

UPM Hürth

# ENVIRONMENTAL AND SOCIETAL RESPONSIBILITY 2019



# 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 2019 is a supplement to the Corporate Environmental and Societal Responsibility Statement of UPM's pulp and paper mills (available at [www.upm.com](http://www.upm.com)) and provides mill-specific environmental and societal performance data and trends for the year 2019. 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 Updated UPM Corporate Environmental Statement and also this supplement will be published in 2021.



UPM delivers renewable and responsible solutions and innovates for a future beyond fossils across six business areas: UPM Biorefining, UPM Energy, UPM Raflatac, UPM Specialty Papers, UPM Communication Papers and UPM Plywood. As the industry leader in responsibility we are committed to the UN Business Ambition for 1.5°C and the science-based targets to mitigate climate change. We employ 18,700 people worldwide and our annual sales are approximately EUR 10.2 billion. Our shares are listed on Nasdaq Helsinki Ltd. UPM Biofore – Beyond fossils. [www.upm.com](http://www.upm.com)

<b>Production capacity</b>	Up to 330,000 to/a
<b>Personnel</b>	130 (total number on Dec 31, 2019)
<b>Products</b>	Standard Newsprint UPM News C Heatset Newsprint UPM EcoBasic H
<b>Certificates</b>	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 <a href="http://www.upm.com/responsibility">www.upm.com/responsibility</a> ).
<b>Environmental labels</b>	Blue Angel according to RAL UZ14 and UZ72 EU Ecolabel



For more information about FSC certification visit [www.fsc.org](http://www.fsc.org)



For more information about PEFC certification visit [www.pefc.org](http://www.pefc.org)



[www.blauer-engel.de/uz14](http://www.blauer-engel.de/uz14)



EU Ecolabel : FI/011/001



# Review of the year 2019

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.

## Environmental Audits

During the reporting year several audits regarding environmental topics have taken place: recertification audit according to EMAS, two audits regarding dangerous goods by the authorized representative and the recertification according to FSC® und PEFC™ standards. The tasks derived from the audits are a key for the continuous improvement process at UPM Hürth.

## Modified PM operation mode

After 2018 was closed with a production record due to high demand for newsprint, demand decreased faster than expected in 2019. For this case an alternative operation mode at low speed had proactively been defined, in order to avoid stopping the machine to often for market-related reasons. Such longer shutdowns do not only impact economical, but also environmental performance. During the standstills energy is used without paper being produced, resulting in negative impacts on specific usage. The same is true for water usage: During longer shutdowns there is a lot of cleaning work. Tanks are emptied, water is used for rinsing. Despite the reduced machine speed market-related stops could not be prevented in the second half of the year.

Nonetheless operating at a lower speed level, which must probably be maintained in 2020, offers opportunities, too: We will have to define the operation parameters optimizing the relation between energy usage, web break count and the requirements of AbLaV (enactment about deferrable loads). During the first half of the year we saw that a stable operating mode at reduced speed can have positive effects on usage figures.

## Resources

Due to the external supply of energy we can influence the corresponding key

figures mainly by increasing energy efficiency. Optimizing steam usage obtains highest priority: Steam is still delivered from the neighboring power plant. Here the CO<sub>2</sub> footprint is higher than for electrical energy with a higher share of renewable sources.

After identifying the big potentials for saving over the years and implementing the biggest part of them we have now focused 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.

In the end of 2019 new project partner E.ON announced the construction of a biomass power plant on UPM Hürth's ground. The power plant will deliver steam to the mill from 2022 onwards. This zero carbon heat supply will decrease the CO<sub>2</sub> footprint of Hürth's paper remarkably.

Planning of the power plant interfaces (e.g. supply of desalted water or redundancy during power plant shutdowns) tie up a considerable share of resources in the mill. Therefore planning for an own waste water treatment has been postponed. Waste water treatment will be handled by the neighboring Abwasser-Gesellschaft Knapsack as before.

Availability of high-quality RCP grades was severely restricted during the summer months. To meet this we had taken RCP bales into stock during the first half of the year, which have a higher share of TMP and can be mixed with loose paper. This action alone was not strong enough to counteract the arising issues with whiteness.

The construction of a dithionite bleaching station was applied for and approved

by an advice of amendment. To ensure that the new additive (water hazard class 1) doesn't cause hazards for the environment, the new unit is secured by double-walled tanks and a doubled overfill safety. The additive is delivered as a solution for safe handling without fire danger. Personnel will be trained in handling dithionite as soon as the facility is in use for the first time.

Linking RCP quality control to SAP has proved on value and facilitates precise feedback to supplier. Nonetheless we face an overall decrease of RCP quality which influences machine efficiency, energy and water usage as well as waste water and waste amounts.

Tests with French RCP suppliers have been done. Some loading sites could be qualified for future cooperation.

The strong sticky contamination in RCP deliveries enforces the mill to an operating mode (increased overflow in flotation, increased disperger load) that makes the results of projects increasing energy efficiency and yield or decreasing water usage at least partly invisible.

In 2020 we will convert the PM's biocide system to a follow-up product of the existing one. This new biocide has a prolonged effectiveness in the PM's water cycle and is more environment-friendly regarding degradation. We expect a decreased biocide usage.

## 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).



- ▶ Two employees have been schooled according to German water law. The Manager Environment was qualified and appointed as a waste inspector. All personnel were trained in an environmental training regarding waste grades, disposal and handling.

In the course of the regular control circle of the primary clarifier regarding hazardous bacteria the limit for legionella was exceeded twice. Authorities were informed, action plans were prepared and implemented. The offices for emission control (environmental inspection) and for work safety at the Bezirksregierung Köln have both visited the mill for first hand information and discussion about the issue. The actions taken and the integration of anti-legionella measures into the OHS concept was consistent with all their requirements.

In the drinking water of the office building *Pseudomonas* bacteria were detected. Tubes were rinsed, taps changed etc. The rinsing resulted in high usage of drinking water. During the second half of the year drinking water usage increased. The reason for this could not be determined despite cooperation with specialists.

### Environmental projects

In 2019 five environmentally relevant projects were worked on:

- The repositioning of a shower pipe including the necessary subsequent measures was completed. The project is meant to save about 45,000 m<sup>3</sup> water and 720 MWh electricity per anno.
- For the reuse of deionized water from the remoistering unit an invest for a filter system was necessary. The saving of 3,000 m<sup>3</sup> water and 100 MWh steam could already be verified with the testing facility.
- The recirculation of water used for sealing of spinning plant parts (sealing water) shall save up to 100,000 m<sup>3</sup> water per anno. Completion is planned for mid-2020.

- Increasing yield by refeeding sorter streams was implemented in a first step. The second step had to be postponed due to resulting problems with sludge thickening. We are working on a solution.
- To improve water exchange between paper machine circle (loop 1) and the water circles in the DIP plant (loop 2 and 3), the adjustments were automated. An automated handling prevents losses due to operating errors.
- In 2020 we take part in a study by Aachen University for applied sciences ("Biogas extraction from paper industry waste"), together with other paper mills in the region. A kick-off meeting has already taken place.

### Amendments of law and compliance

All amendments of law and changes in jurisdiction are taken into consideration. This is done via the index of legal provisions delivered by Uniconsult, information letters from the German

Paper Association (Verband der Deutschen Papierindustrie VDP) and from the Employer's Liability Insurance Association (BGRCl), as well as from UPM networking and the participation in VDP professional bodies.

The only environmentally relevant amendment of law für UPM Hürth was related to the regulation of industrial waste (Gewerbeabfallverordnung). The changes for the mill and for the on-site logistic company were implemented by our partner for waste disposal and documented to Hürth township.

Contacts to the authorities were necessary due to the legionella issue and for the advice of amendment for the dithionite bleaching. These were performed according to legal necessities.

General regulations regarding compliance are framed by UPM group. All employees were trained according to their decision making power.



*Armin Schmidt*

Armin Schmidt,  
General Manager

*Guido H. Clemens*

Guido H. Clemens,  
Manager Technology & Environment

# Responsibility figures 2019\*

## Waste



All production waste from Hürth paper mill is

# 100%

thermally exploited or recycled.

## Air



Carbon dioxide emission has been reduced by

# 64%

since 2005.



## Water

Specific water usage has been decreased by

# 36%

since 2005.

## Total energy

Energy consumption has been decreased by

# 28%

since 2005.

## Safety



always has 1st priority. We had

# 0 accidents

for three years in a row.

## Certified Fibre



Hürth raw material is

# 100%

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

\* Reference year for all usage data is 2005

# Air

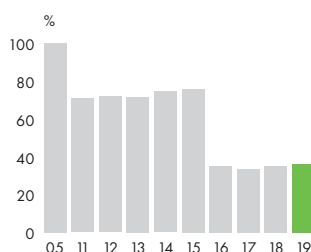


Fossil CO<sub>2</sub> emissions for steam are reported by our energy supplier RWE/Kraftwerk Goldenberg, for electrical power in the UPM global environmental report by supplier Lechwerke.

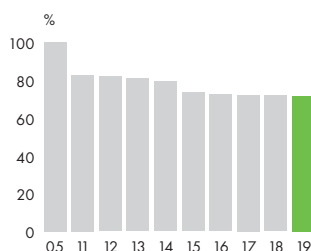
The change of sourcing electrical power has resulted in a remarkable decrease in CO<sub>2</sub> emissions related to paper production at Hürth. Besides sourcing actions UPM Hürth can only indirectly influence energy related emissions by increasing the energy efficiency of its production. The related targets are followed up constantly, the most important tools being optimisation of heat recovery and the paper machine's operation mode.

Energy company E.ON will build a new biomass power plant on UPM Hürth mill ground. The new power plant will deliver steam to the mill. This will significantly decrease the CO<sub>2</sub> footprint of paper production at Hürth and make production at Hürth almost climate-neutral.

**Specific CO<sub>2</sub> emission**  
(t CO<sub>2</sub>/t Paper) in %  
compared to 2005



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



# Waste



UPM Hürth uses 100% recovered paper as a 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 the isolation capacity of the walls built from it. The ashes remain as high quality filler in the brick.

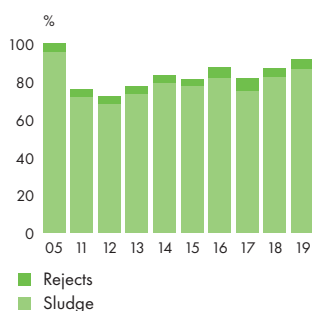
A specialized facility that combines thermal and material recycling produces a special cement by sludge burning.

Screening rejects are thermally exploited in power plants. The specific amount of this waste fraction increased slightly due to the decreasing RCP quality.

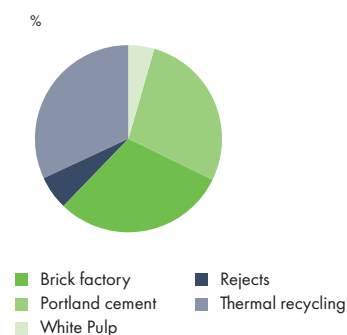
No waste is brought to a landfill.

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

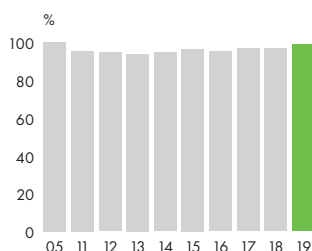
**De-inking waste,**  
specific data, against 2005:  
sludge and rejects in %



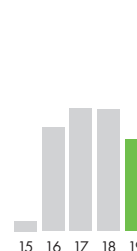
**Waste recycling 2019**



**Spec. RCP usage**  
per tonne in % against 2005



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





# Water



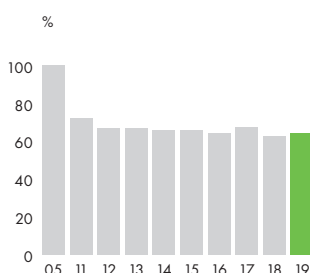
The water for the production process comes from a deep well and is circulated to keep consumption on a low level. The well water has a low temperature and is first used for cooling, and then for the production process. Here it runs several cycles of usage in the different water cycles of paper machine 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 m<sup>3</sup>/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.

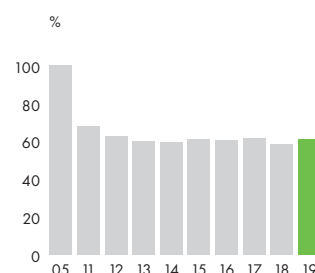
The consistent usage of the water from the PM cycle in the DIP cycles and for dilution of additives has led to a continuous reduction of the fresh water need for the paper production over the years.

In summer we remarked increased process water usage. The problem was solved by a corresponding action plan, but in the year's average the increase is still visible.

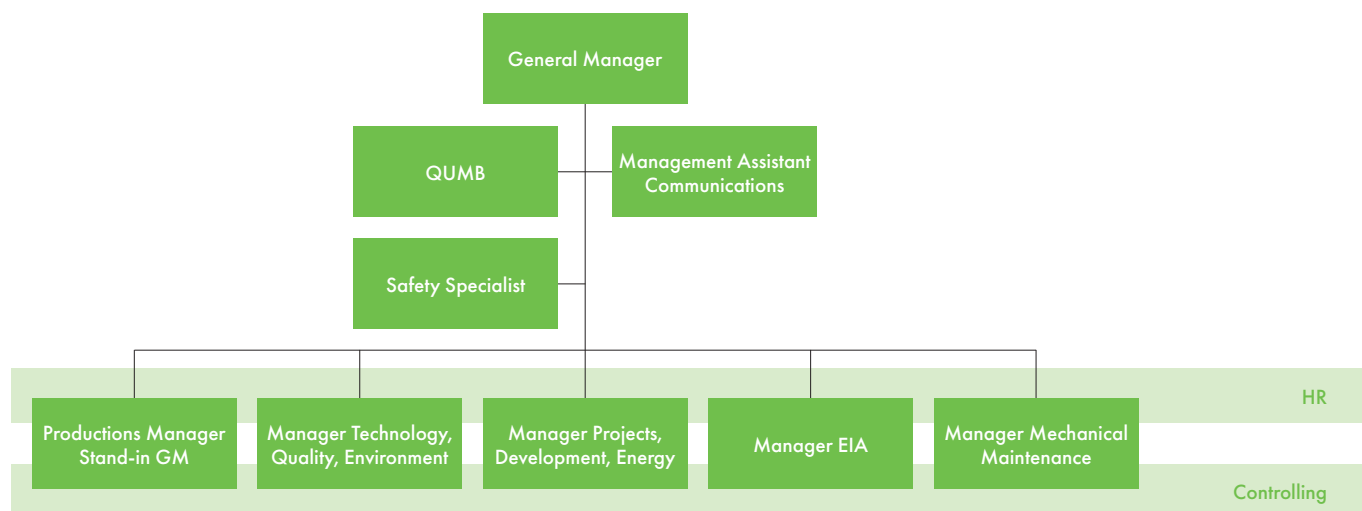
**Specific Water usage**  
(m<sup>3</sup>/t) in % compared to 2005



**Specific Waste Water**  
(m<sup>3</sup>/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 protection 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 mini-

mize 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 2019 all employees were trained regarding fire protection and emergency management, using a case example.

# Societal responsibility

Sustainable business management today is not restricted to environment friendly ways of production but is extended to many other business areas as compliance, human resources management, OHS or the contributions to societal life outside of the company itself.

The bigger part of this responsibility is managed by the UPM Group for its companies, but the individual business units have their own share in it, too.

**Occupational Health and Safety**  
Safety first. This imperative is valid for every work in the mill and under all circumstances. A management system for OHS is the basis of our daily work and gives everyone his roll and his responsibilities – from the General Manager to the superiors and the operators at the machine.

Main pillars of the system are the UPM Safety Standards, the superior's safety walks which ensure the proper ways of working and the employee's safety observations. Especially the latter are important – on one hand to review rules and facilities for safe working, on the other hand to derive preventive measures against accidents, just as by the analyses of accidents or near misses. In 2019 more than 900 such observations were made.

2019 we look back on the third year in a row without any occupational accidents causing time off longer than 24 hours. This is a big success which was acknowledged by UPM with the "Best Improver in Safety Award".

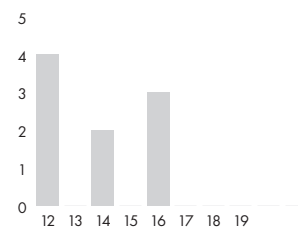
We think it is important to support our employees in a healthy way of life. We do this in several ways ranging from fruit and water free of charge to vaccination offers and health events promoting disease prevention. 2019 there was a special focus on healthy leadership, in the scope of the UPM development programs for middle management as well as by inhouse workshops organized by the mill.

**Biofore Share & 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.



Accidents at work with 24 hours or more lost working time



EXPENSES FOR WORKPLACE HEALTH PROMOTION	EUR
Support sports club	14,435
Free Water supply	4,068
Shutdown beverages	3,007
Weekly fruit basket	6,255
Health Day	1,225
Company medical service	14,675
Summe	43,665



UPM Best Improver Safety Award for UPM Hürth, from left: Steve McNamara, Manager OHS UPM Communication Papers, Anu Ahola, Senior Vice President News & Retail, Armin Schmidt, General Manager UPM Hürth, Jussi Pesonen, CEO UPM, Merja Partio, Director OHS UPM.





Mechanic shopfloor employees and Dirk Lindemann, Manager HR (2nd from left) say hello to the 1st apprentice at UPM Hürth

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

### Promotion of young talents

2019 for the first time an apprentice has started his education at UPM Hürth. Due to the lean organization at the mill we cooperate with a service provider. The first year and a half the future mechatronic will learn the necessary basic skills in the provider's training workshop. Within

this time he will regularly spend some weeks at the mill for practical work. After passing his first exam he will work in the electrical and mechanical workshops until his graduation.

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 plant visit they have the opportunity to discuss all their questions with young engineers working at the mill.

In cooperation with the Koblenz University of Applied Sciences a bachelor thesis "Development of a Concept for Automated Lubrification" is done at the mill.



# Environmental parameters

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.

		2017	2018	2019
<b>Production capacity</b>		330,000 t	330,000 t	330,000 t
<b>Raw materials (and additives)</b>	Recovered paper Additives	See UPM Corporate Environmental and Societal Responsibility Statement for more information		
<b>Energy</b>	Fossil fuel Purchased power			
<b>Emission to air</b>	Carbon dioxide, CO <sub>2</sub> (fossil) <sup>1)</sup>	48,565 t	64,076 t	64,907 t
	Nitrogen oxide, NO <sub>x</sub>	30.6 t	39.5 t	31.6 t
	Sulphur dioxide, SO <sub>2</sub>	15.2 t	15.7 t	19.75 t
	Particulate	1.7 t	1.5 t	1.52 t
	Carbon monoxide, CO	2.6 t	2.4 t	2.2 t
<b>Water intake</b>	Process water	2,175,767 m <sup>3</sup>	2,212,554 m <sup>3</sup>	2,099,624 m <sup>3</sup>
<b>Discharges to water</b>	Effluent volume	1,752,655 m <sup>3</sup>	1,771,730 m <sup>3</sup>	1,772,152 m <sup>3</sup>
	COD	1,882 t	1,953 t	1,696 t
	Phosphorus	1.046 t	1.173 t	1.488 t
	AOX	0.603 t	0.417 t	0.328 t
<b>Non-hazardous waste</b>	Waste to recycling, energy recovery and/or composting <sup>2)</sup>		6,429 t	4,857 t
	– White Pulp		99,982 t	97,633 t
	– Sludges		6,092 t	6,046 t
	– De-inking residues, not fibrous		36 t	39 t
	– Bark and wood waste		347 t	328 t
	– Metals			
	Waste to incineration without energy recovery			
	– Domestic waste		36 t	38 t
	– Others		167 t	132 t
<b>Hazardous waste</b>		27.1 t	31 t <sup>3)</sup>	37.3 t <sup>3)</sup>
<b>Size of mill area</b>	Total area	12.75 ha	12.75 ha	12.75 ha
	sealed area, incl. buildings and roofs			8.45 ha
	nature oriented area on site			4.3 ha

<sup>1)</sup> Values for carbon dioxide resulting from heat consumption. For information about electrical power see UPM Corporate Environmental Statement.

<sup>2)</sup> Reporting of waste data was changed in 2018.

<sup>3)</sup> Bone dry tons



# Performance against targets in 2019

TARGET	ACHIEVEMENT	COMMENTS
Power Consumption $\leq 0.830$ MWh/t	No	Consumption 2019: 0.834 MWh/t. Due to many market-related shutdowns in the 2nd half of the year, which result in power usage without paper production, specific numbers could not be decreased. Total specific energy is on target.
Steam Consumption: $\leq 0.7558$ MWh/t	Yes	Consumption 2019: 0.748 MWh/t
Water consumption: $\leq 7.2$ m <sup>3</sup> /t	Yes	Target reached
Clean Run Kat. $\geq 3 = 0$	Yes	
Optimization of web moistening	Yes	The project was implemented, resulting in a saving of about 30,000 m <sup>3</sup> desalted water and 1,047 MWh steam p.a.
Rebuilding of final stage prescreening	Partly	The 1st step of the project, a new rotor in prescreening, was implemented, resulting in the expected yield increase. The 2nd step had to be postponed because sludge thickening did not work properly due to lack of fibres.

## Targets for 2020

TARGET	DEADLINE	RESPONSIBLE
Preparation and integration of project "Green Steam Hürth"	31.12.2021	Energy Manager
Power consumption $\leq 0.8275$ MWh/t	31.12.2020	Energy Manager
Steam consumption: $\leq 0.7531$ MWh/t	31.12.2020	Energy Manager
Water consumption: $\leq 7.2$ m <sup>3</sup> /t	31.12.2020	Manager Technology, Quality & Environment
Clean Run Cat. $\geq 3 = 0$	31.12.2020	Manager Technology, Quality & Environment



### 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 2019 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 as amended by Commission Regulation (EU) 2017/1505 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 2019 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 updated Environmental Statement 2019.

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, May 7, 2020

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](http://www.upm.com)

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