

UPM Nordland Papier

ENVIRONMENTAL AND SOCIETAL RESPONSIBILITY 2022



UPM Nordland Papier

UPM Nordland Papier is located in the Emsland town of Dörpen/Lower Saxony. Founded in 1967, the paper mill ranks today among the biggest fine paper producers worldwide.

UPM Nordland Papier produces woodfree graphic writing and printing papers – so-called fine papers – on three paper machines and two coating machines. Additionally, one paper machine was converted to specialty papers. The mill's main raw material for papermaking is chemical pulp. Calcium carbonate is used as a filler. Coated paper grades additionally contain kaolin as a pigment.

The wastewater generated from the production processes is cleaned in the mill's own effluent treatment plant before it is discharged into the Ems river. Fresh water is drawn from deep wells, paying attention to sustainable groundwater regeneration. All of the electricity required by the mill is purchased from the public grid. Part of the steam required for paper drying is generated by combustion of natural gas in the mill's own combined heat and power plant.

In 2022 a new combined heat and power plant was put into service. The highly efficient gas-fired 80 MW power plant improves UPM's environmental performance and covers the mill's heat demand while enabling active participation in the increasingly volatile German electricity market.



Production capacity	Up to 1.170 million tonnes/annum			
Personnel	Approx. 1,265 (total headcount including apprentices) as at 31.12.2022			
Products	Fine Papers: UPM Fine UPM Preprint UPM Office UPM Label	UPM Finesse UPM Digi UPM Poste UPM PrePersonal UPM Office Recycled plus UPM Office Recycled premium	Specialty papers: UPM Brilliant TM UPM Brilliant TM Forte UPM Honey TM Plus UPM Honey TM Plus Forte UPM Golden TM UPM Golden TM Forte UPM Solide TM Strong UPM Asendo Pro UPM Unique	
Certificates	UPM Unique EMAS – EU Eco-Management and Audit Scheme ISO 14001 – Environmental Management System ISO 9001 – Quality Management System ISO 50001 – Energy Management System ISO 45001 – Occupational Health and Safety System PEFC Chain-of-Custody – Programme for the Endorsement of Forest Certification FSC® Chain-of-Custody – Forest Stewardship Council ISO 22000 – Food Safety Management System Standard (parts of the mill) All certificates can be found from UPM's Certificate Finder (available at www.upm.com/responsibility)			
Environmental labels	EU Ecolabel for copying and graphic paper Blue Angel for UPM Office Recycled plus			



UPM Nordland Papier Environmental and Societal Responsibility 2022 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 2022. 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 2024.

UPM delivers renewable and responsible solutions and innovates for a future beyond fossils across six business areas: UPM Fibres, 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 17,200 people worldwide and our annual sales are approximately EUR 11.7 billion. Our shares are listed on Nasdaa Helsinki Ltd. UPM Biofore - Beyond fossils. www.upm.com



The mark of responsible forestry

For more information about FSC certification visit fsc.org



For more information about PEFC certification visit pefc.org





www.blauer-engel.de/uz14



ENVIRONMENTAL PERFORMANCE IN 2022

The year 2022 was marked by the construction and commissioning of our new power plant. Since the third quarter of 2022, this highly efficient gas-fired power plant with an output of 80 MW has been producing steam and electricity by means of heat and power co-generation, enabling us to actively participate in the German electricity market and improve our overall CO₂ balance.

Saving energy wherever possible

Our active energy management under ISO 50001 brought about many improvements also last year. For example, in order to reduce our gas consumption, a new nozzle technology was installed on coater no. 2. This resulted in less air circulation and heating as well as a lower fan speed. The heat recovery unit of the PM2 exhaust tower was modified to include another heat exchanger. The result of these measures will be evaluated in 2023. Furthermore, a frequency converter for a fan and a more energy-efficient motor were installed on the PM4. In the converting and laboratory areas, the existing lighting was replaced with LED lighting. Also in converting, sealing work was done on the loading gates, significantly reducing the influx of outside air. Furthermore, the gate controls in different hall areas were synchronised.

Sustainable operations

Important activities at our mill in this respect include the sustainable sourcing of pulp, the continuous improvement of resource efficiency, an open mind for new technologies, particularly in the environmental field, and taking responsibility for our workforce, the local communities and our stakeholders. In this way, economy, environmental protection and social cohesion go hand in hand. In 2022, the Sustainability Team founded in 2021 carried out many activities, which were

mainly intended to increase the focus on sustainability within the company. The team aims to jointly initiate projects that reflect our vision: making paper in a way that demonstrates appreciation, creates added value and leads the way into the future. Concrete sustainability actions in 2022 included the creation of a flower meadow, walks to promote order and cleanliness on the premises, the preparation of two investment applications aimed at material circularity and the replacement, for certain paper grades, of PE-coated ream wrapping by our new product UPM Confideo.

Clean Run campaign

In 2022 too, a strong focus was on the Clean Run campaign, aimed at environmentally friendly production without environmentally relevant incidents. In a Group-wide database, employees can record deviations according to predefined categories, from 0 (not significant) to 5 (serious environmental damage). There were mainly minor observations, which demonstrates the employees' awareness of environmental safety is-

sues. For the less serious categories (0–2), a root cause analysis is carried out regularly in order to be able to specifically eliminate the most common Clean Run problems. Unfortunately, there were two category 3 incidents in the effluent plant. In the first case, a technical failure led to an increase in wastewater volume and effluent load discharged into the Ems. In the second case, the discharged wastewater was too turbid due to fluctuating water volumes from production in combination with difficult-to-degrade substances. In both cases, the problems were only temporary.

Good measuring systems for better results

Our mill's size and the large number of consumers require accurate measurements in order for us to further reduce our consumption. In order to leverage additional potential for reducing our water consumption, we focused on our fresh water use in 2022 and installed many new measuring devices, which, once fully integrated into the process control and MOPS systems at the begin-



Klaus Reimann, General Manager



Barbara T. Köster, Manager Environmental Affairs ning of 2023, will enable us to draw up comprehensive balances for all consumers. This will provide the basis for further optimisations.

Reusing water wherever possible Since the beginning of 2022, the permeate produced in the process water recovery system of the effluent treatment plant has been used to treat water for the converting plant. In this way, we save salt and backwash water. Also, part of the permeate is used directly on the PM2. On the PM4, we reused the circuit water of the vacuum pump surface compressors in the paper machine's circuit water system, reducing the wastewater volume by the corresponding amount. Additionally, the cooling water of the PM4 and PM2 vacuum pumps can be saved.

Waste

For fibre and paper sludge, which constitute our largest fraction of waste, we have developed a viable concept to reuse it as a raw material in the paper industry. Further trials and an investment proposal are currently underway.

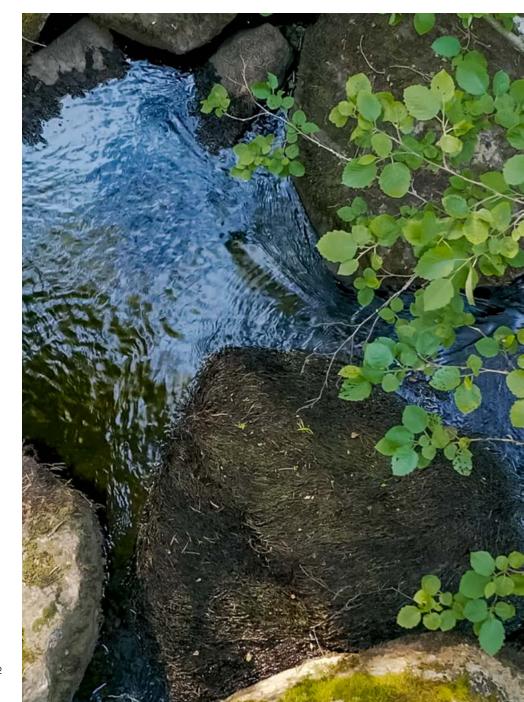
Many activities took place regarding the packaging of our papers. We use shrink covers with a recycled content of at least 30%. Also, the strapping of our cut size paper cartons is mostly made from recycled materials. To reduce the use of PE plastic, we agreed with all our customers that the ream wrapping for our cut size papers will in future be made using UPM Asendo as a base paper. The benefit of UPM Asendo is that the moisture barrier is already integrated into the paper, and that therefore no additional PE coating is required. Moreover, the PE content of our reel wrappers was reduced from 20 g/m^3 to 15 g/m^3 . Since April of 2022, the PET strapping from certain suppliers is collected in plastic bins, to be forwarded to a recycling company and shredded. The resulting granule can then be used a as a new raw material, e.g. for park benches.

Mobility

As regards mobility, in addition to the bike leasing scheme in place for many years, we purchased electric or hybrid vehicles, both for the mill fire brigade and our vehicle fleet. Business travel, which had been nearly completely cancelled during the Covid pandemic, continued to be critically reviewed for necessity in 2022. Many meetings are held online in Teams, reducing a large amount of CO₂ emissions caused by business trips.

Third-party audits

UPM Nordland Papier's environment-friendly business practices are based on UPM Communication Paper's environmental policies. Environmental concerns have always been deeply ingrained in our way of thinking and doing business. Certification to ISO 14001 and validation to the EU's Eco-Management and Audit Scheme (EMAS) in 1998 just provided the formal framework for this approach. In the course of the last years, we have broadened our certifications to include PEFC, FSC and the EU's environmental labelling scheme ("EU flower") and, in 2012, ISO 50001. These successful measures strengthened our resolve to also in the future have our environmental performance third-party-audited.



UPM Nordland Papier

Contribution to UN Sustainable Development Goals in 2022



Water

AOX concentration reduced by

65%

from 2013

BOD, load reduced by

81%

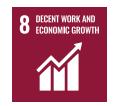
from 2013



Waste

Recovery rate:

>99%



Health

Number of times employees who made use of our healthcare offerings in 2022:

2,658



Energy

Specific energy demand Comm Papers (power and heat in relation to winder net value) reduced by

12%

in 2022 from 2021



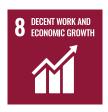
Certified fibres

100%

from controlled sources of which

90%

certified under PEFC/FSC (sustainable forestry)



Workforce

>2,710

training days for our employees in 2022

Water



Waste



In 2022 the effluent treatment plant ran, for the most part, stably, the average annual outflow concentration being much lower than the statutory requirements.

However, due to the monitored values for COD and phosphate being exceeded, there were, unfortunately, two Clean Run Category 3 incidents. The causes were thoroughly investigated and measures to avoid re-occurrence agreed with the responsible authorities.

Despite effective water saving measures, the specific wastewater volume increased slightly in 2022. Also, there was a slight rise in the COD and BOD_5 values, which was mainly due to the stepped-up production of speciality papers.

Effluent treatment at UPM Nordland Papier

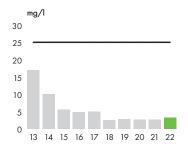
The site carries out primary sedimentation, biological treatment and secondary sedimentation of its effluents. The amount of waste in 2022 was slightly smaller than in 2021.

Fibre and paper sludge constitute the largest waste fraction at UPM Nordland Papier. During the year, the investigations into options for recovering biological and fibre sludge separately, carried out in 2020 and 2021, were continued. In order to use this waste fraction as a raw material for papermaking in the future, a concrete investment proposal was prepared which will be submitted for approval in 2023.

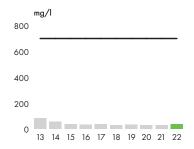
The waste recovery rate in 2022 was in excess of 99%, remaining at the customary high level.

All waste is forwarded to certified waste management companies for disposal and the generation of "hazardous" waste is avoided wherever possible.

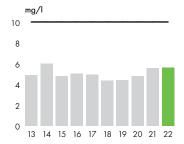
Biological oxygen demand, BOD,



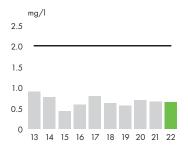
Chemical oxygen demand, COD



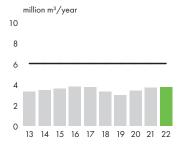
Nitrogen (inorganic), N



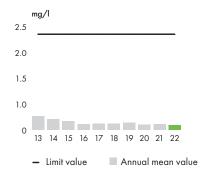
Phosphorus



Effluent volume



Adsorbable organic halogen compounds, AOX









In 2022 the new co-generation plant was commissioned. At full-load operation, around half of the steam required for production is generated in the power plant. The remainder still comes from the existing gas-fired boilers.

As UPM Nordland Papier uses pure, low-sulphur natural gas, it is not necessary to measure the concentration of sulphur in the exhaust air. In addition, the sulphur content and the lower calorific value of the natural gas were

checked every six months since the commissioning of the power plant, and the result was submitted to the factory inspectorate.

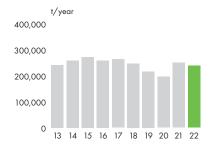
The NO_{χ} emissions from our site in absolute terms in 2022 also include the NO_{χ} emissions from power generation in the new plant. Owing to the increased demand for gas due to the additional power generation, NO_{χ} emissions have increased from the previous year.

The graph CO₂ shows the Scope 1 emissions (excluding power generation), which have slightly decreased in comparison with 2021.

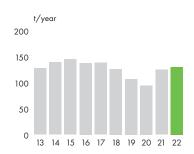
	Limit value (mg/m³)			Mean values measured (mg/m³)					
	Boilers 1–7	Power plant	Boiler 1	Boiler 3	Boiler 4	Boiler 5	Boiler 6	Boiler 7	Power plant
СО	50	*	0.9	out of	0.50	1.32	3.20	3.23	60.75
NO _x	100	*	81	service	76	88	89	89	28

^{*}As for NO_{x} the limit values for CO are set separately for the power plant, for the gas turbine and for the auxiliary firing. They are calculated from this as a moving average depending on the current rated thermal input. In 2022, there were no exceedances in this regard.

Fossil carbon dioxide, CO₂



Nitrogen oxide, NO_x



Organisational structure and emergency organisation

As required by law, appointed officers advise the mill management and the specialist departments in the areas of water protection, waste, hazardous goods, radiation, fire and laser protection and data security. In addition to the operators in charge of the plants, there are designated individuals in charge of the operational implementation. This also includes requirements regarding

immission control, hazardous waste and the industrial safety ordinance.

In addition, there are designated representatives responsible for the integrated management system (quality, environment, energy and occupational safety).

Relevant organisational charts are available and up to date.

Emergency organisation

Comprehensive emergency plans have been defined for emergencies of all kinds, such as fire, industrial accidents and environmental incidents. The mill fire brigade's emergency manual contains instructions for alerting and detailed procedures for emergencies and catastrophes. Follow-up is provided in accordance UPMs "One Safety" tool.

Societal responsibility

At our site, we take social responsibility based on the three pillars of sustainability: ecological, societal and economical responsibility.

The Sustainability Team established in 2021 has given a lot of thought to these topics. Our vision as a company is to act in a way that creates and conserves value and leads the way into the future.

Societal responsibility

We have summarized our many activities in the field of societal responsibility in 2022 in a flyer titled "More than just paper. See for yourself". We have set out clearly and simply the offerings, activities and campaigns for all our employees under individual headings from workplace and pension provision through to health management and events. Occupational safety and health management go hand in hand.

Of course, societal responsibility does not end at the mill gate. We take part in campaigns, such as the cycling campaign initiated by the Klimabündnis (Climate Alliance), we cooperate actively and maintain an open dialogue with various stakeholders in the local communities and get involved in youth work.

As a company providing vocational training in eight different professions, we responsibly promote the next generation and give young people a chance on the labour market.

Ecological responsibility

Ecological responsibility means biodiversity, closing water and material loops, and saving energy and water. For UPM as a forest company, biodiversity is an essential concern. Employees at the Dörpen site have made contributions to biodiversity, both on the mill premises and through a large number of private projects. For example, the Sustainability Team created a flower meadow. Employees built insect hotels and nesting boxes and we arranged for the borders of the car park to be planted in biodiversity-promoting way.

Closed loops can be achieved for many resources. We have already set out our numerous projects to further close the circuit water and material loops under the heading "Environmental performance in 2022."

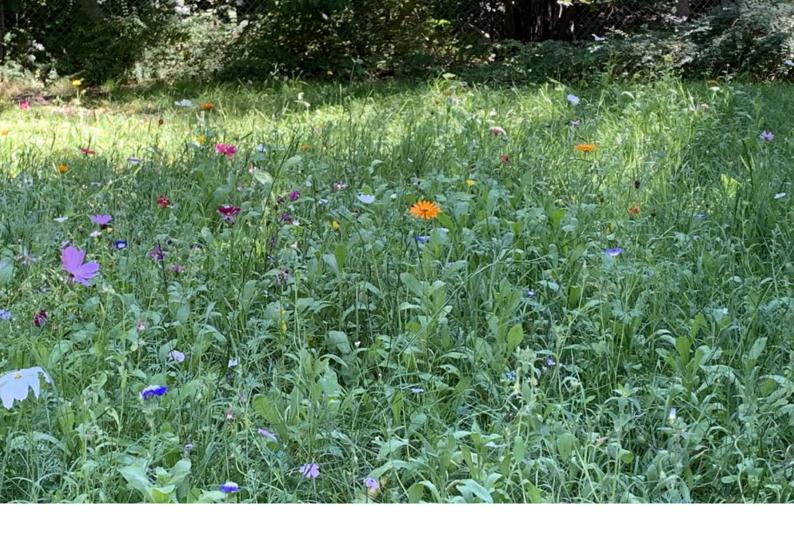
UPM's aim is to develop innovative products without fossil raw materials. At UPM Nordland we are proud of our significant contribution to the development of the UPM Confideo and UPM Confideo Plus barrier papers. These products, successfully launched in 2002, are made in Dörpen and provide an alternative to traditional food packaging papers.

The gas-fired power station commissioned in 2022 does not only increase our independence from the public grid, but also enables significant CO_2 savings in comparison with the separate purchase of power.









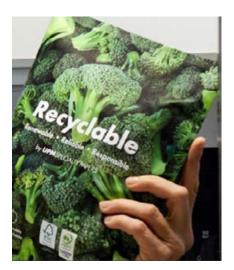
In order to make our actions to promote sustainability, and thus societal responsibility, as effective as possible, we work closely with our suppliers. Only in this way can we ensure that they understand and meet all of our requirements on sustainability and responsibility. UPM requires its suppliers to apply the principles of the UPM Supplier and Third Party Code which defines the minimum level of performance in the areas of environmental impacts, human rights, labour practices, health and safety at work, product safety and corruption and bribery. We monitor the environmental and social performance of our suppliers by regular data collection and analysis. Based on the risk assessments we conduct every year, we decide which suppliers should be subjected to closer scrutiny. In case of non-conformities, the supplier has to take corrective action. We closely monitor the outcome of these measures and are happy to make our expertise available to our suppliers to help them improve their performance.

Economical sustainability

For us, being economically sustainable means to be both market-compliant and profitable with our products. On the one hand, this is the basis that enables us to innovate towards ecological sustaina-



bility. On the other hand, however, we also consider precisely these innovations essential in order to remain market-compliant and profitable in the future. In our daily work, we strive to combine these two aspects of sustainability with our measures for societal responsibility in order to fulfill our corporate responsibility to society both now and in the future.



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.

		2020	2021	2022
Production capacity	Paper	Up to 1,075,000 t	Up to 1,170,000 t	Up to 1,170,000 t
Raw materials and additives	Chemical pulp Pigments Process chemicals Consumables	See UPM Corporate Environmental and Societal Responsibility Statement for more information		
Energy	Fossil fuels Purchased power	See UPM Corporate Environmental and Societal Responsibility Statement for more information		
Airborne emissions	Carbon dioxide (fossil), CO ₂ (direct, Scope 1)** Carbon dioxide (fossil), CO ₂ (indirect, Scope 2)** Nitrogen oxide, NO _X	195,931 t 373,380t 94.42 t	249,300 t 290,086 t 124.72 t	237,898 t 272,075 t 130.23 t
Water intake	Process and cooling water	4,740,707 m ³	5,402,546 m ³	5,261,883 m ³
Discharges to water	Effluent volume Chemical oxygen demand, COD Biological oxygen demand, BOD ₅ Phosphorus, P Nitrogen, N (inorganic) Total nitrogen bound, TN _b Adsorbable organic halogens, AOX	3,392,600 m ³ 92 t 9 t 2.3 t 16 t	3,670,061 m ³ 103 t 10 t 2.4 t 20 t 26.7 t 0.5 t	3,743,804 m ³ 134.8 t 12 t 2.4 t 21 t 27 t 0.5 t
Waste	Total waste volume (excluding hazardous waste) of which - Fibre and paper sludge (wet) - Secondary sludge (wet) - Wood - Metal - Paper, cardboard, pins - Power station construction waste - Waste for disposal (wet) - Other waste Hazardous waste of which amount for disposal: Recovery ratio (in relation total waste volume)	28,601 t 19,633 t 0 t 122 t 1,522 t 2,992 t* 3,552 t 780 t 377 t* 321 t 98.1%	23,360 t 17,876 t 0 t 149 t 1,535 t 2,678 t 444 t 148 t 531 t 152 t 120 t 98.9%	22,774 t 17,602 t 472 t 114 t 1,438 t 2,540 t 8 t 35 t 565 t 139 t 100 t 99.4%
Size of mill area	Total use of land Sealed surface Semi-natural areas Greened roofs	60 ha 28 ha 32 ha 1.35 ha	60 ha 28 ha 32 ha 1.35 ha	60 ha 28 ha 32 ha 1.35 ha

Due to the conversion of paper machine 2 and the changeover to a new paper grade, these figures are higher compared to previous years. The power generated in the combined heat and power plant is fed into the public grid. The mill covers its power demand from the public grid. The amount of Scope 1 CO_2 emissions reported here for UPM Nordland does not include emissions from the power fed into the public grid.



Performance against targets in 2022

TARGETS	ACHIEVEMENT	COMMENTS
Water Implement water savings per line/department as per project list	Yes	Measures to reduce fresh water use implemented on all lines.
		Total savings of about 200,000 m³/year.
2 Environmental incidents		
– No Clean Run Category 3–5 incidents	No	Two category 3 incidents in the effluent treatment plant
3 Implementation of energy saving measures		
 Replace fluorencent and halogen lamps in Converting 3/4/6 by LED lamps 	Yes	– 267 MWh/year saved
 Potential power saving of 118 MWh/a 		
 Newly adjust OptiDry System of PM1 Potential gas saving of 2% related to OptiDry 	Partly	 Investigations completed, implementation of measures underway
 Install new energy-optimised nozzle system in gas drying section of SM2 to save 14,800 MWh/a of heating energy 	Nearly	– 14,562 MWh/a saved
4 Measures to achieve UPM sustainability goals 2030		
Replace traditional chemicals by products from recycled sources		
- Test recycled nitrogen in effluent treatment plant	No	Target to be continued in 2023 according to market
– Test recycled phosphorus in effluent treatment plant	No	availability
5 Raw material savings in the paper loop		
 Prepare investment proposal for inhouse reuse of small diameter rolls and paper in sheets 	Yes	Investment proposal prepared
6 Waste		
 Implement separation of biological and fibre sludge in effluent treatment plant and identify more sustainable recovery options 	Partly	Recovery options identified, investment application prepared

Targets for 2023

TARGETS	DEADLINE	DEPARTMENT RESPONSIBLE
1 Water– Implement water savings per line/department as in 2022	31.12.2023	Production/AR
2 Environmental incidents - No Clean Run Category 3–5 incidents	31.12.2023	All departments
3 Implementation of energy saving measures - Feed the residual partial flow of IR heat back into the heat recovery system of PM2 - Recommission the white water heat exchanger of PM1 and evaluate potential energy savings - Pig raw water pipeline (east) to reduce the required pump power → Expected specific energy savings by the raw water pumps: 13% - Submit investment application for a "TurnDry" nozzle upgrade on PM4. Savings potential approx. 2500 MWh (assuming 330 production days)	31.12.2023	Production and converting
4 Measures to achieve UPM sustainability goals 2030 Replace traditional chemicals by products from recycled sources - Test recycled nitrogen in effluent treatment plant - Test recycled phosphorus in effluent treatment plant	31.12.2023	Production
5 Raw material savings in the paper loop - Prepare investment proposal for inhouse reuse of small diameter reels and paper in sheets	31.12.2023	Production
6 Waste - Submit investment proposal for separation of biological and fibre sludge in the effluent treatment plant	05/2023	Production



Environmental verifier's declaration on verification and revalidation activities

Environmental verifier Wolfgang Wielpütz (DE-V-0046), acting for TÜV NORD CERT Umweltgutachter GmbH, licensed for the scope NACE Code 17.12 (papermaking), declares to have verified whether the site Nordland Papie GmbH, in D-26892, Dörpen, Nordlandallee 1, as indicated in the updated UPM Corporate Environmental and Societal Responsibility Statement 2022 of the mentioned site (registration no. FI-000058), meets all requirements of Regulation (EC) No 1221/2009 of the European Parliament and of the Cou of 25 November 2009 as amended by Regulation (EU) 2017/1505 and Regulation (EU) 2018/2026 of the comission 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 2022 of Nordland Papier GmbH, reflect a reliable, credible and correct image of all the activities of Nordland Papier GmbH, within the scope mentioned in the updated Environmental Statement 2022.

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, 30.08.2023 Wolfgang Wielpütz Umweltgutachter

TÜV NORD CERT Prüf- und Umweltgutachtergesellschaft mbH



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