

Environmental performance in 2016



UPM Augsburg



Through the renewing of the bio and forest industries, UPM is building a sustainable 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 19,300 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

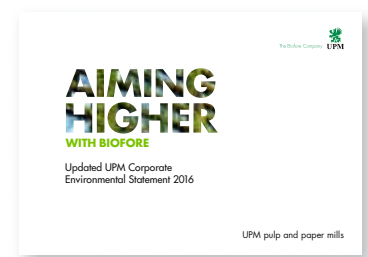
UPM Augsburg

Founded in 1849, UPM Augsburg is sited near the city centre of Augsburg. In accordance with its operating permit, the mill with a workforce of some 450 people produces up to 490,000 tonnes per annum of uncoated and coated supercalendered printing paper in reels. It is mainly used for magazines, advertising supplements, publicity booklets, sales literature and mail order catalogues. Changing market conditions for graphic papers led to capacity shutdowns at UPM, which also included the closure of a paper machine in Augsburg at the end of 2016.

In addition to recovered paper and pigments, virgin fibres such as groundwood pulp and chemical pulp from sustainable forestry are used as raw materials for paper production. The water required for the production process comes from deep wells on the mill site. The effluents are cleaned in Augsburg's municipal treatment plant. The steam required for the papermaking process and a corresponding amount of power are generated in a combined heat and power plant operating on natural gas. The remainder of the mill's power needs is supplied via the national grid.

The Augsburg site is also home to a part of UPM's head office (Augsburg Office, Paper ENA headquarters and regional functions).

Production capacity	Up to 490,000 tonnes per annum
Personnel	Augsburg Mill approx. 450/Augsburg Office approx. 350 (full time employees including apprentices as at 31 December 2016)
Products	Magazine papers (SC and LWC): UPM Ultra UPM Matt UPM Cote UPM ReCat UPM Max UPM Base 1.1.
Certificates	ISO 14001 – Environmental Management System Standard ISO 9001 – Quality Management System Standard ISO 50001 – Energy Management System Standard OHSAS 18001 – Occupational Health and Safety System 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 <i>All certificates can be found from UPM's Certificate Finder (available at www.upm.com/responsibility).</i>
Environmental labels	EU Ecolabel for copying and graphic paper German Blue Angel (RAL-UZ 72) for UPM ReCat



UPM Augsburg Environmental Performance in 2016 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 2016. The annually updated mill supplements and the UPM Corporate Environmental Statement together form the joint EMAS Statement of UPM Corporation. The next updated Corporate Environmental Statement and also this supplement will be published in 2018.



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For PEFC products, visit www.pefc.org



Environmental year 2016

Environmental care is an integral part of the papermaking processes at UPM Augsburg. We have been working since 1997 with an integrated management system, covering, by now, quality, environment and occupational health and safety and we are additionally reporting under EMAS (the EU's Eco-Management and Audit Scheme) in order to further develop our environmental work responsibly and document it in a transparent and traceable manner.

UPM is promoting its group-wide "Clean Run" campaign to further improve its environmental performance. All UPM mills are audited to assess the quality of their environmental work and determine any necessary action. In addition, all staff are informed about environmental issues relating to the mill.

The Blue Angel ecolabel has been awarded since 1978 to products and services that are particularly beneficial to the environment. In 2016, UPM ReCat was again awarded the Blue Angel ecolabel (RAL-UZ 72). Additionally, UPM ReCat was Chain of Custody certified under FSC Recycled (100% recovered paper).

Working with the public utility company Stadtwerke Augsburg, we have contributed towards the energy turnaround by rehabilitating a hydropower plant. Two new turbines were installed in an existing turbine building on the mill premises.

Each year, we set ourselves detailed new quality, environmental and occupational health and safety targets. We especially welcome suggestions for improvement from the ranks of our employees. Their long-time experience thus contributes actively to the achievement of our targets and to the further development of the management system. We actively work on regularly improving our environmental performance not just within the company, but also in our co-operation with customers, suppliers, authorities and the general public.

As a company of the Finnish UPM Corporation we are committed to conserving

the environment, continually optimising our production processes in order to minimise the impact of our operations on the environment and, very importantly, on the local community around our mill. Also in 2016 we undertook regular measurements of airborne emissions from the mill and we are happy to report once again that our discharge levels were not just in compliance with, but usually well below the limit values.

All complaints were followed up immediately. In 2016 there were no complaints about tangible environmental impacts.



Gerhard Mayer, General Manager

Eva Männer, Manager OHS and Environment



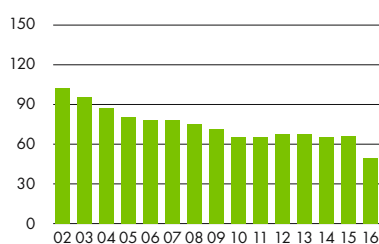
Air

Energy generation is the main source of emissions from paper mills. Emissions can be reduced by the appropriate choice of fuels and combustion technology as well as flue gas purification. UPM Augsburg has set itself the target of further reducing CO₂ emissions by efficient energy use.

In 2016 there were no exceedances of the emission limits.

Fossil carbon dioxide, CO₂

kg/t paper, development in %



Emissions from the chp plant 2016

	Limit value (mg/Nm ³)	Mean value measured (mg/Nm ³)
CO	50	1
NO _x	150	55

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.

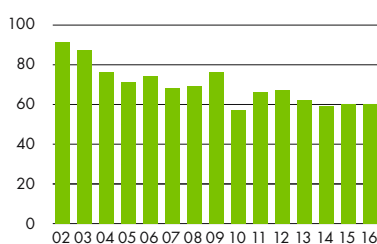
Part of the process water evaporates as the paper web dries. We recover and reutilise as much as possible of the thermal energy contained in the exhaust air. The remainder is discharged into the air as water vapour. Cooling water is taken from the Proviant, Schaeffler and Stadtbach canals. The process water is recycled several times before it is

discharged as effluent to the municipal treatment for purification.

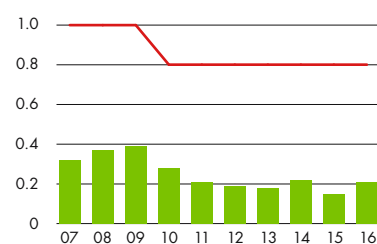
In 2016 the effluent load was in one instance and for a short while slightly too high. With 8.2 t/d, the solids load was higher than the limit value of 5 t/d. Appropriate counter-measures were taken in agreement with the authorities.

Effluent volume

m³/t paper, development in %

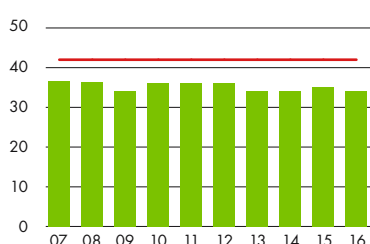


Adsorbable organic halogen compounds, AOX
mg/l



Temperature

°C

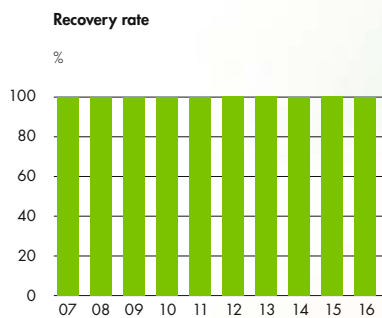


— Limit value

Waste

In line with the principle of closed-loop recycling, the majority of production residues is recycled. Hazardous wastes are forwarded to licensed waste disposal contractors and disposed of in compliance with the relevant statutory requirements.

UPM Augsburg strives to maintain the recovery rate of solid residue, which presently stands at 99.9%, on its current level.





Environmental parameters 2016

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 490,000 t
Raw materials and additives	Recovered paper Round wood Chemical pulp Pigments Process chemicals Operating supplies	See UPM Corporate Environmental Statement for more information
Energy	Fossil fuels Purchased power	See UPM Corporate Environmental Statement for more information
Emissions to air	Fossil carbon dioxide, CO ₂ Nitrogen oxide, NO _x Carbon monoxide, CO Sulphur dioxide, SO ₂	90,910 t 33.9 t 6.7 t 0.9 t
Water intake	Process water Cooling water	4,272,102 m ³ 10,137,760 m ³
Discharges to water	Effluent volume Chemical oxygen demand, COD Biological oxygen demand, BOD ₅ Phosphorous, P Nitrogen, N (inorganic) Adsorbable organic halogen compounds, AOX	3,120,974 m ³ 8,530 t 4,172 t 14.2 t 57.5 t 0.7 t
Waste*	Total waste volume of which: – Fibre residues – Deinking residues – Wood residues** – Other waste*** Hazardous waste Recovery rate	134,433 t 95,690 t 2,417 t 35,253 t 1,007 t 66 t 99.9%
Size of mill area		22 ha



* All figures incl. moisture

** Since September of 2013, wood residues have been classified as by-products under section 4 of the German Closed Cycle Management Act (Kreislaufwirtschaftsgesetz, KrWG).


*** Primarily residual waste for recycling and disposal, metal, construction waste, other recyclable fractions

Performance against targets in 2016

Targets	Target achieved?
Energy Reduce specific energy consumption by 10 kWh of thermal energy per tonne of DIP with similar operating rate as in 2015.	Target not achieved.
Waste Reduce fibre losses from mechanical pulp production by 3 t/d with similar operating rate as in 2015.	Reduction by 5 t/d achieved.
Chemical use Reduce chemicals used for DIP production: a) sodium silicate by 25% in relative terms (kg/tonne of DIP) b) hydrogen peroxide by 50% in relative terms (kg/tonne of DIP)	a) not achieved (reduction by about 23.5%) b) reduction by about 82% achieved
Water Reduce specific effluent volume by 0.2 l/kg to 6.8 l/kg with similar operating rate as in 2015 (optimise integrated water management).	Target not achieved. The specific effluent volume in 2016 was about 7 l/kg.
General Rebuild hydropower plant. Joint project with Stadtwerke Augsburg.	Target achieved.
CleanRun No category 3 and 4 deviations.	Target not achieved, there was a category 3 deviation in 2016.

Current targets

Targets and measures	Deadline	Department responsible
Energy Reduce specific gas consumption for steam generation by 0.5% in relative terms (consumption in 2016: 0.677 MWh gas/tonne of steam (Hu)).	12/2017	Energy
Energy Reduce specific energy consumption by 10% per tonne of paper (specific energy consumption of PM 3 in 2016: 1317 kWh/tonne of paper).	12/2017	Production
Recycling Increase DIP volume on PM 3 to 400 t/d on average.	12/2017	Production
Water Maintain specific effluent volume at 7 l/kg.	12/2017	Production
CleanRun No category 3 and 4 deviations.	12/2017	Mill Management



Environmental verifier's declaration on verification and revalidation 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, Augsburg mill, in 86153 Augsburg, Georg-Haindl-Strasse 4+5, Germany, as indicated in the updated Environmental Statement 2016 of the mentioned site (registration number 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 2016 of UPM GmbH, Augsburg mill, reflect a reliable, credible and

correct image of all the activities of UPM GmbH, Augsburg mill, within the scope mentioned in the updated Environmental Statement 2016.

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.

Augsburg, 24 March 2017


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

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