

Environmental performance in 2016





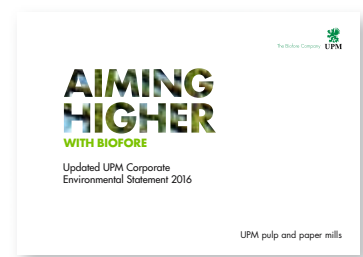
Through the renewing of the bio and forest industries, UPM is building a sustainable future across six business areas: UPM Biorefining, UPM Energy, UPM Raflatrac, UPM Specialty Papers, UPM Paper ENA and UPM Plywood. Our products are made of renewable raw materials and are recyclable. We serve our customers 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 in Hürth

UPM Hürth (Rhein Papier GmbH) is located on the outskirts of Cologne in the Hürth-Knapsack industrial zone. This central position between the conurbations of Rhine-Main and Rhein-Ruhr provides short distances for raw material supplies, customer deliveries and waste management.

The mill was founded in 2001. UPM Hürth's PM 1 paper machine is producing high-quality newsprint and printing paper for advertising supplements since the start-up in 2002. Its raw material is sorted graphic recovered paper, e.g. newspapers, magazines, advertising supplements, catalogues and office paper. The mill's deinking plant can process up to 400,000 tonnes of RCP per year. Process effluents are pre-treated prior to entering the treatment plant in the adjacent chemical industrial park. Most waste is disposed off locally and energetically recovered. The energy needed for the production process was supplied by the neighboring power plant until the end of 2015, thermal energy (steam) is still delivered by the RWE power plant. Since the beginning of 2016 electrical power is drawn from the public grid.

The UPM Hürth mill focusses on a safe working environment, high productivity and innovation for the benefit of its customers.



UPM Hürth Environmental Performance 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 Corporate Environmental Statement and also this supplement will be published in 2018.



UpCode to the "More with Biofore" video

Production capacity	Up to 335,000 to/a	
Personnel	Ca. 125	
Products	Standard newsprint: UPM News C	Heatset newsprint: UPM EcoBasic H
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	German Blue Angel for UPM News C and UPM EcoBasic H	



The mark of responsible forestry

For FSC products, visit www.fsc.org



For PEFC products, visit www.pefc.org



Environmental year 2016

Environmental concerns have always been embedded in our way of thinking. Continuously reducing energy and power consumption, steadily increasing raw material yield to minimize waste and using sustainable chemical additives for the production processes are the primary focus of continuous improvement. This process has been driven by a management system for quality, energy and occupational health and safety since the mill's certification to international standards.

As a company of the Finnish UPM Corporation we are committed to conserving the environment and operating our production facilities in such a way as to minimize the impacts on the environment and on our employees.

Heat is delivered from the adjacent power plant, electrical power from the public net since January 1st, 2016. The new supply for electrical power is visibly lower in emissions.

Due to the external supply of energy we can influence the corresponding key figures mainly by increasing energy efficiency.

Although frequent machine shuts led to energy consumption without paper production the specific demand for electrical power could be limited to the excellent level of 2015.

The need of heat energy could be reduced by another 2.5% due to optimizing actions.

Raw material yield (RCP) has not reached the target. Due to lower RCP-quality we

had to adjust the operating mode regarding flotation and disperger in order to produce DIP of sufficient quality. This resulted in material losses which contributed to the increased waste amount in addition to the increased rate of non-paper residues in the RCP.

Environmental reporting is done in a global data base. Incidents are categorized from 1 (insignificant) to 5 (serious impact on environment).

In 2016 there were no deviations cat. 3 and higher. Minor incidents were leaks (starch, peroxide), oil losses and a minor contamination of rain water with fibers. This is the result of the intensive effort to sensitize all personnel regarding environment by trainings and reporting even smaller incidents to them. Safety dele-

gate's work was enriched by the environmental theme.

The fibre fraction "White Pulp" makes up for about 10% of the sludge produced by the mill. A conveyor for separate loading and distribution for recycling in a board factory has been taken into use.

UPM Hürth has been included into the UPM Global Chemical Database. This ensures – as our old procedures did – the control of new chemicals regarding compliance with UPM Standards. Additionally it eases new registration if the product has already been in use at an UPM site and facilitates the overview of all chemicals in use all over UPM.

As in the past there were no inquiries or complaints from the neighborhood.



Armin Schmidt

Armin Schmidt, General Manager

Guido H. Clemens

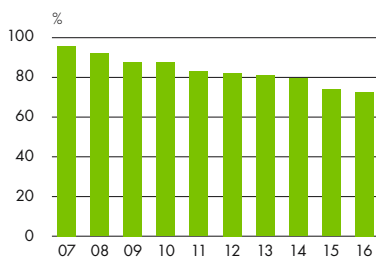
Guido H. Clemens, Manager Technology & Environment

Air

Fossil CO₂ emissions for steam are reported by our energy supplier RWE/Kraftwerk Goldenberg.

UPM Hürth can only indirectly influence energy related emissions by increasing the energy efficiency of its production facilities. These targets are followed up consistently, the most important tools being optimization of heat recovery and the paper machine's operation mode.

Spec. Energy consumption per tonne of paper produced



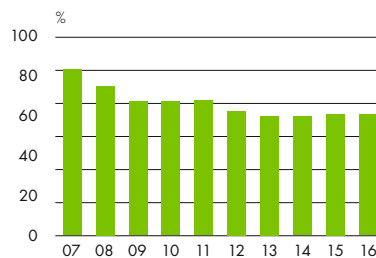
Water

The water for the production process comes from a deep well and is recirculated to reduce consumption. The well water has a low temperature and is first used for cooling, and then for the production process.

Here it runs several cycles of usage in the different water cycles of paper machine and de-inking plant. After pre-treatment in the mill it is directed to the water treatment plant in the adjacent chemical industrial park.

The consistent usage of the water from the PM cycle in the DIP cycles and for dilution of additives has led to a continuous reduction of the fresh water need for the paper production over the years.

Spec. waste water consumption per tonne of paper produced

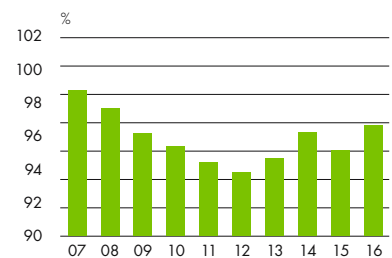


Waste

UPM Hürth uses 100% recovered paper as raw material. So most of the waste generated in the process consists of fibres too short for recycling, together with printing ink and mineral residues (sludge). The next important waste type is all the material the recovered paper contains when collected, as plastic foil, staples, inlays and CDs (rejects). These two kinds of waste make almost 99% of the waste generated. Due to a change in RCP composition in comparison to 2012 the waste amount per tonne of paper produced increased remarkably.

Since the end of 2012 we have started to recycle sludge not only for heat exploitation in power plants but to give it to a specialized facility that combines thermal and material recycling producing a substitute for Portland cement.

Spec. recovered paper consumption per tonne of paper produced



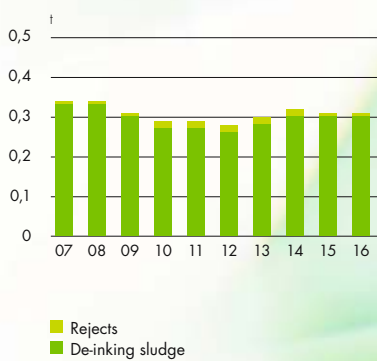
10% of the sludge fraction is recycled materially as a porosity additive in brick manufacturing: During stoving of bricks the fibre fraction is burned and leaves small holes in the brick which makes a better isolation of the walls built from it. The ashes remain as high quality filler.

The fibre fraction "white pulp" is recycled as a raw material for board production. The conveyor system necessary for separate loading has been installed in the beginning of 2016. In future up to 7,500 tonnes per year can be separated and shipped.

All in all our waste recovery rate is nearly 100%. No waste is brought to a landfill.

Hazardous waste is handled by a licensed contractor for disposal and is disposed off according to governmental regulations.

Total amount of waste per tonne of paper produced, divided into sludge and rejects



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 335,000 to
Raw materials and additives	Recovered paper Additives	See UPM Corporate Environmental Statement for more information
Energy	Fossil fuels Purchased power	See UPM Corporate Environmental Statement for more information
Emissions to air	Carbon dioxide, CO ₂ (fossil)** Nitrogen oxide, NO _x Sulphur dioxide, SO ₂ Particulate Carbon monoxide, CO	62,030 to 29.03 to 15.15 to 2.0 to 2.33 to
Water intake	Process water	2,183,762 m ³
Discharges to water	Effluent volume COD Phosphorus AOX	1,752,823 m ³ 1,863 to 1.042 to 0.551 to
Waste*	Total volume (without hazardous waste) of which: – de-inking sludge – fiber rejects – screening rejects – others Recovery rate Hazardous Waste	102,192 to 90,244 to 4,893 to 6,487 to 570 to 100% 40 to
Size of mill area		12.75 ha

* Including moisture

** Values for Carbon Dioxide resulting from heat consumption. For information about electrical power see UPM Corporate Environmental Statement.

COD: chemical oxygen demand

AOX: adsorbable organic halogen compounds



Performance against targets in 2016

Targets	Target achieved?
Power consumption ≤ 0.826 MWh/to	no
Steam consumption ≤ 0.781 MWh/to	yes
No wrong entries to waste containers	no
Clean Run Cat. $\geq 3 = 0$	yes

Current targets 2017

Targets and measures	Deadline	Department
Power consumption ≤ 0.822 MWh/to	2017-12-31	Manager Energy
Steam consumption ≤ 0.779 MWh/to	2017-12-31	Manager Energy
No wrong entries to waste containers	2017-12-31	Manager Logistics
Clean Run Cat. $\geq 3 = 0$	2017-12-31	Manager Technology & Environment
Organize an Environmental Day	2017-12-31	Manager Technology, Environment & Quality



Environmental verifier's declaration on verification and re-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 Hürth/Rhein Papier GmbH, Bertramsjagdweg 12, 50354 Hürth, Germany, as indicated in the updated Environmental Statement 2016 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 2016 of UPM Hürth/Rhein Papier GmbH reflect a reliable, credible

and correct image of all the activities of UPM Hürth/Rhein Papier GmbH, 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.

Essen, March 24, 2017

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. Biofore stands for innovation, responsibility and efficiency.
www.upm.com



www.upm.com

UPM Hürth

Rhein Papier GmbH
Bertramsjagdweg 12
50354 Hürth
Germany
Tel: +49 (0)2233 2006100
Fax: +49 (0)2233 2007960

For further information, please contact:

Armin Schmidt
General Manager
armin.schmidt@upm.com

Guido H. Clemens
Manager Technology & Environment
guido.clemens@upm.com