



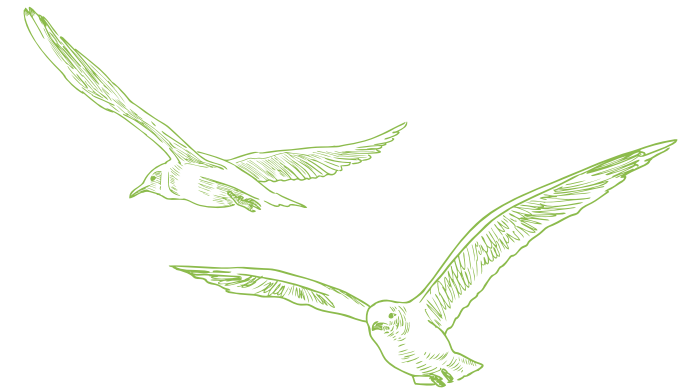
SUSTAINABILITY REPORT

Natural Performance –
Our Engagement for a Bio-Based Future

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Dear *Readers,*



In recent years, the world has changed at a rapid pace. While the COVID 19 pandemic has now become less significant, the ongoing war in Ukraine continues to cause immense humanitarian suffering and economic impact. As an energy-intensive company in Europe, we feel these consequences. Although concerns about the security of gas supply are no longer as pressing as they were a few months ago, supply chain disruptions and increased commodity prices continue to be a challenge.

For us at Kelheim Fibres, securing our production and the supply chain for our customers remains a priority. However, our overarching goals, such as energy and product transformation towards a sustainable future, remain a focus. In 2022, we consolidated our efforts in corporate social responsibility with the establishment of our own department, gaining even more impact. Our commitment to environmental protection and sustainability remains strong, as demonstrated by our first sustainability report in January 2022 and our membership as a founding member of the "Corporate Network Climate Protection" of the German Chambers of Industry and Commerce in May of the same year.

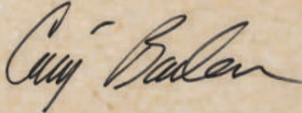
Our innovative, biobased, and biodegradable fibres also make a significant contribution to the future-oriented transformation from a fossil-based to a bio-

based economy. Today, they are an environmentally friendly alternative to synthetic fibres in a variety of disposable products such as hygiene items. This year, we went a step further and developed special fibres that can be used in washable and reusable hygiene products. Our sustainable period underwear concept was rewarded with third place with the Cellulose Fibre Innovation of the Year Award. The development of a washable absorbent core, together with STFI and SUMO, for the SUMO cloth diaper received the Techtextil Innovation Award in the "New Concept" category. These fibres for "Reusables" are a perfect addition to our hygiene fibre portfolio and address the growing demand from customers for resource-saving alternatives to disposable products.

Lastly, I would like to mention another highlight of 2022: In May, we were able to inaugurate our new fire station! This building is not only a technologically advanced home for our factory fire brigade, but also a visible commitment to our location here in Kelheim, with which we are inseparably connected. It is our employees here in Kelheim who, with their know-how and passion, have been creating what we stand for in the industry for more than 85 years: innovative and functional fibres of natural origin that enable people to live sustainably while protecting our environment.

Thank you for your interest and happy reading.



Yours sincerely,

 Craig Barker,
 CEO of Kelheim Fibres
 GmbH

1

At a Glance

“Kelheim Fibres is the driving force behind the best individual solutions for a healthy lifestyle, while protecting the environment for future generations.

Craig Barker,
CEO of Kelheim Fibres GmbH

THE COMPANY

- Approximately 500 employees, frequently comprising individuals from the second or third generation
- Firmly anchored in Kelheim since 1936
- Annual capacity of approx. 90,000 tonnes of viscose fibres
- Inhouse R&D since 1936
- Increased focus on open innovation and future-forward technologies by enhancing the emphasis and resources allocated to New Business Development and Fibre & Application Development

OUR PRODUCTS

- Innovative viscose fibres through flexible technology
- Adjustment of fibre solutions to specific application requirements
- Incorporation of functional additives into the fibre matrix
- Modification of fibre cross-sections
- Adjustment of fibre dimensions
- Customer-oriented and customer-specific innovation
- Share of speciality fibres: ca. 80%

Applications

- Feminine hygiene
- Speciality papers and wipes
- Textile and nonwoven
- Technical products and specialties

FUTURE-FORWARD SOLUTIONS

Leader in Tampon Fibres

Our Galaxy® fibres are the leading solution in the global tampon industry delivering high absorbency, consistent performance while meeting the highest standards for purity and product safety.

Biodegradable AHP

Our femtec fibres are the perfect basis for absorbent hygiene products such as sanitary towels. They allow the production of skin-friendly and fully biodegradable AHPs that are comparable in performance with their synthetic alternatives.

Flushable Wet Wipes

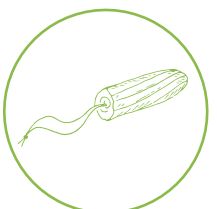
Our short-cut fibres enable the creation of soft and highly absorbent wet wipes. These can be easily disposed in the toilet preventing blockages in the sewage system or contributing to environmental pollution with (micro)plastic.

Short-cut

Our short-cut fibres provide speciality papers with the necessary durability for packaging applications, especially for sensitive goods. These fibres are free of synthetic materials, completely biodegradable, and hold FDA approval in accordance with CFR 21 for food contact. Additionally, they are endorsed by ISEGA for hot filtration purposes.

Celliant Viscose

With infrared technology integrated into the fibre, Celliant Viscose improves local blood circulation and oxygen supply to the cells. This results in textile products that promote the wearer's well-being, offering improved performance, faster recovery, and better sleep.



OUR SERVICES

AHP Competence Platform

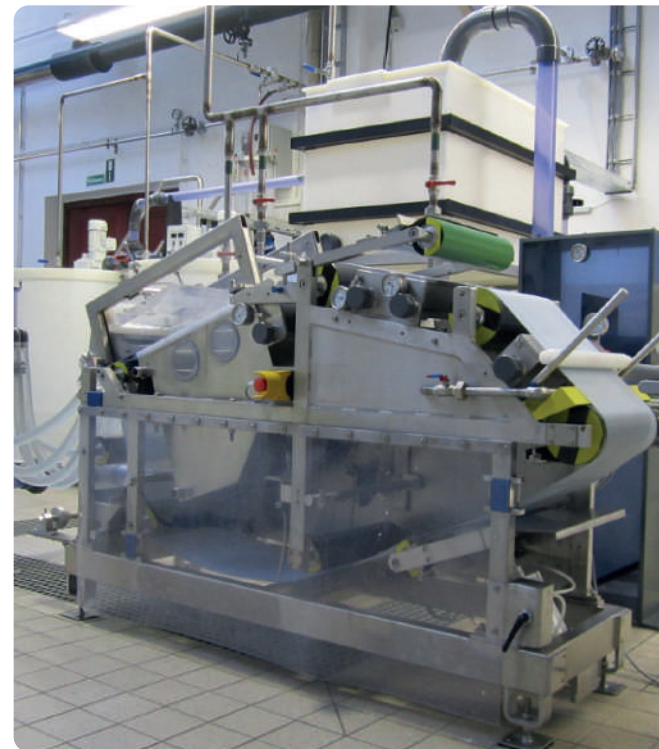
Our AHP competence centre provides an additional level of consultancy, process expertise, and service, particularly for solutions that require a higher level of knowledge. It serves as an excellent interface between manufacturers and brands. Moreover, we assist our customers in tackling new challenges and remain readily available to support their partners throughout the entire value chain.

Open Innovation

At the heart of our innovation approach is the identification of customers' "unmet needs" and translating them into fibre solutions. In order to accomplish this, we focus on joint and open innovation and a close exchange with external partners. We continuously seek mutual inspiration, recognizing the vital role of synergies in guiding an idea from its initial concept to successful commercialization.

Wetlaid Pilot Plant

With our in-house pilot plant, customers have the opportunity to take on the initial steps of developing innovative papers. They can collaborate closely with our fibre experts to engineer their new products, ensuring a seamless partnership throughout the entire process.



techtextil
innovationaward.2022

TextileGenesis™



RECENT MILESTONES

- Founding member of the "Corporate Network Climate Protection" of the Chambers of Industry and Commerce in Germany.
- Publication of the first sustainability report of Kelheim Fibres GmbH
- Third place in the Cellulose Fibre Innovation of the Year Award for the concept of sustainable menstrual underwear
- Inauguration of the new fire station
- Techtextil Innovation Award, category New Concept for the newly developed, washable absorbent insert of the reusable SUMO cloth diaper
- Foundation of the CSR department and thus new orientation with an even stronger focus on CSR topics
- Kelheim Fibres joins TextileGenesis™, an award-winning traceability platform that creates radical transparency using blockchain technology to track and verify the use of sustainable fibres all the way from fibre to garment.

FUTURE CONCEPTS – ACCELERATING THE SHIFT TO CIRCULAR ECONOMY

To improve the sustainability credentials of the whole value chain, our developments focus on three aspects:

1. Substitution of synthetic materials in single-use products
2. Development of reusable products as an alternative to single-use products
3. Increasing the share of alternative / recycled raw materials

2

Materiality Analysis and UN Sustainable Development Goals (SDGs)

In 2021, we conducted our first materiality analysis to identify the core topics for our reporting and strategy development. For this report, we are using the results of this study as a base. As a new addition and consequent extension of our reporting tool kit, we added the UN Sustainable Development Goals (SDGs) for the year 2023.

“The adoption of the Sustainable Development Goals mark the next step for our sustainability reporting. They not only work seamlessly with the UN Global Compact framework, but can also build on the materiality analysis we conducted for our first report. For readers, they provide quick guidance in regards of our biggest impact areas while on the other hand helping us to focus on important topics for long-term strategic improvement.”



Timo Thunitgut,
Sustainability Manager

2.1 Materiality Analysis

We defined a comprehensive set of indicators for further evaluation. Those were compared to various state-of-the-art sources such as sustainability reports of other viscose fibre manufacturers, applicable laws, the ten principles of the UN, external stakeholder inquiries and certification requirements. This process was carried out to ensure that no important topics were overlooked. Finally, 34 indicators were selected and distributed to both internal and external stakeholders through separate questionnaires.

The external questionnaire was made publicly available on social media platforms as well as on our website. This approach ensured that all stakeholders had the opportunity to participate.

In total, 36 internal and 66 external stakeholders responded to the questionnaire. The results are presented in Figure 1 below.

Full Result of the Materiality Analysis

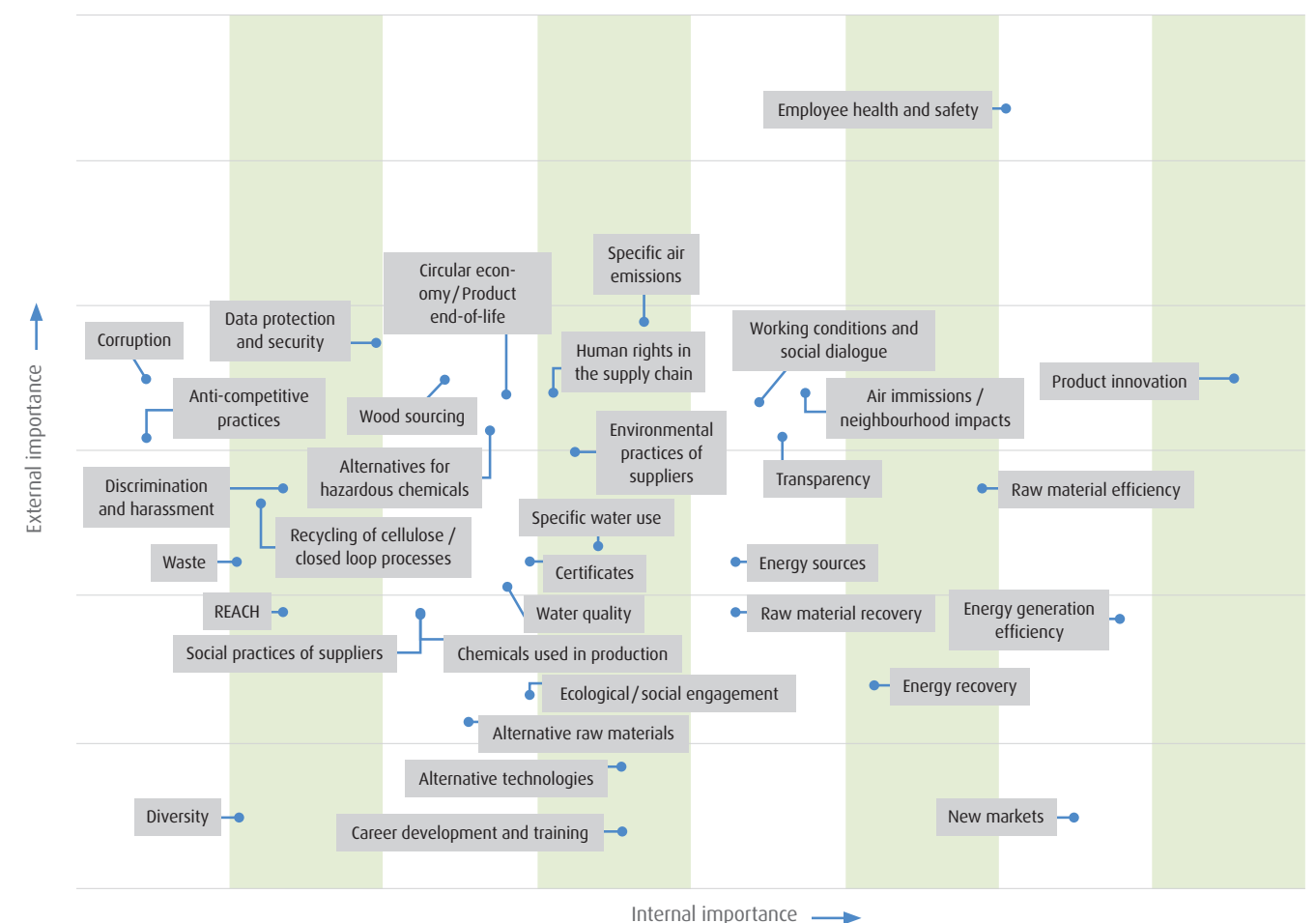


Figure 1

2.1.1 Topics of *High Importance*

The questionnaire requested participants to rate each topic on a scale of 1 (lowest score) to 5 (highest score). For analysis purposes, average values were calculated for both internal and external perspectives, rounded to two decimal places. A topic was considered of high importance if it achieved an equal or higher score of 4 from both internal and external respondents.

This threshold indicated that more than half of the participants interviewed assigned the highest level of importance to the topic.

Based on these criteria, seven topics were identified. The overall ranking, denoted by the number in brackets, is determined by the sum of the scores from the two dimensions.

TOPICS OF HIGH IMPORTANCE

- 1. Employee health and safety (9.08)
- 2. Product innovation (9.01)
- 3. Raw material efficiency (8.53)
- 4. Energy generation efficiency (8.53)
- 5. Air emissions / neighbourhood impacts (8.43)
- 6. Working conditions and social dialogue (8.36)
- 7. Transparency (8.34)

In conjunction with the ten principles of the UN, these seven topics form the foundation of our report.

2.1.2 Topics of *Medium Importance*

As topics of medium importance, we defined those with a sum value for both dimensions of 8 or higher. This threshold was chosen as it indicates an average importance rating of higher than 4 for each selected topic. By definition, only one dimension can have a

rating higher than 4 (otherwise it would be classified as a topic of high importance), allowing us to distinguish between internally and externally driven topics of medium importance.

INTERNAL TOPICS OF MEDIUM IMPORTANCE

- New markets (8.2)
- Energy recovery (8.12)
- Energy sources (8.11)
- Raw material recovery (8.04)

EXTERNAL TOPICS OF MEDIUM IMPORTANCE

- Specific air emissions (8.32)
- Human rights in the supply chain (8.1)
- Environmental practices of suppliers (8.05)
- Circular economy / Product end-of-life (8.04)

2.1.3 Other *Topics*

The remaining topics were not classified as material. However, this does not imply that they are excluded from our strategy and reporting. We strive to include as many topics as possible in our overall approach.

Environmental impact, social effects, and compliance constitute the three fundamental pillars of sustainability. Alongside responsible purchasing

and innovation, they serve as the cornerstones that shape our influence on our surroundings. Through the materiality analysis, we established distinct priorities for our future strategy within each of these domains. This report encompasses all the identified activities and topics of interest, aligned with these five cornerstones.

2.1.4 UN *Global Compact*



The UN Global Compact is a globally recognized reporting tool for companies of all sizes and branches. It mandates companies to monitor and report their performance in relation to the ten principles set forth by the UN:

- **Principle 1:** Businesses should support and respect the protection of internationally proclaimed human rights; and
- **Principle 2:** make sure that they are not complicit in human rights abuses.
- **Principle 3:** Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
- **Principle 4:** the elimination of all forms of forced and compulsory labour;
- **Principle 5:** the effective abolition of child labour; and
- **Principle 6:** the elimination of discrimination in respect of employment and occupation.
- **Principle 7:** Businesses should support a precautionary approach to environmental challenges;
- **Principle 8:** undertake initiatives to promote greater environmental responsibility; and
- **Principle 9:** encourage the development and diffusion of environmentally friendly technologies.
- **Principle 10:** Businesses should work against corruption in all its forms, including extortion and bribery.

Through our participation in the UN Global Compact initiative, we have firmly integrated these ten principles into our sustainability and business strategy.

2.2 Sustainable Development Goals



In the reporting period of 2022, we incorporated the UN Sustainable Development Goals (SDGs) into our reporting framework. These goals are an integral part of the 2030 Agenda for Sustainable Development, established by the UN in 2015. They encompass 17 crucial areas necessary for global prosperity and peace. Each goal is further broken down into specific predefined targets.

The process of mapping the SDGs involves conducting a self-assessment of the impact within our value chain. This enables us to identify areas where our actions can contribute to achieving the shared targets by minimizing any negative impact.

To determine our impacts, we utilized the outcomes of the materiality analysis as a solid foundation. These represent the topics of high importance. Based on this analysis, we identified nine SDGs that are relevant along our value chain.

SDGs Along the Value Chain

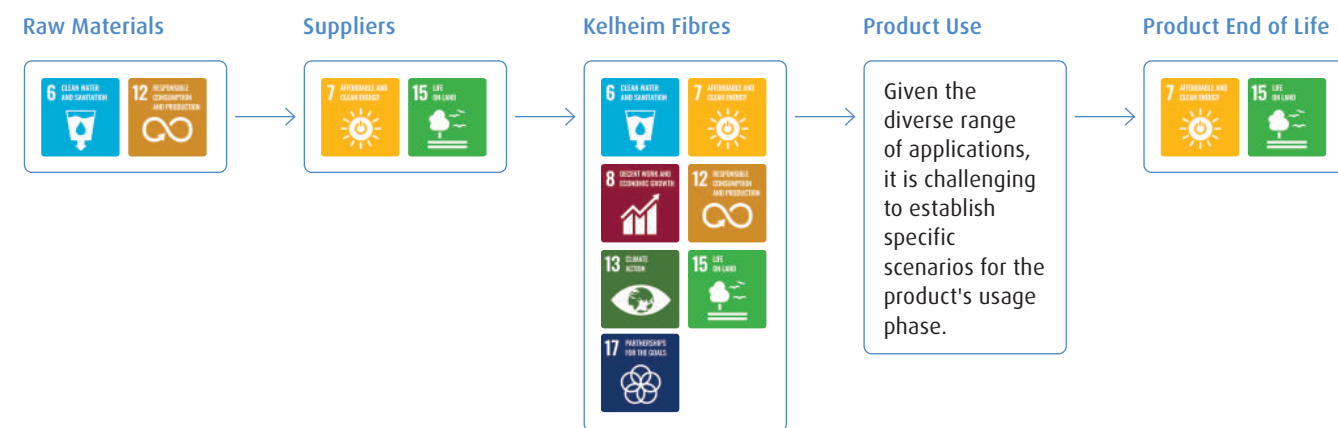


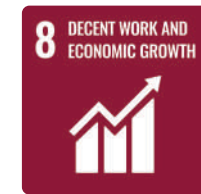
Figure 2



With our on-site water treatment plant, we guarantee only purified water leaves our facility, minimizing our water footprint as far as possible. By managing this process internally, we alleviate the burden on the municipal waste water system. A significant amount of our products are used to manufacture femcare hygiene products. Through our advanced absorbing fibres, we cater to the femcare market, providing high-performance solutions. We are committed to continuous improvement, investing substantial effort into enhancing the performance of these fibers and, consequently, their absorbing capabilities.



We operate our own highly efficient cogeneration power plant, granting us full autonomy over all operational decisions. As part of our commitment to sustainability, we are actively working towards transitioning from our current energy source of natural gas to hydrogen by 2030. As an intermediate step, we are currently planning the construction of a small solar park close to our manufacturing site by 2025.



For decades, our company has fostered strong and enduring connections with the city of Kelheim. A significant portion of our workforce are from the local community. We take pride in providing workspaces and neighbourhoods as well as regular apprenticeship places and training with the highest quality and safety standards. This is not only our duty towards our employees but also a necessity for our reputation as a conscientious and attractive employer. We condemn any form of forced or child labour and pay in accordance to collective agreements. Long-term assurance of work place attractiveness is key for our persistence as a company.



In 2021, we established our New Business Development department and set the foundation for innovative expansion of our product range as well as our collaborations on new markets. With a division exclusively working on innovation and strategic expansion, we are well prepared for the future.



We implemented closed-loop systems in most of our production processes. This includes several recovery systems on-site to regain resources. Furthermore, our power plant operates in a cogenerative mode simultaneously providing steam and electricity with an efficiency rating of over 88%.



In the aftermath of the unfortunate fire event in 2018, our production facility underwent a comprehensive overhaul. This reconstruction provided an opportunity to incorporate state-of-the-art technology, ensuring enhanced energy efficiency and adherence to the highest standards of environmental management. In addition, we are planning to switch our power supply from gas to hydrogen by the year 2030.



Our fibres compete with those made out of cotton and fossil-based materials. Cotton fibres are biodegradable, but they lack functionalization capabilities. On the other hand, fossil-based fibers are highly customizable, but they contribute to the current issue of plastic pollution in our world today. Viscose fibres offer a trade off between those two options by being biodegradable whilst providing intrinsic functionalisation.



Viscose fibres are made of cellulose. We ensure that all of our cellulose is sourced from FSC™ and/or PEFC-certified, sustainably managed and harvested forests. Additionally, we have a certified EMAS environmental management system, to help us to identify, track and report all relevant data for the quantification of environmental impacts.



We have a large network in which we actively promote the UN Global Compact and Sustainable Development Goal frameworks. Our supplier assessment questionnaire considers both standards as important points. Apart from that, we encourage all stakeholders to contact us for collaborations or projects.

Environment

Principle 07: Businesses should support a precautionary approach to environmental challenges.

Principle 08: Undertake initiatives to promote greater environmental responsibility.

Principle 09: Encourage the development and diffusion of environmentally friendly technologies.



Ensure availability and sustainable management of water and sanitation for all.



Ensure access to affordable, reliable, sustainable and modern energy for all.



Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.



Ensure sustainable consumption and production patterns.



Take urgent action to combat climate change and its impacts.



Conserve and sustainably use the oceans, seas and marine resources for sustainable development.



Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss



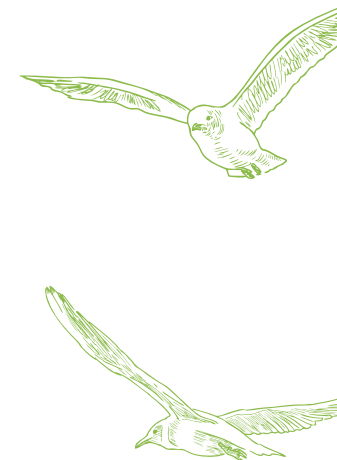
We are proud of the creation of our new CSR-department in 2022. By centralising the CSR management, we have better oversight over all facets of the individual points of interest. Sustainability is not just a trend, for us it means taking responsibility.

*Wolfgang Ott,
Director of Corporate Social Responsibility*

We look back on 85 years of company history. Even though our product range underwent significant changes over time, our unique selling points have always been our environmentally friendly, sustainable solutions and high-quality products. As the focus on environmental protection has developed significantly over the years, it is very important for us to always be ahead of trends and do the best we can to constantly reduce our impact on our surroundings. This does not only concern emissions, but also our contribution to climate change, our impact on our immediate neighbourhood, efficient use of resources and our contribution to the circular economy.

In 2020, we achieved EMAS certification as the first viscose fibre producer worldwide. This marked a significant milestone for our environmental management system. The creation of our CSR-department in 2022 marked the next step on our sustainability roadmap.

In addition to the sustainability report, Kelheim Fibres plans to create its own environmental label in order to better present its environmental performance.



3.1 EMAS



The EU Eco-Management and Audit Scheme (EMAS) is an environmental management instrument developed by the European Commission, providing companies and organisations with a framework to evaluate, report, and improve their environmental performance. The base requirements of EMAS are comparable to ISO 14001, it sets more ambitious goals.

By adopting EMAS, our intention is to confirm and further improve our strong environmental performance. EMAS is designed to benefit our shareholders, customers, employees, and the region we operate in, providing transparency on multiple levels. We believe that sustainability and ecological actions should be aligned with economic perspectives, and this shared goal guides our efforts. EMAS is part of our integrated management system, which covers the areas of quality (ISO 9001), energy (ISO 50001), hygiene (company standard) and compliance (on a holistic and cross-aspect basis). The management representatives of the individual management systems as well as legally required representatives (such as the water protection officer)



“For more and more customers, the aspect of sustainability is a decisive purchase criterion – with the EMAS certificate and the associated publication of our data, we have a unique selling proposition that sets us positively apart from other viscose fibre manufacturers.”

Theresa Schreiner,
Environmental engineer

report directly to management. Unlike the traditional top-down approach that often lacks employee involvement, we have ingrained environmental awareness and consciousness within our company by delegating responsibility to our managers.

All employees have undergone specialized training with regards to EMAS. Defined processes govern the interfaces between individual departments. Specific details are regulated in the applicable internal departmental work instructions. The regulations cover both normal operation and emergency situations. We regularly set targets for the improvement of the respective environmental performance, which we pursue and review as part of our continuous improvement process. Starting in 2020, we began conducting annual environmental audits to assess compliance with regulations, application of management systems, and the progress made toward our improvement goals. The management also conducts an evaluation during the yearly management review.

In line with our guiding values, we take our responsibility towards society, the environment and the region in which we produce, seriously. Compliance with all regulations and the documentation of processes provide confidence and security for all parties involved. We safely comply with specified limit values, meet both environmental standards and the highest requirements on the state of the art technology (like BREF) by leveraging our knowledge and experience to become even better. Good cooperation with the authorities is of central importance for us. While proximity to employees' residences was advantageous when the company was founded, we acknowledge that an industrial company is not always seen as an ideal neighbor by nearby residential areas today. We nevertheless have a very good relationship with our neighbours and actively work to preserve it, primarily through open communication. EMAS requires our regular environmental statement to be validated by an external environmental expert, ensuring the inclusion of key performance indicators (KPIs) and the progress made toward our set targets. This validation adds an additional layer of transparency for interested stakeholders.



3.2 Resource *Efficiency*



A sustainable production process entails the conservation of resources, minimizing emissions and waste, and the adoption of energy-efficient practices in operating plants. We achieve this by the operation of modern and technologically advanced recovery and processing plants. The recovery plants close the loop in our processes and guarantee a process-integrated approach.

The following are examples of process-integrated plant operation:

- Carbon disulphide is recovered from waste gas streams in an activated carbon adsorption unit or by direct condensation. This significantly reduces our virgin resource demand.
- Our waste streams containing high concentrations of hydrogen sulphide and carbon disulphide are fed to the sulphuric acid plant for incineration. This enables the production of sulphuric acid and high-pressure steam for subsequent power generation. This process also contributes to the reduction of CO₂ emissions.
- On-site waste is disposed of in our incineration plant and used to generate steam. This reduces natural gas consumption and a reduction in CO₂ emissions from use of fossil fuels.
- Energy is recovered from hot media flows by the use of heat exchangers.
- The brine used for our production process is filtrated and used for other purposes in our process before disposal.

The BREF definitions, ZDHC specifications and common labelling schemes such as the Nordic Swan and the EU Ecolabel are used as benchmarks for sustainability.

BREF



Best Available Technology reference document of the European Commission

ZDHC Roadmap to Zero



Non-profit organisation for eliminating harmful substances from the textile value chain.

Resource Efficiency: CS₂ Consumption

Material	2020	2021	2022	Unit
CS ₂	4,773.0	5,458.2	4,629.6	t
CS ₂	0.0860	0.0868	0.0910	t/t fibre

Table 1



3.2.1 Raw *Materials*

the wood used for viscose production in Kelheim comes exclusively from certified, managed sources. Two types of wood are used: Plantation wood, in which the trees are reforested after harvesting, and wood from natural forests, which is no longer suitable for other uses, e.g. the furniture industry. Through the exclusive use of wood with FSC™ and PEFC certification, we ensure that the wood is not obtained illegally or in violation of protection

regulations for humans and nature. By joining the Canopy initiative, Kelheim Fibres has committed itself to the protection of ancient and endangered forest areas. This commitment is also reflected in our policy on pulp purchasing. To achieve even greater sustainability in the use of raw materials, we are researching the use of recycled cellulose (“circular economy”) as well as other sources of cellulose (e.g. orange peel or straw).

Raw Material Intensities

Material	2020	2021	2022	Unit
Pulp	1,033	1,030	1,025	t/t fibre
NaOH	0.516	0.514	0.507	t/t fibre
H ₂ SO ₄	0.753	0.761	0.747	t/t fibre

Table 2

3.2.2 Circular *Economy*



Viscose fibres are a wood-based product with identical cellulose structure to the raw material wood pulp. An increasing number of end product manufacturers are committed to use only sustainable and plastic-free raw-materials. Furthermore, raw material availability, circular economy, and transparent supply chains are becoming more and more important topics in relation to production processes and communications efforts.

All of these objectives have been pursued at Kelheim Fibres for many years and remain the focal point of our ongoing efforts. The sustainability of our production processes is continuously improved by conserving resources, minimizing emissions and waste, and operating plants in an energy-efficient manner. To take a step further in the direction of developing resource- and waste-reducing solutions, we initiated a commercial collaboration with Renewcell, a sustaintech company based in Sweden. Together we will collaborate on developing commercial scale production of superior quality viscose fibres using Renewcell's 100% textile recycled material Circulose® and add the crucial missing link for a circular economy for textiles in Europe.



3.3 Energy



3.3.1 Energy Sources



In order to meet our responsibility for successful, efficient and sustainable business operations, major focus is set on optimizing our energy needs. Our responsible use of energy resources is reflected by:

- The effective generation and provision of energy,
- The economic use of energy and the best possible use of residual energy from the processes,
- The efficient use of energy through recycling and reuse of process materials and
- Our continuous improvement process.

We operate a modern power plant with low emission levels, utilizing natural gas. This power plant is situated right next to our production facility. Due to this very short distance, we can also use the steam cogenerated in the electricity generation process, resulting in a massively increased efficiency of more than 88%. For comparison: a regular gas turbine achieves a global average efficiency of approximately 40%.

Average Gas Power Generation Efficiency in Comparison¹

	Energy Generation Efficiency
Kelheim Fibres (power and heat cogeneration)	> 88%
China 2016	48%
India 2016	40%
Germany 2016	48%
Australia 2016	36%

Table 3

Compared to the average emissions of German generation plants (366 gCO₂e/kWh)², our gas fired power plant only emits 15 gCO₂e/kWh. The operating of our power plant also gives us responsibilities in the context of the European climate targets (in accordance with the Kyoto protocol) as well as the German climate agreement (climate neutrality until 2050). Emission trading plays an important role to achieve this.

Fossil-based energy is not the future. In Germany, the industrial sector is responsible for 44% of total energy consumption in 2021³. When compared to commercial (27%) and residential (26%) usage, the leverage and impact of the industrial sector are significantly

greater due to its scale and energy requirements. Therefore, we see the progress of the energy transformation towards green solutions as the main obligation of the industrial sector.

Our plan is to transition completely from natural gas to hydrogen by 2030. As an interim target, we aim to install a solar park near our production plant. Although the output capacity may not fully meet our energy requirements, it will assist in offsetting peak electricity demands.



Energy Consumption KPIs

Energy Consumption	2020	2021	2022	Unit
Power	86,376,490.0	102,056,327.0	90,946,319.0	kWh
Power	1,555.7	1,622.3	1,786.9	kWh/t fibre
Steam	411,489,848.0	558,425,298.0	510,275,990.0	kWh
Steam	7,411.4	8,876.8	10,025.9	kWh/t fibre
Fuel for vehicles	178,654.6	204,776.7	167,001.6	kWh
Fuel for vehicles	3.2	3.3	3.3	kWh/t fibre

Table 4

German Energy Usage, Share of Usage Group

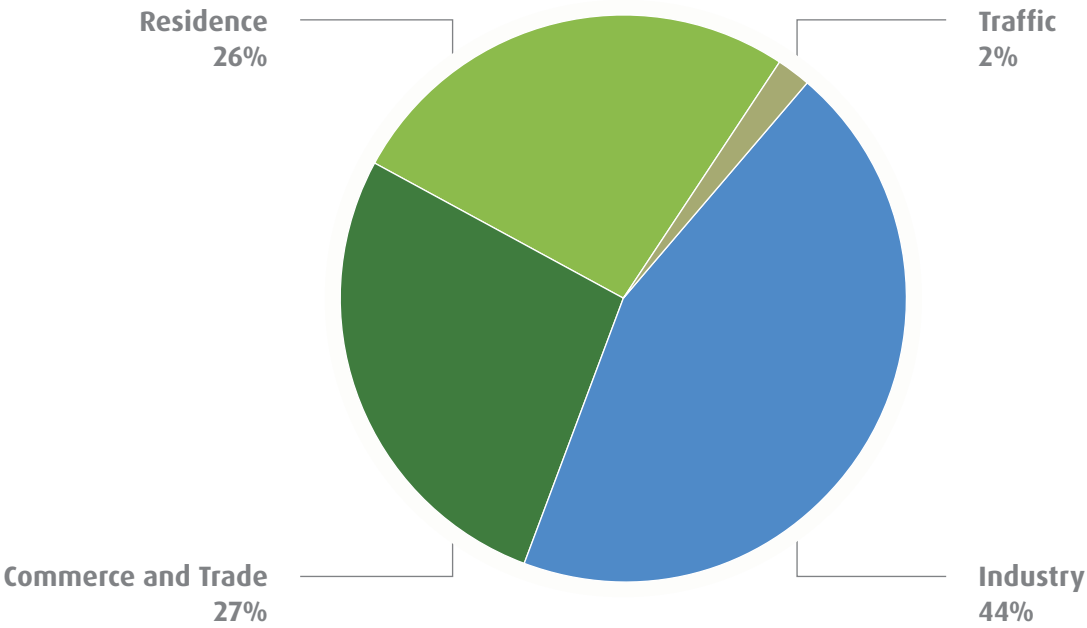


Figure 3

¹ <https://guidehouse.com/-/media/www/site/downloads/energy/2018/intl-comparison-of-fossil-power-efficiency--co2-in.pdf>
² <https://www.umweltbundesamt.de/themen/klima-energie/energieversorgung/strom-waermeversorgung-in-zahlen#Strommix>
³ <https://de.statista.com/statistik/daten/studie/236757/umfrage/stromverbrauch-nach-sektoren-in-deutschland/>

3.3.2 Energy Generation *Efficiency and Recovery*



By operating recovery plants, we meet the requirement for both material and thermal utilization of waste gas streams. Waste generated on-site is thermally recycled within the plant. Our sulphuric acid plant significantly contributes to our energy production without emitting CO₂.

This helps us save considerable amounts of primary energy of fossil-based origin, actively contributing to greenhouse gas reduction. Our goal is to generate energy from renewable sources, which is a key target for the coming years. Other energy sources include a waste incineration plant with low-pressure steam generation and condensate streams being returned to the power plant.

3.4 Air Emissions *and CO₂*



The use and handling of substances containing sulphur are crucial in the production of viscose fibres.

Cellulose in the form of wood pulp is dissolved in caustic soda and carbon disulphide during the production process (xanthogenation) and forms a honey-like, highly viscous liquid, which gives the viscose process its name. This liquid is extruded into a coagulation bath through spinning jets, and the dissolved cellulose regenerates into a fibre. The process then passes through several steps, and carbon disulphide and hydrogen sulphide are removed from the fibres. The highly concentrated waste streams are fed to a material recycling process,

and the unarmful low concentration streams mainly enter the atmosphere via the 86-metre-high stack. Beyond that, only a few partial streams are emitted close to the ground via the roof of the spinning area.

As many parts of our plant are subject to emissions control legislation, important emission parameters are recorded online and the authorities have unlimited access to the recorded data. This enables authorities to conduct inspections and verify our plant emissions at any time. Additionally, the plant undergoes independent checks as part of annual inspections to further ensure compliance with regulations.

3.4.1 Specific *Air Emissions*

The waste gas streams with high concentrations are treated through two methods: either in the sulphuric acid plant, where sulphuric acid is produced through a combustion process, or in the carbon disulphide recovery plant, where carbon disulphide is adsorbed and bound to activated carbon.

Another form of carbon disulphide recovery is achieved through direct condensation, which is implemented in certain sections of our production line. The materials recovered in this way are then returned into the process. The use of these technologies has helped to reduce sulphur emissions from the plant by 45% in the last decade. As a result, Kelheim Fibres is able to meet the stringent limits set by the World Health Organization (WHO) for environmentally significant sulphur emissions, surpassing the current regulatory levels in place.

Specific Air Emissions

Emissions	2020	2021	2022	Unit
Total dust	82.83	92.26	71.00	kg
Total dust	1.49	1.47	1.40	g/ t fibre
SO ₂	129,590	143,917	129,723	kg
SO ₂	2.33	2.29	2.55	kg/ t fibre
NO _x	55,590	65,977	53,586	kg
NO _x	1.00	1.05	1.05	kg/ t fibre

Table 5

Development of Specific Sulphur Emissions to Air (kg sulphur / t fibre)

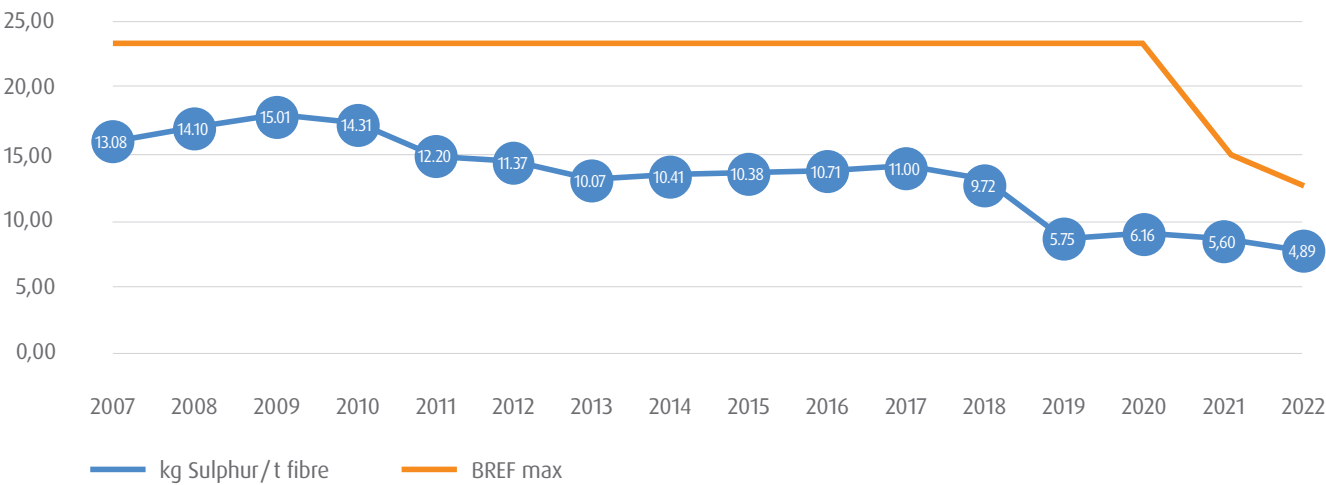


Figure 4

3.4.2 Greenhouse *Gases*

Until the reference year 2020, we used an external service provider to calculate our carbon inventory. However, starting from the 2021 data, we made the decision to conduct the impact assessment ourselves, following the guidelines outlined in the Greenhouse Gas Protocol. This approach provides us with more valuable insights into impact categories, helps us to identify hotspots, and allows us to deliver individual data sets for interested stakeholders requiring variable scopes. To ensure full compliance with the framework, we got a validation of our entire calculation and base data from an independent third party CO₂ inventory specialist in 2022 (for 2021 data).

3.4.2.1 Basic *Data*

Following a fire that damaged large parts of our production facility in 2018, we are still in the process of rebuilding our production capacity. From 2020 to 2021, there was an increase in production output of 13.3%. In 2022, increasing raw material and energy costs forced us to raise the fibre prices leading to a 19.1% decrease in total production. This needs to be considered when analysing our emission values and intensities.

Annual basic data

Emissions	2020	2021	2022	Unit
Data point	55,521	62,908	50,896	t fibre
Total fibre output	31,212	33,542	28,108	t
Sodium sulfate output	129,590	143,917	143,917	kg
Change yty (based on fibre output)	+ 13.3		- 19.1	%
Scope 1 emissions	109,754	112,753	104,662	tCO ₂ e
Scope 2 emissions	130	71.8	2,355	tCO ₂ e
Scope 3 emissions	105,700	11,834	103,340	tCO ₂ e
Total emissions	215,584	224,660	210,357	tCO ₂ e
Emission intensities per t fibre	3.88	3.57	4.13	tCO ₂ e / t fibre

Table 6

The GHG protocol divides a company’s impact into three scopes:

- Scope 1 includes all direct emissions from our processes.
- Scope 2 contains indirect emissions such as external power supplies.
- Scope 3 emissions are the widest ranging, including upstream and downstream supply chain data.

In this short report, we explain the base data and system boundaries of the calculation.

3.4.2.2 Scope 1

COMBUSTION FACILITY: Our continuous production process is energy demanding. Therefore, we need a constant and reliable energy supply. To ensure a stable production process, we run our own on-site power plant — a cogeneration station which utilises natural gas for producing steam and electricity. The power plant was modified last year, enabling us to also use heating oil as a primary energy source in case of potential natural gas shortages. Additionally, a significant amount of the high-pressure steam feeding the turbine comes from the exothermic production process of our sulphuric acid plant. The low-pressure steam leaving the back pressure turbine is used as heating energy for the production facilities. Furthermore, the waste incineration plant also contributes to the heating steam supply. The total energy efficiency is based on the balance of required electrical power and steam depending on outdoor temperatures and the production output and situation on-site.

A second on-site production company also uses the service of our power plant. Kelheim Fibres usually requires more electricity, while the other company needs more heat leading to a mostly balanced energy situation. However, due to the other company's extended production shutdown in 2022, the steam and power consumption became imbalanced, leading to a significant surplus of steam. In response to the very volatile energy market and temporarily high

3.4.2.3 Scope 2

PURCHASED ELECTRICITY: As already stated under Scope 1 – Combustion facility, we had to cover the offset caused by the standstill of the other site company using the power and heat generated by our cogenerative power plant with externally produced electricity. This is covered here.

Carbon Footprint: Scope 1 Emissions

Category	2020	2021	2022	Unit
Combustion facility	100,147	112,664	104,559	tCO ₂ e
Combustion vehicles	47	48	45	tCO ₂ e
Fugitive emissions	172	41	58	tCO ₂ e
Sum Scope 1 emissions	109,754	112,753	104,662	tCO ₂ e

Table 7

natural gas prices, we decided to purchase externally produced electricity to cover our needs, reduce our internal steam production, and avoid further product price increases. This also helped us keep the high energy production efficiency of our own power plant. Therefore, part of our 2022 Scope 1 emissions migrated to Scope 2.

COMBUSTION VEHICLES: Since significant parts of our on-site logistics happen via rail with two shunting locomotives. The emissions from fuel used by these locomotives are also included here.

FREEZING AGENTS: A small part of our cooling systems needs freezing agents to work properly. These need to be refilled regularly. As the refill-period does not necessarily coincide with calendar years, the values are not comparable year-on-year.

Carbon Footprint: Scope 2 Emissions

Category	2020	2021	2022	Unit
Purchased electricity	72	130	2,355	tCO ₂ e

Table 8

3.4.2.4 Scope 3

Carbon Footprint: Scope 3 Emissions

Category	2020	2021	2022	Unit
Purchased Goods and Services	69,388	76,564	63,737	tCO ₂ e
Fuel- and energy related activities (not included in scope 1 or scope 2)	9,743	17,552	18,435	tCO ₂ e
Upstream transportation and distribution	8,963	5,415	5,784	tCO ₂ e
Waste generation in operations	9	77	857	tCO ₂ e
Business travel	—	23	86	tCO ₂ e
Employee commuting	641	663	704	tCO ₂ e
Downstream transportation and distribution	15,773	11,031	13,267	tCO ₂ e
Use of sold products	0	0	0	tCO ₂ e
End-of-life-treatment of sold products	1,184	511	471	tCO ₂ e
Scope 3 total	105,700	111,834	103,340	tCO ₂ e

Table 9

PURCHASED GOODS AND SERVICES: Purchased Goods and Services covers all emissions by resources necessary for our production, following a cradle-to-gate approach. As we are currently lacking in-depth insights into the CO₂-performance of our supply chain, some base assumptions are necessary. We aim to improve data quality and to establish closer cooperation in this area with our suppliers within the coming years.

FUEL- AND ENERGY RELATED ACTIVITIES (NOT INCLUDED IN SCOPE 1 OR SCOPE 2): In contrast to Scope 1 and 2 emissions, we included indirect emissions caused by fuel consumption. This includes extraction, transport and processing of fuels.

UPSTREAM TRANSPORTATION AND DISTRIBUTION: This category covers all emissions caused by inbound transport from our suppliers to our site.

WASTE GENERATION IN OPERATIONS: Here, we differentiate between four different types of waste of which three are accounted for in this category:

- Waste for external recycling
- Waste for external disposal
- Scrap
- Waste to our incineration plant (this is assigned to Scope 1 as we generate energy with our waste)
- We corrected a minor calculation error for this year's calculation"

BUSINESS TRAVEL: This covers all our emissions from car, train and plane business travels.

EMPLOYEE COMMUTING: Daily commuting by our employees is an important data point. During the pandemic, we established a home office system for employees whose presence is not needed on site (mostly administrative jobs).

DOWNSTREAM TRANSPORTATION AND DISTRIBUTION: This category covers all emissions caused by outbound transport from our site to the customers' facilities.

USE OF SOLD PRODUCTS / END-OF-LIFE-TREATMENT OF SOLD PRODUCTS : We are manufacturers of a wide range of specialty fibres which are used for multiple purposes in very different fields of application all around the world. As this is a topic of particular interest, we are currently working on generating a better database and deeper insights into the emissions from downstream processing. The current assumption for end-of-life-treatment corresponds to the global average of residual waste disposal.

3.4.2.5 CO₂-Storage Project “Humus-Tandem”

In 2020, we established a dialogue to evaluate further collaboration with a local farmers' initiative, the so-called Humus-Tandem. Goal of this project is to capture non-avoidable CO₂-emissions from our production by supporting the local generation of humus. With a generation rate of 0.2% p.a., around 10 t of CO₂ can be stored per hectare per year. Our project partners own 40 hectares, so with this project we can absorb up to 400 t of CO₂ every year. Additionally, the humus helps to fertilize and improve the quality of the soil.





3.5 Water



Our processes water is mainly used for cooling and is then returned into the river Danube, as the receiving body of water. Where water is required as a reaction medium in the process flow, we try as far as possible to use the water several times, thus saving resources.

3.5.1 Water *Quantity*

Annual Water Use

Water	2020	2021	2022	Unit
Well water	14,014,095	14,710,176	13,823,260	m ³
Well water	252	234	272	m ³ / t fibre
Danube water	6,784,080	7,311,867	6,743,943	m ³
Danube water	122	116	133	m ³ / t fibre
Municipal water (only non-production)	16,181	16,980	17,770	m ³

Table 10

After use, process water is purified in vertical bio-reactors, which meet the highest standards of purification performance. Kelheim Fibres was the first company to invest in this state-of-the-art and unique vertical bioreactor technology. With a decomposition rate of 96%, our vertical bioreactors significantly exceed

the performance of conventional wastewater treatment plants, which is usually around 90%. Our purification capacity corresponds to that of a sewage treatment plant for a city with 160,000 inhabitants. A tight monitoring network, both internal and external, guarantees constant compliance with the legal limits.

3.5.2 Water *Quality*

Substances commonly referred to as pollutants deliver the basic nutrition for the microorganisms in our treatment plants. These microorganisms transform organic residues into harmless substances. The byproducts of this process are mainly carbon dioxide, water and nitrogen. This natural process takes place under optimized conditions in the vertical bioreactors. Intelligent measurement technology helps to control the process in a very precise way: an Alphameter, for example, is used to regulate the air supply to the

purification systems based on the expected loading of the plant. This ensures a constant supply for the microorganisms and that the introduction of air is energy-efficient. The wastewater produced in the process is returned to the Danube and compliance with the strict emission limits is monitored by the local water management authorities. We also fall under the Self-Monitoring Ordinance. Samples are taken and analysed on a regular basis to enable us to react immediately to any changes in the values.

3.6 Chemicals

3.6.1 REACH



Our responsibility as a manufacturer also means that our products do not pose a risk either during manufacture or during subsequent use. This is covered by the REACH regulations. Only approved raw materials may be used, and the conditions of use are specified in chemical safety reports. Threshold values are also set for substances that must not be exceeded in the finished products. The implementation of REACH follows a holistic approach and complements measures relating to operational and sustainable environmental protection.

3.6.2 ZDHC



The non-profit organisation with more than 160 contributors worldwide has set itself the goal of completely eliminating harmful substances from the textile value chain. The ZDHC guidelines provide producers of Man-made Cellulosic Fibres (MMCF) with uniform criteria for measuring indicators such as wastewater, air emissions and other process-related parameters. The measured data is independently monitored and published. ZDHC provides us with access to a range of best practices in chemical management and gives us the opportunity to network and learn from each other with like-minded industry partners. ZDHC's collaborative approach will accelerate the shift to a more responsible industry and we want to contribute to that.

3.7 Waste

Waste produced at the site is disposed professionally. Internally, the site has its own residue incineration plant for this purpose. The plant, which was built in 1974 and modernised in 2001 and 2002 respectively, meets the highest standards of safety and emissions technology.

The residue incineration plant falls under the 17th BImSchV. Natural gas is required for the combustion processes as well as the thermal energy of the waste, some of which has a high calorific value. The combustion processes generate approx. 4 tons of 16-bar steam per hour, which is then fed into the plant's low-pressure steam network for thermal use.



3.7.1 Non-hazardous Waste

Non-hazardous waste, Amount per Categories

Waste Management	2020	2021	2022	Unit
Total waste	5,984	6,072	6,243.4	t
Total waste	107.8	96.5	122.7	kg / t fibre
Process waste for recycling	117.0	112.0	112.0	t
Process waste for recycling	2.1	1.8	1.8	kg / t fibre
Process waste for disposal	2,062	2,274	206.5	t
Process waste for disposal	37.1	36.148	4.1	kg / t fibre
Other waste	3,805.0	3,687.0	4,309.1	t
Other waste	68.5	58.6	84.7	kg / t fibre

Table 11

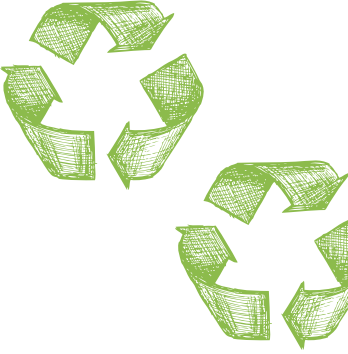
3.7.2 Hazardous Waste

As we operate a state-of-the-art-plant with an experienced team, we are able to also treat CS₂-contaminated waste safely at our site. Any hazardous waste that cannot be reused in the process is disposed of in strict compliance with the prevailing regulations.

Hazardous Waste, Amount per Categories

Waste Management	2020	2021	2022	Unit
Total hazardous waste	1,201	707	1,195	t
Total hazardous waste	21.6	11.2	23.5	kg / t fibre
Hazardous process waste for recycling	35	32	18.0	t
Hazardous process waste for recycling	0.6	0.5	0.4	kg / t fibre
Hazardous process waste for disposal	113	82	78.4	t
Hazardous process waste for disposal	2.0	1.3	1.5	kg / t fibre
Other hazardous waste	1.053	593	1,098.7	t
Other hazardous waste	19.0	9.4	21.6	kg / t fibre

Table 12



3.8 Neighbourhood *Impacts*



Hydrogen sulphide, the gas that is known from curative springs, is also released in the course of the production processes in our facilities and is sometimes noticeable to the population in the vicinity of the plant. Of course, the level of concentration and loads at which the hydrogen sulphide is released have a significant impact and Kelheim Fibres has always strived to significantly reduce sulphur emissions. In the last ten years, a targeted modernisation program has reduced the loads of hydrogen sulphide released by more than 50%. The population density in Kelheim is growing and the residential areas are moving closer to industrial

locations. This trend is increasing in line with the current shortage of housing. Over the past ten years, we have invested several million euros in noise protection within an ambitious noise reduction program. Visible signs of this programme are our noise protection halls located to the west of the factory, the muffled stack of the carbon disulphide recovery plant and the renovated 86-metre-high stack. Within the reconstruction measures following the fire in 2018, further measures reducing noise immissions from the roof of the spinning hall are to follow. This package of measures means that in future, noise immissions at the relevant immission points will be reduced by at least a further 6 dB(A).



3.9 Biodegradability



According to the provisions of the EU “Single-Use Plastic Directive” (SUPD), our viscose fibres are not chemically modified and therefore not considered plastic. One of the most important properties of the fibres in this context is biodegradability.

In respect of biodegradability, one of the the first things that comes to mind is the compostability of garden waste. But what exactly does biodegradability mean and how is it proven?

Scientifically speaking, a product is only biodegradable when microorganisms are able

to break down the material in question into its elemental components such as carbon, oxygen, hydrogen and minerals.

Compostability is however inextricably linked to biodegradability in the common understanding. Compostability is confirmed and demonstrated in accordance with DIN EN 13432. However, in reality, compostability only covers part of the full definition of biodegradability. For example, how do substances behave in an aqueous environment? The pollution of the oceans by plastic is one of the central environmental issues still unsolved by mankind. Various test methods provide answers to the question of what environmental impact a substance has on the marine environment.

Biodegradability Certificates: Overview

Method	Description
OECD 301 B	Evidence of ready biodegradability in 28 days
DIN EN ISO 14851 resp. ISO 14852	Oxygen demand in closed respirometer with sludge inoculum
DIN EN ISO 17756	Oxygen demand and/or CO ₂ evolution with soil inoculum
DIN EN ISO 18830	Oxygen demand in closed respirometer with sea sediment inoculum
OECD 301 F	Calculation of oxygen demand to measure aerobic degradation

Table 13

PART OF THE SOLUTION: VISCOSE FIBRES FROM KELHEIM

What is the big benefit of viscose fibres compared to oil-based fibres?

COMPOSTABILITY: Viscose fibres are compostable according to DIN EN13432.





DEGRADATION BEHAVIOR IN THE SEA

The following figure provides good overview over the biodegradation time required for viscose fibres compared to oil-based materials.

Average Degradation Time of Products*

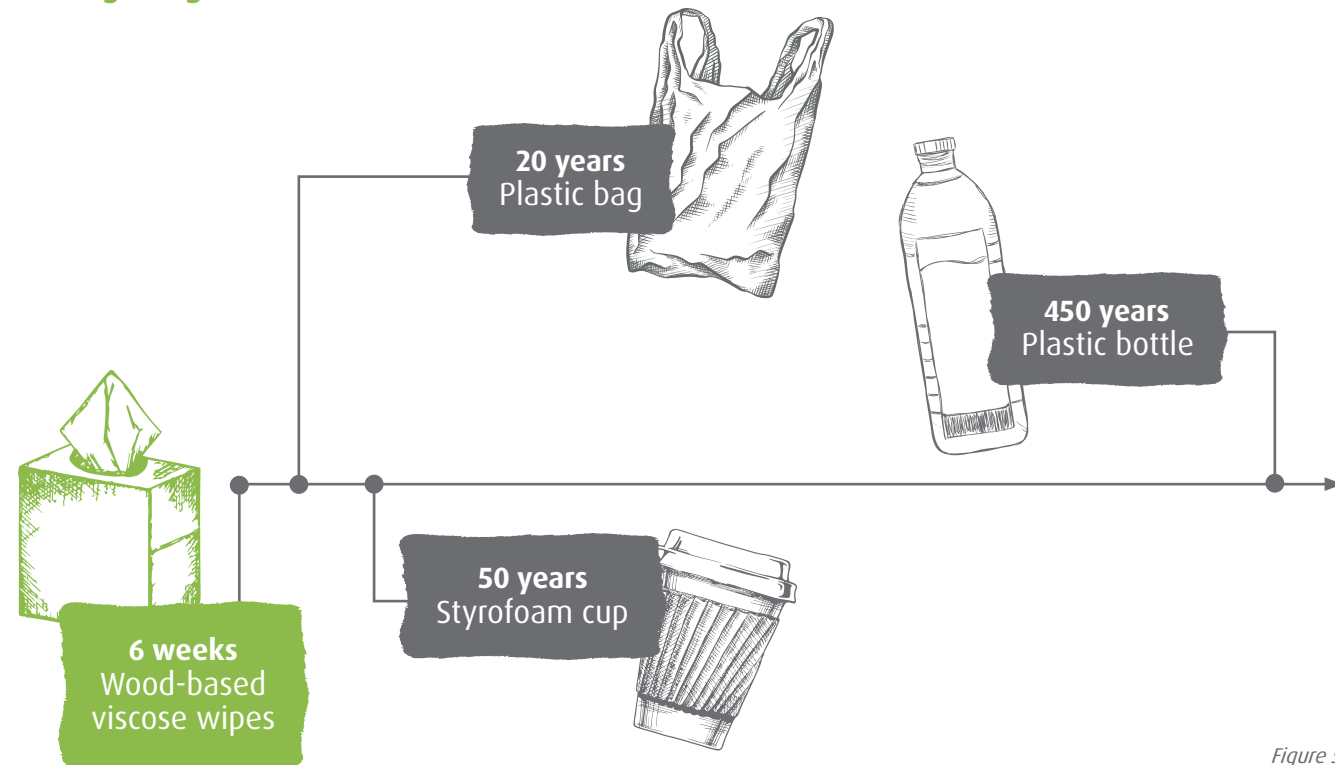


Figure 5

*source: statista_de/Nabu

The Biodegradation Process of Our Galaxy® Fibre Compared to Cellulose

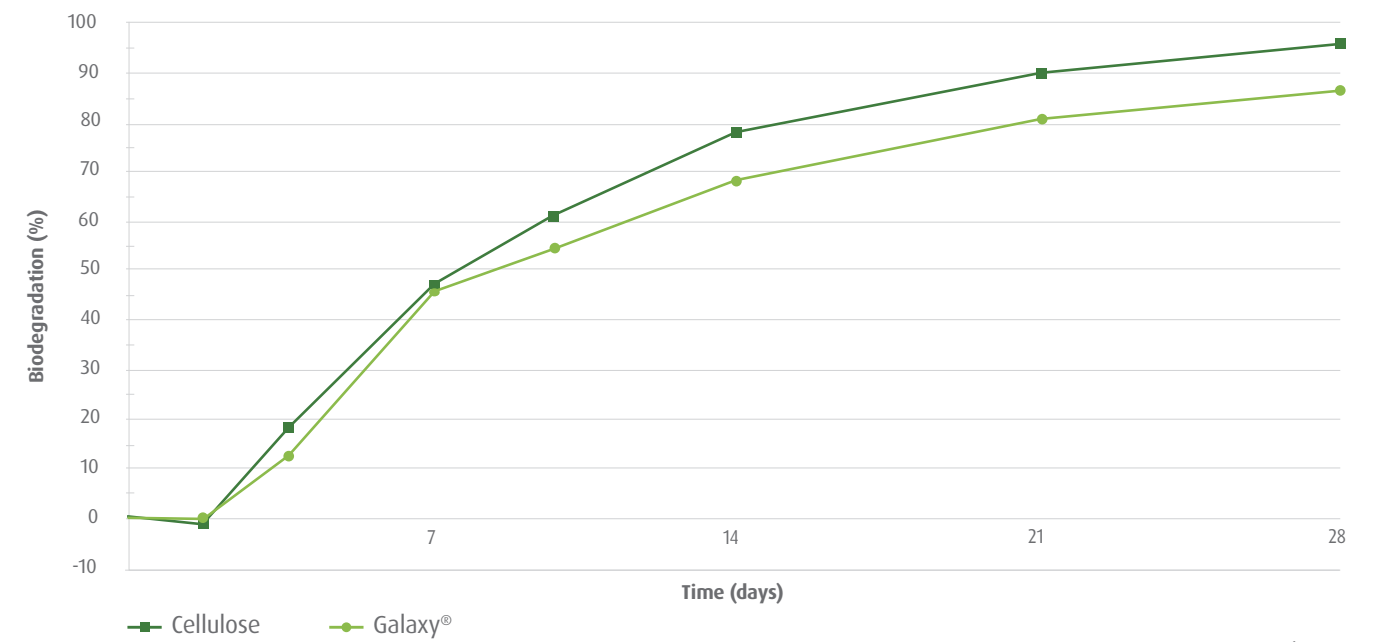
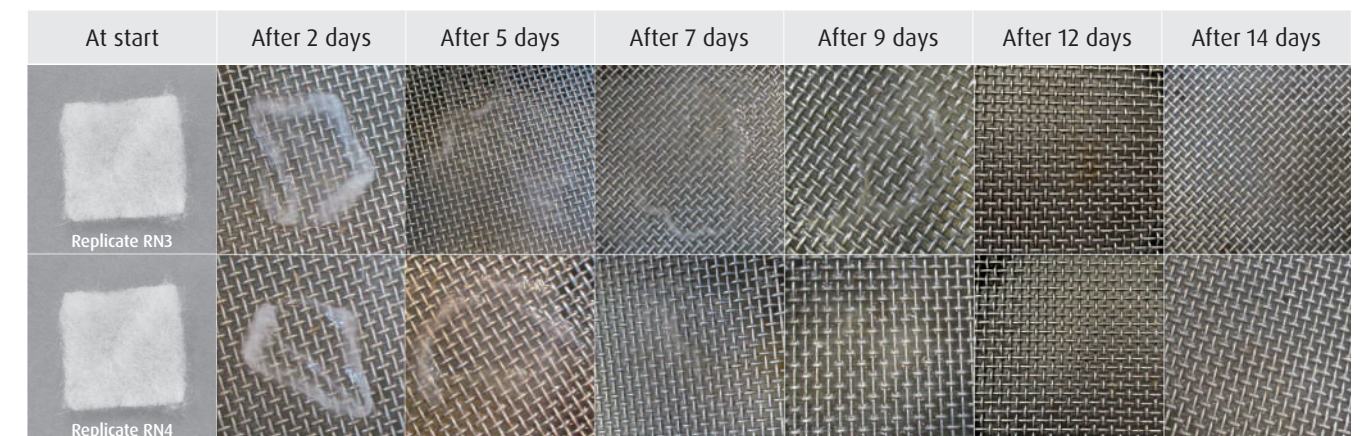


Figure 6

How well the wood-based viscose fibres really degrade can be seen when tested alongside the naturally occurring polymer cellulose. In the figure above, you can see the biodegradation times for natural cellulose compared to our Galaxy®-fibre.

Viscose fibres thus fully meet the requirements of OECD 301 B, according to which a degradation performance of at least 60% must be achieved after 28 days.

Biodegradability of Galaxy®



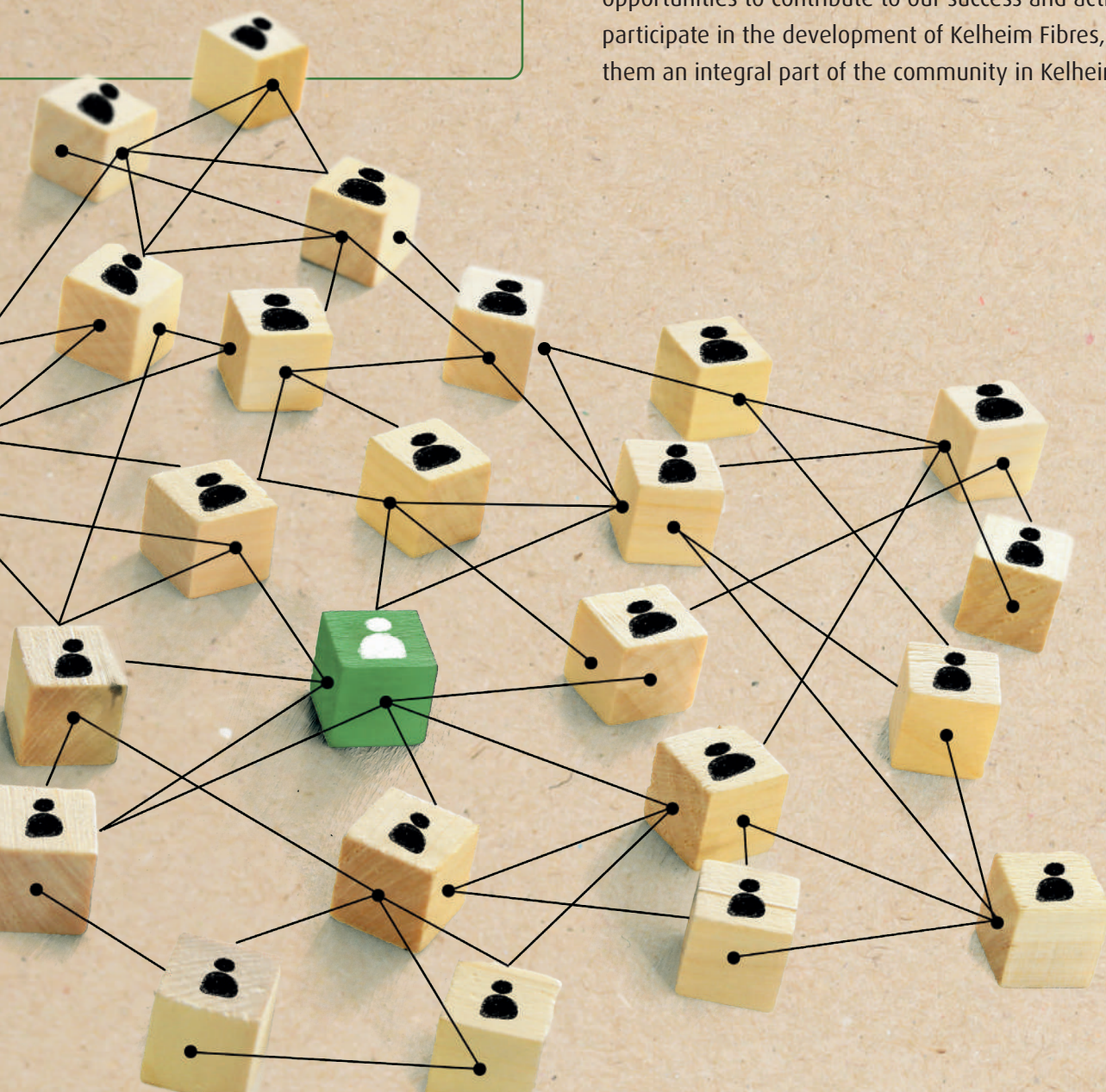
Visual presentation of the test object Galaxy® during 14 days of incubation.

Figure 7

4 Social

Principle 03: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining technologies.

Kelheim Fibres is an employer with a rich history spanning over 85 years in rural Kelheim, Germany. This longstanding presence has fostered a strong social partnership with our employees. We go beyond the mandatory minimum standards set in Germany, which contributes to the loyalty of our workforce. In some cases, we have employed multiple generations of the same families. We provide our employees with opportunities to contribute to our success and actively participate in the development of Kelheim Fibres, making them an integral part of the community in Kelheim.



4.1 Working Conditions *and Social Dialogue*



“ Sustainable HR management goes far beyond attracting new skilled workers. It's about retaining and developing our existing employees to create a strong foundation for our company. Because only by investing in our employees and keeping them committed to us in the long term we can ensure a sustainable future for our company and our society.

Tobias Westner,
Human Resources Director



4.1.1 Working *Conditions*



It is the right of our employees to organise themselves through employee representatives and trade unions. The goal of our company is to find a fair balance between our economic interests and the interests of our employees, which has a lasting positive influence on the overall success of our company.

Kelheim Fibres works together closely with the labour union IG BCE (Industriegewerkschaft Bergbau, Chemie, Energie). This union covers all major topics like salary structures, vacation entitlements, working time models and many more via collective agreements.

Also, this agreement marks the baseline for our working conditions. Our minimum salary is 14.80 Euro per hour, this is 23,3% higher than 12.00 Euro, the German minimum wage since October 2022. We provide flexible working time models to our employees. We also offer flexible working time

models as well as the possibility to apply for vacant positions internally via our intranet to our employees. On top of that, we have more than 100 company agreements regulating all relevant topics of our workplace.

We strictly forbid forced, compulsory or child labour. All our regular employees are 18 years or older. In compliance with German law, apprentices can be as young as 15 years old. For those between age 15 and 18, a stand-alone law strictly regulates working conditions. For instance, they are not allowed to work on Saturdays or Sundays or in night shifts.

All our employees are given the opportunity to participate in a company pension scheme. At the end of 2020, 100% of our staff were registered for this program. Our site has a subsidised canteen which provides food for all our shift workers. Over the year 2022, the company contributed about 115,0000 Euro to offer the best food for affordable prices.

4.1.2 Equality

Our work environment is defined by collegiality. We treat every human being with mutual dignity and respect, regardless of origin and circumstances. Age, disability, ethnic origin, skin colour, gender, pregnancy, sexual identity, nationality, religion or marital status play no role in personnel selection.

Possible violations against these principles of the General Equal Treatment Act (GETA) can be reported to our trust and complaint office, if desired also anonymously. Our GETA officers from the HR department and works council investigate all reports and also participated in a training in 2022 to gain even more expertise in this area. Our employment process is strictly formalised, the classification of a vacant position is exclusively based on the

Principle 06: The elimination of discrimination in respect of employment and occupation.

collective agreement and does not take into account any aspects other than the requirements of the position. When a new position needs to be created, there is a joint meeting between HR and our works council (the employee representation body) where the classification of this position is agreed. The outcome of this session is used as base for the job advertisement including the level of salary.

We take violations of our equality directive very seriously. Employees who violate any of the above principles will face disciplinary action.

4.1.3 Apprenticeship Culture, *Training and Career Management*

We are particularly proud of our deeply rooted local employee culture. As a company with highly specific skill demands, developing and retaining our workers is important for us. At the end of 2022, we employed a total of 512 people with an average employment period of 15.9 years. One pillar of our philosophy is not only to rely on the market to provide us experienced workers, but also to train our own specialists. At the end of 2022 we had 69 apprenticeship positions occupied.

After completion of the apprenticeship, we aim to offer full-time positions to those trainees. In 2022, we employed 77% of our apprentices after they finished their training. We also assess our

employees based of their performance and provide them with fair feedback. Regular evaluations are carried out using a skill matrix. A thorough initial training is the foundation for good work - which in turn leads to employee satisfaction. That is why we have introduced a mentorship model, which assigns a personal mentor, i.e., a contact person for all questions, to each new employee. New employees have the opportunity to taste into the work and the team before making a final decision on a position with us, to check if the job, team, and applicant really fit together.

Furthermore, our employees have the opportunities to educate themselves via our training programme.



4.1.4 Temporary *Employment*

In some situations, it is necessary to rely on the support of temporary workers. We treat those workers in the same way we treat our own employees. In our sector of industry, the salaries and working conditions for temporary workers are also regulated in an IG BCE-union contract.

Whenever possible, we also try to offer temporary workers a full employment. In 2022 we could give 9,4% of our temporary workers the opportunity for a fixed contract.

4.1.5 Employee *Engagement*

Our management hosts quarterly employee information meetings in which everybody is updated about important KPIs and strategic decisions.

As we derive high benefits from the knowledge of our employees, we offer an improvement platform with a suggestion scheme. Employees with concrete ideas for improvement can upload their ideas to the platform and after evaluation and approval, the person who suggested the measure benefits from a share of any savings made. We are very proud that our improvement platform was particularly successful in 2022: out of 38 submitted proposals, we were able to implement 14 of them, resulting in a cost-saving potential of 440,000 euros.

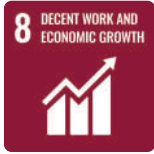


14 / 38 suggestions implemented

440,000 Euro annual saving due to employee suggestions



4.2 Employee *Health and Safety*



As a company, it is important for us to promote awareness and create consciousness regarding occupational safety and health among our entire workforce. To achieve this, we plan to implement the Occupational Health and Safety Management System (OHRIS) by the end of 2023, which is based on the international standard ISO 45001 and was developed by the

Bavarian State Government in cooperation with the business community. One of the main principles of OHRIS is that employees play a significant role in determining the success of a company. Therefore, we are committed to actively involve our employees in the occupational safety and health process and encouraging them to contribute their ideas and suggestions for improving safety standards.

4.2.1 Plant *Fire Service*

We operate our own fire service on site to rapidly provide protection to our employees in case of emergencies. This also helps to relieve pressure on the local town firefighters. Our fire service carries out regular fire-fighting drills and is responsible for the drafting and implementation of, as well as adherence to the site fire protection regulations and also maintains the fire extinguishers.

In 2022, we inaugurated our new fire department building. Not only does it provide home to our fire vehicle fleet, equipment and administration, it also hosts workshops for service tasks like respirator maintenance. Also, it offers big meeting rooms which can be used for internal as well as external purposes. We used the facility already once as venue for a blood donation organized by the Blood Donor Service of the BRK (Blutspendedienst des Bayerischen Roten Kreuzes).

Fire Service Statistics	2020	2021	2022
Fire brigade exercises	36	78	125
Fire alarms	40	37	51

Table 14

In the future, we also plan to host external bone marrow typings. With the opening of the new facility, we also opened our fire squad for apprentices and female workers. The qualitative qualification of our fire brigade was extended. We started collaborations and shared training programs with other fire brigades as well as an internal qualification program.

FITNESS PROGRAM AND GYM

Physical fitness is a must for our firefighters. For this purpose, we have created individual training plans together with the health specialist ForLife. A fitness room is also available to our firefighters in our new fire station. After only a few month, the programme has been so successful that we plan to extend this fitness offer to other employees in 2023.

4.2.2 Corporate *Healthcare*

We offer an on-site healthcare and medical service to our workers. The health status of our production workers is regularly monitored by our company doctor to ensure physical aptitude. The medical service is also responsible for the continuous measuring of biological limit values. Employees can consult our doctor concerning any questions of health.

ERGONOMICS IN THE WORKPLACE

Together with the experts in health management and ergonomics from ForLife, we are gradually examining the work processes in all departments and conducting a real-time motion analysis to determine the physical stresses our employees are exposed to. Through precise measurement using Kinetics sensors, we obtain an evaluation of the stress parameters in daily work routines. Where possible, we try to minimize these stresses by rearranging machines or training suitable movement patterns. If this is not possible, employees are provided with special compensatory exercises.



4.2.3 Regular *Workplace Inspections*

All workplaces are inspected annually at a minimum with the objective of identifying safety risks. Our company safety officer, the safety officer of the department, a representative of the works council, the head of the department, a representative of the fire department as well as the company doctor and the operating manager ensure that all potential technical and organisational risks are identified and properly evaluated. Potential findings are recorded in a security protocol and addressed immediately.

We see safety inspections as a continuous process and are always striving for improvement to make our work environment as safe as possible. To raise awareness, we also host regular trainings on workplace safety. Furthermore, we encourage our employees to report accident potential and near miss accidents.



37 risk assessments

34 safety hazards reported by employees

48 measures to eliminate workplace hazards

1000-man-quota: 7,32

Lost time severity rate: 0.08

4.2.4 Provision of *Free Protective Work Equipment*

Based on the risk evaluation, some of our workplaces have a potential of injury. To eliminate these risks, we first try to solve the issue with technical solutions. If this is not possible, we explore and implement organisational solutions as a next step. In case these are also impractical, we then offer or mandate the use of personal protective equipment.

We provide protective equipment and work wear to our employees as necessary. Included are, for example, protective goggles, security helmets and safety shoes as well as respiratory protection equipment or protective gloves.

**Expenses for occupational safety equipment:
192,922 Euro**



5

Compliance

Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery.

In order to maintain a free and competitive market, there are many laws and regulations in place. Kelheim Fibres strictly adheres to all relevant laws and regulations, ensuring full compliance. We use these strict legal requirements as the base for our extensive Code of Conduct. This policy provides a full set of guidelines for all employees on how to represent Kelheim Fibres' values internally as well as externally in an appropriate manner.

Every stakeholder can access our Code of Conduct on our website. In cases of uncertainty of how to behave in a specific situation, our Compliance Representative can be contacted for advice. Our target is to have zero violations of compliance topics.

We expanded our guidelines and compliance structure to cover the subjects of trade association work and trade shows in more detail in mid 2021. In addition, we have implemented a whistleblowing hotline in 2022.

Principle 01: Businesses should support and respect the protection of internationally proclaimed human rights.

Principle 02: Make sure that they are not complicit in human rights abuses.

Principle 04: The elimination of all forms of forced and compulsory labour.

Principle 05: The effective abolition of child labour.

5.1 Fair Business *Practices*



Our internal fair business practice rules focus on workplace behaviour, equality, and human rights. This is particularly important to create an inclusive working environment for employees of all backgrounds.

5.1.1 Human Rights, *Child- And Forced Labour*

The protection of human and children's rights is a fundamental and universal requirement for us as a company. We firmly reject all forms of child, forced and compulsory labour with a clear target of zero cases of human right violations, child- or forced labour. Admission to employment may under no circumstances fall below the statutory minimum age. National standards for the protection of children and young workers must be observed at all times. We expect the same standards from all our business partners.

**Z E R O violations of
human rights**

Z E R O cases of child labour

Z E R O cases of forced labour



5.1.2 Conflict *Of Interest*

We must do everything in our power to avoid conflicts of interest. Unavoidable conflicts must be resolved as quickly as possible. We handle conflicts of interest in an ethically sound manner. Conflicts of interest may arise in the relationship between Kelheim Fibres and customers, Kelheim Fibres and suppliers, Kelheim Fibres and its employees, or as a conflict of interest between different customers. We expect our employees to inform their managers about relationships with persons or companies that could lead to potential conflicts of interest. Our target is to have zero reported conflicts of interest.

5.1.3 Bribery *and Corruption*

We reject any form of bribery or corruption and expect behaviour that does not allow personal dependencies or influences. Our company shall never offer, solicit or grant any gift that is intended to unlawfully influence a person's decision or actions. We also do not expect or accept any undue advantages from suppliers or customers. If unauthorised benefits are offered, promised or granted to us, we shall inform the compliance officer.

The acceptance or granting of gifts, hospitality and invitations is permissible in general business transactions. The prerequisite is that these are voluntary and are not accepted or granted in expectation of a reward. Gifts, hospitality and invitations must never influence or create the appearance of influencing a business decision or lead to preferential treatment of the parties involved. The Anti-Corruption Directive regulates this in more detail.

The contacts that we at Kelheim Fibres maintain with officials and elected representatives are subject to the strictest laws and regulations, as well as our internal regulations for the avoidance of conflicts of interest and the prohibition of bribery and corruption. Our target is to have zero cases of bribery and corruption at any time.



Z E R O
reported conflicts of interest



Z E R O
cases of bribery

Z E R O
cases of corruption

5.1.4 Trading and *Export Controls*

For our company, the international market is a pillar of our success alongside to the domestic market. We benefit from the market economy and free, unhindered competition.

Our actions are always in accordance with the observance of all regulations for the import and export of goods as well as with all trade control laws.

5.1.5 Transparent *Finance Reporting*

Our business partners expect that the legal regulations governing the management and supervision of the company as well as the internationally recognised standards of good corporate governance are observed. They need a transparent financial report in order to have a picture of the company's assets, finances and earnings. With this in mind, all employees of the company must contribute to ensuring that our business transactions

are fully and correctly recorded in the books. Transparency and correctness are of paramount importance to us when it comes to proper accounting and financial reporting. Therefore, we strictly adhere to all legal framework conditions and ensure that corporate funds and anything that has or represents a financial value are traded responsibly and honestly at all times.

5.1.6 Product *Safety*

The safety of our products is not negotiable. In order to comply with the applicable national and international regulations, we as a company guarantee the safety of our products by making it our goal not only to meet the legal requirements, but to exceed them. Here, we rely on an effective quality management system that ensures that our customers receive safe products of high quality.



5.2 Data *Security*

5.2.1 Confidentiality

We place great importance on the completeness and accuracy of the information provided by us and treat business matters of which we gain knowledge in the course of our activities as strictly confidential. We do not misuse confidential information and do not pass it on to third parties without authorisation



Z E R O
data security breaches

5.2.2 Data *Protection*

Using all suitable and appropriate technical and organisational means available, we protect corporate data as well as the personal data of our customers, suppliers, employees and other business partners against unauthorised access, unauthorised or improper use, and loss or premature destruction. We support each other and exchange information within the defined limits. We work closely together with project 29, our external data security representative.

In 2021, a renewal of our data storage system was implemented to ensure the highest technical standard and security available. To ensure the security of our employees' company laptops, we take measures to prevent unauthorised access in the event of loss or theft. This includes utilising encrypted hard drives, which effectively safeguards sensitive data.

Our server systems are structured in a hierarchical way, ensuring that employee access is limited only to the data they need. For 2023, we have planned a mandatory data safety and security training for all employees. Our target is to have all employees complete the training within the calendar year.



5.3 Whistleblowing

We take the topic of compliance very seriously. That is why it is important to us to offer our employees, customers and business partners the possibility to report violations and indicate possible grievances at our company. As a result, we established an official whistleblowing process starting in 2022. This allows all stakeholders to report any infringements of work ethics, good practice and other legal concerns anonymously. In case of any report, an external public official (ombudsman) reviews the case to determine which actions to take.

The contact can be found on our homepage. Our target is zero confirmed violations of good practices.



In 2022, we had Z E R O cases of confirmed violations

5.4 Measures *in Case of Infringements*

If employees violate agreements and regulations of any kind during the course of their employment relationship, appropriate disciplinary measures are initiated. Our primary focus is on persuading the employees involved to modify their behavior by emphasizing the importance of our Code of Conduct. Serious infringements may also result in disciplinary action.

All employees are required to inform the compliance officer if they become aware of any violations. Deviation from the Code of Conduct may be permitted in specific situations but requires prior approval by senior management.



Z E R O cases of compliance violations



6 Responsible Sourcing

As a manufacturing company, we are dependent on a wide range of raw materials and other resources. In today's connected world, sourcing is a global topic. In theory, a company has almost infinite possibilities concerning resource quality, price, location of sourcing, medium of transportation and so on. This opens up different strategies for sourcing in general. An example of our responsible sourcing policy is that we source as many raw materials as possible locally, to reduce transport distances. Our main raw material, wood pulp, is sourced exclusively from manufacturers using only sustainably harvested wood.

Starting in 2023, we expanded our value chain engagement by implementing a supplier questionnaire screening conformity with all relevant environmental, working condition and compliance matters. This helps us to better understand our own upstream impacts.



Ensure availability and sustainable management of water and sanitation for all.



Ensure access to affordable, reliable, sustainable and modern energy for all.



Ensure sustainable consumption and production patterns.

6.1 Certifications



6.1.1 FSC™ & PEFC

Kelheim Fibres uses exclusively FSC™ (Forest Stewardship Council™) and PEFC (Programme for the Endorsement of Forest Certification) compliant wood pulp. The wood comes from sustainably managed forests, harvested under strict observance of social and environmental legal standards, and from other controlled sources.



6.1.2 OEKO-TEX® STANDARD 100

OEKO-TEX® product class 1 annex 6

If a textile article carries the OEKO-TEX® STANDARD 100 label, the consumer can be certain that every component of this article, i.e. every thread, button and other accessories, has been tested for harmful substances and that the article therefore is harmless for human health. Our products have been certified accordingly.



6.1.3 Canopy

Canopy is a not-for-profit environmental organisation dedicated to protecting forests, species and climate. Canopy has collaborated with more than 750 companies to develop innovative solutions, make their supply chains more sustainable and help protect our world's remaining ancient and endangered forests. Kelheim Fibres achieved a dark green/ green shirt as the seventh-best evaluated viscose manufacturer in the 2022 Canopy Hot Button Ranking.

6.2.1 Compliance *in the Supply Chain*

The FSC™ certification process includes a timber legality compliance screening and PEFC operates a whistleblowing system in regards of compliance infringements. In both cases, our suppliers need to be certified in order for us to be eligible for the certification. Therefore, a regular compliance screening as well as permanent control mechanisms are in place for all our wood pulp suppliers to ensure highest levels of compliance with sustainable sourcing.

6.2.2 Environmental *Practices of Suppliers*

We conduct regular supplier screenings. In course of these, we award points for an environmental management system in place (particularly according to ISO 14001 or EMAS) as well as energy management in accordance to ISO 50001.



**100% pulp suppliers
certified in accordance with
FSC™ / PEFC**

6.2.3 Conflict *Minerals*

In the past, certain minerals originating in the Democratic Republic of the Congo and surrounding countries were identified supporting and financing violent armed conflicts. Since then, those minerals are generally referred to as “conflict minerals”, regardless of country of origin.

Conflict minerals (3TG) according to the EU directive (EU) 2017/821 are the following:

- Tin
- Tantal
- Tungsten
- Gold
- Their derivatives

We are committed to corporate responsibility. While some of our production tools may require small amounts of those materials in question, it is important to note that they do not find their way into the finished products.

We perform due diligence to ensure that all of those minerals are responsibly mined and processed, adhering to strict standards that uphold human rights.



Sustainable action must encompass every stage of the value chain, including in terms of supply chain due diligence. Compliance sets the rules in this regard.

The further development of our compliance system, such as the implementation of our whistleblowing hotline and the training of all employees, makes us a reliable partner for our customers and suppliers, our employees, and our neighbors.



*Mark von der Becke,
Sales Director*



7

Driving Force Behind Innovation

Innovation is firmly anchored in our corporate philosophy. We dedicate a substantial part of our work to making innovations happen that support an eco-friendly and healthy way of living. By creating solutions that unite nature and performance, we actively contribute to the shift from a fossil-based to a bio-based economy to conserve our green planet.

Kelheim Fibres puts innovation activities at the core of its path to the future. We act as the facilitator and development accelerator of future-oriented, sustainable solutions across the bio-based cellulosic pulp and fibre industry for existing and emerging markets.



Promote sustained, inclusive and sustainable economic growth, full and productive employment, and decent work for all.



Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation.

7.1 Open Innovation – Collaborative Development



As pioneers in our industry, we do not limit ourselves to producing innovative fibres. Together with our partners, we develop holistic concepts that cover the entire value chain.

Through this collaboration based on the "Open Innovation" principle, products are created that take into account the real needs of customers and are thought through from beginning to end, so they can be quickly ramped up to a commercial scale.

*Dr. Marina Crnoja-Cosic,
Director of New Business Development*

A central pillar of our endeavour is "Open Innovation": sustained commitment from industry, researchers, and policy makers is a prerequisite for the rapid development and commercial viability of bio-based solutions. Our "Open Innovation" concept brings together like-minded market participants and helps to identify unmet consumer needs and to develop corresponding solutions.

■ HOW WE FILL OUR VISION WITH LIFE

We use forward-looking techniques such as trend monitoring approaches, which observe trends on different levels of abstraction (mega trends, industry trends, consumer trends) and creative methods to define possible technological requirements that may result from these trend developments. By doing so, we proactively design solutions today to meet the needs of tomorrow. As a specialty viscose fibres producer, Kelheim Fibres is positioned at the beginning of the value chain, far removed from the end product. Our innovative functional fibers have the potential to pave the way for new and unique textile or nonwoven products. Through the close interaction of all participants in the value chain, we can significantly accelerate the time span from fibre development to the commercialisation of the end product. By opening up our innovation process to the outside world, we create market-oriented solutions based on actual consumer needs.

HIGHLIGHTS 2022



- Winner of the Techtextil Innovation Award in the "New Concept" category together with SUMO and STFI for our project "Cellulose-based nonwovens for highly absorbent reusable products"
- 3rd place in the Cellulose Fibre Innovation of the Year 2022 for the concept of a sustainable menstruation panty / Application driven fibre functionalization)
- Partnership with TextileGenesis™, an award-winning traceability platform that creates radical transparency from fibre-to-retail and ensures authenticity and provenance of sustainable textiles against generics.

7.2 Agile Innovation Methods – *Improving Tomorrow*

Agile project management with lean canvas supports our open innovation process. It provides a structured yet flexible method to plan and implement projects quickly and effectively. By breaking the project down into small, iterative steps, we can quickly respond to changes in the project environment. The result is faster project management with greater flexibility and customer satisfaction.

Especially in mixed teams with external partners, the use of agile principles improves teamwork, leading to faster results and higher quality. Using lean canvas as a visual tool helps keep all project stakeholders on the same page to improve understanding of the project.

Principles of Open Innovation

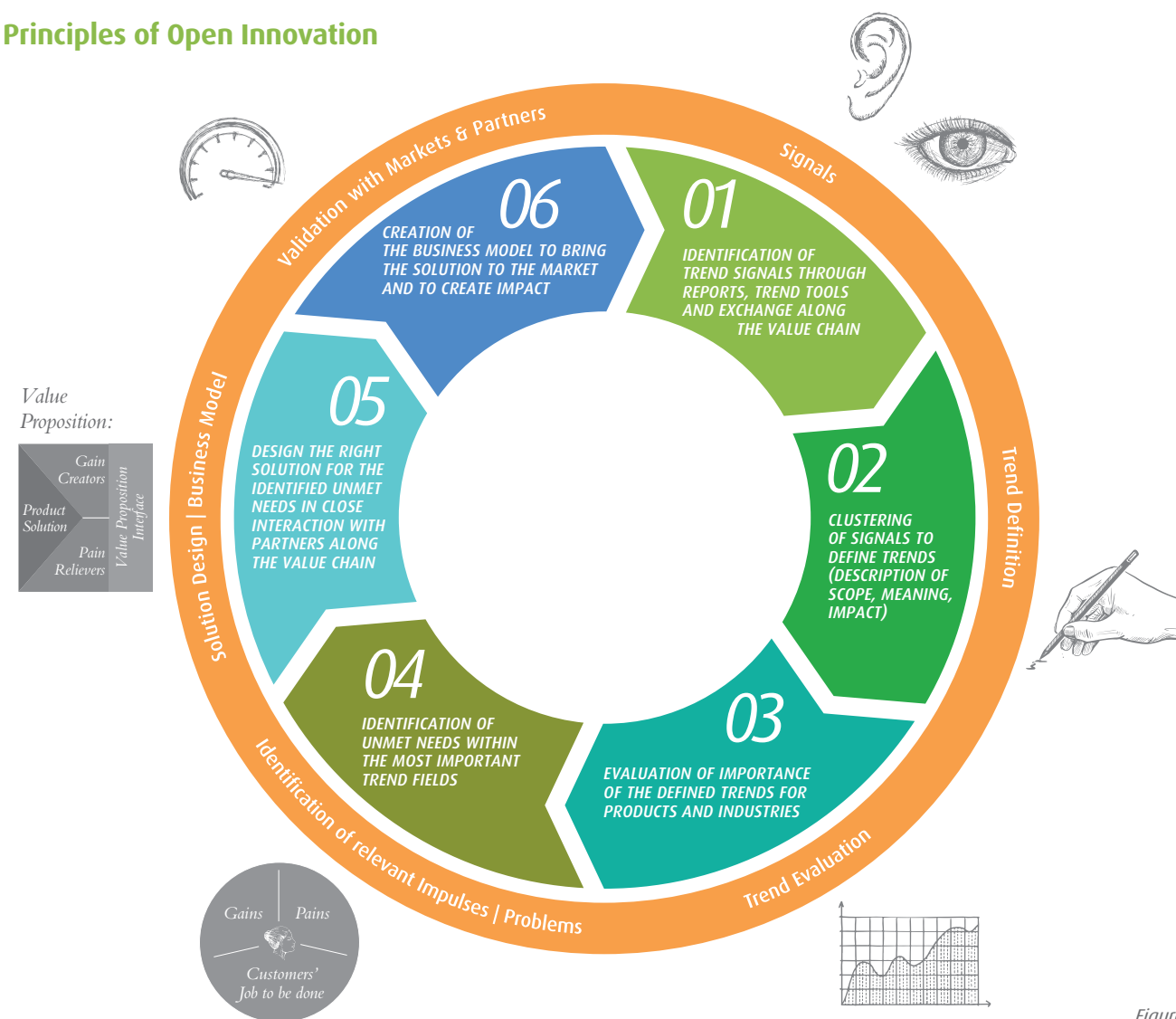


Figure 8

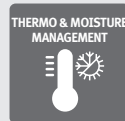
New Business Development at Kelheim Fibres means identifying the role our fibres can play in solving the challenges of today.



7.3 Future Oriented Product Development – *Combining Nature and Performance*

USER NEEDS

Unmet needs:
What do people want and need?



FIBRE SCIENCE FROM KELHEIM

We adjust various parameters and design fibres that are precisely tailored to the requirements of our customers. The typical properties of viscose are retained and further improved.



CROSS-SECTION
FUNCTIONALISATION



INTRINSIC
FUNCTIONALISATION



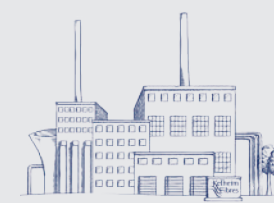
DIMENSIONAL
FUNCTIONALISATION

Our viscose speciality fibres are made of 100% wood pulp and are fully biodegradable. But in contrast to natural fibres, our production process allows us to make precise adjustments to adapt our fibres to meet our customers' specific needs. We can define our fibres' cross-section and dimensions and functionalise

them by incorporating additives permanently into the fibre matrix. This allows our viscose fibres to become a viable alternative to synthetic fibres, offering the same or even a better level of overall performance in the end product and increasing the sustainability credentials of the whole value chain.

DOWNSTREAM VALUE CHAIN

We bring like-minded market participants together in order to identify consumer needs that we can collaboratively solve together.



Material
Processing



SPECIALTY PAPERS



NONWOVENS YARN

Manufacturing



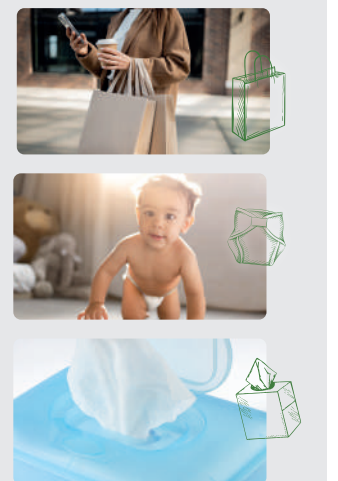
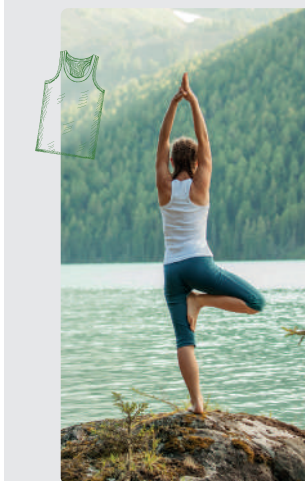
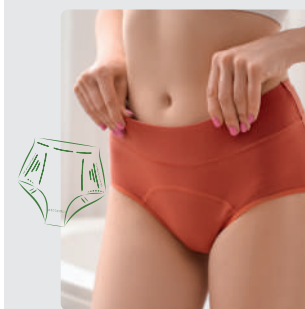
Retail & Use



Disposal &
Recycling

FUNCTIONALISED PRODUCTS FOR A HEALTHY AND SUSTAINABLE LIFESTYLE

Customised fibres for hygiene applications, functional textiles, specialty papers and technical applications such as filtration or flocking.



7.3.1 How our Fibres Contribute to a *Healthy and Sustainable Lifestyle*

At Kelheim, all the different fibres we produce share a common trait: they provide both comfort and protection, forming the foundation of various hygiene products like femcare and baby care items.

Our fibres are exclusively derived from the cellulose of plants, making them biodegradable and aligning perfectly with a sustainable way of life.

7.3.1.1 Biodegradable Products *for Clean Oceans and Landfills*

Absorbent hygiene products such as diapers, sanitary pads, and incontinence products are an integral part of our daily lives. However, most of these products contain synthetic components and contribute to the global plastic waste problem. The search for alternatives is becoming increasingly urgent. The key lies in ensuring that innovations match the performance and reliability of conventional products to truly succeed in the market. Ultimately, in a sensitive area like personal hygiene, nobody wants to make compromises. Kelheim Fibres is currently working on various development projects to design fully biobased

AHP (Absorbent Hygiene product) concepts that do not compromise on performance. In this area, the company continues to focus on its wood-based specialty fibres, which the tampon industry has trusted for decades. However, the requirements for AHP products differ, as each layer must fulfil a specific function.

To meet these requirements, Kelheim Fibres has developed a range of functionalized specialty fibres, including hydrophobic Olea, trilobal Galaxy®, and the hollow fibre Bramante. These specialty fibres ensure optimal results in every layer of the AHP product.

Plant-Based Fibre Solutions for High-Performance Hygiene Products

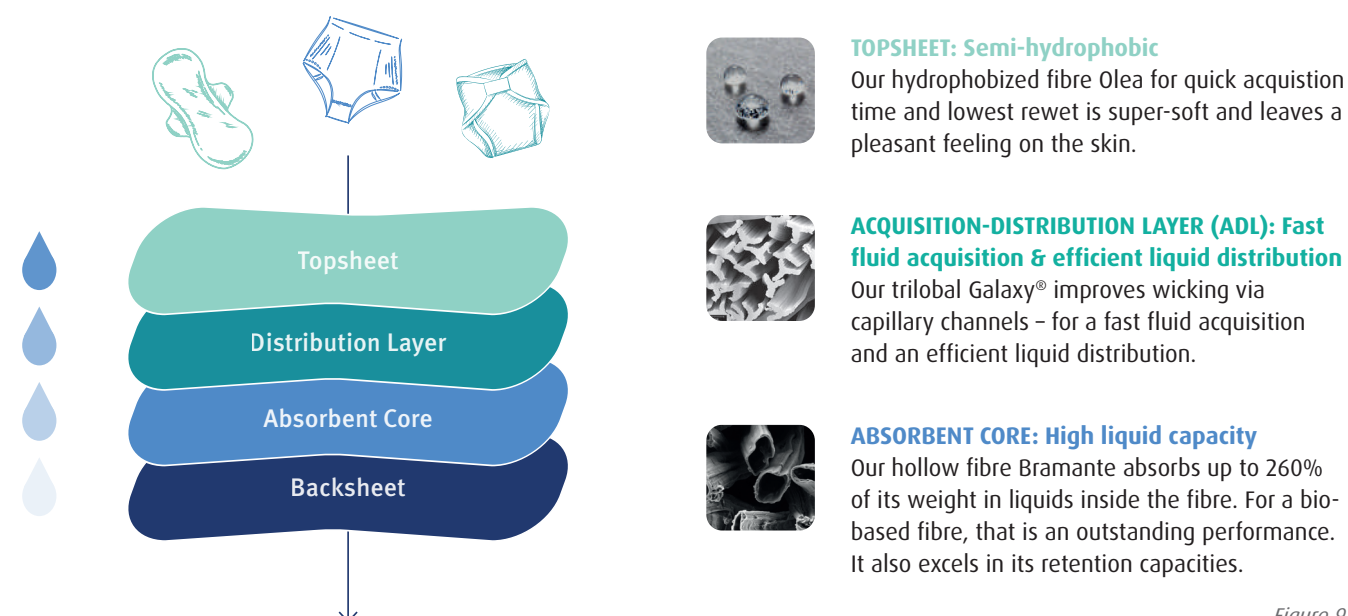


Figure 9

7.3.1.2 Reusable Products for Conserving Resources – *Using the Example Reusable Diapers*

“Kelheim Fibres’ specialty fibres are a perfect fit for us. Like all the fabrics we have developed for SUMO diapers, the fibres in the insert developed with Kelheim are based on cellulose and are biodegradable. They are as good to baby’s skin as they are to the environment, and – thanks to their targeted functionalisation – they outperform other cellulosic fibres, as well as synthetic fibres.”
Luisa Kahlfeldt, founder SUMO GmbH



Up to the age of three, a baby uses around 5,000 diapers. Although common disposable diapers score points with their convenient handling, parents are increasingly looking for a healthy and sustainable alternative to these products, which are in most cases synthetic. After all, they cause an enormous amount of plastic waste. In Germany alone, 10 million diapers are disposed of every day.

There are two ways to solve this dilemma: Either disposable products which are made from bio-based or biodegradable materials, or reusable products with a longer life span replacing disposable products. As the founding team of the start-up SUMO, Luisa Kahlfeldt and Caspar Böhme go even further and combine both with their SUMO Diapers. They have successfully created a reusable cloth diaper that is made entirely of sustainable materials while offering high performance and innovative design.

The SUMO Diaper is a fitted cloth diaper that consists of a waterproof cover and absorbent inserts. The cover is sewn in such a way that a pocket is formed: this is where the absorbent pad is inserted to prevent slipping. To further enhance the performance of this absorbent pad, SUMO and Kelheim Fibres together have developed a high-performance absorbent pad that uses no fossil materials. The basis for the innovative design form Kelheim’s functionalised specialty

viscose fibres with adapted cross-sections. Needle-punched/thermobonded nonwovens with a blend of specialty viscose and PLA bicomponent fibres were chosen to ensure the product’s washability. PLA stands for polylactic acid made from natural and renewable raw materials. By combining nonwovens usually found in the single-use sector with reusable products, SUMO and Kelheim Fibres have chosen a completely new approach.

Inside the pad, the specialty fibres from Kelheim score with their special properties: In the distribution layer (ADL), the trilobal cross-section of the Galaxy® fibre forms capillary channels that enable efficient and optimized liquid distribution and thus optimum use of the capacity of the absorbent core, offering the lowest rewet values. In the absorbent core, the segmented hollow fibre Bramante stores liquid not only between but also inside the fibre. The liquid remains there even when pressure is applied to the construction, providing excellent rewet values. Bramante can absorb up to 260% of its own weight in liquid (cotton only achieves values of around 50%).

The innovative nonwoven construction with the specialty fibres from Kelheim Fibres performs significantly better in tests in terms of air permeability, liquid absorption and rewetting than commercially available solutions made of synthetic fibres or cotton in knitted structures.

7.4 Future Technologies – *Beyond the State of the Art*

With environmental awareness rising among consumers, the whole industry is undergoing a change at a revolutionary pace. We see and welcome the growing commitment among our industry partners to sustainable solutions. We in turn are committed to examine thoroughly what possibilities these changes can offer us:

We actively investigate how alternative raw materials can be used in our production processes and how our processes can be modified in order to utilize them.

Our goal is to increase the sustainability credentials of our fibres while creating new fibre properties without compromising on their performance.



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