

UPM Schongau

ENVIRONMENTAL AND SOCIETAL RESPONSIBILITY 2019



UPM Schongau

UPM Schongau is sited on a bend on the Lech river in the Southern German town of Schongau.

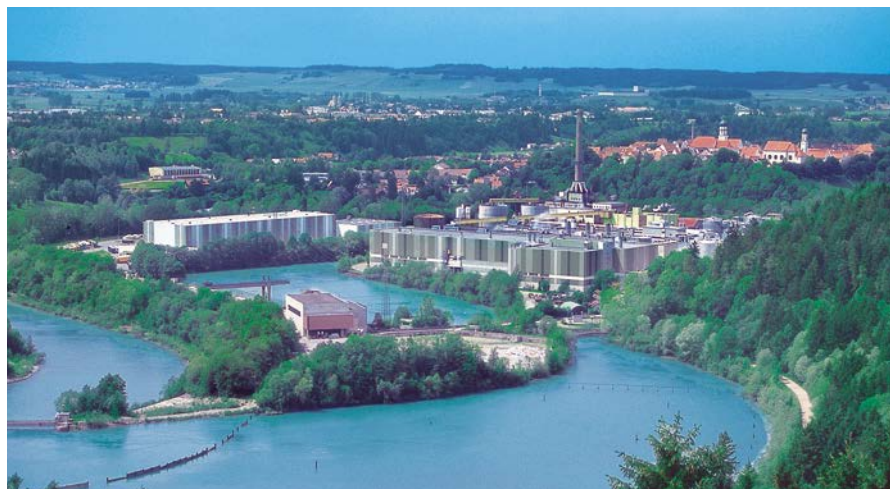
The site was founded in 1887. In 1962, one of the world's first flotation deinking systems went on line in Schongau. This processing technology was a major breakthrough for the recycling of used graphic paper into new printing paper.

Today, UPM Schongau produces printing paper in reels for newspapers, newspaper supplements, advertisers, brochures, magazines and catalogues on three paper machines. Recovered paper is in terms of volume the most important raw material at the site. Other raw materials used include sawmill residues and pigments as fillers. Pigments are partly made on the premises by the local supplier SMI.

The mill's energy generation plants were modernised. Power and steam are generated in combined heat and power plants. The existing power plants were complemented with a modern, highly efficient gas and steam turbine, increasing the mill's share of self-generated electricity.

A small part of the power consumption is covered with hydropower.

The wastewater from the production process is treated in the on-site effluent treatment plant.



| | | | |
|-----------------------------|---|--------------|-----------|
| Production capacity | Up to 740,000 tonnes per annum | | |
| Personnel | 572 (total heads as at 31 December 2019) | | |
| Products | Standard and improved newsprint as well as supercalendered uncoated paper: | | |
| | UPM Brite | UPM News | UPM ReCat |
| | UPM Eco | UPM EcoPrime | UPM MaxS |
| | UPM EcoBasic | UPM Book | |
| Certificates | EMAS – EU Eco-Management and Audit Scheme ISO 14001 – Environmental Management System ISO 9001 – Quality Management System ISO 50001 – Energy Management System OHSAS 18001 – Occupational Health and Safety PEFC™ Chain of Custody – Programme for the Endorsement of Forest Certification FSC® Chain of Custody – Forest Stewardship Council® | | |
| | All certificates can be found from UPM's CertificateFinder (available at www.upm.com/responsibility) | | |
| Environmental labels | EU Ecolabel for all paper grades Blue Angel (RAL-UZ 14 or 72) for UPM News, UPM Eco H/G, UPM ReCat and UPM EcoBasic | | |



UPM Schongau Environmental and Societal Responsibility 2019 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 2019. 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 2021.

UPM offers renewable and responsible solutions and innovate for a future beyond fossils across six business areas: UPM Biorefining, 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 18,700 people worldwide and our annual sales are approximately EUR 10.2 billion. Our shares are listed on Nasdaq Helsinki Ltd. UPM Biofore – Beyond fossils. www.upm.com



For more information about FSC certification visit www.fsc.org



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EU Ecolabel : FI/011/001



www.blauer-engel.de/uz72

Review of year 2019

Environmental protection has been an important topic at the Schongau site for many years. The continuous reduction of energy and water requirements, a high raw material yield for waste reduction and the use of environmentally compatible chemical additives in the production process are the focus areas of the continuous improvement process, which has been steered by management systems for the environment, quality, energy and occupational safety since the plant has been certified in accordance with international standards.

As a company of the Finnish UPM Group, we acknowledge our responsibility towards the environment and are committed to minimising the impacts of our operations on the environment and our employees.

Production and environment

As one of the first paper recyclers in Germany, we have been contributing to a circular economy for more than 50 years.

We support sustainable forestry when purchasing wood chips for fresh fibre production by working according to the PEFC and FSC Standards

Environmental performance

We are reporting on our environmental performance in a Group-wide database. Here, deviations are recorded according to predefined categories, from 1 (not significant) to 5 (serious environmental damage).

In accordance with the specifications of our integrated management system for quality, environment, energy and occupational safety, we evaluate environmental impact through internal and external audits.

Also for 2019 we set ourselves targets and measures for continuous improvement in the areas of energy efficiency and the environment. Due to a poorly executed packaging plant project,

a number of topics could not be addressed at all or only to a limited extent. The externally purchased automation equipment, which had serious deficiencies, had to be repaired in a costly and time-consuming process that lasted several months. The work was carried out while the plant was running, which had a massive impact on the planning and execution of all activities throughout the mill. In addition, it led to a large number of short-term shutdowns for all plants.

Due to these irregular conditions over a period of 9 months, the mill's total specific energy consumption in 2019 is not representative. Nevertheless, we were able to reduce our specific steam consumption.

Looking at individual units, several energy saving projects were successfully implemented in 2019 as well. Measures which can only be implemented during a mill shutdown had to be postponed completely until 2020.

The amount of waste and by-products in absolute terms decreased. The specific amount of waste increased slightly due to the lower utilisation of production facilities.

Boiler ash was used as a product for the most part. Applications include use as a soil stabiliser, as an additive for construction materials and as a replacement for soda lye in our own production plants.

Another recovery option for ash was developed in co-operation with a filler supplier. Ash products shall be used in future to replace part of the burnt lime necessary for making calcium carbonate.

A catalytic converter was installed in the CHP plant in order to reduce the amount of formaldehyde in the flue gas. In order to ensure a safe and stable operation of the effluent treatment plant, further steps were taken to reduce chemical consumption, homogenise effluent volume and coordinating the production programme accordingly.

In 2019, complaints were received for odour nuisance. We are in close contact with the neighbourhood and started to systematically investigate the issue with an external expert.

As a fire prevention measure, nine fire drills were held to teach a total of 456 participants the correct handling of the fire extinguishers.

Both our own employees and employees of contractors are trained annually in the handling of chemicals.

Twelve drills were conducted with the mill fire brigade and the working at height group, and four drills/walks with the local fire brigade.

Wolfgang Ohnesorg
General Manager

Ute Soller,
Manager OHS/Environment/Management Systems

Martin Heinrich,
Management System Representative

Responsibility figures 2019

Air



Specific emissions of nitrogen oxides from power plant have been reduced by

41%

from 2010–2019

Water



Specific load of nitrogen in cleaned wastewater (tonne nitrogen per tonne of paper) was re-duced by

43%

from 2010–2019

Certified fibre



The share of wood chips from sustainable, certified forests (PEFC + FSC) was

73%

in 2019

74%

share of recycling fibers in the produced papers.

Energy



District heating to city of Schongau was in-creased by

7%

from 2010–2019



Safety

Number of accidents with lost time have been reduced by

50%

(4 in 2010, 2 in 2019)

In 2019 our employees conducted

1,625

Safety walks.

Health



Participation in health trainings

1,354

participant hours 2019



Employment

Currently

27

apprentices at UPM Schongau site
9 paper technologists
10 automation electronics technicians
8 industrial mechanics

Air



In 2019, airborne emissions remained largely constant on a low level. Energy generated from the incineration of process residue and used wood reduced our natural gas usage. The high proportion of mostly renewable fuels contributes to cutting fossil CO₂ emissions.

The mean emission concentrations of nitrogen oxides and particulates from

our fluidised bed boiler are clear below the limits.

The emissions from the power plants were in line with the limit values (half-hourly mean value concentrations) 100 % of the time.

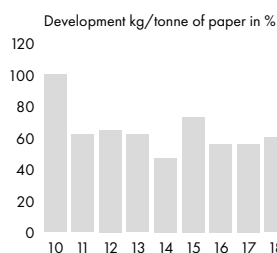
EMISSIONS FROM THE COMBINED HEAT AND POWER PLANT 2019

| | Limit value (mg/Nm ³) | Mean value of measurements (mg/N m ³) |
|--|--------------------------------------|---|
| Fluidised bed boiler/Continuous measurement | | |
| CO | 50 | 13 |
| Particulate matter | 5 | 1.4 |
| SO ₂ | 50 | 1.2 |
| NO _x | 150 | 114 |
| Hg _{tot} | 0.03 | 0.003 |
| HCl | 10 | 0.25 |
| Fluidised bed boiler/One-time measurement | | |
| C _{tot} | 10 | 0.09 |
| HF | 1 | n.d |
| Cd,Tl | 0.05 | n.d |
| Sb, As, Pb, Co, Cr, Cu, Mn, Ni, V, Sn | 0.5 | 0.0009 |
| PCDD/F | 0.1 ng/Nm ³ | n.d |
| Gas-powerplant/Continuous measurement | | |
| CO ⁽¹⁾ | 100–50 | 16 |
| NO _x | 75–100 | 22 |

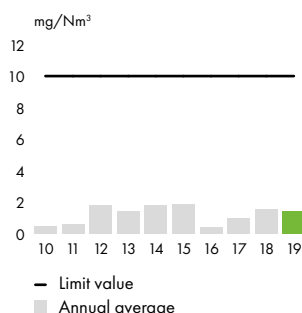
n.d. = not detectable

⁽¹⁾ The gas-powerplant has different values according to operating mode. The first value is valid for the gasturbine, the second value for the recovery boiler. When both are in operation a mixed calculation is done.

Nitrogen oxides, NO_x



Particulates



Waste

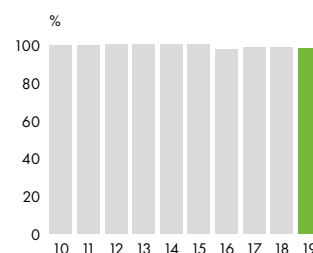


UPM Schongau's fluidised bed boiler is operating on solid fuels. The major part of the ash (76,217 t) resulting from the energy generation process is classified as ash product (in accordance with the German Closed Cycle Management Act) and used for construction materials and in the cement industry. However, the recovery rate is subject to seasonal cyclical fluctuations. In 2019 100% of the ash was used as a product. Furthermore, also sawdust (2,706 t) is classified as side-product which is 100% re-used.

In 2019, the recycling rate for non-hazardous waste and side-products was 98%. For part of the bed ash from the combined heat and power plant no recycling options could be identified. The majority of hazardous waste is bag filter ash from the combined heat and power plant.

Recovery rate

(non hazardous waste and side-products)



Water



A considerable amount of water from the Lech river is required to cool power stations, steam turbines, production machinery and heat recovery systems. Cooling water is not contaminated during use and can be discharged back directly into the river. The heat discharged into the river is continuously monitored. The process water used in paper production is bank filtrate from the Lech river. Only a fraction of the water is discharged as wastewater after it has been recycled within the process several times.

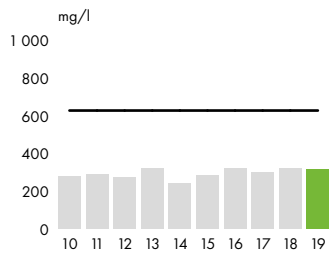
The capacity of the on-site multi-stage effluent treatment plant corresponds to that of a treatment plant for 420,000 people.

Effluents are first cleaned in a chemical-mechanical treatment stage and then in an anaerobic IC reactor. Finally, they are treated aerobically in an activated sludge tank and a clarifier tank.

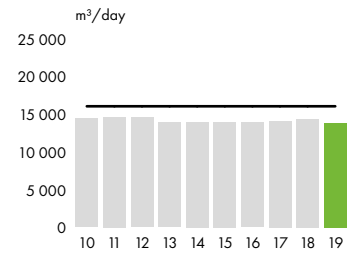
The quality of the treated effluents is continuously monitored, both internally and by the authorities in charge.

The nitrogen limit value in the effluent of the wastewater treatment plant was exceeded once in April after a production shutdown. During this period there were also exceedances of the BOD limit concentration. In December, the effluent plant did not operate in a stable manner and the BOD limit was exceeded several times.

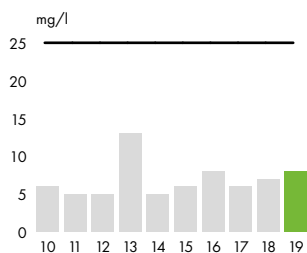
Chemical oxygen demand, COD



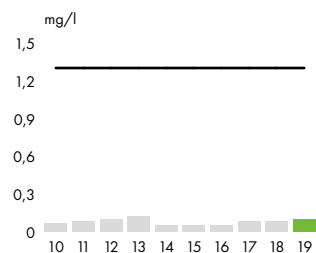
Effluent volume



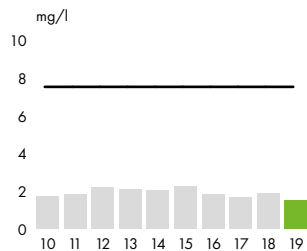
Biological oxygen demand, BOD₅



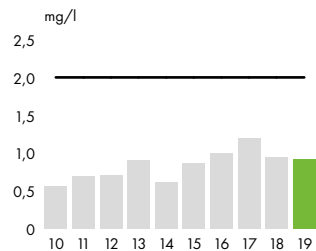
Adsorbable organic halogen compounds, AOX



Nitrogen (inorganic), N



Phosphorus, P



— Limit value
 ■ Annual average

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: immission 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. At the emergency center (factory gate), detailed flow charts are available for different types of emergencies. For emergencies of a larger scale, there is an emergency staff who decides on any further action to be taken.

Social responsibility

Well-functioning stakeholder dialogue is a key component for success for UPM. We are committed to developing the vitality of the communities close to our operations through active co-operation and open dialogue with various stakeholders as well as, for example, through sponsorships and employee volunteering.

We impact local communities and societies in many ways. Understanding the impact that we have is an essential component of our business success. In many locations, we are a significant employer, taxpayer and partner to local entrepreneurs, making positive contributions to the local economy. We apply several precautionary measures to mitigate and remedy potential negative environmental and social impacts on our surrounding communities.

Occupational safety

At UPM, we aim to be the industry leader in occupational health and safety. Our clear goal is zero fatal and serious accidents.

We are working to reduce or eliminate accidents in our sphere of influence through continuous improvement and effective risk management.

Before entering any of UPM's production sites, contractors must attend a UPM safety training course that introduces and explains general safety measures. In addition, depending on the task to be performed, there are also special safety instructions and work permits.

Through a large number of continued actions, such as safety observations by employees or safety walks by supervisors, we were able to reduce the number of accidents (accidents with at least one lost day per one million of working hours) from 6.9 in 2012 to 2.4 in 2019.

Occupational healthcare

We spend a large portion of our lives at the workplace, whose conditions can affect our health positively or negatively. Therefore, we want to create a work environment that is conducive to our employees' good health and to deepen their health awareness to promote and maintain their job satisfaction and motivation.

We have therefore implemented a corporate health management scheme comprising a variety of offers:

- Many employees have signed up to the bicycle leasing system
- There are weekly back training, aqua gymnastics and yoga classes
- Two workplace health days were held where we offered eye screening and a "Back Check" muscle scan
- Psychological risk assessments were carried out to find out how the employees' health is impacted by their work duties.

Community involvement

UPM Schongau supports many associations, kindergartens and schools as well as sporting and cultural events, making it a reliable partner in the region. Last year, the Schongau paper mill supported numerous local projects: From major sporting events, such as the Schongau Triathlon, to the annual medieval market, where interested visitors could make paper just like 100 years ago. Support was also given to cultural events, such as the concert series

titled "Festive Summer in the Church of Wies" and the theatre performances of "Schongauer Theaterstadl".

As part of the Schongau summer holiday programme, UPM Schongau offered a discovery tour of the paper mill for children between 10 and 17 years of age. The boys and girls learned how paper is made and were then able to admire the large machines on site. During the guided tour of the mill and the subsequent snack in the canteen, the children





asked thoughtful questions. At the end, each child received a small present as a memory of this interesting day.

Since 2018, UPM Schongau has been involved in the Natura 2000 species protection programme "Lebensraum Lechtal" with approximately 2 hectares. This measure serves to protect endangered animal and plant species that occur in this area and to restore the biotope network along the Lech and is part of a long-term concept for the eco-logical upgrading of this area. Grass and bushes will be kept short by grazing cows, enabling weakly competitive plants such as gentian, oxeye and lady's slipper to thrive.

Cooperation with schools and education

At the Schongau site, we are currently training automation electronics technicians, industrial technicians and paper technologists. UPM Schongau regularly takes part in various professional education fairs in the Weilheim-Schongau district. Graduating classes from nearby schools are also welcome to visit the Schongau paper mill for a factory tour. At Education Day in June of 2019, students and their parents had an oppor-



tunity to get to know the mill, different training careers and the teaching team. Following the Education Day, five young men decided to start an apprenticeship with UPM Schongau, which will begin in September of 2020.

Environmental parameters

The figures related to production as well as raw material and energy consumption are published as aggregated figures on group level in the UPM Corporate Environmental and Societal Responsibility Statement.

| | | 2017 | 2018 | 2019 |
|---|---|--|--|--|
| Production capacity | Paper (3 paper machines) | Up to 760,000 t | Up to 740,000 t | Up to 740,000 t |
| Raw materials and additives | Recovered paper Wood chips Fillers Process chemicals Operating supplies | See UPM Corporate Environmental and Societal Responsibility Statement for more information | | |
| Energy | Renewable fuels Fossil fuels Purchased power Hydropower | 27% 73% | 35% 65% | 28% 72% |
| | | See UPM Corporate Environmental and Societal Responsibility Statement for more information | | |
| Emissions to air | Carbon dioxide, CO ₂ (fossil) ¹⁾ Nitrogen oxides, NO _x Sulphur dioxide, SO ₂ Particulates Carbon monoxide, CO | 268,543 t 175 t 0.32 t 0.54 t 56 t | 276,453 t 187 t 1.2 t 3.9 t 60 t | 234,690 t 165 t 0.8 t 3.3 t 58 t |
| Water intake | Process, cooling and drinking water – of which cooling water – of which drinking water | 30,394,001 m ³ 24,533,043 m ³ 21,624 m ³ | 28,100,124 m ³ 22,161,331 m ³ 22,617 m ³ | 27,939,228 m ³ 18,682,574 m ³ 19,018 m ³ |
| Discharges to water | Effluent volume Chemical oxygen demand, COD Biological oxygen demand, BOD ₅ Phosphorus, P Nitrogen (inorganic), N Adsorbable organic halogen compounds, AOX | 5,136,068 m ³ 1,543 t 31 t 6.4 t 7.1 t 0.4 t | 5,217,390 m ³ 1,667 t 36 t 5 t 7 t 0.4 t | 5,040,024 m ³ 1,617 t 40 t 4.7 t 7.5 t 0.4 t |
| Waste and side-products²⁾ | Side-products ³⁾ – ash – sawdust Waste for recycling – fluidised bed sand – metal – construction waste – paper + board – other Waste disposal – fluidised bed sand – construction waste Recovery rate Hazardous waste | | 82,087 t 3,391 t 2,890 t 1,148 t 199 t 314 t 230 t 1,389 t 0 t 98% 1,535 t | 76,217 t 2,706 t 2,496 t 1,099 t 832 t 384 t 289 t 1,589 t 231 t 98% 1,329 t |
| Size of mill area | Total use of land Total sealed area Total nature-oriented area on site Total nature-oriented area off site | 38 ha | 38 ha | 38 ha 22 ha 2.5 ha 42 ha |

¹⁾ The combined power plant is operated depending upon the cost of electricity and feeds the gen-erated power into the public grid. The mill's electricity requirements are largely covered with power from the public grid. The CO₂ emissions reported for UPM Schongau are the actual fossil CO₂ emissions from the site, excluding flows of electricity.

²⁾ incl. moisture

³⁾ Reporting of waste data was changed in 2018.



Performance against targets in 2019

| TARGET | TARGET ACHIEVED? |
|--|---|
| 1 Energy Develop additional concepts for efficient use of waste heat to cover the mill's heat requirements | Target achieved 1. Concept designed for recovering heat from TMP 2. Heat exchanger commissioned to heat water for the steam blocks; calculated savings 4,683 MWh 3. Concept designed for recovering heat from PM 9; calculated savings 5,600 MWh |
| 2 Water 2019 product range (MaxS, ReCat, book papers) with high bleaching requirements will increase load in the inlet to the treatment plant – stable operation and good treatment performance required to reduce COD by 20% throughout the year (COD concentration in comparison with limit value) | Not achieved – COD on a single day > 500 mg/l Unstable operation of treatment plant |
| 3 Waste Replace part of the burnt lime for making calcium carbonate by ash product. Recover Elurit as a filler with 3,500 t/a of Elurit | Partly achieved – used 2,812 t of Elurit; commissioning was delayed |
| 4 Air emissions Reduce air emissions by having BCTMP and wood pulp delivered by rail – possible through increase of storage capacity in PM 8 building (2018: 24 lorries) | Storage capacity available only from December 2019: review of target achievement postponed until 2020 |
| 5 Environmental incidents – Clean Run category 3, 4 and 5 Cut in half the number of incidents (2019: 1) | Not achieved – three Clean Run category 3 incidents |

Targets for 2020

| TARGETS AND MEASURES | DEADLINE | DEPARTMENT RESPONSIBLE |
|--|------------|--|
| 1 Energy – Recover condensate from heat recovery units of paper machines – Establish working group to reduce compressed air usage | 31.12.2020 | Manager Process Development |
| 2 Water – Engineer concept for automatic control to stabilise operation of effluent treatment plant and achieve long-term load reduction – Explore potential for reducing specific process water usage taking into consideration future evolution of paper grade mix – Design concept to reduce discharge of unpolluted rainwater to treatment plant | 31.12.2021 | Manager Pulp Production Manager WETW Manager ENG |
| 3 Waste Develop concept for using bag filter ash as a product, or explore alternative recovery options | 31.12.2020 | Manager WETW/EN |
| 4 Air emissions Reduce air emissions by having BCTMP and wood pulp delivered by rail – possible through increase of storage capacity in PM 8 building (2018: 24 lorries, 2019: 42 lorries) | 31.12.2020 | Manager Warehousing |
| 5 Environmental incidents – Clean Run category 3, 4 and 5 Cut the number of incidents (2020: 0; 2019: 3) | 31.12.2020 | Managers Pulp Production/Energy |
| 6 Biodiversity Cultivate open spaces on mill premises as flower meadows/bee pastures (approx. 1700 m ²) | 31.12.2020 | Manager ENG |



Environmental verifier's declaration on verification and validation activities

Environmental verifier, Astrid Günther (DE-V-0357), acting for TÜV NORD CERT Umweltgutachter GmbH, licensed for the scope NACE Code 17.12 (papermaking), declares to have verified whether the site UPM GmbH, Schongau mill, Friedrich-Haindl-Strasse 10, 86956 Schongau, Germany, as indicated in the updated Environmental Statement 2019 of the mentioned site (registration no. FI-000058), meets all requirements of Regulation (EC) No 1221/2009 as amended by Commission Regulation (EU) 2017/1505, of the European Parliament and of the Council of 25 November 2009 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 has 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 applicable legal requirements relating to the environment,
- the data and information of the updated Environmental Statement 2019 of UPM GmbH, Schongau mill, reflect a reliable, credible and correct image of all the

activities of UPM GmbH, Schongau mill, within the scope mentioned in the updated Environmental Statement 2019.

This document is not equivalent to EMAS registration. EMAS registration can only be granted by a Competent Body under Regulation (EC) No 1221/2009. This document shall not be used as a stand-alone piece of public communication.

Essen, 21.07.2020

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

We reduce the world's reliance on fossil-based materials by developing renewable and responsible products and solutions in all our businesses. **UPM Biofore – Beyond fossils.**



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