



UPM Augsburg

ENVIRONMENTAL AND SOCIETAL RESPONSIBILITY 2023



UPM Augsburg

UPM Augsburg is located on the edge of Augsburg city centre. Founded in 1849, the site currently employs around 287 employees and produces up to 350,000 tonnes of coated supercalendered printing paper in reels per year. The paper is primarily used for magazines, newspaper inserts, advertising brochures and sales and mail order catalogues.

In addition to recovered paper and pigments, virgin fibres such as groundwood pulp and chemical pulp from sustainably managed forests are used as raw materials for paper production. The water required for the production process comes from deep wells on the mill site. The wastewater is cleaned in Augsburg's municipal treatment plant. The steam required for the paper-making process is generated in a combined heat and power plant operating on natural gas. The mill's electricity is supplied via the national grid.

The Augsburg site is also home to the head office of UPM Communication Papers and its functions.



UPM Augsburg Environmental and Societal Responsibility 2023 is a supplement to the Corporate Environmental and Societal Responsibility Statement of UPM's pulp and paper mills (available at www.upm.com) and provides mill-specific environmental and societal performance data and trends for the year 2023. The annually updated mill supplements and the UPM Corporate Environmental and Societal Responsibility Statement together form the joint EMAS Statement of UPM Corporation. The next Updated UPM Corporate Environmental Statement and also this supplement will be published in 2025.

We deliver renewable and responsible solutions and innovate for a future beyond fossils across six business areas: UPM Fibres, UPM Energy, UPM Raflatac, UPM Specialty Papers, UPM Communication Papers and UPM Plywood. As the industry leader in responsibility, we are committed to the UN Business Ambition for 1.5°C and the science-based targets to mitigate climate change. We employ 16,600 people worldwide and our annual sales are approximately EUR 10.5 billion. Our shares are listed on Nasdaq Helsinki Ltd. UPM Biofore – Beyond fossils. www.upm.com

Production capacity	Up to 350,000 tonnes per annum
Personnel	Augsburg mill: 287 / Augsburg office approx. 122 (total number of employees as at 31 December 2023)
Products	Magazine paper (LWC): UPM Ultra UPM Matt UPM Cote UPM Valor
Certifications	<p>Augsburg mill:</p> <p>ISO 14001 – Environmental Management Systems standard ISO 9001 – Quality Management Systems standard ISO 50001 – Energy Management Systems standard ISO 45001 – Occupational Health and Safety standard PEFC Chain of Custody – Programme for the Endorsement of Forest Certification FSC® Chain of Custody – Forest Stewardship Council®</p> <p>Augsburg mill and Augsburg office: EMAS – EU Eco-Management and Audit Scheme</p> <p>All certificates can be found in the UPM Certificate Finder (available at www.upm.com/responsibility)</p>
Environmental labels	EU Ecolabel (EU flower) for copy and graphic paper



For more information about FSC certification visit fsc.org



For more information about PEFC certification visit pefc.org



EU Ecolabel : FI/011/001

Review of the year 2023

Environmental protection is an integral part of the papermaking processes at UPM Augsburg. Since 1997 we have been working with an integrated management system that combines quality, energy, environmental protection and occupational health and safety, and we also participate in the European Eco-Management and Audit Scheme (EMAS). This means we develop our environmental work independently and document our progress in a transparent and comprehensible manner.

UPM's "Clean Run" campaign

UPM is driving further improvements in environmental performance with the "Clean Run" campaign. All UPM mills are audited to assess the quality of their environmental work and determine any necessary action. In addition, all employees are informed about environmental issues relating to their mill.

Environmental audits

An internal environmental audit was carried out during the reporting year, when our environmental management system was audited by the UPM global environmental department. Execution and implementation at the Augsburg mill were certified as very good.

Working together to achieve goals

Each year, we set ourselves detailed new targets for quality, energy, environmental protection and occupational health and safety. We actively involve our employees in both the setting of goals and the implementation of targets. We consistently work on improving our environmental performance not just within the company, but also in our collaboration with customers, suppliers, authorities and the general public.

UPM is committed to "The Climate Pledge"

The aim of this cross-industry network of major companies is to jointly mitigate the climate crisis and to work towards achieving a carbon-neutral global economy. By signing the agreement in 2021, UPM has committed to achieving the objectives of the Paris Climate Agreement ahead of time.

Environmental protection is a priority

As part of the Finnish UPM Group, we attach great importance to environmen-

tal protection and continually optimise our paper production process. We keep our environmental impact as low as possible, especially with regard to the immediate vicinity. In 2022, we took regular measurements of airborne emissions. This showed once again that our values not only comply with the permissible limits, but in some cases even fall significantly below them.

We always follow up any complaints immediately. In 2023, there were no complaints about tangible environmental impact.



Gerhard Mayer,
General Manager

Eva Männer,
Manager OHSEM

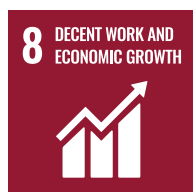
Contribution to UN Sustainable Development Goals in 2023



Energy

Specific fuel input for steam generation compared to 2021 and 2022 improved by

-3%



Healthcare

94

employees at the mill participated in the eye care preventive health campaign.



Water

Reduction of normalised specific wastewater generation since 2017

-17%

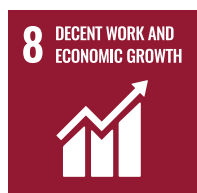


Certified fibre

Forest certification schemes like FSC® and PEFC guarantee that wood, our most important resource, comes from sustainable sources. UPM's target is to use only certified fibre for papermaking by 2030.

96%

certified fibre used for papermaking.



Energy management

In 2023,

240

employees completed an e-learning course on the energy management system.



Waste

0 kg/t

paper

process waste to landfill.



Air



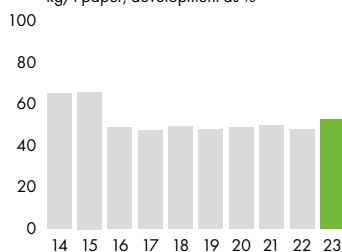
Energy generation is the main source of air emissions from paper mills. Emissions can be reduced through the appropriate choice of fuels and combustion technology, and through flue gas purification. UPM Augsburg has set itself the target of further reducing CO₂ emissions through efficient energy use, as per the strategy set out in the UPM mills' Corporate Environmental and Societal Responsibility Statement.

CHP EMISSIONS IN 2023

	Limit value (mg/Nm ³)	Mean value of measurements (mg/Nm ³)
CO	50	0.7
NO _x	100	68

Carbon dioxide (fossil), CO₂, Scope 1

kg/t paper, development as %



Reference year: 2000

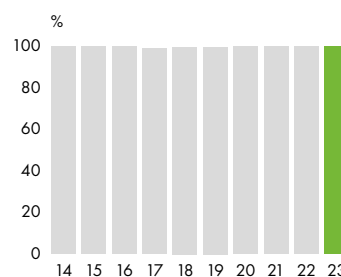
Waste



In line with the circular economy principle, the majority of production waste is recycled. All waste is forwarded to waste management facilities and disposed of in compliance with the relevant statutory requirements.

UPM Augsburg aims to maintain the waste recovery rate at its current level of 99.8%.

Recovery rate



The water for the production process is drawn from deep wells on the mill premises. Virtually continuous water recycling within our systems reduces water use.

Part of the process water evaporates as the paper web dries. The thermal energy contained in the exhaust air is recovered and reused as much as possible. The remainder is discharged into the ambient air as water vapour. Cooling water is

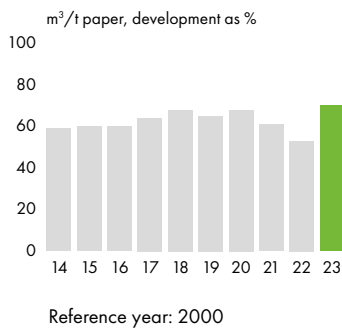
taken from the Proviantbach, Schäfflerbach and Stadtbach canals.

The process water is recycled several times before it is discharged as effluent to the Augsburg municipal treatment plant for purification.

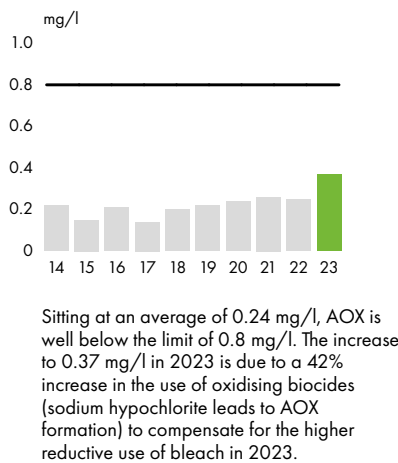
The “Water emissions” emission values on page 10 are the intake values for the Augsburg municipal treatment plant.

There was only one failure to comply with the limit values specified in the mill’s operating permits (sediment volume, AOX, temperature, pH value, volume flows, discharge volumes), when the wastewater temperature exceeded the limit due to a malfunction in the process control system. Appropriate counter-measures were taken.

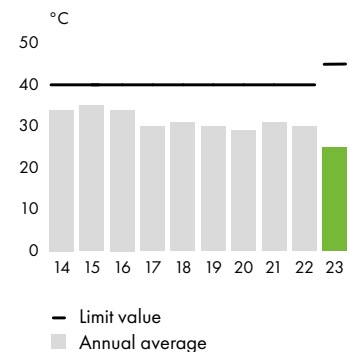
Wastewater volume



Adsorbable organic halogen compounds (AOX)



Temperature



Organisational structure and emergency organisation

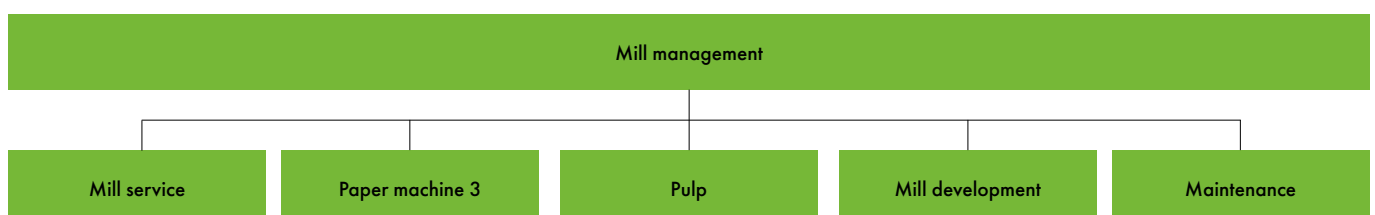
Operators in charge are appointed for environmentally relevant production plants and ancillary facilities.

As required by law, appointed officers advise the mill management and the specialist departments in the following areas: emission control, water protection, waste, hazardous goods, radiation protection and internal rail operations.

In addition, there are designated representatives responsible for the integrated management system (quality, environment, energy) and for occupational safety, fire protection and data protection.

Comprehensive emergency plans have been defined for emergencies of all kinds, such as fire, industrial accidents

and environmental incidents. From alerting to immediate action and follow-up, there are guidelines to minimise the effects of an emergency as far as possible. Detailed flow charts are available for different types of emergency. A crisis team has been appointed to decide on action to be taken in the event of emergencies on a larger scale.



Social responsibility

Improving our environmental performance

We take responsibility for the environment and are committed to minimising the impact of our production operations on our employees and the environment. For example, a solution was found within the UPM Group to use the ash from our fibre residue as a soil stabiliser and as an additive for various construction materials. Additionally, UPM sets itself environmental goals that are in line with the Agenda 2030 sustainability targets.

Significant environmental aspects:

The environmental aspects identified as significant are taken into account by appointing officers and implementing an appropriate operational structure, and by considering these aspects in the mill's targets.

Chemicals

Less defoamer used in process water

Specific defoamer use in the process water cycle was reduced by 13% in 2023 compared to 2022.

Less chelating agent and system cleaner used in the water circuit of the grinding department

Specific use of chelating agents/system cleaners was reduced by a further 13% in 2023 compared with the previous year. Due to the low operating rate, it was not possible to achieve the target of 20%.

Hazard analysis, "Incident in the hydrosulphite plant"

SO₂ gas can prove fatal in the worst-case scenario; there is potential for it to be produced in the event of an incident (such as a fire) in our hydrosulphite plant. For this reason, a working group was tasked with completing a hazard analysis that involved examining specific measures to prevent or minimise the effects of various incident scenarios. A drill for one specific scenario – salvage and irrigation of a hydrosulphite container based on a fire event – was carried out in conjunction with the mill fire brigade in 2023. The findings from the drill were then put to use right away to ensure further process improvements.

Water

The specific wastewater volume increased significantly from 6.2 m³/t

in 2022 to 8.3 m³/t in 2023 due to the low operating rate. The normalised (adjusted for operating rate and grammage) specific wastewater value increased slightly from 5.8 m³/t (2022) to 6.0 m³/t (2023). The increase was due to reduced availability of sand filters and AZUD filters in 2023 compared to 2022.

Energy

PM3 waste heat potential

To make better use of the plant's waste heat potential, a project team was established in mid-2023 to analyse the potential for heat savings and pinpoint optimisation measures. The first step involved mapping out a detailed overview of the current processes and identifying heat sinks and heat sources. The first measures will be applied within the existing system in 2024 (upgrading the wastewater heat exchanger and PM3 heat recovery, and optimising the PM3 predrying area). To improve monitoring of the plant's thermal balance and to ensure that monitoring is a seamless process, there are plans to retrofit measuring equipment (temperature and humidity sensors) and draw up diagrams for the operators. Additional considerations such as optimising ventilation in the hall areas and the use of heat pumps will also be examined.

Fuel input for steam generation

Developments in relation to specific fuel input in the power plant for steam generation were positive. Fuel input per tonne of live steam in 2023 was down 3% on the figures for 2021 and 2022. This positive trend was made possible largely by the consistent use of boilers 6 and 7, which have the highest efficiency rating (due in part to their built-in flue gas recirculation systems).

Investment in a power-to-heat (P2H) electrode boiler

In 2023, the Augsburg mill received funding approval from the UPM Group for installation of an electrode boiler. This major investment is currently in the implementation phase. The new steam generation capacity is scheduled for commissioning in the second quarter of 2024.

The plan is to put this highly flexible boiler into operation whenever the electricity

price is comparatively favourable due to strong renewable energy input (wind energy, and photovoltaics in particular) or demand for electricity is weak. During these periods, an additional electricity consumer will be used to help stabilise the network. As a result, we will be able to mitigate the effects of throttling by renewable energy producers while at the same time reducing the use of fossil fuels (such as natural gas) for heat generation. This will lead to significant CO₂ emission savings, allowing us to make an active contribution to decarbonisation within our industry.

Employee training on the energy management system (DIN ISO 50001:2018)

As in 2022, an e-learning course on the energy management system was offered once again in the reporting year. As before, almost 90% of our employees at the Augsburg mill – some 240 people – signed up to take the course, which constitutes a solid and important step towards further improving knowledge and awareness of energy efficiency.

Waste

Waste separation — dismantling of decommissioned steam turbine 2

The decommissioned steam turbine 2 was dismantled in 2023. Nine different waste codes were defined for this process: eight for non-hazardous waste and one for hazardous waste. Around 337 tonnes of waste were generated in total, 98% of which was recycled or recovered.

Waste separation — collaboration on recycling of forming screens and pressed felt

Paper machines in Europe use around 7,000 tonnes of clothing each year. The majority of this is thermally recovered and not reintegrated into the production process as a raw material, as was previously the case at UPM Augsburg. UPM and ANDRITZ have joined forces with the aim of developing a circular material cycle for paper machine clothing by recycling forming screens and pressed felt made of polyamide (PA) and polyethylene terephthalate (PET), based on the cradle-to-cradle principle. ANDRITZ and UPM began their joint research project back in 2022. The goal is to create a resource- and energy-effi-



cient closed circuit that will significantly reduce current thermal waste disposal levels — encompassing everything from the return transport of the used clothing from the paper mills to the subsequent cleaning and separation process for the various PA and PET plastic components and on to reprocessing of the recycled material as new monofilaments and the production of new clothing. In the long-term, this project is expected to see CO₂ emissions and energy consumption fall to near-zero levels.

Waste separation — further measures

Some 284 IBCs were sent for environmentally compatible recycling in 2023. This resulted in savings of 10.9 tonnes of steel and 4.3 tonnes of plastic compared to producing new IBCs. According to data from the German Environment Agency, this equates to 30.4 tonnes of CO₂ emissions.

A return system for recycling oil and grease drums that have been emptied of residual material has also been organised.

A new storage location for technical gases was constructed in 2023. Existing material such as the canopies of old bicycle racks was sustainably recycled during the construction process, which allowed us to save on resources and avoid waste.

Legal compliance

The applicable environmental regulations are adhered to and the existing environmental management system is proactive in responding to changes.

Promotion of young talent at UPM Augsburg

As a member of the Bavarian/Swabian branch of the “Talente für die Region” (Talent for the Region) business networking company, the Augsburg mill is actively involved in making students and young academics from the area aware of professional opportunities and offering a platform for an exchange of experiences. In collaboration with DIE PAPIERINDUSTRIE e.V., schoolchildren and students are given insights into the paper industry, different areas of responsibility and opportunities for development, but also into training as a paper technologist or paper engineer.

UPM employee volunteering

The Augsburg mill can look back on a long tradition of support for children in need. Last year, the Cent Parade made donations to the “Bunter Kreis” charity and the St. Nikolaus children’s hospice. Both organisations provide support for seriously ill children and their families, and help them with the challenges of daily life. The Cent Parade involves UPM employees donating the cent amounts from their monthly wage packets to charity.

Corporate sports association

For many years, the mill has also supported the work of the UPM-Kymmene Augsburg e.V. corporate sports association.

Corporate health management

Health is a valuable asset. UPM Augsburg is working intensively to protect

and promote the health of its employees, as a healthy, efficient and motivated workforce is a prerequisite for the Augsburg mill’s success and competitive edge. We aim to create a healthy environment for our employees, increase their awareness of health and occupational safety, and thus lay the foundation for job satisfaction and motivation.

In recent years we have been continuing to work on improvements in the field of health and safety. Since the implementation of a corporate health management system, occupational health and safety, health support and occupational integration management have become intertwined. The promotion of health and preventive healthcare have become increasingly important. For example, the mill’s employees have been provided with free mineral water since September 2017.

In January 2021, we developed a concept to help protect the health of non-smokers. In addition to the concept of reducing our smoking areas, non-smoking seminars have been and will continue to be offered through Allen Carr. Eight colleagues have participated in the seminars so far. Moreover, a further three of the remaining eight smoking areas were either relocated or closed by the end of 2023. With this project we have been able to improve the execution of three important goals: healthier working conditions for all, improved fire safety, and further development of the implementation of legal requirements.

Environmental parameters

Data on production volumes, raw material and energy consumption, as well as all specific indicators per tonne of paper, is published as a total figure. This information can be found in the UPM paper and pulp mills' Corporate Environmental and Societal Responsibility Statement.

		2021	2022	2023
Production capacity	Paper	Up to 360,000 t	Up to 350,000 t	Up to 350,000 t
Raw materials and additives	Recovered paper Round wood Pulp Pigments Process chemicals Operating supplies	See information in the joint part of the Corporate Environmental and Societal Responsibility Statement		
Energy	Fossil fuels Purchased power	See information in the joint part of the Corporate Environmental and Societal Responsibility Statement		
Airborne emissions	Carbon dioxide (fossil), CO ₂ Carbon dioxide (fossil), CO ₂ , Scope 2 Nitrogen oxide, NO _x Carbon monoxide, CO Sulphur dioxide, SO ₂	69,879 t 209,732 t 22.6 t 6.3 t 0.5 t	64,069 t 186,752 t 22.4 t 4.6 t 0.4 t	46,905 t 146,260 t 16.3 t 3.5 t 0.3 t
Water intake	Process water Cooling water	2,584,787 m ³ 10,763,158 m ³	2,129,671 m ³ 9,972,593 m ³	1,804,241 m ³ 7,554,681 m ³
Discharges to water	Wastewater volume Chemical oxygen demand, COD Biological oxygen demand, BOD ₅ Phosphorus, P Nitrogen (inorganic), N Adsorbable organic halogen compounds, AOX	2,375,045 m ³ 6,737 t 3,568 t 10 t 39.5 t 0.6 t	2,000,519 m ³ 5,701 t 2,952 t 6.4 t 36.3 t 0.5 t	1,760,537 m ³ 4,248 t 2,196 t 3.6 t 21.1 t 0.6 t
By-products and non-hazardous waste¹⁾	By-products in accordance with Section 4 of the German waste management act (KrWG): Wood residue Waste for recovery: – Fibre residues – Deinking residue – Waste wood – Green waste – Metal – Construction waste – Other ²⁾ Waste for disposal: – Construction waste – General waste, e.g. – Other Recovery rate	17,812 t 80,982 t 2,135 t 57 t 1,653 t ³⁾ 80 t ³⁾ 1,093 t 0 t 18 t 11 t 99.9%	11,776 t 68,536 t 2,465 t 25 t 547 t ³⁾ 90 t ³⁾ 541 t 0 t 18 t 25 t 99.9%	7,496 t 50,145 t 1,948 t 44 t 41 t 471 t ³⁾ 78 t ³⁾ 203 t 62 t 18 t 29 t ⁴⁾ 99.8%
Hazardous waste		96 t	46 t	59 t
Land use	Sealed areas (including third-party-operated hydropower plants) Semi-natural areas on mill premises Semi-natural areas outside mill premises Total area	23.7 ha 3.6 ha 0 ha 27.3 ha	23.7 ha 3.6 ha 0 ha 27.3 ha	23.7 ha 3.6 ha 0 ha 27.3 ha

¹⁾ All figures including moisture

²⁾ Other recyclable waste and general waste for recovery

³⁾ Decommissioned paper machine incl. ancillary facilities at the mill being dismantled as of 2020

⁴⁾ Replacement of track ballast in 2023



Performance against targets in 2023

TARGETS	TARGET ACHIEVED?
1 Energy use <ul style="list-style-type: none"> Reduce energy use for RCF; actual target for 2022: –10 kWh/t Reduce energy use at the PM; actual target for 2022: –8,000 MWh/a Reduce compressed air consumption by 200,000 Nm³ compared to 2022 	<ul style="list-style-type: none"> It was not possible to achieve this target due to the low utilisation. The TurnDry/PowerDry measures have been implemented from a technical perspective but, due to the absence of specific sensors on the machine, it is difficult to confirm the actual volume of savings. It was not possible to achieve this target due to the low utilisation.
2 Water <p>Reduce specific wastewater volumes by –0.3 m³/t compared to 2022 (higher water purification via sand filter and AZUD filter, hydroseal sealing system on the suction roller)</p>	It was not possible to achieve this target due to the low utilisation.
3 Chemicals <ul style="list-style-type: none"> Reduce defoamer use in coating colour by 20% compared to 2022 Reduce chelating agent in the grinding shop by 20% compared to 2022 	<ul style="list-style-type: none"> In coating colour: not achieved; in wastewater: reduced by 50% Target not achieved; reduced by 13%
4 Waste <p>Reduce volume of general waste by –5% compared to 2022 (Measures: departmental analysis of current situation and deducing measures for reduction)</p>	Target achieved; reduced by 15%
5 CleanRun <ul style="list-style-type: none"> Reduce category 1 and 2 incidents by 50% compared to 2022 (= max. seven incidents) No category 4 and 3 incidents 	<ul style="list-style-type: none"> Target achieved (five incidents documented) Target not achieved; one category 3 incident in 2023

Current targets

TARGETS AND MEASURES	DEADLINE	DEPARTMENT RESPONSIBLE
1 Energy use <ul style="list-style-type: none"> Reduce energy use for HS; target <2,500 kWh/t (normalised) Reduce energy input RCF; target <590 kWh/t (normalised) 	12/2024 12/2024	Production Production
2 Emissions <p>Reduce gas consumption by –33,000 MWh and CO₂ by –6,000 t (commissioning of P2H boiler from 04/2024)</p>	12/2024	Production
3 Water <p>Reduce specific wastewater volumes by –0.3 m³/t compared to 2023 (higher water purification via sand filter and AZUD filter, replace hot water with process water, improve water management during downtimes)</p>	12/2024	Production
4 Chemicals <p>Reduce use of Agitan defoamers by 20% compared to 2023</p>	12/2024	Production
5 Waste <p>Reduce volume of general waste by –5% compared to 2023 (Measures: clothing recycling project/employee training)</p>	12/2024	Production/Environment



Environmental verifier's declaration on verification and revalidation activities

The undersigned EMAS environmental verifier Astrid Günther (DE-V-0357), acting for the environmental audit organisation "TÜV NORD CERT Umweltgutachter GmbH", licensed for the area NACE Code 17.12 (paper production), declares to have verified whether the site of UPM GmbH, Augsburg mill in 86153 Augsburg, Georg-Haindl-Str. 4+5, Germany, as indicated in the updated Environmental and Societal Responsibility Statement 2023 of the aforementioned mill (registration number FI-000058), complies with all the requirements of Regulation (EC) No. 1221/2009 of the European Parliament and of the Council of 25 November 2009, as amended by Commission Regulation (EU) 2017/1505 and Commission Regulation (EU) 2018/2026, on the voluntary participation by organisations in a Community Eco-Management and Audit Scheme (EMAS).

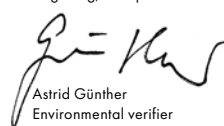
By signing this declaration, I declare that:

- the verification and validation have been carried out in full compliance with the requirements of Regulation (EC) No. 1221/2009,
- the outcome of the verification and validation confirms that there is no evidence of non-compliance with the applicable environmental regulations,
- the data and information in the updated Environmental and Societal

Responsibility Statement 2023 of UPM GmbH, Augsburg mill, present a reliable, credible and accurate image of all activities of UPM GmbH, Augsburg mill within the scope indicated in the updated Environmental and Societal Responsibility Statement 2023.

This declaration is not equivalent to EMAS registration. EMAS registration can only be granted by a competent body under Regulation (EC) No. 1221/2009. This declaration shall not be used as a standalone piece of public communication.

Augsburg, 29 April 2024


Astrid Günther
Environmental verifier
DE-V-0357
TÜV NORD CERT Umweltgutachter GmbH



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