Lenzing

Innovative by nature

Advancing Circularity

and the people making it happen

Sustainability Report
2022

Lenzing Group

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"Sustainability is at the core of our business strategy. This report details our achievements of that strategy, and our continued commitment to a future when circularity is the norm."

Learn more

18%

Reduction of specific greenhouse gas emissions

Chapter Climate & energy
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10%

Reduction of specific water emissions after wastewater treatment

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71%

Net-benefit products

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Advancing Circularity

and the people making it happen

In our online Sustainability Report 2022, we tell how we are driving the industry's transformation from linear to circular even in challenging times. Find out more about our progress in the area of sustainability in three stories.

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Lenzing Group 2022

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Sustainability key performance indicators

[GRI 201-1]

Lenzing Group: Sustainability key performance indicators

Table 01

		2020	2021	2022
Economic value creation[a]	Value creation	EUR 406.4mn	EUR 685.4mn	EUR 527.6mn
	Distribution of value creation			
	Employees[b,c]	EUR 347.5mn	EUR 446.4mn	EUR 449.5mn
	Retained earnings	EUR –10.6mn	EUR 12.2mn	EUR –37.2mn
	Public sector[d]	EUR 44.8mn	EUR 67.6mn	EUR 42.6mn
	Shareholders (dividends)[e]	EUR 0.0mn	EUR 115.5mn	EUR 0.0mn
	Lenders[b,f]	EUR 26.7mn	EUR 43.6mn	EUR 72.7mn
	ROCE (return on capital employed)[b,g]	–0.6%	5.4%	2.0%
	Adjusted equity ratio[g]	45.8%	39.7%	37.8%
	Revenue	EUR 1,632.6mn	EUR 2,194.6mn	EUR 2565.7mn
	EBITDA (earnings before interest, tax, depreciation and amortization)[b]	EUR 192.3mn	EUR 362.9mn	EUR 241.9mn
	Sales volume fibers (t)	787,000	909,000	814,430
Raw material security	Proportion of wood source certified or controlled by forest certification	>99%	>99%	>99%
	Share of own pulp	62.4%	65.2%	94.7%
Sustainable innovations	R&D expenditure, calculated according to the Frascati method (EUR)	EUR 34.8mn	EUR 31.6mn	EUR 34.8mn
	Specialities share based on fiber revenue[h]	76.2%	72.3%	70.9%
	Specific sulfur emissions to air (kg/t, 2014 = 100%)	61%	74%	67%
	Specific water intake (index in percentage based on m^3/t, 2014 = 100%)	96%	90%	94%
	Specific water emissions after wastewater treatment COD (index in percentage based on kg/t, 2014 = 100%)	100%	92%	90%
Decarbonization	Specific[i] primary energy consumption (GJ/t, 2014 = 100%)	97%	97%	98%
	Specific[i] GHG emissions index scope 1, 2 & 3[j] (index in percentage based on t CO_2 eq./t, 2017 = 100%)	85%	91%	82%
Employees	Number of employees[k]	7,358	7,958	8,301
Health & safety	Rate of recordable work-related injuries (TRIFR)[k]	0.92	0.76	0.6
Partnering for systemic change	Proportion of relevant suppliers with EcoVadis rating (%)	84%	91%	83%

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) Reclassification of capitalized borrowing costs, net interest from defined benefit plans and commitment fees from EBIT/EBITDA to the financial result (see note 2 of the Lenzing Group consolidated financial statements 2022).

c) Personnel expenses less municipal taxes.

d) Based on the proposed distribution of profits.

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

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

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

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

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

j) Recalculation of scope 3 emissions from 2017 to 2021 based on updated data from market pulp suppliers. 2022 exclusion of scope 1, 2 & 3 CO_2 numbers for Thailand and Brazil as these plants are in the start-up phase.

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

Highlights of the year

Strategic milestones

- Pulp mill in Indianópolis (Brazil) is the largest of its kind. Due to the plant's excess bioenergy, it provides electricity to Brazilian grid, thus replacing gas based energy and grid electricity
- Achievement of half a billion products on the market branded with TENCEL™, LENZING™, ECOVERO™, and VEOCEL™, hitting the 2022 full-year target
- Long-term supply contract with Swedish textile-to-textile recycling company Renewcell for 100 percent recycled textile dissolving pulp
- Milestone of LENZING™ ECOVERO™ viscose fibers production of over 300,000 tonnes accomplished, with capacity increasing further to meet growing demand
- Largest ground-mounted photovoltaic plant in Upper Austria started operation
- Production site in Nanjing (China) partly uses electricity derived from 100 percent renewable resources, starting in December 2022 and continuing in 2023 (100 percent in 2023), thus reducing CO_2 emissions by 100,000 tonnes per year based on production capacity
- Purwakarta (Indonesia) site has used electricity generated 100 percent from renewable sources since July 2022, which will reduce its carbon emissions by 75,000 tonnes annually
- Lenzing partners with Circular and Sustainable Textile and Clothing (CISUTAC) to further develop recycling processes for cellulose fibers
- Launch of matte TENCEL™ branded lyocell fibers for denim applications
- Fusion of LENZING™ Web Technology with a pulp wetlaid process for new low carbon emission products
- Sign-off of a 5.5MW peak photovoltaic power purchase agreement with Energie Steiermark and Enery. The PV plant will be built in Styria (Austria) and supply electricity to Lenzing (Austria) from Q4 2023 onward
- World's largest lyocell fiber production plant opened in Prachinburi (Thailand)

Achievements

- Lenzing joined the UN Global Compact sustainability initiative
- Lenzing joined the Together for Sustainability (TfS) industry initiative to create more transparent global supply chains and actively raise environmental and social standards
- Publication of Lenzing´s Climate Transition Plan

Ratings and awards

- CDP: Lenzing is one of only 12 companies worldwide to be recognized with an outstanding triple "A" for environmental leadership and disclosure in climate change, water security and forests
- MSCI ESG: "AA" rating achieved again
- Canopy: ranked 1st place in the Hot Button Ranking, earning a dark green shirt
- EcoVadis: Platinum status for the second time in succession
- VEOCEL™ was awarded the "2021 Outstanding Contribution for Sustainability" award at the Sustainable Development China Forum (awarded in 2022)
- OEGUT Environmental Award: Lenzing recognized as a champion of the circular economy by OEGUT in the "World without waste" category for textile recycling activities
- TENCEL™ Modal fiber with Indigo Color technology won the ITMF (International Textile Manufacturers Federation) award for Sustainability and Innovation at the ITMF Annual Conference
- Lenzing and LD Celulose won second place at the Financial Times/International Finance Corporation (IFC) Transformational Business Awards for the climate-smart investment project in Brazil
- Lenzing received the "Austrian Sustainability Reporting Award" (ASRA) for the best sustainability report in 2022
- Lenzing received the "Pioneer of Climate Stewardship in The Chinese Textile and Apparel Industry" award from CNTAC
- Presented with an ISPO award 2022 for the 100 percent TENCEL™ Lyocell solution for seamless functional wear

About this report

[GRI 2-1, 2-2, 2-3, 2-4]

This report is the combined, consolidated, non-financial report for the Lenzing Group[1] (in accordance with Section 267a of the Austrian Business Code (UGB)) and for Lenzing Aktiengesellschaft (in accordance with Section to 243b UGB).

Since Lenzing operates at a global level with Group-wide approaches in various operating areas, all descriptions of management approaches and concepts concerning the material topics identified apply to both the Lenzing Group and Lenzing Aktiengesellschaft. For indicators for which 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 (NaDiVeG[2]) and the AFRAC recommendation. Information on the EU taxonomy can be found in the "Managing Sustainability" chapter.

The description of non-financial risks has been integrated into the 2022 Annual Report, while compliance is covered in the "Business ethics" chapter. Additional information concerning certain topics is provided on the Lenzing Group website. References can be found under the appropriate headings.

This report covers all the fully consolidated legal entities of the Lenzing Group. Detailed information can be found in the Lenzing Group's Annual Report (note 3 and note 43).

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. The information on human resources applies to the Lenzing Group, including the two new plants in Thailand and Brazil. Specific environmental indicators have been calculated using data from all the production sites of the Lenzing Group except the new plants in Thailand and Brazil. They account for 100 percent of the company's worldwide production volume. The new sites in Brazil and Thailand are fully consolidated, but not all the environmental data is available yet for these sites. Relevant data was included where available. 2014 was chosen as the base year for the data presented because Lenzing's first GRI report, including the Lenzing Group sustainability targets was issued in 2017, with data covering 2016, 2015 and 2014. For the CO_2 figures, the baseline is 2017, as the corresponding target was developed in 2018/2019.

This report mainly covers data from 2022. Wherever possible, it also presents a series of data over three years (2020, 2021 and 2022)[3] to show progress and to make the information transparent, relevant, and comparable.

Restatements
Due to the reclassification of capitalized borrowing costs, net interest from defined benefit plans and commitment fees from EBIT/EBITDA to the financial result (see note 2 to the 2022 of Lenzing Group consolidated financial statements), there have been changes in the table of key figures (table 01) for 2020.

A recalculation of scope 3 emissions from 2017 to 2021 was necessary due to updated market pulp supplier data (tables 01 and 12). Due to subsequent corrections of the wastewater volumes at the Lenzing sites, there has been a reduction in water consumption of about 19 percent in the figures for 2020 (table 26).

The materiality analysis of the Lenzing Group was revised in 2021. This resulted in changes to the material topics. Detailed information can be found under "Materiality Analysis" and in the "Materiality Analysis" focus paper.

This report has been prepared in accordance with the Global Reporting Initiative (GRI) standards for the period 01.01.2022–31.12.2022. A detailed GRI content index can be found on the website. In accordance with the legal requirements, the reporting cycle for Lenzing's sustainability performance is annual.

As a pioneer, Lenzing AG already implemented core elements of the new European Sustainability Reporting Standards (ESRS) into the Sustainability Report of 2022. The ESRS is the new EU framework for sustainability reporting and is a key element of the EU's new Corporate Sustainability Reporting Directive (CSRD). It will be mandatory for Lenzing from 2024 onwards. The aim is to report environmental, social, and governance information in a standardized and consistent format. Lenzing is continuously working on optimizing the inclusion of ESRS in the report.

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

1 "The Group" (for better readability occasionally referred to as "Lenzing") comprises Lenzing Aktiengesellschaft and its subsidiaries
2 Nachhaltigkeits- und Diversitätsverbesserungsgesetz (Section 243b, Section 267a UGB)
3 The financial year of the Lenzing Group is the calendar year (January 1 to December 31)

Letter from the CEO

[GRI 2-22]

Dear reader,

We look back on an exceptional year in this report. 2022 was a year full of contrasts: on the one hand, it was characterized by unspeakable humanitarian suffering and economic turmoil owing to the Russian invasion of Ukraine. The consequences have since been felt in all parts of the world, with Lenzing and manufacturing industry as a whole hit by the adverse impact. Conversely, it was a year of outstanding successes that are undoubtedly a source of pride to me as Lenzing's Chief Executive Officer.

Let me start by looking at our business performance: the rise in energy and commodity costs from the first quarter of the year onwards and the collapse in demand during the third quarter had a significantly negative impact on Lenzing's earnings in the 2022 financial year. Revenues climbed by 16.9 percent year-on-year to EUR 2.57 billion, which was solely due to the rise in fiber prices, while EBITDA was down by 33.4 percent to EUR 241.9 million.

Lenzing's Managing Board reacted swiftly to this trend in earnings, launching a reorganization and cost-cutting program that had already made initial contributions to profits by the end of 2022. Once the program has been implemented in full, it will reduce the cost base by EUR 70 million on an annualized basis.

However, we will be doing more than just making structural changes to our cost base. Our aim is to keep developing in the spirit of continuous improvement and to emerge stronger from this crisis. This means we are taking a critical look at our processes in all parts of the organization with a view to identifying where we can improve. We want to be ready to benefit from the future market recovery as quickly as possible. This crisis is likely to be with us for longer than that which materialized at the start of the COVID-19 pandemic. Nevertheless, we can look forward with great confidence, as the need for sustainable innovations in the world is undiminished, while the demand for environmentally friendly fibers for the textile and nonwoven industries will continue to grow.

It is our mission to change the world for the better. This is what really sets us apart from other companies and gives a sense of purpose to what we do. "Advance our world with better choices" – this is the bold purpose statement we developed in collaboration with our employees in 2022.

We have also continued to develop our strategy and will keep focusing on leveraging our specialties to drive profitable growth once we have successfully implemented our capital spending projects in Thailand and Brazil. We will keep pressing ahead with the issue of recycling, thus making a valuable contribution to transforming the textile and clothing industry from a linear to a circular economy model. We remain a sustainability champion – recent top marks from CDP, EcoVadis, MSCI and other respected environmental organizations and rating agencies are evidence of this – and we have every intention of becoming a circular economy champion too.

Alongside the operating targets, we have also set ourselves ambitious financial goals: we aim to increase our EBITDA – with an

ROCE of over 12 percent and assuming a normal economic environment – to EUR 1 billion by 2027. We will leave no stone unturned in working towards this lofty target over the coming years.

A crucial part of our Lenzing Purpose and our Better Growth corporate strategy is that we will not be satisfied with reducing negative impacts. Instead, we aim to create even more positive benefits by, for example, working to further enhance diversity and gender equality within the company, as well as biodiversity. We have also made further progress on our climate targets by migrating two more plants to a renewable electricity supply. Introducing sustainability clauses to contracts with suppliers marks another logical step in underpinning our role as a pioneer.

At this point, I would like to highlight the successful investment projects that we have implemented or significantly moved forward this year, starting with the launch of the world's largest lyocell plant in Thailand. Thanks to this new and ultra-modern plant, we are better placed to meet the growing demand for environmentally-friendly TENCEL™ and VEOCEL™ branded lyocell fibers. In future, we will be able to provide the pulp required for the production of these fibers from our facility in Brazil, which we also successfully commissioned this year. Despite numerous challenges, both projects were realized on schedule and within budget, and we are also well on target in terms of the quantities sold. These are achievements we at Lenzing can be rightly proud of.

We are also continuing to invest in our existing production plants so that we can tailor our product mix to our customers' needs and constantly improve our environmental footprint. In China, following the imminent conversion of a production line, we are now able to offer locally produced TENCEL™ Modal fibers to our customers for the first time. In Indonesia, we have made substantial progress in refitting existing production capacities, which will allow us to offer significantly better LENZING™ ECOVERO™ branded viscose fibers in future.

All investment projects are also helping us to meet our climate targets. We plan to halve our carbon emissions by 2030 and achieve carbon-neutral production by 2050. Both targets were recognized by the Science Based Targets Initiative in 2019. As a result, we remain the only provider of wood-based cellulose fibers on the market. We are already in a position to operate both plants in Thailand and Brazil on a carbon-neutral basis. In Brazil, we can even feed a considerable portion of surplus energy into the public grid.

The topic of energy has seldom been as pressing as it has been this year and, like many industrial companies, we have been forced to accelerate the process of reducing our dependence on external energy supplies, especially at our European plants. Against this backdrop, we are particularly pleased to have commissioned the largest photovoltaic system in Upper Austria at our headquarters in Lenzing in 2022.

I would also like to take this opportunity to offer our heartfelt thanks to you – our investors, customers and partners – on behalf of the Lenzing Managing Board. I am conscious of the fact that turbulent times such as these invariably present new and unexpected challenges. This makes your trust in our strategy and our sustainable, innovative products all the more valuable.

We have continued to improve our multiple award-winning reporting to suit our readers and have optimized the digital solutions on offer. This report offers a detailed insight into the company's current situation, as well as its activities and achievements in the field of sustainable development. In all of these aspects, we have shone a spotlight on the people who, thanks to their commitment, made a positive contribution to Lenzing's success in 2022 and are driving the necessary transition from a linear to a circular economy model in the textile and nonwoven industries.

Let me stress once again that we have adopted the right strategy in these turbulent times. I firmly believe that, thanks to Lenzing, we are ideally positioned to meet the growing global demand for sustainable solutions that are fit for the future. We will certainly continue to develop as a champion of circularity and play a pioneering role in this field.

In summary, I hope you enjoy reading our financial and non-financial reports and that they provide you with a lot of new food for thought.

Yours sincerely,

Stephan Sielaff

Impact of the war against Ukraine on the Lenzing Group

In addition to unspeakable humanitarian suffering, the war against Ukraine has led to severe economic turmoil, which has since had an impact on all regions of the world and has also had an adverse effect on the Lenzing Group as well as manufacturing industry as a whole. The European energy crisis and high inflation in large parts of the world as a result of the Russian invasion of Ukraine had a significantly negative impact on global economic events during the year under review. Consumer confidence, initially in Europe and the USA, and subsequently also in China, fell to long-term lows and has since been slow to recover.

The International Monetary Fund (IMF) revised down its growth forecasts several times in the course of the year. According to the latest calculations, global growth is expected to be 3.4 percent in 2022. For 2023, the IMF assumes growth of 2.9 percent due to the ongoing multiple crises.

Sentiment in the textile and nonwovens industry deteriorated from August of the previous year onward, and satisfaction with the business situation steadily dropped to new historic lows. More recently, the outlook brightened again, although market players remained concerned about subdued demand.

Like the manufacturing industry as a whole, the Lenzing Group was increasingly affected by the extreme developments on the global energy and raw material markets in 2022. The market environment deteriorated significantly, particularly in the course of the third quarter, and the deteriorating consumer climate put additional pressure on Lenzing's business performance.

In addition to the decline in demand, the trend in earnings reflects the increase in energy and raw material costs in particular. Against the back of these developments and the significant deterioration in the market environment, the Lenzing Managing Board established a reorganization and cost reduction program. The program is already being implemented and is expected to save at least EUR 70 million in annualized costs after full implementation.

The savings will largely come from the reorganization and reduction in material costs, but personnel measures will also have to contribute to the target and will result in savings across three areas. One-third will be realized from reductions in working hours and the implementation of flexible working time models, one-third from not filling positions that become vacant due to retirement and natural fluctuations, and one-third from job cuts.

The social plan was negotiated with the Works Council in a highly constructive spirit and agreed as soon as possible. The Managing Board and the Works Council of Lenzing AG consider it part of their responsibility to make provision for cases where job losses cannot be avoided. The social plan assures those affected that negative consequences will be cushioned in the best possible way.

Structurally, Lenzing continues to anticipate increasing demand for environmentally friendly fibers for the textile and clothing industry as well as the hygiene and medical sectors. Lenzing is therefore very well positioned with its Better Growth strategy, and will continue to drive both specialty growth and its sustainability goals, including the transformation from a linear to a circular economy model.

The war against Ukraine and its economic impact also affected the achievement of the Lenzing Group's ambitious climate targets. CO_2 emissions of the Lenzing Group decreased significantly compared to the previous year. However, this came about due to lower production volumes as a result of the deterioration in the market situation and the planned measures taken to reduce CO_2 emissions.

The war against Ukraine increased public awareness of the need for an energy supply that is independent of fossil fuels. In order to make itself less dependent on global energy markets, Lenzing is increasingly reliant on electricity generation from renewable energies, especially at its Austrian sites, thus accelerating the decarbonization path it embarked on some considerable time ago in line with its strategic targets.

In line with our social responsibility, employee benefits remained unaffected by market developments. No changes in this context are expected in 2023 either.

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

	2020	2021	2022
Employees[a]	7,358	7,958	8,301
Revenue	EUR 1,635.6mn	EUR 2,194.6mn	EUR 2,565.7mn
EBITDA	EUR 192.3mn	EUR 362.9 mn[b]	EUR 241.9mn
Total assets	EUR 4,163.0mn	EUR 5,322.8mn	EUR 5,525.0mn
Equity	EUR 1,881.4mn	EUR 2,072.1mn	EUR 2,025.9mn
Liabilities	EUR 2,281.6mn	EUR 3,250.7mn	EUR 3,499.1mn
Total number of operations	18	18	19
thereof production sites	9[c]	9[c]	9
Sales and marketing offices	9	9	10
Sales volume fibers	787,000 t	909,000 t	814,430 t

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

b) Reclassification of capitalized borrowing costs, net interest from defined benefit plans and commitment fees from EBIT/EBITDA to the financial result (see note 2 of the Group consolidated financial statements 2022).

c) Including construction sites in Brazil and Thailand

For more information on detailed financial figures, please see the Annual Report.

Nature of ownership

[GRI 2-1]

Lenzing Aktiengesellschaft is a publicly traded company. Its shares are listed on the Vienna Stock Exchange. In 2022, its ownership structure was as follows:

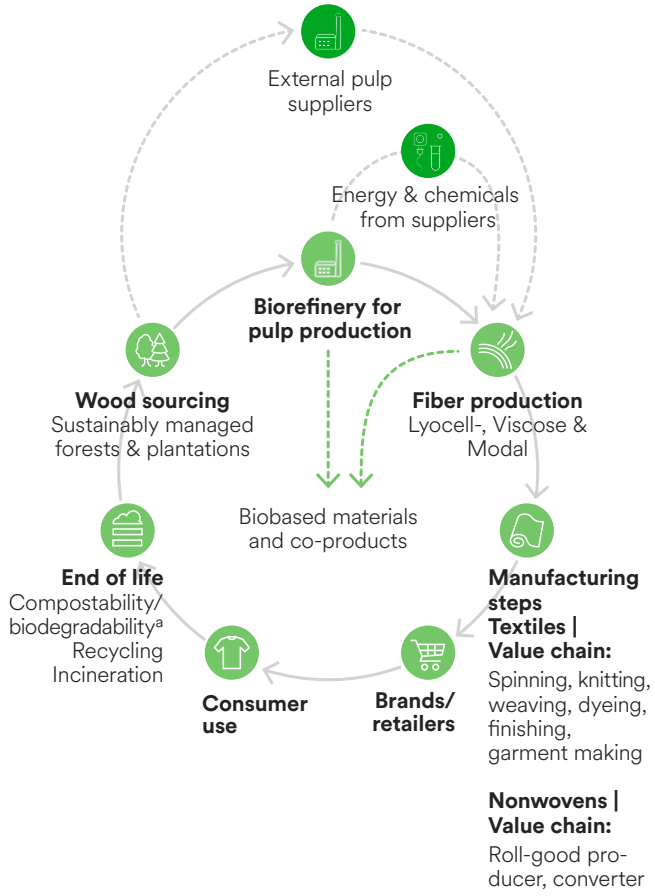
The Austrian B&C Group was the majority shareholder of Lenzing AG with an investment of ca. 52.25 percent plus two shares as of December 31, 2022. The Goldman Sachs Group, Inc. held approximately 6.97 percent of Lenzing shares. The free float equaled approximately 41.0 percent on the reporting date and was distributed among Austrian and international investors. The Lenzing Group did not hold any treasury shares as of December 31, 2022.

Value creation at the Lenzing Group

[GRI 2-6]

The Lenzing Group is committed to the ecologically responsible production of fibers made from the renewable raw material of 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 Figure 01



a) Applies to TÜV certified biodegradable and compostable LENZING™ fibers. The compostability and biodegradability of final consumer textile and nonwoven products depend on the material composition (fiber blend) and processing in the value chain steps.

Lenzing's product portfolio ranges from dissolving wood pulp as the basic raw material to generic 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), Paskov (Czech Republic) and Indianópolis (Brazil) 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

Further developments and technologies have resulted from the above-mentioned processes. For more information, please see the "Net-benefit concept" section or the Lenzing website.

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

The Lenzing Group's business model goes far beyond that of a traditional fiber producer. Together with its customers and partners, Lenzing develops innovative products across the value chain, creating added value for consumers. The Lenzing Group strives to achieve 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: to make a net-zero future come true.

Lenzing is at the start 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 intense 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 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 three biorefineries at sites in Lenzing (Austria), Paskov (Czech Republic) and Indianópolis (Brazil). Lenzing aims to use state-of-the-art sustainable production technology.

This entails high resource efficiency, high chemical recovery rates and, where possible, closed loops for process chemicals and water.

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

Down-stream 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 the retail level in the textile and nonwovens sector and for industrial applications - to provide expertise in processing as well as in developing innovative applications.

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

End of life
TÜV certified biodegradable and compostable LENZING™ fibers are as the name suggests compostable and biodegradable. However, the compostability and biodegradability of final consumer textile and nonwoven products depend on the material composition (e.g. fiber blend) of the product and processing in the value chain.

The locations of the Lenzing Group

[GRI 2-1, 304-1, 413-2]

Locations Figure 02

Numbers = Nominal capacities as at December 31, 2022

* Airdry

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Managing sustainability 2022

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Governance structure for sustainability

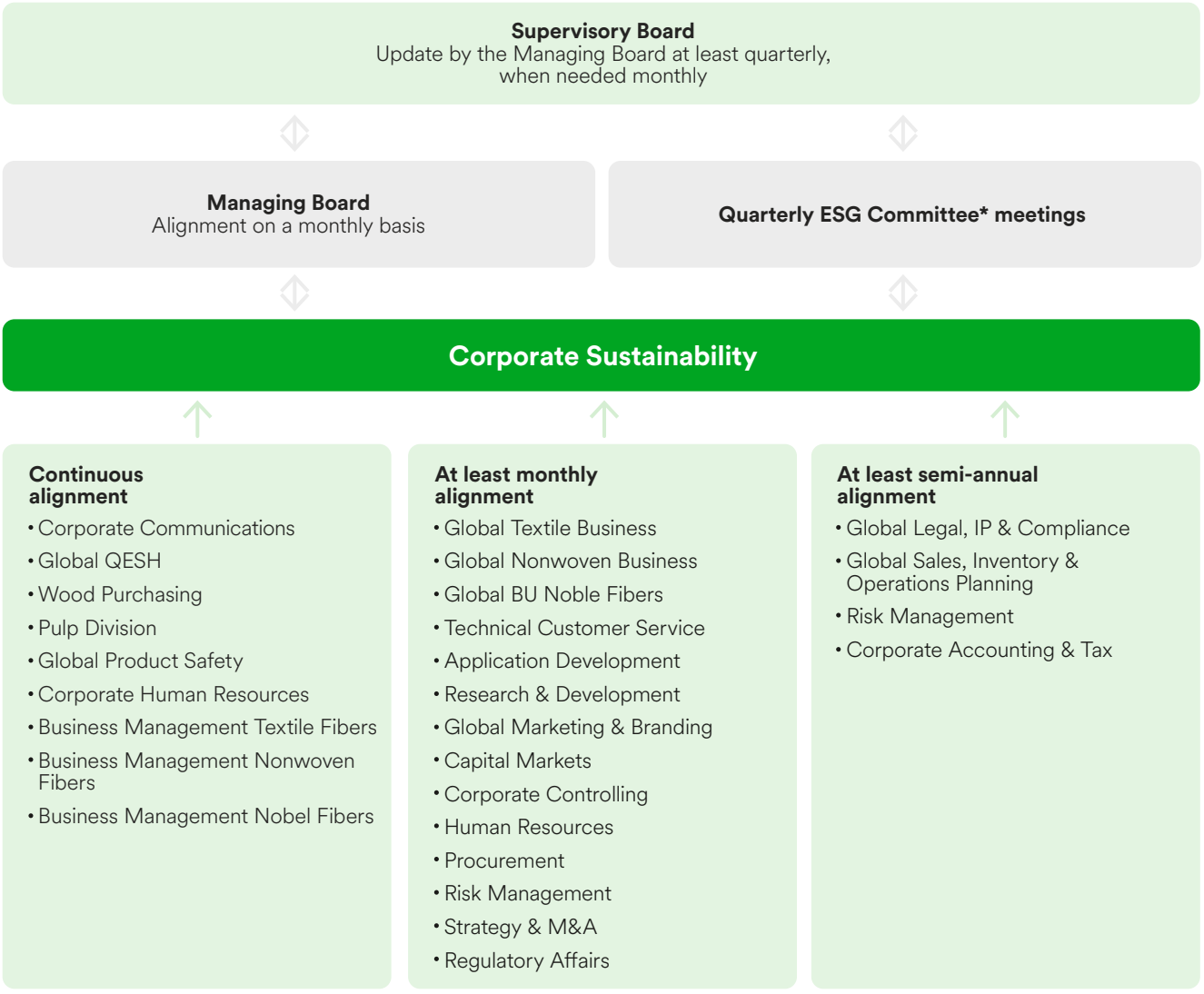
[GRI 2-9, 2-10, 2-11, 2-12, 2-13, 2-14, 2-15, 2-18, 2-19, 2-20]

Corporate Sustainability reports directly to the Managing Board. In addition, an internal committee (ESG Committee) has been established to accelerate the sustainability agenda in the company, with meeting held on a quarterly basis. Regular alignments on various topics take place with different functions to drive the integration of social and environmental concerns into the company's business operations. General information on corporate Governance can be found in the Lenzing Group's Annual Report 2022 (Corporate Governance Report.)

Board remuneration linked to sustainability performance

The principles of the Remuneration Policy were revised in the 2021 financial year and the Annual General Meeting in 2022 approved the new Remuneration Policy. The Remuneration Policy of Lenzing AG for the performance-based remuneration of the Managing Board is linked to both financial performance and non-financial sustainability criteria (ESG), which further promote the sustainable business strategy. Therefore, in addition to the existing criteria, the long-term incentive (LTI), which is a variable performance bonus, has been expanded to include sustainability targets for Managing Board members.

Sustainability organization Figure 03



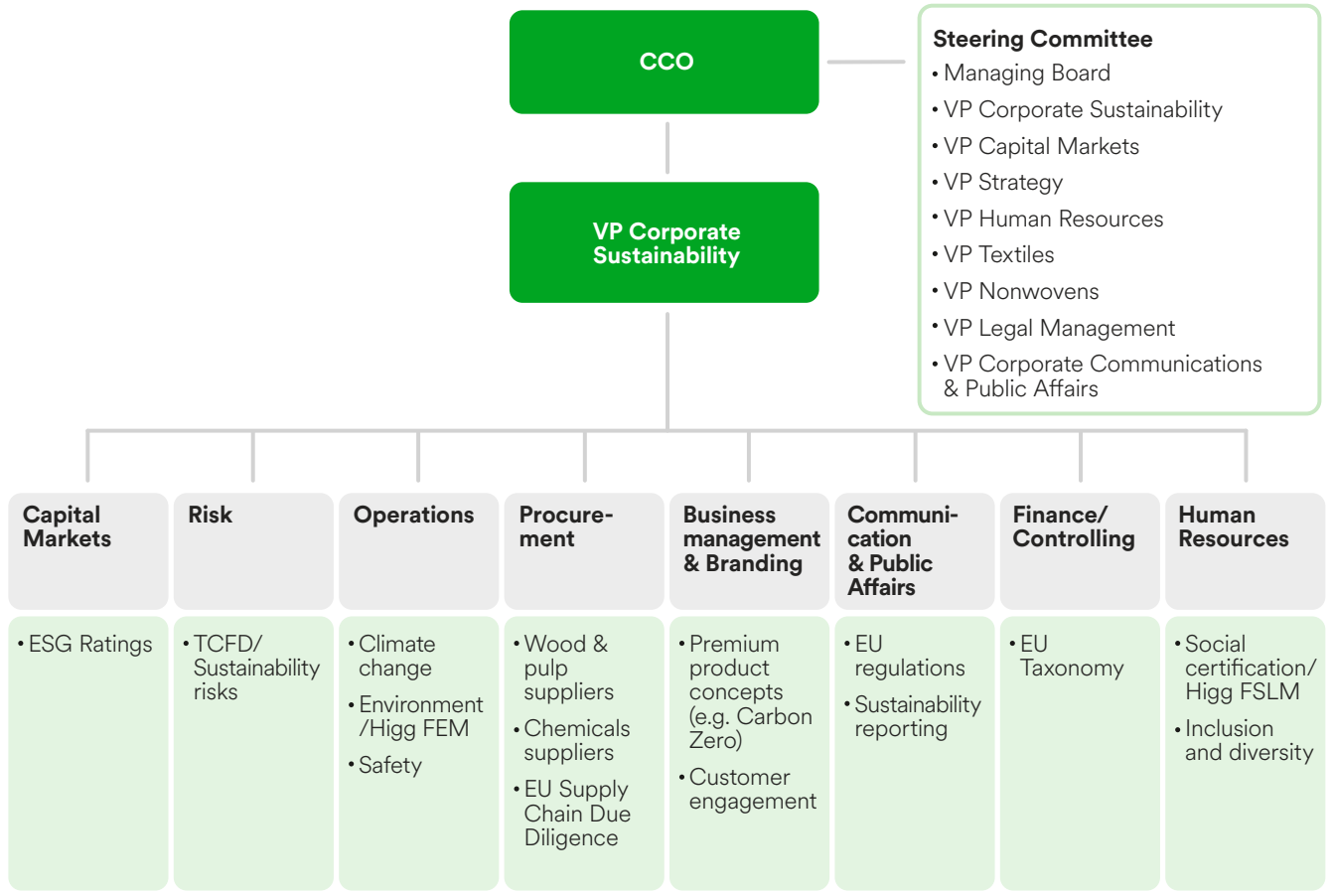
* ESG Committee is an internal committee to accelerate sustainability agenda. Members are Managing Board, Global Strategy and M&A, Corporate Sustainability, Global Wood & Pulp, Corporate Audit & Risk, Capital Markets, Global QESH, Corporate HR, Corporate Controlling, Global Procurement, Global Textile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

ESG Committee

[GRI 2-17]

Sustainability is a value, business and innovation driver in the Lenzing Group. The company is increasingly leveraging its sustainability work by positioning itself using net benefit products (e.g. ECOVERO™), key ratings (for investors) and benchmarking tools at the wider industry level. To support these efforts, an ESG committee has been installed to accelerate the sustainability agenda implementation by aligning across functions. The key objectives are to formulate and execute the company's sustainability vision, strategy and ESG benchmarks and tools. The ESG committee consists of the Managing Board and heads of different functions, who review the progress of the sustainability targets, evaluate the effectiveness of Lenzing's approach to managing all aspects of sustainability, including risks and opportunities, and make long-term strategic decisions. The corporate sustainability department is an integral part of the committee and works closely with several functions to ensure the integration of sustainability aspects in various business processes and to respond to stakeholder needs and expectations and prepares organization to be future-fit.

ESG Committee structure Figure 04



For information on the Lenzing Group's governance structure, please refer to the Lenzing Group's Annual Report 2022 (Corporate Governance Report).

Risk management

[GRI 2-25]

Dissolving wood pulp and fiber production require 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 as well as to the environment. Risk management also includes risks arising from environmental, social and governance (ESG) topics for the company's operations, partners of the entire value chain and other stakeholders. Any potential impacts could affect the success of the Lenzing Group and its reputation. For more information, please see the Risk Report in the Lenzing Group's Annual Report 2022.

Compliance

Compliance goes beyond simply adhering to legal requirements.

Lenzing strives to achieve exemplary quality in products and processes, as well as integrity and honesty whenever dealing with business partners and shareholders. Compliance at the Lenzing Group does not just stand for compliance with legal regulations and regulatory standards. Compliance for Lenzing is a question of attitude that also reflects a culture of integrity when dealing with one another. Consequently, compliance is seen as the active responsibility of all employees and executives, as well as being a shared value which is firmly anchored across the entire Lenzing Group. Compliance is an integral part of management meetings.

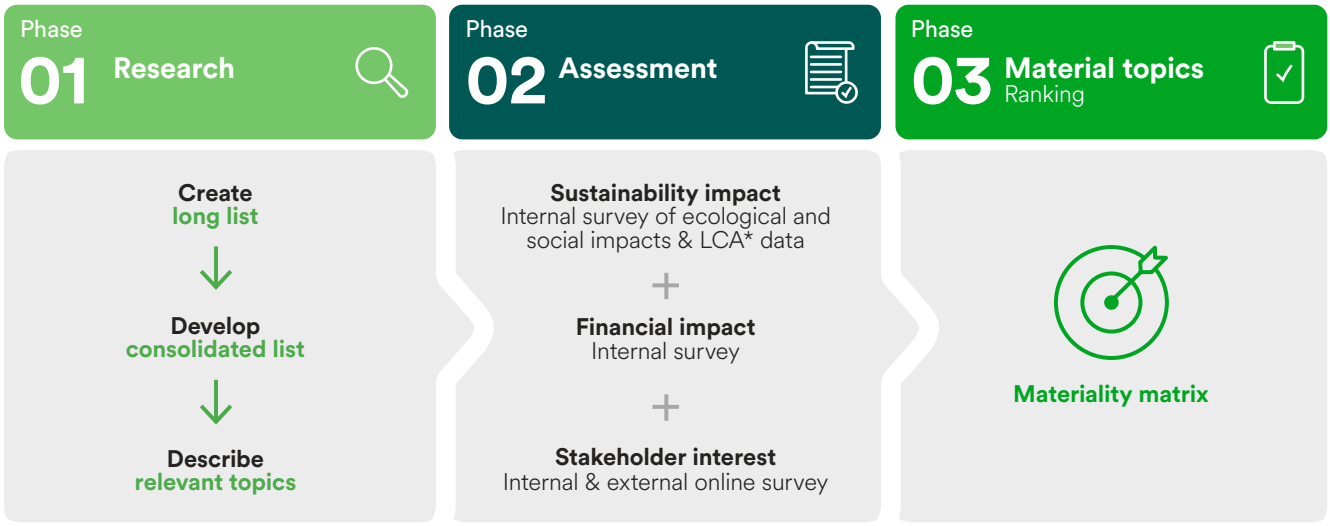
Lenzing ensures that any reported cases of suspected non-compliance are investigated thoroughly and does not tolerate any form of compliance breaches if any are discovered.

For a detailed description of compliance management at Lenzing, please refer to the "Business ethics" chapter.

Double materiality analysis

[GRI 3-1, 3-2]

Materiality analysis Figure 05



* LCA = Life cycle assessment

Lenzing presented its "Naturally Positive" sustainability strategy in 2017. In the run-up to this, it performed a comprehensive materiality analysis for the first time in 2015. This materiality analysis was updated and expanded in 2021. For the first time, a so-called double materiality analysis was carried out. This means that both the influence of the environment on the company and the influence of the company on the environment were examined and supplemented by the financial consideration of these influences.

Lenzing is continuously engaging with stakeholders to understand the relevance and update the materiality analysis if required. In the reporting year, Lenzing had conversations with several stakeholders (e.g. Canopy) and no new topics were identified.

The new materiality matrix of the Lenzing Group was developed in three phases. The first phase was dedicated to defining the potential material topics. Around 300 internal and external topics and trends in the environmental, social and governance (ESG) domain were identified for the present and future. This list of topics was divided according to ESG criteria and then summarized, which yielded the 16 potential material topics (i.e. the short-list).

The second phase was to prioritize the potential material topics with the help of external and internal stakeholders. For this purpose, a stakeholder survey and an impact analysis were carried out in order to be able to compile a topic ranking in the third phase of the process. For each of these topics, a brief description of the impacts, risks, opportunities, expectations and current situation was prepared and a questionnaire was created. This questionnaire was sent worldwide to employees at different levels, the Supervisory Board, investors, suppliers, customers, partners from the value chain, brands, insurance companies and the media. The feedback received from stakeholders regarding the relevance of the different topics, have been considered in the final materiality matrix.

In addition, an impact analysis of these topics was carried out with 40 employees from various areas who are also involved in sustainability reporting on ecological and social impacts. These experts were selected from the areas of business management, risk management, sustainability, finance, etc.

In the last phase, the impact analyses and the stakeholder survey results have been compiled to the final materiality matrix, which allowed ranking the issues and thus defining the material issues for the company.

Material aspects

Materiality analysis – allocation of topics Table 03

Material aspects	Strategic focus area	NaDiVeG	ESRS	SDG
Circularity & resources	Partnering for systemic change, Sustainable innovations	Environmental matters	E5 Resource use and circular economy	9, 11, 12, 17
Climate & energy	Decarbonization	Environmental matters	E1 Climate change	7, 13, 17
Responsible wood sourcing	Raw material security	Environmental matters	–	15
Biodiversity & ecosystems	Raw material security	Environmental matters	E4 Biodiversity and ecosystems	15
Sustainable innovation & products	Sustainable innovations	Environmental matters	E2 Pollution, E3 Water and marine ressources, S4 Consumers and end-users	9, 12, 17
Health & safety	Empowering people	Employee-related matters	S1 Own workforce	3
Human rights & fair labor practices	Empowering people	Employee-related matters, Respect for human rights	S3 Affected communities, S1 Own workforce	5, 8, 10
Business ethics	Empowering people	All non-financial matters	G1 Business ethics	16
Digitalization & cyber security	Sustainable innovations	All non-financial matters	–	9, 8, 16
Further sustainability aspects				
Supply chain sustainability	Raw material security, Partnering for systemic change	Environmental matters, Respect for human rights	–	8, 12, 17
Water stewardship	Sustainable innovations	Environmental matters	E3 Water and marine ressources	6
Community wellbeing	Enhancing community wellbeing	Social matters	S3 Affected communities	1, 3, 11
Diversity, inclusion & equal opportunity	Empowering people	Employee-related matters, Respect for human rights	S1 Own workforce	5, 10
Employee empowerment & development	Empowering people	Employee-related matters, Respect for human rights	S1 Own workforce	5, 10

For further information on the updated materiality analysis, please see the "Materiality analysis" focus paper.

„Naturally positive" 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.

Our defined sustainability mission and vision act as guide to making better choices in everything we do – from the small decisions of everyday business to strategic and long-term decisions.

"Naturally positive", the Lenzing Group's sustainability strategy, was created from the results of the materiality analysis and is firmly rooted in the Lenzing Group's new Better Growth strategy which was developed in the reporting year. Within the four strategic drivers (sustainability, innovation, premiumisation and excellence), the corporate strategy defines the sustainability areas in which Lenzing can do most to create a more sustainable world. At the same time, this approach enables Lenzing to adequately consider and contribute to those United Nations' Sustainable Development Goals (SDGs) on which the company's activities have the greatest impact.

Strategic focus areas of sustainability and the corresponding SDGs Figure 06

Three strategic principles

Lenzing's sustainability strategy builds on three strategic principles. Within those principles, seven focus areas were identified in which the Lenzing Group substantially contributes to creating positive impacts and benefits.

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 and traceability are 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. Industry benchmarking tools such as ZDHC (Zero Discharge of Hazardous Chemicals) and FSLM (Facility Social Labor Module), concrete sustainability targets, supplier engagement, and physical and digital traceability tools contribute to this change.

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 using as few 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).

Dedicated targets for the development of recycled content-based fibers and circular business models with value chain partners contribute to this principle.

3. Greening the value chain
Lenzing's responsible practices and innovative products enable its customers and value chain partners to improve their environmental and social performance and achieve their sustainability targets and commitments. Responsible sourcing practices, water stewardship, decarbonization, and sustainable innovations form the basis of 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.

For further information on Lenzing's sustainability strategy, strategic principles, and focus areas, please see the "Sustainability strategy" focus paper.

Sustainability policy

Lenzing aims to embody best sustainability practices, lifecycle and long-term thinking, transparent and respectful collaboration and partnerships with its stakeholders in all activities and business decisions to meet society's long-term goals. Lenzing's approach is creating more positive impacts and benefits thanks to its business practices and products to make the world a better place. This covers the three dimensions of PEOPLE, PLANET and PROFIT, balancing the needs of society, the environment and shareholders and partners.

Sustainability targets, measures and progress

[GRI 3-3]

Lenzing has set Group sustainability targets for the most important challenges in each of its strategic focus areas. To increase transparency, the corresponding implementation measures and target progress made during the reporting year are described below. There could be potential conflicts that can arise between different material topics and their respective targets in a company. For example, raw material security and biodiversity & ecosystems can be competing as the sourcing of wood from critical (ancient and endangered) forests could lead to potential loss in biodiversity. As a responsible company, Lenzing is committed to procuring wood and dissolving wood pulp exclusively from sustainable forests and plantations. Furthermore Lenzing strives to create positive impact on biodiversity in different regions of the world through conservation projects. Another example is the conflicting targets of water stewardship and climate, as the recycling of water is energy intensive. To counteract this conflict Lenzing sets a water target in regions where water is scarce. This means, the company takes a context based approach to target setting so that we try to address and prioritize most relevant topics for a specific region.

Color code status

- On track
- Achieved
- Delayed
- New target

Sustainability targets, measures and progress

Table 04

		Target year	SDG
Sustainable innovations			
Target 1	To improve the Lenzing Group's specific sulfur emissions by 50 percent by 2023 (baseline 2014)[a]	2023	12
Measure(s)	Lenzing implements a sulfur recovery plant (CAP) upgrade at the Purwakarta plant (Indonesia)	2023	
Progress made in 2022	The project is in the full construction phase. The current global situation, with the war against Ukraine, a shortage of semiconductors and China lockdowns, is delaying several shipments from Europe and Asia. This is having a major impact on the project completion schedule. Weather conditions in Purwakarta, with heavy and frequent rainfall, are also impacting the construction activities. Based on the current situation, the start-up of the sulfur recovery plant is likely in the first half of 2023.		
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	9, 12, 17
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™f 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	
	Lenzing and Södra collaboration will recycle 25,000 t of textile waste per year at Södra's Mörrum site[b]	2025	
Progress made in 2022	The joint efforts with Södra to develop a recycled pulp with a share of post-consumer waste on an industrial scale were successfully continued. Significant progress was made towards the development of a production line processing 25 kt of textile waste. Start-up of this plant is targeted for 2025. Overall, Lenzing continued with product and process development towards reaching the key target for 2025. The biggest challenges are adapting the recycled pulp for industrial fiber production and securing the supply of good quality recycled pulp for cellulose fibers. These challenges also led to a delay of at least one year in the first measure for 2022.		
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	9, 12, 17
Progress made in 2022	The organizational structure was set up to create new business models. There have been initial discussions and scouting of brands and supply chain partners to develop collaborative pilot projects. Lenzing became a partner of the EU-funded CISUTAC (Circular and Sustainable Textile and Clothing) project together with 27 other consortium members, aimed at removing bottlenecks to enhance textile circularity in Europe. Additionally, Lenzing committed to joining the "Transform Waste into Feedstock" project within the EURATEX Rehubs Initiative led by Texaid.		
Target 4a	To achieve 'aspirational' MMCF level for ZDHC wastewater and air emission guidelines at Lenzing viscose facilities by 2024	2024	6, 12
Progress made in 2022	All Lenzing viscose sites - Lenzing (Austria), Nanjing (China), Purwakarta (Indonesia) - have continuously reported to the ZDHC Gateway on time in 2022. While the site in Lenzing has achieved the aspirational level as defined by the wastewater guideline, the sites in Nanjing and Purwakarta have developed their own action plans for further improvement in the coming two years. The ZDHC MMCF guideline was revised in 2022 and it has been extended to include lyocell fiber, among others. Lenzing will start to implement the guideline accordingly at all its fiber production sites in 2023.		

Target 4b	To achieve 'aspirational' MMCF level for ZDHC wastewater and responsible production guidelines at Lenzing lyocell facilities by 2028	2028	6, 12
Measure(s)	First ZDHC Gateway reporting of MMCF waste water guideline v2 at all lyocell sites[c] in 2023	2023	
	First supplier platform implementation and reporting of MMCF Guideline v2 - Responsible fiber production at all lyocell sites[c] in 2023	2023	
	Lenzing lyocell sites[c] achieves 'aspirational' level for wastewater and responsible production	2025	
	Lenzing site in Grimsby (UK) achieves 'foundational' level for wastewater and responsible production	2025	
	Lenzing site in Grimsby (UK) achieves 'aspirational' level for wastewater and responsible production	2028	
Water stewardship			
Target 5	To improve Lenzing Group's specific wastewater emissions (COD) by 20 percent by 2024 (baseline 2014)[a,b]	2024	6, 12
Measure(s)	Lenzing implements a wastewater treatment plant upgrade at Purwakarta site (Indonesia)	2023	
	Lenzing implements a new wastewater treatment plant at Grimsby (UK) site	2024	
Progress made in 2022	The current global situation, with the war against Ukraine, a shortage of semiconductors and China lockdowns, is delaying several shipments from Europe and Asia. This is having a major impact on the project completion schedule. Weather conditions in Purwakarta with heavy and frequent rainfall, are also impacting the construction activities. The start-up is planned for the first half of 2023. In Grimsby, the Membrane Bio Reactor (MBR) route for the wastewater treatment plant was selected. The pilot plant, proving trials and designs have been completed. It is on track for commissioning and operation in the second half of 2024.		
Raw material security and biodiversity			
Target 6	To implement a conservation solution of 20 ha in Albania in combination with a social impact project by 2024	2024	1, 15
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 trainings and school partnerships in Albania	Yearly	
Progress made in 2022	By the end of 2022, the first 12 ha have been reforested and more than 400 forest workers were trained in sustainble forest management. Student enrollment in the Shkodra Forest School is increasing. Tree seedlings are being grown with a survival rate of 85-90 percent in the new tree nursery for future restoration projects.		
Target 7	To implement conservation solutions on 15,000 ha at the new pulp site in Indianópolis (Brazil) by 2030	2030	15
Measure(s)	Lenzing increases the protected area in Brazil from 13,000 ha to 15,000 ha	2030	
Progress made in 2022	Lenzing achieved this goal in 2022 and increased the total conservation area in Brazil even further than the target, to 17,000 ha.		
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	15
Progress made in 2022	Lenzing defined the guidelines to be taken into account for selecting (a) suitable project(s) based on different stakeholder criteria. Additionally, potential projects, partners and solutions performed by other players were identified. A potential combination of projects to be executed was selected in the reporting year and final alignment is planned for 2023.		
Partnering for systemic change			
Target 9	To engage suppliers, covering more than 80 percent of spend, to improve sustainability performance	Continuous	12, 17
Measure(s)	Lenzing assesses 95 percent of its top 200 suppliers (approx. 80 percent of spend) via EcoVadis, the Together for Sustainability Audit or an internal assessment/audit by 2025.	2025	
	Lenzing considers climate, water and chemical aspects in the procurement contractual process of its top chemicals suppliers	Continuous	
Progress made in 2022	Lenzing joined Together for Sustainability. The number of suppliers responding to the EcoVadis questionnaire more than doubled to 387. Sustainability clauses were included in the first suppliers contracts as part of the general conditions.		
Target 10	To improve transparency by implementing the Higg Facility Environmental Module (FEM 3.0) at all sites by 2019	Achieved	12, 17
Target 11	To implement and annually update FEM in all pulp and fiber production facilities and share verified modules with customers from 2024[d]	2024	12, 17
Measure(s)	Lenzing conducts self-assessments in existing sites in 2022 and first external verification by 2023	2023	
	Lenzing conducts self-assessments and trainings for new legal entities (Prachinburi (Thailand) and Indianópolis (Brazil)) in 2023 and first external verification by 2024	2024	
Progress made in 2022	Internal targets as well as group and site level roadmaps have been developed. Lenzing determined the expansion of FEM to new sites and adjusted the group roadmap accordingly. In 2022, Lenzing carried out internal FEM assessment and external training to prepare for the first external verification of Higg FEM in 2023. Preparation for new sites in Thailand and Brazil will start next year.		
Target 12	To achieve digital fiber traceability by having 500 value chain partners with blockchain technology by 2021	Achieved	9, 12, 17

Target 13	To increase physical traceability from TENCEL™ x REFIBRA™ and LENZING™ ECOVERO™ to 100 percent of Lenzing's textile special fibers by 2021	**Achieved**	12
Decarbonization			
Target 14	To reduce scope 1, 2 & 3 (purchased goods and services, upstream and downstream transport, and fuel and energy-related activities) greenhouse gas emissions by 50 percent per ton of fiber and pulp sold by 2030 (baseline 2017)	**2030**	7, 13
Measure(s)	Lenzing reduces 40 percent of specific CO_2 emissions per ton of product sold[b,e]	**2024**	
	Lenzing reduces 50 percent of specific CO_2 emisions per ton of product produced[e]	**2027**	
Progress made in 2022	Lenzing maintained its approach towards mitigating climate change by reducing its GHG emissions compared to baseline 2017. Detailed information on achievements in 2022 is available in the "Climate & energy" chapter.		
Target 15	To achieve net-zero CO_2 emissions by 2050 (scope 1, 2 & 3)	**2050**	7, 13
Measure(s)	Lenzing achieves 100 percent green electricity for four sites	**2024**	
	Lenzing phases out coal in its Nanjing (China) operations	**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 Indianópolis (Brazil)	**2023**	
	Lenzing achieves scope 1 and 2 carbon neutrality at its new lyocell fiber production site in Prachinburi (Thailand) by using 100 percent bioenergy	**2023**	
	Lenzing engages 20 key suppliers, by spend and CO_2 impact, in order to reduce Lenzing's scope 3 emissions and incentivize the suppliers that help Lenzing offer more low-carbon-footprint fibers	**Continuous**	
	Lenzing engages and enables 50 percent of 'customers with approved SBT and commitment' (textile and nonwoven brands/retailers as well as manufacturers working with LENZING™; fibers) to fulfill their ambition by providing information on low GHG-footprint specialty products such as TENCEL™, LENZING™, ECOVERO™, and VEOCEL™ branded fibers	**Continuous**	
	Lenzing runs a campaign to reach 50 percent of TENCEL™ and VEOCEL™ customers (textile and nonwoven brands/retailers as well as manufacturers using the TENCEL™ and VEOCEL™ brands) to promote the use of innovative carbon-zero TENCEL™ products and climate care VEOCEL™ products	**Continuous**	
Progress made in 2022	Lenzing has commissioned the largest ground-mounted photovoltaic system in Upper Austria, which is expected to provide 5,500 MWh annually. This is expected to cut CO_2 emissions by some 4,400 tons per year. The transition to solely renewable electricity in Nanjing (China) is underway and expected to be completed in 2023. Phasing out coal in Nanjing (China) is ongoing, however the project was delayed due to long negotiations with gas stakeholders such as infrastructure and supply and the strict COVID-19 restrictions in China. The targeted carbon neutrality in (Prachinburi) Thailand was achieved in 2022. For more information, please see the "Climate and energy" chapter.		
Empowering people			
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 2024[d]	**2024**	8, 12
Measure(s)	Lenzing implements and annually updates the Facility Social Labor Module (FSLM) at all pulp and fiber production facilities and shares verified modules with customers from 2024 onwards	**2024**	
Progress made in 2022	For the sites in Nanjing (China) and Mobile (USA): Completion of online assessment, preparation of on-site audits, completion of certification expected in Q1/23, training modules for all sites in preparation. For the sites in Austria and the Czech Republic, a different verification is being sought, as these two countries cannot be verified according to FSLM.		
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**	3, 5, 10
Measure(s)	Lenzing implements training courses for 75 percent of the workforce on diversity, discrimination, the non-discrimination policy, and human rights	**2025**	
	Lenzing increases its proportion of women to 22.5 percent in all positions graded 5a and above by 2025	**2025**	
	Lenzing establishes a working condition policy	**2021**	
Progress made in 2022	In 2022, further measures were taken to provide diversity training and publish a range of global guidelines to explain processes and benefits that impact employees' terms and conditions to ensure fairness and consistency across the Group. In order to get an overview of existing guidelines and policies to be included in the working conditions policy, several guidelines were reviewed and developed such as the Job Evaluation Guideline, Guideline for Creating a Job Description, Learning and Development Guideline and Talent Management Guideline. In 2023, it will be summarized in one (global) policy.		
Target 18	To continuously support the development of local communities near Lenzing production sites and support social welfare programs to 2025 and beyond	**Continuous**	1, 3, 11
Progress made in 2022	In 2022, Lenzing continued supporting numerous social and environmental initiatives for enhancing community development and wellbeing. Depending on local requirements, activities range from donations, sponsorships, health and medical care, scholarships and other educational programs, as well as local environmental projects. A current overview of activities conducted in 2022 at each site is provided in the "Social responsibility" focus paper.		

a) The target has the same production volumes and scope of facilities as the 2014 baseline (i.e. excluding the new legal entities in Prachinburi (Thailand) and Indianópolis (Brazil)).
b) Relevant for the Managing Board long-term incentive (LTI) bonus target
c) Lenzing (Austria), Heiligenkreuz (Austria), Mobile (USA), Prachinburi (Thailand)
d) The scope includes all Lenzing facilities, also the new legal entities in Prachinburi (Thailand) and Indianópolis (Brazil).
e) These intermediate targets are part of the Lenzing corporate strategy on the way to reach science-based target by 2030.

Information on environmentally sustainable economic activities according to the EU Taxonomy Regulation

According to the Regulations (EU) 2021/2139 of the European Commission as of June 4, 2021, (EU) 2021/2178 of the European Commission as of July 6, 2021 and (EU) 2020/852 of the European Comission as of June 18, 2020, the Lenzing Group is required to disclose three key performance indicators (turnover, CAPEX and OPEX) associated with the Lenzing Group's economic activities that are eligible under and aligned with the EU Taxonomy. The Lenzing Group designed an EU-Taxonomy accounting guideline for describing the methodology for reporting the three KPIs by following the time sequence and requirements as outlined in the Delegated Act dated January 1, 2022.

To determine the Taxonomy-eligible activities, the Lenzing Group assessed all economic activities listed in the EU-Taxonomy for all consolidated group companies. The European industry classification system (NACE codes[4]) was used as a framework to capture all economic sectors. Due to the current state of EU legislation, not all economic activities and industries are covered by the two currently applicable environmental objectives. As a consequence, the Lenzing Group's core business activities (wood-based fiber production, dissolving wood pulp production and supporting activities) are currently not included. Thus, the information on Taxonomy-eligible economic activities for 2022 covers only a very small portion of activities within the Lenzing Group. The following activities are identified as Taxonomy-eligible: Transmission and distribution of electricity, cogeneration of heat/cool and power from renewable non-fossil gaseous and liquid fuels, cogeneration of heat/cool and power from bioenergy. Future developments in legislation may change the scope of the Taxonomy-eligible activities.

Taxonomy-eligibility refers to an economic activity that is described in the EU-Taxonomy regulation. Taxonomy-alignment goes beyond eligibility and implies a positive assessment of the applicable technical screening criteria. This includes a substantial contribution to at least one of the Taxonomy's environmental objectives, no significant harm to any other objectives and compliance with the minimum safeguards.

For the identified economic activities that are considered material in terms of the key performance indicators, an assessment for Taxonomy-alignment was performed. The Lenzing Group began the alignment assessment by screening the technical critieria, including the substantial contribution, the Minimum Safeguards and DNSH (Does Not Significantly Harm) criteria. During the screening, the Lenzing Group came to the conclusion that the requirements of Annex A (climate risk and vulnerability assessment) as well as other elements can not yet be fullfilled. As a consequence of this assessment, no full DNSH-alignment was obtained. All identified economic activities are reported as Taxonomy-eligible, but not Taxonomy-aligned.

The Lenzing Group avoids any double counting by evaluating the data for each key performance indicator independently. All identified economic activities only count once for the environmental objective of "Climate Change Mitigation". The Lenzing Group has assessed the turnover, CAPEX and OPEX according to the definition of Taxonomy-eligible and Taxonomy-aligned activities as set out in the Taxonomy.

4 NACE (Nomenclature statistique des activités économiques dans la Communauté européenne) is the classification of economic activities in the European Union

The proportion of turnover, CAPEX and OPEX from products or services associated with Taxonomy-eligible and -aligned economic activities, convering the year 2022, is presented in the template below:

Table 05

				Substantial Contribution criteria						DNSH criteria ("Does Not Significantly Harm")								
Economic activties	**Codes**	**Absolute turnover**	**Proportion of turnover**	**Climate Change Mitigation**	**Climate Change Adaptation**	**Water marine resources**	**Circular Economy**	**Pollution**	**Biodiversity and ecosystems**	**Climate Change Mitigation**	**Climate Change Adaptation**	**Water marine resources**	**Circular Economy**	**Pollution**	**Biodiversity and ecosystems**	**Minimum safeguards**	**Taxonomy-aligned proportion of turnover year 2022**	**Taxonomy-aligned proportion of turnover year (n/a)**	**Category (transitional activity)**
		EUR mn	**%**	**%**	**%**	**%**	**%**	**%**	**%**	**Y/N**	**Y/N**	**Y/N**	**Y/N**	**Y/N**	**Y/N**	**Y/N**	**%**	**%**	**T**
TURNOVER																			
A. TAXONOMY-ELIGIBLE ACTIVITIES																			
A.1. Environmental sustainable activities (Taxonomy aligned)																			
A.2. Taxonomy-Eligible but not environmental sustainable activites (not Taxonomy-aligned activities)																			
Transmission and distribution of electricity	4.9.	1.6	0.1%																
Cogeneration of heat/cool and power from renewable non-fossil gaseous and liquid fuels	4.19.	31.2	1.2%																
Cogeneration of heat/cool and power from bioenergy	4.20.	14.7	0.6%																
Turnover of Taxonomy-eligible but not environmental sustainable activities (not Taxonomy-aligned activities) (A.2.)		**47.5**	**1.9%**																
Total (A.1 + A.2)		**47.5**	**1.9%**																
B. TAXONOMY-NON-ELIGIBLE ACTIVITIES																			
Turnover of Taxonomy-non-eligible activities (B)		2,518.2	98.1%																
Total (A + B)		**2,565.7**	**100%**																
CAPEX																			
A. TAXONOMY-ELIGIBLE ACTIVITIES																			
A.1. Environmental sustainable activities (Taxonomy aligned)																			
A.2. Taxonomy-Eligible but not environmental sustainable activites (not Taxonomy-aligned activities)																			
Transmission and distribution of electricity	4.9.	0.8	0.1%																
Cogeneration of heat/cool and power from renewable non-fossil gaseous and liquid fuels	4.19.	4.0	0.5%																
Cogeneration of heat/cool and power from bioenergy	4.20.	0.1	0.0%																
CAPEX of Taxonomy-eligible but not environmental sustainable activities (not Taxonomy-aligned activities) (A.2.)		**4.9**	**0.6%**																
Total (A.1 + A.2)		**4.9**	**0.6%**																
B. TAXONOMY-NON-ELIGIBLE ACTIVITIES																			
CAPEX of Taxonomy-non-eligible activities (B)		803.3	99.4%																
Total (A + B)		**808.2**	**100%**																
OPEX																			
A. TAXONOMY-ELIGIBLE ACTIVITIES																			
A.1. Environmental sustainable activities (Taxonomy aligned)																			
A.2. Taxonomy-Eligible but not environmental sustainable activites (not Taxonomy-aligned activities)																			

Transmission and distribution of electricity	4.9.	0.3	0.1%
Cogeneration of heat/cool and power from renewable non-fossil gaseous and liquid fuels	4.19.	5.4	2.8%
Cogeneration of heat/cool and power from bioenergy	4.20.	5.2	2.7%
OPEX of Taxonomy-eligible but not environmental sustainable activities (not Taxonomy-aligned activities) (A.2.)		**10.9**	**5.6%**
Total (A.1 + A.2)		**10.9**	**5.6%**
B. TAXONOMY-NON-ELIGIBLE ACTIVITIES			
OPEX of Taxonomy-non-eligible activities (B)		183.9	94.4%
Total (A + B)		**194.8**	**100%**

The total turnover covers the revenue recognized pursuant to International Accounting Standard (IAS) 1.82 (a), as adopted by Commission Regulation (EC) 1126/2008 and is reported in the consolidated financial statements for 2022 (see consolidated Income Statement line "revenue"). The turnover derived from products or services, including intangibles, associated with Taxonomy-eligible economic activities, is presented in relation to the total turnover.

The total CAPEX covers book (not cash-effective) additions to property, plant and equipment, intangible assets, biological assets and right of use assets. The CAPEX related to assets or processes associated with Taxonomy-eligible economic activities, is presented in relation to the total CAPEX.

EU Taxonomy CAPEX

Table 06

	EUR mn 1–12/2021	EUR mn 1–12/2022
Additions to intangible assets (see note 18 of consolidated financial statements 2022)	**8.7**	**10.9**
Additions to property, plant and equipment excluding down payments	947.7	778.6
Additions to land and buildings (see note 19 of consolidated financial statements 2022)	28.9	131.5
Additions to technical equipment and machinery, factory and office equipment (see note 19 of consolidated financial statements 2022)	53.8	455.4
Additions to down payments and assets under constructions (see note 19 of consolidated financial statements 2022)	755.7	46.3
Reclassification of down payments (see note 19 of consolidated financial statements 2022)	109.3[a]	145.5[a]
Additions to biological assets (see note 20 of consolidated financial statements 2022)	1.5	4.6
Additions to right of use assets (see note 21 of consolidated financial statements 2022)	10.1	14.2
Total	**967.9**	**808.2**

a) Additions include prepayments amounting to EUR 141 mn (2021: 106.5 mn), which were capitalized in the financial year. The decrease in advance payments made compared to the previous period amounts to EUR 4.3 mn (2021: 2.8 mn).

The total OPEX covers direct non-capitalized operating expenses that relate to research and development, building renovation measures, short-term leasing, maintenance and repair. Maintenance and repair expenses relate to the day-to-day servicing of property, plant and equipment assets (including maintenance material and cleaning services). Operating expenses associated with taxonomy-eligible economic activities are presented in relation to total operating expenses.

EU Taxonomy OPEX

Table 07

	EUR mn 1–12/2021	EUR mn 1–12/2022
Maintenance and repairs including maintenance material (see note 6 of consolidated financial statements 2022)	35.0	158.7
Rental and leasing expenses (see note 21 of consolidated financial statements 2022)	8.5	10.9
Research and development expenses (see consolidated financial income statement 2022)	24	29.2
Less amortization and depreciation included in research and development expenses (see note 6 of consolidated financial statements 2022)	−0.9	−4.0
Total	**66.6**	**194.8**

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 society is facing, call for a collaborative approach to designing systemic solutions.

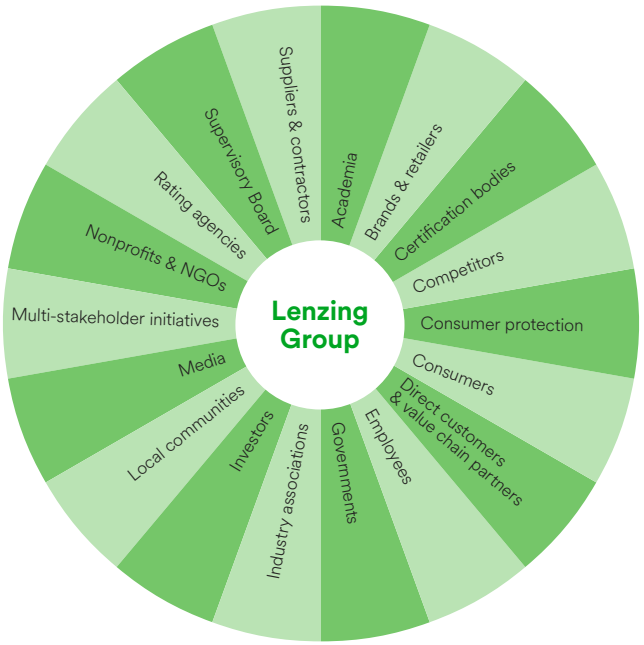
Guided by the United Nations, Sustainable Development Goal, SDG 17, Partnerships for the Goals, the Lenzing Group regularly engages with a wide range of stakeholders and business partners in order to integrate different perspectives, understand global trends, and mitigate risks. Lenzing strives to identify and develop cross-industry business opportunities to make progress in implementing circularity at Lenzing and throughout the industry. Thanks to its contributions to developing methods, tools and products, Lenzing helps the industry to progress on its path towards a more sustainable future. For example, the Lenzing Group actively contributes to multi-stakeholder associations such as the Textile Exchange (TE) MMCF roundtable and Sustainable Apparel Coalition's (SAC) Higg transparency program, as well as a policy hub for accelerating circularity via forward-looking policy frameworks and for engaging policy makers in Europe.

Engaging in a dialog means respecting stakeholders, contributing Lenzing's expertise and knowledge, and taking the opportunity to learn from partners' perspectives. Transparency is a prerequisite for fostering trust and long-term relationships. 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 mutual respect and openness help solve existing tensions and avoid potential conflicts.

The ongoing stakeholder dialog improved significantly following the COVID-19 pandemic in the reporting year. Many activities, such as customer meetings or events took place again in person. The Lenzing teams made great efforts to continue their work by finding an efficient balance between online and in-person activities with (virtual) workshops and webinars with customers, one-to-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 and managers of the different business functions are all important players who drive the company's proactive approach towards an ongoing stakeholder dialog.

Key stakeholder groups Figure 07



Key stakeholders in 2022

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 the sharing of information make them a clear testimony to the Lenzing Group's credible sustainability performance. The main topics discussed in 2022:

- Energy security and reducing reliance on fossil fuels
- Climate change, GHG (greenhouse gas) emission targets, science-based target (SBT)
- Diversity and inclusion
- Responsible sourcing, in particular Supply Chain Due Diligence and (verification of) scope 3 emissions
- EU policies (e.g. EU Taxonomy, Empowering Consumers Directive)
- ESG risks
- Circular economy and recycling technologies
- Waste, emissions and water management
- Transparency and traceability of supply chains
- Environmental assessment and communication of products
- Biodiversity and conservation of ecosystems
- Benchmarking tools (Textile Exchange Preferred Fiber and Material Matrix)

For more information on the stakeholder dialog, please see the "Stakeholder engagement" chapter.

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.

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.

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. Lenzing's sustainability strategy and targets contribute towards these goals. For more information on Lenzing's approach to the SDGs, please see the "Sustainable development goals" focus paper.

CHAPTER
3/4

Material Aspects 2022

Table of content

Circularity & resources

MANAGEMENT APPROACH

Material topic: Circularity & resources

[GRI 3-3; ESRS E5-1, E5-2]

Lenzing is developing a circular economy model by creating more sustainable systems and processes at every opportunity. The company has worked hard to achieve greater efficiency in the use and reuse of resources, such as closing loops in production processes and producing fibers that are biodegradable (applying to TÜV certified biodegrable and compostable LENZING™ fibers) at the end of their life. Such measures also ensure that Lenzing remains financially competitive and compliant with environmental legislation. As Lenzing continues to drive circular solutions across both the business and the industry, the complex transition from a linear to a circular system requires a collaborative approach. The company has partnered with Swedish pulp producer Södra to generate more opportunities for recycling waste, creating circular practices and promoting systematic change. The company strives to create as much value as possible through improved sustainability performance that impacts the entire value chain.

Actual and potential negative and positive impacts

Positive

- Creating new product offerings and business models to help the industry to change
- Optimizing the eco-footprint of Lenzing products
- Optimizing the value Lenzing generates via the environmental responsible products it supplies
- Lowering emissions by closing energy and material loops
- Replacing products that cause end-of-life pollution (e.g. microplastics contamination) with biodegradable alternatives
- Valorizing biorefinery products
- Cutting the use of virgin raw materials
- Driving innovation on recycling and optimizing closed loop processes
- Joining forces and sharing know-how within partnerships for systemic change

Negative

Own activities:

- Falling behind competition in terms of efficiency

Business relationships:

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

Policies and commitments

- Circularity is a core pillar of the company's new Better Growth strategy
- "Naturally positive" sustainability strategy with "Advancing circularity" as one of its three major principles and "Partnering for systemic change" as a focus area
- Lenzing Group Environmental Standard
- Lenzing Waste Management Guideline

Actions taken

- Strategic investments in pulp and fiber projects fully on track despite COVID-19
- Collaboration signed with Södra to jointly install a process for post-consumer cellulosic recycling
- Targets for textile recycling on track
- Lenzing intensified its collaboration with leading stakeholders and initiatives
- Partner in the newly founded Christian Doppler Laboratory for a recycling-based circular economy
- Contribution to supply chain transparency to facilitate circular economy projects
- Viscose defined as a non-plastic in the European Single-Use Plastics Directive (SUPD) (Directive (EU) 2019/904)
- Environmental management system based on ISO14001:2015 (including risk assessment and internal audits to ensure the effectiveness of the measures implemented)
- Joined the Circular and Sustainable Textile Clothing project (CISUTAC)

Sustainability targets, measures and progress

For more information, please see the "Sustainability targets, measures and progress" chapter.

Stakeholder

- Circular Fashion Partnership
- Policy Hub
- CISUTAC
- EURATEX
- Textiles 2030
- Södra
- Renewcell

For more information, please see the "Stakeholder engagement" chapter.

Responsible

- Members of the Managing Board (Pulp and commercial)
- Head of Circularity Initiative

Supporting

- Corporate Sustainability
- Global textile business
- Global nonwoven business
- Global BU Noble Fiber
- Pulp Division
- Global Quality, Environment, Safety & Health (QESH)
- Research & Development
- Site managers

- Lenzing signed a five-year agreement for the sale of Renewcell's recycled dissolving pulp

What is a circular economy?

A circular economy is built on the idea that closed loops allow maximum value to be extracted from resources. It keeps materials and products in circulation for as long possible. Closing the loop describes the idea that resources can theoretically "loop" around the economy without being lost, but in the linear economy the loop is not closed, leading to resources getting lost. Important measures to close loops include minimizing waste or the use of virgin materials, which also entails maximizing reuse or recycling. In order to become more circular, an important focus should also be set on reducing the need for virgin materials such as closed-loop processes and reusing resources and products as much as possible.

Building a circular economy calls for rethinking at every stage of a product' life from the design stage, production and use through to the end-of-life. The use-phase of products should be prolonged. Waste from one process can be used as a raw material in another process, which reduces the need for virgin resources, avoids waste, increases resource efficiency and thereby minimizes environmental impacts.

Lenzing's circular economy vision

We give waste a new life. Every day

Lenzing strives to drive the industry towards a fully-fledged circular economy by striving to give waste a new life across all aspects of our core business and by co-developing circular solutions with potential partners within and outside the current value chain to close loops wherever possible. This vision is based on the determination to create value using as few virgin resources as possible and to reduce the use of fossil carbon in the company and the value chain while at the same time improving sustainability performance. It is built on the following three pillars.

We use regenerative and recycled raw materials to help to protect the planet

An important element in Lenzing's circular economy vision is its use of wood, a renewable raw material harvested from well- managed and controlled forests or plantations. In its biorefineries, Lenzing converts 100 percent of the wood into high-value products and bioenergy. To reduce the need for wood, Lenzing is using an increasing amount of alternative cellulose feedstock, in particular from textile waste, as a raw material and is focusing on further developing the technology. Lenzing proactively participates in conservation projects to protect the world's ecosystems. For more information on this, please see the "Biodiversity & ecoystems" chapter.

We think circular to design out waste and innovate processes

In addition to using raw materials highly efficiently, Lenzing strives to reduce its waste by closing loops in the production. By implementing circular thinking and high environmental and social standards in Lenzing's operations, procurement and innovations, Lenzing minimizes the impact on ecosystems and society not only for Lenzing itself, but throughout the value chain. Lenzing set standards in the industry by further closing the loops in the technologies it uses.

Lenzing continuously improves its biorefinery concept by optimizing the cascading use of biomass, meaning that every resource in the wood is used with maximum economic value. As a side product to fibers, Lenzing also produces chemicals which can be used as raw materials in other industries such as food and pharmaceuticals.

Lenzing develops recycling technologies such as the REFIBRA™ and Eco Cycle technologies on a commercial scale to increase resource efficiency and reduce waste in the value chain. Lenzing implements digital processes (blockchain technology, e-branding services) to enhance transparency across the network in order to give customers and end users confidence and to facilitate the transition from a linear to a circular supply chain.

We are not alone in this – Partnering for systemic change

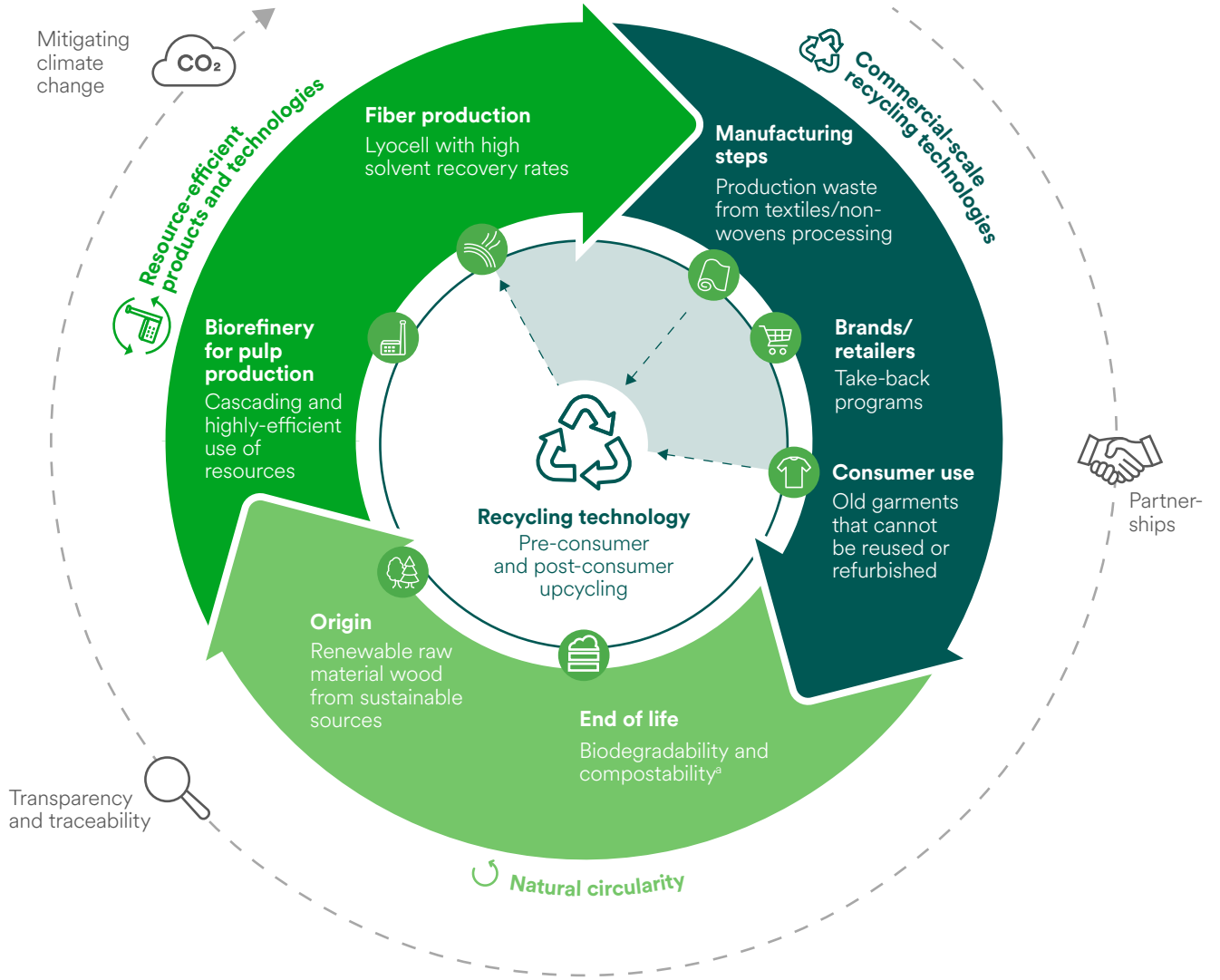
To move to a truly circular economy on a larger scale (regionally and globally), several parties have to work together. Lenzing, as a fiber producer, represents only a fraction of the value chain of textiles and nonwovens and relies on partnerships from every part of the chain. In order to be able to recycle textiles more efficiently, cooperation among designers, manufacturers, consumers and policy makers is needed. The infrastructure for sorting and collecting post-consumer textiles is crucial in scaling up the recycling of textiles. To foster and speed up systemic change Lenzing is entering into various partnerships within and outside the value chain, most notably was the partnerships in 2022 with Södra, a producer of dissolving pulp from recycled textiles. For more information, please see the "Stakeholder engagement" chapter.

Lenzing's circular economy practices

To make its vision a reality, Lenzing follows six main practices that embed various elements of the circular economy into its business model. These practices are described below and include:

- Natural circularity
- Resource-efficient products and technologies
- Developing commercial-scale recycling technologies
- Transparency and traceability of supply chains
- Mitigating climate change
- Partnering for systemic change

Circular economy model Figure 08



a) Applies to TÜV certified biodegradable and compostable LENZING™ fibers

As shown in figure 08, the origin of Lenzing's renewable raw material wood lies in sustainably managed forests and plantations. The wood is processed into pulp in Lenzing's biorefineries, with the renewable energy produced, being used to meet the energy needs for production and other processes at the site. Lyocell fiber production at Lenzing is a closed-loop process that uses all of the inputs without generating waste products. To address the enormous waste challenges facing the textile industry, Lenzing has developed a unique solution for recycling technologies called REFIBRA™ (for textiles) and Eco Cycle (for nonwovens). These technologies, in addition to virgin pulp, use cotton waste from brands/retailers and end-of-life garments that cannot be reused or refurbished as raw materials after consumer use. At the end of their life TÜV certified biodegradable and compostable LENZING™ fibers are compostable and biodegradable[5]. This closes for those fibers the material loop and aligns with the natural cycle. As complex global challenges such as the transition from a linear to a circular system require a collaborative approach, Lenzing enters into partnerships with several stakeholders with the clear goal of driving systemic change in the textile and nonwovens industry. Close digital connections facilitate supply chain traceability and help to verify the origin of Lenzing fibers throughout the life cycle up to the final garment. Lenzing strives to find synergistic solutions such as its biorefinery concept, which not only addresses circularity but also contributes to climate change mitigation at the same time.

5 LENZING™ fibers which are TÜV certified biodegradable and compostable include the following products: LENZING™ Viscose Standard textile/nonwovens, LENZING™ Lyocell Standard textile/nonwovens, LENZING™ Modal Standard, LENZING™ FR Standard(a), LENZING™ FR Black(a), LENZING™ Lyocell Filament(b), LENZING™ Lyocell Dry(b), LENZING™ Web Technology. a) LENZING™ FR Standard and LENZING™ FR Black are only industrial compostable. b) LENZING™ Lyocell Filament is not tested for marine biodegradability and LENZING™ Lyocell Dry is not compostable in salt water.

Climate change and the circular economy

By reducing the need for virgin materials, it i possible to lower the carbon footprint of a product which will help to mitigate climate change. A new air purification and sulfur recovery plant at the Lenzing facility reduces the need for virgin materials saving 15,000 tons of CO_2 per year. Lenzing has developed products with recycled materials for example using the REFIBRA™ and Eco Cycle technologies, which have lower carbon footprints than fibers conventionally produced from virgin resources (according to Higg MSI scores).

Natural circularity

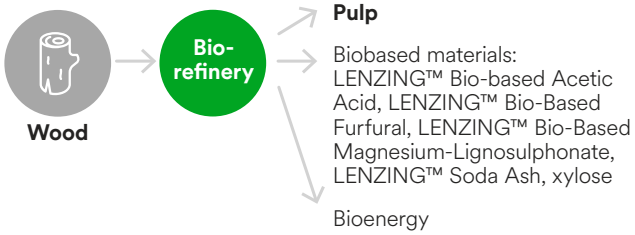
Natural circularity covers the biological cycle, which is based on two aspects: renewable origins and the biodegradability and compostability of natural materials. Lenzing's products are derived from wood sourced from well-managed forests and plantations (as described in the "Raw material security" chapter) and recycled cotton from textile waste. TÜV certified biodegradable and compostable LENZING™ fibers are compostable and biodegradable[6]. The safe disposal of those fibers into the natural environment enables the cellulose material loop to close in alignment with the biological cycle.

Resource-efficient products and technologies

Cascading use of biomass

The Lenzing Group operates three biorefineries: one in Lenzing (Austria) and one in Paskov (Czech Republic) and one in Indianapolis (Brazil). As depicted in figure 09, Lenzing biorefinery technology converts wood into pulp, biobased co-products and energy. Lenzing sells the valuable biorefinery products, such as LENZING™ Acetic Acid Biobased, LENZING™ Furfural Biobased, xylose, LENZING™ Soda Ash or LENZING™ Magnesium-Lignosulfonate Biobased, to other industries, thereby making a major contribution to the maximum utilization of wood. The biorefineries are self-sufficient in terms of energy. The surplus renewable energy (steam and electricity) that is produced is supplied as renewable energy for on-site use in fiber production and other purposes. This is a prime example of the cascading use of biomass and 100 percent utilization of wood without generating any waste.

Highly efficient use of the raw material wood Figure 09



Closed-loop production

Lenzing's lyocell process is a 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 more than 99.8 percent of the solvent to be recovered and recycled. This avoids waste and ensures high resource utilization, while reducing water consumption and emissions.

Lenzing also sets standards for closing the loops even further in the traditional production of viscose and modal fibers. 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 or within production processes. Lenzing follows a waste hierarchy and avoids waste wherever possible. For more information, please see the "Waste management" chapter.

Developing commercial-scale recycling technologies

Lenzing has developed a recycling technology called REFIBRA™ to address the enormous textile waste challenges facing the industry. 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 2022. Along with dissolving wood pulp, pulp from cotton scraps is used for the closed-loop commercial-scale production of lyocell fiber. While this creates a significant environmental improvement, it creates high-quality fibers with the same properties as fibers from virgin dissolving wood pulp. The fiber is available under the Recycled Claim Standard (RCS), certifying that all production processes in the entire supply chain have undergone the relevant steps to ensure the integrity of the final product.

The TENCEL™ x REFIBRA™ market presence was stepped up in 2022, with an increasing number of collections and more than 40 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 to Lenzing as a raw material base for garments and home textile products made with TENCEL™ x REFIBRA™ fibers. To advance circularity, concrete actions are needed from more industry players than just hollow commitments. Without translating commitments into actions, circular innovations cannot be upscaled.

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.

6 LENZING™ FR Standard and LENZING™ FR Black are only industrial compostable. LENZING™ Lyocell Filament were not tested for marine biodegradability and LENZING™ Lyocell Dry is not compostable in salt water.

WE GIVE WASTE A NEW LIFE. EVERY DAY

In line with its vision, "We give waste a new life. Every day", Lenzing is striving to make textile waste recycling a common standard process similar to paper recycling. Lenzing has set a target and taken measures to make this vision a reality: it 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 the "Sustainability targets, measures and progress" chapter.

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 legislation for supply chain due diligence. Gaining a deeper understanding of Lenzing's suppliers and downstream customers is critical to minimizing the Lenzing Group's overall environmental as well as social 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. More information on digitalization is provided in the "Digitalization & cyber security" chapter.

Partnering for systematic 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. Lenzing is part of several initiatives that strive to foster the circular economy in the fashion industry. More information can be found in the "Stakeholder engagement" chapter.

End of life in the natural cycle

External scientific approval of biodegradability

A study conducted in 2021 by the University of California's prestigious Scripps Institution of Oceanography (SIO) compared the degradation processes of nonwovens made from fossil-based synthetic materials, such as polyester, with those of cellulosic materials, derived from the raw material wood, such as LENZING™ Lyocell fibers in specific scenarios[7]. It was shown that cellulosic fibers can degrade under oceanic and aquatic conditions within 30 days, while the fossil-based fibers tested were practically unchanged after more than 200 days. The research was the result of an independent project aimed at understanding the end-of-life scenarios for textiles and nonwovens[8].

Furthermore, a range of Lenzing fibers was tested for biodegradability at the independent research laboratory Organic Waste Systems (OWS) in Belgium. The assessment was performed in accordance with existing and applicable international standards, reflecting all relevant natural and artificial environments where biodegradation can take place (figure 10). Certificates from the certification organization TÜV Austria show that TÜV certified biodegradable and compostable LENZING™ fibers biodegrade in soil, fresh water and marine environment and are compostable in home applications and industrial facilities[9]. This should not be seen as a way to litter or as a justification for littering, but rather as an additional protection to prevent pollution. For more information, please see "End of product use" focus paper.

7 Degradation of synthetic and wood-based cellulosic tissues in the marine environment: comparative evaluation of field, aquarium and bioreactor experiments.

8 New studies regarding the biodegradability of Lenzing fibers have been conducted in 2022, but have not been published yet.

9 LENZING™ FR Standard and LENZING™ FR Black are only industrial compostable. LENZING™ Lyocell Filament were not tested for marine biodegradability and LENZING™ Lyocell Dry is not compostable in salt water.

Biodegradation of fibers in various environments[a] Figure 10

Speed of biodegradation: + (top) to − (bottom)

Environment	Temperature conditions	Biodegradability of TÜV certified LENZING™ fibers[b]	Reference
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

a) Modified from: EMAF, 2017, after B. de Wilde, 2013. Anaerobic digestion, industrial composting and home composting are controlled environments designed for waste management. The tests in soil, freshwater and marine water environments simulate the fate of litter in the respective environments
b) LENZING™ fibers which are TÜV certified biodegradable and compostable include the following products: LENZING™ Viscose Standard textile/nonwovens, LENZING™ Lyocell Standard textile/nonwovens, LENZING™ Modal Standard, LENZING™ FR Standard, LENZING™ FR Black, LENZING™ Lyocell Filament, LENZING™ Lyocell Dry, LENZING™ Web Technology. LENZING™ FR Standard and LENZING™ FR Black are only industrial compostable. LENZING™ Lyocell Filament was not tested for marine biodegradability and LENZING™ Lyocell Dry is not compostable in salt water.

End of life of Lenzing's fibers

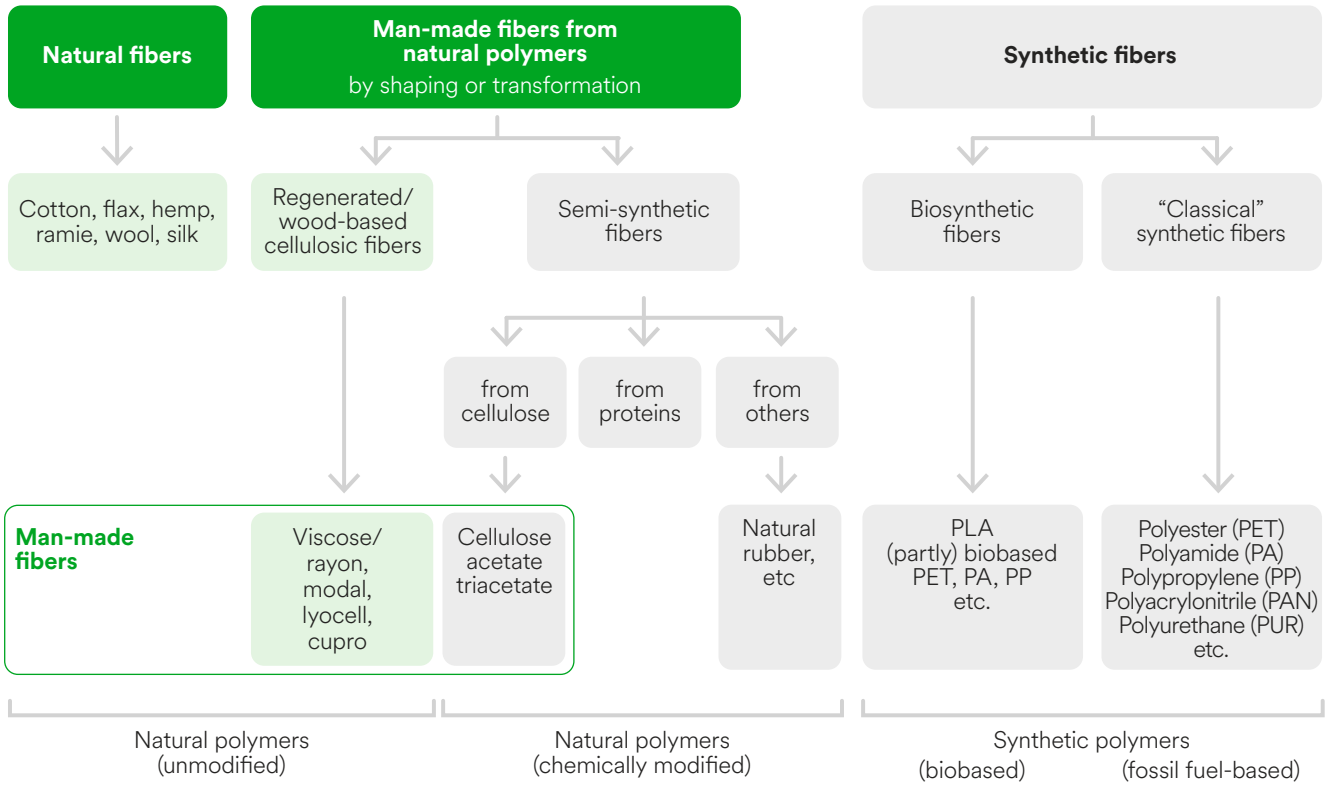
Looking at the end-of-life stage for products manufactured from Lenzing's fibers including clothing, home textiles, technical products, hygiene products and personal care products, there are several processing options:

- **Recycling:** Products made from cellulosic fibers can in principle be recycled and used again for fiber production at Lenzing.
- **Compostability:** If recycling is not possible, some textile and nonwoven applications can be composted if all constituents are biodegradable. The BioSinn report[10] (funded by the German Federal Ministry of Food and Agriculture) from the Nova-Institute lists such applications – including wet wipes or binding yarns. TÜV certified biodegradable and compostable LENZING™ fibers are compostable, fulfilling the requirements for compostability in terms of biodegradability, disintegration and absence of eco-toxicity[11].
- **Anaerobic digestion:** Alternatively, for certain products it may be appropriate to use anaerobic digestion with energy recovery (biomethane production) in waste treatment. LENZING™ fibers are fully degradable in controlled anaerobic waste treatment conditions.
- **Incineration:** If composting is not an option, the final products can be incinerated and the embedded energy recovered. Since the fibers consist of natural polymers, they are climate-neutral in terms of incineration, which means that only the amount of CO_2 initially stored in the plant is released. Either way, both composted materials and CO_2 provide input for plant growth, thereby closing the natural carbon cycle.
- **Landfill:** The least preferable option for materials' end-of-life is landfill, which is still a regular practice in many countries.

10 BioSinn - Products for which biodegradation makes sense (PDF) | Renewable Carbon Publications (renewable-carbon.eu)

11 Ellen MacArthur Foundation, 2017. A new textiles economy: Redesigning fashion's future, http://www.ellenmacarthurfoundation.org/publications, p. 21

Fiber types on the world market[a] Figure 11



a) Modified from BISFA (International Bureau for Standardisation of man-made fibers), 2017. Terminology of man-made fibers. http://www.bisfa.org/wp-content/uploads/2018/06/2017-BISFA-Terminology-final.pdf [Accessed February 15, 2022]

BIODEGRADABILITY

The ability of a material to be broken down by micro-organisms (bacteria, fungi etc.) into carbon dioxide, water, and biomass, or compost, so that it can be consumed by the environment.

COMPOSTABILITY

Capability of being biodegraded at certain temperatures (industrial: 58°C; home: 28°C) in soil under specified conditions and time scales.

Cellulosic fibers

Cellulose is a major component of plant biomass and one of the most abundant polymers produced in nature. The natural cellulose cycle builds the basis for Lenzing's business model. When the carbon from the materials is released at the end of their life, this renewable carbon and part of the natural cycle, ensuring that no additional fossil carbon enters the atmosphere. Lenzing fibers are produced from natural cellulose in an industrial process. The results are (regenerated) cellulosic fibers such as viscose, modal and lyocell. Figure 11 shows that two groups of fibers consist of unmodified natural polymers: natural fibers, and regenerated cellulosic fibers derived from the raw material wood. Both groups of fibers are inherently biodegradable. 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 overview of fiber biodegradation, see the "Biodegradable Polymers in Various Environments" chart compiled by the Nova Institute.

Waste management

[GRI 306-1, 306-2, 306-3; ESRS E2-2, E2-4, E2-5, E5-2, E5-5]

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 such cases in 2022.

Similar to other environmental issues, Lenzing identifies the generation of waste from a life cycle perspective and extends the assessment of impacts up and down the value chain. In 2021, Lenzin standardized its approach to environmental aspects and impact assessment in accordance with ISO 14001. This standardized approach was aligned across all sites in 2022 and has to be fully implemented by 2023.

Waste is categorized in line with 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.

Waste Management Guideline

Within Lenzing, waste management is set out in its internal Waste Management Guideline, which was launched in 2018. The guideline was further developed in 2021 and updated in 2022, which 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. the collection, separation, storage, transportation, and treatment of waste – are planned and implemented based on possible utilization as well as an understanding of their environmental impact and risks.

Further details on waste management are set out in 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

Wherever possible, waste is avoided or reduced, e.g. by modifying processes to increase material efficiency or by adopting good housekeeping and operational practices. Recyclable components of waste are separated. Unrecyclable components are disposed of in accordance with local legislation. Wherever possible Lenzing recovers energy from unrecyclable components in facilities such as incinerators. Landfilling of waste is subject to strict national regulations. Hazardous waste is either treated or disposed of in accordance with the applicable regulations. An overview of waste generation, broken down by disposal method and waste type, is shown in table 08.

Waste by type and disposal method Table 08

	2020	2021	2022	2020	2021	2022
	Hazardous waste (t)			Non-hazardous waste (t)		
Reused						
Recycled	196.17	450.14	123.23	65,857.37	50,829.81	48,349.42
Composted						
Recovered including energy recovery	52,189.11	36,132.26	46,048.20	32,834.33	35,126.01	21,545.81
Incinerated (mass burn)						
Deep well injection						
Landfill	2,261.53	36,678.98	21,375.78	12,650.64	13,535.16	11,182.99
On-site storage						
Other (to be specified by Lenzing)	48.05	0.22	1,153.44	377.90	828.13	923.63
Total waste	**54,694.86**	**73,261.60**	**68,700.64**	**111,720.23**	**100,319.11**	**82,001.85**

Total waste generated Table 09

(Total weight of waste generated in metric tons, and a breakdown of this total by composition of the waste)	2020	2021	2022
Hazardous waste (t)	54,694.86	73,261.60	68,700.64
Non-hazardous waste (t)	111,720.23	100,319.11	82,001.85
Total waste (t)	**166,415.09**	**173,580.71**	**150,702.49**

Climate & energy

MANAGEMENT APPROACH

Material topic: Climate & energy

[GRI 3-3; ESRS E1-2, E1-3]

Dissolving wood pulp and fiber production are energy-intensive processes that present a challenge for Lenzing. Where possible, the company has eliminated fossil-based energy or replaced it with renewable sources. Investments in state-of-the-art technologies and low-carbon production processes at all Lenzing sites have helped to increase energy efficiency and positively influence the company's carbon emissions. Climate risks present opportunities for innovation and investment that make Lenzing more resilient to the changing regulatory landscape. The company demonstrates industry leadership as recognized in 2022 by the environmental non-profit organization CDP, which awarded Lenzing a triple 'A' rating for climate, water and forestry for the second time. This sustained environmental effort has kept the company on track to meet its reduction target of 50 percent by 2030 (baseline 2017), which also supports the bigger goal of achieving a net-zero future by 2050 in line with the Paris Agreement.

Actual and potential negative and positive impacts

Positive

- Driving the transition to a fossil-free production through 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
- Future-proofing Lenzing's growth with the 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 new and long-term impact investors

Negative

Own activities:

- Lenzing cannot contribute to its customers' CO_2 targets if Lenzing's fibers no longer meet customers' definition of sustainable raw materials
- Any climate-related disruption in one of the production sites (eg. severe weather events, supply chain disruptions)
- Not meeting new regulations, technological problems with regard to transition to renewable energy sources (eg. green hydrogen)
- Fossil-based energy and energy-intensive technologies carry potential regulatory, technology, market, and corporate reputation risks
- Inefficient energy conversion technologies have a potential impact on CO_2 emissions

Business relationships:

- 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
- Any climate-related disruption in one of the production sites would impact the business model and its success
- Implementation of regional and national emission trading schemes
- Energy shortage could compromise Lenzing's operations
- Financial impacts of potential cost increases in energy prices

Actions taken

- Development and progress of group-level and production site-level roadmaps
- CDP Climate 'A' rating
- Two more new products with climate benefits have been launched
- Four production sites in the Lenzing Group use 100 percent renewable electricity from the grid (Lenzing, Heiligenkreuz, Paskov, and Mobile)
- Implementation of an internal carbon price
- Environmental management system in accordance with ISO 14001:2015 (including risk assessment and internal audits to ensure the effectiveness of the measures implemented)
- Task Force on Climate Related Financial Disclosure (TCFD) reporting framework
- Governance and steering committee in place
- Definition of roadmaps for group-level and site-level targets
- Continuous improvement of energy consumption
- Large-scale photovoltaic project at the Lenzing site is in operation

Sustainability targets, measures and progress

For more information, please see the "Sustainability targets, measures and progress" chapter.

Stakeholder

- UN Fashion Charter
- Roadmap to Zero
- Renewable Carbon Initiative

For more information, please see the "Stakeholder engagement" chapter.

Responsible

- CEO
- Board member (Commercial)
- Senior Manager Carbon Strategy

Supporting

- Corporate Communications
- Corporate Sustainability
- Global Controlling
- Global Purchasing

Policies and commitments

- "Naturally positive" sustainability strategy with "Decarbonization" and "Partnering for systemic change" as focus areas
- Implementation of science-based target (SBT)
- Commitment to UN Fashion Industry Charter for Climate Action
- ISO 9001:2015, ISO 14001:2015, and ISO 45001:2018 system certifications for the Lenzing Group
- Lenzing Group Environmental Standard

- Corporate Audit & Risk
- Global QESH
- Global Strategy and M&A
- Performance.Improvement.Technology
- Site managers

Lenzing's responsibility and science-based target

[GRI 305-5; ESRS E1-1, E1-2, E1-3, E1-4]

Lenzing continously works on the implementation of its ambitious science-based target (SBT), which was approved in November 2019. The following section provides information about the implementation in a few key areas.

HIGHLIGHTS IN 2022

1. Decarbonization as one major sustainability target in the new corporate strategy (Better Growth)
2. Start up of scope 1 & 2 carbon-neutral 90,000 tonnes Lyocell production plant in Prachinburi (Thailand)
3. Pulp mill in Indianópolis (Brazil) is the largest of its kind. Due to the plant's excess bioenergy, it provides electricity to Brazilian grid, thus replacing gas based energy and grid electricity
4. Production site-level roadmaps towards net-zero emissions were updated
5. Supplier engagement continued with key chemicals suppliers – Purchase of low-carbon caustic soda from one supplier and continued engagement with others
6. Two new textile fiber products, LENZING™ FR and TENCEL™ Modal Micro, were launched within carbon-zero portfolio. VEOCEL™ Climate care added Mobile (Alabama) to its portfolio
7. In 2022, two additional production sites with renewable grid electricity– Purwakarta (Indonesia) 100 percent from July 2022 and Nanjing (China) partly in 2022 (100 percent planned in 2023)
8. Lenzing put Upper Austria's largest ground-mounted photovoltaic plant in operation with an output of 5.5 MWpeak in cooperation with Verbund. Additionally three roof-top PV-plants were installed leading to a total PV capacity installed of 7.0 MWpeak in Lenzing (Austria)
9. Sing-off of a 5.5MWpeak Photovoltaic Power Purchase Agreement (PV-PPA) with Energie Steiermark and Enery. The PV-plant will be built in Styria and supply electricity to Lenzing (Austria) with Q4 2023
10. Lenzing has again achieved the top CDP climate score of 'A'
11. Lenzing published its first Climate Action Plan

In line with the Paris Agreement and the UN SDG 13, the Lenzing Group set an ambitious science-based target for reducing CO_2 emissions (scope 1, 2 & 3) by 50 percent per ton of fiber and pulp sold by 2030 (baseline 2017). Lenzing also aims to achieve net-zero CO_2 emissions by 2050 (scope 1, 2 & 3).

The targets have been scientifically verified and approved by the Science Based Target initiative, making Lenzing the first wood-based cellulosic fiber producer to have an approved science-based target. 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, rather than offsetting them, e.g. compensating for CO_2 emissions elsewhere.

SCIENCE BASED TARGET INITIATIVE (SBTI)

The Paris Agreement was adopted by consensus at the 21st United Nations Climate Change Conference (COP21) in 2015. The agreement's aim is to combat climate change by keeping the increase in global temperatures compared to pre-industrial levels well below 1,5 degrees Celsius this century

The Intergovernmental Panel on Climate Change (IPCC) published its Report in 2022 giving more clarity on the carbon reductions required to keep the increase to 1.5 degrees Celsius. According to this report, global net-zero CO_2 emissions will be reached in the early 2050s in pathways that limit warming to 1.5 degrees Celsius and it is in the early 2070s in pathways that limit warming to 2 degrees Celsius.

The Science Based Target initiative (SBTi) is a collaboration between the Carbon Disclosure Project (CDP), the United Nations Global Compact, World Resources Institute (WRI), and the World Wide Fund for Nature (WWF).The initiative 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.

Governance

A cross-functional project team was set up under the leadership of the CEO. The project management team includes a steering committee to enable alignment across all decision-makers and functions, expedite decisions, and ensure the involvement of different owners of capital projects, sites, and functions.

A dedicated global project manager is operationally responsible for facilitating the roadmap preparation and bringing best practice examples to implement climate targets at facilities and group level. Additionally it is supporting the functions in integrating climate in business decisions.

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

Strategy, targets, and roadmaps

Lenzing's new corporate strategy, Better Growth, includes a climate change target, which ensures that climate change is incorporated into the business strategy and decision-making.

To effectively achieve the science-based target, the global project manager has developed a high-level science-based target roadmap for the Group with potential site-level targets. These scenarios and site targets were aligned with the CEO, 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.

Integration in functions and projects

Research and Development: A project is being planned with academic partners to decarbonize heating demand by developing high-temperature heat pumps with renewable electricity to replace the use of fossil fuel for heating. This project has been dealing with delayed requisite financial support and resources in 2022. Therefore the operation will start in 2024 in Lenzing (Austria).

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

- Since July 2022, the Purwakarta site (Indonesia) has purchased 100 percent renewable grid electricity. Some of the grid electricity purchased by Nanjing (China) in 2022 was renewable.
- Four photovoltaic (PV) systems were started up in Lenzing (Austria) in 2022. One ground-mounted and three roof top PV systems with a total capacity of 7 MWpeak.

Business management and sales: A process has been launched to identify and support the development of new product offerings with climate change benefits, for example carbon-neutral product portfolio. For more information, please see the "Business value creation with climate action" section in this chapter.

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 are intended to develop raw materials with lower GHG and other impacts. Lenzing focuses on maintaining long-term relationships, helping suppliers achieve improvements, and being part of their transitional journey by buying their green products.

Strategy, mergers and acquisitions: Every capital project, whether brownfield or greenfield, has 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 process. Internal carbon pricing for key projects is used to support this process.

Finance and controlling: In 2020, climate change metrics were integrated into the capital allocation and periodic management reporting process of the Group's operations. In 2022, there were no capital allocation.

Internal carbon price: In 2021, an internal carbon price (ICP) of EUR 75 per ton of CO_2 was implemented. The ICP comes on top of regulatory carbon pricing at different Lenzing locations (e.g. EU ETS). It was applied in the 2022 strategic investment planning process for capex projects of over EUR 2 million. The purpose of the ICP is to mitigate future carbon risks, trigger renewable fuels over fossils and support energy efficiency projects.

Board remuneration linked to sustainability performance: The remuneration policy of Lenzing AG for the performance-based remuneration of the Managing Board is linked not only to financial performance criteria but also to non-financial sustainability criteria (ESG). For more details, please see "Managing Sustainability" chapter.

Lenzing Group's current carbon footprint

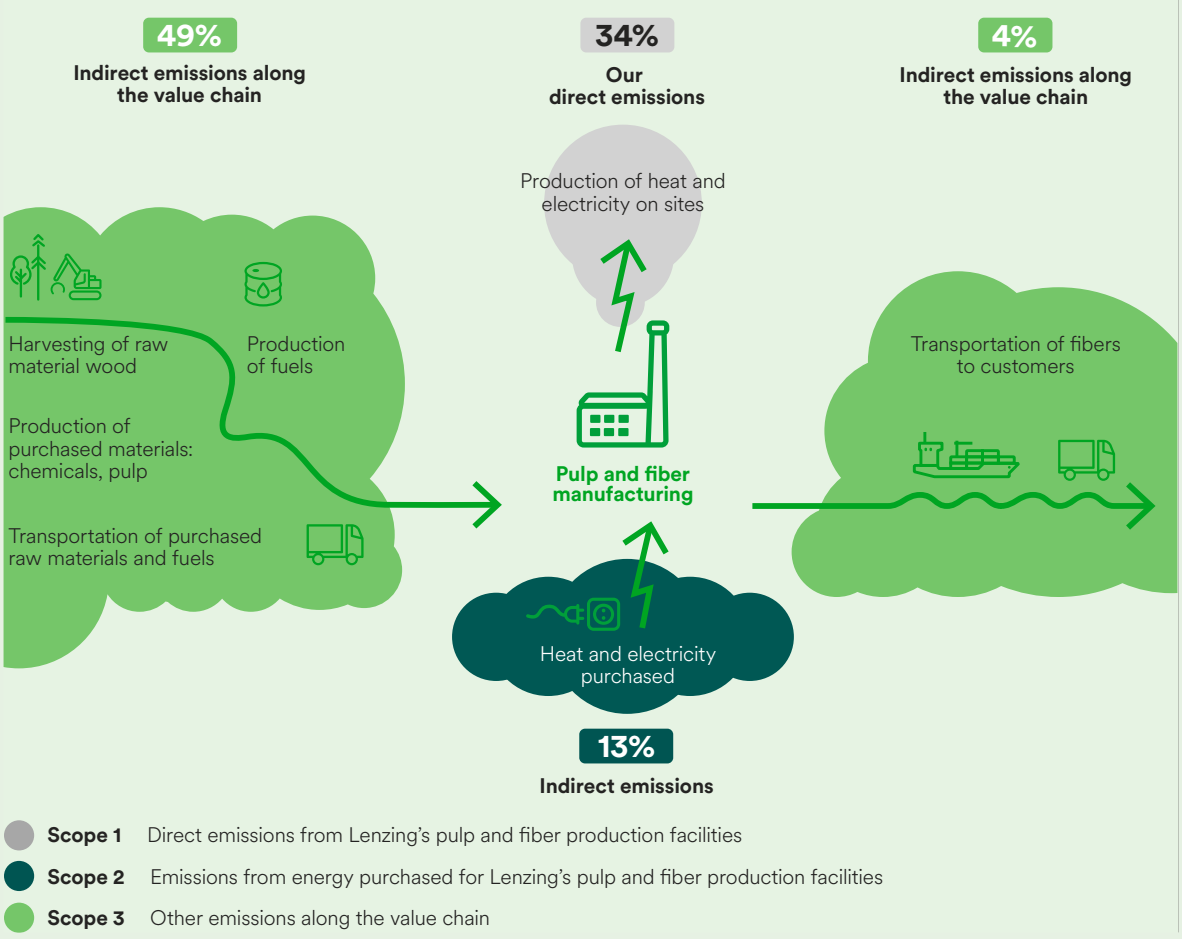
[GRI 302 -1, 302-3, 305-1, 305-2, 305-3, 305-4, 305-5; ESRS E1-1, E1-2, E1-3, E1-4, E1-5, E1-6]

LENZING'S SCOPE 1, 2 & 3 EMISSIONS

The Greenhouse Gas Protocol classifies emissions into three scopes: scope 1 emissions cover all direct emissions from a company's activities or activities under their control, including fuel combustion on site, e.g. 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 chain, for example, purchased goods and services such as chemicals and logistics.

Carbon footprint Figure 12

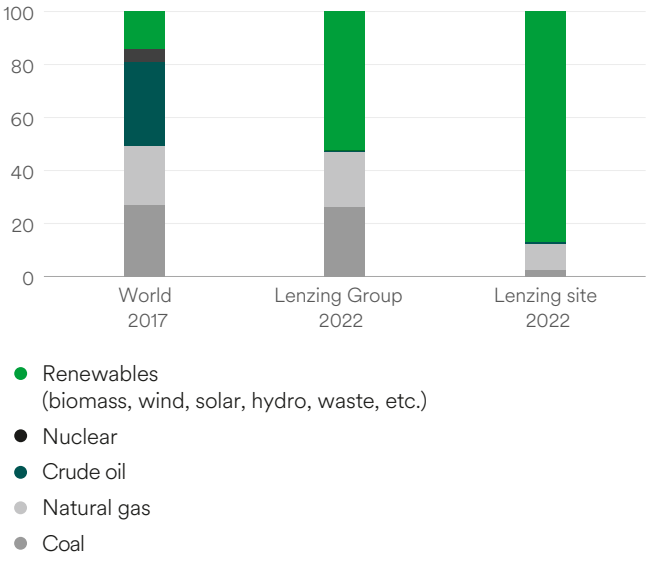


Despite Lenzing's business model, which is firmly rooted in the use of wood from well-managed forests and plantations that sequester carbon, the company does not assume that this alone is enough, given the current climate science. Lenzing goes further by drastically reducing the current fossil-based 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 10

Lenzing, Austria	Biomass and waste, natural gas, coal
Heiligenkreuz, Austria	Natural gas, biomass and biogas
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
Prachinburi, Thailand	Biomass
Indianópolis, Brazil	Biomass and oil

Energy sources Figure 13



Sources: World Energy Outlook 2018, 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 2022, the economic crisis and correspondingly challenging market environment forced temporary shutdowns of production lines or even whole sites, which led to a significant decrease in primary energy consumption (table 11). Total primary energy consumption was on the same level as 2020, but the share of renewable fuels increased slightly. The specific energy consumption index improved by 0.2 percent compared to 2021.

In 2022, absolute CO_2 emissions in all scope's decreased significantly. CO_2 intensity of scope 1, 2 & 3 also strongly decreased in 2022 compared to 2021. Reason for these is the slightly lower production volume as well as the implementation of various improvements (see the section "Highlight 2022" in this chapter).

Primary energy consumption of the Lenzing Group

Table 11

Million GJ	2014	2020	2021	2022
Primary energy consumption[a]	43.10	37.97	42.45	38.62
Fossil primary energy	23.39	18.30	21.78	18.51
Renewable primary energy	19.71	19.67	20.67	20.11
Specific primary energy consumption[b] (index in percentage based on GJ/t, 2014 = 100%)	100%	97.30%	97.40%	97.60%

a) Lenzing discloses both direct and indirect energy consumption. According to the Greenhouse Gas Protocol, scope 1 relates to energy consumed directly by the Lenzing Group and scope 2 concerns energy purchased from energy suppliers and from the public grid. 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, hydro, wind, etc.) were included.

b) Specific indicators are reported per unit of production. This applies to all specific indicators in this report, except for CO_2 emissions.

Greenhouse gas emissions of the Lenzing Group

Table 12

Million metric tons CO_2 eq.	2017[a] (baseline year)	2020	2021	2022[e]
Direct emissions, scope 1	1.16	0.88	1.08	0.92
Indirect emissions, scope 2	0.63	0.50	0.53	0.35
Total scope 1 & 2 GHG emissions[b]	**1.78**	**1.38**	**1.61**	**1.27**
Indirect emissions, scope 3[c]	1.89	1.46	1.82	1.45
Total scope 1, 2 & 3 GHG emissions	**3.67**	**2.84**	**3.43**	**2.72**
Total biogenic CO_2 emissions, scope 1		**1.52**	**1.90**	**1.83**
Greenhouse gas emissions intensity[d]				
Specific emissions, scope 1 & 2 (tons CO_2 eq. per ton product sold)	1.67	1.40	1.47	1.33
Specific emission index, scope 1 & 2 (index in percentage based on t CO_2 eq./t, 2017 = 100%)	100%	83.60%	88.00%	79.30%
Specific emissions, scope 3[c] (tons CO_2 eq. per ton product sold)	1.77	1.54	1.66	1.51
Specific emission index, scope 3[c] (index in percentage based on t CO_2 eq./t, 2017 = 100%)	100%	86.40%	93.80%	85.10%
Specific emissions, scope 1, 2 & 3[c] (tons CO_2 eq. per ton product sold)	3.45	2.94	3.14	2.84
Specific emission index, scope 1, 2 & 3[c] (index in percentage based on t CO_2 eq./t, 2017 = 100%)	100%	85.00%	91.00%	82.30%

a) 2017 has been chosen as a baseline year, because in 2018 the science-based targets (SBT) were developed and 2017 was the most recent year during the target development

b) Includes both scope 1 & 2 emissions of all greenhouse gases (CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NF_3), expressed as CO_2 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 0.52 mn tons CO_2 equivalents in 2022.

c) Recalculation of scope 3 emissions from 2017 to 2021 based on updated data from market pulp suppliers.

d) Intensity indicators (i.e. specific CO_2 emissions) are reported based on pulp and fiber sold as in SBT

e) GHG accounting regarding GHG protocol using GWP potential for greenhouse-gases from IPCC Fifth Assessment Report (AR5 – 100 year). Scope 1 emissions factor source: measurements and Ecoinvent values. Scope 2 emissions factor source: suppliers. Scope 3 emission factor source: Ecoinvent, Ecotransit and supplier data.

Monitoring and reporting

[GRI 201-2; ESRS E1-9]

The CEO and steering committee monitor project progress regularly. A group-wide Task Force on Climate-Related Financial Disclosures (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 the Carbon Disclosure Project (CDP) and been re-confirmed with an "A" in climate 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 such as climate change with proper capital allocation. This process defines which projects require financing and thus removes obstacles to their timely implementation by supporting management's decision-making.

Lenzing's climate risks and opportunities

[GRI 201-2; ESRS E1-9]

Based on the ambition defined in 2020 of being a climate resilient company, Lenzing enhanced the process of implementing TCFD recommendations in 2021 by defining board and top-level management responsibilities for identified key climate-related risks and opportunities.

The TCFD's recommendations provide guidance to companies on integrating climate risks and opportunities into financial and non-financial reports and eventually including climate risks with enterprise risk management. The TCFD issues 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 underlying 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).

The group-wide TCFD assessment process implemented in 2020 has been further developed with the goal of identifying, prioritizing, quantifying and mitigating climate change risks, and seizing opportunities in Lenzing's operations and in its supply chain in 2021. In this reporting year, Lenzing's Climate Risks and Opportunities (see table below) have been updated. Climate-related risks and opportunities are managed by the ESG committee (see the "Governance structure for sustainability" chapter).

Relevant risks and opportunities for Lenzing were qualitatively evaluated by using scenario analysis for short-term (1–2 years), mid-term (2–5 years), and long-term (5–30 years) consequences 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.

Beside the disclosure of climate-related risks and opportunities to external (rating) organizations, Lenzing's focus is on the full integration of ESG issues in the Enterprise Risk Management Process.

The following table describes key climate risks and opportunities and provides details of 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.

Transition risks, physical risks, transition opportunities

Table 13

Characterization	Risk/opportunity description	Lenzing's response
Transition risks	**Emerging regulations on carbon pricing**	
	Increasing regulation, especially on green taxation and carbon pricing, constitute a relevant risk for Lenzing. In the countries where Lenzing has carbon intensive processes, regulations on greenhouse gas emissions have already been implemented (energy efficiency improvements, regulated emission allowances) and stricter regulations that could increase the costs of greenhouse gas emissions are under development.	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 to reduce its greenhouse gas emissions (scope 1, 2 & 3) by 50 percent per ton of pulp and fibers sold by 2030 (compared to a 2017 baseline). Lenzing is therefore 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.
	Increased biomass costs	
	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.	In order to mitigate the risk of increasing biomass costs and improve supply chain security, Lenzing started-up a modern dissolving wood pulp (DWP) plant in 2022 with integrated plantation and forest operations in Brazil. The new pulp mill improves the Lenzing Group's cost position as it secures the Group's own supply of dissolving wood pulp and represents a milestone in Lenzing's strategy to achieve carbon neutrality.
	Reputational risk in the textile sector	
	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. This could lead to negative media coverage and further stigmatize the sector, which could, in turn, influence the Group's revenue.	Lenzing responds to potential negative media coverage of the fashion and textile industry by proactively disclosing information on its business practices and environmental footprint (e.g. backward integration and optimization of energy and raw material usage. Waste, air and water treatment). 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.
Physical risks	**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 for labor productivity including details of technical, organizational, and personal impacts.
Transition opportunities	**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 have 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 invested more than EUR 1 billion in a new lyocell fiber production in Prachinburi (Thailand) and a new dissolving wood pulp facilitiy in Indianopolis (Brazil) that started operating in 2022. These investments significantly contribute to reduce Lenzing's carbon emissions and strengthen the security of the Group's raw material supply.
	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 less climate impact, 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 aims to reach net-zero greenhouse gas emissions by 2050.	Lenzing's science-based target has been approved by the Science Based Target initiative, making Lenzing the first wood-based cellulosic fiber producer to have an approved science-based target. 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 the leadership of the Group's CEO. Lenzing's greenhouse gas abatement activities will involve a series of measures to reduce carbon emissions both within its operational boundaries and along its supply chain.

Business value creation with climate action

Creating traction for climate change target implementation has to be linked to business value via measures 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.

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

In 2020, Lenzing successfully launched two specialty (lyocell and modal) fibers with low climate change impacts. These carbon-zero TENCEL™ branded fibers provide a reduced CO_2 footprint thus 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. In 2021, this product portfolio has been expanded with two more new products (TENCEL™ x REFIBRA™ and VEOCEL™ lyocell) to address the growing industry demand for "circular fashion" and carbon neutrality. The first carbon-zero TENCEL™ branded lyocell and modal fibers have continued to gain momentum among industry partners including fashion brands and mills. In the reporting year, this fiber portfolio was expanded with one more production site Prachinaburi in Thailand. Lenzing flame retardant fibers (LENZING™ FR) and TENCEL™ Modal micro fibers were also become part of carbon-zero portfolio. For more information, please see the "Net benefit concept" chapter.

After launching the first carbon-zero fibers in Nonwovens in 2021, Lenzing expanded its product range at the end of 2022 and now also offers carbon-zero VEOCEL™ branded lyocell fibers from the US specialty production site, located in Mobile (Alabama). For this purpose, Lenzing invested in solar power, use of renewable electricity from wind power and technology upgrades to maintain and pursue ways to reduce its carbon emissions.

In terms of footprint, Lenzing has been further able to reduce the footprint of carbon-zero fibers (cradle to gate) through measures such as supplier engagement (green caustic, pulp with lower CO_2 footprint), expansion of the product range through its new plant in Thailand as well as the development of renewable energies (e.g. photovoltaic system at Lenzing site (Austria)).

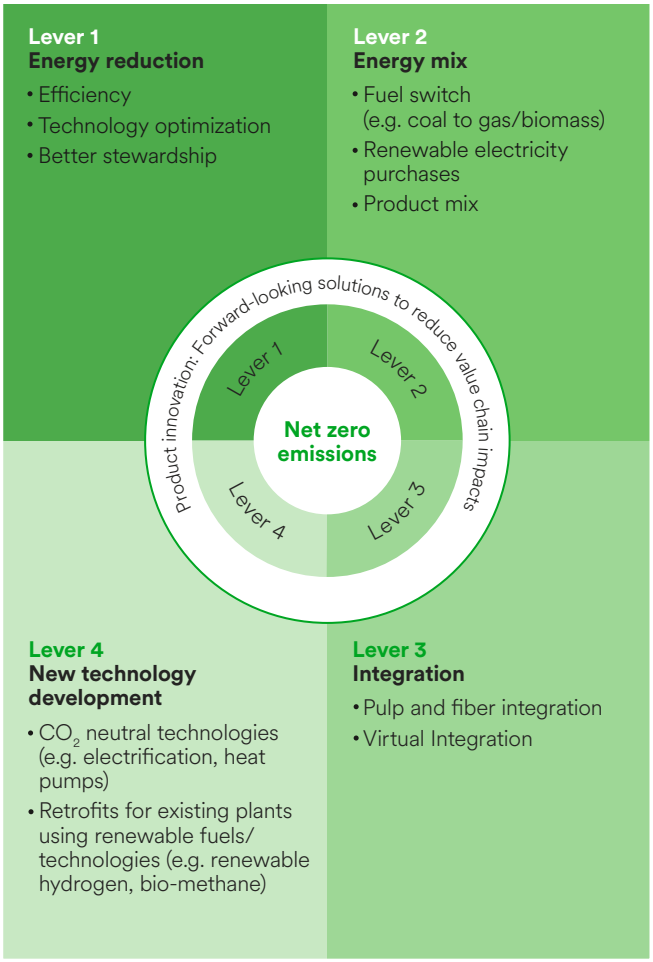
Attracting new and impact investors

According to our evaluation, more than half of the shares owned by institutional investors are held by investors with an ESG focus. In 2019, Lenzing successfully positioned a bonded loan bound to its sustainability performance (MSCI rating). In 2022, Lenzing maintained its "AA" rating issued by MSCI. The amount saved by obtaining a more beneficial interest rate in the previous year was donated to a biodiversity conservation project in DR Kongo and to the Red Cross in Ukraine. A higher MSCI rating results in a more beneficial interest rate and therefore more will be donated. For more information, please see the "Social responsibility" focus paper.

Levers to meet science-based target

Lenzing will deploy different levers based on technical feasibility for scope 1 & 2 emissions. They can be broadly grouped under four categories (figure 14).

Levers to meet science-based target Figure 14



Innovation is the Lenzing Group's core competence and 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 defined 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 the efficient running of equipment with strict maintenance scheduling and immediate responses to malfunctions and leaks. Additionally, energy efficiency improvements will be supported by cross-learning and taking advantage of synergies across the Lenzing sites and among 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 is seeking future growth via 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 Group CO_2 emissions. Other opportunities will be explored, including virtual integration, e.g. using surplus renewable electricity produced at one production site at another site in a different location.
- The fourth lever focuses on developing technologies to decarbonize heat generation. As most of the energy for fiber production has to 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 have to be developed, such as hydrogen produced with renewable electricity or bio-methane generated from organic waste.

In order to reduce scope 3 emissions, Lenzing is engaging with suppliers such as pulp and chemicals producers and transportation service providers. Lenzing has stepped up its dialog with suppliers according to 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 achieve annually. In addition, Lenzing periodically conducts discussions 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's forests and wood products are contributing to climate protection along the value chain. For a comprehensive list of contributions across the entire value chain, please see the Lenzing website – Decarbonization.

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 the replacement of fossil-based materials, on the other.

In addition to CO_2 abatement activities to reduce direct and supplier emissions, Lenzing will contribute to the decarbonization of its customers by actively developing products that reduce their value chain emissions.

How forests and wood products work for climate change mitigation Table 14

Topic relevant to climate change	Details	Lenzing Group contribution
CO_2 sequestration in sustainably managed forests	Sustainably managed semi-natural forests and forest plantations absorb more carbon in trees and harvested wood products, thus acting as a net sink over the long term. Forest areas and carbon stocks are increasing in Europe.	Wood sourcing from sustainably well-managed forests, managing own forest plantations, active engagement with pulp suppliers for improvements, and other stakeholder activities (e.g. research at WOOD K plus)
Substitution of raw materials that have large climate impacts	Fibers with smaller carbon footprints in their manufacturing process and life cycle	Offering choises for fibers with small-footprint
Adaptation of forests to climate change	Share of beech in Europe is increasing, but its uses are limited. Adaptation via 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 of forests	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 top with dark green shirt in the CanopyStyle initiative

Raw material security

MANAGEMENT APPROACH

Material topic: Wood & pulp sourcing

[GRI 3-3]

Wood and dissolving wood pulp are the most important raw materials for Lenzing and there are potential risks associated with their sourcing, such as deforestation, climate changes and biodiversity loss. This is why Lenzing minimizes the environmental risk of procuring wood through responsible sourcing from sustainably managed forests. More than 99 percent of the company's wood and pulp sourcing is certified by globally recognized standards, such as the Forest Stewardship Council (FSC®) and the Programme for the Endorsement of Forest Certification (PEFC). Lenzing is constantly engaging with different stakeholders (NGOs, customers, investors) in order to meet their expectations and meet upcoming regulation requirements (e.g. EU Green Deal, EU Timber Regulation, supply chain due diligence).

Actual and potential negative and positive impacts

Positive

- Wood as a natural and renewable raw material offers expanded business perspectives
- 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 product
- Wood is an alternative to agricultural products (e.g. cotton)
- Using wood from sustainably managed forests supports biodiversity

Negative

Own activities:

- Potential reputation loss due to link to deforestation or contribution to biodiversity loss

Business relationships:

- Sourcing of environmentally and socially controversial wood and pulp
- Loss of biodiversity in poorly managed forest ecosystems
- Sourcing can be impacted by climate change
- Climate and market impact on wood and pulp availability, price and quality

Policies and commitments

- 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

Actions taken

- More than 99 percent of wood suppliers assessed according to the FSC® Controlled Wood criteria
- Start up and ramp up of pulp mill in Brazil and site in Thailand
- PEFC Chain of Custody certificate for fiber production sites in Purwakarta (Indonesia), Nanjing (China), Mobile (USA)
- Transportation of some inbound materials changed from road to rail to improve carbon footprint
- Regular audits on forest certification standards (FSC®, PEFC)[12]
- Internal audit management system
- Wood and Pulp certification according to FSC® and PEFC standards
- Additional third-party verification as part of the CanopyStyle Initiative and through internal supplier audits
- Lenzing tops Canopy's Hot Button Ranking with a "dark green shirt"
- CDP Forests "A" rating
- EcoVadis Platinum status for the Lenzing Group for the second time in a row

Sustainability targets, measures and progress

For more information, please see the "Sustainability targets, measures and progress" chapter.

Stakeholder

- Suppliers
- Together for Sustainability (TfS)
- CDP
- Canopy
- Forest Europe, European and national forest strategies
- The Austrian Bioeconomy Strategy

For more information, please see the chapter "Stakeholder engagement".

Responsible

- Member of the Managing Board (Pulp)
- Senior Director Purchasing Wood
- VP Comm. Affairs Pulp
- VP Global Purchasing

Supporting

- Corporate Sustainability
- Global QESH

12 FSC® (FSC-C041246), PEFC (PEFC/06-33-92)

- Sustainability performance of pulp suppliers was surveyed in a comprehensive questionnaire
- Integration of plantations managed by LD Celulose (Brazil) into the Lenzing Group

Sustainable sourcing of wood and dissolving wood pulp

[GRI 308-2]

Wood and dissolving wood pulp are Lenzing's most important raw materials. The Lenzing Group takes responsibility by focusing on sustainable sourcing covered by certifications, responsible consumption, and the highly efficient use of these valuable resources. Lenzing sources wood and dissolving wood pulp from semi-natural forests (as defined by the Food and Agriculture Organization of the United Nations[13] (FAO), which include naturally regenerating and planted forests of similar species composition as the natural forests in the area), and plantations, as all defined by FAO[14], which are not from primary, natural or ancient and endangered forests.

Precise figures for the absolute volumes of wood purchased and dissolving wood pulp sourced are not provided for confidentiality reasons. As an indicative estimate, a total fiber sales of for example 1 million tons require a pulp input of around the same amount. The amount of wood required for the production of this dissolving wood pulp cannot be stated exactly, especially given the different processes and species that Lenzing's 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), spread between Lenzing's own production and the dissolving wood pulp purchased.

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 the climate effects of and on wood and pulp sourcing, see the "Climate & energy" chapter – especially "Avoided emissions", and the "Wood and pulp" focus paper.

Societal aspects

Lenzing's Wood and Pulp Policy also refers to societal aspects, especially human rights, in wood sourcing covered by the wood certification systems used by Lenzing, FSC® (Forest Stewardship Council) and PEFC (Programme for the Endorsement of Forest Certification Schemes). 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 ILO Core Conventions[15].

Dissolving wood pulp in the Lenzing Group

[GRI 204-1; ESRS E4-5]

Processing wood into fibers requires a special quality of pulp called dissolving wood pulp. The Lenzing Group's current dissolving wood pulp capacities are 320,000 tons at the Lenzing site and 285,000 tons at the Paskov site. The Lenzing Group's long-term strategy was to increase its own dissolving wood pulp capacities to 75 percent of its planned fiber production requirements, which has been achieved in the reporting year. In 2022, the Lenzing Group's own dissolving wood pulp accounted for 94.7 percent (2021: 65.2 percent, 2020: 62.4 percent) of the dissolving wood pulp volume required for the fiber production. In addition to its own dissolving wood pulp production, Lenzing maintains procurement of dissolving wood pulp in the global market, mostly under long-term supply contracts. On the other hand, a share of the own pulp production is traded to the global dissolving pulp market.

The main reason for the increased own dissolving wood pulp production share is the new production facility in Indianópolis (Brazil), which was implemented in a LD Celulose joint venture together with the Brazilian Dexco (formerly Duratex) group. Lenzing holds a 51 percent stake of this site, while Dexco has a 49 percent stake. The pulp plant began operating in 2022 and almost reached its nominal capacity of 500,000 tons in the same year. It is among the most productive and energy-efficient facilities in the world, and was designed based on European Union's Best Available Technology (BAT)[16], and is powered by renewable energy. The pulp produced is 100 percent FSC® certified and is bleached totally chlorine-free (TCF).

In 2022, the Lenzing Group procured pulp from the following suppliers (in alphabetical order):

13 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. Available at:http://www.fao.org/forestry/25853-0d4f50dd8626f4bd6248009fc68f892fb.pdf [Accessed 15 February 2021]

14 FAO Forest Resource Assessment 2020, i8661en.pdf (fao.org), p.11

15 https://www.ilo.org/asia/decentwork/dwcp/WCMS_143046/lang--en/index.htm [Accessed 15 February 2021]

16 Suhr, M., Klein, G., Kourti, I., Gonzalo Rodrigo, M., Giner Santonja, G., Roudier, S., and Delgado Sancho, L. (2015). Best Available Techniques (BAT) Reference Document for the Production of Pulp, Paper and Board. In: P. O. o. t. E. Union (Ed.), EUR – Scientific and Technical Research series. Luxembourg: European Commission, EUR 27235 EN – Joint Research Centre

Countries of Lenzing Group's pulp suppliers (in 2022) Table 15

Supplier	Country
AustroCel Hallein GmbH	Austria
Celulosa Arauco y Constitución S.A.	Chile
Cosmo Specialty Fibers Inc.	USA
Georgia-Pacific LLC	USA
International Paper	USA
Lenzing AG	Austria
Lenzing Biocel Paskov a.s.	Czech Republic
LD Celulose	Brazil
Phoenix Pulp and Paper PCL	Thailand
Rayonier Advanced Materials	USA, Canada
Sappi Ltd.	South Africa, USA
Södra Skogsägarna ekonomisk förening	Sweden

For the locations of Lenzing's own pulp supplying factories, please see "Locations of the Lenzing Group" .

Eucalyptus, pine and spruce represent the predominant wood species used by Lenzing's partners. However, beech, birch, ash, maple as well as other hardwoods and softwoods are also processed. The actual tree species vary depending on the region and quality conditions. Regardless of the species, all of the wood originates from sustainable forest operations that are certified or controlled according to the leading forest certification schemes. An overview of the most important tree species per region can be found in the Annex. Lenzing ensures that the bleaching process of all purchased pulp is totally chlorine-free (TCF) or elemental chlorine-free (ECF).

Lenzing Group's Wood and Pulp Policy

In its Wood and Pulp Policy, Lenzing is committed to procuring wood and dissolving wood pulp exclusively from non-controversial sources. The supply of wood and pulp of a specified quality and quantity to all of the Group's pulp and fiber production sites is an important part of the Lenzing Group's core business. Lenzing strives to source wood and pulp exclusively from non-controversial sources, preferring suppliers participating in credible forest certification programs, in particular the Forest Stewardship Council® (FSC®) and Programme for the Endorsement of Forest Certification (PEFC).

Controversial sources include wood derived from:

- illegal logging or the trade in illegal wood or forest products
- the destruction of high conservation values in forestry operations, including ancient and endangered forests, and endangered species habitats
- plantations established after 1994 through significant conversion of natural forests or conversions to non- forest use
- the introduction of genetically modified organisms in forestry operations
- the violation of traditional, community and/or human rights
- any violation of the ILO 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 and Lenzing's commitment to no-deforestation.

If Lenzing discovers that it has sourced wood or dissolving wood pulp from controversial sources, it will first engage with 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 three in 2020, one in 2021 and none in 2022. For more information, please see the "Wood and dissolving wood pulp certifications" chapter.

Sustainable chemicals sourcing

[GRI 204-1]

The most important chemicals used – amounting to approximately 85 percent of the overall purchase volume – are caustic soda (NaOH), carbon disulfide (CS_2), sulfuric acid (H_2SO_4), sulfur (S), sulfur dioxide (SO_2), 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.

The target of assessing 80 percent of the most important suppliers (by purchasing value) was reached in 2019. Additional suppliers continue to be assessed (table 16). The new goal for 2023 is to engage suppliers, which cover more than 80 percent of budget spend on procurement, to improve their sustainability performance. As a measure for this target Lenzing has begun to include sustainability clauses in the contractual conditions for its key chemical suppliers. Some of these conditions include setting GHG reduction targets approved by the Science Based Target initiative, to provide information about the product carbon footprint and water scarcity at facilities where Lenzing sources products.

The overall EcoVadis Score achieved by the Lenzing Group's suppliers (52.3) is higher compared to the average EcoVadis Score (44.8). This indicates that Lenzing's suppliers have a higher sustainability performance according to EcoVadis standards than the average total suppliers assessed by EcoVadis.

Number of suppliers responding to EcoVadis questionnaire since the introduction of the assessment in 2017 Table 16

2017	82
2018	93
2019	102
2020	152
2021	163
2022	387

Regionality[a] of purchased chemicals Table 17

	Regionally purchased	Not regionally purchased
2020	95%	5%
2021	94%	6%
2022	73%	27%

a) Regionally is defined as the same country and neigboring countries as significant sites of operation. Significant sites of operation include all production sites of the Lenzing Group.

80 percent of all purchased chemicals are sourced from fewer than 60 suppliers. Relationships with these suppliers are highly stable. In

2022 around 73 percent of the chemicals were sourced regionally for the Lenzing Group, meaning that they were sourced from the same country as the production facility or the neighboring country. This was lower than in previous years (table 17), due to non-availability of caustic soda in the European market. Therefore a record level of caustic soda was imported from other regions.

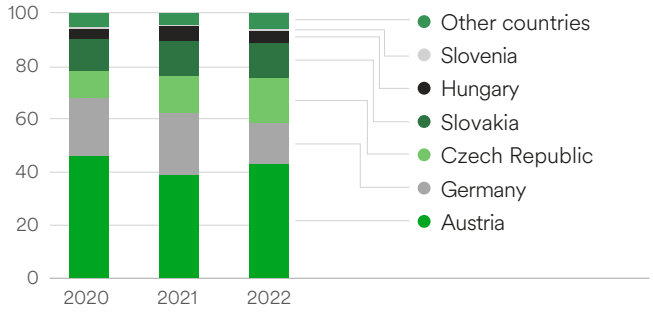
Regional wood supply in Europe

[GRI 204-1; ESRS E4-5]

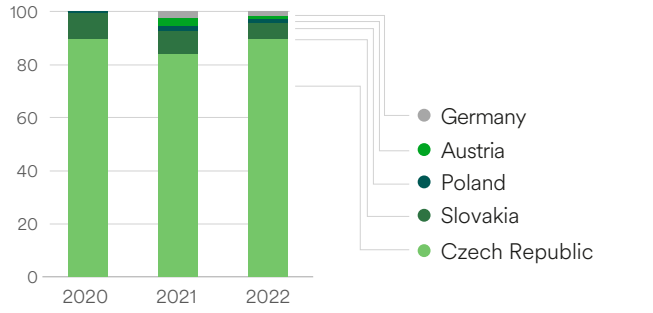
The Lenzing site (Austria) mainly uses beech wood plus small amounts of other hardwoods and spruce, whereas the Paskov plant (Czech Republic) mainly uses spruce. Lenzing is committed to the cascading use of wood, and primarily makes use of timber generated from small trees through thinning and sections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

Wood sourcing for the Lenzing Group's own pulp mills in Lenzing (Austria) and Paskov (Czech Republic)
Beech and spruce by country, 2020–2022.
"Other countries" for Lenzing sites are France, Switzerland, and Poland. Figure 15

Lenzing Pulp Mill



Paskov Pulp Mill



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.

The percentage of broadleaf forest, especially beech, is increasing[17] in wood-sourcing countries as forests are being transformed back 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 most sourcing countries due to low felling rates. Exceptions in recent years were caused by natural disturbances such as storm events and subsequent bark beetle outbreaks. Utilization of beech wood to manufacture fibers provides relatively high value creation versus wood used for energy generation, as several products can be created besides the fibers and energy, such as acetic acid, 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[18] [19].

In order to ensure short transportation distances and short delivery times, almost all the wood required originates regionally. Regional[20] wood accounted for 94.5 percent in 2020, 95.2 percent in 2021, and 93.8 percent in 2022 for the site in Lenzing. For the Paskov site, the regional supply rate has increased to 100 percent since 2019. For the underlying figures, please see the Annex.

Wood from Poland was exclusively sourced with FSC® certificates in 2021 and up to three-quarters from 2022, as some districts from Polish State Forests announced their decision not to renew their Forest Management certificates from FSC®[21].

Local wood supply in Brazil

In preparation for the pulp factory construction, the LD Celulose joint venture secured FSC®-certified plantations[22] covering more than 47,000 hectares to provide the necessary biomass. Currently around 78,000 hectares of plantation are managed including around 17,000 hectares of protected area which are not used for wood sourcing but ensure the protection of flora and fauna. These plantations operate completely in accordance with the guidelines and high standards of the Lenzing Group for sourcing wood and pulp as well as the requirements of the leading certification schemes.

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

Key aspects that compelled Lenzing to enter into the LD Celulose joint venture with Dexco in Brazil were 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, 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.

17 Schwarzbauer, P., and Wittmann, F. (2018). Basic Indicators for the Sustainability of European Forestry. In: Lenzinger Berichte 94 (2018), 1-13. Available at: www.lenzinger-berichte.com [Accessed 15 February 2021]

18 Niedermair, M., Lexer, M. J., Plattner, G., Formayer, H. and Seidl, R. (2007). Österreichische Bundesforste AG. Klimawandel und Artenvielfalt. Wie klimafit sind Österreichs Wälder, Flüsse und Alpenlandschaften? Available at: https://www.bundesforste.at/fileadmin/publikationen/studien/Klimastudie_WWF.pdf [Accessed 15 February 2021]

19 FOREST EUROPE 2020. Adaptation to Climate Change in Sustainable Forest Management in Europe, Liaison Unit Bratislava, Zvolen, 2020.

20 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.

21 FSC license code: FSC-C006042

22 FSC license code: FSC-C006042

This commitment is being maintained at LD Celulose with Dexco's forest management expertise.

The Dexco 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. Lenzing cooperates with NGOs, such as Canopy, to assess the sustainability of its wood supply chain. All these measures ensure that wood sourcing is in line with Lenzing's Wood and Pulp Policy and grounded in sustainable practices.

The start-up of the pulp mill was completed in 2022. Since Lenzing's own demand for wood has not yet reached the full amount, some 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.

Transport and logistics

As Lenzing implemented its decarbonization strategy, the company shifted the transportation of some inbound materials from road to rail transport and shipping to improve its CO_2 footprint. This means for example that the transportation of sulfur purchased from one supplier was switched from road to rail, totaling approximately 15,000 tons of sulfur per year.

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 favoring train transport wherever possible.

Ship to Zero campaign – carbon-neutral shipping
Lenzing piloted carbon-neutral shipping in October 2021, collaborating with Good Shipping during COP26 (UN Climate Conference). The joint goal of several companies was to achieve a CO_2 reduction of 4,000 tons, equivalent to a journey from Rotterdam to Glasgow by ship. Lenzing's contribution involved reducing 50 tons of CO_2. In 2022 Lenzing established a sustainable logistics transportation system involving break bulk mode transport thereby reducing CO_2 emission by at least 15 percent versus container mode of transport, making the transport of dissolving wood pulp from Brazil to China more efficient. In 2023 it is planned to ship around 90 percent of pulp by break bulk and around 10 percent by container.

High Performer Award from the EPA Smart-Way® Transport Partnership[23]
This award was given twice to the site in Mobile (US) in 2020 and 2021. 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. SmartWay High Performers are partners whose efficiency and/or air quality performance falls within the top-ranked performance range.

Pentatrains
The use of pentatrains, which have five cargo boxes instead of the convential three, represents a productivity increase of more than 50 % compared to tritrains. This could lead to a reduction of 5,600 trips on highways and savings of up to 220,000 liters of Diesel annually. This has already been implemented in Brazil and it is planned for LD Celulose to have a fleet of 15 pentatrains to transport wood from the plantations.

New software for wood purchasing ensures greater transparency and facilitates the logistics process
There are many process steps between the felling of a tree to the delivery of wood to the plant in Lenzing (Austria). The wood must be labeled, and around 80 rail wagons and 80 trucks must be directed to Lenzing's site every day. All of this requires an elaborate Europe-wide logistics process and special software that guarantees the smooth flow of information between the individual stations.

In order to make contract management, wood trading and purchasing, logistics and control simple and transparent, the decision was made to switch to a new special software system. In 2019, the first milestone was reached with the implementation of electronic bill delivery.

Another important milestone was contract management, which went live in June 2022. This involved the electronic creation of contracts, including electronic approvals and signatures, as well as the associated document management. This milestone will make future work much easier and more transparent, and is an important step towards a paperless office for the wood purchasing department.

Procurement management

[GRI 302-8]

Wood, pulp 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 are based on economic, quality as well as environmental, social, and governance (ESG) 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.

23 SmartWay High Performers: Shippers | SmartWay | US EPA

TRAINING OF BUYERS

In order to build deeper knowledge about sustainable procurement, especially about the carbon footprint, scope 3 emissions and the life cycle assessment of purchased products, two trainings within the Lenzing Group were held in 2022. The aim was to support buyers in embedding sustainability aspects in decision making processes and negotiations with suppliers. The training covered topics such as requirements on carbon management, carbon footprint calculation, major carbon sources and sustainable attributes of products.

In order to fulfil Lenzing's ambitions for supply chain due diligence and to increase supplier engagement, the global purchasing team is being continuously trained for EcoVadis either by EcoVadis platform training sessions or internally (using EcoVadis website information source). Purchasers affected have access to the EcoVadis platform, so that they can further develop their knowledge in sustainability areas via the EcoVadis academy available.

Lenzing's Global Supplier Code of Conduct

All of the Lenzing Group's suppliers must comply with the Lenzing Global Supplier Code of Conduct. Wood and pulp suppliers additionally comply with its Wood and Pulp Policy. In this policy Lenzing gives preference to suppliers compliant with FSC® or PEFC standards. Lenzing expects its suppliers to conduct all operations with respect to health and safety at work, labor and human rights, environmental protection, ethics and management practices. To ensure compliance with this Code, suppliers are required to allow Lenzing and/or any of its representatives to have access all their facilities and to all relevant records upon advance notice and to carry out assessments through supplier assessment tools.

Supplier management Active negotiations with suppliers regarding their engagement for sustainability assessment are in progress. In 2022, more than 300 suppliers were assessed on the basis of social and environmental criteria through the EcoVadis tool. This number has doubled comparing to the previous year since Lenzing stepped up its efforts to involve suppliers.

In Germany, a new Supply Chain Due Diligence Act will come into effect in 2023. The European Union (EU) is simultaneously working on an EU-wide Supply Chain Act that requires EU companies to carefully manage social and environmental impacts along their entire value chain. Lenzing is already preparing for the new regulation to ensure compliance and the fulfilment of corporate due diligence obligations along the supply chain with regard to human rights and the environment. A vision and strategy for sustainable procurement are currently being formulated together with a process for the next steps to establish a comprehensive risk management system.

PROJECT "LINDE GREEN"

Lenzing decided to integrate Linde green air gases into its production process in the reporting year to reduce CO_2 emissions compared to a conventional production process. By sourcing renewable industrial gases from Linde which are produced from 100 percent renewable energy, Lenzing contributes to significantly reduced emissions by saving more than 2,400 tons of carbon emissions annually.

Supplier evaluation

[GRI 308-1]

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 including 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. In 2022, when screening for risk suppliers no Lenzing suppliers were identified as having significant actual and potential negative environmental impacts, however one contractor of the facility in Indonesia was expelled due to incompliance (falsification of certificates).

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

Strategic dissolving wood pulp suppliers are evaluated periodically. In 2022, no on-site audits were conducted due to the COVID-19 pandemic. The sustainability performance of pulp suppliers is annually investigated using a comprehensive questionnaire covering aspects such as procurement standards, supply chain and supply areas, engagement and GHG emissions, amongst others. The results of the survey will be used to identify the key sustainability issues and guide Lenzing's future supplier engagement activities.

All wood suppliers – totaling more than 600 in 2022, half of which are private owners – in all sourcing countries are assessed once a year against FSC® Controlled Wood and PEFC Controlled Sources criteria. All of the pulp suppliers are certified by the leading forest certification schemes and supply Lenzing with certified or controlled pulp.

In addition, Lenzing assessed the maturity of its own procurement management system and processes to gain a shared understanding of what is needed to further integrate sustainability criteria into its procurement and supplier management processes.

Workshops took place with several departments to reach a common ground on upcoming legal requirements (e.g. German Supply Chain Act) and stakeholder expectations related to supply chain

sustainability and due diligence. Based on the results of the maturity review and the internal discussions about future requirements, Lenzing is now developing the next steps to further improve supplier sustainability performance.

Pulpwood and dissolving wood pulp certifications

Lenzing's wood procurement management system ensures that all wood destined for the production of pulp is sourced from legal and sustainably managed sources. Lenzing demonstrates that the wood sourcing complies with its high standards through verification based on FSC® and PEFC certification systems (figure 16). More than 99 percent[24] of wood and dissolving wood pulp used by the Lenzing Group is either certified by FSC® and PEFC or controlled and inspected in line with these standards (figure 17). Wood and pulp procurement faces annual surveillance/recertification audits of the FSC® and PEFC systems.

HOT BUTTON REPORT 2022

In 2022 Lenzing achieved the first place in the "Hot Button Ranking" from CanopyStyle, a ranking of the world's 34 largest producers of cellulosic fibers in terms of sustainable wood and pulp sourcing. This report confirmed a low risk of sourcing from ancient and endangered forests for Lenzing, which is the best possible category. However Lenzing has added new suppliers which might increase the potential risk. Lenzing is in constant communication with suppliers to keep this risk as minimal as possible. Since Lenzing's woods sourcing in Brazil exclusively originates from plantations owned and managed by LD Celulose, there is no risk of illegal logging. Prior to the establishment of the pulp mill in Brazil an environmental impact assessment confirmed that no indigenous settlements are in the vicinity of the plant.

The following figures show the certification status of all wood or pulp input into Lenzing's fiber production, whether obtained directly through its 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. The group certification for PEFC CoC currently covers five sites. Purwakarta, Nanjing and Mobile have successfully been added due to growing market interest in certified fibers and customers' expectations (table 18

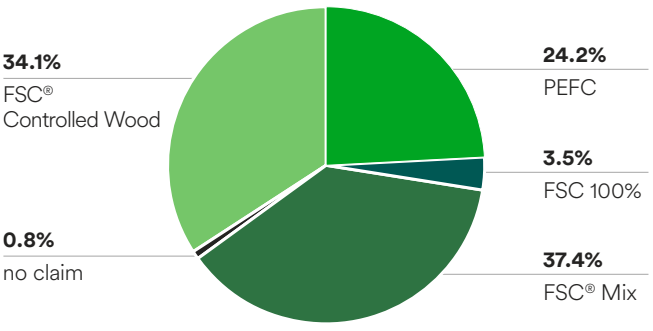
Certification status of Lenzing operations – Chain of custody Table 18

Site	Country	Main products	FSC® CoC	PEFC CoC
Lenzing	Austria	Viscose, modal, lyocell, dissolving pulp	•	•
Paskov	Czech Republic	Dissolving pulp	•	•
Purwakarta	Indonesia	Viscose	•	•
Nanjing	China	Viscose, modal	•	•
Heiligenkreuz	Austria	Lyocell	•	n.a.
Grimsby	United Kingdom	Lyocell	•	n.a.
Mobile	USA	Lyocell	•	•
Prachinburi	Thailand	Lyocell	•	n.a.
Indianópolis	Brazil	Dissolving pulp	•	n.a.

PEFC is mainly used for wood sourced from Central Europe, 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 certification as its main certificate for more than a decade. Since 2016, this has been complemented by a FSC® CoC (Chain of Custody) certificate that covers all Lenzing production sites. All wood input to the Lenzing Group is either certified or controlled by the FSC® certification system (figure 18).

The decrease in certified wood input and increase of FSC® Controlled Wood in 2021 and 2022 was due to necessary supply adjustments. On the other hand, for the first time some 100 percent of FSC® certified pulp entered the supply chain from LD Celulose.

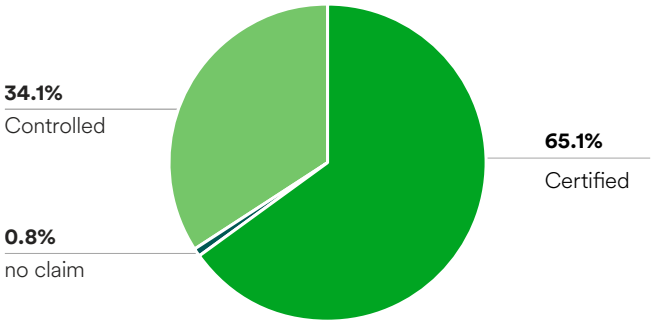
Certification status Figure 16



Certification status of total wood input at Lenzing fiber production sites via own and purchased dissolving wood pulp. Basis: dissolving wood pulp by weight. The site in Thailand could be FSC certified only after the ramp up of the facility. Therefore the amount of "no claim" has risen, as the pulp during that time was not certified.

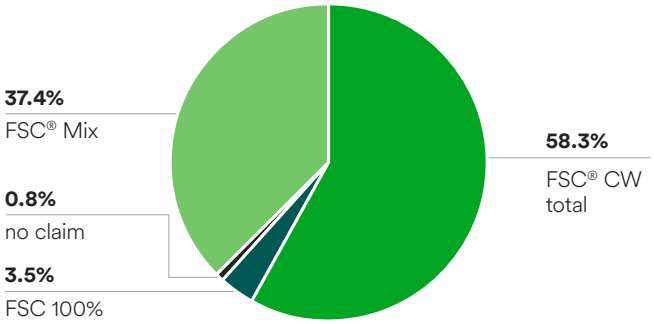
24 See figures 16-18 for details of the remaining less than 1%. Part of this is due to the formal process of certifying the new site. A small amount of non-certified wood was used for R&D purposes and was submitted to a due-diligence process according to Lenzing's Wood and Pulp Policy.

Certification status – overall certified and controlled wood Figure 17



"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. The site in Thailand could be FSC certified only after the ramp up of the facility. Therefore the amount of "no claim" has risen, as the pulp during that time was not certified.

Certification status – FSC® Mix and FSC® controlled wood Figure 18



"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 supplied with an FSC® Mix Chain of Custody certificate. The site in Thailand could be FSC certified only after the ramp up of the facility. Therefore the amount of "no claim" has risen, as the pulp during that time was not certified.

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

For detailed explanations of the certificates, controlled wood, and the internal due diligence system, please see 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 category of wood is inspected in line with these standards. Strict forestry laws and enforcement in Central Europe also require all forest owners to pursue sustainable management. The Lenzing Wood and Pulp Policy and Supplier Code of Conduct are part of all wood purchasing activities and are presented to potential suppliers before the start of a business relationship. Deliveries can only be made to Lenzing if these conditions are accepted.

The Lenzing due diligence system for wood and pulp procurement includes regular formal audits. 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 happened occasionally in the past when suppliers failed to remedy certain issues. In 2022 no such cases occurred.

Biodiversity & ecosystems

MANAGEMENT APPROACH

Material topic: Biodiversity & ecosystems

[GRI 3-3; ESRS E4-2, E4-3]

The World Economic Forum identifies the loss of biodiversity as one of the top three systematic risks to people and the planet. Investment in the protection of biodiversity is also critical to the success of Lenzing's business. Wood is the most important raw material for Lenzing. The main source of potential impact from the Lenzing Group's operations and supply chain is therefore connected to land use by forestry. Negative effects on biodiversity can arise from intensified utilization of forests. On the other hand, the positive effects of sustainable forest management on biodiversity and ecosystems are well known[25] and can be further explored and implemented. The company therefore continues to innovate in the fields of responsible systems, processes and products that mitigate risks to the natural environment. Lenzing's innovation in fiber production also provides end-of-life solutions for textile and nonwoven products. In 2021, the company received further confirmation from Scripps Institution of Oceanography at the University of California, San Diego that the most common LENZING™ fibers (LENZING™ Viscose Standard, LENZING™ Lyocell Standard and LENZING™ Modal Standard) are biodegradable. Lenzing also joined the Textile Exchange's Advisory Group for the Biodiversity Benchmark, which supports companies in understanding and mitigating their impact on nature.

Actual and potential negative and positive impacts

Positive

- The protection of biodiversity and ecosystems plays a crucial role in climate change mitigation
- Maintaining and improving the function of forests in their ecosystems while ensuring the long-term availability of wood as a raw material
- Cellulosic materials offer a biodegradable alternative to plastics, helping to reduce the impact of lost materials on ecosystems, water and soil compared to plastics, which have not been disposed correctly

Negative

Business relationships:

- Loss of biodiversity in poorly managed forest ecosystems
- The loss of biodiversity could also lead to a significant change in available wood species for fiber production
- Worst case scenarios consider potential breakdowns of entire forest ecosystems at the regional level and correspondingly high volatility in wood prices

Policies and commitments

- Strict Wood and Pulp Policy
- Centrally managed wood and pulp procurement
- CanopyStyle Initiative
- Global Lenzing Supplier Code of Conduct
- Global Code of Business Conduct
- Group Environmental Standard
- Sustainability strategy "Naturally positive"
- Lenzing Group Sustainability targets

Actions taken

- The Lenzing Group has joined the Advisory Group of Textile Exchange Biodiversity Benchmark
- Lenzing proactively participates in conservation projects to protect the world's ecosystems
- CDP forests, climate change, and water security: triple "A" rating, which is the best achievable outcome
- Lenzing addresses biodiversity preservation through one of two approaches, depending on the global region:
    - Sustainably managed forestsin 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 pulp plant in Brazil
    - Using wood from sustainably managed semi-natural forests supports biodiversity
    - When sourcing from plantations, considerable efforts are made to set aside conservation areas to protect and maintain biodiversity
- By implementing circular thinking and high environmental standards (Lenzing Group Environmental standards based on EU BAT and EU ecolabel certifications) in Lenzing's operations, procurement and innovations, the company minimizes the impact on ecosystems
- 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 conservation measures to preserve it

Sustainability targets, measures and progress

For more information, please see the "Sustainability targets, measures and progress" chapter.

Stakeholder

- Wood suppliers
- NGOs
- Textile Exchange (TE) Biodiversity Benchmark
- Forest certificates
- Policymakers
- CDP Forests
- Wood K plus

For more information, please see the "Stakeholder engagement" chapter.

Responsible

- Member of the Managing Board (Pulp)
- Senior Director Purchasing Wood

25 Kunz 2007: Artenschutz durch Habitatmanagement. chapter 6.2 Wiley-VCH

- Lenzing achieves the highest Hot Button category by the Canopy Style initiative, the dark green shirt, for the third time
- Lenzing participates in the Circular Fashion Partnership
- Biodegradability of LENZING™ fibers confirmed by renowned marine research institute at the University of California, San Diego – effective alternative against environmental pollution from plastic waste

- VP Commercial Affairs Pulp

Supporting

- Pulp Trading (PTG)
- Corporate Sustainability

Biodiversity and Lenzing's impacts and dependencies

[GRI 304-2; ESRS E4-5]

Biodiversity is defined in a recent report by IPCC and IPBES (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services)[26] as "the variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part". Human livelihood and wellbeing depends in many ways on the contributions from living organisms and ecosystems, as they offer services beyond nutrient cycling and can also serve as recreational areas. Without safe-guarding biodiversity and ecosystems, there is no prosperity for future generations. There are strong links between climate change, land use, pollution and biodiversity.

The World Economic Forum identifies biodiversity loss and natural resource crises as two of the top five existential threats to the economy, people, and planet in the long term (5-10 years)[27]. Global biodiversity loss has recently moved into the focus of the sustainability debate in many industries, including the textile and nonwoven sector.

According to the IPBES, pressures on nature leading to loss of biodiversity and ecosystem functions are categorized into five groups (IPBES 2019[28] as cited by Science-based Targets for Nature (SBTN)[29]):

1. Land/ water/ sea use change
2. Resource exploitation
3. Climate change
4. Pollution
5. Invasive species

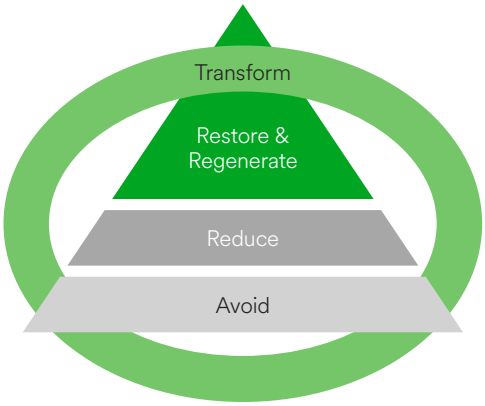
In the context of global biodiversity loss, the textile and apparel industry has recently become more aware of its contribution to this problem[30] [31]. The focus is on the agricultural production of natural fibers (mainly cotton) and pollution issues related to fiber production and textile processing, although wood sourcing from forests is also seen as a potential cause of biodiversity loss. Products have potential negative impacts at the end of their life due to waste pollution in land and water ecosystems, especially via non-biodegradable materials that are leaked into the environment.

Lenzing as a leading cellulose fiber manufacturer is focusing on three areas: its wood and pulp sourcing, production processes, and products' end of use, in order to address biodiversity loss.

Biodiversity and ecosystem improvement: targets and actions proposed by the SBTN

To respond to the pressures on nature by taking positive action, the Science Based Targets for Nature Initiative introduced the Action Framework with five key types of actions: "Avoid – Reduce – Restore and Regenerate – Transform" in its Initial Guidance for Business (2020)[32]. This scheme was also adopted by the Textile Exchange Biodiversity Benchmark.

The AR³T framework of Science based targets for nature[a] Figure 19



a) Science-based targets for nature. Initial guidance for businesses. 2020

26 IPBES-IPCC 2021: Scientific outcome of the IPBES-IPCC co-sponsored workshop on biodiversity and climate change
27 WEF Global Risk Report 2021
28 IPBES 2019: Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. E. S. Brondizio, J. Settele, S. Díaz, and H. T. Ngo (editors). IPBES secretariat, Bonn, Germany. https://ipbes.net/global-assessment
29 Science-based targets for nature. Initial guidance for businesses. 2020.
30 Textile Exchange, Biodiversity Insights Report 2021. https://mci.textileexchange.org/biodiversity/insights/
31 Global Fashion Pact, Transforming the industry. 2020. https://thefashionpact.org/wp-content/uploads/2020/10/038906e111abca13dce4c77d419e4f21.pdf
32 Science-based targets for nature. Initial guidance for businesses. 2020

Framework of actions for nature, from SBTN (2020)[a]

Table 19

Avoid Prevent impact from happening in the first place: prevent the impact entirely
Reduce Minimize impacts, but without necessarily eliminating them
Restore Initiate or accelerate the recovery of an ecosystem with respect to its health, integrity, and sustainability, with a focus on permanent changes in its state
Regenerate Take measures designed to increase the biophysical function and/or ecological productivity of an ecosystem or its components within existing land uses, often with a focus on a few of nature's specific contributions to people (e.g. regenerative agriculture often focuses on carbon sequestration, food production, and nitrogen and phosphorus retention)
Transform Take measures contributing to system-wide change, notably to alter the drivers of nature loss, e.g. through technological, economic, institutional, and social factors and changes in underlying values and behaviors

a) Science-based targets for nature. Initial guidance for businesses. 2020

Lenzing`s biodiversity targets

In the presentation of Lenzing's biodiversity and ecosystem related targets and measures at this point in time, the AR^{3}T framework (Avoid, Reduce, Restore, Regenerate, Transform) is considered a useful sorting scheme. That said, the development of a comprehensive and systematic approach to biodiversity and ecosystems is planned for the Lenzing Group, in line with Sustainability Target 8 (table 20).

Several targets have been derived from the Sustainability strategy and the Better Growth strategy, containing elements that positively influence biodiversity and ecosystem services or nature's contributions to people.

SBTN's framework for action and Lenzing's approach

Table 20

Category of action	Reference	Lenzing's approach
Avoid	Wood and Pulp Policy	Lenzing explicitly commits to avoiding deforestation in the procurement criteria of the Wood and Pulp Policy
Reduce	Sustainability 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
Restore	Sustainability Target 6	To implement a conservation solution of 20 ha in Albania in combination with a social impact project by 2024
	Sustainability Target 7	To implement conservation solutions on 15,000 ha at the new pulp site in Indianópolis (Brazil) by 2030
Regenerate & Transform	Sustainability 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

Lenzing`s actions

Avoid: biodiversity due diligence via sustainable sourcing

Wood and dissolving wood pulp are Lenzing's most important raw materials. The Lenzing Group assumes responsibility by focusing on sustainable sourcing. Lenzing only sources wood and dissolving wood pulp from semi-natural forests and plantations (as defined by the Food and Agriculture Organization of the United Nations[33]). Moreover, it does not source materials from natural or ancient and endangered forests.

Lenzing Group's Wood and Pulp Policy

In its Wood and Pulp Policy[34], Lenzing is committed to procuring wood and dissolving wood pulp exclusively from non-controversial sources.

In order to protect the world's remaining ancient and endangered forests as well as the biodiversity and ecosystems' integrity within these forests, Lenzing is committed to avoiding the use of wood and pulp containing wood sourced from regions such as the Canadian and Russian Boreal Forests, Coastal Temperate Rainforests, tropical forests and peatlands of Indonesia, the Amazon and West Africa.

Regular risk assessments, audits, on-site visits, and independent third-party certification of sustainable forest management programs ensure compliance with the policy and Lenzing's commitment to no-deforestation. For more information, please see the "Wood and pulp" focus paper.

Forest certificates

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. All wood and dissolving wood pulp used by the Lenzing Group is either certified by FSC® and PEFC or controlled in line with these standards (see figure 16 in the "Raw material security" chapter).

The forest certificates held by the Lenzing Group cover general criteria for biodiversity and forest ecosystem protection according to international standards. Additional criteria can be found in the national standards which vary between countries. For example, the percentage of area set aside for conservation varies between countries and even regions within countries.

For details on wood and pulp certification, see the "Raw material security" chapter.

33 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. Available at: http://www.fao.org/forestry/25853-0d4f50dd8626f4bd6248009fc68f892fb.pdf [Accessed 15 February 2021]

34 https://www.lenzing.com/fileadmin/content/PDF/08_Corporate_Governance/Richtlinien_und_Kodizes/EN/Wood_Pulp_Policy_EN.pdf [Accessed 15 February 2021]

Reduce: via circular economy approaches and climate targets

The aim here is to use fewer inputs from natural resources, and to minimize the impact of greenhouse gas emissions and pollution.

Pollution prevention

In accordance with the strategic focus area of "Greening the value chain", the Lenzing Group has targets and programs in place to reduce emissions affecting water and air. One example is the implementation of closed loop water and chemical cycles. Lenzing also follows the Changing Markets roadmap for the man-made fibers industry. All viscose production sites have been assessed through the Zero Discharge of Hazardous Chemicals (ZDHC) scheme. The ZDHC man-made cellulosic fibers guidelines version 2.0 was published on the 3rd of January 2023 and now also includes lyocell.

Resource use

Lenzing is committed to the cascading use of wood. This means that different qualities of wood are utilized for different applications in a hierarchy of their value. Lenzing uses timber generated from small trees through thinning and from parts of large trees that are unsuitable for high-grade products, such as furniture or construction. Furthermore, wood chips that are a by-product of saw mills are also used.

Lenzing's biorefinery processes produce dissolving pulp as the main product, as well as several biorefinery products and renewable energy. This results in 100 percent utilization of the wood. For details, please see the "Responsible production" focus paper.

Recycling fibers and textiles reduces the input of virgin raw materials such as wood. Well-developed technologies can also reduce the consumption of other inputs such as chemicals and energy. This is true for Lenzing products made with recycled materials, e.g. via the REFIBRA™ or Eco Cycle technology, both of which have lower carbon footprints than fibers conventionally produced from virgin material (Higg MSI score).

For details, please see the "Circularity & resources: Commercial-scale recycling technologies" chapter.

Assessment: state of Lenzing's influence and dependencies on biodiversity and ecosystems

[GRI 304-1, 304-2; ESRS E4-5]

The Lenzing Group uses two different types of forestry for its wood sourcing, depending on the global region: sustainable and multifunctional forest management is applied in the Northern hemisphere by Lenzing's wood and pulp suppliers in Europe and North America. Plantation forestry with high sustainability standards is conducted mainly in the Southern hemisphere by Lenzing's pulp supplier in South Africa and by the new pulp plant in Brazil. In the joint venture project with Dexco (formerly Duratex) in Brazil, wood is sourced from FSC®-certified plantations of currently more than 70,000 hectares. 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 biodiversity[35], as determined in detail in the national standards. Management practices include a certain percentage of reserved conservation areas.

Biodiversity and ecosystem status monitoring in the Lenzing Group is performed in the global regions via two different approaches. These approaches (in Europe and in Brazil) are explained below:

In Europe, biodiversity is monitored at a national level according to the Forest Europe Criteria. Results are published regularly in the European overview[36] [37]. Recent reports paint a mixed picture of the success and issues still to be resolved. The measures to be taken are better understood thanks to intensive research activities.

The pulp mill in Brazil is supplied with wood from plantations owned and maintained by LD Celulose. To ensure that the plantation management maintains compliance with the requirements of the Brazilian Forest Code, LD Celulose has a framework of internal and external processes. There are ongoing biodiversity monitoring projects in which data on local biodiversity and the potential expansion of invasive species is monitored. The internal GIS (Geographic Information System) team collects satellite imagery on an annual basis and evaluates the location, size and status of the Legal Reserve areas (LRs) and Permanent Preservation Areas (APPs) on the managed land. The data is also provided to the field teams in the form of maps. Furthermore, periodic field audits by our environmental specialists ensure that the quality of LRs and APPs is maintained.

LD Celulose is aware of the diversity of flora and fauna found in its forest areas. Dexco started its biodiversity research projects in its managed areas in the 1970s. LD Celulose has continued to monitor flora and fauna in the areas that have remained under its management and those directly influenced by the mill site through partnerships with universities[38], in addition to internal programs. These programs are carried out annually in the dry and rainy seasons and aim to monitor possible impacts on local biodiversity. The programs are also required by the Brazilian environmental agency.

Pulp suppliers apply their own monitoring schemes.

Attempts to quantify impacts from land use on biodiversity usually consist of two components: the quantity of land (forest) area used, and the intensity of use. The estimation of land area used for Lenzing's wood sourcing is part of the initiated "Biodiversity concept" project. Variations in data availability and data quality can arise depending on the forest type, the land ownership, the sourcing area and the supply chain position (wood or pulp sourcing to Lenzing).

35 FSC Global Development GmbH (2014). FSC® and Plantations. FSC's position on plantations. Available at: https://ic.fsc.org/en/news-updates/id/1351 [Accessed 15 February 2021]

36 Forest Europe 2015, and 2020: State of Europe´s Forest 2015. Ministerial Conference on the Protection of Forests in Europe, June 2016., and 2020, State of Europe´s Forest 2020. https://foresteurope.org/publications/

37 Indicators of sustainable forest management in Austria reports from 2017 and 2020. https://info.bmlrt.gv.at/themen/wald/walddialog/dokumente.html, Czech Republic and Slovakia forest reports: Ministry of Agriculture of the Czech Rebublic, Information on Forests and Foresty in the Czech Republic by 2017 (English), Zpráva o stavu lesa a lesního hospodářství České republiky v roce 2020 (Czech).
Ministry of Agriculture and Rural Development of the Slovak Republic, Report on the Forest Sector of the Slovak Republic 2020.

38 Duratex Annual Report 2018. Available at: https://www.dex.co/noticias/duratex-divulga-relatorio-anual-2018/ [Accessed 15 February 2021]

Quantity of forest area used for Lenzing's wood sourcing: data availability and quality Table 21

Lenzing sources	Forest type	Land use intensity	Data/estimates	(Expected) data quality
Wood	Plantation	High	Known (see "Quantitative description of area managed and influenced by LD Celulose", Table 22)	High
Wood	Semi-natural	Low to medium	Estimates needed based on regional statistical data	Medium
Pulp (pulp supplier sources wood)	Plantation	High	Estimates possible	Medium
Pulp (pulp supplier sources wood)	Semi-natural	Low to medium	Rough estimates	Low

The plantation managed by LD Celulose contains a proportion of conservation area dedicated to biodiversity protection in accordance with legal requirements and FSC® standards, known as a High Conservation Value Area (HCVA). LD Celulose's forestry unit is supervised by ecology and environmental specialists who were also responsible for identifying the HCVA. The area contains *Pseudopaludicola facureae*, a species of frog found only in this region of Minas Gerais. This means that a higher level of monitoring is necessary, as well as extra precautions for fire protection. It is a KPI of LD Celulose to protect endemic species and their habitat. This is not required by Brazilian national law, but a FSC® criterion. The forestry unit constantly works to identify any areas that need to be classified as HCVA to ensure the protection of animal and plant species. For more information, please see the "Biodiversity" focus paper.

Brazilian environmental law determines the maintenance of Permanent Preservation Areas (APPs) and Legal Reserve (LR) 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 meet the obligation to preserve at least 20 percent of a property in a rural area. At the moment, 17,065 hectares of LD Celulose are protected areas (table 22).

In terms of conservation units that are outside the managed areas but close to the LD Celulose planting area, Parque Estadual do Páu Furado is some 30 kilometres from the plantation. At this distance, the conservation unit is not impacted by LD Celulose's activities. The plantation is roughly 800 kilometres away from the Amazonas. The main direct land use areas of the Lenzing Group are the plantations in Brazil, currently covering a total of 78,640 hectares (786 km^2).

Wood is the most important raw material for Lenzing. The main source of potential impact from the Lenzing Group's operations and supply chain is therefore connected to land use by forestry. Lenzing also mainly depends on biodiversity and the proper functioning of forest ecosystems that provide the raw material of wood. Negative effects on biodiversity can arise from intensified utilization of forests. On the other hand, the positive effects of sustainable forest management on biodiversity and ecosystems are well known[39] and can be further explored and implemented.

The construction of the pulp mill in Brazil and the site in Thailand was completed in 2022. For more information on manufacturing plants please see "Locations of the Lenzing Group". For more information about transport and infrastructure in Lenzing's supply chain, please see "Transport and logistics" in the "Raw material security" chapter. For more information about pollution, please see the "Climate and energy" chapter as well as "Waste management" in the "Circularity and resources" chapter. Lenzing states in its Wood and Pulp Policy that it is not procuring wood from plantations established after 1994 through the significant conversion of natural forests. For more information please see the "Raw material security" chapter and the "Wood and pulp" focus paper. A similar requirement exists for every wood that is FSC® certified. LD Celulose's forests are in areas that were converted to agriculture several decades ago. Large areas nearby are generally used for planting soy and coffee or grazing livestock. The trees are mainly eucalyptus species, with a small proportion of pine recently phased 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).

As semi-natural forests and plantations do not require irrigation, it can be assumed that groundwater levels are not affected and salinity levels are not increased in Lenzing's sphere of influence. Approximately 204 species of flora and 450 species of fauna were identified in the forest management units of LD Celulose. Among these species, the presence of animals such as the maned wolf and the giant anteater, which are characteristic of the region, is particularly noteworthy. No significant reduction in species has been registered in LD Celulose's plantation.

In the case of semi-natural forests it can also be assumed that impacts on native species and on biodiversity will be long lasting, since many areas have been managed in this way for several forest generations. A case study commissioned by Lenzing on Austrian forests in conjunction with the Austrian environmental NGOs umbrella organization Umweltdachverband has concluded that there are numerous species living in managed beech forests in Austria, among them also red-list species, which have adapted to the management practices. Therefore reversing these semi-natural forests to completely natural forests (stopping all management) could potentially harm these species.

Additional potential impacts on water, soil, and air can arise from production facility emissions. For more information, please see the "Climate & energy", "Water stewardship" and "Waste management" chapters.

At the end of the value chain of textile and nonwoven products, biodiversity impacts can arise from non-degradable plastics entering the environment, if those products are not correctly disposed of. For more information on biodegradability of Lenzing's fibers, please see the "Circularity & resources" chapter".

39 Kunz 2007: Artenschutz durch Habitatmanagement. chapter 6.2 Wiley-VCH

Quantitative description of areas managed and influenced by LD Celulose

Table 22

	2020		2021		2022	
	ha	%	ha	%	ha	%
Total area	66,101	100	71,631	100	78,640	100
Forest/plantation area	50,325	76	54,081	75	58,194	74
Owned	–		–		–	
Leased/managed	50,325	76	54,081	75	58,194	74
Protected	13,153	20	14,623	20	17,065	22
FSC® area	43,835	66	43,835	61	47,608	60
Infrastructure	2,623		2,927		3,380	4

Measures for biodiversity and ecosystem enhancement

[GRI 304-2; ESRS E4-5]

The plantations managed by LD Celulose operate fully in accordance with the guidelines and high standards of Lenzing for sourcing wood and pulp. During the planning, the intense utilization of wood resources and the potential negative effects on biodiversity were part of the risk analysis. In order to avoid these risks, LD Celulose works with conservation programs and also follows the FSC standards.

In the responsible management practiced by LD Celulose, techniques are employed that aim to protect biodiversity as well as soil and water quality. Examples of these measures are:

- **Minimum cultivation**: for soil conservation, LD Celulose uses the minimum cultivation technique, which consists of keeping the remaining plant material at the harvest site to form layers of soil protection and ensure the cycling of nutrients.
- **Nutritional recommendation:** LD Celulose performs soil analyses to determine the requisite fertilizer recommendation for maintaining soil fertility.
- **Connectivity:** to improve the connectivity of the Permanent Preservation Areas and legal reserves, LD Celulose carries out mosaic planting, establishing ecological corridors that aim to connect fragments of native forest. This connectivity allows animals and plants to migrate between different conservation areas, so that different populations can mate and preserve the genetic diversity. This measure is a voluntary activity beyond the legal and certification-related requirements.
- **Preservation and monitoring of riparian forests**: these forest areas along waterways contribute to the maintenance of water quality and the quantity of water available. They retain sediments and nutrients carried by the rain, preventing water pollution and silting in bodies of water. In the Brazilian legislation, riparian forests are protected as they are considered Permanent Preservation Areas. LD Celulose, in turn, defines all Permanent Preservation Areas in its forest management units and also monitors these riparian forests.

Restoration and reforestation

[GRI 304-3; ESRS E4-5]

Lenzing supports conservation solutions in other regions not related to its own supply chain, such as afforestation in Albania, DR Congo and the USA. Additionally, Lenzing is committed to addressing the protection of ancient and endangered forests in Canada (Broadback Forest Quebec, Vancouver Island) and Indonesia (Leuser Ecosystem) at the political level.

Lenzing has set itself the target of engaging in further conservation, biodiversity and restoration activities in regions where forests are at risk (Sustainability Target 8). To make further progress in meeting this target Lenzing has defined ways of identifying projects, to which it aims to contribute.

- Identify requirements to follow from CDP and Canopy
- Identify potential partners in the market with experience and a broad network for a successful partnership
- Identify how other players in the market are tackling the biodiversity issue

Furthermore, Lenzing plans to align the projects, that have been identified so far, with CDP (Carbon Disclosure Project), Canopy and ÖBf (Österreichische Bundesforste) in 2023.

Mai Ndombe REDD+ project

Lenzing supported the Mai Ndombe REDD+ project with a donation in 2022. The project supports the protection of 300,000 hectares at the west side of the Mai Ndombe Lake in DR Congo, which is part of the world's second largest rainforest and home to numerous wildlife species. The area is threatened by deforestation through legal and illegal logging.

The project uses carbon revenues to prevent logging contracts from being renewed in the area and creates alternative livelihoods for the local communities. This enables the forest and wildlife to regenerate which will promote biodiversity. To further advance the community's self-determined development, trainings and demonstrations about sustainable (fish) farming are held to improve food security while also conserving natural resources. Lenzing's contribution will be directed towards restoring the fish stocks and the environmental health of Lake Mai Ndombe.

Albania
The Lenzing Group started a forest conservation project in Albania in 2019, which is scheduled to run for five years until the end of 2024. 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 goal is to implement conservation solutions covering 20 hectares in this area.

Achievements in 2022:

- In the course of the reforestation measures, almost 20,000 trees have now been planted, covering 12 hectares of afforestation area with the cooperation of around 180 members of the local Forest and Pasture Users Association. The survival rate of the seedlings, in the newly established tree nursery at the Eco Social Farm close to the reforestation area, is between 85 percent and 90 percent. This has been a great success in establishing the afforestation activities as an example of good practice to be replicated in the region. In the tree nursery tree seedlings are protected until they are tall enough to be planted in the forest area.

- More than 150 local forest workers were trained on forest management in 2022, fire prevention and safety, reaching more than 400 forest workers during the course of the project. All training sessions were conducted under Covid-19 safety regulations. By providing these trainings, the management of almost 100,000 hectares of forest area in Albania could be positively impacted. The workshops have helped not only to improve the forest management, but also reduce the risks of forest fires – which is a constitute challenge in the region – and the risk of injuries for forest workers could be reduced.

- The student number at the Shkodra Forestry School has increased due to improved IT infrastructure and marketing materials / publicity events.

Highlight of 2022:

A round table on "Innovative Partnerships for Sustainable Forest Management" took place in June 2022 in Tirana, involving the Albanian vice minister for Tourism and Environment, the Austrian ambassador and stakeholders and experts in forestry. Scientific studies about sustainable forest management in the area were presented, which were conducted in conjunction with the University of Tirana.

OneTreePlanted
Lenzing supported the "Earth Day Campaign" 2019, including the restoration of the Yosemite National Park in California, USA. With the support of this initiative not only the land was restored, but also the wildlife habitat was positively impacted.

In 2020, some 10,000 trees were planted. In 2021, 33,025 trees were planted, mainly in California and Colorado, as well as in Haiti. In 2022, around 1,000 trees were planted. This amounts to a total of 59,166 trees since 2019 that have been planted with the support of Lenzing.

For more information on stakeholders, please see the "Stakeholder engagement" chapter. For more detailed information about Lenzing`s projects see the "Social responsibility" focus paper.

Sustainable innovations & products

MANAGEMENT APPROACH

Material topic: Sustainable innovations & products

[GRI 3-3]

Sustainability acts as a guiding principle for Lenzing's innovation and product development, which is driving systematic change across the textile and nonwoven industries. The continual improvement of existing product and production technologies builds business resilience and reputation, as well as facilitating the supply of products to value chain partners that contribute to the eco-credentials of their own portfolios. Moving from linear to circular ways of working presents many opportunities for Lenzing to provide customers with a variety of environmental-friendlier solutions, such as biodegradable fibers for the manufacturing of agricultural and hygiene products.

Actual and potential negative and positive impacts

Positive

- Meeting market and stakeholder expectations
- Differentiating factor
- Being prepared for new challenges
- Being a pioneering company
- Building new cooperation and networks
- Challenge the status quo

Negative

Own activities:

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

Policies and commitments

- Better Growth strategy
- "Naturally positive" sustainability strategy with "Sustainable innovations" focus area
- Life cycle thinking
- Net-benefit concept
- Project Zukunft sichern (save the future)
- Zero Discharge of Hazardous Chemicals (ZDHC)
- PRO² project management system (product & application innovation and process & technology innovation) as part of Lenzing business processes
- Management review (ISO 9001:2015)

Actions taken

- Every idea is evaluated regarding its sustainability impact and CO_2-emissions – R&D projects are only started if the assessment shows an improvement compared to the current solution
- Close cooperation between innovation centers and other internal departments
- Numerous R&D partnerships with customers, companies, universities, and institutes (national and international)
- New fiber types launched for denim applications
- Cooperation between Södra and Lenzing in the field of textile recycling
- Lenzing and Renewcell signed a large-scale supply agreement further closing the loop in fashion (chemical textile recycling)
- Advancing the renewable carbon concept as a member of the Renewable Carbon Initiative (RCI)
- Fusion of LENZING™ Web Technology with a pulp wetlaid process for new sustainable and low carbon emission products
- 1,754 patents and patent applications filed across 182 patent families and 53 countries

Sustainability targets, measures and progress

For more information, please see the "Sustainability targets, measures and progress" chapter.

Stakeholder

- Regular exchange and joint developments with customers to develop sustainable products
- Exchange with regulatory bodies (national, European, international) and input to policy framework
- Close cooperation with NGOs active in the field of (textile) sustainability such as Canopy
- Active contributor in several associations and networks such as Renewable Carbon Initiative (RCI), European Polysaccharide Network of Excellence (EPNOE) and The European Platform for the Future of Textiles and Clothing (Textile ETP)
- Membership in technical and standardization committees
- Regular exchange with funding authorities (e.g. annual talk with FFG) and internal alignment on this topic as well
- Joint projects are carried out within the framework of the PRO² process for project management
- Joint project structure in cooperation with Södra

For more information, please see the "Stakeholder engagement" chapter.

Responsible

- CEO
- VP Research & Development

Supporting

- Global Business Management Nonwovens and Textiles
- Global Strategy and M&A
- Performance.Improvement.Technology
- Digital Innovation
- Global Engineering
- Operations & Technology Pulp
- Operations
- Corporate Sustainability

- Lenzing is a partner in the Horizon Europe Circular and Sustainable Textiles and Clothing (CISUTAC) project
- FFG-funded Reducing Energy and Waste using AI (REWAI) project together with Pro²Future, University of Linz and Graz University of Technology

Sustainable innovations represent one of the strategic focus areas of Lenzing's "Naturally positive" sustainability strategy. Lenzing is committed to bringing cellulose based solutions to the market that offer consumers more sustainable alternatives without compromising on quality and performance. Sustainable innovations include substantial efficiency improvements in existing technologies and technological breakthroughs that lead to net-benefit products. Lenzing innovation also includes driving systemic change through forward-looking solutions, future-proof business models, and a multitude of collaborative activities. Another increasing activity is the implementation of digital tools and solutions to achieve even more transparent processes and products. For more information, please see the "Digitalization & cyber security" chapter.

The central hub and innovation center at Lenzing is the Research and Development (R&D) department at the company's headquarters in Lenzing (Austria). At the end of the reporting year, 218 staff (2021: 222; 2020: 212) were working here on various innovation projects, in most cases in close cooperation with other departments. Noteworthy examples include the newly formed Digital Innovation department and the Performance, Improvement & Technology department. This interconnectedness is also reflected by the fact that staff from R&D regularly transfer to other departments and often follow the R&D projects to their conclusion. Another distinctive feature is the 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), accounted for EUR 34.8 mn in 2022 (2021: EUR 31.6 mn, 2020: EUR 34.8 mn). The 1,574 patents and patent applications (in 182 patent families) that Lenzing holds in 53 countries worldwide are another indication of the Lenzing Group's innovativeness. The focus for new patents is clearly on sustainable innovations such as the forward-looking solutions of LENZING™ Web Technology and TENCEL™ Luxe or textile recycling.

Sustainability drives innovation

MANAGEMENT APPROACH

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

[GRI 3-3]

Actual and potential negative and positive impacts

Positive

- Strengthening market position in 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

Negative

Own activities:

- "Greenhushing" – producing sustainable materials/products but not being able to communicate
- Loss of reputation from not being transparent
- Potential regulatory, technology and market risks

Policies and commitments

- Better Growth strategy
- Partnering for systemic change as part of the "Naturally positive" sustainability strategy
- Sustainability Policy

Actions taken

- Further extension of LCA studies for standard and specialty fiber portfolio
- Further extension of low-carbon fiber products with corresponding offsets of remaining emissions
- 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 contributed to Textile Exchange's Corporate Fibers and Materials Benchmark Program (CFMB) including the Biodiversity Benchmark
- Completion of Textile Exchange's MMCF Producer Transparency Questionnaire to provide information about the sustainability performance at the group and production site level
- Lenzing contributing to leading multi-stakeholder initiatives
- Broad range of third-party certifications
- LCA update involving independent party
- Alignment with Material Sustainability Index (MSI) of the Sustainable Apparel Coalition (SAC)

Sustainability targets, measures and progress

For more information, please see the "Sustainability targets, measures and progress" chapter.

Responsible

- VP Global Nonwoven Business

- Group Policy for Safety, Health and Environment
- Group Environmental Standard
- Wood and Pulp Policy
- Branding Strategy
- Higg MSI

- VP Global Textile Business
- VP Global Purchasing

Supporting

- Corporate Sustainability
- Global QESH
- Research & Development

Sustainability acts as guiding principle for innovation and product development. Every process, product, or application innovation is evaluated for sustainability from the very beginning. Key considerations include the life cycle perspective and the net-benefit principle over the entire value chain, which 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 form the basis for Lenzing's strategic efforts to green the value chain. Sustainability targets for air emissions, water emissions, pollution, climate protection, and the circular economy are the cornerstones of Lenzing's responsible entrepreneurship and act as innovation drivers.

Funding for sustainable developments

Sustainability criteria are becoming more and more important as guidelines and requirements for R&D funding, both on national and European level. Lenzing, which has been active in this field for a long time, uses this opportunity not only to boost in-house developments but is also active in cooperative research projects.

Lenzing was one of the few companies to receive the highly coveted "Green Frontrunner" funding for a project in the first call in 2021. Entitled "Green Frontrunner – New Technologies for Sustainable Growth", the project, which runs from June 2021 to May 2025, encompasses several technology topics related to the reduction of emissions in pulp and fiber production. The project will make a significant contribution to achieving Lenzing's goal of being CO_2-neutral by 2050, while at the same time expanding production. Technologies with various degrees of maturity will be examined; some will be implemented rather quickly, while others will offer new possibilities on a long-term horizon.

One example for a cooperative project is REWAI (Reducing Energy and Waste using AI), which runs from April 2022 to March 2025 with the partners Pro²Future, University Linz, Technical University Graz and Lenzing. The goal of the project is to use already existing sensor data from a fiber production line (in combination with additional sensors where needed) to create a predictive model for fiber quality. This will allow immediate response by the operators, which will result in less low quality output and as a consequence a reduction in energy and resources since there is no longer a need for additional handling of the low grade fibers. Lenzing is also a partner in the EU-funded CISUTAC (Circular and Sustainable Textile and Clothing) project, which aims at transitioning the textile sector to a circular and sustainable model. For more information, please see the "Stakeholder engagement" chapter.

Resource-and energy-efficient production processes (and the R&D infrastructure) are the foundation for the development of new fibers that offer both sustainability and performance. These fibers serve as raw materials for the textile and nonwoven chains and are often developed together with value chain partners or other stakeholders. As new fibers are mainly tailored to special application fields, this goes hand in hand with the development of the respective applications.

Wood and hemp: a perfect match

A TENCEL™ Limited Edition using hemp was developed together with Candiani Denim in 2022 to push the boundaries of innovation and further inspire sustainability across the textile industry value chain. Hemp as a portion of the pulp input is thereby replacing wood content as the main cellulose source for TENCEL™ Lyocell.

Hemp is recognized as a highly sustainable fiber and an alternative to many classic fibers used in fabrics. Unfortunately, it is equally renowned for its roughness. By applying Lenzing's responsible closed-loop and resource-efficient manufacturing process, hemp pulp, along with wood pulp was transformed into a soft lyocell fiber. The fiber has been the basis for the world's first biodegradable stretch denim fabric made by Candiani Denim.

The launch of the TENCEL™ Limited Edition using hemp pulp again underlines Lenzing's pioneering role in developing highly sustainable production processes and in bringing innovations to the market together with committed partners.

Matte TENCEL™ branded lyocell fibers - Enhancing the look of denim with eco-friendly credentials

The Lenzing Group has expanded its sustainable offering for the denim industry with the introduction of matte TENCEL™ branded lyocell fibers. The new fiber type is specially designed to scatter light and permanently diminish sheen in denim applications, further enabling versatility of indigo-dyed denim fabrics.

By combining functionality with aesthetics, matte TENCEL™ Lyocell fibers increase versatility in denim designs while reducing the ecological footprint of the resulting fabric and garment. Produced by a resource efficient closed-loop production process, the new fiber type maintains all the comfort benefits of standard TENCEL™ Lyocell fibers to bring next-to-skin smoothness while giving dark indigo dyed fabrics a deep and lusterless appearance.

Hydrophobic cellulose fibers for sustainable nonwovens

The development of a hydrophobic lyocell fiber widens the fiber portfolio of Lenzing and allows the replacement of synthetic fibers with a cellulosic fiber which is compostable under home and industrial conditions and biodegradable in soil, thus offering an alternative to conventional synthetic fibers. In addition, the cellulosic fibers show increased softness and therefore are beneficial for future product developments in applications touching the skin like hygiene products or wipes. Furthermore, the hydrophobic behavior of the cellulosic fibers leads to a different behavior towards lotions

allowing lotion amounts and formulations to be adjusted, thus widening the options of nonwovens producers, especially when looking into 100 percent cellulosic options.

The development of the hydrophobic fibers was extended to a wide range of application developments for hygiene products, to a large extent in cooperation with customers. The results clearly show that cellulosic fibers have the potential to be used in hygiene applications in a much wider range than today. Further work is planned in the future optimizing product properties in collaboration with customers while reducing the overall ecological footprint.

Smart blends for improved performance
The change from conventional wipe blends containing up to 80 percent synthetic fibers to 100 percent cellulosic fibers leads usually to thinner wipes as cellulosic wipes collapse when wet. Therefore, the main development goal was to achieve the wet thickness of conventional wipes with a 100 percent cellulosic fiber blend while preserving the tensile strength. The goal was achieved in 2022 by changing the fiber blend and machine settings.

100 percent cellulosic flushable wipes
The Single-Use Plastic Directive (SUPD) heightens the need to offer 100 percent cellulosic wipes with sufficient strength and products that are flushable for safe and convenient disposal. As the usage of flushable wipes has increased over the years, the definition of flushability has become stricter. Therefore, Lenzing has worked on gaining a fundamental understanding of the relevant fiber properties and final product performance. Based on this work, Lenzing obtained the Fine to Flush certification from Water Research Center (WRC) as well as conducted and passed all the tests from the stringent International Water Services Flushability Group (IWSFG) guidelines, demonstrating that LENZING™ Lyocell fine short cut fibers with eco disperse technology are a suitable ingredient for flushable wipes.

Wet laid developments as basis for transition into 100 percent cellulosics
In addition to flushable material, further progress has been made in developing high-strength wetlaid products, which have been presented to customers. The wetlaid technology offers access to 100 percent cellulosics using a large proportion of wood pulp. Because a high proportion of pulp can be used, the process results in lower raw material costs than 100 percent cellulosic spunlace. Interest in wipes based on this technology has therefore increased over time. Lenzing's development work focusing on optimizing tensile strength and productivity has been of considerable interest to customers. Also further development to optimize the processability of the fibers in the downstream processes has been started. Initial results in 2022 clearly show that the number of web failures in customers' trials were reduced significantly, thus helping to lower the amount of waste material.

Net-benefit concept

Lenzing's net-benefit products offer positive impacts and benefits to the environment, society, and value chain partners to a greater extent 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. Customers can replace resource-intensive products with Lenzing's alternatives, thereby improving their product footprint and reducing supply chain risks.

The three strategic principles of the "Naturally positive" sustainability strategy and the underlying focus areas are combined in the net-benefit concept.

Products and technologies with a net-benefit

Carbon-zero TENCEL™ and VEOCEL™ branded fibers
Lenzing launched new carbon-zero TENCEL™ branded lyocell and modal fibers for application in the textile industry and added its first nonwoven carbon-neutral lyocell fibers under the VEOCEL™ brand in 2021. The new fibers are certified by ClimatePartner in accordance with the ClimatePartner Protocol , the leading global framework for measuring greenhouse gas emissions.

The fibers help to 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 for the long term. The three pillars of "Reduce", "Engage", and "Offset" actively contribute to lowering the product's carbon footprint by reducing emissions as far as the current technological and economic conditions allow. These products have the lowest carbon footprint in respective fiber categories and can therefore contribute to the further reduce the customers' upstream emissions. For more information, please see the "Climate & energy" chapter.

LENZING™ ECOVERO™ viscose fibers and VEOCEL™ specialty viscose fiber with Eco Care technology
LENZING™ ECOVERO™ branded viscose (for textiles) and VEOCEL™ specialty viscose fiber with Eco Care technology (nonwovens) show a 50 percent reduction in greenhouse gas emissions and water impact compared to generic viscose (according to Higg-MSI[40]).

TENCEL™ Modal with Eco Color technology and TENCEL™ Modal with Indigo Color technology
Fibers with this technologies incorporate pigments during fiber production and thus help avoid downstream and energy-intensive conventional dyeing processes. A fabric made from these fibers has 60 percent lower greenhouse gas emissions than conventionally dyed fabrics[41].

First launched in 2021, TENCEL™ Modal with Eco Color technology has been established as the solution to address the demand for eco-responsible fiber alternatives among denim brands and -retailers. The technology incorporates indigo pigment directly into TENCEL™ branded modal fibers using a one-step, spun-dyeing process. Such process delivers superior color fastness relative to conventional indigo dyeing. Compared with traditional rope-dyed indigo yarns, the production of TENCEL™ Modal fiber with Indigo Color technology saves around 99 percent of the water and electricity, 80 percent of the chemicals and even 100 percent of the heat energy in the dyeing and finishing of fabrics, and thus significantly reducing the ecological footprint of denim products. In 2022,

40 Based on Higg MSI database v3.5 (Dec 2022).

41 Terinte, N., Manda, B.M.K., Taylor, J., Schuster, K.C. and Patel, M. (2014). Environmental assessment of coloured fabrics and opportunities for value creation: spin-dyeing versus conventional dyeing. In: Journal of Cleaner Production 72, pp. 127–138

TENCEL™ Modal fiber with Indigo Color technology won the International Textile Manufacturers Federation (ITMF) Award for Sustainability and Innovation.

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 on 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 in a ratio of up to 30 percent with 70 percent of 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. The fibers are subsequently produced with high levels of resource efficiency in a closed-loop production process. For more information, please see the "Circularity & resources" chapter.

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 low environmental impact due to low process water and energy use and raw materials consumption and state of the art recovery systems. 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, yarn spinning processes contribute to 28 percent of the total GHG emissions of the textile value chain (excluding use phase)[42].

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 cellulose 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 and predominantly produced in the company's own biorefineries[43]. Lenzing's biorefinery process ensures that 100 percent of the wood is used to produce dissolving wood pulp for fiber production, biorefinery products, and bioenergy. All the pulp produced at Lenzing pulp production sites is totally chlorine-free. For more information, please see the "Raw material security" chapter.

Lyocell

Lyocell fibers from Lenzing are derived from the renewable raw material 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 99.8 percent. Lenzing's lyocell fibers show around 50 percent lower greenhouse gas emissions than generic lyocell (according to Higg-MSI[44]).

Modal

At the Lenzing site Modal fibers are produced using an integrated production process in which the raw material pulp is manufactured at the same site as the fiber itself. Raw material from beechwood and spruce is converted into cellulose and other biorefinery products. Beech forests grow naturally without the use of chemical fertilizers or artificial irrigation. 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 in production than generic modal fibers (according to Higg-MSI).

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 will be also available as carbon-neutral alternative to conventional fossil-based acetic acid, substantiated by a study conducted by an independent Life Cycle Assessment (LCA) consultant.

Process innovations drive 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. These measures allow effective cleaning of the exhaust gases and compliance with (and surpassing) the emission regulations.

The foundation for sustainable innovations is the use of highly sophisticated production processes for pulp (including biorefinery products) and fibers (viscose / modal and lyocell). The lyocell technology platform has been expanded to the production of additional materials already, namely filament and direct-spun web. A number of new innovations have been developed in recent years that have significantly improved the lyocell process in terms of efficiency and quality but also in reducing energy and process chemical consumption, thereby improving the already sustainable lyocell process overall.

In terms of process improvement, R&D has developed an alternative technology to suspend dissolving wood or recycling pulp in solvent that requires not only fewer process steps and less energy but also yields better-quality spinning dope. As a consequence less

42 2018 Quantis Report „Measuring Fashion"

43 In addition to its own dissolving wood pulp production, Lenzing procures dissolving wood pulp in the global market.

44 Based on Higg MSI database v3.5 (Dec. 2022)

CLEAN TECHNOLOGY INVESTMENTS IN THE LENZING GROUP

State-of-the-art lyocell plant in Thailand

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 environmental impact. The process has a solvent recovery rate of more than 99.8 percent, which lowers water and chemical use. The state-of the art lyocell plant 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 expansion of clean technology within the Lenzing Group reflects the company's commitment to improving the ecological footprint of the global textile industry.

filtration effort is needed that on the other hand reduces filter reject, creates less waste streams and improves the overall yield.

Another focus in recent years has been the development and manufacturing of new spinnerets, which are the hearts of every fiber production plant. These developments resulted in higher output per spinning end (reduction of specific energy demand), more stable spinning performance and thus improved fiber quality (less low grade fibers or cellulosic waste). Both improvements ultimately lowered greenhouse gas emissions. All these developments have already demonstrated their benefits in the expansion project in Heiligenkreuz, Austria as well as in the lyocell plant in Thailand.

R&D is also continuously working on online analytical methods to analyse various production streams in real time, a requirement for realizing digitalization and automatization and future benefits like online grading, fiber production optimization in terms of quality and energy consumption. One current focus is the development of technologies to more efficiently remove water from different process streams compared to the standard evaporation technologies, which are very energy-intensive. These technologies may again significantly help to further reduce energy consumption and thus the CO_2 footprint per ton of produced fibers.

In addition, projects are ongoing to also further reduce water and process chemical consumption. These activities are accompanied and supported by simulation and modeling. In the near future, Lenzing will significantly enhance its textile recycling activities - a very challenging task that not only includes the production of recycling pulp but also has to deal with the processability of recycling pulp in different fiber production processes. Success requires a holistic approach from pulp to fiber production to final applications in the textile and nonwovens. These activities may result not only in necessary modifications of the pulp production processes and the selection of feedstocks but also in adaptions or even new technologies in fiber production processes.

A current focus is on boosting biorefinery integration at Lenzing's pulp sites and therefore on increasing the usage of the raw material of wood. Several projects related to pulp production deal with the closure of loops (e.g. selective sulfur dioxide absorption, increased caustic soda recovery) and the reduction of wastewater (e.g. sulfate in pulp and viscose fiber production). Increasing energy efficiency and reducing carbon emissions are other topics of growing importance.

Activities in this field go beyond regular continuous improvements and seek innovative solutions to reach the ambitious goals set by Lenzing via its science-based targets (SBTs). In order to achieve maximum impact, pulp and fiber production are increasingly being assessed together to find interactions and synergies. A concrete example in this regard relates to reducing the energy consumption of evaporating aqueous systems by using membrane processes. These processes can be used for both pulp and fiber production, thereby demonstrating the Group's holistic approach in process innovation.

EU BAT

All Lenzing sites in the EU, including one viscose plant, two lyocell plants, and two pulp plants, continuously met or exceeded the applicable EU BAT performance in 2022, which are set out in several EU best available technology reference documents. Compliance with EU BATs is the basis for the issuance and review of environmental and operating permits for the plants and is continuously monitored by the competent authorities in the EU Member States. Compliance monitorings, as well as requirements relating to management, monitoring program, reporting, etc., are also carried out in accordance with the EU BATs.

The EU BAT cannot be invoked outside the EU. All products produced in Lenzing production sites outside the EU, with the exception of one viscose plant in Indonesia, therefore have the EU Ecolabel for best-in-class performance. In 2022, the Lenzing production site in Thailand was successfully awarded the EU Ecolabel and became the latest facility in the Group to produce products with the EU Ecolabel certificate. In line with the sustainability target, the viscose site in Indonesia aims to achieve the EU Ecolabel in 2023 (targets 1 and 5).

Lenzing is also continuously working on improvements in other business areas. It is fully committed to the Supplier to Zero roadmap of the multi-stakeholder Zero Discharge of Hazardous Chemicals (ZDHC) initiative. All three viscose sites continued their biannual reporting to the ZDHC gateway in 2022. Progress has been made towards achieving the Aspirational Level as set in the sustainability target.

EU Ecolabel

EU Ecolabel criteria

Table 23

Man-made cellulose fibers criteria	Limit
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

The EU Ecolabel was established by the European Commission in 1992. It is an environmental quality label awarded to products and services that have a lower environmental and health impact than comparable goods throughout their entire lifetime. 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. For the Lenzing Group, this means that continuously stricter criteria have to be met in pulp and fiber production, both 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 Ecolabel.

Chemical management

A group-wide chemical management standard is currently under development featuring comprehensive chemical inventories, approval processes, etc. with customization provided by an external IT consultant. It includes a hazard and exposure assessment for each chemical in order to demonstrate its safe use for workers, the environment, and the use of the products. The chemical management transition 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. Group wide Chemical Management Standard will be rolled out in Q2 2023.

MANAGEMENT APPROACH

Material topic: Chemicals & toxicity

[GRI 3-3]

Actual and potential negative and positive impacts

Positive

- Compliance with stakeholder expectations (e.g. Zero Discharge of Hazardous Chemicals)
- Opportunity to reduce impact on Lenzing scope 3 CO_2 footprint via good supplier motivation efforts

Negative

Own activities:

- Negative health and environmental impacts
- Negative environmental and social impacts can lead to reputational damage

Business relationships:

- Regulatory changes and changing classification of chemicals
- Negative health and environmental impacts

Policies and commitments

- Heartbeat for Safety and Health initiative
- SHE Policy
- Higg FEM 3.0
- Group Environmental Standard

Actions taken

- Safety & Health KPIs
- Emission KPIs
- Lenzing contributing to leading multi-stakeholder initiatives (ZDHC, SAC, EU-BAT)
- Increase in the number of chemical suppliers
- Overall EcoVadis score of Lenzing Group suppliers higher than the average EcoVadis score
- Supplier engagement to procure “low-carbon” caustic soda
- Environmental management system in accordance with ISO 14001:2015 (including risk assessment and internal audits to ensure the effectiveness of the measures implemented)
- Regular Global SHE meetings with management review
- EcoVadis supplier assessment
- Integral part of internal communication (SHE-topics prioritized)

Sustainability targets, measures and progress

For more information, please see the “Sustainability targets, measures and progress” chapter.

Stakeholder

- Zero Discharge of Hazardous Chemicals (ZDHC)

For more information, please see the “Stakeholder engagement” chapter.

Responsible

- Global Purchasing
- Global QESH
- Site managers

Product quality and safety

MANAGEMENT APPROACH

Material topic: Product assurance

[GRI 3-3; ESRS S4-1, S4-2, S4-3, S4-4, S4-5]

Actual and potential negative and positive impacts

Positive

- Leading the market in terms of best product consistency, application performance, and service
- Achieving business and sustainability targets by monitoring and improving manufacturing processes

Negative

Own activities:

- Impact on health and safety of Lenzing product users

Business relationships:

- Losing market position due to increasing competition or new technologies

Policies and commitments

- Lenzing's Better Growth Strategy
- Group Policy for Quality
- Group Policy for Safety, Health and Environment
- Group Policy for Product safety
- Lenzing Group's ISO 9001:2015, ISO 14001:2015, ISO 45001:2018 certifications
- Global Code of Business Conduct
- Global Supplier Code of Conduct
- Cleaning and Hygiene Guidelines

Actions taken

- Collaboration across the entire value chain to support customers and brands
- Roll-out of the Cleaning and Hygiene Guidelines across all sites
- Roll-out of automated quality performance reports and visualizations providing real-time information to the Lenzing community
- Optimization of customer service processes to improve the customer experience
- QESH process management including risk assessments and internal audits to ensure the effectiveness of the measures and standards implemented
- Roll-out of a Chemical Management Group Standard
- Overview and monitoring of product safety & regulatory relevant legislation and regulations
- Evaluate new legislations or changes in directives, regulations and standards according their impact on Lenzing products and their intended uses
- Uphold an extensive third-party certification portfolio to demonstrate the safety of the products in the appropriate area of use
- Regular tests of products against stringent external third-party standards, norms and regulations for product safety and compliance in the respective areas of use
- Maintain a database of intentional product ingredients and perform risk assessments
- Implementation of a holistic Management of Change (MoC) process
- Continuous Improvement of customer satisfaction survey tooling and process

Sustainability targets, measures and progress

- Establish the Chemical Management at all sites
- Risk assessments carried out for all new ingredients and new suppliers
- Achieve third-party certifications according portfolio including new certifications based on NCR process

For more information, please see the "Sustainability targets, measures and progress" chapter.

Responsible

- Global QESH

Supporting

- Global Business Management (Textiles and Nonwovens)
- Global Business Management (Pulp and Wood)
- Global Engineering
- Performance.Improvement.Technology
- Global Technical Marketing Development
- Research & Development
- Customer Service

[GRI 2-23, 2-25, 416-1, 416-2, 417-2; ESRS S4-1, S4-3]

To uphold the quality standards and fulfill our commitment as described in our Quality Policy, Lenzing invests in people and innovation and engages actively with raw material suppliers to establish long-lasting relationships. Constant customer feedback and competitor benchmarking ensures continuous improvement in our operations, services and products and delivers added value to Lenzing and customers. Independent third-party certifications are in place to certify standards, products, and management systems.

In this respect, Lenzing operates a quality management system based on ISO 9001:2015. Additional quality management systems such as FAMI-QS and Hazard Analysis Critical Control Points (HACCP) are in place for specific business segments. All form the basis for the relevant work processes and reinforce efforts to achieve complete customer satisfaction. Product Safety & Regulatory Affairs manages the majority of external third-party certifications on a global level and assesses new certification requests. These certificates serve to ensure transparency and demonstrate

the safety and compliance of Lenzing fibers as well as their compatibility in their application fields. Information on all the Lenzing Group's product certifications are available at: https://www.lenzing.com/sustainability/product-benefits/

It is imperative that Lenzing's products meet and, whenever possible, exceed applicable safety standards and legislation. In the Lenzing Product Safety Policy, Lenzing pledges to drive compliance with this policy and high internal standards on a continuing basis through appropriate reviews and evaluations.

The Product Safety & Regulatory Affairs department (part of Global QESH) is globally responsible for the safety of Lenzing fibers in their intended uses and for compliance with laws, regulations, and standards that apply to the nonwoven and textile fiber businesses. Therefore, risk analyses for all intentional and non-intentional ingredients are carried out and the impact of business-specific regulations, standards, and requirements is continuously monitored and assessed. 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.

Product quality and safety activity: 2022 summary
The newly introduced production site in Thailand has demonstrated a steady improvement of its quality metrics in line with its ramp-up plans. Despite COVID-19-related disruptions, pulp availability problems, energy prices and global political developments, which created additional quality problems in some factories, deviations in quality were further reduced. Although improvement in key defect categories continued in most of Lenzing's lyocell and viscose factories, performance is expected to be comparable to 2021, which is reflected in the quality-related KPIs for the entire Group (e.g., reduction of poor quality share).

In 2022, several of the Fiber Quality strategic initiative projects achieved their goals, while others are in their last phase with completion date in the first half of 2023. Deliverables from these projects are: a) the introduction of guideline documentation and system for process modeling and presentation as well supporting templates, b) the organization of a global quality conference where winning quality practices and behaviors were presented, c) introduction of processes that accelerate internal activities that support service quality and customer intimacy (e.g., an end-to-end "Voice of the customer process" that focus on the effective translation of customer requests into needs and internal requirements and their consecutive conversion into new or change in existing products and services).

Good results for 2022
In 2022, the number of product and logistics complaints for the fiber business remained at the same level as 2021. The current performance indicates the effectiveness of the quality improvements implemented in both product and service quality areas. Lenzing is confident that all of its products perform well in their respective applications. As in previous years, there were no complaints or incidents of non-compliance concerning the health and safety impact of products and services.

Risk analyses and assessments for new intentional and non-intentional ingredients are carried out by performing formal compliance reviews with a newly created template. Business-specific regulations, standards, and requirements are continuously monitored, assessed and documented. In the reporting year, these assessments did not trigger any additional measures in order to be compliant with the high internal standards.

Research collaborations

Scientific collaboration is deeply rooted within Lenzing's R&D. As a pioneer of sustainability Lenzing is actively seeking partners to speed up the developments and to make the necessary impact timely. The collaborations range from large research centers to small individual projects and also include important networking with the scientific community.

For more information, please see the "Stakeholder engagement" chapter.

Alternative sources of raw materials for fiber production
Any plant-based material can potentially serve as a source of cellulose and hence as dissolving pulp for fiber production. Lenzing has undertaken extensive research into many different alternative non-wood cellulose sources. 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.

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 allows an attractive cellulose yield per hectare to be achieved; however, the feasibility of any alternative raw material needs to be assessed on a case-by-case basis.

Based on current data, large-scale and sustainable production of cellulose is still best conducted using wood from well- managed forests instead of the above mentioned alternatives.

At the moment the most promising alternative raw materials to wood are residuals from textile production and used clothing. This is where Lenzing developed the first industrially implemented solution: REFIBRA™ Technology, which uses up to 30 percent of textile waste as feedstock and represents an important step towards achieving a circular economy. In order to progress faster and deliver relevant volumes to the market, Södra and Lenzing teamed up in textile recycling in 2021. They are now jointly developing their respective processes with the goal of implementing a recycling plant with a capacity of 25,000 tonnes in 2025. For more information, please see the "Circularity & resources" chapter.

At the same time, as an innovation company it is Lenzing's aspiration to find new solutions, looking beyond the horizon. After the successful first limited edition fibers with alterantive pulp sources in 2021 (pulp derived from orange residues by Orange Fiber), another limited edition followed in 2022. This time a part of the wood pulp was replaced by hemp pulp and the produced fibers are the basis for the world´s first biodegradable stretch denim fabric, made by Candiani Denim. Within the framework of the INGRAIN innovation alliance the first development project was started together with RWTH Aachen and other partners. Furthermore, Lenzing is in

exchange with manufactures of pulp form alternative cellulose sources (like straw) and evaluating the suitability of these pulps.

The development of further new sources of non-wood-based cellulose in the future will require targeted research into the ecological and economic aspects of industrial production as well as increased cooperation. A number of challenges need to be addressed and are described in more detail below.

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 quantity. 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 pressure on all kinds of forests. Its drawbacks can be seen with palm oil production, for example. As well-managed forests store much more carbon per hectare than annual crops, this trend adversely affects the carbon balance of the entire value chain. The carbon balance must therefore be thoroughly calculated while including all co-products from annual plants.

Another important factor in the 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.

When considering processing, important factors that affect the environmental impact include energy consumption and the use of process chemicals in pulp production. They depend heavily on the actual process and vary significantly from one annual plant to the next. For instance, dissolving pulp can be made with cotton linters, as practiced by the viscose industry in some regions. However, the pulping process uses substantial amounts of chemicals and energy. If cotton linter pulp facilities are not state-of-the-art, resource use, emissions, and waste could be higher for cotton linter pulp.

Technical feasibility
Apart from not causing additional environmental issues, fibers produced with alternative feedstock must meet the same quality criteria as derived raw material wood fibers. The biorefinery process for derived raw material wood fibers is closely aligned with the raw material. This keeps quality and efficiency high and yields 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 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 pulp. This purification typically requires the use of aggressive chemicals and causes waste issues. It is a big challenge to develop new technologies, which help to reduce impact on the environment for these materials while maintaining product quality. By contrast, in woody plants like trees, these components are concentrated in the bark, which can be easily removed in the first stage of the process.

Paper industry experience of these sources is of limited use since dissolving 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.

For more information, please see the "Wood & pulp" focus paper.

Water stewardship

[GRI 303-1, 303-2; ESRS E3-1, E3-2, E3-3]

Along the entire life cycle of Lenzing's products, ensuring access to affordable, reliable, and adequate water supplies is essential to the effectiveness and efficiency of not only Lenzing's operations, but also those of its suppliers, the local communities, and downstream customers. Lenzing is actively engaged in the assessment and management of the water footprint of its operations and products, as well as the associated risks, in order to minimize the direct and indirect impacts.

Lenzing has established an internal Group-wide performance standard on water emissions regardless of site locations. This standard is based on proven industrial processes, such as the EU BAT reference documents and ZDHC standards, and is regularly reviewed and updated.

By using external assessment tools (e.g. World Resource Institute (WRI) and World Wide Fund for Nature (WWF)), the contextualized situation of effluent-receiving water bodies is currently considered from a superficial level but will be increasingly evaluated for the future development of the Lenzing's Group Environmental Standard.

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, which are the subject of Lenzing's Group Environmental Standard and Water Policy. These presuppose continuous monitoring and reporting according to Environmental Management System, GRI, CDP and other water-related standards and guidelines. Figure 20 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 according to Higg MSI data.

MANAGEMENT APPROACH

Material topic: Water use & pollution

[GRI 3-3; ESRS E3-1, E3-2, E3-3]

Actual and potential negative and positive impacts

Positive

- Better product water footprint through higher proportion of Lenzing pulp and expansion of specialty product manufacturing
- 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

Negative

Own activities:

- Physical risk of water scarcity affecting operations
- Water pollution can affect the health of employees and community residents as well as the surrounding environment

Business relationships:

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

Policies and commitments

- Group Water Policy
- "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

Actions taken

- Update of life cycle methodology to assess water footprint of products and technologies
- Integration of global water-related assessment tools into risk management
- Further development of Environmental Key Data (EKD) reporting to comply with updated GRI indicator requirements
- ZDHC MMCF wastewater guidelines implemented at viscose production sites
- CDP water reporting
- 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

Sustainability targets, measures and progress

For more information, please see the "Sustainability targets, measures and progress" chapter.

Stakeholder

- Zero Discharge of Hazardous Chemicals (ZDHC)

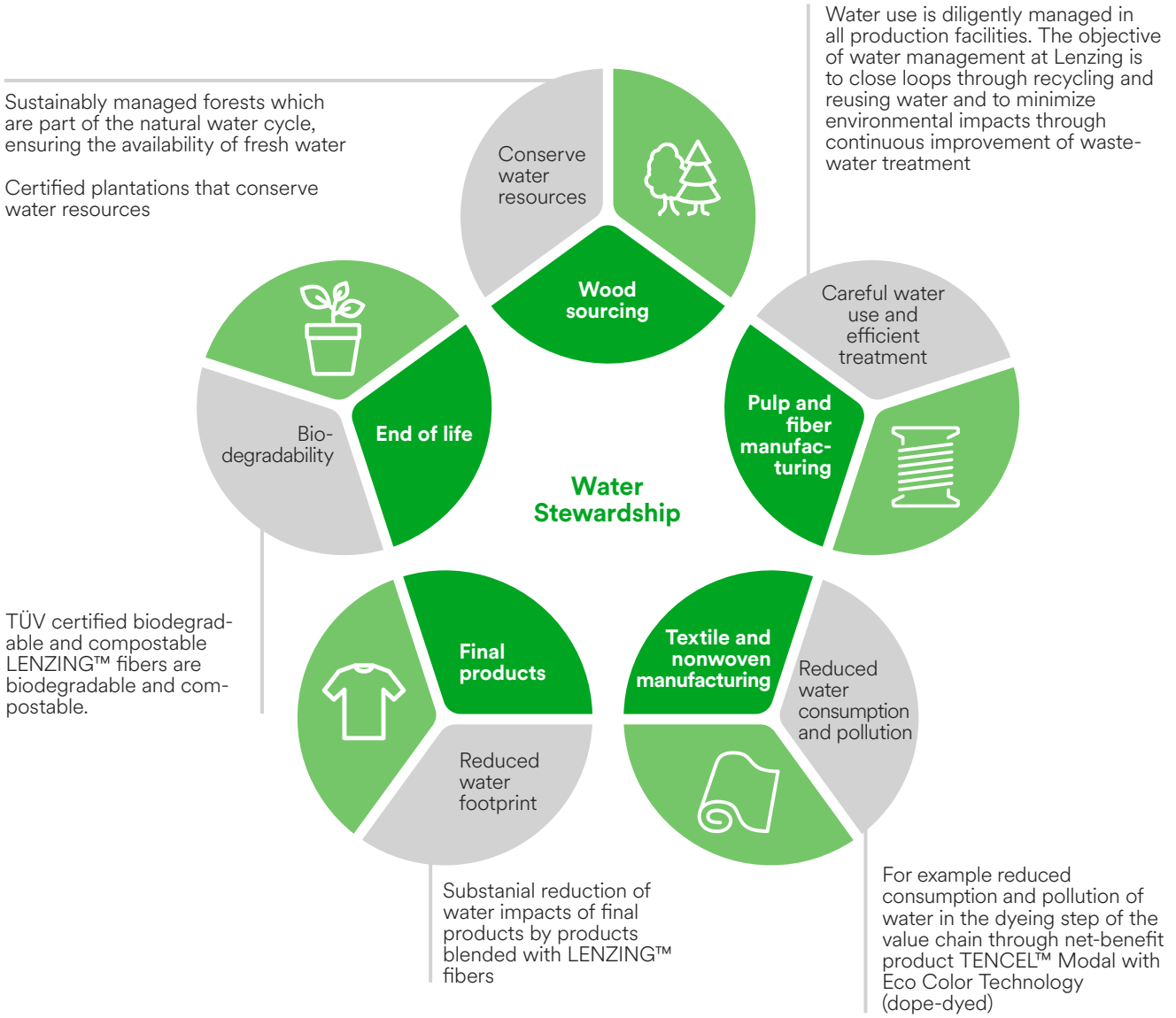
For more information, please see the "Stakeholder engagement" chapter.

Responsible

- CEO
- Site managers

Supporting

- Global QESH
- Performance.Improvement.Technology



Especially at the product level, LCA is the primary tool being used for assessing cradle-to-gate impacts and identifying areas for improvement within direct and indirect operations, i.e. pulp and fiber production or upstream supply. The procedure is supported by the environmental data collection process from in-house operations, including water use, effluents, and discharge of priority substances of concern, as well as gathering a growing volume of primary data on water use from suppliers. This approach is complemented by corporate water risk assessment, contextualizing qualitative and quantitative information of the supply chain and own production with WRI Aqueduct Water Risk Atlas and WWF Water Risk Filter. They not only support the evaluation of current water situation at specific locations but also provide insight into future scenarios due to the effects of climate change on water availability and quality.

In order to ensure water quality and availability at Lenzing's operational sites, Lenzing aims to continuously reduce water consumption and water-related emissions. Various elements are considered within the target-setting process, which acknowledges that the water scarcity situation is changing in many regions due to climate change. In this respect, Target-setting will thus also consider the future of water resources aspects.

Lenzing considers water to be an extremely valuable resource, enabling the 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.

The spinning bath in the lyocell process contains water and the solvent NMMO to dissolve the cellulose polymer prior to spinning. The viscose process uses a mix of process chemicals and water. 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. It enables water to be saved, provides optimal pre-treatment for water discharge, and optimizes fiber properties and quality. With the help of the recovery systems, Lenzing gains marketable co-products and reusable process chemicals. A final wastewater treatment stage reduces effluent charge, aiming to avoid potential harms to receiving water bodies by exceeding local quality requirements.

Water consumption

[GRI 303-3, 303-4, 303-5; ESRS E3-4]

All Lenzing production units are located in regions with high water availability, and are therefore not operated 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 pulp mill at Paskov (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-moistening 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)[a] (≤ 1,000 mg/L Total Dissolved Solids) Table 24

	2014	2020	2021	2022
		All areas		
Surface water	103,000	82,359	87,029	80,851
freshwater	0	82,359	87,029	80,851
other water	0	0	0	0
Groundwater	14,000	12,730	12,980	14,335
freshwater	0	12,730	12,980	14,335
other water	0	0	0	0
Seawater	0	0	0	0
freshwater	0	0	0	0
other water	0	0	0	0
Produced water	0	0	0	0
freshwater	0	0	0	0
other water	0	0	0	0
Third-party water	0	6,849	6,726	5,701
freshwater	0	6,849	6,726	5,701
other water	0	0	0	0
Total water withdrawal	**117,000**	**101,938**	**106,735**	**100,887**

a) Freshwater (≤1,000 mg/L Total Dissolved Solids), Other water (>1,000 mg/L Total Dissolved Solids)

The effects of disrupted supply chains in 2022, especially in the textile industry, were similar to the pandemic year of 2020, e.g. unstable productions and idled lines. This is reflected in the sustained lower absolute water use and water consumption, but consequently also in a higher value (runaway) of specific water use (tables 25 and 26).

Specific[a] water use in the Lenzing Group Index in percentage based on m³/t, 2014 = 100 % Table 25

	2014	2020	2021	2022
Specific water intake/extracted	100%	96.2%	90.2%	93.9%

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

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

Water consumption (in megaliters) Table 26

	2014	2020[a]	2021	2022
Total water consumption	9,000	5,151	8,741	8,087

a) Due to subsequent corrections of the wastewater volumes at the Lenzing site, there is a reduction in water consumption of about 19 percent in the figures of 2020.

Water discharge Table 27

	2014	2020	2021	2022
Water discharged by destination (in megaliters)				
Surface water		39,008	40,860	35,166
Groundwater		0	0	0
Seawater		0	0	0
Third-party water		57,779	57,133	57,633
of this amount 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)		67,673	69,772	66,496
Other water (>1,000 mg/L Total Dissolved Solids)		29,114	28,222	26,304
Total water discharged	**108,000**	**96,787**	**97,993**	**92,799**

Wastewater (water effluents)

[GRI 303-1, 303-2, 303-4; ESRS E2-2, E2-4, E2-5]

The management of water discharge-related impacts is reported in chapter "Water stewardship".

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. In order to meet even more ambitious Lenzing Environmental Group Standards, planning has begun for the construction of a wastewater treatment plant at the Grimsby site in cooperation with local government with a view to applying new technology from an ongoing R&D project.

Organic chemicals from waste streams from the pulp production process are extracted early on in the biorefinery process at the Lenzing (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.

Lenzing's plant in Purwakarta (Indonesia) is making good progress in improving its wastewater after a project was launched in 2018. Waste collection and treatment systems are flagged to be upgraded to ensure that wastewater treatment performance is always able to meet local regulations and future requirements. The project also involves constructing a water treatment system and repairing an existing rainwater drainage system. The project is targeted for completion mid-2023. This is in line with Purwakarta's (Indonesia) future project targets, which strongly support sustainable improvements that reflect best available technologies.

In 2021, another WWTP upgrade project was approved for the site of Mobile, USA. The lyocell plant was one of the first of its kind and will undergo a modernization of the existing WWTP in order to meet the Group's sustainability strategy and target for COD emissions. This investment will not only help to fulfill future ZDHC requirements for lyocell production but will also allow potential enlargement of fiber production capacity. The project includes the refurbishment of existing structures and new modular elements for the most up-to-date waste water treatment. The investment thereby extends the life cycle of the WWTP. After the project was successfully approved, construction work was initiated in late 2021. Conceptual design and clearance work continued in 2022. The project is on schedule and expected to be commissioning by the end of 2023.

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 Ecolabel, and 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.

The Group Environmental Standard is designed to reflect the benchmarks and emission thresholds of the best available technologies for industrial pulp and fiber production. The ambitious framework of the standard aims for continuous improvement. That said, 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. Total emissions of COD and amines maintained same levels compared to last year, while sulfate emissions decreased due to lower viscose production. This is also true for specific sulfate emissions. On the contrary, higher but still slightly instable lyocell operations led to an increase of specific emissions of amines (tables 28 and 29).

Absolute emissions to water after wastewater treatment plant (t) Table 28

	2014	2020	2021	2022
COD	6,110	5,510	5,666	5,056
SO_4	173,648	177,003	182,576	143,528
Amines	198	233	247	250

Specific[a] emissions to water after wastewater treatment plant (t) Table 29

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

	2014	2020	2021	2022
COD	100 %	99.60 %	91.70 %	90.10 %
SO_4	100 %	112.60 %	104.00 %	90.00 %
Amines	100 %	130.10 %	123.30 %	137.70 %

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

Air emissions

MANAGEMENT APPROACH

Material topic: Air emissions

[GRI 3-3]

Actual and potential negative and positive impacts

Positive

- Further improvement and development of closed-loop processes and recovery technologies
- Showing leadership in pulp and fiber production with low environmental and social impacts

Negative

Own activities:

- 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

Business relationships:

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

Policies and commitments

- "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

Actions taken

- LURA III (air cleaning system) started operations as part of viscose modal production at Lenzing
- Lenzing contributing to leading multi-stakeholder initiatives (ZDHC, SAC, etc.)
- Continuous improvement activities to further reduce air emissions
- 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

Sustainability targets, measures and progress

For more information, please see the "Sustainability targets, measures and progress" chapter.

Responsible

- CEO
- Site managers

Supporting

- Global QESH
- Performance.Improvement.Technology

[GRI 305-7; ESRS E2-4, E2-5]

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 increasing cycles and recovery systems. Although all of the Lenzing Group's viscose fiber production sites (Lenzing, Austria; Nanjing, China; and Purwakarta, Indonesia) are equipped with waste gas purification and recovery technologies, some carbon disulfide (CS_2), hydrogen sulfide (H_2S), and sulfur dioxide (SO_2) is emitted from the process itself and from on-site energy production. The planned second carbon absorption plant (CAP) project in Indonesia is on schedule. It will be essential for reducing specific sulfur emissions by 50 percent by 2023 (sustainability target 1).

In 2022, the absolute and specific air emissions reduced slightly compared to 2021 due to lower production level. CS_2 emissions have fallen at the Austrian site in Lenzing due to the new emission treatment system that went into operation at the beginning of 2021 (table 30).

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 99.8 percent.

For more information about important steps taken in 2022, please see the "Sustainability targets, measures and progress" chapter.

Absolute emissions to air[a] Table 30

	2014	2020	2021	2022
Sulfur emissions (t) (CS_2, H_2S emissions expressed as sulfur)	34,787	19,187	25,969	21,449
SO_2 emissions (t)	3,908	2,135	2,603	2,419
NO_x emissions (t)[b]		587	1,321	946

a) Sulfur emissions were calculated using mass balance, and SO_2 emissions are based on measurements.

b) NO_x data is only available on Group level from 2019 onwards respectively for the Indonesian production facility since 2021.

Specific emissions to air Table 31

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

	2014	2020	2021	2022
Sulfur emissions	100 %	60.90 %	73.80 %	67.10 %
SO_2 emissions	100 %	60.30 %	65.90 %	67.40 %

For more information about other waste streams besides waste water and air emissions, please see the "Waste management" chapter.

Health & safety

MANAGEMENT APPROACH

Material topic: Health & safety

[GRI 3-3; ESRS S1-1, S1-5]

A safe working environment with supportive health systems for Lenzing's employees are as critical to business success as eco-responsible products and production processes. Healthcare at all Lenzing locations has been continously enhanced especially throughout the COVID-19 crisis.

Actual and potential negative and positive impacts

Positive

- A safe work environment, and supportive health measures for employees enables an engaging and contributive workforce
- Upcoming generations of talent are likely to value purpose, fulfilment and social responsibility more highly than ever before
- Educating, training and motivating employees to behave safely and to care for each other
- Occupational medical services to ensure that employees are fit and well, offering health surveillance to support workplace risk management and employee health screening to support health and wellbeing
- Protecting people based on the belief that every adverse event, injury and occupational illness is preventable

Negative

Own activities:

- Occupational health and safety risks for own employees, visitors and contractors
- Talent attraction and retention

Policies and commitments

- Better Growth strategy
- HR Strategy
- Policy for Safety, Health and Environment
- ISO 45001:2018 certification
- Global Code of Business Conduct
- Global Supplier Code of Conduct
- Health guiding principle ("House of Health")
- Life-Saving Rules Group Guideline

Actions taken

- Health Climate Index survey for employees to develop a work climate everybody feels comfortable with
- Health promotion campaigns e.g: Boost your immune system
- "ZUKUNFT SICHERn" (Safe Future) safety project at the Lenzing site
- COVID-19 care measures: offering vaccinations, tests
- Total recordable frequency rate reaching group target
- Regularly held safety webinars
- Lenzing Corporate Action Plan (COVID-19)
- Safety, Health & Environment Action Reporting System
- Management of risk processes
- Regular Global QESH meeting with management review
- Regular meetings of health and safety committees at every production site
- Heartbeat for Safety Program
- IOSH safety training
- Safety Walks and Talks
- Monthly safety webinars
- Provision of health services
- eMotion program with "Moveeffect" app

Sustainability targets, measures and progress

Lenzing Group target: To reduce the Total Recordable Frequency Rate (TRIFR[45]) to 0.3 by 2025.

For more information, please see the "Sustainability targets, measures and progress" chapter.

Stakeholder

- Employees
- Contractors
- Local communities
- Enforcing authorities
- Certification bodies

For more information, please see the "Stakeholder engagement" chapter.

Responsible

- Managing Board
- VP Global QESH
- VP Corporate Human Resources
- Senior leadership roles
- Health & safety is a shared responsibility through all layers of the organization

Supporting

- Corporate Communications

[45] TRIFR refers to the number of reportable cases in a workplace per 200,000 hours worked

[GRI 403-2; ESRS S1-5]

Employee health and wellbeing is a fundamental prerequisite for the Lenzing Group's long-term success and business growth. Lenzing is morally, ethically and legally responsible for occupational health and safety, which ensures the wellbeing of Lenzing's employees, contractors and visitors (e.g. customers).

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).

Policies

[GRI 2-23, 2-27, 403-4; ESRS S1-1, S1-17]

A safe working environment and supportive health systems for Lenzing's employees are as critical to business success as eco-responsible products and production processes. Lenzing's approach to keeping people safe and healthy is anchored, among other principles, in the Better Growth corporate strategy and the Policy for Safety, Health and Environment. For more information, please see the "Naturally positive" sustainable strategy and the "Business ethics" chapter.

For more information about compliance with laws and regulations, processes to remediate negative impacts, and an overview of any instances of non-compliance, please see the "Business ethics" chapter.

Health and safety committees

Where occupational health & safety committees are a regulatory requirement, formal agreements with worker representatives are in place and all employees of Lenzing are represented by such committees, which operate at a site level. Each individual site is responsible for arranging and maintaining such committees. Specific details on how often the committees meet, agenda items and the make-up of representatives are in the responsibility of the SHE managers and subject to agreement with union representative.

Targets

Lenzing has set a target at Group level to reduce the Total Recordable Frequency Rate (TRIFR) to 0.3 by 2025. Additionally, site targets were developed based on the Group target and actual performance, taking into consideration the size of a site. Building on the TRIFR targets, sites set goals for leading indicators, breaking them down to the departmental level and develop site-specific safety programs that they coordinate with Global Occupational Health and Safety (OHS).

Key figures: occupational accidents and work-related injuries

[GRI 403-9; ESRS S1-14]

Current performance compared to previous years

In 2022, zero fatal accidents were recorded and Lenzing's Total Recordable Injury Frequency Rate (TRIFR)[46] met the current target, with a reduction for employees from 0.8 in 2021 to 0.6. In addition, the TRIFR for contractors decreased from 0.8 in 2021 to 0.4 in 2022. The employee rate for all work-related injuries rose from 3.0 in 2021 to 3.3 in 2022, while the rate for contractors decreased from 1.6 in 2021 to 1.1 in 2022.

High-consequence work-related injury

In terms of broader personnel safety performance, high-consequence work-related injury events (i.e. injuries from which the worker cannot, does not, or is not expected to recover fully to pre-injury health status within six months) have remained at zero since 2019.

Work-related injuries for all employees Table 32

		2020	2021	2022
Total hours worked (productive working hours)		14,572,350	13,661,177 (15,440,743)	16,510,667
i)	Number of fatal injuries	0	0(0)	0
	Rate of fatal injuries	0	0(0)	0
ii)	Number of high-consequence work-related injuries	0	0(0)	0
	Rate of high-consequence work-related injuries	0	0(0)	0
iii)	Number of recordable work-related injuries	67	55(59)	52
	Rate of recordable work-related injuries	0.92	0.81(0.76)	0.6
iv)	Number of work-related injuries or ill health	179[a]	205(220)	272
	Rate of work-related injuries	2.46	3.01(2.85)	3.3

Bracketed data includes major projects in 2021.

a) Reduction partly related to COVID-19

Work-related injuries for other workers Table 33

		2020	2021	2022
Total hours worked (productive working hours)		4,179,812	5,917,437 (30,706,268)	16,500,795
i)	Number of fatal injuries	0	0(0)	0
	Rate of fatal injuries	0	0(0)	0
ii)	Number of high-consequence work-related injuries	0	0(0)	0
	Rate of high-consequence work-related injuries	0	0(0)	0
iii)	Number of recordable work-related injuries	18	23(42)	30
	Rate of recordable work-related injuries	0.86	0.78(0.27)	0.4
iv)	Number of work-related injuries or ill health	31	47(232)	92
	Rate of work-related injuries	1.48	1.59(1.51)	1.1

Bracketed data includes major projects in 2021.

46 TRIFR refers to the number of total recordable cases occuring in a workplace per 200,000 working hours.

Top five work-related injuries Table 34

	2020	2021[a]	2022
The top five work-related injuries for employees	Cuts and lacerations –50 Bruises –21 Strains –17 Chemical burns –15 Abrasions –15	Cuts & lacerations –19 Fractures –11 Strain –6 Hot burn –5 Sprain –5	Cuts & lacerations –64 Bruises –33 Abrasions –32 Chemical burn –32 Strain –23
The top five types of injuries for contractors	Chemical burns –7 Cuts and lacerations –5 Abrasions –4 Fractures –4 Bruises –3	Cuts & lacerations –11 Fractures –5 Bruise –5 Sprain –5 Condition due to substances –4	Cuts & lacerations –20 Foreign body –13 Chemical burn –10 Abrasions –8 Fracture –8

a) 2021 data analysis is for total recordable injuries only

Health care at Lenzing production facilities

[GRI 403-3]

Lenzing gives employees at almost all production sites access to an in-house primary care system and is working on implementing it at all sites in 2023, complementing the existing health systems of the individual countries. This also applies to our new plants in Brazil and Thailand. The sites and their Health Care facilities are visited by an occupational physician from the Lenzing Health Care & Wellbeing department at irregular intervals to ensure the quality of those services.

Lenzing draws on the services of 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 (USA) and Grimsby (United Kingdom) through to health care services for family members at a clinic in the vicinity of the production site in Purwakarta (Indonesia).

The large 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.

Lenzing facilities have first aiders trained in certified basic and regular refresher courses.

Occupational medical care

In 2022, 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 was also a challenge for occupational medical care at all Lenzing sites. Additional tasks such as COVID-19 testing, contact tracing and staff information were incorporated into daily activities. Thanks to the well-coordinated teams at the various sites and the excellent preparation for global crisis management, Lenzing Group has been able to manage the pandemic well so far. To date, there have been no major outbreaks at the sites.

OCCUPATIONAL HEALTH PROTECTION DURING THE PANDEMIC – ONE EXAMPLE

Construction site in Brazil

It was very important for the Lenzing Group to be able to continue construction work in Brazil. An extremely dedicated external company (with several doctors and medical support staff) was contracted to provide medical care for personnel. A physician was also hired to manage and coordinate all COVID-19 issues. In addition, extensive rapid antigen testing and PCR testing was carried out in Brazil at a very early stage in collaboration with an external laboratory.
In 2022 this medical service was converted into a suitable offering for permanent employees at the meanwhile regular production site in Brazil.

Occupational health and safety

[GRI 403-1, 403-5; ESRS S1-1, S1-14]

The vision of Lenzing is to “leave home healthy, come home healthy”. The aim is to provide a working environment and culture where people actively engage and drive health and safety excellence. At Lenzing, it is recognized that all employees can influence the health and safety performance and, through individual ownership and engagement, employees can contribute to a safer workplace.

Leadership is critical to engagement, and this is the central theme of the safety webinars, which were developed specifically for leaders. The webinars outlined the journey in relation to “Accidents to Zero”, which commenced in 2021, and continued in 2022 with the aim of maintaining momentum in pursuit of this. In total, seven webinars were held in 2022 covering topics such as safety as a core value, unsafe acts, safety communication, culture and leadership. In sum, more than 450 people participated from different functions including members of the Managing Board.

Lenzing also ensures that all employees receive adequate training on occupational health & safety topics, which is determined in line with the specific hazards to which employees are exposed while carrying out their tasks. Training schedules are prepared for each calendar year alongside refresher schedules in accordance with regulatory and compliance requirements. Additionally, induction training is given to both contractors and visitors to the various sites.

Lenzing’s Safety Management System governs its approach to minimizing health, safety & environmental risks and, is based on standards by the International Organization for Standardization. Within this context, the company remains focused on its ongoing measures with regard to occupational health and safety performance as well as monitoring leading and lagging indicators. The

safety dashboards ensure that the teams have access to daily reports on key safety performance metrics as part of their management dashboards.

For more information about Lenzing's SHE policies, please visit the Lenzing website.

Health promotion

[GRI 403-6, 403-7]

In addition to numerous regular activities at the company's sites, fitness training has been the focus of the Lenzing Group's health-promoting measures since 2019. These programs are designed to motivate and support employees in adopting a healthy lifestyle at work and during their leisure time. Due to the pandemic, activities were still restricted in 2022.

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 the last two years the company used the app's appointment booking feature to offer COVID-19 vaccinations and "COVID-19-safe" health checks to employees at the site in Lenzing.

"LENZING, WE CARE!" INITIATIVE

The COVID-19 pandemic and countermeasures taken by countries to protect their health care systems put a lot of stress on many people. In addition, COVID-19 protection measures put in place at companies were perceived to be stressful by some employees. During this time, Lenzing intensified its efforts to provide easily accessible psychological help for employees in need at all sites and established regular digital information meetings, at least at some sites. In autumn 2022, the company restarted the program with a broader focus on the various simultaneous crises and their impact on its employees. As the crisis takes different forms in different countries, Lenzing defined and prepared some key elements at a corporate level, and all sites rolled out a program adjusted to the specific needs of their employees. Elements of the program include hotlines and/or experts to provide help in cases of personal psychological, social or financial crisis, basic information on how to deal with a crisis and the creation of internal information channels.

A large number of workers who are not employed by Lenzing work at Lenzing operating sites and premises. As a result, contractors are carefully selected, with due consideration given to the strict occupational safety criteria that Lenzing set for its own employees. Most have certified management systems for occupational health & safety. Where this is not possible the company expects its contractors to be part of the regional contractor competency schemes or will put in place additional controls to monitor occupational health & safety when this is not possible. There is also a Lenzing nominated person as a direct contact for these contractors working under its control. When it comes to landlord and tenant health & safety, responsibility is shared and managed appropriately.

HEALTH CLIMATE INDEX (HCI) SURVEY

Since 2021, all employees have been surveyed twice a year about their psychosocial working conditions. An index is compiled based on 17 questions on the topics of "health, social capital, effort, reward, control of work tasks, recreation, meaning, support, respect and development". The trend in this index over several survey rounds reflects the evolution of the working climate at the individual company sites. While each employee received personal feedback on its stated working conditions, which can be discussed with its manager, the survey results are anonymous for evaluation and reporting purposes. A summary of the results and the trends at the individual sites are discussed at Group management level and, based on these discussions, areas on which to focus are drawn up with a view to improving or optimizing the internal working climate. The goal is to create an as positive and attractive work environment as possible for all employees at the Lenzing Group. In four survey rounds, the HCI was pretty much stable at a good level of around 67 percent. An HCI of 100 percent would mean optimal working conditions for all participating employees. The participation rates in both survey rounds in 2022 increased versus 2021 to 54 percent and 50.4 percent, respectively.

Human rights & fair labor practices

MANAGEMENT APPROACH

Material topic: Human rights & fair labor practices

[GRI 3-3, 406-1; ESRS S1-1, S1-5, S1-17, S3-4]

Diversity, inclusion and respect are core pillars of a talent strategy designed to attract and develop talent from all backgrounds. A committed and empowered workforce is critical to business success, and Lenzing acts to provide equal opportunities for employment, learning and development. The company seeks to create an open-minded and inclusive environment by proactively fostering ethical ways of working in compliance with high internal standards, as well as principles outlined by international regulatory bodies. Lenzing continues to adhere to and uphold human rights and fair labor practices in all aspects of the global working environment.

Actual and potential negative and positive impacts

Positive

- Good labor practices promote staff safety and wellbeing and ensure healthy and satisfied employees
- Launch of a clear and appealing purpose with people focus at its core to deliver the Better Growth strategy
- Enabling personal success and contributing to the growth and success of the company
- 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
- Definition of related targets of social sustainability
- Global Performance and Talent Management processes in place
- Global Skill Matrix and Functional Competency Frameworks in order to offer the right learning and development opportunities to employees
- Comprehensive set of business policies that set clear standards and processes regarding the behavior of leaders and employees

Negative

Own activities:

- Risk of losing employees with high potential
- Risk of reducing the engagement and productivity of employees
- Risk of negatively impacting on the mental health of leaders and employees
- Risk of not being able to hire and train a successor in time

Business relationships:

- Risk of discrimination and other possible negative impact on human rights
- Potential regulatory and corporate reputational risks
- Risk of failing to attract future talent or losing employees due to a lack of initiatives on diversity, equity and inclusion
- Risk of not meeting regulatory requirements with regard to the share of different genders in executive management
- Risk of losing know-how through demographic change

Policies and commitments

- Local Labor Right laws
- Lenzing Group Short Term Incentive Plan
- Global Salary Administration Guidelines
- Global Learning & Development Guideline
- Global Performance Management Guideline
- Global Guideline for Creating a Job Description
- Modern Slavery Act Transparency Statement (UK only)

Actions taken

- Training on diversity topics for HR Business Partners
- 3rd party audits on social sustainability topics conducted for several sites
- Preparatory work carried out for creation of Employee Resource Groups (ERGs)
- Performance and talent management processes expanded to all white-collar staff
- Structured performance management processes with regular employee feedback
- Insightful talent data availability on career ambitions and potential future career paths and development opportunities
- Competency framework expanded to HR and Global Engineering organization
- Skills matrix piloted at Lenzing site with six production areas - identification of additional departments to proceed further
- Eye-to-eye partner for local unions, works councils, and other workforce representatives
- Employee training programs (HR capability academy, technical academy for Global Engineering, Commercial capability academy)
- Focus on digital learning led to a globally available catalog with over 100 eLearning courses in German, English and Portuguese, covering a range of topics from business to personal development and wellbeing.
- Regional social projects
- Compensation & benefit benchmarks and grading systems
- Application of 4-eye principle
- Whistleblower system and investigation directive

Sustainability targets, measures and progress

- No cases of discrimination or human right abuses, based on Discrimination ILO 111 Article 1, were reported.
- No strikes at any Lenzing production facility
- The increasing importance of this topic led to the implementation of a dedicated Social Sustainability unit within the Corporate People Development department.

- Local Employee Terms and Conditions
- 17 Sustainable Development Goals of UN
- 10 principles of the UN Global Compact
- Lenzing's Purpose, Culture & Strategy
- Policy on Human Rights and Labor Standards
- Lenzing Group Reward Guideline
- Global Code of Business Conduct
- Policy for Safety, Health and Environment
- Global Supplier Code of Conduct
- Wood and Pulp Policy
- Sustainability Policy
- Lenzing Sustainability Goals
- HR Strategy
- Global Anti-Bribery and Corruption Directive
- Global Whistleblower Directive
- Global Compliance Investigation Directive
- Anti Money Laundering Group Directive
- Global Recruitment Guideline
- Global Job Evaluation Guideline

For more information, please see the "Sustainability targets, measures and progress" chapter.

Stakeholder

- Employees
- Local communities
- Rating agencies
- Brands & retailers
- Certification bodies
- Suppliers

For more information, please see the "Stakeholder engagement" chapter.

Responsible

- CEO
- VP Corporate Human Resources

Supporting

- Corporate Communications
- Corporate Sustainability

[GRI 406-1; ESRS S1-17]

A company directly or indirectly impacts its employees, but also the workers in the value chain, its customers, and the local communities around its sites. Social sustainability is about identifying and managing the positive and negative impacts of the company on people. Social sustainability is therefore one of the three pillars of the holistic sustainability approach (Environment-Social-Governance). 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 Lenzing Group's own labor practices are also evaluated through the yearly assessment which is conducted by EcoVadis.The wood certification systems used by Lenzing ensure that labor conditions meet the requirements of the International Labour Organization`s (ILO) Core Conventions.

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

Policies

[GRI 2-23; ESRS S1-1, S2-1, S3-1]

The policies and guidelines listed in the Management Approach "Human rights and fair labor practices" apply to the entire Lenzing Group. Those that explicitly come from Human Resources are described in more detail below.

- **Policy on Human Rights and Labor Standards**
  This policy confirms the company's commitment toward human rights and the principles proclaimed in the Universal Declaration of Human Rights (UDHR), United Nations Global Compact (UNGC), OECD Guidelines, and the Rights at Work of the International Labour Organization (ILO). Lenzing believes in employee satisfaction and wellbeing as well as fostering compliance with standards.
- **Global Recruitment Guideline**
  This guideline clarifies the position approval process as well as key rules and roles for the collaboration required to recruit or transfer talent using sound hiring decisions through a fair and unbiased process.
- **Lenzing Group Reward Guideline**
  This guideline sets out the guiding principles and reward philosophies of the Lenzing Group with the aim of attracting and retaining staff while also maintaining internal and external equity.
- **Global Guideline for Creating a Job Description**
  This guideline provides a global process for creating a job description to ensure standardization and comparability of jobs.
- **Global Job Evaluation Guideline**
  This guideline has been created to ensure a globally consistent approach is taken towards job evaluation using the Korn Ferry Hay grading methodology.
- **Lenzing Group Short-Term Incentive Plan**
  This plan confirms the structure and targets of the annual bonus set by the Board.
- **Global Salary Administration Guidelines**
  These guidelines have been compiled to define the administrative standards required to ensure that an individual employee's base salary is set at a level that is market-competitive, internally equitable, and performance driven.
- **Global Learning & Development Guideline**

This guideline provides an overview of L&D processes to ensure the Lenzing Group is prepared for further growth by having key employee competencies and skills developed.

- **Global Performance Management Guideline**
  This guideline informs employees and managers how to set goals at the start of the year and review them during and at the end of the year in order to share feedback and recognize achievements.
- **Modern Slavery Act Transparency Statement (UK only)**
  This statement provides an annual update on the actions taken by the business in combating modern slavery.

For more information about further policies, please see the "Business ethics" chapter.

Human rights
The Lenzing Group fosters a safety culture and a sustainable working environment for the benefit of all employees, all local communities in which the company operates, and all business partners. The employees and the company's social responsibility towards them come first in everything Lenzing does. It is imperative that the entire global network of the Lenzing Group fulfills, and wherever possible, exceeds all applicable social and ethical obligations. Suppliers are held to the same high standards.

The United Nations Global Compact (UNGC) is one of the world's most important initiatives for responsible corporate governance. As a member, Lenzing is committed to upholding human rights, respecting the rights of employees and their representatives, protecting the environment, enabling fair competition and combating corruption. The principles of the UN Global Compact are incorporated into the company's strategy and thus into the corporate culture as well. The company regularly publishes information from all the countries in which it operates about its efforts to implement these principles.

The Lenzing Code of Conduct creates a framework with ethical standards within which the Lenzing Group operates. It also provides firm guidelines and directives for individual themes and areas that require particular attention, such as corruption prevention, money laundering, counterterrorism, compliance with human rights, occupational health and safety standards, and the protection of whistleblowers. They serve to protect the individual and the company.

To fulfill the requirements of corporate due diligence, Lenzing monitors adherence to laws, human rights principles, and applicable environmental standards not only internally, but also at its suppliers and within its supply chains.

Compliance with human rights is essential and non-negotiable for the Lenzing Group. The company looks to internationally accepted foundational principles and rights when it comes to work as per the International Labor Organization (ILO).

Communication
The policies and guidelines are accessible to all employees via the intranet and are also sent by e-mail. Information about engagement and communication with stakeholders can be found in the "Stakeholder engagement" chapter.

Enhancing community wellbeing

[GRI 413-1, 413-2; ESRS S3-1, S3-4]

The Lenzing Group's various production sites operate in specific ecological, social, and economic environments. A map showing the locations can be found in the "About the Lenzing Group" chapter. 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 contribute to a positive social environment. For more information, please see the "Social responsibility" focus paper. Details on Lenzing's handling of complaints can be found in the "Buiness ethics" chapter.

Managing social sustainability

In the reporting year, the company defined its purpose, culture and strategy anew for the coming years. In its "Better Choices" corporate culture, the Lenzing Group focuses on the topic of "people" as a strategic link. Accordingly, the topic of social sustainability has a high priority at Lenzing as part of its holistic approach to sustainability. It is increasingly being seen as a compliance topic within the industry. This requires a systematic agenda and the management of social sustainability targets, which is why the Social Sustainability department (within Human Resources – Corporate People Development) was established at the beginning of 2022 to aggregate activities there and drive the topic forward. Further details on the targets and a progress report can be found in the "Sustainability targets, measures and progress" chapter.

Corporate citizenship

Both locally and internationally, the Lenzing Group takes its social responsibility as a corporate citizen seriously and makes a major contribution to strengthen the economy in the regions where it operates. This is confirmed yet again by a study of the socio-economic and regional economic importance of the Lenzing Group, conducted by the Gesellschaft für Angewandte Wirtschaftsforschung KG (Innsbruck, Austria) for the year 2022.

The study concludes that the business operations of the Group have measurable socio-economic effects that extend far beyond purely economic (business) aspects.

Overall, the study concludes that the Lenzing Group creates 23,424 jobs worldwide. Every job within the Lenzing Group creates more than two additional jobs in another branch of the economy. Furthermore, the public sector benefits in the form of tax revenues and social security contributions. The study also quantifies the number of jobs that were created in the respective region indirectly – through the company's input and supply chains – and induced through the spending on consumption and investment of the directly and indirectly generated income. The number of these jobs significantly exceeds the number of staff directly employed by the company.

The socio-economic effects of the activities of the Lenzing Group in 2022 are summarized in the table below.

Socio-economic effects of Lenzing's activities: Main results for 2022 Table 35

Site	Number of employees[a]	Additional gross domestic product	Additional compensation of employees	Created employment[b]
Lenzing (Austria)	2,931	EUR 906.4mn	EUR 532.1mn	7,788
Heiligenkreuz (Austria)	324	EUR 113.7mn	EUR 74.6mn	1,317
Paskov (Czech Republic)	489	EUR 127.3mn	EUR 55.4mn	1,322
Grimsby (United Kingdom)	220	EUR 60.6mn	EUR 35.9mn	621
Purwakarta (Indonesia)	1,523	EUR 93.2mn	EUR 64.8mn	3,926
Nanjing (China)	762	EUR 115.1mn	EUR 51.2mn	2,620
Mobile (USA)	217	EUR 75.7mn	EUR 48.0mn	720
Prachinburi (Thailand)	301	EUR 34.0mn	EUR 31.6mn	1,156
Indianópolis (Brazil)	949	EUR 140.0mn	EUR 77.3mn	3,953
Total	**7,716**			**23,424**

Source: Lenzing Group, 2023. GAW, 2023.
a) Full-time equivalents (FTE). Only the nine production sites are considered.
b) Full-time equivalents (FTE)
The effects also include impacts from 2023 onwards, as the activities of the Lenzing Group in 2022 will not only result in economic effects in 2022, but also in subsequent years.

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. At all other sites except Thailand, there are trade union representatives from various factions and/or employee interest groups to represent the concerns of the workforce.

Diversity

[GRI 405-1, 413-1; ESRS S3-4]

Why diversity and inclusion matters for Lenzing

Lenzing is committed to creating a diverse and inclusive environment where people feel that they belong and can succeed regardless of characteristics such as gender, age, ethnicity, cultural background, or language.

Companies that have greater workplace diversity outperform their competitors by a significant margin. According to a McKinsey 2020 report, there are many reasons to strive for a more inclusive and more diverse workforce, including greater innovation and engagement and fostering diverse ideas. However, ethnically and gender diverse companies achieve higher profits as well.

Companies with a diverse workforce are 35 percent more likely to outperform their competitors. According to a People Management article published in 2020, diverse teams are 87 percent better at making decisions, while companies employing an equal number of men and women produce up to 41 percent higher revenue based on a study conducted by Clear Company in 2022.

In addition, more diverse companies have a greater likelihood of winning top talent and improving and promoting employee retention and satisfaction. A Glassdoor study conducted in 2018 shows that 2 out of 3 candidates look for companies that have diverse workforces; 76 percent of job seekers report that diversity is an essential factor when evaluating potential employers and job offers. In addition, a study conducted by Deloitte University in 2015, highlights that millennials are 83 % more likely to be engaged at work at inclusive companies. In a 2019 article, Josh Bersin supports the view that diverse employers are 1.7 times more innovative. This suggests that diversity is likely to bring a competitive advantage for companies when attracting and retaining talent.

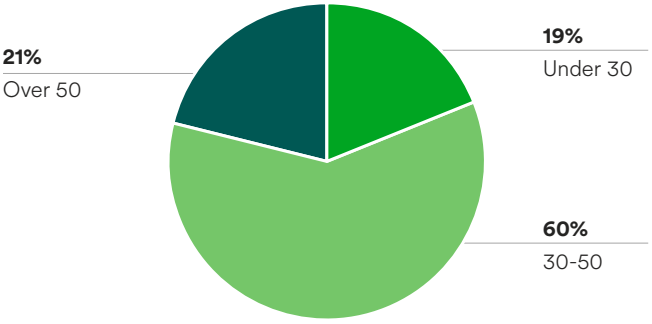
People perform best when they feel empowered, respected, and valued by their colleagues and by their manager and top management in general. Promoting diversity, equity, and inclusion is a win-win-win for organizations, employees, and society. The clamor for diversity, equity and inclusion encompasses and cuts across gender, age, race, ethnicity, cultural background, language, religion, sexual orientation, and disabilities. Lenzing data around diversity at different levels of the organization suggest a need for increasing the diversity of the workforce and continuing to shape Lenzing's culture towards a more inclusive company. The following section shows Lenzing's demographic data for its workforce as well as relevant insights.

International workforce

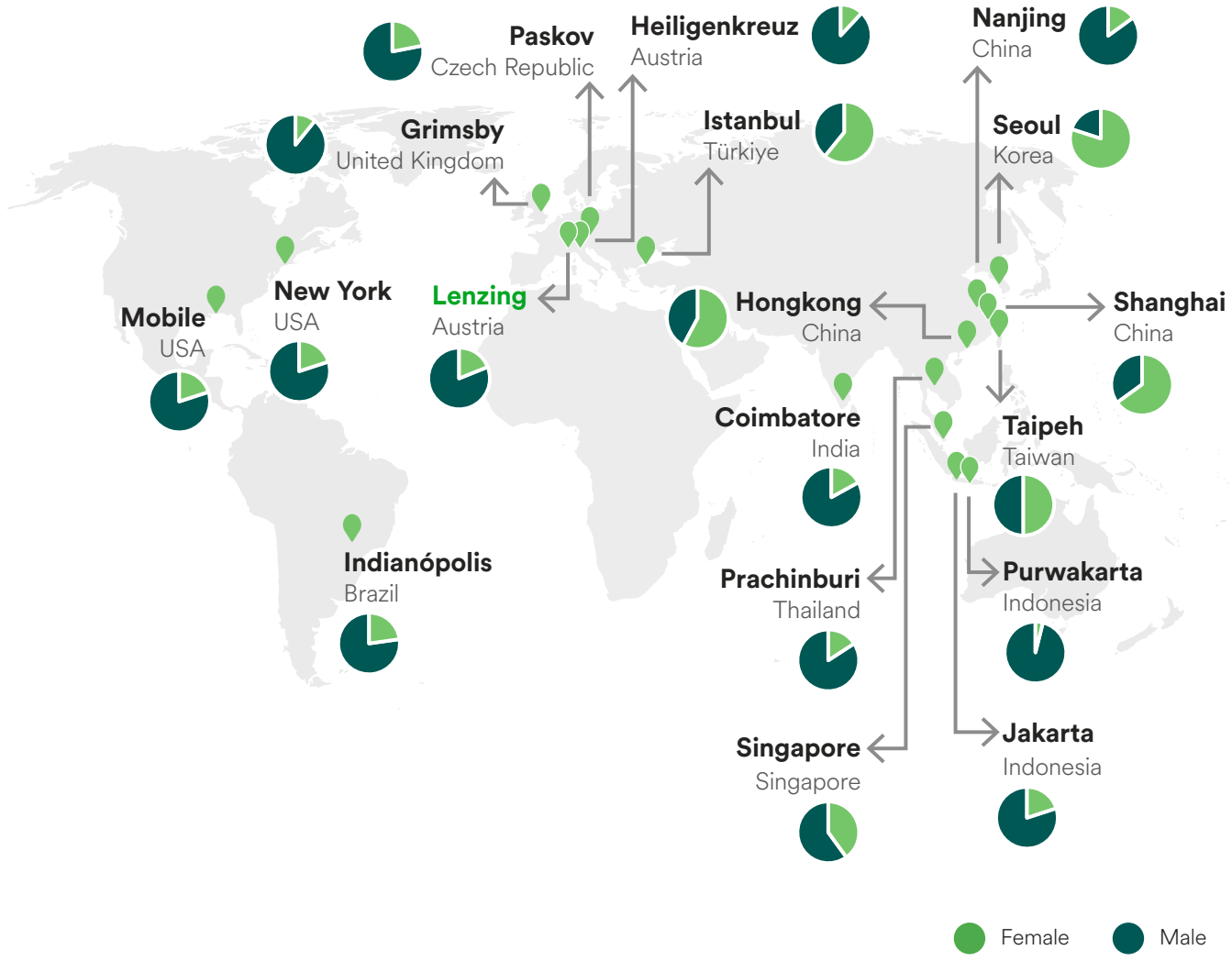
The Lenzing Group's workforce is becoming increasingly international. Despite the company's firm roots in Europe, an international corporate culture has evolved in the Lenzing Group based on strong collaboration between its sites in Asia, Europe, and the Americas. The management team actively supports 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 close-knit community culture.

For details on the different nationalities working in the Lenzing Group, please see the table in the annex.

Diversity per age (all employees) Figure 21



Diversity per Site Figure 22



In the Lenzing Group's Policy on Human Rights and Labor Standards, Lenzing undertakes to respect and support fundamental labor rights and 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, 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. These topics are also reflected in the Lenzing Global Code of Conduct, which all employees are required to follow.

Based on the gender diversity analysis carried out in 2021 and the results of the focus groups formed for this purpose, HR managers received special diversity training in the past fiscal year. Together with Shape Talent, a renowned UK based agency, the company is currently working on the implementation of Employee Resource Groups to address topics such as Women@Work or ethnicity together with committed and interested employees.

In order to make the workforce more aware of the topic, a corresponding eLearning course was offered at the end of 2022 and promoted as the "Course of the Month".

For detailed information about the social impact assessment, please see the "Materiality analysis" focus paper.

Learning and development

[GRI 404-2; ESRS S1-4]

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 the Lenzing internal learning management system Learn@Lenzing and allows employees to individually browse through development opportunities. It includes formal training programs as well as social learning and experiential learning opportunities.

This 70:20:10 (70 percent experience / on-the-job learning, 20 percent social learning and 10 percent formal learning) blended learning approach has proven to be invaluable in adult development. It was rolled out in Lenzing in 2021 and was promoted again as part of Lenzing's performance management process on an annual basis. The catalog is available to all Lenzing sites in English. In addition face-to-face training opportunities, many eLearning courses are offered as well.

In February 2022 the new global Learning & Development guideline was launched to ensure processes, and the use of tools and systems, were standardized for the professional development of employees. This was done via specific training for all HR Business Partners and via email to the entire workforce.

As the global pandemic still affected many countries in 2022, face-to-face training only started again slowly. Lenzing continued the expansion of its digital training offering. A representative cross-section of the training sessions includes:

- In the areas Commercial, Global Engineering and HR, functional academies have been set up to provide learning opportunities based on the identified needs from the competency assessment. As part of the academies, a total of 25 different training topics have been offered in 34 training sessions to more than 700 employees during 2022.

Individual learning path offerings

- Over 120 new eLearning courses are available worldwide with the selection ranging from business topics to personal development and well-being. Courses can be booked by the employees according to their individual needs.
- In Lenzing's global Learning & Development catalog, more than 170 training courses (face-to-face, eLearning and blended learning courses) are available.
- The digital content creation process has been centralized to ensure high quality eLearning. This should also maximize learning success.
- A digital train-the-trainer program has been launched globally to promote internal knowledge transfer, and ensure that employees who already have advanced functional competencies are equipped with didactic skills to train their colleagues.

A total of 1,902 trainings of these eLearnings courses have been booked globally in 2022 via the L&D catalog.

It is important to highlight that the goal for employees was to decide for themselves whether they really wanted to complete an entire chapter or even a course, or just watch different videos to fill their knowledge gaps. Having had a total of 3.404 learning chapters completed is therefore a great success.

Total expenditure on lifelong learning and personnel development increased from EUR 4.03 mn in 2020 to EUR 6.19 mn in 2021 and it was EUR 6.75 mn in 2022. This includes group-wide expenses by Bildungszentrum Lenzing (BZL). Therefore, the group-wide consolidated expenses for trainings in 2022 are EUR 2.48 mn. (2021: EUR 2.46 mn, 2020: EUR 1.38 mn).

Implementation of Global Performance and Talent Management

Lenzing rolled out two fundamental people development processes in 2021: 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 significant performance and talent management processes, clarifying roles, and developing a digital system.

The global Performance Management process is there to manage, support and ensure the performance of teams and individuals with respect to goals through the use of clear and personal accountability. With easy and accessible processes and tools, the company manages performance to execute and deliver its Better Growth strategy, achieve the strategic choices and shape a culture of sustainable business performance and high engagement.

Lenzing defines performance as an action or process to accomplish a task or function in line with the company's values. The company cares about not only what is achieved, but also how it is achieved. Together, these two aspects define the performance of an individual. Both processes were rolled out to the entire Lenzing Group this year.

Global Talent Management aims to accelerate talent development and enable promising individuals to grow with the business. The Talent Management process is designed to understand and support the needs of the Lenzing Group and to develop the right talent mix to implement Lenzing`s Better Growth strategy. Furthermore, Talent Management helps to develop a strong internal talent pipeline of successors to key positions in the future.

Talent Management Figure 23

Lenzing has launched the implementation of Global Talent Management for the entire white-collar workforce in 2022. Therefore, 482 (84 percent) managers have been trained in this process and learned the benefits of it. This resulted in having talent data available for 98 percent of the white-collar workforce and 777 out of 2,519 (31 percent) positions having at least one successor in place. This provides key insights regarding people and allows the business to make sounder decisions.

Milestones 2022

- **2,300+** employees have set their performance goals in SuccessFactors, that is 88 percent of the white-collar employees.
- **95 percent** of the 1,200 people from last year's scope, successfully completed a performance review of their performance goals 2022.
- **1,000+** employees have filled in their talent card and shared their background and ambitions.
- **84 percent** of all 563 people managers have been trained in the Talent Management process.
- **2,400+** employees have data on potential, performance, retention risk, potential development availability and succession options.
- **777** succession plans for key positions that provide a next possible career step for employees.

Talent targets

1. Sustainable talent management

Lenzing prioritizes the development of employees by differentiating employees by talent, identifying learning gaps and anticipating development needs, and implementing development actions. The Talent Management approach has been launched for all white-collar employees and there are plans to consolidate the process for the blue-collar workforce in a pilot group in 2023. A new Talent Management digital eLearning module will be available in 2023 on the different parts of the process so that new joiners can learn about the process, as can employees who want to consolidate their process knowledge.

2. Global leadership program

The new global leadership program will be launched in 2023 for the first target group. In the following years, all managers will embark on this leadership journey. This program focuses on enabling behavioral change toward increased accountability, feedback, openness and teamwork. Lenzing believes that higher engagement will lead to higher efficiency in how it achieves its goals and create engagement and belonging for the employees. Additionally, the company ensures that the new purpose to "Advance our world with better choices", and the Better Growth strategy, are implemented and well understood within the entire Lenzing Group.

3. Re-skilling & up-skilling the employees

The company believes that reskilling and upskilling are essential for developing a talent-leading company like Lenzing. To achieve employees' full potential, learning must be extended beyond traditional training methods. Lenzing strongly believes in a blended learning approach for the best results. This approach is also clearly reflected in its digital training portfolio. Lenzing continues to offer shorter, more individual, Lenzing-specific learning opportunities so that all employees can build their own learning path and thus maximize their learning success.

4. Strategic talent actions

The growth of both Lenzing and its employees is a win-win situation and a smart approach to staying on top of best practices. Workforce development allows Lenzing to have the best talent in the field and tends to build strong cross functional relationships. By investing in people and showing them that the business care about their growth, it also promotes employee engagement, retention and attraction. Therefore, rigorous talent actions will be planned and followed up quarterly with each business area to track progress against delivery.

5. Committed to diversity and inclusion

Lenzing has started its journey towards a more diverse, equitable and inclusive company and is committed to the implementation of different coordinated actions aiming to raise awareness of diversity and gender equality. Engagement workshops, employee resource groups to discuss women, ethnicity and LGBTQI+ topics, train the trainer programs, and diversity training are some of the actions that are taking place during the upcoming months.

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 Better Growth 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 according to 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. In 2021, almost 200 colleagues from the Commercial area assessed their own competencies. The Commercial Academy was developed based on the insights from the competency assessments. In 2022, the concept was rolled out to the first set of target groups in Global Engineering and Human Resources. In total, more than 300 employees assessed their own competencies.

Lenzing will roll out the competency framework to all white collar employees in the coming years to be able to analyze the development needs of individuals and teams.

Skill matrix

Mid of 2021, Lenzing started to develop a global skill matrix for the production area. The project started as a local pilot at the Lenzing site, but with a global mindset. The objectives of the Lenzing skill matrix are versatile. First of all, the Skill Matrix will support Lenzing in ensuring that employees are equipped with the required skills to perform tasks in a safe and quality focused manner. Furthermore, the skill matrix will enable Lenzing to fulfill legal and ISO requirements.

Integrated Manufacturing Capability Approach (IMCA)

The IMCA project (Integrated Manufacturing capability approach) should enable both white and blue collar employees in Viscose/Modal at the Lenzing site to constantly develop themselves according to the area's vision.

A structured people development approach can be implemented for operational staff that focuses heavily on blue-collar employees. Since this area is one of the first departments to have instituted a standardized yet tailored skills matrix in place, so called “learning paths” will guide people to achieve the required skill levels and enable them to succeed in their respective roles and workplaces. In addition, a performance and talent management process for blue collar areas is in scope to be piloted. This project can be seen as a blue print for a structured people development process in operational areas that will be globally available in the near future.

Employees in numbers

[GRI 2-7, 2-8, 2-21, 2-30, 401-1, 405-1; ESRS S1-6, S1-7, S1-8, S1-16]

Compared to previous years, the ongoing progress and development of Lenzing’s project in Brazil (+297 employees) has greatly contributed to increasing group headcount in 2022. The main reasons for employees leaving in 2022 are retirements and mutual/voluntary contract terminations. This is reflected in all figures in the following tables.

Employees 2022 Table 36

General information required	2020	2021	2022
Total number of employees	7,358	7,958	8,301
Female	1,090	1,244	1,394
Male	6,268	6,714	6,907
thereof in Austria	3,482	3,575	3,675
thereof in Indonesia	1,614	1,633	1,523
thereof in Czech Republic	410	451	491
thereof in China	839	873	867
thereof in USA	210	221	222
thereof in UK	203	218	225
Others (India, Thailand, Türkiye, Korea, Singapore, Taiwan and Brazil)	600	987	1,298
Total number of employees – full time	6,904[a]	7,500	7,823
Female	797	933	1,075
Male	6,107	6,567	6,748
Total number of employees – part time	454	458	478
Female	293	311	319
Male	161	147	159
Number of apprentices	184	184	188
Female	22	20	31
Male	162	164	157
Total number of supervised workers	433	444	261

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 employees figures.

Employees 2022

Table 37

Employee turnover	2020	2021	2022
Number of employees that left the company, total	566	598	898
Female	105	125	153
Male	461	473	745
Up to 30	119	135	184
Between 31 and 50	240	262	448
Over 50	207	201	266
Austria	244	222	278
Indonesia	123	86	206
China	95	98	99
Czech Republic	24	22	27
USA	11	20	41
United Kingdom	8	17	24
Others (India, Thailand, Türkiye, Korea, Singapore, Taiwan and Brazil)	61	133	223
Percentage of employees that left the company (turnover rate), total	7.7%	7.5%	10.8%
Female	18.6%	21%	17%
Male	81.5%	79%	83%
Up to 30	21.0%	23%	20%
Between 31 and 50	42.4%	44%	50%
Over 50	36.6%	34%	30%
Austria	43.1%	37%	31%
Indonesia	21.7%	14%	23%
China	16.8%	16%	11%
Czech Republic	4.2%	4%	3%
USA	1.9%	3%	5%
United Kingdom	1.4%	3%	3%
Others (India, Thailand, Türkiye, Korea, Singapore, Taiwan and Brazil)	10.8%	22%	25%

Annual total compensation ratio 2022

Table 38

Employee category	Compensation category	Compensation[a)]	Ratio	Percentage
Highest paid individual	Annual compensation (rounded to thousands)	€666,000	19.60	1,959%
All employees (excluding highest paid individual)	Median annual total compensation (rounded to thousands)	€34,000	1.00	100%

a) Before taxes and including bonus payments

For further information, please see the Remuneration Report.

Collective bargaining agreements

Lenzing complies with the local labor standards in all countries of operation. Collective agreements cover 82.4 percent (2021: 80.2 percent, 2020: 84.0 percent, 2019: 81.9 percent) of the Lenzing Group's global workforce. 99.5 percent (2021: 95.0 percent, 2020: 91.1 percent, 2019: 98.9 percent) of employees are subject to notice periods governed by labor law or collective agreements.

Employment contracts

Most Lenzing Group employees are employed in a permanent employment/service relationship. It is currently customary to work the first 6 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) have 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.

Employees 2022

Table 39

Newly hired employees	2020	2021	2022
Number of newly hired employees, total	888	1,198	1,241
Female	185	279	303
Male	703	919	938
Up to 30	152	285	275
Between 31 and 50	465	644	705
Over 50	271	269	261
Austria	213	315	378
Indonesia	2	105	96
China	96	132	93
Czech Republic	18	63	67
USA	12	31	42
United Kingdom	11	32	31
Others (India, Thailand, Türkiye, Korea, Singapore, Taiwan and Brazil)	536	520	534
Percentage of newly hired employees, total	12.1%	15.1%	15.0%
Female	20.8%	23.0%	24%
Male	79.2%	77.0%	76%
Up to 30	17.1%	24.0%	22%
Between 31 and 50	52.4%	54.0%	57%
Over 50	30.5%	22.0%	21%
Austria	24.0%	26.0%	30%
Indonesia	0.2%	9.0%	8%
China	10.8%	11.0%	8%
Czech Republic	2.0%	5.0%	5%
USA	1.4%	3.0%	3%
United Kingdom	1.2%	3.0%	2%
Others (India, Thailand, Türkiye, Korea, Singapore, Taiwan and Brazil)	60.4%	43.0%	43%

Employees 2022

Table 40

Employees with disabilities[a]	2020	2021	2022
Lenzing Group	101	90	82
Austria	79	69	61
Czech Republic	11	8	8
USA	2	2	4
Indonesia	2	2	2
China	–	–	–
Brazil	7	9	7

a) 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.

Employees 2022

Table 41

Individuals within the organization's governance body (Managing and Supervisory Board)[a]	2020	2021	2022
Number of individuals, total	14	14	12
Up to 30	0	0	0
Between 31 and 50	2	4	4
Over 50	12	10	8
Female	2	2	2
Male	12	12	10
Percentage of individuals			
Up to 30	0%	0%	0%
Between 31 and 50	14%	29%	33%
Over 50	86%	71%	67%
Female	14%	14%	17%
Male	86%	86%	83%

a) 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.

Employees 2022

Table 42

Individuals outside the organization's governance body[a]	2020	2021	2022
Number of individuals, total	7,353	7,953	8,298
Up to 30	1,337	1,487	1,578
Between 31 and 50	4,341	4,722	4,980
Over 50	1,675	1,744	1,740
Female	1,090	1,244	1,394
Male	6,263	6,709	6,904
Percentage of individuals			
Up to 30	18.2%	19%	19%
Between 31 and 50	59.0%	59%	60%
Over 50	22.8%	22%	21%
Female	14.8%	16%	17%
Male	85.2%	84%	83%

a) Including Supervisory Board members appointed by works council

Employees 2022

Category 1	white collar manager
Category 2	blue collar manager
Category 3	supervised worker manager

Table 43

Individuals within managing role – overall (at least one direct)	2020	2021	2022
Number of individuals, total	836	941	932
Up to 30	32	34	40
Between 31 and 50	507	586	587
Over 50	297	321	305
Female	128	155	171
Male	708	786	761
Percentage of individuals			
Up to 30	4%	4%	4%
Between 31 and 50	61%	62%	63%
Over 50	36%	34%	33%
Female	15%	16%	18%
Male	85%	84%	82%
Number of employee category 1, total	653	748	738
Up to 30	16	17	21
Between 31 and 50	388	466	460
Over 50	249	265	257
Female	115	138	153
Male	538	610	585
Percentage of employee category 1			
Up to 30	2%	2%	3%
Between 31 and 50	59%	62%	62%
Over 50	38%	35%	35%
Female	18%	18%	21%
Male	82%	82%	79%

Number of employee category 2, total	167	171	185
Up to 30	16	16	19
Between 31 and 50	108	109	122
Over 50	43	46	44
Female	11	13	14
Male	156	158	171
Percentage of employee category 2			
Up to 30	10%	9%	10%
Between 31 and 50	65%	64%	66%
Over 50	26%	27%	24%
Female	7%	8%	8%
Male	93%	92%	92%
Number of employee category 3, total	16	22	9
Up to 30	0	1	0
Between 31 and 50	11	11	5
Over 50	5	10	4
Female	2	4	4
Male	14	18	5
Percentage of employee category 3			
Up to 30	0%	5%	0%
Between 31 and 50	69%	50%	56%
Over 50	31%	45%	44%
Female	13%	18%	44%
Male	88%	82%	56%

Business ethics

MANAGEMENT APPROACH

Material topic: Business ethics

[GRI 3-3]

Lenzing and its people are expected to act with honesty and transparency in line with the Group's Global Code of Conduct and corporate governance policies. These expectations of compliance reach beyond legal requirements and regulatory standards as the company strives for exemplary quality in all products, processes and dealings with customers, partners and shareholders. It is the responsibility of all employees and contractors to uphold these standards and to help create a culture of tolerance and integrity. Lenzing continues to develop its Compliance Management System to ensure the company acts to prevent misconduct, mitigate compliance risks and effectively safeguard its people. Training in business ethics ensures that all employees understand the behavior expected of them and contributes to an environment where the people feel comfortable raising concerns or reporting misconduct. Suppliers are also expected to adhere to the highest professional and ethical standards in the industry.

Actual and potential negative and positive impacts

Positive

- Compliance through a shared culture of values
- Preventive measures via whistleblowing
- Prevent retaliation against those who raise a concern
- Promote trust and confidence in business dealings
- Maintain corporate reputation
- Avoid conflicts of interest, misrepresentation, bias and negligence
- Prevent and report bribery and other forms of corruption

Negative

Own activities:

- Violation of fair and compliant business practices leading to
- reputational damage and resultant loss of public trust
- loss of clients and business partners
- value depreciation in the capital market

Business relationships:

- Non-compliance with laws, regulations and obligations due to constantly changing internal and external business environment

Policies and commitments

- Lenzing Global Code of Business Conduct
- Lenzing Global Supplier Code of Conduct
- Policy on Human Rights and Labor Standards
- Modern Slavery Act Transparency Statement
- Sustainability Policy
- Quality Policy
- Policy for Wood and Pulp
- Policy for Safety, Health and Environment (SHE)
- Anti-Bribery and Corruption Directive (ABC Directive)
- Local Guidance Document for the ABC Directive (e.g. registration system for gifts/hospitality)
- Antitrust Directive
- Whistleblower Directive
- Issuer Compliance Directive
- Anti Money Laundering Directive (AML Directive)
- Implementation of local standards/limits for gifts and hospitality
- Employees trained on business ethics issues
- Anonymous management survey on Compliance Risks at Lenzing
- Awareness campaign on whistleblowing
- No corruption incidents
- Working on/Development of a Group-wide compliance eLearning for Code of Conduct
- Working on concept of ongoing Compliance Risk Assessment
- Compliance with Lenzing Global Code of Business Conduct and internal group-wide directives
- Reporting incidents via BKMS® (Business Keeper Monitoring System) whistleblower system ("Tell us")
- Following up procedure for reported incidents
- Transparent reporting within Lenzing's Corporate Governance Report
- Leading by example: supervisors, leaders, and managers act as role models
- Compliance trainings for employees
- Compliance Register Tool (e.g. gifts and hospitality)

Sustainability targets, measures and progress

For more information, please see the "Sustainability targets, measures and progress" chapter.

Stakeholder engagement

- Employees
- Suppliers
- Governments
- Customers
- Membership associations

For more information, please see the "Stakeholder engagement" chapter and focus paper.

Responsible

- Managing Board
- VP Global Legal, IP & Compliance
- Local Compliance Manager

Supporting

- Corporate Communications

- Know-How Protection Directive

Actions taken

- Updating Code of Conduct, Anti Money Laundering Directive (preparing for update)

- Corporate HR
- Corporate Audit & Risk
- Corporate Sustainability
- Global Process Information Technology
- Site managers

[ESRS G1-1, G1-3]

Naturally compliant

Lenzing's mission of compliance

Lenzing is a global company and naturally acts in a compliant manner. The Compliance Management System is an integral part of the Lenzing Group's reporting system. The compliance function aims to advise and support all Lenzing employees, executives and managers through preventive risk-oriented measures and consistent detection and response processes, ultimately protecting them from the negative consequences of violations of laws and values.

Compliance goes beyond adhering to legal requirements

Lenzing strives to achieve exemplary quality in products and processes, as well as integrity and honesty in dealing with business partners and shareholders. Compliance at the Lenzing Group not only stands for compliance with legal regulations and regulatory standards. Compliance for Lenzing is a question of attitude that also reflects a culture of tolerance and integrity when dealing with one another. Thus, the subject of compliance via the active responsibility of all employees and executives, as well as a shared culture of values is firmly anchored within the entire Group.

To Lenzing, compliance is teamwork

Lenzing's compliance organization is transnational and composed of international experts led by the Group Compliance Officer, who reports directly to the managing board and the supervisory board. The executives of the Lenzing Group have the task of ensuring that the rules are known, understood and adhered to by all employees. For more information on the role of the highest governance body in overseeing the management of impacts, please see the Corporate Governance Report. Lenzing expects its employees to comply with its rules of conduct. They are also asked to be alert, examine carefully and report anything that can be improved or any violation of rules and values that is detected.

Lenzing Global Code of Conduct

Compliance measures and business ethics are crucial for Lenzing to comply with a multitude of legal regulations and standards at various sites and countries around the world. Lenzing attaches great value to the integrity and legally compliant behavior of all employees and business partners. Therefore, Lenzing has anchored its principles for compliant behavior in the Lenzing Global Code of Conduct. It serves as a guideline, orientation aid and advisor at the same time, so that all employees know how to react appropriately and in compliance with the rules in every situation. At the same time, it points out to Lenzing employees that violations of the Code of Conduct have serious consequences (civil, criminal, administrative criminal and/or disciplinary consequences, up to and including termination of employment). The Lenzing Global Code of Conduct is available to all employees in the Group languages on the intranet ("Lenzing Connect") and is also accessible to external stakeholders on the company website. It is supplemented by the Global Supplier Code of Conduct which outlines Lenzing's expectations for supplier conduct with respect to safety and health at work, labor and human rights, environmental protection, ethics and management practices. An overview of other publicly available policies to which Lenzing has committed can be found here.

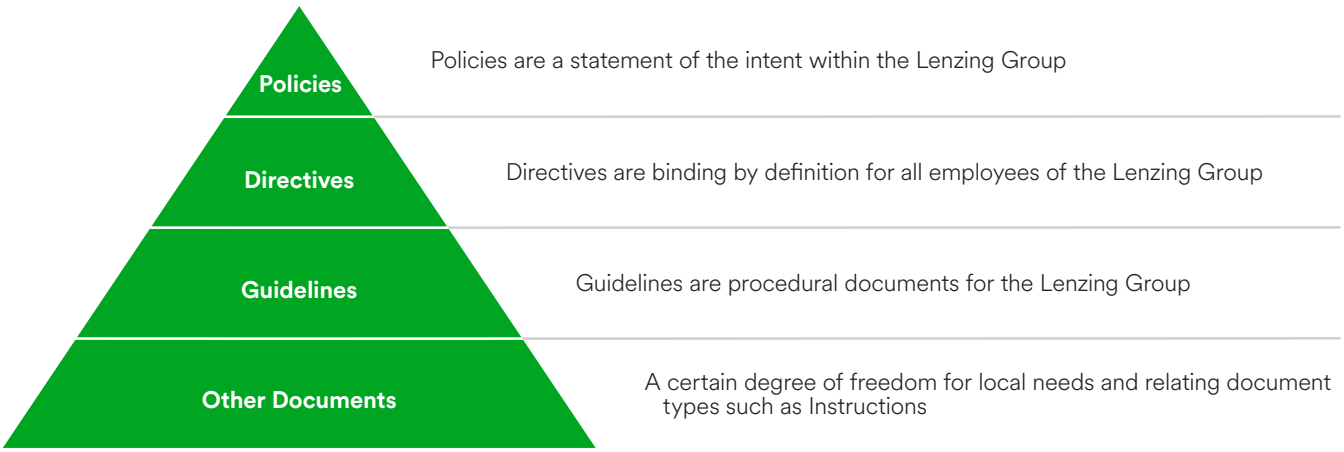
Policies

[GRI 2-23, 2-24; ESRS G1-1]

All policies of the Lenzing Group are available under the following link: Compliance – Lenzing – innovative by nature. For international regulations references in the Group's policies, please see the "Intergovernmental regulation references in policies" table in the annex. To ensure that no human rights violations occur within the sphere of Lenzing's influence, Lenzing has a Human Rights Policy, which refers to the Organisation for Economic Co-operation and Development (OECD), International Labour Organization (ILO) and the Universal Declaration of Human rights (UDHR). For more information on policies stipulating respecting human rights, please see the "Human rights and fair labor practices" chapter. Each of the policy commitments was approved by the Managing Board of Lenzing AG, the former Executive Committee or the Management Directors of Lenzing Fibers Grimsby Ltd. (Modern Slavery Act of Lenzing Fibers Grimsby Ltd.). Policies and Directives are available to all employees via the intranet or e-mail. They exist in the following languages: German, English, Czech, Chinese, Bahasa, Portugues and Thai.

Lenzing Global Compliance prepares its guidelines and directives in accordance with the document control process specified by Global Quality Management. Processes and minimum requirements are thus ensured globally. The document manager ("caretaker") in Compliance is the Group Compliance Officer, who thus has the responsibility to disseminate a document to relevant business units. Compliance guides and materials are stored in LenzingConnect and made available to compliance stakeholders. The resources are managed, updated and supplemented by Lenzing Global Compliance.

Hierarchy of compliance guidelines and directives Figure 24



Lenzing's internal rules and principles

[GRI 2-26; ESRS G1-1]

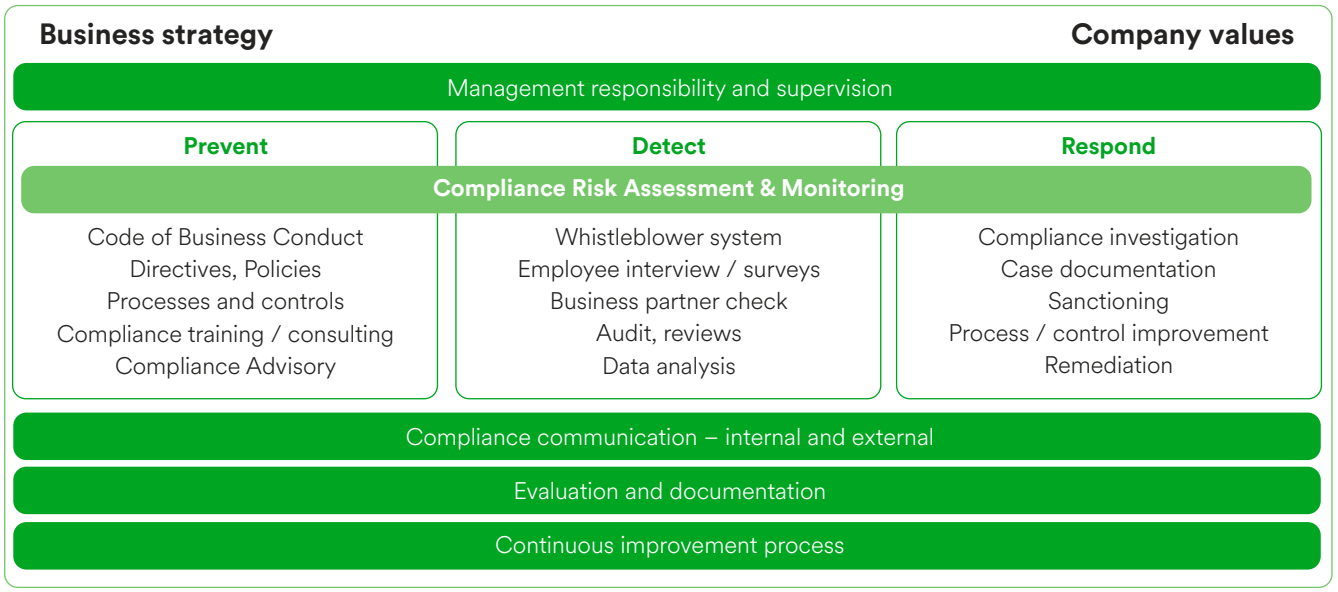
Besides the Lenzing Global Code of Conduct, there are additional internal rules and principles of conduct (known as directives) that help to ensure that daily actions are in line with the applicable legal frameworks and Lenzing's demand for integrity from each individual employee. Directives define rules of conduct that are binding for all employees of the Lenzing Group. Classifying a document as a directive always implicates the decision that non-conformance with the content of the directive may incur penalties and, in the worst case, layoffs. Important directives include, amongst others, the Anti-Bribery and Corruption Directive, the Antitrust Directive, the Whistleblower Directive, the Issuer Compliance Directive, the Anti Money Laundering Directive and Know-How Protection Directive.

Compliance Management System

The objective in setting up and continuously developing the Compliance Management System is to prevent, detect and respond to compliance violations against the interests of the company, to avoid liability risks and damage to the company's reputation, to advise and safeguard the company's management, executives and employees, and to increase efficiency by coordinating existing compliance activities.

The Compliance Management System corresponds to the following structure (figure 25):

Elements of the Lenzing Compliance Management System Figure 25



Compliance is based on the corporate values of the Lenzing Group and its measures promote integrity within the company. Formal structures, such as the assignment of responsibilities, ongoing monitoring and structures for communication, evaluation and documentation are essential components of the Compliance Management System.

The ongoing compliance program is based on the following pillars:

- Measures to prevent misconduct
- Measures to detect compliance risks and weaknesses
- Measures to respond to misconduct and identified weaknesses in order to avoid them in future.

At the meetings of the Supervisory Board's Audit Committee on March 1, 2022, September 7, 2022 and November 16, 2022, the Compliance Officer reported on the content, objectives and status of the compliance organization, the structure of the Compliance Management System, training, internal and external investigations and various compliance measures (communication, surveys) in a separate agenda item.

Directives

Anti Money Laundering Directive (AML Directive)
Lenzing Group is committed to the highest standards of ethical business principles and commits to fight money laundering and terrorist financing (ML&TF). Money launderers aim to introduce money from illegal transactions into legal circulation. Terrorists aim to obtain money from illegal and also legal transactions for terrorist activities. Lenzing avoids business with criminals and uses a series of preventative measures to ensure that money laundering and terrorist financing are not unwittingly aided and abetted. The "AML Directive" describes the processes and control mechanisms implemented at Lenzing. The directive was introduced in 2020. In 2022 tools for the KYC (Know Your Counterpart) process were introduced to identify Lenzing counterparties and verify their identities. Furthermore counterparties can be checked for adverse media, Politically exposed persons (PEP) and sanctions to mitigate the risk of business relationships with illegitimate business activities.

Antitrust Directive
Lenzing does not tolerate or participate in any business conduct, transaction or activity that violates the antitrust and competition laws applicable to it. The company respects applicable trade laws and restrictions as imposed by the United Nations or other national or supranational bodies or governments. To ensure that all relevant antitrust regulations are known and adhered to within the Lenzing Group, Lenzing's internal Antitrust Directive serves as a supplement to the Lenzing Global Code of Conduct. It applies to all business activities and operations in accordance with applicable competition law. It informs all employees how to behave correctly when dealing with business partners and shows which activities may pose an increased risk of antitrust violations. Furthermore, this directive helps to promote trust in business dealings, preserve Lenzing's reputation and avoid or reduce costs, risks and damages resulting from a violation of antitrust law.

Anti-Bribery and Corruption Directive (ABC Directive)
The Anti-Bribery and Corruption Directive ("ABC Directive") supplements Lenzing's Global Code of Conduct by providing global minimum standards to ensure that Lenzing's activities are conducted ethically and with integrity. The goal of this Directive is to ensure that all relevant anti-bribery and corruption regulations are known and observed across the Lenzing Group. The Directive applies to all operations and activities in compliance with all applicable anti-corruption laws, including the Austrian Criminal Code, the United Kingdom Bribery Act 2010 and the US Foreign Corrupt Practices Act. It clearly defines what bribery, corruption and acceleration payments mean and provides guidelines on what is considered acceptable behavior. Receiving and giving gifts, as well as accepting and giving hospitality or invitations, require – depending on the monetary value – specific approval within the Compliance Register Tool. Country-specific limits have been defined for all legal entities.

Know-How Protection Directive
Specialization and innovative strength are key factors for the worldwide success of Lenzing. In today's economy, information and Know-How as a result of R&D investments, creativity and business initiatives have become the most important factors for developing and maintaining competitive advantages. Lenzing's Know-How is a central asset that must be preserved and protected using all the protective measures at Lenzing's disposal. The protection of know-how relates not only to Lenzing's leadership in technology, but also extends to its many different activities worldwide, including business secrets. Every employee is a key factor in Lenzing's future know-how protection program and is directly affected by the Know-How protection process described in this directive.

Detective measures

[GRI 2-16; ESRS S2-3]

Lenzing takes the complaints seriously and takes immediate action once it becomes aware of potential negative impacts. Lenzing has established grievance mechanisms. There are various internal reporting channels for employees. Externally, there is the possibility to submit indications via an online tool, which is not only available to all employees of the Lenzing Group, but also to customers, suppliers and other third parties throughout the world. The online tool is also accessible through the Lenzing webpage: Compliance - Lenzing - innovative by nature.

Whistleblower directive
The purpose of Lenzing's Whistleblower Directive is to encourage all employees to speak up in good faith against potential violations of laws, the Global Code of Conduct or Lenzing's internal rules and principles. The directive aims to provide all employees with more concrete guidance and information on how to report compliance concerns about actual or potential rule violations. It emphasizes that for reports which were made in good faith (i.e. with a reasonable suspicion that a potential violation has occurred, is occurring, or is likely to occur), the parties involved are protected from subsequent punishment, discrimination, retaliation, disadvantage, harassment or termination for making reports. Lenzing takes all concerns raised under the Whistleblower Directive serious and defines clear processes in this Directive on how reports are handled internally, who is involved in any necessary investigations, and what the consequences are for identified violations.

Whistleblower system

In order to enable all employees and other stakeholders to report concerns in connection with topics such as corruption, bribery, conflicts of interest, antitrust laws and capital market law, an online-based whistleblower system was established in 2017. Grievances can be reported in-house in person, by phone or email, e.g. to supervisors, the works council or the Group Compliance Officer. In addition, the BKMS® whistleblower system ("Tell us") is freely accessible for everyone on the webpage of Lenzing to express any concerns anonymously (available in all languages relevant to production sites: English, German, Czech, Chinese, Indonesian, Thai, Portuguese). Reporting an incident does not only relate to Lenzing's employees, but also to customers, suppliers, and other third parties around the world. Reported incidents are assessed by lawyers (if necessary in cooperation with local partners), and forwarded to the Group Compliance Officer or to the Local Compliance Officer. Recommendations as to whether the investigation should be deepened or terminated are provided. Concerns can be reported anonymously and without fear of retaliation worldwide thanks to this system. The professional handling of the information protects both the whistleblower and the person affected. 14 reports were filed during the reporting period, which were processed in a targeted manner in accordance with the internal Investigation Directive. The Audit Committee is informed about the reported incidents once a year.

Communication of critical concerns

To remain compliant with all policies and react swiftly to any violations, the communication of critical concerns to the highest governance body are important. For more information on this, please see the Lenzing Group's Annual Report 2022 (Corporate Governance Report).

RISK ASSESSMENT

In June 2022, Group Compliance initiated a risk assessment aiming to identify possible risks and improvement options. These assessments will be conducted regularly as part of a monitoring scheme for the effectiveness of the compliance measures.

Compliance trainings

Understanding rules and regulations is a fundamental requirement for "correct" behavior. Hence the eLearning program was continuously expanded during the reporting year to efficiently convey the most important content of the compliance directives to the relevant target groups. New employees receive welcome folders and onboarding training on the Global Code of Business Conduct and on the topics of "Bribery and Corruption" and "Issuer Compliance". In addition, every employee receives training on data protection, whistleblowing and Know-How protection in the form of eLearning. Roughly, 1,300 employees (approx. 15 percent of the total workforce) completed the training on anti-bribery and corruption, while some 3,400 employees (approx. 40 percent of the total workforce) completed training on whistleblowing[47]. Due to COVID-19, this training took place primarily via eLearning program and online meetings.

Legal complaints and investigations

[GRI 205-3; ESRS G1-4]

Compliance violations via the whistleblower system are collected in the Legal, IP and Compliance department. One case of corruption and two cases of alleged corruption were reported at Lenzing in 2022. There were no public complaints in connection with corruption brought against the company or its employees during the reporting period.

Social and environmental compliance

[GRI 2-27]

Conflicts of interest and production-related circumstances, such as noise, unpleasant odors, and environmental pollution, can 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 Lenzing Group's senior management teams.

Complaints were registered at the sites in Lenzing (Austria), Purwakarta (Indonesia), Nanjing (China) and Prachinburi (Thailand) in 2022, and appropriate remedial measures were taken following the investigation and review process. In Nanjing (China), high COD values exceeding the thresholds led to a permit breach and will result in a fine. As the incident investigation is still ongoing the amount of the fine is not defined yet. In Grimsby (United Kingdom), there were two permit breaches related to waste water values. One on total suspended solids, the other one on AO, both breaches received EPA recorded action and timeline. Paskov (Czech Republic), received a conclusion from the ministry of the environment to have committed a misdemeanor. Because of that conclusion a small fine of 1,000 CZK (~42 EUR) to cover the proceeding was issued.

47 For technical reasons training data as of January 10, 2023. Percentage data based on total workforce as of December 31, 2022.

Digitalization & cyber security

MANAGEMENT APPROACH

Material topic: Digitalization & cyber security

[GRI 3-3]

As new digital technologies dramatically reshape industries, Lenzing pursues efforts to leverage the benefits of these technologies to optimize its operations, enable transparency and traceability along the value chain and provide additional value to its customers. The COVID-19 lockdowns have been a boost for digital solutions that safely supported internal collaborations and customer relationships when face-to-face meetings were not possible. The company promotes a risk-based approach to ensure global compliance with information security. To empower its people with the knowledge needed to mitigate the risk of cybercrime, Lenzing continued our ongoing initiatives to raise awareness, like eLearnings, face-to-face trainings and even phishing campaigns to test and train the internal community. To further propel the digital abilities of its teams, Lenzing launched the Lenzing Digital Academy. This starts to be an important basis for further digitalization initiatives, such as the digitalization and re-build of the business processes for the Enterprise Resource Planning System in a greenfield approach already started. 2022 was another year with still rising challenges in cybersecurity, which have been anticipated with the right steps to improve the cyber resilience in several dimensions. Lenzing is also extending its technical solutions to prevent fraud across the supply chain.

Actual and potential negative and positive impacts

Positive

- Increased transparency and traceability of supply chains and thus supply chain security
- Protection of our business processes and data
- Increased trust of employees, customers and partners through responsible data handling
- Optimization towards “lean” and digitally supported business processes, saving time, energy and reducing raw material usage
- More flexible digital working environments to retain talent, attract future talent and allow for a new way of working
- Digitalization helps to anticipate the needs of customers and improves the customer experience

Negative

Own activities:

- Successful cyber-attacks could stall business processes or even impact operation
- Potential disclosure of information could incur high regulatory penalties or claims
- Potential compliance issues could reduce Lenzing’s credibility in the values it champions

Business relationships:

- Successful cyber-attacks could stall business processes or even impact the operation of business partners

Policies and commitments

- Data Protection & Information Security Policy approved by the Board of Management
- Data Protection & Information Security by design & default
- Protective measures appropriate to the related risks
- Applicable legal regulations and a set of internal policies, directives and guidelines

Actions taken

- Cyber-attacks have been averted successfully by technical means (e.g. via the rapid mitigation of several zero-day incidents and regular vulnerability management), but also because of aware and empowered employees
- Further development and management of the information security & data protection management system
- Regular information security assessments and audits by external and internal parties
- Regular internal/external penetration testing
- Regular risk assessments with enterprise risk management and cyber insurance companies
- Close identified gaps through immediate actions and by the creation and execution of appropriate Service Improvement Plans
- Running information security due diligence programs on third parties
- Notification mailbox to report any suspicious, probably fraudulent emails and personal feedback given to the sender(s)
- Digital Innovation Function is responsible for capitalizing on new digital technologies
- Launch of fiber identification system for VEOCEL™ Lyocell fibers
- Up-skilling of work-force guarantees enhanced and more efficient utilization of IT applications and facilitates digital transformation
- Further digitalization with company seals used for E-Branding Service, invoice signing and approval workflows

Sustainability targets, measures and progress

For more information, please see the “Sustainability targets, measures and progress” chapter.

Stakeholder

- Customers
- Consumers
- Providers of digital solutions
- Employees
- Lenzing shareholders
- Competent authorities and auditors of various labels

For more information, please see the “Stakeholder engagement” chapter.

Responsible

- Member of the Managing Board (Finance)
- VP Global IT
- VP Fiber Commercial
- Chief Information Security Officer
- Senior Director Digital Innovation

- Alignment of cyber security measures to business needs
- Continuous improvement of Lenzing's cyber security measures
- Continue the Lenzing Security Programme, which was derived from the Cyber Security Framework Gap Analysis
- Maintaining appropriate technical and organizational measures for the processing of personal data

Supporting

- Business Process Organization
- Global IT, IT Backoffice Team, Business Process Leaders
- Department/team leaders, local coordinators
- Digital Product Owners
- Lenzing employees during their daily work

Digitalization

Today, digital technologies are evolving at a faster pace than ever, becoming increasingly complex and affecting more and more people. As new digital technologies dramatically reshape industries, Lenzing pursues efforts to leverage the benefits of these technologies to optimize its operations, enable transparency and traceability along the value chain, and provide additional value to its customers.

Digital solutions leading to a new way of work

After the heights of the COVID-19 pandemic, Lenzing Group has retained the option of remote working. Its infrastructure is still well-prepared for this new way of work with excellent video conferencing and virtual collaboration tools. To maximize IT security for remote working, Lenzing makes sure that all protective IT security measures are maintained at a high level, for example, by providing handling instructions for data protection and information security at home or by applying the same security patches at home that are applied in the office.

"Lenzing eSign" is another tool that Lenzing uses in continuously leveraging digital process optimization. It allows documents to be signed with qualified electronic signatures that comply with the EU's eIDAS regulation and the UNCITRAL convention. Around 900 employees worldwide are currently authorized to either sign or approve thousands of documents with this intuitive and mobile tool. It has replaced several paper-based processes, virtually eliminating the need to print, sign, scan and redistribute documents and contracts and allows documents to be permanently archived. The updated version, which is being prepared and tested this year, contains powerful workflow features and can even include external parties in signing documents.

These measures have made large-scale remote working a highly viable option for the Lenzing Group. Human resource experts assume that many employees intend to continue working from home in the future, at least for some time. Remote working is particularly likely to appeal to a younger generation of employees because it allows a better balance between work and private life. Besides this social aspect, moving to a more digital working environment can also help to improve the environmental footprint. For example, the aforementioned replacement of several paper-based processes eliminates the need for printing, and thus conserves valuable resources. Since the start of the pandemic, significantly more meetings have also taken place online. Overall, remote working and more digital events have reduced commuting and business travel, which will likely lower CO_2 emissions.

End-to-end (e2e) digitalization program

The recently launched SAP S/4 HANA implementation program will intensify digitalization efforts along e2e processes with the aim of embedding the same standard of compliant, repeatable, consistent, and transparent processes throughout all Lenzing sites. As best practice principles will be used for the processes, the execution of this program will reduce process complexity and hence increase efficiency.

Digital Academy

The Digital Academy was established at the end of 2021 as Lenzing's internal training facility. Lenzing is consequently fulfilling important requirements to support its strategy, namely:

- Availability of qualified personnel
- Reduction of labor market dependence
- Increase effectiveness and efficiency by improving end user IT application knowledge
- Preparation and support of the SAP S/4 HANA transformation
- Reduction of IT support effort
- Digitization of the workforce for optimal integration of applications
- Increased awareness and capabilities regarding information security and data protection

Lenzing aims to accomplish this by investing in IT applications and infrastructure; however, it is aware that their potential can only be fully captured with skilled employees.

The Digital Academy is being established as a comprehensive training program for relevant IT applications and topics. Its medium-term focus is on SAP, digital workplace applications, IT security and data protection.

Content is provided in training formats (classroom training, virtual training, videos, printed material, etc.) that reflect the needs of the target groups. A modular structure enables training up to the level of application experts (e.g. key users or IT consultants). A system landscape has been developed for this purpose that provides a clear overview of the content. In 2022, there were 75 training courses on SAP and digital workplace that reached 928 participants.

The SAP part of the Digital academy is also aimed at external participants such as students and the unemployed. Tailored programs are planned to reach these groups and thus address the difficult situation on the labor market. In 2022, the "AMS Track" program focusing on unemployed individuals was successfully launched; five new employees were recruited.

The Digital Academy program is planned to be refined and expanded in 2023, while the concepts developed are intended to be implemented over the same period.

Exploration of digital technologies
A dedicated Digital Innovation Function was launched in 2021 that explores the application of new digital technologies along e2e processes, digital services, and digital interfaces to customers. One achievement in 2022 was the start of the implementation of a digital customer portal that aims to connect Lenzing with its value chain partners and offers them digital services. The use of artificial intelligence to optimize operational processes is also in a prototype phase. This project aims to maximize the yield of input materials and reduce energy consumption.

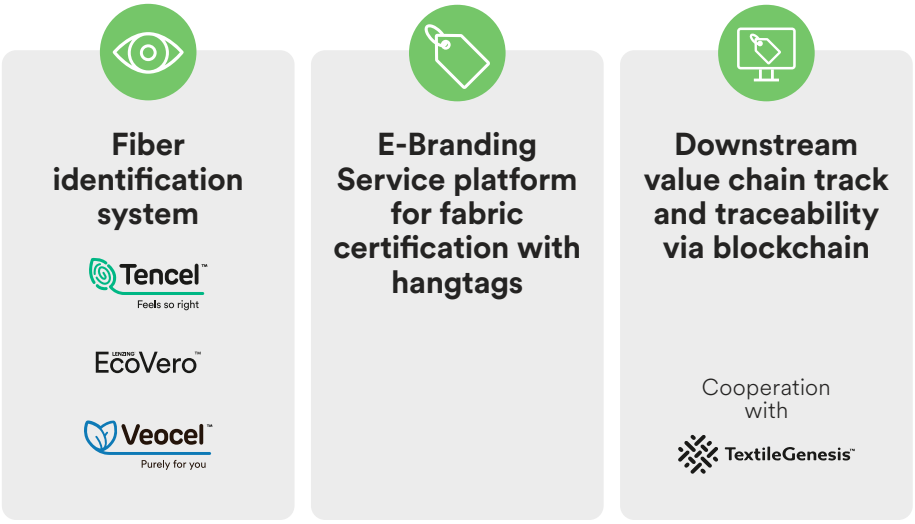
Digital solutions for transparency and traceability across entire supply chains

Beyond ongoing digitalization processes in its own operations, Lenzing is committed to driving digital solutions throughout the supply chain. Lenzing thus aims to improve transparency and traceability in the textile and nonwovens industry. Transparency means openness towards the people who come into contact with Lenzing fibers. This is crucial as only an honest discussion with the industry can ensure traceability, verifying the origin of Lenzing fibers throughout the supply chain up to the finished garment.

Lenzing's fiber identification system and E-Branding Service form the basis of its overall approach to transparency, while the TextileGenesis™ blockchain project uses the data for maximum traceability.

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

Building blocks of transparency Figure 26



Fiber identification system
Lenzing has developed a technology for fiber identification. The system was successfully implemented for LENZING™ ECOVERO™ branded viscose fibers, TENCEL™ x REFIBRA™ branded lyocell fibers, and the LENZING™ FR portfolio. In addition, the VEOCEL™ product brand launched the beauty industry's first fiber identification system for LENZING™ Lyocell Skin, LENZING™ Lyocell Fine Skin, and LENZING™ Lyocell Micro Skin fibers.

The fiber identification technology relies on the physical identification of fiber origin at different stages of production such as the fabric and garment stage. 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. This guarantees that the fibers are produced in state-of-the-art-production facilities that meet high standards for resource efficiency and environmental and social responsibility.

ACHIEVEMENT OF TARGET #13

Lenzing increased its physical traceability from TENCEL™ x REFIBRA™ and LENZING™ ECOVERO™ to 100 percent of its textile special fibers in 2021, therefore fulfilling the Sustainability Target 13.

E-Branding service

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

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 at a compounded growth rate of more than 40 percent every year. After emerging from the height of the pandemic in 2021, the TENCEL™ and LENZING ECOVERO™ brands managed to grow their licensed product base by more than 50 percent from 2021 to 2022.

Registered Lenzing textile partners can apply for fabric certifications, license agreements, or Lenzing labels. Lenzing nonwoven partners can also register and apply for combined certification and license agreements. In addition to the supply chain disclosure, certification also includes fabric testing by Lenzing 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 consumers. 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 consumers 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 (e.g. those who buy Lenzing fibers) to fabric/roll-good manufacturers/converters and manufacturers of the end products all the way to retailers who ultimately position the goods at the point of sales including online stores.

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 conscious 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 consumers. 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.

FOR ALL PARTNERS ALONG THE VALUE CHAIN

- Informed decisions for consumers
- Service for the supply chain partners
- Transparent communication in complex environments
- Minimized risk of brand counterfeiting

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 a digital platform for textile supply chain traceability in 2020 – a milestone for the Lenzing Group. The digital platform was launched in November 2020 for TENCEL™ and LENZING™ ECOVERO™ branded fibers.

TEXTILE GENESIS™

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 sustainably produced 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 sustainably produced fibers such as wood-based cellulosic fibers, wool, recycled polyester, and organic cotton.

The platform provides customers, partners, and consumers with an overview of the entire textile supply chain. Supply chain traceability has become a top priority for apparel and home textile brands. Lenzing's new blockchain-enabled supply chain traceability platform supports the entire supply chain in meeting increasing demands for transparency and sustainability.

More than 1,500 different textile value chain companies (spinners, fabric mills, garment makers etc.) have joined the platform in 2022. Several large fashion brands such as H&M and Bestseller have started rolling out TextileGenesis for all wood-based cellulosic fibers. Lenzing has experienced an increasing demand for fibers with blockchain traceability. The number of Fibercoins™ issued every month is rising steadily.

ACHIEVEMENT OF TARGET #12

In 2021, Lenzing had at least 500 value chain partners with blockchain technology and therefore achieved Sustainability Target 12 of having digital fiber traceability.

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 an 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.

Continuous digitalization investments in operations

Lenzing continuously invests in the improvement and expansion of its production facilities. Modern plant engineering generates a wealth of digital information that is enormous importance for further operation of the plants. In the past year, data quality has been significantly increased to ensure the seamless transfer of all information from engineering, startup, operation, and continuous improvement. For example, a 3D plant model is used in the development phase for reviews and walk-throughs to best meet the needs (health, safety, operability) of all involved persons. This data model can also be used in maintenance for efficient services. Another area involves the digitization of old inventory documentation: The documentation was scanned by artificial intelligence in order to implement additional extensions and adaptions to the then-current needs of existing plants. All measures lead to an efficient process and thus in rapid implementation of measures and improvements.

Furthermore, services such as the Controller Performance Monitoring tool (CPM) have been introduced for continuous process optimization. These tools provide a quick and easy overview of the entire process control of a plant and thus indirectly of the control quality of the process. This drew attention to weak points and opportunities for improvement. Specific measures were then developed to stabilize and improve processes. These improvements have resulted in more stable, efficient and resource-saving operations with fewer failures and alarms.

Another such services is "Alarm Management", which reduces the number of alarms in plant control rooms, thus reducing operator stress and enabling them to take better and more targeted action if worse comes to worst.

Cyber security

Information security is the practice of protecting information by mitigating information risks. Cyber security is the practice of protecting critical systems and sensitive information from digital attacks. Cyber resilience is the ability to anticipate, withstand, recover from, and adapt to adverse conditions, stresses, attacks, or compromises on systems that use or are enabled by cyber resources. These are the dimensions companies are permanently working on to reach an adequate level of protection.

Current state

Most business organizations have incorporated information security into their daily work. Cyber security has become one of the top ten risks for businesses worldwide in recent years[48]. Attacks against companies are soaring in number, quality, and scale.

During 2022, the COVID-19 pandemic continued to challenge almost all areas of everyone's lives. Service organisations such as Lenzing`s IT-teams still suffered from volatile supply-chains in hardware and software delivery.

Starting in December 2021, a new vulnerability in a common framework used for logging features –Log4j – shocked the entire internet. Due to its versatility, Log4j is used in a very wide range of products, from simple devices to servers and control systems. It is widespread and easy to use, making it difficult for many companies to detect these toxic ingredients and properly evaluate the risk to the product or environment in which it was being used. This prompted multiple adhoc and follow-up actions that the IT team executed successfully through excellent teamwork.

The war against the Ukraine caused high impacts on the economies, global trade as well as Cyber Security. Due to Austrian's geopolitical position and Lenzing`s absence from this region, no increase-in attacks or offenses were detected. On the contrary, the environment was easier to navigate for several months because well-known hacker groups focused on other targets/areas or were shut down by police or judicial forces. On the other hand, a shift of several actors towards business/cyber espionage was seen.

Ransomware has long been feeding the coffers of highly skilled hackers, whether criminal groups or state-sponsored teams looking for money or information in both cases. They are well organized and staffed, equipped with top-of-the-line equipment/tools, and ruthless and strategic in their actions. They employ blackmailing, among other things, to convince victims to pay ransom. No wonder the criminal economy supposedly generated annual revenue of EUR 1.5 trillion, or roughly the GDP of Spain[49].

Because Lenzing, a global player in the textile business, is interconnected with numerous business partners, authorities, customers, and consumers at various sites of (physical and digital) operation, it is at high risk to falling victim of one of these hackers. Last year, several companies in Lenzing's orbit were affected by cyber attacks that disrupted services and commerce, involved encrypting, stealing, and leaking confidential data (data breaches), and, in some cases, even the closure of production sites.

Therefore, Lenzing Group has invested heavily in improving cyber resilience and information security. Existing security concepts have been and are constantly challenged and adapted to the new normal. However, Lenzing not only relies on technical protection measures, but also strongly focuses on the awareness of its employees. Cyber security is not a project, but a permanent endeavor for the entire organization.

Information Security Policy

Protection of information is an ongoing endeavor for each and every employee, contractor or business partner of all the Lenzing Group's companies in order to proactively maintain and improve an appropriate level of security for all kinds of information processes. The Information Security Policy promotes a risk-based approach to achieve global compliance with information security and data protection. Lenzing does this while balancing the rights and needs of the company, society and individuals.

48 World Economic Forum 2021, https://www.weforum.org/agenda/2021/01/building-resilience-in-the-face-of-dynamic-disruption/

49 https://www.techrepublic.com/article/cybercriminals-raking-in-1-5-trillion-every-year/

This policy and applicable legal regulations constitute a framework for multiple directives/guidelines that are regularly reviewed and reworked, including:

- Lenzing Global Code of Conduct
- IT User Directive (secure use of the IT systems and the basic principles of data security measures)
- Smartphone Directive (mobile devices)
- Terms of Use for Private Mobile Devices
- Know-How Protection Directive (including classification of data and its processing)
- Secure storage of personal identifiable information
- Cyber Defense Operation Handbook

On basis of the Lenzing Security Policy and in line with local legislation an updated Data Protection Directive was proposed and will be rolled out after approval.

Activities to fight cybercrime

As a consequence of last year's assessment of Lenzing`s abilities along the Cyber Security Framework, several short- to medium-term activities to improve cyber resilience within Lenzing's security program were started.

Examples of some of the activities that can be shared publicly are listed below.

Human factor: the best firewall
As outlined above, technical measures are important but cannot provide full protection in all situations. This is why empowered and security-conscious employees are essential as the first line of defense. Lenzing carries out several activities to promote these skills, including:

- Regular awareness initiatives through news articles on the intranet
- Regular information via group mails, info-screens and departmental or town hall meetings
- Ad-hoc information in the event of relevant observations in the neighborhood
- Tailored face-to-face trainings for IT employees, HR teams, finance, and accounting
- Keynotes on (virtual) corporate department summits
- Line for reporting any security concerns, questions, or potential fraudulent activities
  (including giving feedback and advice on topics raised)
- Security e-learning for each and every IT user
- Privacy e-learning for each and every IT user

The consciousness and awareness of Lenzing's IT users has led to more than 230 reports on potential spam, phishing/malware, and fraudulent mails/calls/contacts worldwide in the reporting year.

Continuous improvement: paradigm for all activities

Targeted technical and organizational measures have been in place for several years to ensure data protection and combat data theft, the manipulation of business processes, and other forms of internet crimes. As technology evolves and the number and sophistication of attacks constantly increases, Lenzing is employing its best efforts by regularly checking and improving the appropriate measures at a similar pace.

Achievements of the year

Lenzing performs annual penetration tests to assess security measures. These tests, performed by highly skilled external partners, result in service improvement plans (SIPs). In addition, external security scorecards systems are frequently used to gain feedback from outside the company. Regular background checks are performed to search for potential threats, disclosures in the dark web or hacked accounts. All findings revealed by such assessments, tests and by reported incidents result in a security review, risk assessment, and, subsequently, corrective action.

There was a slight decline in "zero-day vulnerabilities" in terms of numbers, but not in terms of impact. There were 46 zero-day vulnerabilities (compared to 89 in 2021) for IT vendors, of which 22 (compared to 43 in 2021) were found in widely used products from tech giants such as Apple, Adobe, and Microsoft.

Ransomware and nation-state hackers use the disclosure and exploitation of vulnerabilities in enterprise resource planning (ERP), mails, collaboration, and knowledge-sharing-tools as means to harvest data and account information. To counter this, Lenzing emphasized the fast rollout of client and server patches to compete with the dramatically lowered times to exploit (and attack). Several campaigns included mobile device update cycles as well.

Since almost two thirds of ransomware attacks are orchestrated by phishing mails, Lenzing provided specific awareness information and e-learnings about phishing to its employees and subsequently tested the results in a phishing test. Lenzing also intensified its technical endeavors in this area. The IT infrastructure teams implemented additional safeguards on Lenzing`s IT assets during the year to improve security hygiene and to reduce the risk to everyday operations.

A vulnerability management process was implemented, as mapped out in Lenzing`s information security program, further increasing the pace with which the IT team closed open vulnerabilities as well as the visibility of the IT team. The still-high number of newly revealed vulnerabilities as well as revoked or reissued patches revoked or reissued kept the teams incredibly busy. However, the hard work enabled Lenzing to achieve key milestones towards improved threat detection and response capabilities. This quantum leap will help to detect and respond to attacks faster.

Stakeholder engagement

[GRI 2-28, 2-29]

Lenzing is committed to stakeholder engagement and prioritizes meaningful, collaborative and sustained engagement with a variety of groups such as suppliers, value chain partners and employees. The Lenzing Group strives to be a sustainability leader and to have the necessary credibility to raise the standards of the entire textile and nonwovens industry.

In pursuit of this, this chapter will identify and define Lenzing's engagement with the most important stakeholders in each material topic in the reporting year with the aim of increasing transparency and connecting with local communities.

Lenzing has always aspired to be a pioneer in sustainability and an inspiration for the textile industry while looking to catalyze change for the better within the fashion industry towards a more circular and sustainable future.

Read more about Lenzing's diverse stakeholder groups in the "Stakeholder engagement" focus paper and how stakeholders were involved in the double materiality in the "Materiality analysis" focus paper.

Circularity & resources

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"). As well as providing fiber and textile intermediate materials for testing and developing new forms of textile construction, Lenzing gives feedback on draft reports and guidance documents.

Circular Fashion Partnership

Circular Fashion Partnership is a cross-sectoral project led by Global Fashion Agenda. Fashion brands, manufacturers and recyclers collaborate to capture and reuse textile waste in Bangladesh. Lenzing is engaged in accelerating the transition to a circular system in the fashion industry.

Policy Hub

In 2019, Lenzing became a member of the Policy Hub on the circular economy for the apparel and footwear industry, which it has also co-chaired since May 2020. In 2022, the company actively contributed to the industry's understanding of barriers and challenges facing the circular economy in areas such as waste and recycling technologies, transparency, and sustainable product initiatives. Lenzing has also actively engaged with the public and EU policy makers in exchanging information on barriers and possible solutions for advancing circularity.

Circular and Sustainable Textile Clothing (CISUTAC)

In October 2022, Lenzing became a partner in the CISUTAC (Circular and Sustainable Textile and Clothing) project that is co-funded by the EU. The new consortium was established to support the transition to a circular and sustainable textile sector. Besides Lenzing, the 27 members of the consortium include the industry association Euratex, the textile company Inditex, PVH, Decathlon and the non-governmental organization Oxfam. The aim of this initiative is to prevent, identify and eliminate barriers to the circularity of the clothing chain. For its part, Lenzing is focusing on the development of recycling processes for cellulose fibers in line with its own corporate strategy.

European Apparel and Textile Confederation (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 its latest project ReHubs to further promote circularity in the textile industry.

EURATEX is currently working on the Recycling Hubs (ReHubs) initiative. The goal of ReHubs is to set up an integrated system based on recycling hubs in Europe to upcycle textile waste and industrially scale up the collection, sorting, processing and recycling of pre- and post-consumer materials. Lenzing has committed to joining the "Transform textile waste into feedstock" project within the EURATEX ReHubs initiative led by Texaid.

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 product recyclability and product design to improve cooperation between makers and buyers across the industry value chain.

By the end of 2024, Europe will face the challenge of having to separate the collection of textile waste. At present, there is no large scale plan across Europe to reuse and recycle the current 7.5 million tons of textile waste.

Accelerating Circularity Project (ACP)

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 welcomes the opportunity 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. As well as being a founding partner of the project in the US in 2019, Lenzing became a project partner in Europe in 2021.

Lenzing took part in two scientific trials in 2022 with the goal of a) test for the highest post-consumer content using the REFIBRA™ technology as a carrier fiber and b) testing 50 percent of TENCEL™ fibers with REFIBRA™ technology mixed with a maximum amount

of post-consumer textile waste, while also targeting a lighter denim weight. These trials were designed by ACP in collaboration with participating trial members that are representative of all areas of the circular value chain, including collectors, sorters, preprocessors, recyclers, fiber producers, yarn spinners, fabric mills, and brands. Participants engage with a shared goal of testing the entire system from collection through to brand procurement for technical, logistical, and marketplace acceptance. Each input and output is tested for physical and functional feasibility along the entire process chain, which is only just starting to include inputs from post-consumer collection sources.

Textiles 2030
In August 2021, Lenzing was one of the pioneering signatories of the voluntary Textiles 2030 agreement. Textiles 2030 is Waste &Resources Action Programme (WRAP)'s new expert-led initiative in the UK designed to limit the impact of clothes and home textiles on climate change. It represents a voluntary agreement that is funded by its signatories and the government. Signatories will collaborate on carbon, water and circular textile targets, as well as contribute to national policy discussions. With its manufacturing facilities in Grimsby in the United Kingdom, Lenzing is honored to take part in this initiative for proactively fostering circularity and systemic change in the textiles industry.

Renewcell
In December 2022, Lenzing and Renewcell, the Swedish textile-to-textile recycling pioneer, signed a multi-year supply agreement to accelerate the transition of the textile industry from a linear to a circular business model. The agreement contains the sale of 80,000 to 100,000 tons of Renewcell's 100 percent recycled textile Circulose® dissolving pulp to Lenzing over a five-year period, for use in the production of cellulosic fibers for fashion and other textile applications.

Södra
To further speed up the technological development of textile recycling followed by an expansion of capacity for generating pulp from post-consumer waste, Lenzing began collaborating with Södra, another leading global pulp producer, in 2021. The goal is to recycle and process 25,000 tons of textile waste per year by 2025 at Södra's Mörrum site. Together with partners along the value chain, Lenzing aims to promote the issue of textile recycling and process 100,000 tons of textile waste by 2028. Thus, as well as developing recycled materials to satisfy Lenzing's own circularity commitments, this joint project with Södra will enable substantial quantities of recycled pulp to be used by other wood-based cellulose fiber producers across the world. Lenzing is therefore contributing to the scaling of circularity and fibers with recycled content in the market.

Climate & energy

Stakeholder engagement and policy interventions
Lenzing strongly believes that its own efforts should be complemented by engaging with industry stakeholders and civil society as collaboration is required to bring about systemic change in addressing the climate crisis. Lenzing signed the UN Fashion Charter for Climate Action in 2018 and is an active member of its working groups to develop solutions to industry challenges. Lenzing has also supported 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. 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 required, such as global carbon pricing and the elimination of fossil fuel subsidies. Industry and local governments should ramp up efforts to generate more renewable electricity in order to supply current facilities and cater for future growth.

UN Fashion Charter
The Fashion Industry Charter for Climate Action under the auspices of UN Framework Convention on Climate Change (UNFCCC) is a broad stakeholder movement in the textiles, clothing, and fashion industry aimed at achieving 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 original targets of the UN Fashion Industry Charter were to achieve net-zero greenhouse gas emissions no later than 2050 and reduce emissions by 30 percent by 2030. These targets were updated in November 2021 to limit the increase in global average temperature to 1.5°C above pre-industrial levels, as the Intergovernmental Panel on Climate Change (IPCC) and in line with the Science Based Targets initiative[50]. An initial report, the "Climate Action Playbook"[51], published in 2020 highlights major greenhouse gas reduction opportunities in fiber production, the fashion industry's main raw material.

Lenzing was a founding member of the initiative and has continued to make an active contribution to the working group on raw materials, sharing its longstanding experience in the production of sustainable cellulose-based fibers and assessment of environmental impacts through life-cycle analyses (LCA). The working group has finalized a report entitled "Identifying Low-Carbon Sources of Cotton and Polyester"[52], which was published in early 2021. The report contains an overview of existing LCA studies and identifies opportunities for improvement by switching energy sources, changing technology, and innovating. In 2021 and 2022, Lenzing contributed to the report on "Man-made cellulose fibers", to be published in Q1/2023.

Roadmap to Zero
Lenzing contributed to the development of the "Roadmap to Zero" publication, which aims to catalyze industry action against climate change with proven approaches and measures. This document was prepared by the World Resources Institute (WRI) together with the Apparel Impact Institute (AII), a spin-off of Sustainable Apparel Coalition (SAC), which identifies, funds, scales, and measures the apparel and footwear industry's proven environmental impact solutions[53].

50 https://unfccc.int/news/fashion-industry-steps-up-climate-ambition-with-renewed-charter [Accessed 10 December 2021]
51 https://unfccc.int/documents/250059 [Accessed 15 February 2021]
52 https://unfccc.int/sites/default/files/resource/UCC_Cotton_Pet_report.pdf [Accessed 10. December 2021]
53 https://apparelimpact.org/ [Accessed 15 February 2021]

Renewable Carbon Initiative (RCI)
Lenzing was one of the eleven leading companies from six countries that 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. In the first year the number of members increased to over 30 and now includes companies such as Beiersdorf (Germany), BASF (Germany), Cosun Beet Company (The Netherlands), Givaudan (Switzerland), Henkel (Germany), IFF (USA), LanzaTech (USA), NESTE (Finland), Unilever (UK), Uniper (Germany) and UPM (Finland). The Renewable Carbon Initiative aims to herald the end of the fossil age for all organic chemicals and materials by 2050. The concept of renewable carbon, which is essential for materials, is gaining more attention and traction – including on the political side (e.g. the Sustainable Carbon Cycles communication paper from the European Commission). Lenzing will continue to be an active member of the RCI, with a particular focus on further greening up the textile and nonwoven businesses.

Business ethics

Employees
Employees are expected to follow the Global Code of Conduct. They are also a viable asset in the timely notification of unlawful conduct within the company. Every employee is informed and trained with regard to Lenzing's policies and directives.

Suppliers
Suppliers are expected to follow the Supplier Code of Conduct as well as respect human rights and labor laws within their own operations.

Austrian Code of Corporate Governance
In order to meet the demands of Lenzing's shareholders and business partners, it is essential for Lenzing to comply with the Austrian Code of Corporate Governance (ÖCGK). Customers in particular demand that their service providers and service suppliers adhere to their compliance standards. The Austrian Corporate Governance Code defines specific duties for the Managing Board, Supervisory Board and auditors. The overall responsibility for compliance lies with the Managing Board – it must ensure compliance with legal provisions and work towards their observance within the company (§ 15 ÖCGK). In addition, it must inform the Supervisory Board regularly, comprehensively and promptly about all issues relevant to the company and report at least once a year on precautions taken to combat corruption (§ 18a ÖCGK).

Raw material security

Together for Sustainability (TfS)
Together for Sustainability (TfS) is an initiative consisting of and driven by chemical procurement specialists, which has the goal of collectively building more sustainable chemical supply chains. Lenzing has been a member of this initiative since 2022. All TfS members have full access to global network of assessed and audited suppliers, which will result in higher efficiencies in sustainable procurement through this shared database. Performance progress based on common principles is shared throughout the TfS community and brings more transparency and unity. This will benefit chemical companies as well as their suppliers.

Canopy
Lenzing cooperates with the 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 derived raw material wood cellulosic fiber manufacturers based on their wood and pulp sourcing performance, transparency and innovation. Today, more than 500 global brands with combined annual revenues of over USD 850 billion are looking to source from "green shirt" producers[54]. 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 since 2020, the geographical locations of pulp suppliers have been publicly disclosed in more detail. Regarding alternative ("next generation") 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 with Lenzing's patented REFIBRA™ technology.

In Canopy's latest Hot Button Report, published in October 2022, Lenzing received a dark green shirt for the third time and topped the overall ranking.

Zero Discharge of Hazardous Chemicals initiative (ZDHC)
For more information about Zero Discharge of Hazardous Chemicals initiative, please see the "Sustainable innovation, products and water stewardship" subchapter.

Greenhouse Gas Protocol
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 and 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 the replacement of fossil-based materials that have high carbon footprints. Moreover, sustainably managed semi-natural forests constitute the most successful way of protecting biodiversity and enabling people to enjoy the benefits of forests in the form of recreation or micro-climate benefits ("ecosystem services"), for example.

The outcome of these ongoing considerations will have a decisive impact not only on the cellulose-based fiber industry, but on the entire cellulose-based bioeconomy. Lenzing participated in the review group to comment on the draft guidance in 2022, and started a pilot for the guidance test. The pilot phase will end in February 2023.

Forest Europe, European 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 manage-

54 https://hotbutton.canopyplanet.org/ [Accessed 31 January 2022]

ment 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 improvement[55]. Current efforts focus on climate change adaption[56], water protection, and biodiversity[57]. 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 2019[58]. The current phase calls for the development of an action plan. Lenzing is represented in the bioeconomy platform and provided input on the strategy and the development of the action plan from 2019 to 2021 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.

The underlying studies have shown a gap between increasing demand for renewable resources for materials and energy on the one hand, and the possible supply on the other hand, which is mainly limited by the available land area. Thus, one area of the action plan of particular relevance to Lenzing is the continued development of the biobased circular economy involving the recycling of biobased materials, to which Lenzing will contribute accordingly.

In 2021, the development process of the Bioeconomy Strategy was linked to the Circular Economy Strategy. The catalogue of actions has been published in 2022.

Biodiversity & ecosystems

Austrian State Forest (Österreichische Bundesforste, ÖBf)
One important wood supplier to the Lenzing site (Austria), is the state forest company Österreichische Bundesforste (ÖBf AG, Austrian Federal Forests). Managing 10 percent of the national territory and 15 percent of Austria's woodland, ÖBf is the largest ecosystem manager, forest managing company and owner of hunting and fishing licenses. Sustainability forms the guiding principle for all ÖBf activities. The Lenzing site pulp mill obtains more than 35 percent of its wood from Austrian forests, the state of Austria's forests is especially important for its sourcing situation. In Austria, forest biodiversity is monitored regularly according to a Biodiversity Index[59]. Recent outcomes are reported in the "Indicators of sustainable forest management 2020"[60] from the multi-stakeholder organization "Walddialog", as a contribution to the Forest Europe indicators and targets process. The ÖBf team for ecological landscape management is developing individual nature conservation plans for each of the 120 ÖBf-forest units, in addition to the existing forest management plans[61]. These include specific measures to protect endangered species and increase biodiversity under local conditions, which are integrated into daily forest management work. Furthermore, ÖBf is cooperating with the NGO umbrella organization Umweltdachverband.

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).

In 2021, Lenzing contributed as a member of the advisory group, providing input to the tool development and its own input to the benchmark. The "Biodiversity Insights Report 2021" provides "a first global baseline for the apparel and textile industry" regarding the awareness of its impacts on biodiversity. It describes approaches to actions in business integration, transparency, materiality, implementation, monitoring and evaluation, as well as corporate reporting. In 2022, the findings of the Insights Report were integrated as a new chapter of questions into the CFMB program.

Inspiring Cooperation Empowering People (ICEP)
Inspiring Cooperation Empowering People (ICEP) is an independent Austrian development organisation with a business-oriented focus. ICEP works with partner organisations in emerging markets and with Austrian companies and implements projects worldwide with the aim of getting more people actively involved in economic life. ICEP supports Lenzing since 2018 in the implementation of ADA co-financed afforestation and conservation project in Albania.

CARBON DISCLOSURE PROJECT (CDP)

The Lenzing Group contributed to the Carbon Disclosure Project (CDP), a non-profit organization, in the areas of Climate Change, Forest and Water Security in 2022. Lenzing is one of 12 companies worldwide that were recognized with an outstanding triple "A", which is the highest ranking possible, for environmental leadership in climate change, forests and water security. Only 25 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 derived raw material wood cellulose fibers avoid contributing to deforestation, by combining a stringent wood sourcing policy, forest certification, and dedicated commitment to the CanopyStyle Initiative.

55 Madrid Ministerial Declaration. 25 years together promoting Sustainable Forest Management in Europe, 7th Forest Europe Ministerial Conference, Madrid 2015. Available at: https://foresteurope.org/wp-content/uploads/2016/11/III.-ELM_7MC_2_2015_MinisterialDeclaration_adopted-2.pdf [Accessed 15 February 2021]
56 FOREST EUROPE 2020. Adaptation to Climate Change in Sustainable Forest Management in Europe, Liaison Unit Bratislava, Zvolen, 2020
57 https://forestbiodiversity.eu/ [Accessed 15 February 2021]
58 https://www.bmbwf.gv.at/Themen/HS-Uni/Hochschulgovernance/Leitthemen/Nachhaltigkeit/Bio%C3%B6konomiestrategie.html [Accessed 15 February 2021]
59 Geburek, T., Büchsenmeister, R., Englisch, M., Frank, G., Hauk, E., Konrad, H., Liebmann, S., Neumann, M., Starlinger, F. and Steiner, H. (2015). Biodiversitätsindex Wald – Einer für alle! In: Biodiversität im Wald. BFW Praxisinformation 37, pp. 6-8
60 https://info.bmlrt.gv.at/themen/wald/walddialog/dokumente/indikatorenbericht-2020.html
61 https://www.bundesforste.at/die-bundesforste/naturschutz/biodiversitaet/oekologisches-landschaftsmanagement.html

Wood K plus
Many Austrian companies, including Lenzing, and scientific bodies have joined forces in the "Kompetenzzentrum Holz". It is a leading research institute in wood and wood-related renewable resources in Europe. Recent topics addressed by the competence center include advanced biomass utilization (e.g. via closing loops in pulp production), lignin and hemicellulose utilization, or the use of enzymes in the production process. One workstream of Wood K plus for Lenzing is sustainability in wood sourcing. In 2021, the focus shifted to biodiversity, including support for the work for the Textile Exchange Biodiversity Benchmark.

Sustainable innovation, products & waterstewardship

Zero Discharge of Hazardous Chemicals (ZDHC)
The Zero Discharge of Hazardous Chemicals (ZDHC) multi-stakeholder collaboration initiated a special focus and task teams for wastewater, sludge, solid waste, and air emissions in the textile industry. Lenzing has been part of the Man-Made Cellulosic Fibers (MMCF) task team on wastewater, sludge/solid waste, and air emissions since 2018. In 2020, Lenzing adopted the published ZDHC guidelines on wastewater, air emissions, and responsible fiber production for MMCF manufacturers. In 2021, Lenzing started the ZDHC Gateway reporting in accordance with the wastewater guideline in its viscose operations in Purwakarta (Indonesia), Nanjing (China), and Lenzing (Austria). In 2022, as well as continuing the Gateway wastewater reporting, Lenzing participated for revising and extending the MMCF guideline to include other fibers such as lyocell and support the development of the MMCF supplier platform program. Both will be finalized and published by ZDHC by the end of 2022 and April 2023 respectively. Once published, Lenzing will begin to implement them accordingly.

Research collaborations

Wood K Plus
For more information about Wood K Plus please see the subchapter above "Biodiversity".

Christian Doppler Laboratory
Lenzing is also a partner in the Christian Doppler Laboratory for an efficient, recycling-based circular economy lead by the Technical University Vienna. The laboratory aims to provide the scientific knowledge base for efficiently recovering secondary raw materials from different municipal solid waste streams. Another cooperative research project dealing with circular economy, more specifically textile recycling, is the Upper Austrian EnzATex project, which is now in its second and final year.

Circular and Sustainable Textiles and Clothing (CISUTAC)
For more information about Circular and Sustainable Textiles and Clothing (CISUTAC) please see the subchapter above "Circularity & resources".

Bilateral research
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 the maritime environment (for more information please see the "End of product use" focus paper) or its collaboration with the Linz Institute of Organic Solar Cells (LIOS), Johannes Kepler University Linz, on the dielectric properties of cellulose fibers.

European Polysaccharide Network of Excellence (EPNOE)
Lenzing is also active in scientific networks such as the European Polysaccharide Network of Excellence (EPNOE) and in supporting research projects by providing input and engaging in discussions. Experts from Lenzing R&D also participate in relevant conferences and have gave several talks or have been part of panel discussions with a focus on sustainability, biodiversity and recycling.

Industry associations and initiatives
Industry associations and initiatives are also an important cornerstone to deepen cooperations and develop new networks – again with a very strong focus on sustainability. The European Technology Platform for the Future of Textiles and Clothing (Textile ETP), of which Lenzing is a member, is a very active player in this field. It hosts the Innovation in Circular & Biobased Textiles masterclass, in which Lenzing experts participate, and the Textile Circularity Multiplier Initiative.

Bright coatings
Bright coatings is a research project funded by the COVID Reconstruction Fund of the EU (EU React) and deals with furfural. Furfural is one of the biobased chemicals produced by the biorefinery in Lenzing. Research is being conducted with an EU-wide consortium to produce a new product from it, being more specific, a type of protective coating.

Health & safety

Employees
The most important stakeholder group with regard to the topic of occupational health & safety is Lenzing's workforce. To achieve Lenzing's vision - "LEAVE HOME HEALTHY, COME HOME HEALTHY" - different activities and initiatives are conducted, such as specific training sessions and monthly safety webinars. Safety dashboards ensure employees have access to daily reports on key safety performance metrics in order to take appropriate measures when needed.

Human rights & fair labor practices

Employees
One very special stakeholder group is Lenzing's staff. Thanks to their transparency, collaboration, and sharing of information, employees at Lenzing are a testimony to a credible sustainability performance by the Lenzing Group.

Communication with employees and employee representatives is regular and varied to ensure a good understanding of the business strategy, goals, performance, market conditions, financial situation and policies as well as any matters relating to contractual terms, conditions and benefits. Information is shared through different channels such as onboarding evets, notice boards, internal mail and internal news, etc.

The works council represents the interests of the employees in various committees and regularly shares information with employees, for example regarding work conditions and remuneration.

Local communities
Both locally and internationally, the Lenzing Group takes its social responsibility as a corporate citizen seriously. Therefore, the company maintains continuous and consistent communication to inform local communities and listen to their concerns and ideas, with the goal of creating healthy community relationships. For more information, please see the "Social responsibility" focus paper.

Rating agencies
Various rating agencies have shown an increasing interest in social and labor topics alongside environmental and governance related themes in recent years. Information is mainly provided via questionnaires.

Brands and retailers
Retailers and brands are considered customers by Lenzing, even though they are at the end of the value chain. They are important stakeholders for the company as they are the most important link to consumers. During the reporting year, Lenzing worked on the implementation of the standardized Higg FSLM assessment tool. In addition, customer audits were conducted at various sites, focusing on labor standards and fair labor practices. Customer questionnaires on relevant topics were also completed during the year.

Certification bodies
Certification bodies are also increasingly focusing on human rights and fair labor practices, which is reflected in modified audit processes. In the context of self-assessments and/or audits, these topics are examined in order to obtain the respective certification.

Suppliers
The responsible purchasing of primary and raw materials for fiber and pulp production plays a crucial role for the Lenzing Group. Transparent business relationships with suppliers are key to promoting and improving a sustainable supply chain. In response to increasing demands from value chain partners regarding the social impacts of business practices, Lenzing undergoes the yearly EcoVadis assessment and reviews contracts to ensure a safe and healthy working environment.

Digitalization & cyber security

Customers and consumers
Supply chain traceability has become a top priority for apparel and home textile brands. Lenzing's new blockchain-enabled supply chain traceability platform TextileGenesis™ supports the entire supply chain in meeting increasing demands for transparency and sustainability. More than 1,500 different textile value chain companies (spinners, fabric mills, garment makers etc.) have now joined the platform.

Employees
Technical measures are important but cannot provide protection in all situations. This is why empowered and security-conscious employees are essential in the front line of defense. To promote these skills, Lenzing carries out several activities, such as regular awareness initiatives via news articles on the intranet or privacy eLearning for each and every IT user.

The consciousness and awareness of Lenzing's IT users has led to up to 200 reports on potential spam and fraudulent mails/calls/contacts worldwide in the reporting year.

Lenzing, March 02, 2023

Lenzing Aktiengesellschaft

Managing Board

DI Stephan Sielaff
Chief Executive Officer

Dr. Nico Reiner
Chief Financial Officer

Robert van de Kerkhof, MBA
Chief Commercial Officer Fiber

DI Christian Skilich, MBA, LLM
Chief Pulp Officer

CHAPTER
4/4

Annex
2022

Table of content

Supplementary information pursuant to §243b UGB

Lenzing Aktiengesellschaft – Safety

Work-related injuries for all employees – Lenzing AG

Table 44

		2020[a]	2021	2022
Total hours worked (productive working hours)		4,129,308	4,830,780	5,406,705
i)	Number of fatal injuries	0	0	0
	Rate of fatal injuries	0	0	0
ii)	Number of high-consequence work-related injuries	0	0	0
	Rate of high-consequence work-related injuries	0	0	0
iii)	Number of recordable work-related injuries	35	34	28
	Rate of recordable work-related injuries	0.94	1.41	1.04
iv)	Total number of work-related injuries or ill health	99	87	107
	Rate of work-related injuries	4.79	3.6	3.96

Work-related injuries for other workers (workers who are not employees but whose work and/or workplace is controlled by the organization)

		2020[a]	2021	2022
Total hours worked (productive working hours)		789,421	853,099	846,478
i)	Number of fatal injuries	0	0	0
	Rate of fatal injuries	0	0	0
ii)	Number of high-consequence work-related injuries	0	0	0
	Rate of high-consequence work-related injuries	0	0	0
iii)	Number of recordable work-related injuries	5	5	7
	Rate of recordable work-related injuries	1.27	1.17	1.65
iv)	Total number of work-related injuries or ill health	5	10	13
	Rate of work-related injuries	1.27	2.34	3.07

a) With the exception of the major projects in Brazil and Thailand for data consistency reasons. The data analysis for 2021 refers only to the total number of reportable violations.

Work-related fatalities

No work-related fatalities were reported at Lenzing AG in the 2022 financial year.

Top five injury types – Lenzing AG

Top five injury types – Lenzing AG[a]

Table 45

	2020	2021	2022
The top five work-related injuries for employees	–	Cuts and lacerations –11 Bruises –6 Fracture –5 Sprain –5 Conditions due to substances –2	Cuts and lacerations –27 Chemical burn –20 Abrasion –15 Bruises –12 Not assigned –12
The top five types of injuries for contractors	–	Bruises –2 Chemical burn –1 Condition due to substances –1 Cuts and lacerations –1 –	Abrasions –2 Fracture –2 Sprain –2 Not assigned –2 Cuts and lacerations –2

a) The list of injury types for the Lenzing site was newly introduced with 2021.

Lenzing Aktiengesellschaft – Workforce

Employees 2022 – Lenzing AG

Lenzing Aktiengesellschaft: Number of employees as of December 31; employees only (including apprentices, excluding temporary workers)

Employees 2022 Table 46

Lenzing AG Lenzing Aktiengesellschaft: Number of employees as of December 31; employees only (including apprentices, excluding temporary workers)	2020	2021	2022
Total headcounts as of 31.12.	3,119	3,201	3,278
Proportion of women	17.7%	18.6%	19.0%
Proportion of age >50	26.0%	24.9%	24.0%
Proportion of non-Austrians	6.1%	6.8%	7.9%
Apprentices	140	144	144
Contractors	144	167	128
Proportion of employees with full-time contract	87.5%	87.2%	87.0%
Thereof female	10.8%	11.6%	12.0%
Thereof male	89.2%	88.4%	88.0%
Proportion of employees with part-time contract	12.50%	12.80%	13.03%
Thereof female	65.8%	65.9%	65.8%
Thereof male	34.2%	34.1%	34.2%
Proportion of employees for whom collective bargaining agreements exist	100%	100%	100%
Employees with disabilities	78	68	59
Turnover rate	6.7%	6.1%	7.7%

As regards potential corruption offenses or breaches of antitrust law, no official measures were undertaken or legal claims made against Lenzing Aktiengesellschaft in 2022.

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 chapters

Wood and pulp procurement

Wood procurement for the company's own fiber pulp plants in Lenzing (Austria) and Paskov (Czech Republic)
Beech and spruce, by country, 2020 to 2022.

Regional – own country and neighboring countries

Lenzing

Table 47

Country	2020	2021	2022
Austria	45.90%	38.60%	42.86%
Germany	22.10%	23.40%	15.41%
Czech Republic	9.90%	14.00%	17.02%
Slovakia	12.10%	13.50%	13.31%
Hungary	4.00%	5.30%	4.70%
Slovenia	0.40%	0.40%	0.46%
Total regional	**94.50%**	**95.20%**	**93.76%**
Poland	2.10%	2.00%	1.86%
France	2.60%	2.10%	2.22%
Switzerland	0.90%	0.70%	2.16%
Croatia			0.01%
Other countries	**5.60%**	**4.70%**	**6.25%**
Total	**100.0%**	**100.0%**	**100.0%**

Paskov

Table 48

Country	2020	2021	2022
Czech Republic	89.60%	84.00%	89.67%
Slovakia	10.00%	8.70%	5.80%
Poland	0.40%	2.10%	1.78%
Austria	0.00%	2.90%	0.78%
Germany	0.00%	2.30%	1.97%
Total regional	**100.0%**	**100.0%**	**100.0%**

Certification status in the Lenzing Group, 2020–2022

Certification status of total wood input at Lenzing fiber production sites via own and purchased dissolving wood pulp. Basis: dissolving wood pulp by weight. All PEFC certified or controlled sources are also FSC® controlled.

Certification status in the Lenzing Group, 2020–2022

Table 49

	2020	2021	2022
PEFC	28.50%	27.40%	24.20%
FSC® 100%	0.00%	0.00%	3.50%
FSC® Mix	41.80%	35.90%	37.40%
FSC® Controlled Wood	29.70%	36.70%	34.10%
No claim[a]	0.00%	0.00%	0.80%

a) Part of this is due to the formal process of certifying the new site. A small amount of non-certified wood was used for R&D purposes and was submitted to a due-diligence process according to Lenzing's Wood and Pulp Policy.

Lenzing's most important wood species in 2022

Lenzing's most important wood species

Table 50

Wood sourcing Region	Europe	South Africa	North America	South America
Wood species (most important)	Beech, spruce, ash, birch, poplar	Eucalyptus, Acacia	Pine, Ash, Aspen, Maple, Fir, Hemlock	Eucalyptus

Different nationalities within the Lenzing Group 2022 Table 51

Nationality	Female	Male	Total
Afghanistan	–	2	2
Albania	1	–	1
Australia	–	1	1
Austria	613	2,781	3,394
Belgium	–	3	3
Bolivia	1	–	1
Bosnia Herzeg.	2	28	30
Brazil	219	734	953
Canada	–	1	1
China	180	688	868
Columbia	1	1	2
Croatia	3	12	15
Czech Republic	107	381	488
Dutch Antilles	–	1	1
Egypt	–	1	1
France	3	1	4
Germany	26	67	93
Hong Kong	2	2	4
Hungary	1	9	10
India	4	35	39
Indonesia	63	1,450	1,513
Italy	–	7	7
Kosovo	1	9	10
Malaysia	3	5	8
Mazedonia	3	4	7
Mexico	2	–	2
Montenegro	–	1	1
Netherlands	3	7	10
Nigeria	–	1	1
Pakistan	1	2	3
Poland	2	5	7
Portugal	–	2	2
Romania	1	14	15
Russia	3	2	5
Serbia	1	2	3
Singapore	5	5	10
Slovenia	1	3	4
Slovakia	4	5	9
South Africa	–	2	2
South Korea	4	1	5
Spain	–	3	3
Switzerland	–	2	2
Syria	–	3	3
Taijikistan	–	1	1
Taiwan	3	3	6
Thailand	45	225	270
Türkiye	14	11	25
Uganda	–	2	2
Ukraine	3	–	3
United Kingdom	24	204	228
USA	44	177	221
Vietnam	1	1	2

References in policies

Table 52

Lenzing Policies	Intergovernmental Regulation Reference
Global Code of Conduct	International Labor Organization's Declaration on Fundamental Principles
	International Bill of Human Rights
Sustainability Policy	Paris Climate Agreement
	United Nations Framework Convention on Climate Change
Supplier Code of Conduct	None
Wood and Pulp Policy	Forest Stewardship Council® (FSC®) certification
	Programme for the Endorsement of Forest Certification (PEFC)
	Declaration on Fundamental Principles and Rights at Work of the International Labor Organisation (ILO) – Core conventions
Policy for Safety, Health and Environment	None
Performance Management	None
Anti-Bribery and Corruption Directive	Reference made to United Nations, WHO
Investigation Directive	None
Anti-Money Laundering Directive	Basel AML Index (published by the Basel Institute)
	Reference made to Financial Action Task Force (FATF), Transparency International, the World Bank, the World Economic Forum
	UN sanction list
	Debarred firms World Bank list
	IDB Group List of Sanctioned Firms and Individuals
Whistleblower Directive	None
Water Policy	EU Best Available Techniques Reference Documents (BREFs)
	EU Discharge of Hazardous Chemicals (ZDHC)
Group Financial Reporting Directive	International Financial Reporting Standards (IFRS)
	IFRS Group Accounting Guideline
	Committee of Spsonsoring Organisations of the Treadway Comission (COSO)
Modern Slavery Act Tansparency Statement (UK)	Modern Slavery Act 2015
	Universal Declaration of Human Rights
	UN Global Compact
	OECD Guidelines for Multinational Enterprises
	Declaration on Fundamental Principles and Rights at Work of the International Labor Organisation (ILO)
	ISO 26000
Policy on Human Rights and Labour Standards	Universal Declaration of Human Rights
	UN Global Compact
	OECD Guidelines for Multinational Enterprises
	Declaration on Fundamental Principles and Rights at Work of the International Labor Organisation (ILO)
Global EDI Policy (Draft)	None
Global Recruitment Guideline	None
Global Job Evaluation Guidelines	None
Global Learning & Development Guideline	None
Group Expatriate Guideline for Long Term International Assigments	None
Group Expatriate Guideline for Short Term International Assignments	None
Group Reward Guideline	None
Group Salary Guideline	None
Group Guideline for Creating a Job Description	None
Group Short Term Incentive Plan Grade 6A and above	None
Group Short Term Incentive Plan up to Grade 6A	None

NaDiVeG compliance table

You can find this table here:
https://reports.lenzing.com/sustainability-report/2022/annex/nadiveg

GRI content index

You can find this table here:
https://reports.lenzing.com/sustainability-report/2022/annex/gri

TCFD index

You can find this table here:
https://reports.lenzing.com/sustainability-report/2022/annex/tcfd

Independent Assurance Report on the Non-financial Report 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 2022, which has been published as Sustainability Report 2022 of

Lenzing Aktiengesellschaft, Lenzing
(referred to as "Lenzing" or "the Company").

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), the provisions of Article 8 of the Regulation (EU) 2020/852 as amended and the supplementing delegated Regulation (EU) 2021/2178 (hereafter "EU Taxonomy Regulation") and the sustainability reporting guidelines of the Global Reporting Initiative (GRI Standards) Option "in accordance with" in all material respects.

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 "in accordance with" as reporting criteria. In addition, the company prepares disclosures in accordance with the EU Taxonomy Regulation, which are published as part of sustainability reporting.

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), the legal requirements of the EU Taxonomy Regulation and the sustainability reporting guidelines of the Global Reporting Initiative (GRI Standards) Option "in accordance with" 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 processes for local data collection, validation and reporting, as well as the reliability of the reported data through a (remotely conducted) survey performed on a sample basis at Lenzing Fibers LTd., Grimsby, UK.
- 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 of the Austrian Sustainability and Diversity Improvement Act (§§ 243b and 267a UGB), the EU Taxonomy Regulation and the GRI Standards, Option "in accordance with" 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.

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 future-related disclosures, prior year figures, statements from external sources of information, expert opinions or references to more extensive external reporting formats of the Company.

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 assurance certificate and NFI report. However, publication may only be performed in its entirety and as a version that has been certified by us.

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.

Linz, 3rd of March 2023

KPMG Austria GmbH
Wirtschaftsprüfungs- und Steuerberatungsgesellschaft

Mag. Alexander Gall
Wirtschaftsprüfer
(Austrian Chartered Accountant)

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. www.acceleratingcircularity.org

AFRAC - Austrian Financial Reporting and Auditing Committee
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. 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.

Better Growth
Lenzing`s corporate strategy Better Growth stands for moving from linear to circular, transforming the cellulose industry, offering customer-centric solutions and achieving excellence with a value-driven mind-set.

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 / Biodegradation
The property of a substance or material to be degraded by microorganisms (bacteria, fungi, etc.) to water and carbon dioxide (CO_2) and to be absorbed by the environment. Test methods specify a fixed time under defined conditions of temperature, oxygen and humidity, and a certain percentage of degradation. For information about biodegradability of Lenzing fibers please see the definition of "TÜV certified biodegradable and compostable LENZING™ fibers".

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 can be defined as a framework or a structure in which biomass is utilized in an optimal manner to produce multiple products such as fibers, biobased biorefinery products and bioenergy.

Blended learning approach
Blended learning (also known as hybrid learning) is a method of teaching that integrates technology and digital media with traditional instructor-led classroom activities.

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 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.

Canopy
Canopy is a Canadian non-profit organization dedicated to the conservation and protection of ancient and endangered forests. Lenzing works together with Canopy to ensure responsible wood sourcing. Canopy publishes the Hot Button Report annually. https://canopyplanet.org/campaigns/canopystyle/

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 CO_2 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.

Carbon-neutral
CO_2 neutrality means, in a narrow sense, that no CO_2 is emitted or that the CO_2 emissions are fully offset or compensated. Carbon-neutral is not the same concept as net-zero. https://de.wikipedia.org/wiki/Klimaneutralit%C3%A4t.

Carbon-zero
Carbon-zero is the name of the concept for certain TENCEL™ fibers in our range. It is only offered to our TENCEL™ fibers with the lowest carbon footprint. The remaining emissions from our carbon-zero TENCEL™ fibers are offset by supporting renewable energy supply projects.

Cellulose
The raw material for pulp production. Cellulose is a component of all plants. The cellulose content of wood depends on the species and is typically around 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.

Compensation
Reducing the negative impact of greenhouse gas emissions in the atmosphere by saving greenhouse gas emissions elsewhere, e.g. by supporting climate protection projects.

Compostable / compostability
Compostable products undergone strict testing to ensure that they break down within a specific time frame and do not release anything harmful into the environment.

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 pulp and fiber production.

Decarbonization
Decarbonization denotes the declining average carbon intensity (CO_2 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.

Denial of service
A denial of service attack (DoS attack) is a cyberattack, that prevents legitimate users from accessing services, computer systems, networks, or other information technology resources.

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.

eIDAS - electronic identification and trust services
eIDAS is an EU regulation on electronic identification and trust services for electronic transactions in the European Single Market.

e2e- End to End
End-to-end describes a process that takes a system or service from beginning to end and delivers a complete functional solution.

EPA (United States Environmental Protection Agency)
The United States Environmental Protection Agency (EPA, resp. USEPA) is an independent agency of the United States for the environmental protection and the protection of human health. EPA works to ensure that Americans have clean air, land and water. https://www.epa.gov/

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.

ESRS – European Sustainability Reporting Standards
The ESRS is the new EU framework for sustainability reporting and is a key element of the EU's new Corporate Sustainability Reporting Directive (CSRD). The aim is to make reports more standardized and comparable. It is mandatory for Lenzing from 2024 onwards.

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 nonprofit 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 (CO_2), methane (CH_4), and nitrous oxide (N_2O).

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 FEM/FSLM
The Higg Facility Environmental Module (Higg FEM) informs manufacturers, brands and retailers about the environmental performance of their individual facilities and enables them to make improvements achieve sustainability. The Higg Facility Social and Labor Module (FSLM) tool focuses on issues such as hours of work, wages and benefits, health and safety, and strengthening communities. https://apparelcoalition.org/higg-facility-tools/

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.

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.

IPBES
IPBES (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services) is an intergovernmental body providing scientific policy advice on biodiversity – comparable to the IPCC (Intergovernmental Panel on Climate Change). https://www.bmuv.de/faq/was-ist-und-macht-ipbes

IPCC
The abbreviation "IPCC" stands for Intergovernmental Panel on Climate Change. In German-language media, the IPCC is usually referred to as the "Weltklimarat".

The IPCC was founded in 1988 by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP). Its findings form the basis for international climate negotiations under the United Nations Framework Convention on Climate Change (UNFCCC). In it, member states affirm their intention to prevent "dangerous climate change." https://wiki.bildungsserver.de/klimawandel/index.php/IPCC

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 cellulosic fibers. In Lenzing`s case the cellulose used is wood-based or recycled cotton (REFIBRA™ Technology). The generic fiber name is lyocell, the branded products from Lenzing are marketed as TENCEL™ and VEOCEL™ fibers. It is known for its smooth and silky handfeel as well as performance aspects.

Microplastics
Small plastic particles of 5 mm or less in size – known as "microplastics" – are perceived to be a major pollution problem in freshwater bodies and the sea. While recent industry initiatives and legislation aim 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.

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 next to skin applications like underwear and similar products. The fibers have improved 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.

Net-zero target
Companies shall set one or more targets to reach a state of net-zero emissions, which involves: (a) reducing their scope 1, 2 and 3 emissions to zero or to a residual level that is consistent with reaching net-zero emissions at the global or sector level in eligible 1.5°C scenarios or sector pathways and; (b) neutralizing any residual emissions at the net-zero target date and any GHG emissions released into the atmosphere thereafter. Source: Net-Zero-Standard.pdf (sciencebasedtargets.org) When talking about net-zero, a maximum of 10 % can be compensated by removal offsets (according to the science-based target initiative), 90 % of absolute carbon must be reduced. This is the main difference to carbon-neutral, where there are no limits on the level of offsetting.

NIST Cyber Security Framework
The NIST Cyber Security Framework consists of voluntary guidelines, standards and best practices to manage cybersecurity risk.

NMMO
N-Methylmorpholine N-oxide is an aqueous, biodegradable, organic solvent.

Nonwovens
Nonwoven fabric 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 forest
Planted Forest that is intensively managed and meet all the following criteria at planting and stand maturity: one or two species, even age class, and regular spacing (FAO-FRA 2020). Examples: poplar, acacia or eucalyptus plantations.

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).

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). Often also referred to as post-industrial waste.

Ransomware as a Service (RaaS)
RaaS is a service in which cybercriminals provide a compact malware program that can be used to launch a ransomware attack. Ransomware is a malware, where cybercriminals attack a system with malicious code. The goal is to lock legitimate users out of their system and encrypt sensitive data. Companies are then often blackmailed into paying high ransoms in order to obtain the decryption key.

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?"

Security patch
A security patch is a method of updating applications, systems or software by inserting code to fix the vulnerability.

Science-based targets (SBT)
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 1.5°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 modelling of the IEA.]

Scope 1, 2 & 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.

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.

These forests include, according to FAO (2020): Naturally regenerating forests, which are forest predominantly composed of trees established through natural regeneration. Planted forests, which are forest predominantly composed of trees established through planting and or/deliberate seeding. But not plantation forests.

SFI-Sustainable Forestry initiative
The SFI program was developed in 1994 to ensure North America's valuable forests were protected and to document the commitment of forest products industry members to keep our forests healthy and to practice the highest level of sustainable forestry.

SHEARS
Safety, Health and Environment Action Reporting System of the Lenzing Group

Stakeholders
All internal and external persons or groups affected directly or indirectly by business activities currently or in the future.

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.

Sustainalytics
Sustainalytics is a rating agency that assesses the sustainability of listed companies based on their environmental, social and governance performance. www.sustainalytics.com

TCF
Totally chlorine free (bleaching process).

Textile Exchange (TE)
Textile Exchange, founded in 2002, 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.

TÜV certified biodegradable and compostable LENZING™ fibers
LENZING™ fibers which are TÜV certified biodegradable and compostable include the following products: LENZING™ Viscose Standard textile/nonwovens, LENZING™ Lyocell Standard textile/nonwovens, LENZING™ Modal Standard, LENZING™ FR Standard[a], LENZING™ FR Black[a], LENZING™ Lyocell Filament[b], LENZING™ Lyocell Dry[b], LENZING™ Web Technology

a) LENZING™ FR Standard and LENZING™ FR Black are only industrial compostable.
b) LENZING™ Lyocell Filament was not tested for marine biodegradability and LENZING™ Lyocell Dry is not compostable in salt water.

UNCITRAL - United Nations Commission on International Trade
The United Nations Commission on International Trade Law is a subsidiary body of the U.N. General Assembly responsible for helping to facilitate international trade and investment.

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.

Viscose fibers
Viscose is a cellulosic fiber (also known as rayon). In Lenzing`s case the cellulose used is wood-based. Wood from trees is processed into pulp which gets derivatized by a chemical reaction and then is dissolved until it becomes a sticky liquid. The solution is pushed through nozzles into a "spinning bath" which allows that fibers are regenerated from the solution into a shape suitable in diameter and length for use in textile and nonwoven applications. The cellulosic fiber viscose is a fiber with a flowy drape, in personal hygiene products it is used to absorb and retain liquid. LENZING™ ECOVERO™ Viscose is the branded fiber for textile and VEOCEL™ Specialty Viscose fibers for nonwovens applications.

Wood-based cellulosic fiber
A fiber industrially produced from the raw material wood. The industry is known as man-made cellulose fiber industry.

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.

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).

Zero-day vulnerabilities
A zero-day vulnerability is a computer-software vulnerability that is unknown to the vendors and therefore has no patch ready. The term zero-day means that there is a zero-day gap between the time the vulnerability is discovered and the first attack happens.

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