

UPM Augsburg

ENVIRONMENTAL AND SOCIETAL RESPONSIBILITY 2021



UPM Augsburg

UPM Augsburg is located on the edge of Augsburg city centre. Founded in 1849, the site currently employs around 306 employees and produces up to 360,000 tonnes of coated supercalendered printing paper in reels per year. The paper is primarily used for magazines, newspaper inserts, advertising brochures, 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 2021 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 2021. 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 2023.

UPM delivers renewable and responsible solutions and innovates 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 17,000 people worldwide and our annual sales are approximately EUR 9.8 billion. Our shares are listed on Nasdaq Helsinki Ltd. UPM Biofore – Beyond fossils. www.upm.com

Production capacity	Up to 360,000 tonnes per year
Personnel	Augsburg mill: 306 / Augsburg office: approx. 102 (total number of employees as at 31 December 2021)
Products	Magazine paper (LWC): UPM Ultra UPM Matt UPM Cote UPM Valor
Certifications	Augsburg mill: 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® Augsburg mill and Augsburg office: EMAS — EU Eco-Management and Audit Scheme All certificates can be found in the UPM Certificate Finder (available at www.upm.com/responsibility)
Environmental labels	EU Ecolabel (EU flower) for copy and graphic paper



The mark of responsible forestry

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 year 2021

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 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 environmental audit was carried out during the reporting year, when an external auditor conducted a chain of custody (FSC and PEFC) audit without identifying any deficiencies.

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 both in 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 joins "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 is committed to achieving the objectives of the Paris Climate Agreement ahead of time.

Environmental protection is a priority

As a company of the Finnish UPM Group, we attach great importance to environmental protection and continually optimise our paper production

process. We keep our environmental impacts as low as possible, especially with regard to the immediate vicinity. In 2021, we continued to take 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 2021, there were no complaints about tangible environmental impacts.



Gerhard Mayer,
General Manager

Eva Männer,
Manager OHSEM

Contribution to UN Sustainable Development Goals in 2021



Energy

Specific electricity input for pulp preparation compared to 2019 improved by

19%



Air

Reduction in specific CO emissions per MWh of gas in the mill compared to 2020

-89%



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.

91%

certified fibre used for papermaking.



Water

Reduction of specific waste water generation since 2017

-4%



Healthcare

216

employees at the mill participated in the "Immune Power" health prevention campaign.



Waste

0 kg/t paper

process waste to landfill.



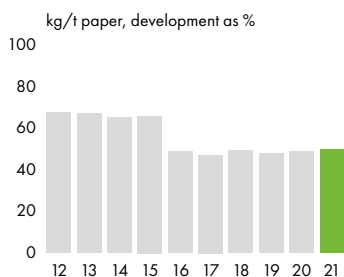
Air



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 by efficient energy use, as per the strategy set out in the UPM mills' Corporate Environmental Statement.

In 2021, the NO_x discharge limit from the permit notice was exceeded due to a defective sensor. Appropriate measures were taken in consultation with the authorities.

Carbon dioxide (fossil), CO₂



Reference year: 2000
Slight increase compared to 2020 due to the poorer efficiency of the paper machine in 2021.

CHP EMISSIONS IN 2021

	Limit value (mg/Nm ³)	Mean value of measurements (mg/Nm ³)
CO	50	0.1
NO _x	100	62

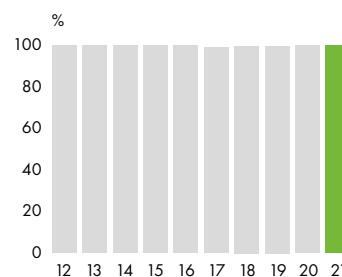
Waste



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 99.9%.

Recovery rate



Water



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.

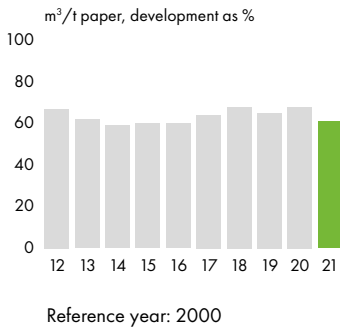
Part of the process water evaporates as the paper web dries. The thermal energy contained in the exhaust air is recovered and reused as much as possible. The

remainder is discharged into the ambient air as water vapour. Cooling water is taken from the Proviantbach, Schäfflerbach and Stadtbach canals.

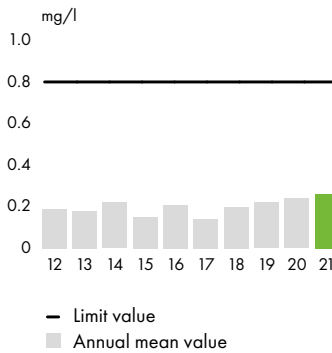
The process water is recycled several times before it is discharged as effluent to the Augsburg municipal treatment plant for purification.

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

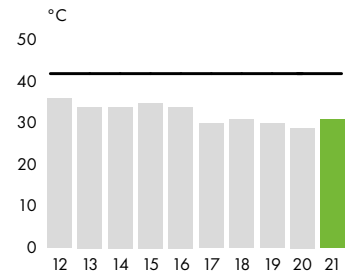
Wastewater volume



Adsorbable organic halogen compounds (AOX)



Temperature



Organisational structure and emergency organisation

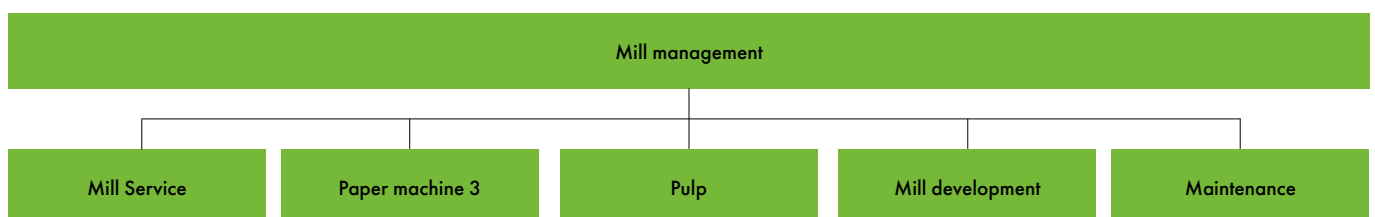
Operators are appointed for environmentally relevant production plants and ancillary facilities.

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. Guidelines are in place to minimise the effects of an emergency as far as possible, ranging from alarms to emergency measures and follow-up work. 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.



Societal 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 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

Use of polyacrylamide:

In 2021, we were able to successfully reduce the use of flocculant for mechanical solid separation in wastewater. At 0.6 kg/t, the specific demand for flocculants was 14% below the 2020 level (0.7 kg/t). As a result, since 2019, the use of flocculants has been reduced by a total of 40%.

Use of defoamer in the coating colour:

By using an alternative product, the use of defoamer in the coating colour was reduced by more than 50%.

Use of synthetic binders:

In order to continue the replacement of fossil fuels in line with UPM's "Beyond fossils" strategy, the proportion of synthetic binder in the 2021 coating colour was reduced by a further 17% compared to 2020. This was achieved by replacing the synthetic binder with natural wheat starch.

Chemical substitution

Over the last few years, a number of chemicals have been replaced by less hazardous products, with the result that a number of precautionary examinations no longer have to be offered at the Augsburg mill, e.g. G29 (toluene), G10 (methanol), solvents and welding fumes.

Water

In contrast to previous years, the specific volume of wastewater was significantly reduced to 7.1 m³/t in 2021. Important measures, in addition to the support

from the consistently high production utilisation in 2021, were the decommissioning of the wet debarking drum in April 2020, improving the utilisation of the sand filter for the treatment of used process water, and a trial for the filtration (with Azud filter) of PM3 super clear filtrate as a hot water substitute for PM3 in Q4 2021.

Energy

The measures to reduce energy consumption in pulping and grinding were successfully continued in 2021. After a reduction of 41 kWh/t was achieved in 2020 compared to 2019, a further reduction of 45 kWh/t was achieved in 2021. While the focus in 2020 was on the use of new refiner plates (so-called cut-back plates) and the reduction of idle power, the focus in 2021 was on measures for the technological optimisation of the grinding values. In particular, the targeted use of automated laboratory measurements enabled the required quality to be monitored much better and the required grinding energy to be controlled in a targeted manner. In addition, the refiner operation was further developed so that the number of refiners to be used was optimised depending on the grade programme and the amount of pulp required. On the basis of the measures described, total energy consumption in pulping and grinding has therefore been reduced by 86 kWh/t, or 19%, in the last two years.

CHP emissions in 2021

In January 2021, the manufacturer carried out extensive burner maintenance on boilers 6 and 7 at the combined heat and power plant. The focus was on the optimum configuration of the burners to minimise NO₂ and CO emissions.

During the course of the year, several measurements and new configurations were made for all the load ranges of the boilers 8 to 10.

These activities resulted in a 4% reduction in NO₂ emissions per MWhHU of gas burnt in the boilers compared to the previous year. In terms of CO emissions, a reduction of 89% was achieved.

Fibres — reducing fibre losses in recovered paper processing

The recovered paper processing yield increased from 65.1% to 66.5% in 2021. This corresponds to a reduction of almost

2800 tonnes of fibre residue per annum. The main measure for achieving this was the regular adjustment of the ash and brightness values in the recovered paper stock. This also leads to a reduction in the use of virgin filler and virgin fibre pulp on the paper machine, as well as a lower specific energy requirement for recovered paper processing.

Waste

Waste separation – dismantling of decommissioned paper machine 2

The paper machine for manufacturing SC paper, which was built in 1955 and shut down in 2017, began to be dismantled in 2020. An external specialist company was commissioned to work closely with UPM Augsburg to determine the relevant waste codes and disposal methods. 26 different waste codes were defined in 2021: 12 for non-hazardous waste and 14 for hazardous waste. A total of around 1575 t of waste was generated in 2021, of which only 1.8% was disposed of and 98.2% was recycled or recovered. The dismantling of the paper machine and its downstream facilities has been completed; a total of approximately 3,834 t of waste was disposed of.

Waste separation – metal collection point on PM3

In 2021, the waste streams of the individual departments were considered with the aim of further improving waste separation. For this purpose, a metal collection point was set up at the paper machine for screws, slitter blades, etc. as a first measure.

Waste prevention

The PE content in the packaging paper was reduced by a quarter from 20 g/m² to 15 g/m². This does not directly affect the waste streams of the mill, but helps to reduce overall waste (plastic in this case).

Legal compliance

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

Biodiversity

In order to control the continuing large population of feral pigeons on the mill premises, a supervised pigeon loft was set up at a central location in 2019, in cooperation with the Augsburg animal



welfare association (Tierschutzverein Augsburg e.V.), to provide the birds with healthy food and potential nesting sites. Once the pigeons have grown accustomed to the pigeon loft and feel safe in it, their homing instinct means that they spend up to 20 hours a day there. This makes it possible to promote their state of health, control the population by replacing eggs and reduce fouling on the mill premises. In 2021, it was possible to start exchanging eggs. During the year, a sparrowhawk broke into the loft several times, which drove the pigeons out of the loft on numerous occasions. The loft has been retrofitted to make it "sparrowhawk-proof", and in 2022 the main task is to get the pigeons used to a safe retreat again.

Promotion of young talent at UPM Augsburg

As a member of the Bavarian/Swabian branch of the "Talent for the Region" (Talente für die 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 the German pulp and paper association (VDP), 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 gets involved

In 2021, the Augsburg mill gave discarded bicycles to charitable associations:

20 bicycles went to the "Kette & Kurbel" association in Augsburg, a non-profit qualification project that procures old second-hand bicycles to make ready-to-use bicycles that are then sold at low cost. The aim of "Kette and Kurbel" is to include unemployed people in the labour and training market.

Two bicycles were donated to the "Tierschutzverein Augsburg und Umgebung eV", which is involved in animal welfare in various ways and, among other things, looks after the pigeon loft at the Augsburg mill.

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 club.

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. Recent years have seen significant 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.

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 Statement.

		2019	2020	2021
Production capacity	Paper	Up to 360,000 t	Up to 350,000 t	Up to 360,000 t
Raw materials and additives	Recovered paper Round wood Pulp Pigments Process chemicals Consumables	See information in the joint part of the Environmental Statement		
Energy	Fossil fuels External power supply	See information in the joint part of the Environmental Statement		
Emissions to air	Carbon dioxide (fossil), CO ₂ Nitrogen oxide, NO _x Carbon monoxide, CO Sulphur dioxide, SO ₂	65,860 t 22.9 t 6.5 t 0.5 t	59,473 t 19.8 t 5.6 t 0.4 t	69,879 t 22.6 t 6.3 t 0.5 t
Water use	Process water Cooling water	2,788,781 m ³ 11,073,237 m ^{3 3)}	2,450,742 m ³ 9,236,055 m ³	2,584,787 m ³ 10,763,158 m ³
Water emissions	Wastewater volume Chemical oxygen demand, COD Biological oxygen demand, BOD ₅ Phosphorus, P Nitrogen (inorganic), N Adsorbable organic halogen compounds, AOX	2,529,897 m ³ 7,255 t 3,275 t 10.5 t 40.3 t 0.6 t	2,341,831 m ³ 6,696 t 3,199 t 12.2 t 34.9 t 0.6 t	2,375,045 m ³ 6,737 t 3,568 t 10 t 39.5 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 residue – Deinking residue – Waste wood – Metal – Construction waste – Other ²⁾ Waste for disposal: – Construction waste – General waste, e.g. – Other Recovery rate	15,872 t 90,065 t 2,405 t 51 t 251 t 45 t 735 t 102 t 18 t 6 t 99.6%	13,534 t 84,100 t 2,218 t 43 t 2,387 t ³⁾ 239 t ³⁾ 599 t 0 t 18 t 12 t 100%	17,812 t 80,982 t 2,388 t 54 t 1,653 t ³⁾ 80 t ³⁾ 314 t 0 t 18 t 11 t 99.9%
Hazardous waste		341 t	51 t	96 t
Plant area	Sealed areas (including third party-operated hydropower plants) Semi-natural areas on mill premises Semi-natural areas outside mill premises Total surface 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 at the mill being dismantled as of 2020



Performance against targets in 2021

TARGETS	TARGET ACHIEVED?
1 Energy use – Stabilise and reduce energy use of groundwood pulp; actual target set in 2020: -10 kWh/t – Reduce energy use for RCF; actual target set in 2020: -10 kWh/t – Reduction of specific energy use for pulp production; actual target set in 2020: -25 kWh/t	– actual: -11 kWh/t, but not comparable with the previous year due to change in measurement location. – Target not achieved, but actual figure reduced by 5 kWh/t. The reason for this was the change in the recipe during the waste paper shortage, which led to increased downtimes and therefore to higher energy consumption in the period from August to October. – Actual: -45 kWh/t, target achieved
2 Recycling Reduce recovered paper loss factor by -0.5% compared to 2021	Actual: -1.9%, target achieved
3 Water Reduce specific waste water volumes by -0.3 m ³ /t compared to 2020 (higher water purification via sand filter and shutdown of wet debarking drum)	Actual: -0.71 l/kg, target achieved
4 Chemicals Reduce synthetic binder in coating colour by 10% compared to 2020 (Measures: use of native starch)	Target achieved, actual: -17% reduction of synthetic binder in the standard recipes vs. old standard.
5 Waste Reduce volume of general waste by -5% compared to 2020 (Measures: departmental analysis of current situation and deducing measures for reduction)	Target not achieved. Recording of the current situation complete.
6 CleanRun No category 4 and 3 deviations.	Target not achieved; one category 3 incident in 2021

Targets for 2022

TARGETS AND MEASURES	DEADLINE	DEPARTMENT RESPONSIBLE
1 Energy use – Reduce energy use for RCF; actual target for 2021: -5 kWh/t – Reduction of specific energy use for chemical pulp production; actual target for 2021: -15 kWh/t	12/2022 12/2022	Production Production
2 Recycling Reduce recovered paper loss factor by -0.5% compared to 2021	12/2022	Production
3 Water Reduce specific waste water volumes by -0.3 m ³ /t compared to 2021 (higher water purification via sand filter and Azud filter, hydroseal sealing system on the suction roller)	12/2022	Production
4 Chemicals Reduce synthetic binder in coating colour by 10% compared to 2021 (Measures: use of native starch)	12/2022	Production
5 Waste Reduce volume of general waste by -5% compared to 2021 (Measures: departmental analysis of current situation and deducing measures for reduction)	12/2022	Production
6 CleanRun – Reduce category 0–2 incidents by 50% compared to 2021 (mainly in the waste water sector) – No category 4 and 3 deviations.	12/2022 12/2022	Production Mill management



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 Statement 2021 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 an 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 2021 Environmental Statement of

UPM GmbH, Augsburg mill, reflect a reliable, credible and accurate image of all activities of UPM GmbH, Augsburg mill, within the scope mentioned in the updated 2021 Environmental Statement.

This declaration is not equivalent to EMAS registration. EMAS registration can only be granted by a competent authority under Regulation (EC) No. 1221/2009. This declaration must not be used as an independent basis for public communication.

Augsburg, 7 April 2022

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



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