)	145	212	600
Total number of employees – full time	5,344	5,482	6,904*
Female	681	717	797
Male	4,663	4,765	6,107
Total number of employees – part time	1,495	1,554	454
Female	265	293	293
Male	1,230	1,261	161
Total number of supervised workers	523	457	433
Number of apprentices	182	190	184
Female	23	24	22
Male	159	166	162
Individuals within the organization's governance body (board and supervisory board)^b	2018	2019	2020
Number of individuals total	15	15	14
Under 30	0	0	0
Between 30 and 50	3	4	2
Over 50	12	11	12
Female	1	1	2
Male	14	14	12
Percentage of individuals – under 30	0 %	0 %	0 %
Between 30 and 50	20 %	27 %	14 %
Over 50	80 %	73 %	86 %
Female	7 %	7 %	14 %
Male	93 %	93 %	86 %
Individuals outside the organization's governance body (others)^c	2018	2019	2020
Number of individuals total	6,835	7,032	7,353
Under 30	1,360	1,304	1,337
Between 30 and 50	3,952	4,116	4,341
Over 50	1,523	1,612	1,675
Female	946	1,010	1,090
Male	5,889	6,022	6,263
Percentage of individuals – under 30	19.9 %	18.5 %	18.2 %
Between 30 and 50	57.8 %	58.5 %	59 %
Over 50	22.3 %	22.9 %	22.8 %
Female	13.8 %	14.4 %	14.8 %
Male	86.2 %	85.6 %	85.2 %

a) Due to a transition to a 5-shift system, these employees (=0.9 FTE) were counted as part-time employees in the previous reporting years. From 2020 onwards they will be counted as full-time employees and therefore be included in the full-time employee figures.

b) excluding Supervisory Board members appointed by works council; members of Supervisory Board are not included in any other headcount figure/table, apart from this one

c) including Supervisory Board members appointed by works council

Empowering

people

Workforce 2020

Table 24

Individuals within managing role – overall (at least one direct)	2018	2019	2020
Number of individuals – 30 and below	36	32	32
Between 31 and 50	458	480	507
Over 50	281	281	297
Female	87	99	128
Male	688	694	708
Percentage of individuals – 30 and below	5 %	4 %	4 %
Between 31 and 50	59 %	61 %	61 %
Over 50	36 %	35 %	36 %
Female	11 %	12 %	15 %
Male	89 %	88 %	85 %
Number of employee category 1 – 30 and below	15	13	16
Between 31 and 50	325	348	388
Over 50	241	235	249
Female	78	84	115
Male	503	512	538
Number of employee category 2 – 30 and below	21	19	16
Between 31 and 50	132	130	108
Over 50	38	44	43
Female	8	15	11
Male	183	178	156
Number of employee category 3 – 30 and below	0	0	0
Between 31 and 50	1	2	11
Over 50	2	2	5
Female	1	0	2
Male	2	4	14
Percentage of employee category 1 – 30 and below	3 %	2 %	2 %
Between 31 and 50	56 %	58 %	59 %
Over 50	41 %	39 %	38 %
Female	13 %	14 %	18 %
Male	87 %	86 %	82 %
Percentage of employee category 2 – 30 and below	11 %	10 %	10 %
Between 31 and 50	69 %	67 %	65 %
Over 50	20 %	23 %	26 %
Female	4 %	8 %	7 %
Male	96 %	92 %	93 %
Percentage of employee category 3 – 30 and below	0 %	0 %	0 %
Between 31 and 50	33 %	50 %	69 %
Over 50	67 %	50 %	31 %
Female	33 %	0 %	13 %
Male	67 %	100 %	88 %

Category 1

white collar manager

Category 2

blue collar manager

Category 3

supervised worker – manager

Workforce 2020

Table 24

Number of newly hired employees	2018	2019	2020
Female	87	111	185
Male	535	494	703
Under 30	132	44	152
Between 30 and 50	255	324	465
Over 50	235	237	271
Austria	354	294	213
Indonesia	74	40	2
China	105	115	96
Czech Republic	47	26	18
USA	24	30	12
United Kingdom	18	19	11
Others (India, Thailand, Turkey, Korea, Singapore, Taiwan and Brazil)	0	81	536
Female	14 %	18.4 %	20.8 %
Male	86 %	81.7 %	79.2 %
Under 30	21.2 %	7.3 %	17.1 %
Between 30 and 50	41 %	53.6 %	52.4 %
Over 50	37.8 %	39.2 %	30.5 %
Austria	56.9 %	48.6 %	24 %
Indonesia	11.9 %	6.6 %	0.2 %
China	16.9 %	19 %	10.8 %
Czech Republic	7.6 %	4.3 %	2 %
USA	3.9 %	5 %	1.4 %
United Kingdom	2.9 %	3.1 %	1.2 %
Others (India, Thailand, Turkey, Korea, Singapore, Taiwan and Brazil)	0 %	13.4 %	60.4 %

The company is very proud of how individuals and teams around the world responded to the challenges during the COVID-19 pandemic.

Empowering

people

Workforce 2020

Table 24

Employee turnover	2018	2019	2020
Number of employees that left the company			
Female	59	47	105
Male	285	361	461
Under 30	80	100	119
Between 30 and 50	140	160	240
Over 50	124	148	207
Austria	126	168	244
Indonesia	60	68	123
China	88	100	95
Czech Republic	30	16	24
USA	22	26	11
United Kingdom	7	9	8
Others (India, Thailand, Turkey, Korea, Singapore, Taiwan and Brazil)	11	21	61
Percentage of employees that left the company			
Female	17.2 %	11.5 %	18.6 %
Male	82.9 %	88.5 %	81.5 %
Under 30	23.3 %	24.5 %	21 %
Between 30 and 50	40.7 %	39.2 %	42.4 %
Over 50	36.1 %	36.3 %	36.6 %
Austria	36.6 %	41.2 %	43.1 %
Indonesia	17.4 %	16.7 %	21.7 %
China	25.6 %	24.5 %	16.8 %
Czech Republic	8.7 %	3.9 %	4.2 %
USA	6.4 %	6.4 %	1.9 %
United Kingdom	2 %	2.2 %	1.4 %
Others (India, Thailand, Turkey, Korea, Singapore, Taiwan and Brazil)	3.2 %	5.2 %	10.8 %

Most Lenzing Group employees are employed in a permanent employment/service relationship. It is currently customary to work the first six months under a fixed-term contract followed by an automatic transition to a permanent employment/service relationship. Only around 2 percent of the workforce (including external personnel) has a genuine fixed-term employment/service contract that goes beyond the usual 6-month fixed-term period. For this reason, there is no further separate breakdown into permanent/fixed-term employment contracts.

Lenzing complies with the local labor standards in all countries of operation. Collective agreements cover 84.0 percent (2019: 81.9 percent, 2018: 82.2 percent) of the Lenzing Group's global workforce. 91.1 percent (2019: 98.9 percent, 2018: 97.9 percent) of employees are subject to notice periods governed by labor law or collective agreements.

Employees with disabilities

Table 25

	2018	2019	2020
Lenzing Group	102	104	101
Austria	85	88	79
Czech Republic	13	11	11
USA	1	3	2
Indonesia	2	2	2
China	1		
Brazil			7

* No formal recording of numbers of employees with disabilities is conducted at the site in Grimsby (United Kingdom) since there is no definition provided by local legislation.

Works council

The Lenzing Group's management is committed to a transparent information policy towards the employees' official representatives. There are local works councils at the facilities in Lenzing and Heiligenkreuz. In accordance with the Austrian Labor Constitution Act, representatives of the Lenzing AG works council at the Lenzing site have seats and voting rights on the Supervisory Board. The Lenzing AG works council represents the interests of employees at the sites in Lenzing and Heiligenkreuz (Austria). In addition to these sites, trade union representatives of different factions and interest groups are active at the sites in Paskov, Purwakarta, Nanjing, Grimsby, and Mobile.

Consequently, 100 percent of the total active workforce of Lenzing production sites is represented by local unions or works councils. No strikes took place at any Lenzing site in 2020.

Implementation of Global Performance and Talent Management

In 2020, Lenzing prepared and started to roll out two fundamental people development processes: Performance and Talent Management. The company is stepping up its efforts to support the development of individual employees and the company as a whole by defining profound processes, clear roles, and a digital system.

Talent Management aims to accelerate talent development and enable promising individuals to grow with the business. The Talent Management process is focused on understanding and supporting the needs of the Lenzing Group and developing the right talent mix to deliver against the sCore TEN strategy. Furthermore, Talent Management helps to develop a strong internal talent pipeline of successors to key positions in the future.

The global Performance Management process aims to drive growth and build sustainable business performance by creating a culture of high engagement and high performance. Performance Management is focused on creating an environment where people can perform to the best of their abilities to produce the highest-quality work most efficiently and effectively.

Both processes will be rolled out to the first three levels of the Lenzing Group and some selected departments in 2021. The processes will thus reach more than 900 employees in 2021.

Empowering

people

Lenzing Leadership programs

31 highly motivated employees were selected in autumn 2019 for “Springboard III”, Lenzing’s global junior leadership program, to be trained and prepared for future leadership positions within the Lenzing Group. In 2020, the participants completed Learning Unit 2 out of 5, which covered “Connect”, an important aspect of Lenzing’s leadership model.

Due to the unprecedented situation brought about by the global pandemic, the second Learning Unit was reorganized in 2020 as a virtual learning program that enabled participants to learn and develop with different program modules: self-learning, virtual exchange, and coaching and transfer actions. The program will continue with Learning Unit 3 “Shape” and Learning Unit 4 “Deliver” in 2021.

The first global group of “Leaders of Tomorrow” was also formed. “Leaders of Tomorrow” is a tailor-made development program for skilled workers early in their careers. It was started in 2018 with an Austrian pilot group and rolled out globally in autumn 2019. The program includes job rotations, seminars, and virtual exchanges. The aim is to prepare talented individuals for future leadership roles and international collaboration. 10 employees from Austria, Czech Republic, United Kingdom, Indonesia, and China successfully participated in this unique development program.

Competency Framework

The Lenzing Competency Framework concept was developed in 2020. Each framework consists of leadership and functional competencies. The leadership competencies align with the sCore TEN leadership model and are globally consistent for all Lenzing employees. The functional competencies describe the required level of competency for the specific business area. By assessing employees on the expected competencies of their job role, Lenzing is able to systematically identify its employees’ strengths and development needs. It can then leverage these insights to provide individual learning opportunities and prioritize different training initiatives. The first three business areas with more than 150 employees’ will start to assess their employees’ competencies in the first quarter of 2021.

Learning & Development

Lenzing employees take responsibility for their own personal and professional development. To enable their continuous, individual development, Lenzing has developed a global Learning & Development (L&D) catalog. The catalog is part of Lenzing’s internal learning management system Learn@Lenzing and allows employees to individually browse for development opportunities. The catalog includes formal training programs but especially focuses on social learning and experience learning opportunities. This 70:20:10 blended learning approach has proven its value in adult development. The catalog roll-out is planned for the beginning of 2021. The catalog will be available to all Lenzing sites.

As the global pandemic raised unprecedented difficulties for face-to-face training, many courses were digitalized and conducted remotely in 2020. The lessons learned will be utilized in the years ahead. A representative cross-section of the remote training sessions includes:

- Fiber Academy (program for new employees to gain a better understanding of Lenzing’s value chain from wood to final product) conducted virtually and to be available as an eLearning program in 2021
- Learn@Lenzing Poweruser training (enable Learn@Lenzing Powerusers to develop engaging digital learning content and teach them how to use the Learn@Lenzing platform)
- New eLearning courses globally available on legal and other topics
- 22 weeks of remote training on lyocell technology for production core team (about 40 employees) at Lenzing’s site in Thailand
- Culture competence training and language training successfully conducted via WebEx for different target groups

Total expenditure on lifelong learning and personnel development increased from EUR 5.9 mn in 2018 to EUR 6.1 mn in 2019 and decreased to EUR 1.38 mn at the end of 2020. The expenditures decreased in 2020 because many planned training courses could not be held due to the COVID-19 pandemic.

Health and safety

The Lenzing Group's health management system ("House of Health") is based on the salutogenesis concept, which is tailored to the individual social and health care systems of the countries where Lenzing operates. It provides a conceptual framework for targeted investments in the health of Lenzing's employees. Global Health Care Management works closely with the regional employees responsible for health issues as well as the department of Quality, Environment, Safety and Health (QESH).

Health care at Lenzing production facilities

Lenzing gives employees at all production sites access to an in-house primary care system that complements the existing health systems of the individual countries.

Lenzing uses medical partners in the regions around the sites to offer its employees a diagnosis and therapy service tailored to local needs. The range of medical services extends from several medical examinations and therapy sessions per week at the sites in Mobile (United States) and Grimsby (United Kingdom) through to healthcare services for family members at a clinic in the vicinity of the production site in Purwakarta (Indonesia).

The large fiber production plants in Lenzing and Purwakarta also have their own outpatient clinics with qualified medical staff for quick, competent outpatient treatment of acute conditions and injuries as well as their own ambulances to ensure prompt follow-up treatment at special medical facilities.

Every Lenzing facility has first aiders trained in certified basic and regular refresher courses. A Group-wide initiative entitled "Saving Lives – At Work and At Home" was launched in 2018 to increase the preparedness and ability of all employees to provide first aid on the spot in cases of life-threatening health problems. The training sessions could not be held in 2020 due to the COVID-19 pandemic.

Health promotion

In addition to numerous regular activities at the company's individual sites, exercise became a focal point of the Group's health promotion policy in 2019 (eMotion programs). These programs are designed to motivate and support employees in pursuing a healthy lifestyle both in and outside the workplace. Activities were reduced due to the COVID-19 pandemic, but health topics related to COVID-19 were also communicated via the health app mentioned below.

A healthy living app specifically tailored to companies (Moveeffect®) was adapted to meet the needs of the company and the various countries in which Lenzing operates. It was then distributed to all employees for voluntary use. The app aims to encourage employees to become more active via features such as feedback tools on the user's own exercise habits, personal and group targets, ranking options, and small-scale competitions. It also offers a platform for communicating about personal fitness activities and initiating group activities. In 2020, Lenzing used the innovative appointment booking function in the app to offer employees at the Lenzing site "COVID-safe" health checks and COVID-19 antibody tests.

Occupational medical care

In 2020, Lenzing continued to work on the gradual development of a coordinated network for occupational medical care that exceeds the minimum standards required by the individual countries. By enhancing competence in occupational medical care, Lenzing will ensure that employees and managers have the best resources available to protect themselves from and deal with risks in the workplace.

The COVID-19 pandemic also challenged occupational medical care at all Lenzing sites. New tasks such as COVID-19 testing, contact tracing and staff information were added to the daily activities. Thanks to the excellently coordinated teams at the sites and the good preparation of the global crisis management, the company has been able to master the pandemic well so far. To date, no major clusters have formed at the sites.

Empowering

people

Healthy management approach

A company's management style is a fundamental influence on the health of its workforce. This fact is gaining importance in management education and training.

In 2019, a decision was made to conduct an annual indicator survey of all employees at all locations. Its implementation was postponed until 2021 due to the COVID-19 pandemic. Leadership style will play an important role in the 10 to 15 survey questions designed to capture various aspects that influence the health of employees. The survey results are intended to enable trend tracking but should also provide a guideline that management and employees can use to determine which specific interpersonal behaviors conform to the sCore TEN values and leadership model.

Occupational health and safety

The Lenzing's Group Policy for Safety, Health and Environment aspires to have no accidents, no harm to people, and no damage to the environment, underpinned by its vision, LEAVE HOME HEALTHY, COME HOME HEALTHY. The central task is to minimize the risk of harm and foster a Lenzing community where risk is properly appreciated, understood, and managed.

Following the introduction of the "Heartbeat for Safety" program in 2016, which revitalized the Group's health and safety strategy, the Lenzing Group continued to implement programs to improve its safety culture in 2020, maintaining a focus on "operational discipline" following the five-year implementation strategy plan.

The "Heartbeat for Health" program started in 2018 in order to increase awareness of safe chemical handling practices, focusing on high-volume process chemicals such as sulfur dioxide in pulp production, carbon disulfide in viscose fiber production, and N-methylmorpholine N-oxide in lyocell production.

For more information about Lenzing's SHE policies, please see on the Lenzing website (<https://www.lenzing.com/en/sustainability/people/health-and-safety/>).

Occupational health care during the pandemic – two examples

Lenzing site

Three staff members at the Lenzing site have been solely handling COVID-19 and all related testing and contact person management activities since the pandemic began. The well-established health center at the company headquarters and the internal and external laboratories play essential roles in this regard. Lenzing has cooperated very closely and effectively with the local authorities from the very beginning.

The Lenzing site has been conducting on-site testing with two of its own PCR devices since early summer. Throat swabs are taken by a doctor from the health center. The analysis is conducted by the company's own laboratory. 865 tests have been performed thus far. PCR test results are always available within 24 hours of the case becoming known. In addition, more than 400 antigen tests have been carried out on site since autumn.

Symptomatic individuals and their close contacts in the company are tested. Tests are also performed on people who may have had even a slightly increased risk of infection despite the rigorous safety precautions. Employees are encouraged to get tested at the company in order to quickly contain or prevent an outbreak or spread within the company.

Additional PCR screening tests are performed with saliva samples in critical areas and on selected employees in collaboration with an external laboratory.

The immunity status of 450 employees was determined by means of a voluntary blood test in September. Approximately one percent of those tested had antibodies. This test will also be repeated on a voluntary basis in the spring.

Construction site in Brazil

It was very important for the Lenzing Group to be able to continue the construction work in Brazil. A contractor responsible for the medical care of the staff (with several doctors and medical support staff) and a dedicated doctor were employed there. This team took over the management and coordination of all COVID-19 issues. Also, very early and extensive rapid antigen tests and PCR tests were carried out in Brazil in cooperation with an external laboratory.

Focus on improving safety performance

Safety highlights at SPV in 2020

- In January 2020, South Pacific Viscose (SPV) successfully obtained an SMK3 certificate (Occupational Health and Safety Management System) with a very satisfactory score (Satisfactory Rating Level – 90.36 percent). This certificate is required by applicable regulations in Indonesia.
- SPV vigorously executes the Corporate Social Responsibility (CSR) program in keeping with its commitment to environmental and social responsibility. This program aims to:
 - Increase public and stakeholder awareness
 - Build constructive engagement
 - Educate villagers about clean and healthy living
 - Conserve the Citarum river to prevent further environmental damage, and disease from B3 waste contamination
- SPV finalized the implementation of its Process Safety Management (PSM) system based on ISO 31000 and Center of Chemical Process Safety (CCPS) standards at the start of the first quarter of 2020. A safety review was successfully conducted in the second and third quarter of the year to verify a state-of-the-art safety level and continuous improvement as part of the implementation of the standards.
- Under the PSM system, all changes are verified using the change management system, including the pre-startup safety review (PSSR) for any kind of changes or longer shutdowns.

The Lenzing Group has continued to make safety improvements even after the 2016 introduction of its health and safety strategy roadmap, “Heartbeat for Safety.” The inclusion of clear standards and targets has also enabled the Lenzing Group to successfully analyze its performance data, which provides realistic improvement targets based on prior-year analyses.

The addition of “Heartbeat for Health” has additionally raised awareness and understanding of the correct practices for chemical use, handling, and storage.

The Lenzing Group’s analysis uses both lagging and leading indicators to obtain a clear performance picture. The lagging indicators include, but are not limited to, the rate of work-related injuries, the rate of high-consequence work-related injuries, the rate of fatal injuries, the total recordable injury rate, and the lost time injury frequency rate. Leading indicators include, but are not limited to, the total number of reports, the number of management safety walks, the number of open reports, the percentage of implemented tasks, and the monitoring of planned safety meetings. Key performance indicators are shown in the table below.

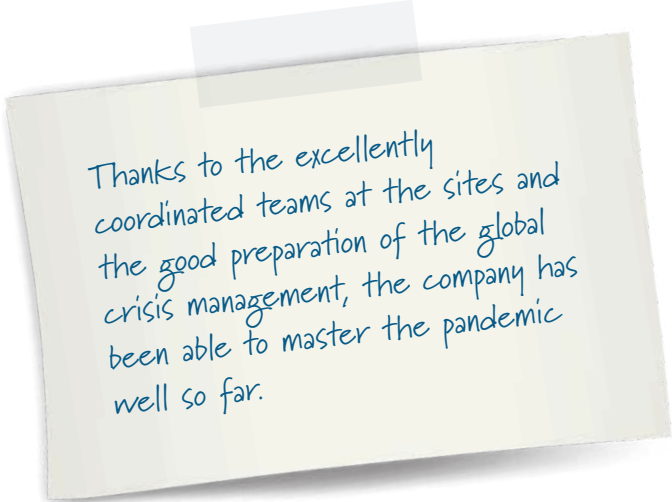
Workers focus

The Lenzing Group takes measures to ensure those working for or on behalf of the Group receive the training and information they need to work safely and leave work in the same condition they arrived in. Multiple standards and programs have been created to achieve this goal through “Heartbeat for Safety” and “Heartbeat for Health”. One such program included a partnership with the Institute of Occupational Safety and Health (IOSH) leading to recognized training by qualified internal trainers. The training has had an impact within the Group, more so when this training is combined with identification of potentially hazardous areas, controlling of contractual staff, process and machinery safety.

Workers in the Group can voice their concerns or observations at safety meetings so they can be reviewed and appropriate remedial action taken.

Current performance compared to previous years

The Lenzing Group may have increased its headcount, but the tables below still show consistent year-on-year improvements since the launch of the Lenzing “Heartbeat for Safety” strategy. Lenzing will continue to strategically measure its system’s effectiveness to create a safer workplace as further processes and facilities are created or improved in line with its continuous improvement philosophy.



Thanks to the excellently coordinated teams at the sites and the good preparation of the global crisis management, the company has been able to master the pandemic well so far.

Work-related injuries for all employees

Table 26

	2018	2019	2020
Total hours worked (Productive working hours)	13,707,428	14,104,975	14,572,350
i) Number of fatal injuries	0	0	0
Rate of fatal injuries	0	0	0
ii) Number of high-consequence work-related injuries	2	0	0
Rate of high-consequence work-related injuries	0.02	0.00	0.00
iii) Number of recordable work-related injuries	145	148	67*
Rate of recordable work-related injuries	2.12	2.10	0.92
iv) Number of work-related injuries or ill health	221	228	179**
Rate of work-related injuries	3.22	3.23	2.46

* 2020 reduction due to introduction of recordable incident classification in accordance with OHSAS standard

** Reduction related in part to COVID-19

The top five work-related injuries for employees in 2020:

- Cuts and lacerations (50)
- Bruises (21)
- Strains (17)
- Chemical burns (15)
- Abrasions (15)

Work-related injuries for other workers (workers who are not employees but whose work and/or workplace is controlled by the organization)

Table 27

	2018	2019	2020*
Total hours worked (Productive working hours)	1,455,685	5,160,620	4,179,812
i) Number of fatal injuries	0	0	0
Rate of fatal injuries	0	0	0
ii) Number of high-consequence work-related injuries	1	0	0
Rate of high-consequence work-related injuries	0.14	0	0
iii) Number of recordable work-related injuries	52	37	18**
Rate of recordable work-related injuries	7.14	1.43	0.86
iv) Number of work-related injuries or ill health	67	46	31
Rate of work-related injuries	9.21	1.78	1.48

* exclusive of major projects Brazil and Thailand for reasons of data consistency

** 2020 reduction due to introduction of recordable incident classification in accordance with OHSAS standard

The top five types of injuries for contractors in 2020*:

- Chemical burns (7)
- Cuts and lacerations (5)
- Abrasions (4)
- Fractures (4)
- Bruises (3)

Work-related hazards that pose a risk of high-consequence injury

Table 28

		2019	2020
Work-related hazards that pose a risk of high-consequence injury, including	Machinery safety	-	-
	Work at height	-	-
	Manual handling	-	-
	Adverse event	-	-
which of these hazards have caused or contributed to high-consequence injuries during the reporting period		0	0
actions taken or underway to eliminate these hazards and minimize risks using the hierarchy of controls	Root cause analysis	-	-
	Life Saving Rules – enforcement	-	-
actions taken or underway to eliminate other work-related hazards and minimize risks using the hierarchy of controls	Task management	-	-
	HAZOP	-	-
	HAZID	-	-
	Training on Life Saving Rules	-	-
	Global Life Saving Rules audit program	-	-

Enhancing community wellbeing

The Lenzing Group's various production sites operate in their specific ecological, social and economic environments. Lenzing businesses and their regional partners are mutually dependent, sharing opportunities as well as challenges.

Community wellbeing is therefore necessary for the company's continued operations. As a good corporate citizen, the Lenzing Group promotes the beneficial development of the communities and regions where it operates. This is achieved through safe and eco-friendly operations, fair employment practices and contributions to local economic development and community life.

Promoting societal wellbeing is a key cornerstone of Lenzing's "Naturally positive" sustainability strategy and more than just a question of ensuring society's acceptance of Lenzing's activities. The Lenzing Group takes its responsibility as a large industrial company and reliable corporate citizen very seriously, even outside its direct business operations. The company strives to help improve the living conditions of its neighbors. Lenzing relies on them just as much as they rely on Lenzing.

In addition to conducting safe and environmentally responsible operations with fair business practices, Lenzing provides support to numerous social and environmental protection projects, often over many years. It also promotes local activities, from educational initiatives to healthcare and infrastructure measures. The individual production sites of the Lenzing Group act autonomously for the most part in selecting specific projects and measures that support local development and a positive social environment.

Conflicts of interest and production-related circumstances, such as noise, unpleasant odors, and environmental pollution, can nevertheless result in disputes with local residents. Procedures are in place at all sites to ensure that complaints are handled fairly and impartially. All complaints are reviewed monthly and reported directly to the Group's senior management teams.

Complaints were registered at the sites in Lenzing, Purwakarta, Paskov, Nanjing and Indianópolis in 2020, and appropriate remedial measures were taken following the investigation and review process. As of December 31, 2020, there were no pending legal disputes relating to conflicts between local communities and Lenzing companies/subsidiaries.

Social projects and environmental initiatives

The Lenzing Group has been supporting numerous social projects and local environmental initiatives for many years. The management teams at the Lenzing sites decide which projects and initiatives to support while taking account of local requirements. Lenzing actively sponsors local social amenities and programs. For more information, please see "[Responsibility for people](#)" focus paper.



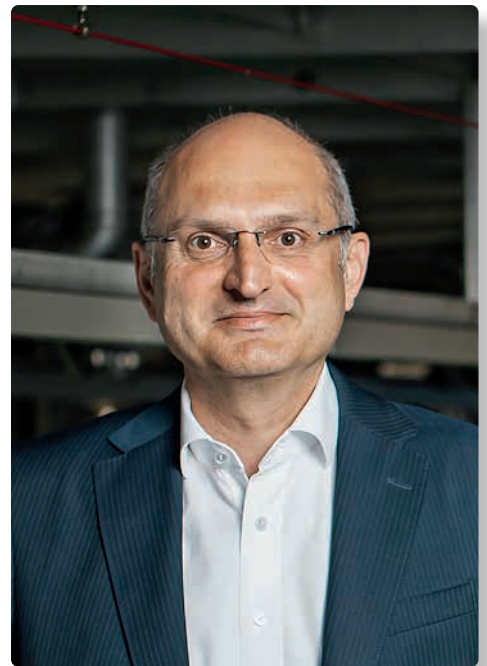
The **Managing** Board

Lenzing Aktiengesellschaft
Lenzing, March 08, 2021

Der Vorstand



Stefan Doboczky
Chief Executive Officer



Thomas Obendrauf
Chief Financial Officer



Robert van de Kerkhof
Member of the Managing Board



Christian Skilich
Member of the Managing Board



Stephan Sielaff
Member of the Managing Board

A photograph of three women in a clothing store. One woman in the foreground has long dark hair and is looking to the right. Behind her, another woman with curly blonde hair is also looking right. In the background, a third woman is looking at a yellow garment on a hanger. A green wavy line graphic is overlaid on the image.

A *letter* to Khayla and Sophie

**We produce fibers that should make
your future a little better.**

Sylvia Pedrotti

Dear Khayla, dear Sophie,

When I look at the two of you today, I am very happy to see that you get along so well although you are so different. Today, you can't take an intact environment for granted anymore. Girls, just take a look at the situation in other countries and how children grow up there. Or topics like fashion and textiles. That's important to you, isn't it? Elsewhere cotton is harvested by women or children (often your age) for a wage of 5 Euros per day. This cotton is then used to make clothing. Oil, which is also used to produce clothes, damages the environment as well. And that's why I am proud when I think about where I work. We produce fibers that should make your future a little better. No matter what you end up doing one day, whether you become an influencer, environmental activist or model. Each of you can help to make the world a better place in her very own way. To protect our world. To contribute your share. The same applies to the older ones among us. There is an Indian proverb that describes this idea quite well: "We didn't inherit the earth from our ancestors; we borrow it from our children."

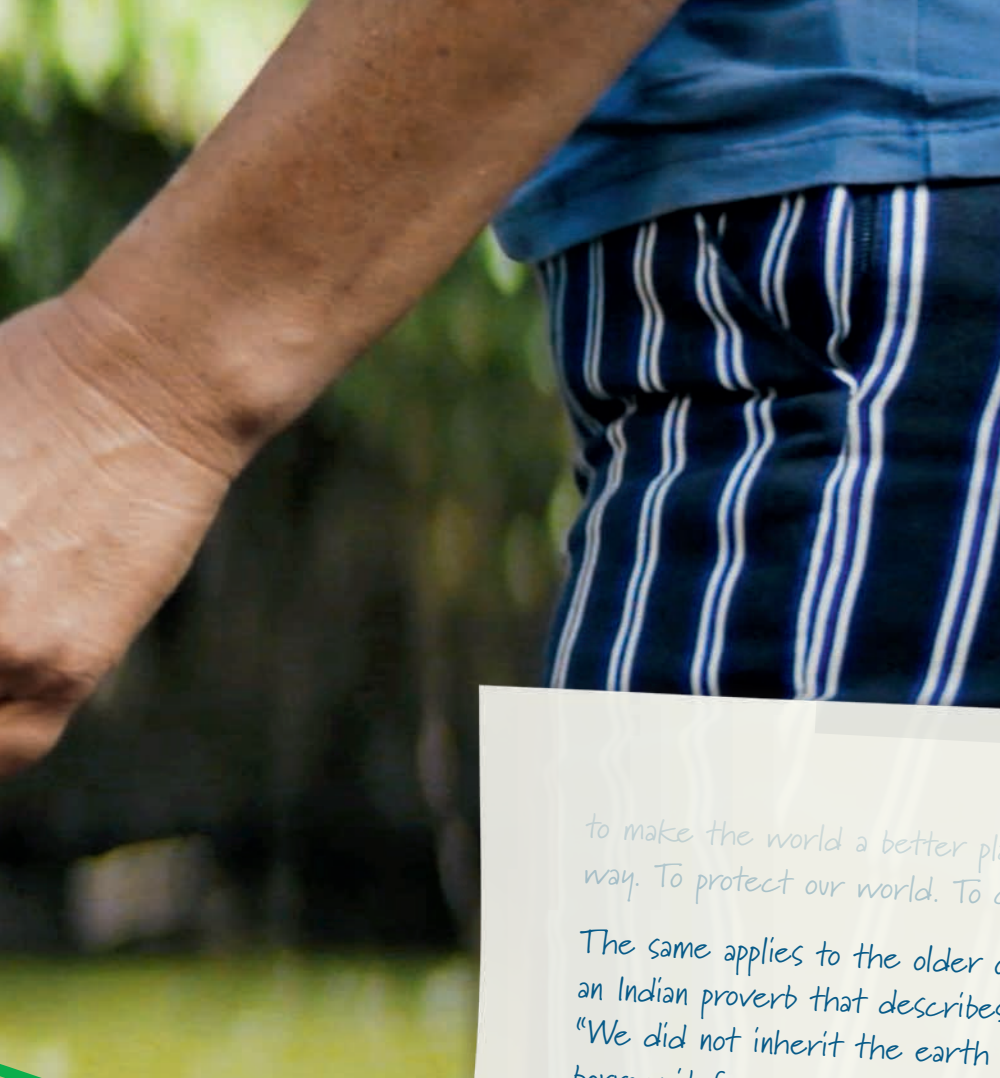
With love, your Grandma

Sylvia Pedrotti ...

... addresses our customers in China, offers further information and assistance, making a significant contribution to keeping them satisfied as long-term partners of Lenzing.



Annex



to make the world a better place in her very own way. To protect our world. To contribute your share.

The same applies to the older ones among us. There is an Indian proverb that describes this idea quite well: "We did not inherit the earth from our ancestors; we borrow it from our children."

Your Grandma

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Supplementary

information

pursuant to § 243b UGB

Lenzing Aktiengesellschaft Safety

Lenzing Aktiengesellschaft safety*

Table 29

	2018	2019	2020
Lenzing AG: number of injury cases	91	84	66
Lenzing AG: injury rate of employees and supervised workers (per 1,000 employees)	29.8	29.3	22.2
Lenzing AG: lost workday cases (LWCs)	23	27	22
Lenzing AG: lost workday cases (LWCs) Rate of employees & supervised workers (per 1,000 employees)	7.5	9.4	7.4

* Figures for Lenzing AG were calculated based on headcount (FTE) on the balance sheet date (December 31, 2020).

Work-related fatalities

No fatal injuries were registered in Lenzing Aktiengesellschaft in the reporting year.

Lenzing Aktiengesellschaft workforce

Lenzing Aktiengesellschaft workforce

Lenzing Aktiengesellschaft: Human Resource Indicators
Headcount as of 31/12; employees
(including apprentices, no supervised workers)

Table 30

	2018	2019	2020
Total headcount as of 31.12.	2,831	2,958	3,119
Proportion of women	17.8 %	18.3 %	17.7 %
Proportion of age >50	26.0 %	25.9 %	26.0 %
Proportion of non-Austrians	5.6 %	6.0 %	6.1 %
Apprentices	120	130	140
Supervised workers	215	171	144
Proportion of employees with full-time contract	54.1 %	55 %	87.5 %
thereof female	17.4 %	17.4 %	10.8 %
thereof male	82.7 %	82.7 %	89.2 %
Proportion of employees with part-time contract	46 %*	45 %*	12.5 %
thereof female	18.2 %	19.2 %	65.8 %
thereof male	82.4 %	80.8 %	34.2 %
Proportion of employees for whom collective bargaining agreements exist	100 %	100 %	100 %
Employees with disabilities	74	79	78
Turnover rate	3.4 %	3.7 %	6.7 %

* due to the transition to a 5-shift-system, shift employees (=90 percent employment level) were treated as part-time employees. This changed in 2020 as these 5-shift employees are now counted as full-time employees.

As regards potential corruption offenses or breaches of antitrust law, no official measures were undertaken or legal claims made against Lenzing Aktiengesellschaft in 2020.

Figures concerning environmental matters will not be reported separately for competitive reasons and because these matters are managed and measured on a Group-wide basis. The omission of this information does not prevent a fair and balanced understanding of its development, performance, position, and impact of these activities.

Additional information on the chapters

Wood sourcing for the Lenzing Group's own pulp mills in Lenzing (Austria) and Paskov (Czech Republic)

Beech and spruce, by country, 2018 to 2020. Regional – own country and neighboring countries.

Lenzing **Table 31**

Country	2018	2019	2020
Austria	43.2 %	39.8 %	45.9 %
Germany	23.7 %	24.9 %	22.1 %
Czech Republic	8.9 %	9.3 %	9.9 %
Slovakia	14.8 %	14.9 %	12.1 %
Hungary	1.7 %	2.2 %	4.0 %
Slovenia	0.1 %	0.5 %	0.4 %
Total regional	92.3 %	91.5 %	94.5 %
Poland	2.7 %	3.0 %	2.1 %
Ukraine	0.2 %	0.0 %	0.0 %
France	1.2 %	2.6 %	2.6 %
Estonia	0.3 %	0.0 %	0.0 %
Russia	1.4 %	0.3 %	0.0 %
Switzerland	1.6 %	1.8 %	0.9 %
Romania	0.3 %	0.9 %	0.0 %
Total other countries	7.7 %	8.6 %	5.6 %
Grand total	100 %	100 %	100 %

Paskov **Table 32**

Country	2018	2019	2020
Czech Republic	86.5 %	77.9 %	87.8 %
Slovakia	10.3 %	18.7 %	10.0 %
Poland	2.4 %	3.4 %	2.2 %
Total regional	99.2 %	100.0 %	100 %
Ukraine	0.0 %	0.0 %	0.0 %
Belarus	0.8 %	0.0 %	0.0 %
Total other countries	0.8 %	0.0 %	0.0 %
Grand total	100 %	100 %	100 %

Certification status in the Lenzing Group, 2018 - 2020

Certification status of total wood input at Lenzing fiber production sites via own and purchased dissolving wood pulp. Basis: dissolving wood pulp used for fiber production at Lenzing sites by weight. Each PEFC™ certified or controlled source is also FSC® controlled.

Table 33

Lenzing

	2018	2019	2020
PEFC™	23.3 %	23.9 %	28.5 %
FSC® Controlled Wood	34.0 %	35.6 %	29.7 %
FSC® Mix	42.5 %	40.5 %	41.8 %

NaDiVeG compliance table

Issue	Concept description	Risks for external stakeholders and environment
Respect for human rights	<ul style="list-style-type: none"> ● Policy on Human Rights and Labor Standards ● Code of Conduct ● FSC® certification ● sCore TEN (culture focus) ● Sustainability Policy 	<ul style="list-style-type: none"> ● Risks of non-compliance with human rights might affect employees of suppliers – especially in forestry ● Health and safety risks for the supply chain ● Risks of discrimination
Combating of corruption and bribery	<ul style="list-style-type: none"> ● Code of Conduct ● Whistleblowing Directive 	<ul style="list-style-type: none"> ● Supply chain risk for Lenzing's customers ● Risks concerning corruption and bribery may affect the societies of countries where Lenzing operates in a negative way.
Diversity	<ul style="list-style-type: none"> ● sCore TEN (culture focus) ● Corporate Governance Report (diversity concept) ● Policy on Human Rights and Labor Standards ● Code of Conduct 	<ul style="list-style-type: none"> ● Discrimination of gender, cultural background, age and further diversity aspects ● Mental health risks for employees
Social (employees)	<ul style="list-style-type: none"> ● sCore TEN (values, culture focus, leadership model) ● Sustainability Strategy ● Sustainability Policy ● Works council/trade union at all sites ● Policy for Safety, Health and Environment ● Life-long learning program ● Whistleblowing Directive 	<ul style="list-style-type: none"> ● Safety and health risks for employees and supervised workers ● Negative effects on employee development, communities and value chain partners ● Risk of infectious disease like COVID-19
Social (society)	<ul style="list-style-type: none"> ● Compliance with applicable laws ● Sustainability Strategy (focus area community wellbeing) ● Sustainability Policy ● Whistleblowing Directive 	<ul style="list-style-type: none"> ● Health and safety risks for local communities ● Environmental risks ● Supply chain risks for Lenzing's downstream customers
Environment	<ul style="list-style-type: none"> ● Sustainability Strategy ● Sustainability Policy ● Policy for Safety, Health and Environment ● Wood and Pulp Policy ● Group Sustainability targets ● ISO management systems ● Enterprise Excellence (EPEX) ● Science-based target 	<ul style="list-style-type: none"> ● Risks of negative effects on the ecological systems of forests of suppliers and water bodies ● Risks of high contribution to climate change through own emissions to air ● Risks of substance leakage

Table 34

Risks for Lenzing	Due diligence/measures for handling the risks	Results
<ul style="list-style-type: none"> ● Legal and compliance risk ● Fines ● Lawsuits ● Reputation loss 	<ul style="list-style-type: none"> ● Whistleblowing system ● Works council ● Supplier assessment to mitigate supply chain risks ● Group Policy on Human Rights 	<ul style="list-style-type: none"> ● No cases of human rights abuses 100 % of the total workforce is represented by local unions or works councils. No strikes at any Lenzing production facility in 2020. → “Empowering people” and “Raw material security” chapters
<ul style="list-style-type: none"> ● Legal and compliance risk ● Business damage ● Reputation loss ● Fines ● Lawsuits 	<ul style="list-style-type: none"> ● Whistleblowing system ● Compliance training ● Enforcement ● Reporting to the Audit Committee of the Supervisory Board twice a year ● Supplier assessment to mitigate supply chain risks 	<ul style="list-style-type: none"> ● No cases of corruption in 2020 ● No significant fines or non-monetary sanctions were imposed as a result of legal infringements or breaches of regulations in 2020. → “Empowering people” chapter
<ul style="list-style-type: none"> ● Compliance risk ● Reputation loss 	<ul style="list-style-type: none"> ● Grievance mechanism through works council ● Diversity concept 	<ul style="list-style-type: none"> → “Empowering people” chapter (gender, age, employees with disabilities)
<ul style="list-style-type: none"> ● Reputation loss ● Negative impact on employer branding ● Difficult recruitment ● High employee turnover ● Loss of know-how and lack of competence ● Lawsuits 	<ul style="list-style-type: none"> ● Whistleblowing system ● Heartbeat for Safety, Heartbeat for Health ● Life Saving Rules ● SHEARS platform ● Safety training ● Health infrastructure at all sites ● Specific regional events for employees ● Works councils/trade unions 	<ul style="list-style-type: none"> ● Improvement of lost workday cases and injury rate over the past years → “Empowering people” chapter → Annex
<ul style="list-style-type: none"> ● Reputation loss ● Lawsuits ● Business damage 	<ul style="list-style-type: none"> ● Whistleblowing system ● Community activities at production sites 	<ul style="list-style-type: none"> ● No significant fines or non-monetary sanctions were imposed as a result of legal infringements or breaches of regulations in 2020. ● Dirty Fashion Report → “Empowering people” chapter → Annex → KPIs report cover
<ul style="list-style-type: none"> ● Lack of availability of wood due to climate change ● Any climate-related disruption in one of the production sites will influence the business model and its success ● Reputation loss ● Lawsuits ● Business damage ● Regulatory risks (increased costs for CO₂ emissions, stronger regulations concerning environmental laws) 	<ul style="list-style-type: none"> ● Afforestation project started in 2018 ● FEM 3.0 ● Supplier assessment to mitigate supply chain risks ● Lenzing Enterprise Excellence Program for continuous improvement (EPEX) ● Applying voluntary benchmarks, such as the EU Ecolabel ● Management of climate-related risks and opportunities (TCFD) ● Reporting on CDP Climate ● Roadmaps of Group-level and of site-level targets ● Net-zero CO₂ emissions by 2050 	<ul style="list-style-type: none"> ● On track with targets ● Ranked first in Canopy’s Hot Button Report ● Environmental management system according to ISO 14001:2015 ● Certificates: ISO 14001:2015, ISO 9001:2015 and OHSAS 18001:2007 ● EcoVadis Gold Status ● SAC Higg MSI: better scores for Lenzing’s products compared to industry average (e.g. TENCEL™ Lyocell, see page 30) ● Lenzing contributing to leading multi-stakeholder initiatives (SAC, ZDHC, EU-BAT) → “Raw material security” and → “Sustainable innovations” chapter → “Decarbonization” chapter

GRI Content

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	102-3: Location of headquarters	Sites of the Lenzing Group	18-19	
	102-4: Location of operations	Lenzing Group: a brief portrait; Sites of the Lenzing Group	13, 18-9	
	102-5: Ownership and legal form	Lenzing Group: a brief portrait	13	
	102-6: Markets served	Value creation in the Lenzing Group; Sites of the Lenzing Group	17-19	
	102-7: Scale of the organization	Lenzing Group: Sustainability key performance indicators; Lenzing Group: a brief portrait	Cover; 13	
	102-8: Information on employees and other workers	Empowering people: Employees in numbers	129	Temporary contracts are only concluded on an exceptional basis and account for less than 1 percent of the contracts in the Lenzing Group (employees and apprentices). New hires usually are provided with contracts limited to a probation period which are changed into permanent contracts after this trial period has expired. 102-8 d) – f) do not apply for Lenzing.
	102-9: Supply chain	Value creation in the Lenzing Group	16-17	
	102-10: Significant changes to the organization and its supply chain	Highlights of the year; About this report	Cover, 7	There are no significant changes to the size, structure, ownership, or supply chain of the Lenzing Group in 2020.
	102-11: Precautionary Principle or approach	Sustainability Strategy; United Nations Sustainable Development Goals (SDGs)	26-33	
	102-12: External initiatives	United Nations Sustainable Development Goals (SDGs); Circular economy; Partnering for systemic change	26-27, 34, 50-51, 122-123	
	102-13: Membership of associations	Decarbonization; Circular economy; Partnering for systemic change	51, 92-93, 114	

Strategy

GRI Standard	GRI Disclosure	Chapter	Page	Remarks and Omissions
GRI 102: General Disclosures 2016	102-14: Statement from senior decision-maker	Letter from the CEO	8-9	
	102-15: Key impacts, risks, and opportunities	Value creation in the Lenzing Group; Risk Management; Decarbonization; Annex: NaDiVeG compliance table	16-17, 23, 83-85, 152-153	

Ethics and integrity

GRI Standard	GRI Disclosure	Chapter	Page	Remarks and Omissions
GRI 102: General Disclosures 2016	102-16: Values, principles, standards, and norms of behavior	Sustainability strategy; Lenzing Group Annual Report: Corporate Governance Report	26-27	
			74	

Governance

GRI Standard	GRI Disclosure	Chapter	Page	Remarks and Omissions
GRI 102: General Disclosures 2016	102-18: Governance structure	Governance structure for sustainability Lenzing Group Annual Report: Corporate Governance Report	22	
			74	

Stakeholder engagement

GRI Standard	GRI Disclosure	Chapter	Page	Remarks and Omissions
GRI 102: General Disclosures 2016	102-40: List of stakeholder groups	Partnering for systemic change	123	
	102-41: Collective bargaining agreements	Empowering people: Employees	132	
	102-42: Identifying and selecting stakeholders	Partnering for systemic change	122	
	102-43: Approach to stakeholder engagement	Partnering for systemic change	122-123	
	102-44: Key topics and concerns raised	Materiality analysis; Partnering for systemic change	25, 123	

GRI Content

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Reporting practice

GRI Standard	GRI Disclosure	Chapter	Page	Remarks and Omissions
GRI 102: General Disclosures 2016	102-45: Entities included in the consolidated financial statements	About this report; Lenzing Group Annual Report	7, 162	
	102-46: Defining report content and topic Boundaries	Materiality analysis; Focus Paper "Materiality Analysis"	25 www.lenzing.com/materiality-analysis	
	102-47: List of material topics	Materiality analysis; Strategic focus areas; Focus Paper "Materiality Analysis"	25 www.lenzing.com/materiality-analysis	
	102-48: Restatements of information	About this report; Annex: Endnotes	7, 174-176	
	102-49: Changes in reporting	Materiality analysis	25	
	102-50: Reporting period	About this report	7	
	102-51: Date of most recent report	About this report	7	
	102-52: Reporting cycle	About this report	7	
	102-53: Contact point for questions regarding the report	About this report	7	
	102-54: Claims of reporting in accordance with the GRI Standards	About this report	7	
	102-55: GRI Content Index	Annex: GRI Content Index	154-163	
	102-56: External assurance	Annex: Independent Assurance Report on the Combined Consolidated Nonfinancial Report 2020	166-167	

Material Topics

Wood sourcing

GRI Standard	GRI Disclosure	Chapter	Page	Remarks and Omissions
GRI 103: Management Approach 2016	103-1: Explanation of the material topic and its Boundary	Materiality analysis; Raw Material security; Focus Paper "Materiality Analysis"	25, 44-45 www.lenzing.com/materiality-analysis	
	103-2: Management approach and its components	Sustainability strategy: Strategic focus areas; Targets: Lenzing raising the bar; Raw material security	28, 32-33, 62	
	103-3: Evaluation of the management approach	Raw material security	62-63	
GRI 204: Procurement Practices 2016	204-1: Proportion of spending on local suppliers	Sustainable sourcing of wood and dissolving wood pulp; Sustainable chemicals sourcing	66-67, 74	
GRI 304: Biodiversity 2016	304-1: Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	Raw material security; Sustainable sourcing of wood and dissolving wood pulp	70-72	
	304-2: Significant impacts of activities, products, and services on biodiversity	Raw material security; Sustainable sourcing of wood and dissolving wood pulp	70-72	
	304-3: Habitats protected or restored	Raw material security; Sustainable sourcing of wood and dissolving wood pulp	70-72	
GRI 308: Supplier environmental assessment 2016	308-1: New suppliers that were screened using environmental criteria	Raw material security; Sustainable sourcing of wood and dissolving wood pulp	65-66	
	308-2: Negative environmental impacts in the supply chain and actions taken	Raw material security; Procurement management and supplier	62-63	Number of suppliers identified as having significant actual and potential negative environmental impacts: 0
Own indicator	Proportion of suppliers with EcoVadis rating [%]	Lenzing Group: Sustainability key performance indicators	Cover	

Sustainable Innovations

GRI Standard	GRI Disclosure	Chapter	Page	Remarks and Omissions
GRI 103: Management Approach 2016	103-1: Explanation of the material topic and its Boundary	Materiality analysis; Sustainable innovations; Focus Paper "Materiality Analysis"	25; 104 www.lenzing.com/materiality-analysis	
	103-2: Management approach and its components	Sustainability strategy: Strategic focus areas; Targets: Lenzing raising the bar; Sustainable innovations	28, 32-33, 104	
	103-3: Evaluation of the management approach	Sustainable innovations	104	
Own indicator	Proportion of suppliers with EcoVadis rating [%]	Lenzing Group: Sustainability key performance indicators; Targets: Lenzing raising the bar	Cover	
	R&D expenditure, calculated acc. to Frascati	Lenzing Group: Sustainability key performance indicators; Sustainable innovations	Cover, 105	
	Specialty fiber share [%]	Lenzing Group: Sustainability key performance indicators	Cover	

GRI Content

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Energy Use

GRI Standard	GRI Disclosure	Chapter	Page	Remarks and Omissions
GRI 103: Management Approach 2016	103-1: Explanation of the material topic and its Boundary	Materiality analysis; Decarbonization; Focus Paper "Materiality Analysis"	25, 79 www.lenzing.com/materiality-analysis	
	103-2: Management approach and its components	Sustainability strategy: Strategic focus areas; Targets: Lenzing raising the bar; Decarbonization	28, 32-33, 79	
	103-3: Evaluation of the management approach	Decarbonization	79	
GRI 302: Energy 2016	302-1: Energy consumption within the organization	Decarbonization	88-89	The disclosure of the detailed energy consumption is not possible for reasons of competition.
	302-3: Energy intensity	Lenzing Group: Sustainability key performance indicators; Decarbonization	Cover, 89	

Air Emissions

GRI Standard	GRI Disclosure	Chapter	Page	Remarks and Omissions
GRI 103: Management Approach 2016	103-1: Explanation of the material topic and its Boundary	Materiality analysis; Sustainable innovations: Process innovation to improve efficiency and sustainability; Focus Paper "Materiality Analysis"	25, 115 www.lenzing.com/materiality-analysis	
	103-2: Management approach and its components	Sustainability strategy: Strategic focus areas; Targets: Lenzing raising the bar; Sustainable innovations: Process innovation to improve efficiency and sustainability	28, 32-33, 115	
	103-3: Evaluation of the management approach	Sustainable innovations: Process innovation to improve efficiency and sustainability	115	
GRI 305: Emissions 2016	305-7: Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	Process innovations to improve efficiency and sustainability	116	

Climate Change

GRI Standard	GRI Disclosure	Chapter	Page	Remarks and Omissions
GRI 103: Management Approach 2016	103-1: Explanation of the material topic and its Boundary	Materiality analysis; Decarbonization; Focus Paper "Materiality Analysis"	25, 78 www.lenzing.com/materiality-analysis	
	103-2: Management approach and its components	Sustainability strategy: Strategic focus areas; Targets: Lenzing raising the bar; Decarbonization	25, 78, 80	
	103-3: Evaluation of the management approach	Decarbonization	78	
GRI 201: Economic Performance 2016	201-2: Financial implications and other risks and opportunities due to climate change	Value creation in the Lenzing Group; Decarbonization	83-85	
GRI 305: Emissions 2016	305-1: Energy direct (Scope 1) GHG emissions	Decarbonization	90	
	305-2: Energy indirect (Scope 2) GHG emissions	Decarbonization	90	
	305-4: GHG emissions intensity	Lenzing Group: Sustainability key performance indicators; Decarbonization	Cover, 90	

Water Use & Pollution

GRI Standard	GRI Disclosure	Chapter	Page	Remarks and Omissions
GRI 103: Management Approach 2016	103-1: Explanation of the material topic and its Boundary	Materiality analysis; Water stewardship; Focus Paper "Materiality Analysis"	25, 96-97 www.lenzing.com/materiality-analysis	
	103-2: Management approach and its components	Sustainability strategy: Strategic focus areas; Targets: Lenzing raising the bar; Water stewardship; Water consumption	28, 32-33, 96-97	
	103-3: Evaluation of the management approach	Water stewardship	96-97	
GRI 303: Water and Effluents 2018	GRI 303-1: Interactions with water as a shared resource	Water stewardship	97	
	GRI 303-2: Management of water discharge-related impacts	Water stewardship	96-97	
	GRI 303-3: Water withdrawal	Water stewardship: Water consumption	98-99	
	GRI 303-4: Water discharge	Water stewardship: Wastewater (water effluents)	99	
Own indicator	Specific water use [m ³ /t, 2014 = 100%]	Water stewardship: Water consumption	99	
	Specific water emissions after wastewater treatment [kg/t, 2014 = 100 %]	Lenzing Group: Sustainability key performance indicators; Water stewardship: Wastewater (water effluents)	Cover, 101	

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Chemicals & Toxicity

GRI Standard	GRI Disclosure	Chapter	Page	Remarks and Omissions
GRI 103: Management Approach 2016	103-1: Explanation of the material topic and its Boundary	Materiality analysis; Raw material security: Sustainable chemicals sourcing; Focus Paper "Materiality Analysis"	25, 113 www.lenzing.com/materiality-analysis	
	103-2: Management approach and its components	Raw material security: Sustainable chemicals sourcing;	113	
	103-3: Evaluation of the management approach	Raw material security: Sustainable chemicals sourcing	113	
Own indicator	Proportion of suppliers with EcoVadis rating [%]	Lenzing Group: Sustainability key performance indicators	Cover	
	Specific water emissions after wastewater treatment [kg/t, 2014 = 100 %]	Lenzing Group: Sustainability key performance indicators; Wastewater (water effluents)	Cover, 101	

Product Responsibility

GRI Standard	GRI Disclosure	Chapter	Page	Remarks and Omissions
GRI 103: Management Approach 2016	103-1: Explanation of the material topic and its Boundary	Materiality analysis; Sustainable Innovation: Product quality and safety; Focus Paper "Materiality Analysis"	25, 119 www.lenzing.com/materiality-analysis	
	103-2: Management approach and its components	Sustainable Innovation: Product quality and safety	117-119	
	103-3: Evaluation of the management approach	Sustainable Innovation: Product quality and safety	117-119	
GRI 416: Customer Health & Safety 2016	416-1: Assessment of the health and safety impacts of product and service categories	Sustainable Innovation: Product quality and safety	117-118	
	416-2: Incidents of non-compliance concerning the health and safety impacts of products and services	Sustainable Innovation: Product quality and safety	-	There were no incidents of non-compliance concerning the health and safety impacts of products and services.
GRI 417: Marketing & Labeling 2016	417-2: Incidents of non-compliance concerning product and service information and labeling	Sustainable sourcing of wood and dissolving wood pulp; Sustainable Innovation: Product quality and safety	-	There was one incident of non-compliance with voluntary codes concerning product and service information (FSC labeling) in the reporting period.

Sustainable Materials (LCA)

GRI Standard	GRI Disclosure	Chapter	Page	Remarks and Omissions
GRI 103: Management Approach 2016	103-1: Explanation of the material topic and its Boundary	Materiality analysis; Sustainable innovations: Sustainable materials and life cycle assessment (LCA); Focus Paper "Materiality Analysis"	25, 108 www.lenzing.com/materiality-analysis	
	103-2: Management approach and its components	Sustainable innovations: Sustainable materials and life cycle assessment (LCA)	108	
	103-3: Evaluation of the management approach	Sustainable innovations: Sustainable materials and life cycle assessment (LCA)	108	
Own indicator	Specialty fiber share [%]	Lenzing Group: Sustainability key performance indicators	Cover	

Waste & Circular Economy

GRI Standard	GRI Disclosure	Chapter	Page	Remarks and Omissions
GRI 103: Management Approach 2016	103-1: Explanation of the material topic and its Boundary	Materiality analysis; Sustainability strategy; Circular economy; Focus Paper "Materiality Analysis"	25, 27-28, 40 www.lenzing.com/materiality-analysis	
	103-2: Management approach and its components	Sustainability strategy; Circular economy	28; 40-45	
	103-3: Evaluation of the management approach	Circular economy	40	
GRI 306: Effluents and Waste 2016	306-2: Waste by type and disposal method	Waste management	54	

GRI Content Index

Other important topics

Compliance

GRI Standard	GRI Disclosure	Chapter	Page	Remarks and Omissions
GRI 103: Management Approach 2016	103-1: Explanation of the material topic and its Boundary	Group Annual Report: Compliance	63	
	103-2: Management approach and its components	Group Annual Report: Compliance	63	
	103-3: Evaluation of the management approach	Group Annual Report: Compliance	63	
	205-3: Confirmed incidents of corruption and actions taken	Annex: Additional Information pursuant to §243b UGB Group Annual Report: Compliance	150; 63	
GRI 206: Anti-competitive Behavior 2016	206-1: Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	Annex: Additional Information pursuant to §243b UGB	150	

Labor Practices/Human Rights (NaDiVeG)

GRI Standard	GRI Disclosure	Chapter	Page	Remarks and Omissions
GRI 103: Management Approach 2016	103-1: Explanation of the material topic and its Boundary	Empowering people	126	
	103-2: Management approach and its components	Empowering people	126	
	103-3: Evaluation of the management approach	Empowering people	126	
GRI 401: Employment 2016	401-1: New employee hires and employee turnover	Empowering people: Diversity; Appendix: Lenzing AG workforce	131-132, 150	
GRI 403: Occupational Health and Safety 2018	403-1: Occupational health and safety management system	Empowering people: Health and safety	135-136, 139	
	403-2: Hazard identification, risk assessment, and incident investigation	Empowering people: Health and safety	135-136, 139	
	403-3: Occupational health services	Empowering people: Health and Safety	135	
	403-4: Worker participation, consultation, and communication on occupational health and safety	Empowering people: Health and safety	135-136, 139	
	403-5: Worker training on occupational health and safety	Empowering people: Health and safety	139	
	403-6: Promotion of worker health	Empowering people: Health and Safety	135-136	
	403-7: Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	Empowering people: Health and safety	139	
	403-9 Work-related injuries	Empowering people: Health and safety	140-141	
GRI 404: Training and education 2016	404-2: Programs for upgrading employee skills and transition assistance programs	Empowering people: Employees	134-135	
GRI 405: Diversity and equal opportunity 2016	405-1: Diversity of governance bodies and employees	Empowering people: Employees in numbers	132	
GRI 406: Non-discrimination 2016	406-1: Incidents of discrimination and corrective actions taken	Empowering people: Diversity	126	
GRI 413: Local communities 2016	413-1: Operations with local community engagement, impact assessments, and development programs	Raw material security; Sustainable sourcing of wood and dissolving wood pulp; Empowering people; Enhancing community wellbeing	69-71, 140-141	
	413-2: Operations with significant actual and potential negative impacts on local communities	Water stewardship; Empowering people; Enhancing community wellbeing	96, 142-143	

Governance

Recommendations	Recommended Disclosures	Reference to the related section of the report, GRI indicators and the CDP Climate questionnaire (2019)
Disclose the organization's governance around climate-related risks and opportunities.	a) Describe the board's oversight of climate-related risks and opportunities.	<ul style="list-style-type: none"> • CDP C1.1a, C1.1b • Chapter Managing sustainability • Chapter Decarbonization
	b) Describe management's role in assessing and managing climate-related risks and opportunities.	<ul style="list-style-type: none"> • CDP C1.2, C1.2a • GRI 102-18

Strategy

Recommendations	Recommended Disclosures	Reference to the related section of the report, GRI indicators and the CDP Climate questionnaire (2019)
Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning where such information is material.	a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	<ul style="list-style-type: none"> • CDP C2.1, C2.2b, C2.2c, C2.3, C2.3a, C2.4, C2.4a • Chapter Lenzing's climate risks and opportunities
	b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.	<ul style="list-style-type: none"> • CDP C2.3a, C2.4a, C3.1, C3.1a, C3.1d, C3.1e, C3.1f • Chapter Lenzing's climate risks and opportunities • Chapter Decarbonization
	c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2 °C or lower scenario.	<ul style="list-style-type: none"> • CDP C2.2, C2.2a, C3.1, C3.1a, C3.1b • Chapter Lenzing's climate risks and opportunities

Risk Management

Recommendations	Recommended Disclosures	Reference to the related section of the report, GRI indicators and the CDP Climate questionnaire (2019)
Disclose how the organization identifies, assesses, and manages climate-related risks.	a) Describe the organization's processes for identifying and assessing climate-related risks.	<ul style="list-style-type: none"> • CDP C2.2b, C2.2c • Chapter Lenzing's climate risks and opportunities
	b) Describe the organization's processes for managing climate-related risks.	<ul style="list-style-type: none"> • CDP C2.2b, C2.2d • Chapter Lenzing's climate risks and opportunities
	c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	<ul style="list-style-type: none"> • CDP C2.2 • Chapter Lenzing's climate risks and opportunities

Metrics and Targets

Recommendations	Recommended Disclosures	Reference to the related section of the report, GRI indicators and the CDP Climate questionnaire (2019)
<p>Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.</p>	<p>a) Describe the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.</p>	<ul style="list-style-type: none"> ● CDP C4.1b, C5.1, C5.2 ● GRI 201-2, 302-1, 302-3, 303-1, 305-1, 305-2, 305-4, 305-7, 306-1 ● Chapter Decarbonization
	<p>b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.</p>	<ul style="list-style-type: none"> ● CDP C6.1, C6.3, C6.5 ● GRI 201-2, 305-1, 305-2, 305-4 ● Chapter Decarbonization
	<p>c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.</p>	<ul style="list-style-type: none"> ● CDP C4.1b, C4.3a ● GRI 201-2, 302-1, 302-3, 303-1, 305-1, 305-2, 305-4, 305-7, 306-1 ● Chapter Lenzing's climate risks and opportunities ● Chapter Decarbonization

Independent

Assurance Report on the Non-financial Reporting according to §§ 243b and 267a UGB

To the Board of Directors and to the Supervisory Board of Lenzing Aktiengesellschaft, Lenzing

This English language independent assurance report is a translation provided for information purposes only. The original German text shall prevail in the event of any discrepancies between the English translation and the German original. We do not accept any liability for the use of, or reliance on, the English translation nor for any errors or misunderstandings that may derive from the translation.

We have performed an independent limited assurance engagement on the combined consolidated non-financial report according to §§ 243b and 267a UGB (“NFI report”) for the financial year 2020, which has been published as Sustainability Report 2020/Nonfinancial Report of

Lenzing Aktiengesellschaft, Lenzing,
(referred to as “Lenzing” or “the Company”).

Management’s Responsibility

The Company’s management is responsible for the proper preparation of the NFI report in accordance with the reporting criteria. The Company applies the legal requirements of the Austrian Sustainability and Diversity Improvement Act (§§ 243b and 267a UGB) and the sustainability reporting guidelines of the Global Reporting Initiative (GRI Standards) Option “Core” as reporting criteria.


The Company’s management is responsible for the selection and application of appropriate methods for non-financial reporting (especially the selection of significant matters) as well as the use of appropriate assumptions and estimates for individual non-financial disclosures, given the circumstances. Furthermore, their responsibilities include the design, implementation and maintenance of systems, processes and internal controls that are relevant for the preparation of the sustainability report in a way that is free of material misstatements – whether due to fraud or error.

Auditors’ Responsibility

Our responsibility is to state whether, based on our procedures performed and the evidence we have obtained, anything has come to our attention that causes us to believe that the Company’s NFI report is not in accordance with the legal requirements of the Austrian Sustainability and Diversity Improvement Act (§§ 243b and 267a UGB) and the sustainability reporting guidelines of the Global Reporting Initiative (GRI Standards) Option “Core” in all material respects.

Our engagement was conducted in conformity with the International Standard on Assurance Engagements (ISAE 3000) applicable to such engagements. These standards require us to comply with our professional requirements including independence requirements, and to plan and perform the engagement to enable us to express a conclusion with limited assurance, taking into account materiality.

An independent assurance engagement with the purpose of expressing a conclusion with limited assurance (“limited assurance engagement”) is substantially less in scope than an independent assurance engagement with the purpose of expressing a conclusion with reasonable



assurance (“reasonable assurance engagement”), thus providing reduced assurance. Despite diligent engagement planning and execution, it cannot be ruled out that material misstatements, illegal acts or irregularities within the non-financial report will remain undetected.

The procedures selected depend on the auditor’s judgment and included the following procedures in particular:

- Inquiries of personnel at the group level, who are responsible for the materiality analysis, in order to gain an understanding of the processes for determining material sustainability topics and respective reporting thresholds of the Company;
- A risk assessment, including a media analysis, on relevant information on the Company’s sustainability performance in the reporting period;
- Evaluation of the design and implementation of the systems and processes for the collection, processing and monitoring of disclosures on environmental, social and employees matters, respect for human rights, anti-corruption as well as bribery and also includes the consolidation of data;
- Inquiries of personnel at the group level, who are responsible for providing, consolidating and implementing internal control procedures relating to the disclosure of concepts, risks, due diligence processes, results and performance indicators;
- Inspection of selected internal and external documents, in order to determine whether qualitative and quantitative information is supported by sufficient evidence and presented in an accurate and balanced manner;
- Assessment of the local data collection, validation and reporting processes as well as the reliability of the reported data through a (remote) sample survey of the site PT. South Pacific Viscose, Purwakarta (Indonesia)
- Analytical evaluation of the data and trend of quantitative disclosures regarding the GRI Standards listed in the GRI-Index, submitted by all locations for consolidation at the group level;
- Evaluation of the consistency of the Austrian Sustainability and Diversity Improvement Act (§§ 243b and 267a UGB) and the GRI Standards, Option “Core” to disclosures and indicators of the NFI report, which apply to the Company;
- Evaluation of the overall presentation of the disclosures by critically reading the NFI report.ts.

The procedures that we performed do not constitute an audit or a review. Our engagement did not focus on revealing and clarifying of illegal acts (such as fraud), nor did it focus on assessing the efficiency of management. Furthermore, it is not part of our engagement to audit futurerelevant disclosures, prior year figures, statements from external sources of information, expert opinions or references to more extensive external reporting formats of the Company. Disclosures audited within the scope of the annual financial statement were assessed for correct presentation (no content examination).

Conclusion

Based on the procedures performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that the NFI report of the Company is not in accordance with the legal requirements of the Austrian Sustainability and Diversity Improvement Act (§§ 243b and 267a UGB) and the sustainability reporting guidelines of the Global Reporting Initiative (GRI Standards) Option “Core” in all material respects.

Restriction on use

Because our report will be prepared solely on behalf of and for the benefit of the principal, its contents may not be relied upon by any third party, and, consequently, we shall not be liable for any third-party claims. We agree to the publication of our audit certificate together with the NFI report.

General Conditions of Contract

Our responsibility and liability towards the Company and any third party is subject to paragraph 7 of the General Conditions of Contract for the Public Accounting Professions.

Vienna, March 08, 2021

KPMG Austria GmbH
Wirtschaftsprüfungs- und Steuerberatungsgesellschaft

Gabriele Lehner
Wirtschaftsprüferin

Glossary

Accelerating Circularity

Accelerating Circularity is a collaborative effort to accelerate the textile industry's move from linear to circular. The textile industry must move from a take, make waste system to circularity, avoiding the massive amounts of textile waste annually put into landfill. <https://www.acceleratingcircularity.org/>

AFRAC

The Austrian Accounting Standards Committee, whose activities are not aimed at profit, serves the research, documentation and further development of accounting and auditing in Austria, taking into account international and European developments and Austrian interests in this field. <https://www.afrac.at/>

Austrian Sustainability and Diversity Improvement Act

The "Nachhaltigkeits- und Diversitätsverbesserungsgesetz" (NaDiVeG) implements the European "NFI Directive" (2014/95/EU) in Austria. It expands the reporting obligations in the area of non-financial information for large companies of public interest, with an average of more than 500 employees.

BAT – Best available techniques

Best available techniques means the most effective and advanced stage in the development of activities and their methods of operations. The techniques should indicate the practical suitability of particular techniques for providing, in principle, the basis for emission limit values designed to prevent, and, where this is not practicable, generally to reduce emissions and the impact on the environment as a whole.

Biobased

Biobased products are those that originate partially or completely from renewable resources. These products can be either biodegradable or non-biodegradable.

Biobased chemicals

Chemicals from the biorefinery, originating from renewable resources and also referred to in this report as biorefinery products

Biodegradable

The ability of a substance to be broken down by micro-organisms (bacteria, fungi, etc.) into carbon dioxide (CO₂) and water, so that it can be consumed by the environment. Test methods describe a certain time, conditions of temperature, oxygen availability, and humidity, and set a certain percentage of breakdown.

Biodiversity

This is the variability among living organisms from all sources including, among others, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part. This includes diversity within species, between species and of ecosystems.

Bioenergy

Bioenergy is energy derived from biomass. The term refers to various forms of energy, including heat and electricity. Also the biomass that contains this energy can be referred to as bioenergy. The main sources of bioenergy are renewable resources.

Biorefinery

A biorefinery is a facility for sustainable processing of biomass into a spectrum of marketable biobased biorefinery products and bioenergy.

Blockchain

Blockchains are forgery-proof, distributed data structures in which transactions are recorded in the time sequence, traceable, unchangeable and without a central instance linked in a peer-to-peer network. The blockchain technology enables digital traceability of TENCEL™ branded fibers and the corresponding wood sources across each production and distribution step. The technology also allows consumers to verify the garment composition and the underlying textile supply chain.

CDP – Carbon Disclosure Project

The Carbon Disclosure Project (CDP) is a non-profit organization with the aim that companies and also municipalities disclose their environmental data, such as climate-damaging greenhouse gas emissions and water consumption. Once a year, the CDP collects data and information on behalf of investors using standardized questionnaires on CO₂ emissions, climate risks and reduction targets and strategies of companies. Participation is voluntary. www.cdp.net

Carbon footprint

A carbon footprint is the sum of greenhouse gas emissions and greenhouse gas removals of a product system or an organization, expressed as a carbon dioxide equivalent.

Cellulose

The raw material for pulp production. Cellulose is a component of all plants. The cellulose content of wood is about 40 percent.

Chain of custody

The chain of custody documents the flow of materials and raw materials through various stages right up to the final product. It is important for the certification of raw materials and their traceability. In order to ensure that final products really meet the requirements of the standard, initiatives trace the flow of materials throughout the chain of custody.

COD

Chemical oxygen demand. A further method for assessing the organic load of wastewater (besides BOD biological oxygen demand). It measures the degree to which the wastewater can undergo chemical oxidation.

Compliance

In general, compliance means conforming to a rule, such as a specification, policy, standard or law. Regulatory compliance describes the goal that organizations aspire to achieve in their efforts to ensure that they are aware of and take steps to comply with relevant laws, policies, and regulations.

Co-product

By-products recovered during fiber production.

Debottlenecking

Increasing the production capacity of existing plants by eliminating bottlenecks.

Decarbonization

Decarbonization denotes the declining average carbon intensity (CO₂ emission per unit of a product) over time. Products can be, for example, (primary) energy, gross domestic product, or any units produced by a company.

Dissolving wood pulp

A special kind of pulp with special characteristics used to manufacture viscose, modal and lyocell fibers and other cellulose-based products. This grade of pulp is characterized by higher alpha cellulose content and by a high degree of purity.

ECF

Elemental chlorine free – a bleaching process without using elemental chlorine

EcoVadis

EcoVadis aims to promote the environmental and social practices of companies through CSR performance monitoring within the supply chain and to support companies in improving sustainability. EcoVadis operates the first collaborative platform to deliver CSR ratings from suppliers to global supply chains.

ESG – Environmental, social and governance standards

Environmental, social and governance (ESG) refers to the three central factors in measuring the sustainability and ethical impact of an investment in a company or business.

FAO – Food and Agriculture Organization of the United Nations

The Food and Agriculture Organization of the United Nations (FAO) is a specialized agency of the United Nations that leads international efforts to defeat hunger. It is based in Rome.

FSC®

The Forest Stewardship Council® (FSC) is an international non-profit organization for wood certification.

Furfural

A clear yellowish liquid with a characteristic scent of almonds. During viscose fiber production, beech wood is cooked and furfural is released in a double distillation process.

GHG – Greenhouse gas emissions

Emissions of gases which contribute to global warming by absorbing infrared radiation, thereby heating the atmosphere. The main contributors are carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O).

GRI – Global Reporting Initiative

The Global Reporting Initiative (known as GRI) is an international independent standards organization that helps businesses, governments and other organizations understand and communicate their impacts on issues such as climate change, human rights and corruption. The purpose of GRI is to develop globally applicable guidelines for sustainability reporting.

Hemicellulose

The designation for carbohydrates that are contained in wood but that are not cellulose. They can have the widest variety of compositions depending on the type of wood involved, e.g. xylan (in beech wood).

Higg MSI

The Higg Materials Sustainability Index (Higg MSI) is the apparel industry's most trusted tool to measure and score the environmental impacts of materials.

Glossary

ILO – International Labour Organization

The International Labour Organization (ILO) is a United Nations agency that sets international labor standards and promotes social protection and work opportunities for all. The ILO has 187 member states: 186 of the 193 UN member states plus the Cook Islands are members of the ILO.

Integration

All stages of fiber production are concentrated at one and the same site, from wood, the raw material, to pulp and fiber production.

IOSH – Institute of Occupational Safety and Health

IOSH is the only Chartered body for safety and health professionals. Their members follow a strict Code of Conduct and a formal professional development program.

ISO 14001:2015

An international standard for the certification of environmental management systems.

ISO 9001:2015

An international standard for the certification of quality management systems.

ISS ESG

ISS ESG is the responsible investment arm of Institutional Shareholder Services Inc., the world's leading provider of environmental, social, and governance solutions for asset owners, asset managers, hedge funds, and asset servicing providers.

KPI

The term key performance indicator describes indicators in business economics which are used to measure progress or achievements related to important targets or critical success factors within an organization.

LCA

Life Cycle Assessment is a systematic analysis of the environmental impacts of products throughout their life cycle ("from cradle to grave").

Lignin

A polyaromatic component of wood that cannot be used for fiber production. It is used for generating power and to recover co-products.

Lignosulfonate

The decomposition products of lignin from wood after pulping.

Lyocell fibers

Lyocell fiber is the latest generation of wood-based cellulosic fibers. The generic fiber name is lyocell, the branded products from Lenzing are marketed as TENCEL™ and VEOCEL™ fibers.

Modal

Modal is a viscose fiber refined under modified viscose production conditions and spinning conditions. It is characterized by a particular softness and is the preferred fiber for high-quality underwear and similar products. The fibers have improved use characteristics such as tenacity, dimensional stability, and so forth. Lenzing markets these fibers under TENCEL™ Modal.

Net-benefit products

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

NMMO

N-Methylmorpholine N-oxide is an aqueous, biodegradable, organic solvent.

Nonwovens

Nonwoven materials, fleece. Nonwovens made from Lenzing fibers are used for sanitary, medical, and cosmetics applications.

Offsetting

Reducing the damage caused by releasing carbon dioxide into the environment by doing other things that remove carbon dioxide from the atmosphere, e.g. through climate protection projects.

OHSAS 18001:2007

Occupational Health and Safety Assessment Series (OHSAS) is a certification system for management systems pertaining to work safety.

PEFC™

The Programme for the Endorsement of Forest Certification Schemes™ (PEFC) is an international non-profit organization for wood certification.

Plantation

Forests of exotic species that have been planted or seeded by human intervention and that are under intensive stand management, fast growing, short rotation. Examples: poplar, acacia or eucalyptus plantations.

Pre-consumer

Pre-consumer upcycling is the reclamation of waste materials that were created during the manufacturing process prior to their delivery to a consumer (such as cotton scraps from garment making).

Post-consumer

A product made from post-consumer material is made from waste that has been used and disposed of by a consumer (such as used clothing).

SAC – Sustainable Apparel Coalition

An association of leading companies, non-profit organizations as well as research and educational experts aiming to create a more sustainable international apparel, footwear and textile industry. The SAC is the developer of the Higg Index.

Salutogenesis

Developed by Aaron Antonovsky († July 7, 1994), an Israeli-American professor of sociology. In contrast to pathogenesis, the salutogenic approach does not focus on the question “What makes a human being ill?” but rather “What keeps a human being healthy?”

Science-based targets

Targets adopted by companies to reduce greenhouse gas emissions are considered “science-based” if they are in line with the level of decarbonization required to keep global temperature increase below 2 °C compared to pre-industrial temperatures, as described in the Assessment Report of the Intergovernmental Panel on Climate Change (IPCC). [Applies to the 4th or 5th AR of IPCC as well as modeling of the IEA.]

Scope 1, 2 and 3 emissions

Scope 1 emissions are direct emissions from owned or controlled sources. Scope 2 emissions are indirect emissions from the generation of purchased energy. Scope 3 emissions are all indirect emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions.

sCore TEN

The name of the Lenzing Group’s corporate strategy stands for a steady focus on performance (scoring) and the strengthening of the core business (core) as well as for long-term growth with specialty fibers such as TENCEL™ and VEOCEL™.

SHEARS

Safety, Health and Environment Action Reporting System of the Lenzing Group

Semi-natural forest

Forests of native species, established either through assisted or natural regeneration, or a mix of these under intensive stand management (includes forests in which assisted regeneration carried out with same species and similar species composition as in the natural forests in the area). Examples: many production forests in Europe, some teak plantations.

SFI

Sustainable Forestry initiative

Stakeholders

All internal and external persons or groups affected directly or indirectly by business activities currently or in the future.

Standard fibers

Standard LENZING™ fibers for textile applications (viscose, modal, lyocell) and standard LENZING™ fibers for nonwoven applications (viscose, lyocell) are fibers that are not designated as specialties.

Sustainalytics

Sustainalytics is a rating agency that assesses the sustainability of listed companies based on their environmental, social and governance performance. <https://www.sustainalytics.com>

TCF

Totally chlorine free (bleaching process)

TE – Textile Exchange

Founded in 2002, Textile Exchange is a global nonprofit organization that works closely with all sectors of the textile supply chain to find the best ways to minimize and even reverse the negative impacts on water, soil, air, animals, and the human population.

VBV Austrian Sustainability Index VÖNIX

VÖNIX is Austria’s first sustainability index. It was created by the VBV Austrian pension fund and is comprised of listed Austrian companies that are leaders in terms of social and environmental performance.

Glossary

Vigeo Eiris

As a rating and research agency, V.E evaluates organizations' integration of social, environmental and governance factors into their strategies, operations and management – with a focus on promoting economic performance, responsible investment and sustainable value creation.

Viscose fibers

Regenerated cellulosic fibers produced from raw materials of plant origin (e.g. wood) using the viscose process.

WEF – World Economic Forum

The World Economic Forum (WEF) is a foundation which is primarily known for its annual meeting of the same name that takes place annually in Davos in the canton of Grisons.

Wood-based cellulosic fiber

A fiber industrially produced from raw materials of plant origin (e.g. wood), known in the industry as man-made cellulose fiber.

Xylose

Wood sugar, component of thick liquor and base material for xylitol (sweetener that inhibits tooth decay)

ZDHC – Zero discharge of hazardous chemicals

The ZDHC Foundation is a global center of excellence in responsible chemical management which works towards zero discharge of hazardous chemicals in the textile, leather, and footwear value chain to improve the environment and people's wellbeing. Net-zero: Put simply, net zero means we are not adding new emissions to the atmosphere. Emissions will continue, but will be balanced by absorbing an equivalent amount from the atmosphere. (Source: UN)


ZDHC MMCF Guidelines

The ZDHC MMCF Guidelines is a set of guidelines that addresses integrated expectations for discharge wastewater quality, emissions to air, and chemical recovery for manufacturing facilities producing Man-Made Cellulosic Fibers (MMCF).

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