

UPM Hürth

ENVIRONMENTAL AND SOCIETAL RESPONSIBILITY 2018



UPM Hürth

UPM Hürth (Rhein Papier GmbH) is located in the west of Cologne in the Hürth-Knapsack industrial zone. This central position between the agglomerations 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 de-inking plant can process up to 400,000 tons of RCP per year.

Process effluents are pre-treated prior to entering the treatment plant in the neighbouring chemical industrial park. Waste is either energetically recovered or recycled. Thermal energy (steam) is delivered by the adjacent RWE power plant. Since the beginning of 2016 electrical power is drawn from the public grid.

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



UPM Hürth Environmental and Societal Responsibility 2018 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 2018. 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 UPM Corporate Environmental and Societal Responsibility Statement and also this supplement will be published in 2020.

We deliver 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. We employ around 19,000 people worldwide and our annual sales are approximately EUR 10.5 billion. Our shares are listed on Nasdaq Helsinki Ltd. UPM Biofore – Beyond fossils. www.upm.com

Production capacity	Up to 330,000 to/a
Personnel	126 (total number on Dec 31, 2018)
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® All certificates can be found from UPM's Certificate Finder (available at www.upm.com/responsibility).
Environmental labels	Blue Angel according to RAL UZ14 and UZ72 EU Ecolabel



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



For more information about PEFC certification visit www.pefc.org



www.blauer-engel.de/uz14



EU Ecolabel : FI/011/001

Review of year 2017

Environmental concerns have always been embedded in our way of thinking. Continuously reducing energy and power consumption, high 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 management systems 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.

Audits and administrative decisions

During the reporting year several audits regarding environmental topics have taken place: Recertification audit according to EMAS, recertification according to WHG (Federal Water Act), internal checks of FSC and PEFC standards as well as the UPM Clean Run audit according to the UPM Environmental Standards which partly exceed standards set by the law. No deviations were found in the audits. During the Clean Run audit some points for improvement were identified which have partly been worked off, others are still in implementation. Some best practices as a take-away for other mills were found as well.

A hygiene audit was passed, too. The actions derived from it constitute conformity with the standards according to §42 BImSchV (Federal Immission Rule). A continuous measurement control was established. All data and incidents regarding the recooling plant are documented in an operation log.

White Pulp, a residue fraction that is separated from DIP sludge for recycling in the board industry, has been produced and delivered steadily during the year. The effort to fulfill the requirements of the authorities for a product status has been judged too high for the time being. So it remains "waste for recycling"; development of new ways to use the material had to be postponed.

The participation in VDP committee Environment & Technics and in the exchange platform Environment & Energy of the North-Rhine-Westphalian Employers Association give us the opportunity to comment on new political plans and guidelines and to plan early to avoid deviations from new rules.

Resources

Due to the external supply of energy we can influence the corresponding key figures mainly by increasing energy efficiency. After identifying the big potentials for saving over the years and implementing the biggest part of them we have now focussed on optimization of the operating modus of the paper machine. In this respect it is crucial to ensure a smooth machine run with a minimum of web breaks. Time loss by web breaks means energy use without paper production. This is one of the main development targets of the production department.

Energy targets have been newly shaped and operative measures for all departments have been framed accordingly. The implementation will contribute to reaching the ambitious targets. An example is reducing steam consumption by serving all minor points of usage by waste heat from the drying section.

Though availability of RCP was not a problem in 2018, RCP quality remained an important issue, especially during the summer months, when high-quality grades were hardly available. There is a direct relation between RCP quality, efficiency in energy, waste and yield as well as chemistry usage.

Due to a higher operation rate and the production record in 2018 all absolute usage numbers – energy, water, waste water and waste – have increased. Therefore we will consider specific values – per ton of paper produced – in the following pages.

To ensure a stable RCP quality, PLI personnel was trained more in detail in INGEDE standards and control methods. The results are now recorded in the new "Quality App", which interacts with SAP and can be used in argumentation with suppliers.



Armin Schmidt,
General Manager

Guido H. Clemens,
Manager Technology & Environment

- Usage of a whiter filler during the summer months also contributed to stabilizing paper whiteness. A project for a bleaching facility at the paper machine shall enable to counteract whiteness deviations in the DIP pulp if needed.

Environmental performance

Environmental reporting is done in a global data base. Incidents are categorized from 1 (insignificant) to 5 (serious impact on environment). As in the last years we did not have any incident with impacts outside the mill's premises (cat. 3 or higher).

Due to the new software tool "One Safety" for reporting incidents from the categories OHS, environment, security and process/product safety the amount of observations regarding environmental issues could be remarkably increased. From these observations we derived preventive actions, e.g. the installation of an emergency box in the lab for secure removal of spilled chemicals. Regular documented inspection rounds on environmental topics result in minor operative measures that contribute in minimizing the danger of spilling.

Environmental projects and cooperative research

Several projects from the employee suggestion system, for example a modified operating mode of the sizing drum that keeps water inside the water circle which was formerly disposed with the reject waste.

Since April 2018 windows are cleaned with osmosis-cleaned water without any chemical additives.

The trial to replace biocide by bacteria which do not generate mucus for cleaning purposes was very promising in the DIP. At the retention plant belonging to the PM approach flow system punctual fungal growth was detected. Further tests were postponed until the supplier can help with this problem.

Planning for an own waste water plant with anaerobic stage was done, the decision about the project is still open. An anaerobic stage would be another step in direction sustainability due to biogas generation from waste water.

Several bachelor and master theses resulted from cooperation with universities and universities of applied sciences.

Responsibility figures 2018

Waste



All production waste from Hürth paper mill is

100%

thermally exploited or recycled.

Air



Carbon dioxide emission has been reduced by

52%

since 2009 due to changes in energy mix.



Total energy

Specific energy consumption has been decreased by

18%

during the past 10 years.



Water

Specific water usage has been decreased by

13%

during the past 10 years.

Noise and Odour

Since 2002 there were

0

complaints from the neighbourhood.

Safety



always has 1st priority. We had

0 accidents

for two years in a row.

Community



We have organised

5 events

supporting the interest of young people for the paper industry.

Health



In 2018 we spent

51,381 €

for the health of our employees.

Certified Fibre



Hürth raw material is

100%

recovered paper and certified according PEFC™ and FSC® Chain of Custody.

Employment



At UPM Hürth

126

people work with the company and

31

more with our partners for logistics and security.

Air

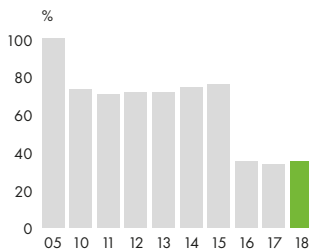


Fossil CO₂ emissions for steam are reported by our energy supplier RWE/ Kraftwerk Goldenberg, for electrical power by supplier Lechwerke in the UPM global environmental report.

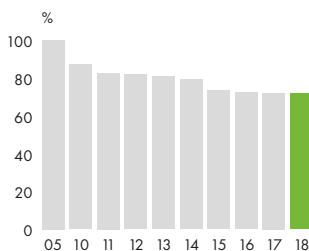
The change of sourcing electrical power has resulted in a remarkable decrease in CO₂ emissions related with paper production at Hürth. Besides sourcing UPM Hürth can only indirectly influence energy related emissions by increasing the energy efficiency of its production. The related targets are followed up constantly, the most important tools being optimisation of heat recovery and the paper machine's operation mode.

In September 2017 the project for a new power plant on UPM Hürth mill's premises was presented to the public. Approval procedure with the authorities has been completed. The start of construction has been postponed due to the new situation regarding energy politics which enables new options.

Specific CO₂ emission
(t CO₂/t Paper) in % compared to 2005



Specific Energy Consumption
(MWh/t) in % compared to 2005



Waste



UPM Hürth uses 100% recovered paper as raw material. So most of the waste generated in the process consists of fibres not suitable for recycling, printing ink and mineral residues (sludge). The second important waste type is material like plastic foil, staples, inlays and CDs (rejects). These two kinds of waste account for almost 99% of the waste generated. Due the shortage of recovered paper grades of high quality it has been necessary to accept lower paper qualities for the process which had a negative impact on specific usage values and the yield.

Since some years sludge has not only been used for heat exploitation in power plants but is recycled in three different ways:

"White Pulp" is separated from the sludge during the de-inking process. This material contains fibres which are not suitable for Hürth's paper machine and small plastic particles. It is a perfect

raw material for board production and delivered to a board factory nearby.

Some sludge is used by brick manufactures as a porosity additive: During stoving of bricks the fibre fraction is burned and leads to small holes in the brick which improves isolation of the walls built from it. The ashes remain as high quality filler in the brick.

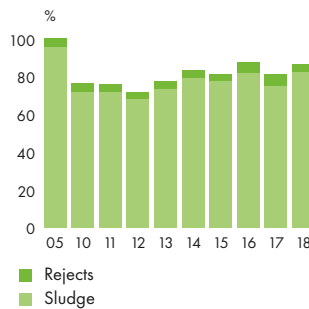
A specialized facility that combines thermal and material recycling produces a special cement by sludge burning.

Only screening rejects are exploited for traditional thermal recycling.

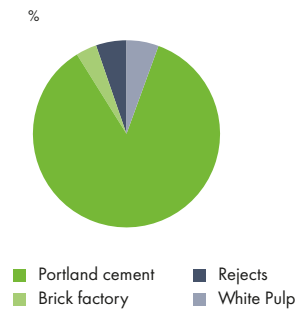
All in all our waste recovery rate is nearly 100%. No waste is brought to a landfill.

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

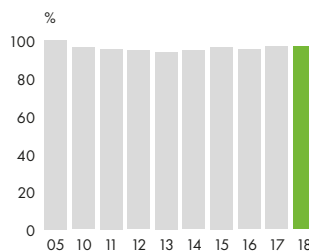
De-inking waste,
specific data, against 2005:
sludge and rejects in %



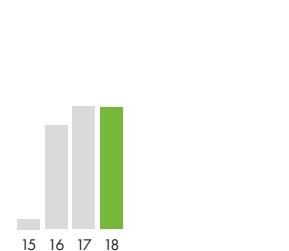
Waste recycling 2018



Spec. RCP usage
per tonne in % against 2005



Amount of white pulp delivered to board industry,
against start-up in 2015



Water



The water for the production process comes from a deep well and is recirculated to keep consumption on a low level. 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.

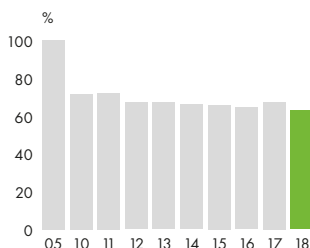
The limits set by the authorities (450 m³/h and max. 30°C) were not exceeded. The decrease of temperature in PM water cycle since 2015 has effectively prevented passing the temperature limit. There also were no violations of limits by the chemistry park's waste water plant.

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.

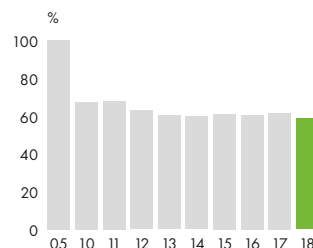
The project "Refeeding of desalted Water from Web Moistening" has resulted

from the employee suggestion scheme. The water used for humidification is only partly absorbed by the paper web, a remarkable part of it was drained into the waste water system. This is now reverted, resulting in an annual saving of 30,000 liters of deionized water.

Specific Water usage
(m³/t) in % compared to 2005



Specific Waste Water
(m³/t) in % compared to 2005



Line and Emergency Organisation

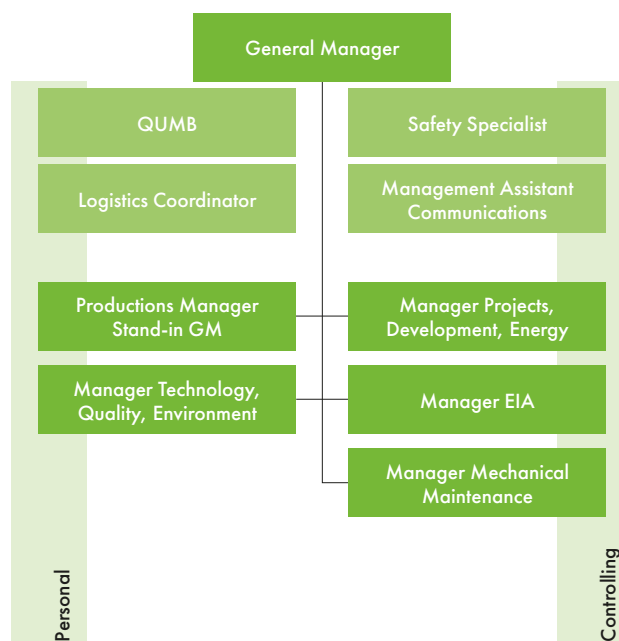
Authorized representatives have been appointed for production facilities and minor facilities relevant for environment.

Statutory representatives advise the General Manager and the departments about fire protection, waste, dangerous goods, radiation and rail traffic on mill grounds.

There also are representatives for the management systems quality and environment ("QUMB") and for energy, OHS and data security.

For emergencies of all kind – e.g. fire, accidents or environmental incidents – detailed emergency plans are defined. Specifications for the whole process from the alarm system and immediate actions until the wrap-up help to minimize the possible outcomes of the emergency case. At the shift coordinator's office there are checklists and detailed flow charts for different cases. For major incidents a crisis team is defined that decides about the necessary actions and cares for implementation.

In 2018 the whole staff was trained in fire protection, not only theoretically but also in practice with the fire fighting equipment in order to be able to prevent further damage to people or environment when coping with small incipient fires.



Societal responsibility

Safety First!

2018 is the second year in a row without any recordable accident of UPM personnel at the mill.

Regarding high risk work we have pushed on the implementation of the six "UPM Life Saving Standards". These set high targets for the safety organization and the attention of every single employee. The outcome of our efforts was checked by external UPM auditors, who confirmed the good result. We are proud of this, as we are proud of the long time without accidents at work.

We unfortunately had to record a contractor accident in October 2018. He bilked his knee during a shutdown. To ensure attention to our values and rules in safety also for personnel of other companies working at the mill is a focus for the coming year.

OHS Management at UPM Hürth is built on the UPM safety principles and standards. The most important tools are superior's safety walks and the safety observations of the personnel. On this basis rules and facilities can be checked and improved. In 2018 there were 846 safety observations.

We think it is important to support our employees in a healthy way of life. We do this in several ways ranging from fruit and water free of charge over vaccination to health events promoting disease prevention. This year's themes were

"Early Detection of Cancer" and "Fit into Retirement".

Biofore Share and Care Programm

Building and maintaining good relations with local communities close to our operations and supporting the vitality of these communities are essential for us and for our business success. One way of engaging with society is through sponsorships and donations.

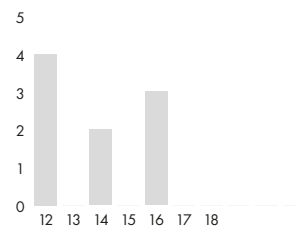
UPM's Biofore Share and Care programme reflects our commitment to building a sustainable, innovation-driven future by sharing our expertise and assets for causes we care about. The focus areas are: Reading & learning, engaging with communities, responsible water use and boosting bioinnovations.

UPM's support can take different forms in different projects. It can be a cash contribution to support community projects, membership of community-related organisation or it can be donations of products or materials or employee volunteering or fundraising. Local sponsorship is target-oriented and longterm involvement in the community where UPM operates.

The Hürth mill sponsors daily regional newspapers to three schools at Hürth with the intention to give young people the opportunity to get a deeper insight to the facts instead of just believing



Accidents at work with 24 hours or more lost working time



EVENTS FOR YOUNG PROFESSIONALS 2018	DATE
Visit by RWTH Aachen, branch recycling	January 22
Visit by University of Applied Sciences, Cologne, branch construction	May 16
Night of Technics	June 8
Paper Professions Information Day, VDP	November 14
Visit by Commercial College Cologne (Print & Paper)	November 29



Visitors watch the mother roll change during the „Night of Technics“.



Pupils at Gesamtschule Hürth read the daily newspaper. Photo: Gesamtschule Hürth

“fake news”. We also support nearby nurseries and elementary schools with paper donations for drawing.

Possibilities for young professionals

Since Hürth is a smaller entity in the UPM world we haven’t educated apprentices at the mill up to now. Nevertheless we are active in interesting young professionals for working in the paper industry. Several universities had the opportunity to visit the mill with student groups interested in papermaking, recycling or automation.

Once a year we host the VDP (Association of the German Paper Industry) Education Day. Young students to be are told about jobs offered in the paper industry, a professor introduces the course of studies and after a mill tour they have the opportunity to discuss all their questions with young engineers working at the mill.

From 2019 an electro-mechanical engineer will be qualified in the mill, in cooperation with an educational service provider.

The “Night of Technics” was an opportunity for our neighbors and for young people interested in technical matters to gain a new sight upon paper – its history, the necessity in every day life, the global economic perspective of RCP trade and the high-tec working environment of paper specialists, from operator to engineer.

A bachelor thesis was completed in cooperation with the University of Applied Sciences for Economic Engineering at Cologne, dealing with “Analysis and Evaluation of Reject Handling in case of the Reject Compactors at UPM Hürth”. The work is the basis of an invest application for better dewatering of waste resulting in waste reduction in the DIP.

UPM Hürth has supported a research project in bio-economy. The project “TexKoMBZ” developing textile electrodes has been completed in 2018.



During the health day „Fit into retired life” mill employees could try out a suit for age simulation and get out how it feels when power and mobility decrease. A prevention offer completed the campaign.

Environmental parameters 2018

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.

Production capacity		330,000 t
Raw materials (and additives)	Recovered paper Additives	See UPM Corporate Environmental and Societal Responsibility Statement for more information
Energy	Fossil fuel Purchased power	
Emission to air	Carbon dioxide, CO ₂ (fossil) ** Nitrogen oxide, NO _x Sulphur dioxide, SO ₂ Particulate Carbon monoxide, CO	64,076 t 39.5 t 15.7 t 1.5 t 2.4 t
Water intake	Process water	2,212,554 m ³
Discharges to water	Effluent volume COD Phosphorus AOX	1,771,730 m ³ 1,953 t 1,173 t 0.417 t
Non-hazardous waste	Waste to recycling, energy recovery and/or composting – White Pulp – Sludges – De-inking residues, not fibrous – Bark and wood waste – Metals Waste to incineration without energy recovery – Domestic waste – Others	6,429 t 99,982 t 6,092 t 36 t 347 t 36 t 167 t
Hazardous waste		31 t***
Size of mill area		12.75 ha

* incl. moisture

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

*** Bone dry tons



Performance against targets in 2018

TARGET	ACHIEVEMENT	COMMENTS
Power Consumption ≤ 0.8325 MWh/to* DIP: -0.1102%, PM: -0.1898%	Yes	The target was overmatched. Reasons are the high operating rate, a good machine run in the first half of the year and the low time for technical losses. Consumption 2018: 0.824 MWh/to
Steam consumption ≤ 0.7604 MWh/to* DIP: -0.2205%, PM: -0.3795%	No	Target wasn't met because of the high ratio of heat set paper and a higher basis weight. Total energy need is on target.
Energy Action Day	No	Postponed to 2019
Water usage: ≤ 7.3 m ³ /to	Yes	Consumption 2018: 7,0 m ³ /to
Clean Run Cat. $\geq 3 = 0$	Yes	
CO ₂ reduction / support for the project CO ₂ -free energy power plant for Hürth	No	Construction start has been postponed due to the changed political climate which offers new possibilities for the investor.

* The strategical targets for 2020 were already more than fulfilled in 2017, targets until 2030 were set and the 2018 targets were adapted.

Targets for 2019

TARGET	DEADLINE	RESPONSIBLE
Electrical power consumption: ≤ 0.830 MWh/to Steam consumption ≤ 0.7558 MWh/to	31.12.2019	Energy Manager
Water consumption ≤ 7.2 m ³ /a	31.12.2019	Manager Technology, Quality & Environment
Clean Run Cat. $\geq 3 = 0$	31.12.2019	Manager Technology, Quality & Environment
Optimization of web moisturing	31.12.2019	Manager Production
Rebuilding final stage pre-screening	31.12.2019	Manager Production



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 Environmental Statement 2018 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 2018 of UPM Hürth/Rhein Papier GmbH reflect a reliable, credible

Environmental verifier's declaration on verification and re-validation activities and correct image of all the activities of UPM Hürth/Rhein Papier GmbH, within the scope mentioned in the Environmental Statement 2018.

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, April 29, 2019

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.**



www.upm.com

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