

UPM Schongau

Environmental and Societal Responsibility 2017



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 760,000 tonnes per annum
Personnel	About 535 (total heads as at 31 December 2017)
Products	Standard and improved newsprint as well as supercalendered uncoated paper: UPM Brite UPM News UPM ReCat UPM Eco UPM EcoPrime 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 2017 is a supplement to the Corporate Environmental Statement of UPM's pulp and paper mills (available at www.upm.com) and provides mill-specific environmental performance data and trends for the year 2017. The annually updated mill supplements and the UPM Corporate Environmental Statement together form the joint EMAS Statement of UPM Corporation. The next Corporate Environmental Statement and also this supplement will be published in 2019.

UPM leads the forest-based bioindustry into a sustainable, innovation-driven, and exciting future across six business areas: UPM Biorefining, UPM Energy, UPM Raflatac, UPM Specialty Papers, UPM Paper ENA and UPM Plywood. Our products are made of renewable raw materials and are recyclable. We serve our customers worldwide. The group employs around 19,100 people and its annual sales are approximately EUR 10 billion. UPM shares are listed on NASDAQ OMX Helsinki. UPM – The Biofore Company – www.upm.com



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EU Ecolabel : FI/011/001



www.blauer-engel.de/uz72

Review of the year 2017

Production and Environment

UPM Schongau's papermaking operations have an impact on people and environment at the site. We take this responsibility very seriously. This is why protecting the environment is central to our daily work.

As far back as the early sixties the commissioning of a deinking plant set the scene for sustainable resource conservation.

Today the volume of paper recycled is roughly equivalent to the volume of paper produced. Some paper grades require an input of virgin fibers which, since the end of 2004, have come mostly from sustainable forestry. Nearly closed water circuits, heat recovery systems as well as a high recovery rate of process residue generated at the site have been for a long time the results of our environmentally responsible way of operating.

Papermaking is an intensive energy using process. This is why we have made great efforts in recent years to improve the mill's energy efficiency. In the spring of 2012, UPM Schongau's energy management successfully gained certification to DIN EN ISO 50001 and has been continuously further developed ever since. In this way UPM Schongau demonstrates efficient energy and resource use.

Bioler 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.

In 2017 there were two complaints about noise disturbance and one about odour.



Wolfgang Ohnesorg
General Manager



Ute Soller,
Manager OHS/Environment/
Management Systems



Martin Heinrich,
Management System Representative

Responsibility figures 2017

Water



Specific load of organic matter in cleaned wastewater (tonne COD per tonne of paper) was reduced by

25%

from 2007–2017

Specific load of nitrogen in cleaned wastewater (tonne nitrogen per tonne of paper) was reduced by

46%

from 2007–2017

Air



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

53%

from 2007–2017



Energy

Specific power consumption (kWh per tonne of paper) was reduced by

6%

from 2007–2017

District heating to city of Schongau was increased by

17%

from 2007–2017

Fiber raw material



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

78%

in 2017

79%

share of recycling fibers in the produced printing papers.

Safety



Number of accidents with lost time have been reduced by

81%

(16 in 2007, 3 in 2017)

In 2017 our employees conducted

894

Safety walks.

Employment

About

1,500

visitors at the family day.

Currently

29

apprentices at UPM Schongau site.

Health



Participation in health trainings:

Swimming and aqua aerobics

235

participant hours 2017

Yoga

275

participant hours 2017.

Back-strengthening exercises

824

participant hours 2017.

Air



In 2017, 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.

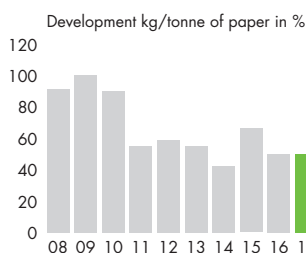
In the emissions from the fluidised bed boiler, there were 8 deviations from half hourly mean value permit limits (8 x CO) and one deviation of the daily limit of CO, which were mainly caused by disruptions of air supply. However, the half-hourly mean value concentrations were in line with the permit limits for 99.95% of the time.

EMISSIONS FROM THE COMBINED HEAT AND POWER PLANT 2017

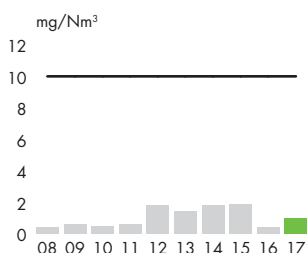
	Limit value (mg/m ³ Ntr)	Mean value of measurements (mg/m ³ Ntr)
Fluidised bed boiler/Continuous measurement		
CO	50	16
Particulate matter	10	1.0
SO ₂	50	0.6
NO _x	150	118
Hg _{tot}	0.03	0.002
HCl	60	0.67
Fluidised bed boiler/One-time measurement		
C _{tot}	20	< 1.5
HF	1	n.d
Cd,Tl	0.05	n.d
Sb, As, Pb, Co, Cr, Cu, Mn, Ni, V, Sn	0.5	0.017
PCDD/F	0.1 ng/m ³ Ntr	0.004
Steam boiler/Continuous measurement		
CO	50	18
NO _x	150	28
Gas power plant/Continuous measurement		
CO	50	7
NO _x	110	69

n.d. = not detectable

Nitrogen oxides, NO_x



Particulates



— Limit value
■ Annual average

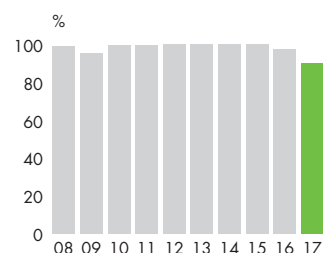
Waste



UPM Schongau's fluidised bed boiler is operating on solid fuels. The major part of ash (77,900 t) which remains 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 variations and customer demand, and thus 99.5% was used as product and 0.5% of amount was re-used, but as waste, in 2017. Furthermore, also sawdust (3,100 t) is classified as by-product which is 100% re-used. These ash-and by-products are not reported as waste.

In 2017, the recovery rate for all waste (non-hazardous and hazardous) decreased to 90% because there were no recycling possibilities for part of the bottom ash. The amount of hazardous waste increased, as some waste from the power plant was hazardous.

Recovery rate



Water

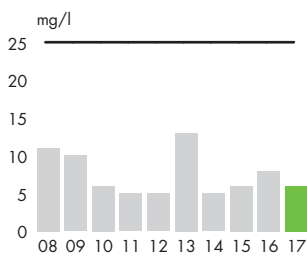
A considerable amount of water from the Lech river is required to cool power stations, steam turbines, production machinery and heat recovery systems. Cooling water is not contaminated during use and can be discharged back directly into the river. The heat discharged into the river is continuously monitored. 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.

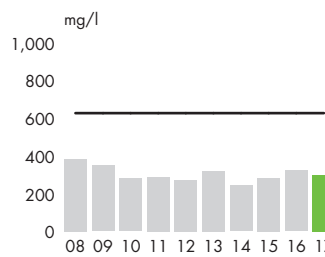
The quality of the treated effluents is continuously monitored, both internally and by the authorities in charge.

All limits were kept.

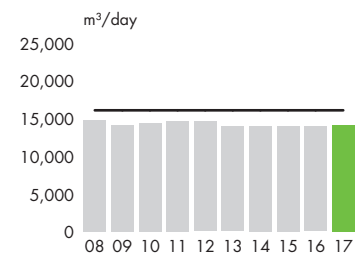
Biological oxygen demand, BOD₅



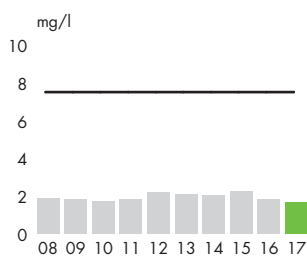
Chemical oxygen demand, COD



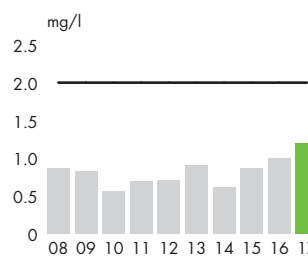
Effluent volume



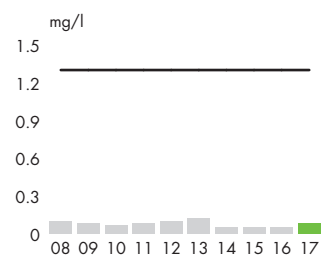
Nitrogen (inorganic), N



Phosphorus, P



Adsorbable organic halogen compounds, AOX



— Limit value
■ Annual average

Societal responsibility

Occupational safety

At the Schongau mill we have for many years been working to improve occupational safety. In the course of the safety campaign launched by UPM in 2012, we implemented safety standards that go beyond the statutory requirements. There are safety walks by managers, targeted safety discussions and the reporting of safety observations to sharpen the awareness of all employees regarding unsafe conditions and practices. We actively share information, particularly on high risk accidents and incidents, with other UPM mills and carry out cross-site safety audits in order to learn from others without having to experience problems ourselves and to identify risks in advance.

In 2017, we paid particular attention to six of the implemented safety standards. Throughout the year, there were special activities, training and events focusing on these six Life Saving Standards, including "Working at Height", "Risk Assessments", "Permit to Work", "Confined Spaces", "Lock out/Tag out" and "Mobile Equipment and Cranes". Overall, our LTAF (number of serious work-related personal injuries that result in more than one day off work per million of work hours) decreased from 13.4 in 2012 to 5.31 in 2017. However, we are not there yet. We are still working to further reduce LTAF and prevent all serious accidents. In order to achieve

this target, we are planning to standardize high risk processes, carry out even more detailed risk assessments, promote a better understanding of the risks associated with working at height and highlight occupational safety as a management responsibility.

Occupational healthcare

We spend a large portion of our lives at the workplace, whose conditions can affect our health positively or negatively.

A healthy, resilient and motivated workforce is prerequisite for the success and competitiveness of our mills.

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:

- We implemented a bicycle leasing system to which many employees have signed up
- There are weekly back training, aqua gymnastics and yoga classes
- A health day was held where information was provided on allergies and lung and skin function tests were carried out in cooperation with health insurance providers

- We launched a so-called workplace program to improve workplace ergonomics and find out how employees can maintain and improve their well-being through physical exercise at the workplace

Community involvement

Last year UPM Schongau sponsored a circus project at the local elementary school, swimming and music lessons for children and the German youth science competition "Jugend forscht". At the Medieval Market in Schongau, UPM had a stall where visitors could try their hand at making paper.

One Saturday in July, current and former employees of UPM Schongau and their colleagues from UPM Ettringen were invited to UPM's Family Open Day 2017.

About 1,500 visitors joined us in excellent weather. A mill tour with 27 stops gave them interesting insights into papermaking. The route took them from the paper recycling plant to the paper machine through to the finished paper packaging lines. Moreover, the visitors received information about UPM products and environment and energy. The tour ended in the fairground next to UPM's new power plant. In the marquee and in the children's area, the visitors had an opportunity to round off the day with food and drink, face painting



and a bouncy castle, papermaking and many other activities.

Musical entertainment was provided by UPM Schongau's mill band. The visit was great fun especially for children. As one young visitor aptly put it: "My auntie has a cool job".

Cooperation with schools and education

At the Schongau site, we are currently training automation electronics technicians, industrial technicians and paper technologists.

These careers were presented at professional education fairs in Peiting, Weilheim and Schongau, as well as during mill tours for schools from the local district. Moreover, a professional education day was held at the mill for students and parents, where they received interesting information in workshops and during a mill tour.



Environmental parameters 2017

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 Statement.

Production capacity	Paper	Up to 760,000 t (3 paper machines)
Raw materials and additives	Recovered paper Wood chips Process chemicals Operating supplies	See UPM Corporate Environmental Statement for more information
Energy	Renewable fuels Fossil fuels Purchased power Hydropower	27% 73% See UPM Corporate Environmental Statement for more information
Emissions to air	Carbon dioxide, CO ₂ (fossil)** 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
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
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
Waste*	Total volume (without hazardous waste) of which – ash – fluidised bed sand – metal – construction waste – other Hazardous waste Recovery rate	11,891 t 1,284 t 2,161 t 1,217 t 6,520 t 710 t 2,397 t 90%
Size of mill area	Bebaute und versiegelte Grundstücke	35 ha

* incl. moisture

** The combined power plant is operated depending upon the cost of electricity and feeds the generated 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.



Performance against targets in 2017

TARGET	ACHIEVEMENT
1 Energy Rebuild of TMP in September in order to reduce specific energy consumption per tonne of thermo-mechanical-pulp by 5%.	Partly achieved with 2.7%. Rebuild was postponed into week 52.
2 Water Maintain voluntarily reduced (control value by 20%) COD concentration discharged from the treatment plant to the river initiating in April.	Yes, the reduced value for COD concentration was kept all the time.
3 Waste Reduce losses from secondary flotation by 0.3% (precondition invest approved).	Project was realised only partly in 2017. Completion is planned for second quarter 2018.
4 Air emissions Create concept to reduce formaldehyde emissions from the cogeneration plants operation on biogas (new limit = 30 mg/Nm ³).	Concept was created and requested. Approval of local authority available. Implementation until second quarter 2018.
5 Environmental incidents- Clean Run category 3, 4 and 5 Cut in halve the number of incidents (2017: 4; 2018: 2). Analyse incidents from last years, define and train measures for waste water treatment and power plant.	Yes, target achieved

Targets for 2018

TARGETS	DEADLINE	DEPARTMENT RESPONSIBLE
1 Energy – Starting of TMP (wood-chips) -plant after rebuild and reduce specific power usage per tonne of TMP by 2.3%. – Create concept to save process steam by heat recovery. – Reduce condensation steam in power plant III by 2%.	31.12.2018 31.12.2018 31.12.2018	Manager Deinking plant Manager Process development Manager Power plant
2 Water Maintain voluntarily reduced (by 20%) COD concentration discharged from the treatment plant (control value) to the river.	31.12.2018	Manager Effluent treatment plant
3 Waste Reduce losses from secondary flotation by 0.3%.	30.06.2018	Manager Deinking plant
4 Air Project to reduce formaldehyde emissions from block heat and power plant.	30.04.2018	Manager Power plant
5 Environmental incidents – Clean Run category 3, 4 and 5 Cut in halve the number of incidents (2018: 2). Analyse incidents from last years, define and train measures for waste water treatment and power plant.	31.12.2018	Manager Effluent treatment and Power Plant



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 Environmental Statement 2017 of the mentioned site (registration no. FI-000058), meets all requirements of Regulation [EC] No 1221/2009 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 2017 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 2017.

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, 06.04.2018

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



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