

UPM Rauma

ENVIRONMENTAL AND SOCIAL RESPONSIBILITY 2021



UPM Rauma

UPM Communication Papers Oy's Rauma mill is located by the sea on the west coast of Finland, near Rauma's city centre. Metsä Fibre Oy's pulp mill, Forchem Oy's tall oil distillation plant and Rauman Biovoima Oy are also based at the same mill site. UPM Communication Papers Oy supplies raw and chemically purified water to the site, and is responsible for the joint treatment of the wastewater of industry and the city. The companies collaborate closely in energy production, and Rauman Biovoima supplies the city of Rauma's required district heating power. The operations of Rauman Biovoima and the Rauma paper mill support the city's Hinku project as a carbon-neutral municipality.

UPM Kymmene Oyj changed its corporate structure in the summer of 2016. Except for RaumaCell, the Rauma mill is part of UPM Communication Papers Oy, which is one of the subsidiaries of UPM Kymmene Oyj. RaumaCell continues to be part of UPM Kymmene Oyj.

Currently, the Rauma mill has two paper machine lines, a fluff pulp department, a twin-line debarking plant, two TMP plants, a water plant, a biological effluent purification plant and a disposal site for industrial waste.

The paper machines produce coated LWC papers used in magazines. The end uses of the paper made in Rauma are in magazines, sales catalogues and various kinds of print advertising products. In addition, RaumaCell produces fluff pulp as a raw material for hygiene and table-setting products.

Also located at UPM Communication Papers Oy's mill site is Rauman Biovoima Oy, which procures most of its usage, maintenance and environmental services from UPM Communication Papers Oy. Approximately 87% of the energy produced by Rauman Biovoima Oy for UPM is produced using renewable fuels. As the power plant is a separate company, its operations have only been included in this annual report with regard to vicarious liability.



Production capacity	665,000 tonnes of paper 100,000 tonnes of fluff pulp			
<u> </u>				
Personnel	395			
Products	Coated magazine paper:			
	UPM Star, UPM Ultra, UPM Cote, UPM Valor, UPM Cote Silk,			
	UPM Ultra Matt, UPM Star Silk			
Certificates	EMAS (EU Eco-Management and Audit Scheme)			
	ISO 14001 – Environmental Management System			
	ISO 9001 – Quality 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			
	All certificates can be found from UPM's Certificate Finder (available at www.upm.com/responsibility)			
Environmental labels	EU Ecolabel			



UPM Rauma Environmental and Societal Responsibility 2021 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 2021. 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 2023.

UPM delivers renewable and responsible solutions and innovate 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 17,000 people worldwide and our annual sales are approximately EUR 9.8 billion. Our shares are listed on Nasdag Helsinki Ltd. UPM Biofore - Beyond fossils. www.upm.com





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visit fsc.org



Review of the year 2021

Compared to 2020, the year of operation of the paper mill and wastewater plant in 2021 was clearly different from 2020 in a positive sense. 2020 was overshadowed by industrial action and market-disturbing production cuts due to the coronavirus. In 2021, a normal situation in terms of production was reached. The constant presence of the coronavirus was reflected in substantial coronavirus adjustments at the factory, including masking protocols, telecommuting and home testing recommendations - but the threats posed by the coronavirus did not materialise. During 2021, there were mainly normal maintenance and servicing shutdowns. The wastewater plant remained well within the normal operating window. As the number of paper machine downtimes was lower than in 2020, solid waste and specific water consumption also decreased compared to 2020.

We have developed our operations in accordance with UPM's 2030 targets. In 2021, measures to reduce environmental impacts continued. The lye and peroxide doses in the peroxide bleaching process of both paper machines were optimised to reduce the chemical oxygen demand (COD) load. Similarly, in the production of CTMP, chemical optimisation measures were taken to reduce wood dissolution and thereby reduce the COD load. Process modifications were made at PK1, as a result of which the bleaching of the CTMP pulp can now be done in a single step, resulting in less COD dissolution from the wood. In mechanical pulp production, refining plate development was also continued to achieve energy savings. In 2020, an investment was made in the second peroxide bleaching line, which allows the use of magnesium hydroxide in peroxide bleaching as a partial replacement for lye, resulting in a reduction in the amount of COD discharged to the wastewater treatment plant. Now in 2021, the dosage of magnesium hydroxide will be optimised to suit the different paper grades in order to obtain the environmental benefits of this investment.

Active preventative safety work with regard to environmental matters continued in 2021. Personnel have been encouraged to make observations related to environmental matters and notifications of deviations. According to the personnel safety objectives, at least one notification per year should be related to the environment. During 2021, 2 Cat 3 moderate environmental deviations and 5 Cat 2 minor environmental deviations with no environmental impact were recorded.

In the first Cat 3 (moderate environmental impact) case, there was a major power failure at the plant site during the Midsummer season. Backup power to the wastewater plant was restored within 4 minutes, but as a result of the power failure, the inverter of the pump regulating the pump tank failed, which allowed partially treated wastewater to enter the sea for about 75 min. Due to the downtime at the paper mill, wastewater flows were lower than normal, causing the remaining pumps' controls to not work optimally and to stop. As a corrective measure, the control circuits are adjusted. The discharge was small and did not result in an exceedance of the permissible limits. In the second Cat 3 case, the daily CO permissible value for Rauma Biovoima Oy's HK5 was exceeded due to a blockage in the fuel supply. Diesel was used as a back-up fuel, which temporarily caused higher than normal emissions when the boiler was at low load. Although Rauma Biovoima Oy is a separate legal entity, these permissible overruns are also recorded in UPM's systems when Biovoima supplies energy to the paper mill. As a corrective measure, the fuel supply control circuits are adjusted.

There were a total of 5 Cat 2 incidents with minor environmental impact. In the first case, the hydraulic hose fitting on the backhoe loader broke and oil leaked onto the floor of the recycled fuel depot. The oil was absorbed into the absorption medium and then removed. In another case, oil leaked from a rented excavator, which was also being returned, into a storage yard. The oil was soaked up and the leak remedied. In a third case, a leaking valve on paper machine 4 caused pigment to enter the sewer leading to the wastewater treatment plant. In the fourth case, bleach (sodium silicate solution) was slowly leaking into the sewer leading to the wastewater treatment plant due to an open valve. The leak was reported to the wastewater plant operator and the pH raised by sodium silicate was neutralised with sulphuric acid. In the fifth case, one of the three electric motors in the wastewater plant's primary clarifier went to ground and stopped pumping, causing the level in the pumping tank to rise to the upper limit. Part of the water was diverted to a reservoir and the pulp and paper mill was asked to reduce the amount of wastewater as much as possible. The situation returned to normal when the broken pump was repaired.



Jari Mäki-Petäys

Jari Mäki-Petäys Mill Manager



Pasi Varjonen,

Pasi Varjonen, Safety and Environmental Manager

In 2021, noise prevention work mainly focused on preventive maintenance. There were no external reports on noise/vibration. The noise model for the factory site has been updated to reflect the situation after the closure of PK2 and the mills in 2020. Based on the results, noise caused by the forest industry facilities is below permitted limits.

Waste

Construction continued at the Sampaanalanlahti site. The mass stabilisation work ended in early 2020. The materials needed for the construction of the superstructures on top of the mass storage are currently being collected. The environmental permit for the development of Sampaanalanlahti is valid until the end of 2028. In 2021, a new environmental permit was obtained to build a storage field on the undeveloped area of Sampaanalanlahti, although the permit was appealed to the Vaasa Administrative Court.

There were no significant changes in the treatment of waste in 2021, compared to 2020. Since 2017, mill waste has not been deposited in the Suiklansuo landfill, although in the permit sense, the Suiklansuo landfill is still in use. At the time of this report, there are no plans to dispose of more waste at the Suiklansuo landfill in the future.

Certificates

The paper mill has shifted to a so-called multisite model (ISO certificates, ETJ+) as far as the quality management system's certification is concerned, which covers all paper mills in Finland. Both internal and external audits are integral parts of the Multisite model. Internal audits are conducted by auditors from other units, which also gives us a solid perspective on the development of operations. Kiwa Inspecta is responsible for the external audits.

Environmental permit situation

The current legally valid environmental permit for the co-purification plant is the environmental permit issued by the Southern Finland Regional State Administrative Agencies on 08/05/2018, to which the Supreme Administrative Court added the obligation to clarify in its decision of 11/11/2021. The study must consider the conditions at the treatment plant to achieve good treatment performance at all permit values in the new permit.

On 07/12/2016, the Southern Finland Regional State Administrative Agency granted the current permit for the paper mill, which was amended by the Vaasa Administrative Court in its decision of 20/09/2018.

UPM Rauma Contribution to UN Sustainable Development Goals in 2021



6 CLEAN WATER AND SANITATION

Supply chain

99.9%

of raw materials spend qualified against UPM Supplier and Third Party Code (wood not included)



Taxes

Mill's tax impact approx.

EUR **20** million

Real estate tax EUR 0,3 million Estimate of tax on salaries EUR 4,0 million

Estimate of corporate income tax EUR 15,5 million based on the number of employees*

* Approximately 30% of corporate income tax goes to municipalities, which is split between each municipality according to their share of business activities and forests operations.



Percentage of recycled nutrients of the effluent purification plant's additional nutrients

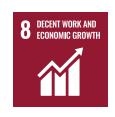
98.2%





Share of biomass-based fuels in the plant



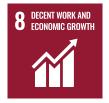


DECENT WORK AND

8 DECENT WORKS

Health





Consumption impact

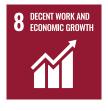
Mill's consumption impact in region approx.

EUR **20** million

in Finland approx.*

EUR **38** million

*Generated through the private consumption of commodities from internal and indirect employees' net wages.



Safety



Safety and environmental observations, hazard situation reports, safety inspections and discussions logged by the personnel at UPM Rauma.



Waste

Reused ash



Employment Mill employed

> 402 people

Indirect employment effect in region

428 persons

Summer workers and trainees

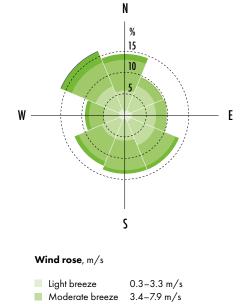
persons



Sulphur emissions, nitrous oxide emissions and CO_2 emissions in 2021 increased slightly compared to 2020.

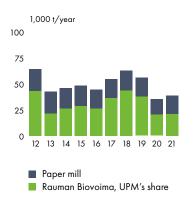
The increased emissions to air are due to the higher amount of energy purchased from Rauma Biovoima due to the higher paper production volume in 2020. Renewable fuels were the source of 76% of all of UPM Rauma's CO₂ emissions.

The air-quality measurement point nearest to the Rauma mill is located in Sinisaari, approximately 0.5 kilometres (towards the city) from the mill. The wind rose shows the direction that the wind comes from. The wind rose data applies to 2021 from the Kylmäpihlaja monitoring station.



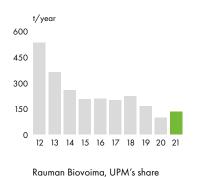
Moderate breeze	3.4-7.9 m/s		
Fresh breeze	8.0-13.8 m/s		
Strong gale	13.9-20.7 m/s		
Storm	20.8-32.6 m/s		
Hurricane	32.7-40.0 m/s		

Source Finnish Meteorological Institute, Wind rose in Kylmäpihlajassa. Wind direction and speed for the measurement period 1.1.–31/12/2021.

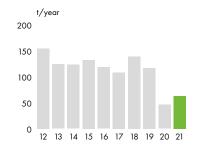


Fossil carbon dioxide, CO

Nitrogen oxides, NO_x



Sulphur dioxide, SO₂



Rauman Biovoima, UPM's share



Ash from the power plant was reused in the construction at the Sampaanalanlahti site, as in previous years. The rest of the generated waste was mill waste, recycled fibre, metal and hazardous waste, and combustible waste.

All solid waste is reused either as materials or energy. The ash is produced at the Rauma Biovoima power plant and all the ash produced was used as building material in the construction of the Sampaanalanlahti site. The aim is to continue utilising ash and other recycling materials from the lumber industry in 2022. Possible options include the surface structures of the landfills and construction of storage fields. New utilisation possibilities in earthmoving are also being investigated. Ash will be used to replace other construction materials, such as cement.

The use of the Suiklansuo landfill area already ended in 2017. The last deposits to the site before it was closed down were soda sediment from Metsä Fibre Oy and mill waste from UPM.



** calculated as dry weight





An operational committee made up of representatives from UPM Communication Papers Oy, Metsä Fibre Oy and the city of Rauma is in charge of developing the joint purification and directing its success. The responsibility for wastewater treatment remains with UPM Communication Papers Oy.

The wastewater treatment results were at the normal and good level. In 2021, there were 1 exceedance of the permissible limit.

The annual total discharges were in compliance with the best available technical requirement level, BAT. The wastewater effluent load from the lumber industry and joint purification is now so low that the state of the water system can no longer be significantly improved by making treatment more efficient.

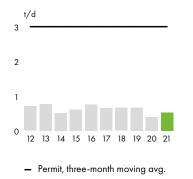


Source: Lounais-Suomen vesi- ja ympäristötutkimus Oy

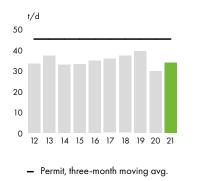


The general usability of the Rauma sea area in 2021. The classification is based on the phosphorus and chlorophyll content in the production layer, and the amount of E. coli bacteria in the surface layer between June and September. The classification was determined based on the lowest quantity compared with the highest.

Biological oxygen demand, BOD,



Chemical oxygen demand, COD_{cr}

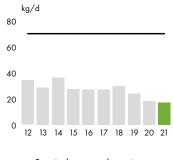


Solid load into the sea

t/c

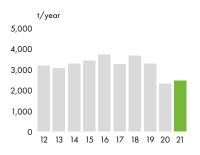
3

Phosphorus, P

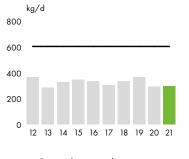


Permit, three-month moving avg.

COD load into the sea, UPM's share



Nitrogen, N



- Permit, three-month moving avg.

Management of crises and exceptional situations

Prevention of exceptional situations and management of crises at the Rauma mill is the responsibility of the mill management and the safety and environmental organisation, as well as the fire-fighting and mill protection organisation. Both guidelines for exceptional situations and rescue and fire extinguishing plans have been made for the Rauma mill.

A crisis management group has been established for the management of exceptional situations, which is responsible for the operative management of exceptional situations. The crisis management group is led by the mill manager and he has two deputies. In addition, members have been appointed to the crisis management group from different parts of the mill organisation.

An exceptional situation refers to an unforeseen chain of events that has a powerful impact on the functions of the organisation and escalates quickly. Exceptional situations include serious accidents (large fires, explosions and chemical and traffic accidents on the mill site), environmental damage, serious work-related injuries, cyber security threats and information attacks. The operations of the mill safety organisation cover expert duties in occupational safety, mill guarding, firefighting and rescue operations, and the control of hazardous substances. Drills related to exceptional situations are an important part of preventative safety work. Firefighting and rescue operations are always led by the rescue authorities.

Social responsibility

Interaction with stakeholders that works well is a key factor in the success of UPM. We are committed to promoting the vitality of the communities near our facilities through active collaboration and open dialogue with different stakeholders, as well as through different sponsorship projects and employee volunteering.

We create economic well-being as a company. We affect local communities and societies in various ways. Understanding the impact that we have is an essential component of our business success. In many locations, we are a significant employer, taxpayer and partner to local entrepreneurs, making positive contributions to the local economy. The employment impact of UPM Communication Papers Oy in the Rauma area is significant and, in terms of figures, the indirect employment impact of the mill is 428 persons. We apply several precautionary measures to mitigate and remedy potential adverse environmental and social impacts on our surrounding communities.

The tax revenue generated by UPM's operations has a significant social impact. We pay corporate income taxes in the countries where we create added value and generate profits resulting from that. Due to our corporate and operational structure, we mainly report and pay corporate income taxes in the countries of production and in the countries where innovations are being developed. In addition to the income taxes that we pay, our various production inputs and outputs are also subject to taxation. Taxes are paid in accordance with the local tax decrees and regulations.

In 2021, UPM's corporate income taxes paid and property taxes were approximately 306 million euros in total (178 million euros in 2020).

The operations of our mills also support local communities in many ways. The property taxes paid and the municipal share of corporate income taxes support the local economy. In addition, the municipal taxes and social security contributions that the employees pay from their wages have a significant local impact. Furthermore, the purchasing power of UPM's employees and subcontractors maintains and enhances the vitality of local communities.

We support sustainable development and promote the financial and mental wellbeing of the communities around us by participating in numerous community projects as a company. Our work in this arena is clearly connected to our Biofore Strategy and responsibility targets. It is coordinated under the umbrella of our Biofore Share and Care programme.

The Biofore Share and Care programme comprises three forms of support: sponsorships, donations and employee volunteering. The support can be a monetary contribution, products, materials or concrete work in projects agreed on locally. The Rauma mill has supported local sports clubs financially. Local sponsorship projects comprise target-oriented, long-term involvement in the communities where UPM operates.

Our focus is on activities and projects that are related to our business, support innovation and sustainable development, or promote local vitality and well-being. The four areas of focus of the Biofore Share and Care programme are reading and learning, engaging with communities, responsible water use and boosting bioinnovations.

We procure responsibly

UPM is committed to responsible procurement practices throughout the





procurement chain. We work closely with our suppliers to ensure that they understand and meet all of the company's requirements for sustainable development and responsibility.

We require all suppliers to comply with the UPM Supplier and Third Party Code, which specifies the minimum requirements for responsibility relating to environmental impacts, human rights, labour practices, occupational health and safety, product safety and bribery.

UPM's aim is that by 2030 100% of the value of raw material procurements and 80% of the value of all procurements come from suppliers who have committed to UPM's Code. In 2021, 96% of the value of raw material purchases came from such suppliers.

Suppliers' environmental and social performance is tracked through regular data collection and analysis. Based on the annual risk assessments, we select the suppliers whose performance we want to study more closely. If any non-conformity is found, the supplier is obligated to take corrective actions. We actively keep track of the results of these actions and support our suppliers with our know-how so that they can enhance their performance.

We want to be the industry leader in safety

Our goal in UPM is to be the industry leader in health and safety. Our target is to avoid serious and fatal accidents completely. Safety is an inseparable part of our daily activities and is not seen as secondary to anything else. We strive to reduce and prevent accidents through continuous improvements and effective risk management.

We require our employees, as well as business partners and their employees, to adhere to safe work practices and the rules and standards that we have established.

Before access to UPM's production sites, contractors participate in UPM safety training, which presents the basic safety requirements. This is complemented by job-specific safety induction and a work permit.

Ware are committed to the surrounding society

The Rauma mill operates closely with society. UPM Communication Papers Oy supplies the raw water for the city and forest industry. The wastewater co-treatment plant simultaneously purifies the wastewaters of both the forest industry and the community. The operations started in 2002, and the results have been completely positive. The Rauma production facility of the meat company HKScan became operational at the end of 2017, and since then, its wastewater has also been purified at the joint purification plant.

Rauman Biovoima provides the paper mill with all of the process steam needed and, in practice, all of the district heating power used by the city of Rauma. Of the fuel used to produce energy, 86% is biomass-based.

Deepening work on the southern Rauma channel started in 2016. The work included dredging, spoil depositing and safety device alteration work related to the channel markings. This project is the Finnish Transport Agency's first sea-way project where all of the clean dredge spoils were deposited in a dredge-spoil basin built in connection with the project. Contaminated soils were deposited in a separate dredge-spoil basin in Sampaanalanlahti, an area owned by UPM Communication Papers Oy, where they were stabilised to form part of the field base.

The total wood use of the mill was around 950,000 cubic metres in 2021, the majority of which comes from the vicinity.

Our preventative safety work is active

With regard to occupational safety, seven minor lost-time accidents happened to UPM personnel at the mill site in 2021. We have carried out preemptive safety measures systematically despite the pandemic. The personnel made a total of 1,033 safety observations and hazardous situation notifications. In addition, there were 673 safety discussions and inspections. The personnel were active on a wide front. In 2021, training had to be significantly reduced due to the coronavirus pandemic.

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.

		2019	2020	2021
Production capacity	Paper	935,000 t	665,000 t	665,000 t
	Rauma Cell	100,000 t	100,000 t	100,000 t
Raw materials	Pulp and chemicals	See UPM Corporate Environmental and Societal Responsibili Statement for more information		
Energy	Biomass-based fuels	88%	86%	87%
	Fossil fuels	12%	14%	14%
	Purchased electricity (UPM) ¹⁾			
Emissions to air	Particulates	6 t	3 t	3 t
	Sulphur dioxide, SO ₂	117 t	46 t	63 t
	Nitrogen oxides, NO	172 t	98 t	142 t
	Fossil, CO ₂	55,687 t	35,079 t	38,692 t
Water intake	Process and cooling water	13,752,283 m ³	8,107,382 m ³	9,875,690 m ³
Discharges to water	Clean cooling water and rainwater in the area	247,363 m ³	116,514m ³	84,025 m ³
	Process effluent	12,947,778 m ³	9,268,682m ³	9,115,062 m ³
	Biological oxygen demand, BOD ₇	91 t	42 t	52 t
	Chemical oxygen demand, COD	3,256 t	2,286 t	2,447 t
	Solids	233 t	96 t	100 t
	Phosphorus, P	3.2 t	2.0t	1.7t
	Nitrogen, N	48 t	31 t	29 t
Waste ²⁾	Landfill waste	O t	0 t	O t
	Recovered waste			
	– Ash	14,275 t	9,641 t	11,782 t
	– metal	694 t	483t	445t
	– Energy waste	572 t	393 t	574 t
	– Recycled fibre etc.	689 t	343 t	369 t
	– Others	50 t	76 t	64 t
Hazardous waste		64 t	14 t	44 t
Land use		216 ha	153 ha	153 ha
	Area impermeable to water		127 ha	127 ha
	Area directed towards nature conservation		26 ha	26 ha
	Area directed towards nature conservation outside		90 ha	90 ha
	the place of business			

¹⁾ See UPM Corporate Environmental and Social Responsibility Statement for more information (e.g. energy indicators)

²⁾ Dry weight



Performance against targets in 2021

TARGET	ACHIEVEMENT	COMMENTS	
Preventing environmental deviations and achieving the Clean Run objectives by ensuring the undisrupted operation of the wastewater plant	No	2 exceedances of a permissible limit	
Paper machine solids loss to the purification plant less than 1.45% of production	Partially	Actual outturn 1.89%. A clear improvement compared to the 2020 coronavirus year	
Paper machine water consumption less than 11.7 m ³ /t	Partially	A clear improvement compared to the 2020 coronavirus year	
Further improvement of energy efficiency by identifying and implementing energy-saving measures	Partially	Implementation of energy saving projects	
Ash re-use rate 100%	Yes	Replacing cement with ash reduces the amount of CO ₂ that is created in the production of cement	

Targets for 2022

TARGET

Preventing environmental deviations and achieving the Clean Run objectives by ensuring the undisrupted operation of the wastewater plant by, amongst other things, ensuring aeration capacity in stoppage situations.

Reducing water consumption and solids loss by implementing changes to water connections on the paper machines

– water consumption less than $11.5 \text{ m}^3/\text{t}$

- solids loss to the purification plant less than 1.5% of production

Further improvement of energy efficiency by identifying and implementing energy-saving measures.

100% reuse of ash by using ash in the construction of the storage area.



Validation Statement

As accredited environmental verifier (FI-V-0001), Inspecta Sertificinti Oy has examined the environmental management system and the information of UPM Rauma Environmental and Societal Responsibility 2021 report and of UPM Corporate Environmental and Societal Responsibility Statement 2021.

On the basis of this examination, the environmental verifier has herewith confirmed on 2022-04-06 that the environmental management system, this UPM Rauma Environmental and Societal Responsibility report and the information concerning UPM Rauma of UPM Corporate Environmental and Societal Responsibility Statement are in compliance with the requirements of the EMAS Regulation (EC) No 1221/2009.

UPM Communication Papers Oy Rauma

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