

ENVIRONMENTAL performance in 2014



UPM Ettringen



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 Paper Asia, UPM Paper Europe and North America and UPM Plywood. Our products are made of renewable raw materials and are recyclable. We serve our customers worldwide. The group employs around 20,000 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 Ettringen

UPM Ettringen is sited on the small Wertach river, on the outskirts of Ettringen in the Unterallgäu region in Bavaria.

Originally founded in 1897 as a mechanical pulp mill, the site has been producing paper since 1910.

The mill in Ettringen started using recovered paper as a fibre source as far back as 1963. In the 1990s, the mill set a new quality standard in the manufacture of magazine papers by developing online-calendered rotogravure and offset papers with a high recycled content.

Today, the site produces magazine papers and newsprint on two paper machines with an annual capacity of up to 280,000 tonnes.

Recovered paper is in terms of volume the most important raw material at the site. In addition to that, the mill produces and uses groundwood pulp from forest thinnings. Other raw materials used include pigments that are added as fillers to improve the printing quality of the paper.

The steam and part of the electricity for papermaking are generated in an on-site power plant, with a small share of the fuel needs provided by light fuel oil and 99% by natural gas.

Fresh water is taken from the Wertach and from wells.

Wastewater is cleansed in the on-site effluent treatment plant.

Production capacity	Up to 280,000 tonnes/year
Personnel	About 255 (total heads as at 31 December 2014)
Products	Printing papers UPM Eco H UPM Eco G UPM Eco Prime UPM News
Certificates	EMAS – EU Eco-Management and Audit Scheme 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 <i>All certificates can be found from UPM's Certificate Finder (available at www.upm.com/responsibility)</i>
Environmental labels	EU Ecolabel (EU Flower) for all paper grades Blue Angel (RAL-UZ 14 or 72) for all paper grades



UPM Ettringen Environmental Performance in 2014 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 2014. 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 2016.



Scan code to upload video
"More with Biofore"



For FSC certified products please see www.fsc.org



For PEFC certified products please see www.pefc.org



Environmental year 2014

The papermaking processes at the UPM Ettringen site have been continuously optimised through the years in order to, among other things, minimise their impacts on the environment. Since 2004 we have been working with an environmental management system that is certified and validated annually under ISO 14001 and the EU Eco-Management and Audit Scheme (EMAS).

As one of the first paper recyclers in Germany, the UPM Ettringen mill has over 40 years of experience in the fields of sustainability and circular economy. These two concepts drive our corporate policies in a comprehensive sense. They require ecological, economic and social aspects to be given equal consideration.

We support sustainable forestry in our virgin fibre use by working according to the PEFC and FSC standards.

In 2010, our energy management system gained certification. Also last year we successfully implemented several projects to reduce energy consumption. Thus the specific energy consumption per tonne of paper was reduced by 13% in comparison with 2013.

Lower energy consumption reduces airborne emissions. At the UPM Ettringen mill, they are well below the statutory limits.

As a paper producer with a high level of water consumption, water protection is a matter of particular concern to us. The effluent treatment plant ran consistently, combining high treatment efficiency with low energy consumption.

The recycling of wastepaper is the main source of residue at the mill. Over 99% of the remaining residue is recovered.

In 2014, there was one complaint each regarding foam in the effluent, odour nuisance and noise. The subjects of odour and foam were addressed by working with the authorities; the noise nuisance had been caused by a temporarily increased level of noise caused by a

TÜV inspection of the no. 3 boiler in the power plant.

Intensive work continued in 2014 to systematically identify and eliminate workplace hazards.

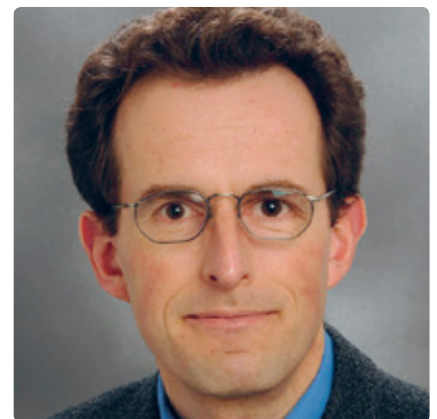
In 2014, we were able to further reduce accidents at work with the number of reported accidents down by 60% and lost time hours per one million working hours falling by 86% (each in comparison with the previous year).

We identified focus areas and objectives in terms of health protection whose implementation will start in 2015.



A blue ink signature of Caius Murtola, written in a cursive style.

Caius Murtola,
General Manager



A blue ink signature of Martin Heinrich, written in a cursive style.

Martin Heinrich, Senior Specialist
Environment & Management Systems

Air

Energy generation is the main source of airborne emissions from paper mills. Annual loads declined further thanks to

increased energy efficiency and improvements to the gas boilers.

EMISSIONS FROM THE POWER PLANT "NORD", 2014

(Mean value of boilers no. 8 and 9)

Continuous measurement

	Limit value (mg/Nm ³)	Mean value of measurements (mg/Nm ³)
Carbon monoxide, CO	50	5.4
Nitrogen oxides, NO _x	150	98

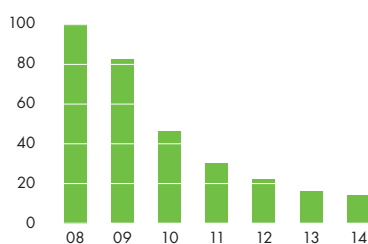
EMISSIONS FROM THE POWER PLANT "SÜD", 2014 (Boiler no. 3)

Continuous measurement

	Limit value (mg/Nm ³)	Mean value of measurements (mg/Nm ³)
Carbon monoxide, CO	50	2.6
Nitrogen oxides, NO _x	150	95

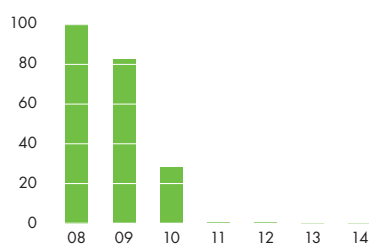
PARTICULATE MATTER

Specific particulate matter emissions per tonne of paper in % in comparison with 2008



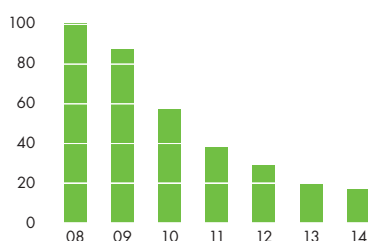
SULPHUR DIOXIDE, SO₂

Specific SO₂ emissions per tonne of paper in % in comparison with 2008



NITROGEN OXIDES, NO_x

Specific NO_x emissions per tonne of paper in % in comparison with 2008



Water

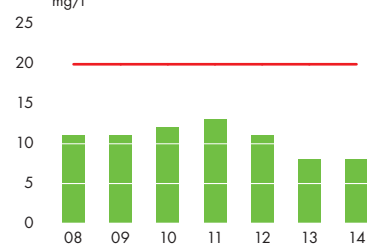
Water is indispensable for papermaking. The water we use is recycled within the process several times, before only a fraction of it is discharged from the circuit as wastewater.

In the on-site treatment plant, the effluents are first cleansed in a chemical-mechanical and then in a biological treatment stage. If necessary, they are then treated with ozone to break not readily degradable substances (such as the lignin in the wood) into simpler forms which can subsequently be removed by biofiltration.

BIOLOGICAL OXYGEN DEMAND, BOD₅

Annual mean concentration in comparison with the limit value

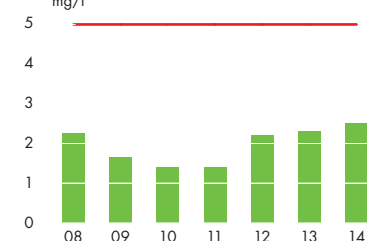
mg/l



NITROGEN (INORGANIC), N

Annual mean concentration in comparison with the limit value

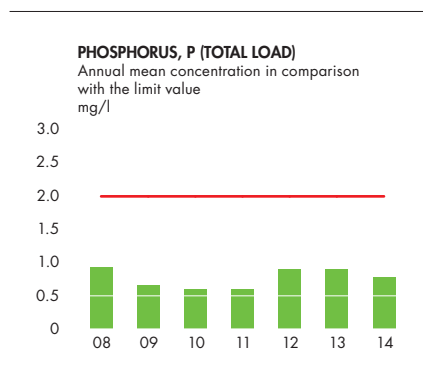
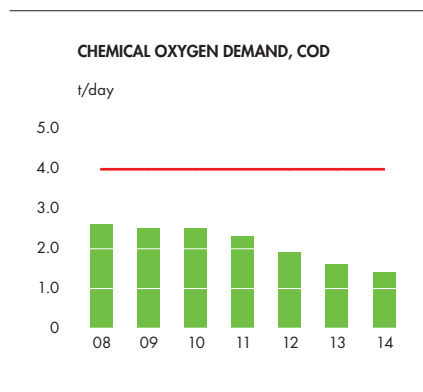
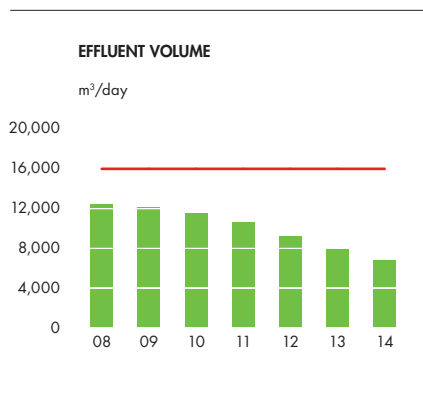
mg/l



— Limit value ■ Annual average

The effluent volume, the COD load and the mean phosphorus load decreased in comparison with the previous year.

The mean BOD and nitrogen concentrations continue to be clearly below the statutory limits.

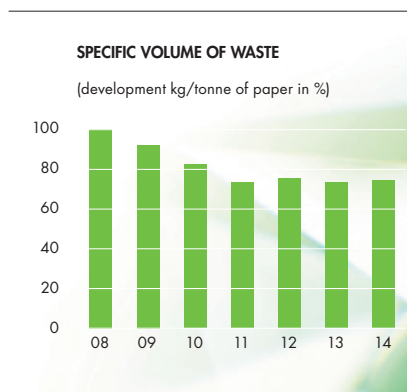


Waste

The deinking of wastepaper is the main source of residue at UPM Ettringen. The volume of specific residue (incl. moisture) from normal production operations increased slightly in comparison with the previous year.

In 2014, 99.9% of all production waste was recovered.

There is only a small amount of hazardous wastes – such as oil-containing residues – which are disposed of in accordance with legal regulations.



Landfill

The former landfill site on the mill premises was surface-sealed in 2004 and recultivated. Monitoring and evaluation during the after-closure period did not show any evidence of adverse impacts on groundwater.

Environmental parameters 2014

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 280,000 t (1 paper machine)
Raw materials and additives	Recovered paper Round wood Fillers Processing chemicals Operating supplies	See UPM Corporate Environmental Statement for more information
Energy	Fossil fuels Purchased power Hydropower	100% See UPM Corporate Environmental Statement for more information
Emissions to air	Carbon dioxide, CO ₂ (fossil) Nitrogen oxides, NO _x Sulphur dioxide, SO ₂ Particulate matter Carbon monoxide, CO	56,138 t 26.8 t 0.3 t 0.8 t 1.2 t
Water intake	Process and cooling water	2,889,702 m ³
Discharges to water	Effluent volume Chemical oxygen demand, COD Biological oxygen demand, BOD ₅ Phosphorus, P (total) Nitrogen (inorganic), N Adsorbable organic halogen compounds, AOX	2,463,703 m ³ 449 t 19 t 1.8 t 5.9 t 0.16 t
Waste*	Total volume of which – deinking, fibre and biological sludge – coarse deinking residue – bark and wood – metal waste – other – hazardous waste Recovery rate	97,381 t 87,809 t 4,217 t 4,547 t 338 t 407 t 63 t 99.9%
Size of mill area	Built on or sealed	33 ha

* incl. moisture



Internal and external laboratory analyses as well as lots of online measurements help control and minimise our environmental impacts.

Performance against targets in 2014

TARGET	TARGET ACHIEVED?
Water	
Reduce mean phosphorus concentration in effluent discharged by 5% in comparison with the previous year	Yes, reduction by 13% achieved: load reduced by 27%.
Adjust operating permit and further optimise operation of the effluent plant to match the one-paper-machine-operation	Application for adjustment of operating permit postponed in agreement with authorities owing to planned modifications to PM 4. Nutrient dosage optimised.
Energy	
Implement preparatory project to recover heat from effluents	Preparatory project carried out; heat recovery currently not economically viable.
Keep staff informed and sharpen their awareness for energy and environment by introducing an environmental calendar	Calendar distributed to all departments.
Reduce specific steam consumption by 7.5% in comparison with 2013	Yes, specific steam consumption reduced by 12% in comparison with the average value for 2013.
Reduce steam discharged to the air condenser by 15%	No, volume increased owing to steam required for power generation (full load use hours).
Airborne emissions	
Reduce NO _x emissions (concentration at boilers 8/9) by a further 5% to achieve an annual mean value of 100 mg/Nm ³	Yes, 10% reduction achieved on boilers 8/9. Annual mean NO _x concentration on boiler 9 was 88 mg/Nm ³ ; annual mean value on boiler 8 reduced from 112 to 105 mg/Nm ³ ; to be further optimised.

Current targets

TARGETS AND MEASURES	DEADLINE	DEPARTMENT RESPONSIBLE
Water		
Adjust operating permit and further optimise operation of the effluent plant to match the two-paper-machines-operation	31.12.2015	Manager Effluent Treatment Plant
Energy		
Convert boiler 10 to use biogas as an additional fuel (to save natural gas)	31.12.2015	Manager Power Plant
Reduce specific energy consumption for groundwood pulping by 10% in comparison with 2014 through optimised operation	31.12.2015	Manager Pulp Production
Airborne emissions		
Further reduce NO _x emissions (concentration at boiler 8) to achieve an annual mean value of 100 mg/Nm ³	31.12.2015	Manager Power Plant
Waste		
Reduce volume of specific deinking residues by 0.5% in comparison with 2014	31.12.2015	Manager Pulp Production

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 UPM Ettringen (the site Gebr. Lang GmbH Papierfabrik), Fabrikstrasse 4, 86833 Ettringen, Germany, as indicated in the Environmental Statement 2014 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 Environmental Statement 2014 of UPM Ettringen (the site Gebr. Lang GmbH Papierfabrik) reflect a

reliable, credible and correct image of all the activities of UPM Ettringen (the site Gebr. Lang GmbH Papierfabrik) within the scope mentioned in the Environmental Statement 2014.

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, 28.04.2015

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

MORE WITH BIOFORE



UPM leads the integration of bio and forest industries into a sustainable future characterised by innovation, responsibility and resource efficiency. www.upm.com

**Gebr. Lang GmbH Papierfabrik
(UPM Eitringen)**

Fabrikstrasse 4
86833 Eitringen
Germany
Tel. +49 8249 802-0
Fax +49 8249 802-119

**For further information,
please contact:**

Caius Murtola
General Manager
Tel. +49 8249 801-100

Martin Heinrich
Senior Specialist Environment &
Management Systems
Tel. +49 8249 802-340
E-mail: info.ettringen@upm.com



www.upm.com